Why diverse top management teams break up in post-acquisition periods

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This paper proposes an alternative rationale behind the turnover of target’s top managers in post-acquisition periods. Although human capital and acquisition implementation literature describe managerial retention as desirable, empirical studies have reported significant managerial turnover in acquisition of high-tech and knowledge intensive firms. Borrowing some insights from the team diversity literature, the paper examines the ex-ante diversity among top managers of knowledge-intensive and high-tech firms as an antecedent of managerial exodus in post-acquisition. We argue that diversity reduces the coordination efficiency necessary to transfer knowledge and facilitate post-acquisition organizational integration, and that managers belonging to such teams therefore are more likely to be replaced. Empirical analysis drawing on 2164 top managers in 297 Swedish firms shows that managerial position diversity as a separation, pay disparity and industrial tenure diversity as a variety indeed are associated with managerial exit in the period 2007-2009.

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This paper proposes an alternative rationale behind the turnover of target’s top managers in post-acquisition periods. Although human capital and acquisition implementation literature describe managerial retention as desirable, empirical studies have reported significant managerial turnover in acquisition of high-tech and knowledge intensive firms. Borrowing some insights from the team diversity literature, the paper examines the ex-ante diversity among top managers of knowledge-intensive and high-tech firms as an antecedent of managerial exodus in post-acquisition. We argue that diversity reduces the coordination efficiency necessary to transfer knowledge and facilitate post-acquisition organizational integration, and that managers belonging to such teams therefore are more likely to be replaced. Empirical analysis drawing on 2164 top managers in 297 Swedish firms shows that managerial position diversity as a separation, pay disparity and industrial tenure diversity as a variety indeed are associated with managerial exit in the period 2007-2009.

Keywords: Acquisition of high-tech & knowledge intensive firms, TMT turnover, Diversity
1. Introduction

In the literature on acquisition of high-tech and knowledge intensive firms, scholars pay special attention to their top managers’ status after the deal. Literature suggests that these managers, if they stay in post-acquisition, provide coordination capacity for the acquirer to transfer knowledge and technology from the target to the acquirer while minimizing the disruptive effect of acquisition (Cloodt, et al., 2006; Colombo & Rabbiosi, 2014; Graebner, 2004 & 2009; Graebner, et al., 2010 and Ranft & Lord, 2002). In addition, the acquirer benefits from human capital embedded in top managers; especially in high-tech and knowledge intensive firms where top managers might be founder-managers and patent holders (Buchholtz, et al., 2003; Castanias & Helfat, 1991 & 2001; Coff, 1999 & 2002 and Wulf & Singh, 2011). The empirical studies provide evidence for the aforementioned arguments by showing that top managers’ turnover causes decline in post-acquisition performance (Cannella & Hambrick, 1993; Krishnan, et al., 1997; Shanley & Correa, 1992; Very, et al., 1997; Walsh, 1989 and Zollo & Singh, 2004). However, multiple empirical studies report significant top managers’ turnover in the target after both domestic and international acquisitions (Cannella & Hambrick, 1993; Iverson & Pullman, 2000; Kiessling & Harvey, 2006; Krishnan, et al., 1997; Krug & Hegarty, 2001; Lubatkin, et al., 1999; Mikkelson & Partch, 1997; Walsh, 1988 and Walsh & Ellwood, 1991). Clearly, this calls for additional work seeking to reconcile the theory on the role of top managers with empirical observation.

We believe that one reason behind this gap between theory and empery lies in the tendency of extant literature of studying top managers at individual level, overlooking the collective dimension of top managers’ effort. Top managers do not act in silos, but are dependent on each other. A team perspective resonates with arguments of coordination capacity and human capital. First, the top management team (TMT) coordinates a firm. It is responsible for coordination in pre-acquisition and therefore is a potential candidate for coordination in post-acquisition. Second, human capital is inherently connected to individual demographic attributes and characteristics (Buchholtz, et al., 2003 and Coff, 2002). At team level however, these demographic attributes propagate diversity. Diversity is a multidimensional construct and often considered as a double edge sword that affects the overall performance of the team (Harrison & Klein, 2007; Lau & Murnighan, 1998; Pelled, 1996 and Pelled et al., 1999). Diversity determines coordinating capacity (Milliken & Martins, 1996) and the human capital of TMT Harrison & Klein (2007). Therefore, we expect that the diversity determines the top managers’ turnover in acquisition. The main objective of the paper is to demystify the effect of ex-ante diversity of target’s TMT and the turnover in post-acquisition. The overarching research question in this paper is: “What is the effect of ex-ante demographic diversity in target’s TMT on determining the top manager’s turnover in post-acquisition?” In particular, we are interested to understand to what extent certain demographic diversity
variables namely, managerial status diversity, pay dispersion, education background and industrial tenure diversity, make an influence on top managers’ turnover in post-acquisition. In this paper, we follow the operationalization of the diversity constructs suggested by (Harrison & Klein, 2007), and treat managerial status diversity as separation, pay dispersion as disparity and the last two constructs as variety. In order to answer the research question, our empirical sample consists of 2164 top managers of 297 Swedish firms, acquired between 2001 and 2006 in knowledge intensive and high-tech sectors. The main finding of the paper is that ex-ante TMT diversity increases the likelihood of a top manager’s turnover after the acquisition. We find that managerial status diversity, pay dispersion and industrial tenure diversity increases the turnover. We do not find any evidence of the relationship between education background diversity and turnover.

