

Original citation:

Vandenbrouke, Elien, Knockaert, Mirjam and Ucbasaran, Deniz. (2017) The relationship between top management team – outside board conflict and outside board service involvement in high-tech start-ups. *Journal of Small Business Management*.

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*The Relationship between Top Management Team – Outside Board
Conflict and Outside Board Service Involvement in High-Tech Start-ups*

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Accepted for publication in the *Journal of Small Business Management*

The Relationship between Top Management Team – Outside Board Conflict and Outside Board Service Involvement in High-Tech Start-ups

Abstract

Corporate governance research has extensively studied the relationship between outside board characteristics and outside board involvement. We add to this literature by investigating the extent to which interactions between outside board members and the top management team (TMT) affect the functioning of the outside board. Building on conflict theory, our study shows how conflict between TMT and outside board is an important antecedent for outside board service involvement. Specifically, drawing from a hand-collected dataset of 70 high-tech start-ups in Belgium, we find that TMT – outside board task conflict is both directly and indirectly, i.e. through TMT – outside board relationship conflict, related to outside board service involvement.

Introduction

The importance of good corporate governance for organizational development has prompted many researchers to study the functioning of the outside board (e.g. Johnson, Daily, and Ellstrand 1996; Uhlener, Wright, and Huse 2007). Outside boards comprise individuals who are not part of the TMT, its associates or families, not employees of the firm or its subsidiaries, and not members of the immediate past top management group (Pearce, and Zahra 1991). The TMT (Top Management Team) comprises all top managers involved in strategic decision making as identified by the CEO (Amason 1996). Generally, prior corporate governance research has mainly considered the effects of outside board structure, composition

and demographics on outside board involvement, while neglecting the potential influence of outside board dynamics (Daily, Dalton, and Cannella 2003; Finkelstein, and Mooney 2003; Huse 2005; Huse 2007; Leblanc, and Schwartz 2007). Outside boards are however expected to operate as active teams (Letendre 2004). In these teams, among other factors, such as board competencies and capabilities (Lin, Li, and Chen 2006; Walsh, and Linton 2011), (inter)personal relationships can shape decision-making (Payne, Benson, and Finegold 1999), subsequent outside board participation (Neill, and Dulewicz 2010) and the functioning of the outside board (Kor 2006). Indeed, Pettigrew (1992) argued that research on boards should be integrated with studies on the TMT. Along the same lines, Finkelstein and Hambrick (1996) referred to outside boards as “supra TMTs” standing at the strategic apex of a firm (Mintzberg 1973). Building on research suggesting that TMTs and outside boards should not be viewed as separate units (Krishnan et al. 2011; Nielsen 2010; Vanaelst, et al. 2006; Westphal, and Zajac 2013), our research explores the interpersonal dynamics *between* the TMT and the outside board.

Studies on outside boards have largely focused on their *monitoring* function (John and Senbet 1998; Markman, Balkin, and Schjoerdt 2001; Van de Berghe, and Baelden 2005). Board members engage in this function as they typically have the required human capital to do so (Bettis, and Prahalad 1995; Hillman, and Dalziel 2003). We extend this contention to the board service role. This is particularly relevant as, in contrast to the monitoring role, the outside boards’ *service* involvement has received less attention (van den Heuvel, Van Gils, and Voordeckers, 2006). Through service involvement, outside boards can not only provide advice but also help build external legitimacy and new contacts for the firm (Hillman, and Dalziel 2003; Pfeffer 1972). Through their involvement in such service tasks, the outside board can improve the firm’s decision-making process (Donaldson, and Davis 1991; Stiles, and Taylor 2001) as well as enhance the relationship between the firm and its environment

and its most important stakeholders (Zahra, and Pearce 1989). Therefore, given that the outside board is more than a controlling entity, our research seeks to provide greater insight into outside board service involvement by considering the interaction and dynamics between the TMT and outside board.

We focus in particular on the impact of different types of conflict between the TMT and outside board on outside board service involvement. While most studies have investigated intragroup conflict (Jehn, and Bendersky 2003), to our knowledge, no research has addressed conflict between different decision-making bodies. A notable exception is the study by Collewaert (2012), examining conflict between entrepreneurs and angel investors. Our focus on conflict is justified by the complexity of decision-making outside boards are faced with, which requires them to bring into play various standpoints and perspectives (Forbes, and Milliken 1999). Given that the TMT and outside board are expected to work together to achieve firm success (Finkelstein, and Hambrick 1996), conflicts will be inevitable. A large body of research has examined the impact of conflict on group performance, with a consensus emerging that *task* conflict can be linked to improved decision-making (Amason, and Sapienza 1997; Jehn, and Mannix 2001) whilst pointing to the negative effects of *relationship* conflict (Jehn 1997; Simons, and Peterson 2000). Task conflict refers to differences of opinion about the content of the task, whereas relationship conflict occurs when decision-makers disagree on issues that are personal and reflect resentment (Jehn 1997; De Dreu, and Weingart 2003). However, despite this theoretical consensus, empirical support still remains inconsistent (De Dreu, and Weingart 2003; de Wit, Greer, and Jehn 2012; O'Neill, Allen, and Hastings 2013), which may, in part, be attributed to methodological issues (Amason, and Loughry 2014) and / or inadequate theorizing about the relationship between the different types of conflict. We suggest that task conflict positively affects group performance, but that this effect on performance may be weakened due to the effect of task conflict on relationship

conflict. As such, by investigating the mediating role of relationship conflict, we provide a more fine-grained understanding into the underlying dynamics of the task conflict – outside board service involvement relationship.

