ARTICLES

Why do top management teams look the way they do? A multilevel exploration of the antecedents of TMT heterogeneity

Sabina Nielsen   Copenhagen Business School, Denmark

Abstract

While individual-level social psychological processes may promote top management team (TMT) homogeneity, a number of organizational and environmental factors pose requirements for increasing TMT heterogeneity. These opposing mechanisms lead to different predictions regarding the outcome of the TMT selection process. This article investigates the interactions between the different level factors influencing TMT heterogeneity in order to determine under what conditions pressures towards heterogeneity prevail over the tendency towards homosocial reproduction. Based on a panel dataset of 165 Swiss listed companies, the results of hierarchical linear model (HLM) analyses provide support for attraction–selection–attrition (ASA) and similarity–attraction tendencies. Newly appointed TMT members were more likely to be similar to the rest of the team when the prior degree of homogeneity in the TMT was high. However, this tendency was lower in firms with a high degree of internationalization or facing dynamic industry environments. At the same time, munificent industries amplify tendencies towards TMT homogeneity.

Key words • antecedents • firm internationalization • industry characteristics • TMT heterogeneity

Introduction

Organizational competitiveness and survival is predicated on the ability to anticipate and respond to internal and external opportunities and pressures for change. The nature and effectiveness of organizational responses vary in part with the characteristics and composition of the top management team (TMT)

(Hambrick and Mason, 1984; Wiersema and Bantel, 1992). Heterogeneity in TMT characteristics allows decision-makers to identify environmental opportunities and threats, filter and interpret relevant information and formulate strategic alternatives while considering organizational capabilities and constraints. However, according to the attraction–selection–attrition (ASA) framework (Schneider, 1983, 1987), organizations become increasingly homogeneous over time because people are attracted to, selected by and retained within organizations that fit their personal preferences and characteristics. To the extent that organizations employ increasingly similar people, the resulting homogeneity limits the organizational capacity to deal with complex and heterogeneous environments and prevents organizational change and adaptation. To this end, Schneider (1987) noted that homogeneity among organizational members is not beneficial for long-term organizational effectiveness.

While ASA and interpersonal similarity–attraction (Byrne, 1971) processes promote TMT homogeneity over time, countervailing forces internal and external to the organization might undermine ASA cycles (Boone et al., 2004). The principle of requisite variety (Ashby, 1956) asserts that organizations need to match their environments. In support of this notion, scholars suggested that it is pivotal for firms to match the composition of their top management team to firm strategies (Szilagyi and Schweiger, 1984) and the external environment (Keck and Tushman, 1993). Specifically, corporate strategy and industry environment may create conditions that require high heterogeneity in TMT characteristics in order to respond and adapt to changes. Complex strategic choices pose high information processing requirements on the top management team (Galbraith, 1973; Sanders and Carpenter, 1998). Prior research has established that heterogeneous TMTs are better able to manage firms in complex and turbulent environments and to achieve superior firm performance under such conditions (Cannella et al., 2008; Carpenter, 2002; Keck, 1997). Hence, while ASA tendencies drive homosocial reproduction, strategic and environmental forces propel TMTs towards increased heterogeneity. These forces represent opposing mechanisms and their interactions determine the degree of TMT heterogeneity.

Whereas the consequences of TMT characteristics have been extensively studied in the literature (for reviews see Carpenter et al., 2004; Certo et al., 2006; Finkelstein et al., 2008), only a few studies have explored the factors influencing TMT composition (e.g. Boeker and Wiltbank, 2005; Boone et al., 2004; Keck and Tushman, 1993). Recently, Hambrick (2007: 338) and Boone and van Witteloostijn (2007: 264) pointed to the importance of understanding the forces that determine TMT composition and according to Pettigrew (1992: 176), a pertinent unanswered question in the literature is 'why do teams look the way they do?' Research on TMT composition is inherently multilevel as it bridges individual, team, firm, and industry levels of analysis (Cannella and Holcomb, 2005; Carpenter, 2005; Hitt et al., 2007).

At each of these levels, different mechanisms influence the make-up of the TMT. While scholars have distinguished theoretically between environmental (industry), organizational and CEO factors influencing TMT composition (Finkelstein et al., 2008), their effects are rarely investigated simultaneously in a single empirical study. Furthermore, as these effects do not occur independently from each other, an understanding of the way in which they interact in order to determine TMT composition is needed.