This paper makes several contributions to the extant literature on managerial post-acquisition turnover, acquisition implementation, and TMT diversity studies. We believe that this paper contributes to the studies conducted on top managers’ turnover in post-acquisition by introducing a complementary explanation to the rationale behind the top managers’ departure. Drawing on a comprehensive data set, this paper is among the few studies which is able to empirically study all the members of the TMT in post-acquisition thanks to the comprehensive data available in our dataset (See for e.g.: Bergh, 2001 and Very, et al., 1997 as exception). Prior studies on managerial turnover in post-acquisition focused mostly on CEO’s departure and few studies included selected members such as CFO, COO, and CTO. This limits our view over managerial turnover in post-acquisition. As managing a firm is a collective effort rather than an individual endeavor, managers’ turnover in post-acquisition is affected by the team overall demography as well as their individual demography. The second contribution of this paper is to the acquisition implementation literature by showing that acquirers prioritize the coordination between target and the rest of their organization over human capital embedded in managerial resources. Coordination is more important in acquisition of knowledge intensive and high-tech firms, as knowledge is usually tacit and its transfer requires high level of coordination and communication (Grant, 1996). Also this paper shows that target’s ex-ante organizational structure determines the top manager’s turnover in post-acquisition. In particular, targets with decentralized organizational structure have higher rate of turnover compare to centralized structure. Finally, this paper, to our knowledge, is the first that focuses on diversity in TMT studies and includes all types of diversity (separation, disparity and variety) together. Our finding on the positive effect of diversity on TMT turnover supports the argument provided by the studies highlighting the importance of environmental contingency on the effect of diversity on team’s turnover and performance. By showing diversity in the form of variety as an antecedent of turnover, which in diversity studies generally is considered to be constructive, this paper explores the strength of
environmental contingency over the intrinsic characteristics of the diversity. Accordingly, we introduce acquisition as a disruption to the team, which in turn changes the tasks, routines and roles and consequently the objective for the team. Such changes activate the faultline in the form of separation (dissimilarities) or disparity, which causes social conflicts and categorization among the team members. In addition, diversity in the form of variety is not suitable for the teams where coordination and communication efficiency are more important than creativity, which is the case for the acquisition.

The rest of the paper is organized as follows. The next section reviews the role of target’s TMT in post-acquisition and diversity in TMT in the prior literature. This section ends with the hypotheses regarding the effect of ex-ante diversity on TMT’s turnover in post-acquisition. Section 3 describes the data, variables and methodology. Section 4 reports the results; they are discussed further and the paper is concluded in Section 5.

2. Theoretical Framework

The role of target’s TMT in M&A

Post-acquisition literature emphasizes the role of target top managers in facilitating the integration process and organizational changes, if they get involved and participate actively in post-acquisition (Graebner, 2004 & 2009; Pablo, 1994 and Ranft & Lord, 2002; Graebner, 2009). Involvement of the target’s top managers in the post-acquisition integration process may free up managerial resources of the acquirer. Thereby, the firm can limit the extent to which this process diverts acquirer’s managerial resources from the acquirer’s daily operation and the core business (Hitt, et al., 1991; Schoar, 2002). In addition, if target managers stay, the cost of implementation becomes lower for the acquirer as they have better knowledge over the target’s organizational structure (Graebner, 2004; Graebner & Eisenhardt, 2004 and Very, et al., 1997). Organizational disruptions reduce the employees’ productivity and loss of autonomy and also bring about lack of commitment and demotivation among the employees, which ultimately have negative influence on post-acquisition performance (Chatterjee, et al., 1992; Datta & Grant, 1990; Larsson & Finkelstein, 1999 and Zollo & Singh, 2004). In acquisition of high-tech or knowledge intensive firms the costs imposed to the acquirer due to organizational disruptions and loss of autonomy are particularly severe (Colombo & Rabbiosi, 2014; Graebner, et al., 2010; Puranam, et al., 2009 and Ranft & Lord, 2002). As knowledge of a tacit nature is embedded in the target’s employees, their departure due to loss of autonomy and demotivation consequently lead to loss of knowledge for the acquirer (Coff, 1999; Grant, 1996; Kogut & Zander, 1992; Larsson & Finkelstein, 1999 and Ranft &
Empirical studies have for example demonstrated how demotivation and lack of commitment lowers the productivity in R&D outputs (Kapoor & Lim, 2007 and Parunchuri, et al., 2006). If the target’s top managers stay after the acquisition, they can alleviate the negative effect of organizational disruptions and demotivation of employees in high-tech and knowledge intensive acquisitions (Graebner, et al., 2010 and Shanley & Correa, 1992).

The human capital perspectives provide additional arguments on the link between managerial exodus and post-acquisition performance of the firm. The target’s top managers are not only resourceful in organizing the target human capital for the acquirer but also they are part of the human capital of the firm (Buchholtz, et al., 2003; Castanias & Helfat, 1991 & 2001; Coff, 1997 & 2002; Carpenter, et al., 2001; Walsh & Ellwood, 1991 and Wulf & Singh, 2011). To the extent that the human capital is unique to the acquirer, the likelihood of turnover reduces in post-acquisition. In acquisition of high-tech and knowledge intensive firms, the two key elements are technology and knowledge (Ahuja & Katila, 2001; Colombo & Rabbiosi, 2014; (Kapoor & Lim, 2007; Parunchuri, et al., 2006; Puranam, et al., 2006 and Ranft & Lord, 2002). Usually the knowledge is tacit, dispersed and embedded inside the individuals (Grant, 1996 and Kogut & Zander, 1992). Therefore acquisition of human capital is the key element for the acquirer to access the knowledge and technology. In high-tech and knowledge intensive firms, human capital embedded in top managers is beyond just managerial capital, as in many cases, they also participate in the knowledge creation process of the firm; founder top managers are good examples as their human capital is beyond managerial skills and include technological know-how (Coff, 1999 & 2002; Colombo & Grilli, 2005; Fahlenbarch, 2009 and Graebner, et al., 2010). From this standpoint, target’s top managers’ retention after the acquisition, is beneficial for the acquirer as they can contribute technological know-how as well as managerial expertise to the firm.

In line with both the acquisition implementation view and the human capital perspective, empirical studies reported post-acquisition performance decline when there is a high rate of turnover among top managers (Cannella & Hambrick, 1993; Krishnan, et al., 1997; Shanley & Correa, 1992; Very, et al., 1997; Walsh, 1989; Zollo & Singh, 2004). However multiple empirical studies reported significant target top managers’ turnover after the acquisition both domestically and internationally (Cannella & Hambrick, 1993; Iverson & Pullman, 2000; Kiessling & Harvey, 2006; Krishnan, et al., 1997; Krug & Hegarty, 2001; Lubatkin, et al., 1999; Mikkelson & Partch, 1997; Walsh, 1988 & 1989; Walsh & Ellwood, 1991). To start, when combining firms with different cultures and habits, as in the case of M&As, managers with strong attitudes are unwilling to submit to changes. During the integrations and combination phase, it is therefore smoother to replace these resisting employees rather than converting them to the new organization (Buccholtz & Ribbens, 1994 and Cannella & Hambrick, 1993). As a result, the deployment
of the top executives and their replacement by external employed executives facilitates the transfer of the 
acquirer’s system (Angwin & Meadows, 2009). Second, in association with mergers and acquisitions, it is 
common that firms decide to give up certain activities and eliminate market shares leading to a 
deployment of the responsible managers (). In addition, with mergers and the fusion of the business, there 
is an overlap of tasks and the operating managers exceed the needs of the new organization. Depending 
on the type of the acquisition and its purpose, the top management team is threatened to be dismissed and 
replaced. Alternatively, target’s top managers decide to leave after the acquisition because of their 
psychological perception against the acquisition. In particular, loss of autonomy, inferiority and 
ambiguity in their future career are among the reasons mentioned for the managers’ decision for departure 
Additionally cultural differences, which are exacerbated in international acquisitions, may result in social 
frictions which influence managerial departure (Chatterjee, et al., 1992 and Krug & Hegarty, 2001) 