Based on the above discussion, our research question can be presented as follows: How and to what extent do task and relationship conflict between the TMT and the outside board influence outside board service involvement? To address this research question, we focus on high-tech start-ups. This context is theoretically interesting and relevant for a number of reasons. First, high-tech ventures are faced with a number of dependencies due to the liabilities of newness and smallness (Stinchcombe 1965; see also Forbes, and Milliken 1999; Garg 2013; Knockaert, and Ucbasaran 2013; Lynall, Golden, and Hillman 2003; Zahra, and Pearce 1989). The effects of these dependencies are often accentuated by the gaps in the knowledge base of their TMTs who often have homogenous backgrounds (Ensley, and Hmieleski 2005; Han, and Benson 2010). In order to overcome these dependencies, the engagement of the outside board in its service tasks is crucial (Zahra, Filatotchev, and Wright 2009). Second, high tech ventures operate in dynamic and uncertain competitive environments requiring constant innovation (George, et al. 2001). The heightened need for creative problem solving and innovation in high-tech ventures makes external sources of knowledge (Dees, and Hill 1996) and task conflict (Amason, Shrader, and Tompson 2006; Olson, Parayitam, and Bao 2007) particularly important. Experienced outside board members can be an asset to the new venture (Kroll, Walters, and Le 2007) by bringing new perspectives and in doing so, generating task conflict (Amason, and Sapienza 1997).

In high-tech ventures, therefore, outside boards are unlikely to act solely to rubber stamp decisions made by the TMT (Lorsch, and MacIver, 1989; Knockaert, Bjornali, and Erikson 2015), but instead engage actively in the service tasks outlined above. While much of the extant research in the context of high-tech start-ups has focused on TMT and/or board

demographics, for instance by emphasizing the need to incorporate people with a commercial and technical background (Prahalad, and Hamel 1990; Knockaert et al. 2011; Vandenbroucke et al. 2014) we still lack an understanding of how interpersonal relationships shape the functioning of high-tech start-up boards. These reasons make the high-tech start-up context particularly appropriate for our research objective.

We seek to make a number of contributions to the corporate governance, entrepreneurship and conflict literatures. First, we respond to recent studies calling for a move beyond board demographics to examine *what* drives outside board involvement (Huse 2007; Pugliese, Nicholson, and Bezemer 2015; Zona, and Zattoni 2007). In our case, we focus on how the relationship between TMTs and outside boards shapes outside board engagement. Furthermore, by studying the service tasks of the outside board, which have remained fairly neglected (van den Heuvel, Van Gils, and Voordeckers 2006) in the high-tech start-up context, we contribute not only to the corporate governance literature but also the entrepreneurship literature. Indeed, notwithstanding the importance of the TMT as a key decision making body, entrepreneurship scholars have mostly studied TMTs at the expense of another potentially important decision-making body, namely, the outside board. Finally, we enrich knowledge about conflict by clarifying the association between task and relationship conflict and their direct and indirect effect on group involvement. We see this as an important contribution to the conflict literature. Further, while both types of conflict have mainly been studied in an *intragroup* setting (De Dreu, and Weingart 2003), our research shows that it is beneficial to investigate conflict in an *intergroup* context, i.e. between organizational decision-making groups, in our case the TMT and the outside board.

In what follows, we first build on conflict theory to develop our conceptual framework explaining the relationship between TMT – outside board task conflict and outside board

service involvement. We then describe our research methodology. Finally, we present our results and discuss their implications for academia and practice.

Conceptual Framework

Beyond the TMT, the outside board is often considered an important decision-making body in a firm (Daily, et al. 2002). Further, at least in theory, the TMT and outside board should collaborate in order to realize the firm's full potential (Anderson, Melanson, and Maly 2007; Finkelstein, and Hambrick 1996; Nielsen 2010; Nicholson, and Kiel 2004). Given that interactions between both parties are necessary to exchange information, we argue that task-related discussions between TMT and outside board are required in order for the outside board to get involved in its service-related activities. Since the outside board and the TMT may voice different perspectives (Wu et al. 2010), task conflict (i.e. content-related differences in opinion about the content of the task (Jehn 1997)) are inevitable (Amason 1996). Task conflict stimulates both parties to explore new ideas and opportunities, enabling them to consider a broader range of viewpoints, options and issues (Ensley, Pearson, and Amason 2002). Latimer (1998) for example, argued that TMT members can better pinpoint problem-solving strategies when they get exposed to others' standpoints. Task conflict can therefore serve as a resource (Miller, Burke, and Glick 1998) for both the TMT and the outside board, making it worthwhile to investigate conflict *between* both parties, rather than looking at the impact of conflict within the TMT (e.g. Eisenhardt, Kahwajy, and Bourgeois 1997; Lim, Busenitz, and Chidambaram 2012) or the board (e.g. Forbes, Korsgaard, and Sapienza 2010; Kerwin, Doherty, and Harman 2011) separately.