This study offers three main contributions to the literature. First, it investigates the interactions among the different level factors influencing TMT heterogeneity in order to determine under what conditions the organizational and environmental pressures towards heterogeneity prevail over ASA processes. Arguing that strategic and environmental requirements for increased TMT heterogeneity may outweigh the TMT tendency towards homosocial reproduction, this work sheds new light on simultaneous countervailing influences on the make-up of executive teams. Second, distinguishing between four aspects of TMT heterogeneity, this study provides an explanation for how different contingencies determine the level of similarity of newly selected TMT members on different dimensions. While firm strategy may reduce the tendency to select new entrants similar on some dimensions, industry characteristics may decrease such tendencies for other dimensions. In addition, recognizing that these different aspects are not independent from each other, this study examines the extent to which various heterogeneity dimensions complement or substitute each other in shaping TMT composition. Finally, the present study advances literature on TMT composition by applying multilevel theory and method in order to demonstrate the differing effects of the countervailing influences across industries. Teasing out the opposing moderating effects of industry munificence and dynamism on homosocial reproduction tendencies, this study helps explain how the ASA processes and their effects on the outcome of executive selection vary with industry characteristics.

Theory and hypotheses

Attraction–selection–attrition in top management teams

The ASA framework (Schneider, 1983, 1987) argues that different kinds of organizations attract, select and retain different kinds of people. This ASA cycle determines how organizations look and why they differ from each other. The ASA framework is based on the premise that people who are of a similar type will be attracted not only to jobs but also to organizations of a particular sort. Organizational members, in turn, when screening potential employees, are favourable to similar others and are more likely to admit new members like themselves. Both the new and the tenured employees become

better acquainted over time and thus become even more homogeneous as a group. Moreover, the better the fit between individual characteristics and the organization, the higher is the job satisfaction and the longer the tenure of employees. At the same time, people who do not fit the organization tend to leave and, as a result, the people who remain will be similar to each other. Thus, over time, organizations attract, select and retain an increasingly homogeneous group of employees, who share common backgrounds, characteristics and orientations. As a result, organizations have a natural tendency to drive out heterogeneity. A number of studies have provided supporting evidence for the ASA framework (e.g. Schaubroeck et al., 1998; Schneider et al., 1998). More recently, Boone et al. (2004) studied the entries and exits of top executives in five Dutch newspaper publishers over 25 years and found that top management teams reproduce their own demographic characteristics through selective hiring and firing. As certain types of corporate elites self-select themselves in particular settings, a homosocial reproduction (Kanter, 1977) takes place within firm upper echelons.

While the ASA framework deals with the organizational level of analysis (Schneider, 1987), the similarity–attraction paradigm (Byrne, 1971) provides explanation for how similar social psychological processes take place at the individual level. The similarity–attraction principle asserts that similarity in attitudes and characteristics enhances interpersonal attraction and desire to work together. Consequences of high interpersonal attraction include frequent communication, high social integration and a desire to maintain group affiliation (Tsui et al., 1992). Hence, similarity–attraction dynamics are likely to affect the selection and retention of TMT members. Moreover, according to social identification (Turner, 1982) and social categorization theories (Tajfel, 1981; Turner, 1987), individuals define their own identities through social comparison with others. In the process of social categorization, individuals divide group members into in-groups and out-groups. In order to maintain high levels of self-esteem, people have the tendency to positively perceive and favor in-group members (those similar to themselves) and dislike and judge out-group members (those who are dissimilar). These social psychological mechanisms can be very powerful and may introduce biases in the selection process even when the evaluation of new candidates is based on objective qualifications (Westphal and Zajac, 1995). As a consequence of such biases, TMTs are likely to select new entrants whom they believe are similar to themselves.