Recently, Krug, et al. (2014) asserted that the reason behind the mismatch between empirical findings 
showing abnormal turnover in post-acquisition and the theoretical lenses studying the turnover or the top 
managers’ role in post-acquisition is the lack of attention paid to the context. Krug and colleagues 
provided several examples of contextual factors, one of them being the organizational structure of the 
target. TMT composition and structure is a surrogate for organizational structure (Chandler, 1991; 
Guadalupe, et al., 2013 and Ricardo, et al., 2008). In addition, studies on TMTs argue that team 
composition affects the team decision making process which results in certain decision outcome and 
ultimately firm performance (Bantel & Jackson, 1989; Carpenter, 2002 and Menz, 2012). Based on the 
argument provided by the Krug et al (2014), that any meaningful understanding about the effect of 
turnover should include the context within which the individual works we suggest that in case of 
acquisitions, considering the phenomenon of top manager turnover both from an individual and a team 
level perspective allows important insights into the dynamics of post-acquisition processes. In the 
following section we investigate the collective antecedents (team characteristics) of TMT turnover in 
post-acquisition.

Diversity in TMT

Scholars have recently come to place significant interest on how the composition of TMTs - and diversity 
in the TMT in particular - is related to various dimensions of firm performance (Milliken & Martins, 
1996; Hambrick, 2007). The literature on the diversity of TMT mainly applies two theoretical lenses for 
explaining the effect of diversity on performance. The first lens, information decision making perspective,
argues that diversity among team members increases the information processing capability of the team and consequently increases the effectiveness of decision making and therefore the performance (Carpenter, 2002; Hambrick, 2007; Hambrick & Manson, 1984; Harrison & Klein, 2007). The alternative competing lens, similarity-attraction perspective, argues that diversity causes dissimilarity, which engenders social frictions, emotional conflicts, internal power games, and competition and ultimately reduces decision making efficiency and the performance (Jehn, et al., 1999; Li & Hambrick, 2005; Pelled, 1996 and Pelled, et al., 1999).

However, this literature reports contradictory findings on the effect of diversity (Ancona & Caldwell, 1992; Bantel & Jackson, 1989; Bell, et al., 2011; Carpenter, 2002; Hambrick, et al., 1996; Li & Hambrick, 2005; Jehn, et al., 1999 and (Pearsall, et al., 2008 ). Some studies reported positive effects of diversity (Carpenter, 2002); others reported negative effect (Jehn, et al., 1999 and Li & Hambrick, 2005), while plenty of studies did not find any significant effect (Bantel & Jackson, 1989; Simons, et al., 1999 and Wiersema & Bantel, 1992) on performance. More recent studies tried to reconcile between opposing lenses. Some studies perceived diversity as a multi-dimensional construct of collective effect of team members’ individual characteristics and attributes. Some of these constructs create dissimilarity and causes separation and disparity inside the team while others bring variety of expertise and cognitive capabilities to the team and enrich information processing capability of the team (Harrison & Klein, 2007). In addition, other studies have proposed the influence of environmental contingencies (for instance complexity) on explaining the positive or negative effect of diversity on performance (See for e.g.: Ancona & Caldwell, 1992; Carpenter, 2002; Hutzschenreuter & Horstkotte, 2013; Mihalache, et al., 2013; Milliken & Martins, 1996; Van der Vegt & Bunderson, 2005). Ancona & Caldwell (1992) has shown that although diversity in expertise and functional background is helpful for problem solving and creativity in product development teams, they do not necessarily increase the performance as they impede coordination, cooperation, and communication for realization of the product development. In line with the environmental contingency argument, Lau & Murnighan (1998) proposed that based on the dynamic of team composition, certain attributes inside the team creates faultlines inside the team, which engender subgrouping. These faultlines are not active and therefore not strong enough to affect the overall team performance per se. But when certain changes in the team’s task or the environmental context occur, the changes trigger the faultline and stimulates social categorization (Hutzschenreuter & Horstkotte, 2013; Li & Hambrick, 2005 and Van der Vegt & Bunderson, 2005). Acquisition is an environmental change imposed to the firm and the team, therefore it can activate the faultline for several reasons: first, the target faces certain disruptions in both norms and routines (Graebner, 2004 and Puranam, et al., 2009); second, accompanied lay-offs create the so called career concern for the top managers (D’Aveni & Kesner, 1993).
and Graebner & Eisenhardt, 2004) and reduce collaboration inside the team; third, acquirer changes the
target’s organizational structure to make it fit with the rest of its organization (Colombo & Rabbiosi,
2014; Puranam, et al., 2009 and Sears & Hoetker, 2014).

In the following, based on the categorization of diversity proposed by Harrison & Klein (2007),
environmental contingencies and faultline theory proposed by Lau & Murnighan (1998), we articulate our
hypotheses on the effect of TMT diversity on managerial turnover in post-acquisition.

**Hypotheses**

The first diversity construct, separation, is defined as the extent of dissimilarity and polarization between
team members (Harrison & Klein, 2007). In TMT, there is a difference between C-Suite members
(functional managers) and non C-Suite member (general managers) such as head of autonomous
subsidiaries, strategic business units (SBUs) and plant managers (Guadalupe, et al., 2013). Accordingly
one dimension of separation in TMT occurs in the difference between top managers’ positions (C-Suite
vs. non-C-Suite) inside the firm. Although the latter directly reports to the CEO similar to C-suite
members, they are not influenced by the CEO as much as C-suite members. Based on the argument rooted
from organization design literature, the non C-suit members receive higher degree of freedom and
autonomy due to decentralized structure of the organization and their distance from the headquarter
that colocation of top management team members has positive impact on firm performance while
geographical distance results in reduction of interaction and increasing social categorization that
ultimately hampers the firm’s performance. The separation between top managers in terms of managerial
position is a faultline that in acquisition may become activated. In a situation where non-C-Suite members
tries to uphold their autonomy and status bestowal after the acquisition generates internal competition and
power games between them and C-suit members (Hambrick & Cannella, 1993 and Pablo, 1994). It can
therefore be expected that a management structure with C-Suite and non-C-Suite members creates social
categorization which we expect may propagate internal conflicts and ultimately team turnover in post-
acquisition periods. Therefore:

H1: In acquisition of high-tech or knowledge intensive firms, ex-ante positional diversity of TMT
increases the likelihood of the top manager turnover in post-acquisition.