Conflict is generally accepted to be multidimensional (Amason 1996; Jehn 1994; Pondy 1969). One such dimension beyond task conflict is relationship conflict, i.e. conflict related to personal and emotional disagreement (Jehn 1997). Although theoretical work treats task conflict as beneficial for and relationship conflict as detrimental to group performance (Jehn

1995), empirical studies have so far remained inconsistent (Amason, and Loughry 2014). One explanation for this inconsistency may be because the impact of task conflict on group performance is more complicated than initially thought given its connection with relationship conflict (Simons, and Peterson 2000). Therefore, in what follows, we elaborate on this connection by considering the impact of both task conflict and relationship conflict on group performance, in our case, outside board service involvement.

TMT – Outside Board Task Conflict and Outside Board Service Involvement

Task conflict occurs when disagreements exist about the content of the task being performed, including differences in viewpoints, ideas and opinions (Jehn 1995). Whether or not task conflict is beneficial depends on the group being investigated and the task being performed (Jehn 1995). In groups where tasks are routine-based and specific procedures and formalized policies are in place, task conflict tends to be less valuable (Olson, Parayitam, and Bao 2007). In more complex environments however, such as executive or directorial teams, there are few procedures at hand and uncertainty is likely to occur, which increases the need for a problem-solving mindset (Van de Ven, Delbecq, and Koenig 1976). In decision-making groups performing non-routine, complicated and multifaceted tasks - often the case in high-tech start-ups - task conflict can be highly beneficial. In such complex contexts, task conflict facilitates information exchange (Amason 1996), thereby fostering the development of new insights and enhancing group understanding (Amason 1996; Korsgaard, Schweiger, and Sapienza 1995). As a result, task conflict leads to decision-making groups becoming more engaged (De Dreu, and West 2001), allowing the members to more thoroughly consider alternatives in reaching high-quality decisions (Jehn, Northcraft, and Neale 1999; O'Neill, Allen, and Hastings 2013; Schweiger, Sandberg, and Ragan 1986). These effects of task conflict can increase group performance (Jehn, and Mannix 2001). Tjosvold, Dann and Wong

(1992) for example, showed that task conflict enabled marketing teams to use their resources more effectively to offer improved services to their customers.

Following the reasoning above, we contend that conflict between two of the firm's important decision-making bodies (i.e. the board and the TMT) (Daily, et al. 2002) may influence the outside board involvement in its service role. The outside board can use discussions and constructive task disagreements with the TMT to get acquainted with and to fully comprehend firm-specific situations (Castanias, and Helfat 2001; Johnson, Daily, and Ellstrand 1996). Indeed, to increase its task understanding, the outside board needs to draw on multiple perspectives (Amason, and Schweiger 1994; Pelled, Eisenhardt, and Xin 1999) to be able to fulfill service tasks such as providing good guidance and advice (Forbes, and Milliken 1999). Bayazit and Mannix (2003) for example, show that debate is inherently related to the outside board members' role of being a valuable advisor. Moreover, when open discussions with the TMT are encouraged, the outside board not only gets informed, but also becomes more committed (Olson, Parayitam, and Bao 2007). Such commitment enables the outside board members to better perform their service tasks (Conger, Lawler, and Finegold 2001). We argue therefore that outside boards will be better able to give advice and to generate external legitimacy when they can constructively discuss content-related issues with the TMT. The reasoning above leads us to offer the following hypothesis:

Hypothesis 1: TMT – outside board task conflict is positively related to outside board service involvement.

TMT – Outside Board Task Conflict: The More the Better?

Despite the expected positive influence of TMT – outside board task conflict on outside board service involvement, it is likely that there exists an optimal level of task conflict

(Boulding 1963; Jehn 1995; Miao et al. 2010) beyond which the participation of the outside board in its service tasks decreases. Jehn (1995) shows that too little task conflict causes members to ignore problems due to a lack of sense of urgency. As a result, decision-makers may pay insufficient attention to identifying and assessing the task problems at hand (Van de Vliert, and De Dreu 1994). Likewise, when excessive task conflict exists, severe and continuous discussions arise, resulting in a lack of consensus, which hinders effective decision-making (Gersick 1989). Trying to incorporate too many lines of thinking will make the outside board and the TMT lose sight as each party becomes increasingly unsatisfied with the lack of progress (Farh, Lee, and Farh 2010). If task conflict intensifies, members' cognitive systems shut down, which might hinder rather than stimulate information processing, resulting in decreased group performance (Carnevale, and Probst 1998). Too much task conflict is costly in time and effort as it constrains the integration and evaluation of valuable information (De Dreu 2006; Jehn 1995). We therefore hypothesize a non-linear relationship between task conflict among the TMT and the outside board and the latter's service involvement as follows:

Hypothesis 2: TMT – outside board task conflict has an inverted U-shaped relation with outside board service involvement, such that TMT – outside board task conflict first enhances outside board service involvement, but impedes such involvement after a certain level.