The ASA framework suggests that the attraction–selection–attrition cycles occur on the basis of similarity in personality and attitudes. However, Boone et al. (2004) argued that the ASA logic can be extended to include demographic characteristics. Similarly, social categorization is primarily based on social categories and observable demographic characteristics, such as age, gender, nationality, education and professional experiences (Tsui et al., 1992). For these reasons, this article focuses on the demographic characteristics of

top executives despite some debate about the extent to which demographic characteristics can serve as proxies for deeper psychological constructs (e.g. Lawrence, 1997; Priem et al., 1999). A number of specific demographic characteristics are particularly salient in assessing the demographic similarity of new entrants to the TMT and are therefore the focus of this study.[1]

The importance of *educational background* (field of study) of upper echelons is based on the premise that individuals with certain dispositions, aptitudes and cognitive styles tend to pursue certain compatible educational curricula and that these curricula, in turn, exert differential influence on attitudes (Hitt and Tyler, 1991). Tsui et al. (1992) noted that educational background provides a salient basis for psychological group identification. Hence, the educational background of new entrants to the TMT might be a salient characteristic that reinforces the ASA cycles and the similarity–attraction mechanisms.

Prior *industry experience* is a crucial resource for knowing how an industry operates, recognizing market opportunities and identifying early on common industry threats (Eisenhardt and Schoonhoven, 1990; Kor, 2003). The industry experience, in turn, shapes the mindsets of executives and the way they react to threats and opportunities. Managers with experience from the same industry have a shared understanding of the company and its competitive environment (Prahalad and Bettis, 1986). Hence, prior industry experience is another demographic characteristic that may affect the interpersonal similarity–attraction and the social psychological processes underlying the selection process of new top executives.

Over the past decade there has been a swell of interest in a particular managerial background characteristic that had previously drawn little attention: namely, *international experience* (Finkelstein et al., 2008). Executive international experience is a valuable source of knowledge and expertise about foreign markets, cultures and business practices (Carpenter et al., 2001; Johansson and Vahlne, 1977; Sambharya, 1996). Moreover, managers' international experience facilitates access to international networks (Athanassiou and Nigh, 1999). The anticipated consequences of top executives' international experience include a better understanding of the complexity and dynamics of managing a firm's international operations. At the same time, international experience significantly alters the mindset of executives as it exposes them to different cultures and business practices (Kobrin, 1984). Hence, prior industry experience is another demographic characteristic that may affect interpersonal similarity-attraction and social psychological processes underlying the selection of new top executives.

Nationality determines not only language and outward behaviour but also deeply rooted values and cognitions (Hambrick et al., 1998; Hofstede, 1980). Differences in nationality are readily observed and often lead to communication difficulties, misunderstandings and escalation of conflict (Elron, 1997). Hence, nationality is one of the critical dimensions, on the

bases of which social identification and categorization occur (Williams and O'Reilly, 1998). Traditionally, the corporate elites of large organizations were comprised predominantly of local nationals. However, with the increasing globalization and opening of emergent markets, the number of foreigners in firm upper echelons is continuously increasing (Staples, 2007) and nationality becomes an important aspect of TMT composition.

Education, industry experience, nationality and international experience are all demographic characteristics that significantly influence executive cognitions and mindsets (Finkelstein et al., 2008) and thus serve as bases for social identification and categorization. As such, they may affect the outcomes of TMT selection processes. It is likely that similarity and distance in these characteristics will influence the perception and evaluation of potential TMT candidates. Prior research suggests that perceived similarity between applicant and rater results in higher perceived quality of the applicant (e.g. Baskett, 1973). Given the natural tendency of people to be attracted to those similar to themselves and to select people who they believe fit with their characteristics (and those of the other organizational members), it is likely that existing TMT members will prefer to hire executives similar to themselves. For instance, a purely domestic TMT is less likely to select a foreign executive as the team may anticipate negative affective consequences associated with nationality diversity (Milliken and Martins, 1996). Similarly, TMT members who have MBAs are likely to put a premium on such education and be biased in executive selection towards candidates with MBAs. As a result, top management teams characterized by high demographic homogeneity are likely to attract and select individuals with high similarity in relevant demographic characteristics:

> **HYPOTHESES 1a–d**   The higher the degree of homogeneity in the top management team, the greater the similarity between a newly selected member and the rest of the top management team in (a) nationality, (b) international experience, (c) educational background and (d) industry experience.