The second type of diversity construct, disparity, also has negative effects on team performance.
Disparity as vertical disproportionate distribution of valuable and desirable resources creates inequality
inside the team (Harrison & Klein, 2007). One of the disparity measurements in TMT studies is pay
dispersion (See for example Bloom & Michel, 2002; Siegel & Hambrick, 2005 and Wade, et al., 2006). Pay dispersion may cause feelings of dissatisfaction among team members; when they experience that they are treated unfairly within the team, they become less collaborative (Pfeffer & Langton, 1993). In addition, disparity may give rise to internal rivalry and aggressive competition among team members. A hostile environment encourages team members to withhold information necessary for decision making (Eisenhardt & Bourgeois, 1988). From an information decision making processing view, disparity therefore damages the performance of the team. For high-tech firms the effect of pay dispersion among TMT members has higher negative effects on the firm performance compared to low-tech firms (Eisenhardt & Bourgeois, 1988 and Siegel & Hambrick, 2005). The reason behind this higher sensitivity is the uncertainty involved in technological development which requires higher level of collaboration and coordination between top managers to make the mutual adjustments (Argyres, 1995 and Kogut & Zander, 1992). In addition, technology transfer requires higher level of coordination and collaboration between units within a firm (Grant, 1996).

An alternative view of the effects of pay inequality is provided by tournament theory. This theory suggests that rank order payment inside the firms encourage employees to maximize their effort to win the tournament, which in this case is getting promoted. Such competition improves overall firm’s performance as the employees extend maximum efforts (Cappelli & Cascio, 1991 and Lazear & Rosen, 1981). In TMTs, managers may for example be engaged in a tournament with the reward of becoming CEO successor (Bloom, 1999). We believe that acquisition as a disruptive event terminates the competition since it imposes a change to the firm’s ownership, roles, tasks and routines. Therefore, tournament theory is not applicable in this circumstance; however the residual dissatisfaction among lower paid top managers results in the faultline diversity that is activated by acquisition.

In acquisition of high-tech and knowledge intensive firms, technology and knowledge transfer are key activities. Therefore, high levels of coordination and collaboration are required in post-acquisition management processes. Since income disparity among TMT members – as we have argued above – tends to create additional frictions in such processes, the acquirer is more likely to replace the target’s TMT when high pay dispersion is present. Therefore:

H2: In acquisition of high-tech or knowledge intensive firms, ex-ante income disparity in the TMT increases the likelihood of the top manager turnover in post-acquisition.

The third construct of diversity, variety, provides a representation of the distribution of team members across different categories of knowledge and expertise. As suggested by the information decision making process view of the firm, variety enriches the team’s knowledge domain and thereby has positive effects
on team performance (Harrison & Klein, 2007). In TMT studies, variety in job-related characteristics - particularly in education or industrial background - has been found to have a positive effect on creativity, problem solving and ultimately firm performance (Bunderson, 2003; Cannella, et al., 2008; Carpenter, 2002; Hambrick, et al., 1996). However, based on the environmental contingency argument it can be argued that the type of environment also is another important determinant of the effect of variety, as the direction of the effect is not always positive (Jehn, et al., 1999; Menz, 2012; Milliken & Martins, 1996; Van der Vegt & Bunderson, 2005). In particular, variety slows down the decision making process and convergence of received ideas into a potential solution (Milliken & Martins, 1996). Therefore in highly volatile environments where the team needs to react promptly, the variety is not very well connected to performance. In addition, variety makes decision making lengthier due to lack of understanding and common ground between team members with diverse background and consequently coordination and communication becomes inefficient (Pelled, et al., 1999). In M&A, as mentioned before, the key issues for the acquirer in post-acquisitions are coordination and communication between the target and the rest of the organization to transfer the knowledge particularly in high-tech and knowledge intensive acquisitions (Argyres, 1995; Grant, 1996; and Puranam, et al., 2009). Similar to prior studies on the effect of diversity on knowledge transfer from off-shores (Mihalache, et al., 2013), from product development teams (Ancona & Caldwell, 1992), and project teams (Van der Vegt & Bunderson, 2005) to the parent organizations, we argue that variety hampers efficient knowledge transfer from the target to the acquirer. Put it differently, although diversity as variety has positive influence on knowledge creation, its negative effect on knowledge transfer, makes the acquirer less willing to keep the target’s TMT with high degree of variability in education and industrial tenure background. Therefore:

H3: In acquisition of high-tech or knowledge intensive firms, ex-ante diversity in the TMT that causes variety increases the likelihood of the top manager turnover in post-acquisition.

H3a: In acquisition of high-tech or knowledge intensive firms, ex-ante educational background diversity increases the likelihood of the top manager turnover in post-acquisition.

H3b: In acquisition of high-tech or knowledge intensive firms, ex-ante industrial tenure diversity increases the likelihood of the top manager turnover in post-acquisition.
3. Method

Data and sample

The empirical analysis is based on the matched employer-employee registers collected by Statistics Sweden. We identify all firms which were acquired between 2001 and 2006, and we follow the employees up to three years after the acquisition. In the dataset, an M&A is identified by following the mobility of the employees. An acquisition is defined as the shift of more than half of the employees from one firm (the target) into another firm (the acquirer). In the case of an equal split of the employees between the two firms, the operation is considered as a merger. In the case of M&A, the activity status of the firm changes from active to inactive due to an acquisition or a merger. We then distinguish the acquisitions in our sample by tracking firms where the activity status changes from one year to another. In this study we focused only on firms operating in high-tech, medium to high-tech and knowledge intensive industries. The selection of firms was based on the congruence of their associated NACE code with the list of NACE codes provided by OECD (1997) for the aforementioned industries. We chose top managers as individuals who are reported as senior managers for the firm. To identify the managers in our sample, we use the occupation classification attributing a code to each employee corresponding to the codes of the International Standard Classification of Occupation (ISCO) and reflecting the work task of each individual. In this sample, we have wide definition of a manager to cover all individual with any management position. Following the description provided by the International Labour Organization “Managers plan, direct, coordinate and evaluate the overall activities of enterprises, governments and other organizations, or of organizational units within them, and formulate and review their policies, laws, rules and regulations”. A description of the tasks and the list of occupations are included in the appendix. In our dataset, we removed smaller targets by excluding the firms that have less than 50 employees at the time of acquisition and also some observations due to lack of data availability. The final sample for this study consists of 2164 top managers in 297 firms.