The Mediating Role of TMT – Outside Board Relationship Conflict

We posit that this task conflict also indirectly influences the engagement of the outside board in its service tasks through relationship conflict. Specifically, task conflict may lead to relationship conflict, or disagreements based on personal differences and disaffection that undermine constructive interactions by provoking feelings of resentment (Amason 1996;

Buchholtz, Amason, and Rutherford 2005). Group members might misinterpret cognitive opinions as personal criticism (Eisenhardt, and Bourgeois 1988; Jehn 1997) and as such might respond emotionally to cognitive discussions (Mooney, Holahan, and Amason 2007). Moreover, members whose ideas get criticized or contradicted, “may feel that others in the group do not respect their judgment” (Pelled, Eisenhardt, and Xin 1999, p.7). Therefore, although task and relationship conflict are separate constructs (Ensley, Pearson, and Amason 2002), both types of conflict are causally related, such that task conflict may spill over into relationship conflict (Amason, and Sapienza 1997; Simons, and Peterson 2000). Similarly, in a TMT – outside board context, task conflict between both parties can lead to TMT – outside board relationship conflict. Although outside board members see discussions as part of normal business (Mason, and Harrison 1996), they might have different understandings and priorities compared to the TMT. These differences can give rise to a feeling of value dissimilarity (Jehn 1994), which causes task-oriented conflict to be perceived as personal disaffection.

The potential effect of task conflict on relationship conflict has implications for group performance since relationship conflict can adversely affect group performance. The personal nature of relationship conflict can lead to feelings of anger, animosity and stress (Amason 1996; Pelled 1996). As a result, teams have been reported to experience decreased cohesion (De Dreu, and Weingart 2003), judgment (Carnevale and Probst 1998), satisfaction (Jehn 1994) and commitment (Amason 1996). Moreover, relationship conflict limits information processing as members spend time focusing on each other instead of dealing with task-related problems (Simons, and Peterson 2000). In turn, decision-quality and group performance are adversely affected (Amason 1996; De Dreu 2006). If the information processing between outside board and TMT is impeded due to a focus on emotional problems compared to task issues, outside board service involvement will inevitably be hindered. We therefore suggest

that task conflict between TMT and outside board will not only have directly (as hypothesized earlier) but also indirectly, i.e. through TMT – outside board relationship conflict, affect outside board service involvement.

Hypothesis 3: TMT – outside board relationship conflict mediates the relation between TMT – outside board task conflict and outside board service involvement. Specifically, higher levels of TMT – outside board task conflict lead to higher levels of TMT – outside board relationship conflict (H3a), in turn negatively affecting outside board service involvement (H3b).

Our theoretical model is summarized in Figure 1.

<<< Insert Figure 1 about here >>>

Methodology

Description of the Sample and Data

Our study is based upon a hand-collected dataset of high-tech start-ups in Belgium constructed during 2011-2014. We considered firms to be high-tech start-ups if they met certain criteria which we based on the literature on high-tech start-ups. Specifically, these firms were active in high-tech sectors (as defined by Butchart (1987) and complemented by Burgel, Fier, and Licht (2004), who added high tech service sectors to the original list of relevant NACE codes) and were operating independently (Burgel, Fier, and Licht 2004). Additionally, they were 10 years or younger (Burgel, and Murray 2000; Colombo, and Grilli 2010; Colombo, and Piva 2012), thus having been founded between 2001 and 2011. We selected

all firms meeting the above criteria in Belgium through Bel-First, the official public database which holds general, financial and board-related information on each Belgian corporation. This procedure resulted in a population of 195 firms¹. However, given our focus on the outside board and the TMT, we needed to take into consideration that, especially in a start-up context, not all firms have an outside board and TMT. First, given the scope of our study, a firm needed to have minimum of one outside board member, defined as an individual who is not part of the TMT, its associates or families, not an employee of the firm or its subsidiaries, and not a member of the immediate past top management group (Pearce, and Zahra 1991). Of the 195 firms, 55 did not have an outside board, reducing our sample to 140 firms. Second, following Amason (1996), a TMT consists of the group of top managers involved in strategic decision-making as identified by the CEO. 18 firms in our original sample did not have a TMT in place, as only one person (the CEO) engaged in strategic decision-making. This further decreased our sample to 122 qualifying firms. Finally, 70 of these 122 firms (57%) were willing to cooperate in our research. Given the early stage nature of the firms in our sample, only two firms were listed on the stock exchange. We performed structured face-to-face interviews with the firms' CEO during 2012-2014. Although time-consuming, this personal approach was required to retrieve often confidential and sensitive information, such as conflict-related data.