Variables

Dependent variable

Top manager’s turnover is a binary variable; it is equal to 0 if the top manager stays more than three years at acquirer’s organization in post-acquisition and 1 if the top manager leaves the firm (and the group to which the firm belongs) sooner than three years in post-acquisition. This measure is similar to studies

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such as Bergh (2001) and Buchholtz et al (2003). For use in robustness checks, we also follow Lubatkin et al (1999), Wulf & Singh (2011), and Zollo & Singh (2004) in introducing alternative measures for having left the firm 2 years after the acquisition and 1 year after the acquisition, respectively.

**Independent variables related to hypotheses 1-3**

Managerial status diversity: For each top manager of the target, we created a binary variable, c-suit, equal to 1 if the top manager holds a C-Suite position in the target such as chief operating officer (COO), chief technology officer (CTO) and chief financial officer (CFO) and alternatively equal to 0 if the top manager does not hold a c-suit position such as head of a subsidiary, an SBU or a plant. Managerial status diversity, following (Harrison & Klein, 2007), treated as a separation, was constructed as a team level standard deviation of c-suit binary variable.

Pay dispersion: For each top manager of the target, we calculated salary as the average three consecutive years’ annual salary before the acquisition. Pay dispersion, following (Harrison & Klein, 2007) was constructed as coefficient of variation of average salaries at team level. Therefore:

\[
\text{PayDispersion} = \sqrt{\frac{(Salary_{ind} - Salary_{mean})^2}{n}} / Salary_{mean}
\]

Where \(Salary_{ind}\) is the salary of each top manager, \(Salary_{mean}\) is the mean of salaries at the team level and \(n\) is number of top managers in the team.

Education background diversity: For each top manager of the target, we defined education background as a categorical variable. We created 7 major categories namely: Business administration, engineering, healthcare, humanity and art, natural science, social science, and other studies. Education background diversity, following (Harrison & Klein, 2007) was constructed as a team level Blau index (variety). Therefore:

\[
\text{EducationBackgroundDiversity} = 1 - \sum \text{Education}_i^2
\]

Where Education, is the proportion of team members belonging to certain category of education.

Industrial tenure diversity: For each top manager of the target, firstly, we checked their tenure in different industries based on the first two digit NACE code. Secondly, for each top manager, we identified the corresponding industry with maximum tenure. Finally, similar to Education background diversity, we applied Blau index to calculate the variety at the team level. Therefore:
\[ \text{IndustryTenurediversity} = 1 - \sum \text{Industry}_i^2 \]

Where Industry, is the proportion of team members belong to certain category of industry.

**Control variables**

Our first set of controls relate to the demographic attributes gender and age of the individual top manager. Male is a binary variable, equal to 1 if the top manager is male and 0 if the top manager is a female. In addition, we control for age of the top manager. Following Buchholtz et al (2003) we predict that there is a curvilinear relationship between age and turnover. The turnover is less likely for mid age top managers who look for more stability and have more career concern compared to younger top managers and near retired top managers. From human capital argument, acquirers are more willing to keep the mid age top managers as they have higher level of human capital compared to the younger top managers and acquirer can invest more on their human capital as they stay with the firm longer compared to the near retirement top managers. Age and \( \text{Age}^2 \) represents the age and age square of the top manager at the time of acquisition.

Beyond demographic factors, we also control for further individual characteristics of the top manager. We constructed the variable Education level as a categorical ordered variable; no academic background is associated with the value 0, undergraduate education with 1 and graduate education with 2. We also control for the average three consecutive years’ annual salary (Salary) and managerial experience of the top manager (Managerial experience) as the number of years the individual holds managerial position in the firm in the last 10 years which is normalized by 10. We expect that top managers with higher salary have higher turnover because of two reasons. First by considering the high salary as a proxy for strong relative standing (status, prestige, power and autonomy) in the target before the acquisition, these top managers are more sensitive to losing their status, autonomy and power in post-acquisition (Cannella & Hambrick, 1993; Lubatkin, et al., 1999 and Very, et al., 1997). Second, considering salary as a proxy for human capital embedded in the top managers (Wulf & Singh, 2011), they have less career concern after leaving the firm in post-acquisition. For the similar reason we expect managerial experience to increase the likelihood of managerial exit.

Furthermore, we add a set of firm-level controls. We control for the natural logarithm of team size (Team size) and gender diversity (Gender diversity). Prior studies highlighted the negative effect of gender diversity in the team as it causes separation inside the team and creates emotional and task conflicts and inter-team rivalry (Jehn, 1995; Li & Hambrick, 2005; Pelled, 1996; Pelled, et al., 1999; Pearsall, et al., 2008 and Randel, 2002). Gender diversity causes social categorization and separation inside the target’
TMT (Harrison & Klein, 2007). In addition, gender diversity potentially creates a faultline inside the team (Pearsall, et al., 2008). Similar to our argument related to managerial status diversity, acquisition, as a disruptive event, activates this faultline. This situation is not favorable both in terms of post-acquisition performance and integration process; therefore it is more likely that acquirer replaces the team.

Finally, we control for relative size of the target with respect to the acquirer based on the head count of employees at the time of acquisition (Relative size) similar to Very et al (1997), Wulf & Singh (2011), and Zollo & Singh (2004). We expect that for larger target, it is less likely that the acquirer depends on the target’s top managers to manage the firm after the acquisition. Since larger firms are more bureaucratic and divisional, changes on the top managers do not affect the overall organization as much as it does in smaller firms. Therefore, we expect that replacing top managers would be easier for the acquirer in larger targets. Finally we control for geographical distance between the target and the acquirer, by a binary variable (Distance) indicating whether both firms are located in the same province or not. We expect that the distance between target and acquirer, decreases the likelihood of turnover as the acquirer is more dependent on the target’s top managers to manage the target located in another geographical region.

Model specification

As the turnover of the individual in our study is examined out of two levels of analysis namely, individual and team level, we applied mixed effect model to allow for both fixed effect (FE) and random effect (RE). While the individual variables are specific to each manager, the team variables are common to the members of the team. By applying a mixed-effect model to our data, we do not only measure the effect of the independent variables on the mean of the dependent variable (FE) but we also take into consideration the effect provoked by a variation across subgroups of the sample. As motivated by Train (2003), the mixed logit is a discrete choice model and the utility of individual n choosing alternative i is:

\[ U_{ni} = \beta_n x_{ni} + \epsilon_{ni} \]  \hspace{1cm} (1)

Where \( \beta \) is a vector of individual specific taste coefficients, \( x_{ni} \) is a vector of parameters of the individual n choosing alternative i and \( \epsilon_{ni} \) is a random term. The likelihood of an individual n picking alternative i in the case of a standard logit is:

\[ L_{ni}(\beta_n) = \frac{e^{\beta_n x_{ni}}}{\sum_j e^{\beta_n x_{nj}}} \]  \hspace{1cm} (2)

The above stated likelihood is conditional on \( \beta_n \) but as these taste coefficients are not known in advance, we cannot condition on \( \beta \) and the choice probability become the integral of the standard logit:
4. Results

Table 1 includes both descriptive statistics and pairwise correlation matrix of the variables. 52 percent of the top managers in our sample have left the firm within three years after the acquisition. Our turnover figure is in line with prior studies such as Bergh (2001), Buchholtz et al (2003), Hambrick & Cannella (1993), Lubatkin et al (1999), and Walsh (1988) claiming that over 50 percent of the top managers left the target in a three years window after the acquisition. The first independent variable, Managerial position diversity, has a mean of 0.24 and a correlation of 0.05 with turnover (P<0.1). The correlation magnitude and sign is in line with our argument that ex-ante diversity increases the probability of turnover. The second independent variable, Pay dispersion, has a mean of 0.37 and the correlation of 0.11 with turnover (P<0.1). The sign and magnitude of the correlation is also in line with our argument that ex-ante disparity increases the probability of turnover. The last two independent variables, Education background diversity and Industrial tenure diversity, are positively correlated with TMT turnover (P<0.1). Similarly, the sign and magnitude of the correlation is in line with our argument that ex-ante diversity in the form of variety increases the probability of turnover. The descriptive statistics also show that 78 percent of top managers in our sample are male. The average age of top managers in our sample is 45. In addition the average TMT size is eight. In average, the target has the relative size of 0.40 to the acquirer and in 45 percent of the cases the companies are not located in the same region. The highest correlation in Table 1 is 0.34 reported between Education background diversity and Gender diversity, which removes any suspicions of multicollinearity.

***************
Insert Table 1 about here!
***************

Table 2 includes the estimations. Model I is a basic estimation, where only control variables are included. The first control variable with an effect on turnover is age. The results show negative effect of Age, and positive effect of \( \text{Age}^3 \) on the probability of top manager’s turnover (both at P<0.01). This confirms our expected curvilinear relationship between turnover and age inferred from the human capital argument presented by Buchholtz et al (2003). In addition, Salary and Managerial experience increases the
probability of top manager’s turnover (respectively at $P<0.01$ and $P<0.1$). This finding is in line with our expectation of higher sensitivity of top managers with higher salary and longer managerial experience to losing relative standing proposed by Cannella & Hambrick (1993) and less career concern to leave the firm because of human capital argument, as proposed by Wulf & Singh (2011). Gender diversity also increases the probability of top manager’s turnover ($P<0.05$). Our finding on gender diversity supports the argument proposed by studies such as Jehn (1995), Li & Hambrick (2005), Pelled (1996), Pelled, et al (1999), Pearsall et al (2008), and Randel (2002) that the acquisition may be considered as a disruptive event activating the faultline of gender diversity which causes separation inside the target’s TMT. Relative size increases the probability of top manager’s turnover ($P<0.01$). This confirms our argument on easier replacement of top managers for the acquirer in larger targets. Team size decreases the probability of top manager’s turnover ($P<0.01$).

***************
Insert Table 2 about here!
***************

In Model II, the independent variables related to our three hypotheses are included. The first such independent variable, Managerial status diversity, increases probability of top manager’s turnover ($P<0.01$). This positive effect of turnover supports our H1 that ex-ante positional diversity of TMT increases the likelihood of the top manager turnover in post-acquisition. The second independent variable, Pay dispersion, also increases the probability of top manager’s turnover ($P<0.05$). This positive effect on turnover supports our H2 that ex-ante income disparity in the TMT increases the likelihood of the top manager turnover in post-acquisition. The third independent variable, Education background diversity, does not have a significant effect on the probability of top manager’s turnover. Therefore, the result does not support our argument in H3a related to the positive effect of education diversity background on top manager’s turnover in post-acquisition. However, the last independent variable, Industrial tenure diversity, increases the probability of top manager’s turnover ($P<0.01$). This positive effect supports our H3b that ex-ante industrial tenure diversity increases the likelihood of the top manager turnover in post-acquisition.

**Robustness check**

***************
Insert Table 3 about here!
***************
To check the validity and robustness of our argument on turnover we tested our independent variables for other alternative definitions of turnover similar to (Lubatkin, et al., 1999 and Wulf & Singh, 2011). In Table 3, Model III is the estimation with the dependent variable as the turnover of top managers in a year after the acquisition. The first independent variable, Managerial status diversity, does not increase the probability of turnover. The second independent variable, Pay dispersion, increases the probability of turnover (P<0.01). Education background diversity, similar to our main estimation does not have any effect on turnover. The last independent variable, Industrial tenure diversity, increases the probability of turnover (P<0.01). Model IV is the estimation with the dependent variable as the turnover of top managers in two years after the acquisition. The first independent variable unlike Model III increases the probability of turnover (P<0.01). In addition, the second and forth variables increase the probability of turnover (P<0.01). Similar, to Model II and Model III, we did not find any effect of Education background diversity on probability of turnover. The only independent variable that we did not find the expected effect is Managerial status diversity for turnover in the first year after the acquisition. In overall as expected the results from both models indicate that the effect of ex-ante diversity on top manager’s turnover after the acquisition is salient that even by varying the definition of turnover, still the effect persists.

5. Discussion and conclusion

In this paper we have shown that ex-ante diversity in the TMT of firms in knowledge-intensive and high-tech sectors increases the rate of top manager turnover in post-acquisition periods. First, we found that positional diversity of TMT as form of separation increases the turnover. This finding validates our argument related to the effect of separation on social friction, categorization and sub grouping, which increases the turnover in post-acquisition. This finding also suggests that ex-ante organizational structure of the target determines top managers’ turnover in post-acquisition. Following the arguments proposed by Argyres (1995), Child (1972), Chandler (1991), and Guadalupe et al (2013), as the TMT composition is the reflection of organizational structure, and number of general managers as non-C-Suite members of TMT represents the degree of decentralization of the firm, it is inferable that targets with decentralized structure are more likely to face turnover.