The firms in our sample of 70 firms (for which we present the descriptive statistics in Table 2) on average have 3.5 TMT members (standard deviation of 1.4). The average TMT has a total of 58 years of work experience, most of which is in R&D (25 years), followed by management (16 years). The TMT's cumulative sector experience is 37 years. The boards in our sample on average have 4 outside board members (standard deviation of 2). These outsiders are well-educated and experienced; the average outside board had 2 outside

¹ We would like to point out that other ways for identifying (Belgian) high tech start-ups are also possible (e.g. Knockaert, and Ucbasaran, 2013).

members with a technical degree (engineering, mathematics, etc.) and around 1.6 board members with a non-technical degree (economics, psychology, etc.). The average outside board had cumulatively 78 years of working experience, 34 years of which was in management, 18 years in R&D, 14 years in finance, 7 years in marketing and 5 years in other functions (production, personnel,...). On average 1.6 of these outside board members had current or prior CEO experience.

Our study focusses on TMT – outside board dynamics at the group level. Given that we primarily use the answers provided by the CEOs, we face the risk that their interpretation of TMT – outside board dynamics would differ from those of other TMT or outside board members. Nevertheless, this risk is lowered to a great extent since the interviewed CEOs specifically responded to questions related to the recent dynamics of a small group of people, about which they had extensive, first-hand knowledge (Chen, Fahr, and MacMillan 1993). Additionally, there is empirical evidence that group phenomena can be assessed in a reliable way by individual respondents (Atuahene-Gima, and Murray 2004; Westphal 1999). Furthermore, it is common for board studies to build upon responses from single respondents (Machold et al. 2011). Nonetheless, we deemed it necessary to also collect data from the other TMT and outside board members to assess the reliability and validity of the CEOs' answers. After obtaining their email addresses through the CEO, we asked the TMT and outside board members to complete an online survey. We received additional information for 29 of the 70 high-tech start-ups in our sample (41%). By using the Paired Samples T Test for those 29 firms, we found that the responses of the CEOs did not differ significantly from those of the TMT and outside board members ($p=.659$ and $.599$ for the task and relationship conflict scale, respectively). As such, these answers provided limited but convincing evidence that the CEO answers were representative and could be used in our analyses.

Measures

Dependent Variable. Outside board service involvement. We used Minichilli, Zattoni and Zona (2009)'s measure of service involvement. The items were as follows: "To what extent does the outside board (1) contribute on management issues (2) contribute on financial issues, (3) contribute on technical issues, (4) contribute on market issues, (5) contribute on legal issues and taxation, (6) provide linkage to important external stakeholders, (7) provide the firm with external legitimacy and reputation, (8) promote strategic initiatives, (9) get involved in long-term strategic decision-making and (10) implement long-term strategic decision-making?". Responses were recorded using a seven-point Likert scale, ranging from 1 (very small extent) to 7 (very large extent). The mean value was 4.12 and the Cronbach's Alpha coefficient for the summated scale was .79.

Independent and Mediator Variables. TMT – outside board task conflict was computed based on Pearson, Ensley, and Amason's (2002) revised version of Jehn's cognitive conflict scale (1995). The following questions were asked: "(1) How often do TMT and outside board members disagree about opinions regarding the work being done? (2) How frequently are there conflicts about the ideas outside board and TMT members have? (3) How much conflict about the work the outside board does is there between outside board and TMT members? (4) To which extent are there differences of opinion between outside board and TMT members?". Responses were recorded using a seven-point Likert scale, ranging from 1 (none) to 7 (a lot). Likewise, *TMT – outside board relationship conflict* was measured based upon the revised version of Jehn's affective conflict scale (1995) by Pearson, Ensley and Amason (2002). The following questions were posed: "(1) How much friction is there among outside board and TMT members? (2) How much are personality conflicts evident between outside board and TMT members? (3) How much tension is there among outside board and TMT members? (4)

How much emotional conflict is there among outside board and TMT members?”. Again, responses were recorded using a seven-point Likert scale, ranging from 1 (none) to 7 (a lot). The mean value for TMT – outside board task conflict was 3.05 and 2.78 for TMT – outside board relationship conflict. The Cronbach’s Alpha coefficients were .88 and .90 for the summated task and relationship conflict scales respectively, indicating excellent reliability.

In order to test the distinctiveness of our conflict scales, we performed a confirmatory factor analysis. We compared a two-factor model where the two latent variables were allowed to correlate, with a one-factor model where all eight items loaded on one latent variable. The results showed that the two-factor model (comparative fit index (CFI) = .98; root mean square of approximation (RMSEA) = .10 (confidence interval (CI): .027-.156); standardized root mean residual (SRMR) = .05) fits the data better than the one-factor model (CFI = .929; RMSEA = .18 (CI: .136-.233); SRMR = .075). This indicated that task and relationship conflict could be discriminated by respondents. Furthermore, our implementation of different measures for these types of conflict was inspired by theoretical arguments and supporting empirical evidence suggesting that task and relational conflict are distinct constructs and should be treated differently. This is for instance the case in the seminal and highly cited articles by Jehn (1995), Simons, and Peterson (2000), Pearson et al. (2002), and recent work by for instance O’Neill, Allen, and Hastings (2013).