Secondly, we found that ex-ante pay disparity increases the top managers’ turnover in post-acquisition. This finding confirms our argument that pay disparity hampers information processing capability of TMT as team members are less collaborative and withhold information necessary for decision making (Eisenhardt & Bourgeois, 1988 and Pfeffer & Langton, 1993). We conclude that the argument of
tournament theorists that pay dispersion has positive effect on the overall firm’s performance as all the players in the competition (here top managers) maximize their effort to outperform the others and win the competition (in this case become a CEO), has limited bearing on the case of post-acquisition processes.

Finally, we have argued that diversity as variety causes turnover of top managers in post-acquisition. Variety hampers efficiency in decision making, communication, and coordination between top managers, which may decrease the value of retaining target managers to the acquirer. The results support that diversity in industrial background, as a form of variety, increases the probability of turnover, however we did not capture similar effect for variety in educational background. Such difference between the results of the two variety constructs confirms the argument presented by Bell et al (2011) and Harrison & Klein (2007), that conceptualization of diversities of all task related attributes into a unified diversity index, does not give proper insight to the researchers. As the attributes are independent from one another, their diversity at team level has independent and somewhat different effect. One possible explanation for not finding expected effect for education background on turnover can be related to the diminishing effect of time on education background, especially considering the fact that the average age of top managers in our sample is 45. Notably Bell et al (2011) in their meta-analysis failed to find strong positive effect of variety in education background as a surrogate of knowledge background on team performance, and the paper also provided similar argument that the team members are years away from the time that they completed their education. This explanation is also in line with the notion of the importance of dynamism in organizational demography, suggested by Lawrence (1997) that some of the easily measurable attributes may not be as influential as it appears when considering its effect over time.

The main conclusion of this paper is that ex-ante diversity in the pre-acquisition TMT directly determines the targets managerial turnover in post-acquisition. The team view brings a fresh perspective to the literature on post-acquisition managerial turnover and acquisition implementation literature, in that it gives an alternative explanation over the rationale behind the turnover. Previous studies on acquisition implementation argue that the target’s top managers can be valuable for the acquirer’s efforts to minimize the negative effect of organizational disruptions exerted to the target while acting as coordinators between the target and the rest of the acquirer’s organization. This paper suggests that the composition of the TMT determines the extent to which it can provide such coordination capacity. Driven by a combination of acquirer and TMT member preferences, diversity thus increases the likelihood of managerial exodus in post-acquisition periods.

Our findings resonates with studies such as Cloodt et al (2006), Parunchuri et al (2006), and Kapoor & Lim (2007) that question why acquirers go to great length in choosing disruptive implementation
strategies such as organizational integration that lower inventors ‘productivity, R&D outputs and future innovations in the acquired units. In addition, our findings explain why although studies such as Graebner (2004), Graebner et al (2010), and Ranft & Lord (2002) suggested the opportunity of exploiting coordinating capacity present in retention of targets’ top managers for the acquirers, in practice acquirers choose not to rely on such coordinating capacity.

Another inference from our results is that the acquirer does not compromise transferring the knowledge already existed in the target over the potential knowledge created in future even in high-tech and knowledge intensive acquisitions. Even though diversity in the form of variety supports creativity, knowledge development and innovation based on information process view, it reduces coordination efficiency to transfer the knowledge already created in the target. This insight also explains why managerial turnover in acquisition of high-tech and knowledge intensive firms are still higher than normal regardless of the human capital embedded in managerial resources. Accordingly, this paper provides complementary explanation to the studies such as Bergh (2001), Buchholtz et al (2003), and Wulf & Singh (2011), which linked human capital to turnover. The paper also provides a new antecedent of target’s managerial turnover, which is ex-ante organizational structure of the target before the acquisition. We found that targets with decentralized structure (for instance matrix organizations) face with higher managerial turnover. Empirically we confirmed the proposition presented by Argyres (1995) and more recently Ricardo et al (2008), who suggested that centralized organizational forms are more suitable for technology development as this organizational form facilitates knowledge transfer via centralized coordinating mechanisms. This argument also validates a recent observation reported by Guadalupe et al (2013) that in the last two decades, US large firms have shifted from decentralized to centralized forms. If our argument is correct, we expect to see more centralized organizational form for the targets in post-acquisition rather than just replacing top managers. In other words, the acquirers reduce TMT’s size of the targets (lay-offs) rather than substitute them. For the future studies, it would be interesting to validate this argument.

This paper also contributes to the literature of TMT’s diversity. The first contribution is to the environmental contingency studies by showing that acquisition has disruptive effects on the organizations. We argued that the changes in the norms, values and routines in the organization, and consequently in the TMT, clearly activate the diversity in the form of separation. Our finding is in line with the theory of faultline proposed by Lau & Murnighan (1998). Prior empirical studies such as Li & Hambrick (2005) and Pearsall et al (2008) focused on activation of faultline when the team is forming. This study complements them by showing that faultline can be activated also when roles, routines and to some extent goals of the team change even though the team has performed for a long period. In addition,
prior studies on faultline mainly focused on visible demographic characteristics (such as age, gender, and race). Our finding on managerial position diversity is a response to a call by Bell et al. (2011), Hutzschenreuter & Horstkotte (2013) and Rico et al. (2007) to investigate the diversity faultline of task related characteristics. Here, we focused on the ex-ante diversity of the target’s TMT, and the diversity faultline for the target; however acquisition has a disruptive effect on the acquirer’s organization as well, though it is less pronounced than the target. In future studies, it would be interesting to investigate on how and to what extent acquisitions also activate the diversity faultline inside the acquirer’s TMT. In particular, in mergers where acquirer and target are relatively equal in terms of size, sales and market power Wulf (2004), such effects seem plausible since it is more likely that both TMTs are merged together and form a new TMT. The conflict, social categorization and rivalry between the former teams also suggests a fruitful area for future scholars interested in studying the effect of diversity in team formations and performance.