Control variables. In addition to our hypothesized predictors, several other aspects may influence outside board service involvement. Therefore, we control for firm age, firm industry, frequency of board meetings, CEO duality, venture capital ownership and outsider/insider ratio.

In order to take into account age-related effects, we control for *firm age*, measured as the natural log of the number of years since the company's founding. The high-tech start-ups in our sample are on average 6.90 years old. *Firm industry* is assessed by introducing ICT industry and health and life sciences industry. These dummy variables become 1 if the company belongs to the corresponding industry category, and 0 otherwise. We control for firm industry based on institutional theory, signifying that organizational practices may be related to industry-specific norms (Eisenhardt 1988). Fifty two percent of our sampled firms belong to the ICT industry and twenty percent operate in the health and life sciences industry. The category "other industry" is used as the reference category. *Frequency of board meetings* is calculated as the yearly number of board meetings (Vafeas 1999). In order for outside boards to deliver firm-specific support, they need to get informed, which is made possible through frequently held board meetings. The firms in our sample on average hold 6.53 meetings a year. *CEO duality* is a dummy variable indicating whether the CEO of the firm is also the board chair. CEO duality is controlled for as a central CEO-chair may advance transparency, definitely in a vibrant high-tech setting (Gabrielsson 2007). Forty one percent of the firms in our sample reported CEO duality. *Venture capital ownership* equals 1 if the firm has raised venture capital (VC), 0 otherwise. Forty four percent of the firms in our sample are VC-backed, which is high but not surprising, as this type of financing is often seen as one of the most appropriate ways of funding high-tech start-ups (Gompers, and Lerner 2001). We control for VC financing as outside boards in VC-backed firms may be more actively involved in strategic decision-making, which is one of the service tasks (Gabrielsson, and Huse 2002). *Outsider/insider ratio* is the proportion of outsiders to insiders in the board room. The motivation to control for this variable is that boards with higher proportions of outsiders may have more weight attributed to the outsiders in board decision-making (Haynes, and

Hillman 2010). The boards in our sample on average have almost three times as many outsiders as insiders.

Results

Given our focus on the interaction between outside boards and TMTs, we test our hypotheses on only those early stage high-tech ventures with a TMT and at least one outside board member. Questions on the conflict between TMT and outside board are irrelevant if there is no TMT (e.g. if there is only the CEO on the top management) or if there is no outside board. Eliminating firms without a TMT and outside board however gives rise to a sample selection problem as we would then work with a non-random sub-sample from the larger population of interest. In order to address this selection problem, we use a Heckman two-stage selection model to assure that our results are not affected by such self-selection effect (Heckman 1979). Essentially, this Heckman selection model entails a two-stage procedure. In the first stage, or the selection equation (presented in Table 1), a probit regression is used to determine whether the firms in our population have an outside board and TMT. We defined this dummy variable to be a function of the venture's age, independence, industry, VC ownership and firm size (in terms of full time equivalents), which is largely in line with other selection models previously applied in board research (e.g. Knockaert, and Ucbasaran 2013).

<<< Insert Table 1 about here >>>

The results of the selection equation indicate that larger firms, as well as VC-backed firms are more likely to have both an outside board and TMT. These outcomes are not surprising, as larger firms need more structure and firm size is strongly associated with both TMT (Beckman, Burton, and O'Reilly 2007) and outside board (Zald 1969) size. Moreover, venture

capitalists typically require the establishment of an outside board and get a seat on the board following their investment (Gabrielsson, and Huse 2002; Gompers, and Lerner 2001).

Based upon the results of this first-stage model, we predicted and saved the value for the inverse Mill's ratio (λ_i), which is the monotone decreasing function of the probability that an observation is selected into our sample. In the second stage or regression equation, which estimates the outside board service involvement model (and which we use to test our hypotheses), the inverse Mill's ratio enters as an explanatory variable. This two-stage procedure generates consistent and asymptotically efficient estimates (Heckman 1979).

The descriptive statistics and correlations of all variables for those firms that have an outside board and a TMT are reported in Table 2.

<<< Insert Table 2 about here >>>

Next, our main hypotheses were tested using regression analysis (step 2 of the Heckman selection procedure). Variance inflation factors ranged between 1.055 and 2.161, indicating that multicollinearity is unlikely to be an issue in our study (Hair, et al. 2006). Additionally, we analyzed the nonlinear relationship between TMT – outside board task conflict and outside board service involvement and its mediating effect through TMT – outside board relationship conflict using the MEDCURVE macro for SPSS (Hayes, and Preacher 2010). This method provides bootstrap estimates with bias-corrected confidential intervals of the indirect effect. We particularly rely on this method as it allows us to specify the functional paths in the model and at the same time, it permits us to decompose the mediation model. As such, we set the relation between TMT – outside board task conflict and outside board service involvement as quadratic and indicate TMT – outside board relationship conflict as being the mediation variable.

Figure 2 illustrates our conceptual model in a path diagram. The first model, in Panel A, is used to test whether TMT – outside board task conflict is related to outside board service involvement (Hypotheses 1 and 2). Of interest in this model is the estimate and test of the significance of path c. The second and third model, in Panel B, are pertinent to the estimation of the indirect effect of TMT – outside board task conflict on outside board service involvement through TMT – outside board relationship conflict (Hypothesis 3), derived from paths a and b.

<<< Insert Figure 2 about here >>>

The results of these main analyses are presented in Table 3. First, the control model contains control variables only. We find that the ICT industry dummy variable is significantly negatively related to outside board service involvement ($B = -.660, p < .05$). As such, companies in this industry seem to have boards that engage in their service role to a lesser extent. Moreover, high-tech start-ups holding more frequent board meetings experience higher levels of outside board service involvement ($B = .110, p < .01$). Second, Model 1 reports the total effect (c in Panel A of Figure 2) and estimates whether TMT – outside board task conflict has a positive effect on outside board service involvement. We find a significant positive relationship between TMT – outside board task conflict and outside board service involvement ($B = .295, p < .01$), but no total quadratic effect, as the squared coefficient for task conflict is statistically insignificant. We therefore find **support** for **Hypothesis 1**, but **no support** for **Hypothesis 2**.

<<< Insert Table 3 about here >>>

Finally, Model 2 and 3 decompose Model 1, allowing us to estimate the presence and level of the direct (c' in Panel B of Figure 2) and indirect (a and b in Panel B of Figure 2) effect. We find a direct effect of TMT – outside board task conflict on outside board service involvement ($B=.755$, $p<.05$). This path is significantly mediated by the indirect effect of TMT – outside board relationship conflict (based on path a ($B=.756$, $p<.001$) and path b ($B=-.265$, $p<.05$), the indirect effect is significantly negative; 95% CI $[-.430; -.054]$). Hence, our results provide **support** for **Hypothesis 3**, including our sub-hypotheses H3a and H3b. It is worth noting that the frequency of board meetings is positively associated with outside board service involvement (total effect in Model 1). Further, while board meeting frequency does not play a significant role in the first part of the indirect relationship (Model 2), it is a significant element in the second part of that relationship (Model 3).

Discussion

This paper has sought to contribute to our understanding of how board interpersonal dynamics – in our case, task conflict between TMT and outside board - affect outside board service involvement. Research adopting a conflict perspective has typically investigated conflict in an intragroup context, while our study explored the interactions *between* outside boards and TMTs, given that both parties are important decision-making units in a firm (Pettigrew 1992).

Our analyses show that TMT – outside board task conflict does have a positive *overall* effect on outside board service involvement. Yet we also find relationship conflict between the TMT and the outside board to be an important mediator. Specifically, while there is a positive *direct* effect of TMT – outside board task conflict on outside board service involvement there is also a negative *indirect* effect through TMT – outside board relationship conflict. In other words, we find that task conflict does indeed increase outside board service involvement, but it also unintentionally triggers relationship conflict thereby weakening the

positive relationship between task conflict and board service involvement. Our findings may help explain the inconsistent findings reported by those studying task and relationship conflict in isolation (Mooney, Holahan and Amason 2007).

Implications For Academia

While our study indicates that not all high-tech start-ups have an outside board, we make a number of contributions to the corporate governance, entrepreneurship and conflict literatures. First, *corporate governance and entrepreneurship literatures* have primarily focused on the control tasks of the outside board (e.g. Baysinger, and Hoskisson 1990; Markman, Balkin, and Schjoerdt 2001). Yet, outside board service involvement is equally important, especially in early stage (high-tech) ventures, where advice and network access are crucial (Hillman, and Dalziel 2003; Huse 2007). As such, our study makes a contribution by highlighting conflict-related dynamics between the TMT and the outside board which affect outside board service involvement. Moreover, our study makes a contribution by integrating the TMT (often the focus in entrepreneurship studies), and the outside board (often the focus in the corporate governance literature). We therefore respond to several calls to study outside boards and TMTs together instead of considering them as standalone entities (Carpenter, Pollock, and Leary 2003; Nicholson, and Kiel 2004; Nielsen 2010). Finally, we show that it is worthwhile investigating the interpersonal relationships between the TMT and outside board, rather than merely looking at their demographics. We follow in Zona and Zattoni's (2007) footsteps who illustrate that corporate governance research needs to go beyond "the black box of demographics" when studying outside board service involvement. Second, by demonstrating the mediating effects of relationship conflict on the task conflict – outside board involvement relationship, we enrich the *conflict literature* by clarifying the complex relation between types of conflict and group performance.

Implications For Practitioners

Our study has implications for (high-tech) entrepreneurs, outside board members and their stakeholders. Given the importance of task conflict in reaching superior decision-making, discussions in the boardroom should be stimulated in order to share different perspectives. At the same time, our findings indicate that the outside board should attempt to minimize the adverse effects of relationship conflict which, unfortunately, can accompany task conflict. Decision-making groups must realize that they come together to share diverse perspectives and thus should not let personal issues or emotions interfere in that process (O'Neill, Allan, and Hastings 2013).