Another interesting insight that may be derived from our results is the importance of the acquisition as an environmental contingency. Although variety is intrinsically beneficial to the team’s decision making effectiveness based on the information process view, it can be harmful when the environment changes. In this regard, this paper complements prior studies such as Mihalache et al. (2013) and Van der Vegt & Bunderson (2005) reporting that diversity in the form of variety harms decision making efficiency and coordination especially in the contexts that they are more important than creativity. The last contribution of this paper regards the applicability of tournament theory. When circumstances change (here because of an acquisition) the benefits of the tournament vanishes while the rivalry and the dissatisfaction among players lingers. But the acquisition also defines a new tournament for the target’s top managers; one geared towards surviving the acquisition or joining the acquirer’s TMT. For the future, it is interesting to study the antecedents of the decision of the target’s top managers to enter the new tournament.

Other than theoretical contribution, we believe our results to have some practical implications. As suggested by the title, acquirers should be vigilant with target selection and due diligence during the scouting period. Acquirers usually pay attention to potential synergies, firm value, and technological artefact (patents, prototypes, and products) in case of acquisition of high-tech or knowledge intensive firms before making any deal, however they overestimate the potential problems caused by organizational fit and structure of the targets after the deal. This paper suggests to the acquirers to evaluate top management structure and composition of the potential targets, otherwise acquirers face high implementation costs in post-acquisition. In particular based on the findings, diversity in target’s TMT increases the coordination inefficiencies, which results in managerial substitutions and replacements.
which are costly in short and long term; the short term costs of implementation, and the long-term opportunity costs of departing human capital, lower productivity, and acquisition failure.

On a final note, this paper shows the interrelation of three streams of literature, managerial turnover, acquisition implementation, and team diversity; their intersection and interconnections. We believe there is significant potential for future studies interested in any of the mentioned streams to benefit from cross fertilization with the other two streams.

References


### Table 1: Descriptive statistics and pairwise correlation matrix

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<th>Variables</th>
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<tr>
<td>2. Managerial status diversity</td>
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<td>0.23</td>
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</tr>
<tr>
<td>3. Pay dispersion</td>
<td>0.37</td>
<td>0.16</td>
<td>0.11</td>
<td>-0.05</td>
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<td>4. Education background diversity</td>
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<td>0.09</td>
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<td>6. Male</td>
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<td>8. Education level</td>
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<td>9. Salary (10 million SEK)</td>
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<td>0.05</td>
<td>0.05</td>
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<td>0.23</td>
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<td>10. Managerial experience</td>
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<td>11. Gender diversity</td>
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<td>-0.05</td>
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<td>12. Team size (log)</td>
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<td>0.50</td>
<td>-0.14</td>
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<td>13. Relative size (log)</td>
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<td>14. Distance</td>
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<td>0.07</td>
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Correlations above 0.05 are significant at P<0.1
## Table 2: Estimations mixed random effect logit

<table>
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<tr>
<th>VARIABLES</th>
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<th>Model II</th>
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<td>Chi2</td>
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<td>108.33***</td>
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Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1
Table 3: Estimations mixed random effect logit for turnover in the first year and the second year after the acquisition

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Model III</th>
<th>Model IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial status diversity</td>
<td>0.412</td>
<td>0.604***</td>
</tr>
<tr>
<td></td>
<td>(0.344)</td>
<td>(0.321)</td>
</tr>
<tr>
<td>Pay dispersion</td>
<td>1.864***</td>
<td>1.938***</td>
</tr>
<tr>
<td></td>
<td>(0.535)</td>
<td>(0.501)</td>
</tr>
<tr>
<td>Education background diversity</td>
<td>-0.151</td>
<td>0.061</td>
</tr>
<tr>
<td></td>
<td>(0.443)</td>
<td>(0.420)</td>
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<tr>
<td>Industrial tenure diversity</td>
<td>56.639***</td>
<td>60.605***</td>
</tr>
<tr>
<td></td>
<td>(18.503)</td>
<td>(17.022)</td>
</tr>
<tr>
<td>Male</td>
<td>0.052</td>
<td>-0.047</td>
</tr>
<tr>
<td></td>
<td>(0.145)</td>
<td>(0.136)</td>
</tr>
<tr>
<td>Age</td>
<td>-0.135**</td>
<td>-0.166***</td>
</tr>
<tr>
<td></td>
<td>(0.054)</td>
<td>(0.051)</td>
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<tr>
<td>Age^2</td>
<td>0.002***</td>
<td>0.002***</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.001)</td>
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<tr>
<td>Education level</td>
<td>0.067**</td>
<td>0.062**</td>
</tr>
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<td></td>
<td>(0.030)</td>
<td>(0.028)</td>
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<tr>
<td>Salary (10 Million SEK)</td>
<td>2.646*</td>
<td>2.695*</td>
</tr>
<tr>
<td></td>
<td>(1.364)</td>
<td>(1.322)</td>
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<td>Managerial experience</td>
<td>0.281***</td>
<td>0.367***</td>
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<tr>
<td></td>
<td>(0.127)</td>
<td>(0.118)</td>
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<tr>
<td>Gender diversity</td>
<td>0.153</td>
<td>0.372</td>
</tr>
<tr>
<td></td>
<td>(0.409)</td>
<td>(0.383)</td>
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<tr>
<td>Team size (log)</td>
<td>-0.577***</td>
<td>-0.711***</td>
</tr>
<tr>
<td></td>
<td>(0.167)</td>
<td>(0.155)</td>
</tr>
<tr>
<td>Relative size (log)</td>
<td>0.195***</td>
<td>0.181***</td>
</tr>
<tr>
<td></td>
<td>(0.039)</td>
<td>(0.037)</td>
</tr>
<tr>
<td>Distance</td>
<td>-0.142</td>
<td>-0.330**</td>
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<td></td>
<td>(0.165)</td>
<td>(0.151)</td>
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<td>Constant</td>
<td>1.620</td>
<td>3.204***</td>
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<td>(1.300)</td>
<td>(1.230)</td>
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<td>Observations</td>
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<td>Log likelihood</td>
<td>-1212.3</td>
<td>-1327.0</td>
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<td>DF</td>
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<td>14</td>
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<td>Chi2</td>
<td>82.90</td>
<td>110.66</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Appendix: List of occupations considered in our sample

11 Chief executives, senior officials and legislators
   111 Legislators and senior officials
   112 Managing directors and chief executives

12 Administrative and commercial managers
   121 Business services and administration managers
   122 Sales, marketing and development managers

13 Production and specialized services managers
   131 Production managers in agriculture, forestry and fisheries
   132 Manufacturing, mining, construction, and distribution managers
   133 Information and communications technology service managers
   134 Professional services managers