Limitations and Directions For Future Research

While our research has both theoretical and practical implications, it also has limitations which may lead to future research directions. First, our research design was cross-sectional. While in line with the majority of conflict studies, further research could adopt a longitudinal design to explore how different types of conflict develop over time as well as the short-term and long-term consequences of these different types of conflict on outside board service involvement and ultimately, firm performance. Second, we conducted this study in one country, which allowed us to gain access to the CEO through face-to-face interviews, helping us achieve a high response rate. On the downside, it is more difficult to generalize the results to other regions. Future studies could therefore examine to what extent our results hold in different contexts, where other regulations and norms related to board composition and functioning may apply. Third, while our results indicated that outside board service involvement declines when task conflict spills over into relationship conflict, follow-up studies could investigate mitigating mechanisms or procedures. For instance, it may be

relevant to explore which board (chair) characteristics, interaction and communication patterns could mitigate or avoid this effect from taking place. Finally, it is worth noting that just over a quarter of the population we studied did not have a TMT and / or outside board. We do not know to what extent this is an informed choice. Future studies might usefully explore (high-tech) start-ups' attitudes towards TMTs and outside boards.

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Table 1

Selection Equation

Selection Equation (Step 1) Outside Board and TMT 0/1	Unstandardized Coefficients
Firm age (ln)	.49
Firm independence	-.25
ICT industry	-.44 ⁺
VC ownership	.71*
Firm size: number of full time equivalents	.04**
Constant	-.08

*Significance levels: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$*

Table 2**Means, Standard Deviations and Correlations**

Variables	Mean	S.D.	Median	25th percen- tile	75th percen- tile	1	2	3	4	5	6	7	8	9	10
1.Firm age (ln)	1.83	0.48	1.89	1.61	2.28										
2.ICT industry ^a	0.52	0.50	1.00	0.00	1.00	-.04									
3.Health and life sciences industry ^a	0.20	0.41	0.00	0.00	0.00	-.17	-.53								
4.Frequency of board meetings	6.53	3.36	6.00	4.00	8.50	-.04	.03	-.01							
5.CEO duality ^a	0.41	0.49	0.00	0.00	1.00	.06	.19	-.20	-.01						
6.VC ownership ^a	0.44	0.50	0.00	0.00	1.00	-.09	-.14	.41	-.05	-.25					
7.Outsider/insider ratio	2.98	2.10	2.98	1.33	4.00	-.02	-.21	.37	.01	-.28	.39				
8.Mills ratio	0.59	0.38	0.50	0.24	0.82	-.14	.41	-.44	.03	.25	-.71	-.39			
9.TMT – outside board task conflict	3.05	1.32	2.75	2.00	4.00	.00	.08	-.13	-.06	.13	-.16	-.10	.22		
10.TMT – outside board relationship conflict	2.78	1.42	2.25	1.75	4.00	-.04	.03	.03	-.08	.13	-.15	-.06	.19	.71	
11.Outside board service involvement	4.02	1.10	4.20	3.40	4.80	-.07	-.27	.13	.34	-.02	-.13	.04	.01	.27	.01

Pearson correlation coefficients (1-tailed), indicating significant correlations ($p < .05$) in **bold**; $N=70$

^a Correlations of binary variables should be interpreted with care.

Table 3

OLS Regression Model With MEDCURVE (Standard Errors in Parentheses)

	<i>Control Model</i> Outside Board Service Involvement	<i>Model 1</i> Outside Board Service Involvement	<i>Model 2</i> TMT – Outside Board Relationship Conflict	<i>Model 3</i> Outside Board Service Involvement
Constant	3.909*** (.766)	2.923** (.869)	.263 (.952)	2.586* (.988)
Predictors				
TMT – outside board task conflict		.295** (.097)	a → .756*** (.099)	c' → .755* (.380)
TMT – outside board task conflict squared		-.058 (.056)		→ -.044 (.055)
TMT – outside board relationship conflict				b → -.265* (.114)
Controls				
Firm age (ln)	-.143 (.252)	-.126 (.266)	.029 (.291)	-.114 (.256)
ICT industry	-.660* (.280)	-.574 (.301)	.162 (.329)	-.533 (.291)
Health & life sciences industry	.078 (.364)	-.029 (.398)	.751 (.436)	.167 (.394)
Frequency of board meetings	.110** (.032)	.142*** (.035)	-.023 (.039)	.136*** (.034)
CEO duality	.093 (.237)	.116 (.269)	.094 (.294)	.136 (.260)
VC ownership	-.390 (.337)	-.293 (.339)	-.185 (.370)	-.334 (.328)
Outsider/insider ratio	.031 (.060)	.036 (.069)	-.003 (.075)	.033 (.066)
Mills ratio	.028 (.467)	-.287 (.493)	.239 (.540)	-.221 (.477)
Adjusted R ²	.145	.243	.456	.296
F-statistic	2.845**	3.220**	7.672***	3.633***

Significance levels: * $p < .05$, ** $p < .01$, *** $p < .001$; $N = 70$