Strategic complexity

While individual- and team-level social psychological processes might drive TMT composition towards homogeneity, a number of factors inside and outside the organization can present requirements for a higher degree of TMT heterogeneity (Boone et al., 2004; Lawrence, 1997). The relevance of firm-level factors (particularly corporate strategy) for top management composition has been extensively discussed in the upper echelons literature (Carpenter et al., 2004; Finkelstein and Hambrick, 1996). A number of studies have investigated the alignment of managerial characteristics with corporate strategy (Chaganti and Sambharya, 1987; Datta and Guthrie, 1994; Guthrie and Datta, 1997; Guthrie and Olian, 1991; Szilagyi and Schweiger, 1984) and the performance consequences of such fit (Gupta and Govindarajan, 1984;

Thomas et al., 1991). The underlying argument is that the higher the complexity of firm operations, the higher are the information-processing demands posed on the top management team (Michel and Hambrick, 1992; Sanders and Carpenter, 1998).

Diversity in managerial backgrounds and experiences brings to the firm relational capital (network contacts) as well as human capital (e.g. expertise, knowledge and skills) (Becker, 1962; Hillman and Dalziel, 2003) that are essential for successful management of complex organizations. In order to cope with the complexity of firm operations and make high quality, innovative strategic decisions, TMTs need to capitalize on the benefits of diversity in knowledge and experiences by developing (1) a broader knowledge base and information processing capacity and (2) efficient team processes (Knight et al., 1999; Smith et al., 1994). Executives coming from different backgrounds and possessing varieties of professional experiences are likely to create a broader knowledge base as well as possess a higher cognitive and information-processing capacity. TMTs with diverse backgrounds and experiences are more capable of managing complex strategies than are homogeneous TMTs (Cannella et al., 2008; Carpenter, 2002).

These anticipated benefits may play an important role as objective criteria in top executive selection processes. Under conditions of high strategic complexity, these considerations are likely to reduce the effects of the underlying social psychological processes leading towards selecting similar new TMT members. The ASA framework predicts that organizational members (including TMTs) become more homogeneous over time. If firms are facing low strategic complexity, they are also more likely to sustain homogeneous top management teams. In such situations, there is no conflict between the internal social psychological processes and the external organizational strategic requirements. However, when firms follow complex strategies, the increased need for heterogeneity in TMT members' backgrounds and experiences is likely to have a dampening effect on the ASA tendencies. Hence, firm strategic complexity is likely to moderate the influence of ASA processes in determining the outcomes of executive selection.

The degree of complexity a firm is facing is influenced by its corporate strategy, such as degree of international diversification. Daily and Schwenk (1996) argue that the company strategic focus and global exposure are crucial determinants of the TMT composition. With increasing globalization and complexity of international operations resulting from the opening of turbulent emergent markets, the requirements for executive backgrounds and experiences have changed. There is an increased need for executives who understand global markets and foreign cultures and business practices and are aware of opportunities to compete globally (Finkelstein et al., 2008). Research suggests that executives with international experience are a valuable resource that helps firms compete internationally and achieve better corporate performance (Carpenter et al., 2001; Daily et al., 2000; Roth, 1995).

In addition, TMTs comprised of foreign nationals were shown to exhibit superior subsidiary level performance (Elron, 1997; Gong, 2006).

When faced with increased internationalization and global competitive pressures, firms need to adjust the composition of their top management teams. At certain levels of internationalization, a purely domestic TMT, or one comprised of individuals with no international experience, will face limitations in making international strategic decisions. Thus, strategic requirements for increased TMT international heterogeneity are likely to interfere with the social psychological mechanisms of ASA and interpersonal similarity–attraction at the individual level. Given the expected benefits of diversity in nationality and international experience for firm strategy and performance, objective criteria are likely to moderate the TMT member selection process. As a result, in the presence of high strategic complexity pertaining to firm international diversification, TMT members will be less likely to gravitate towards selecting a member with a similar international profile to the rest of the team:

> **HYPOTHESES 2a AND b**   The level of international diversification is likely to reduce the tendency of TMTs to select new entrants who are similar to the existing team in terms of (a) nationality and (b) international experience.

Environmental (industry) characteristics

Resource-dependence theory (Pfeffer and Salancik, 1978) suggests that firms are dependent on their environments and a firm's ability to secure critical resources is vital to its survival. Upper echelons and in particular corporate directors play a crucial role as a link between the firm and its environment and are viewed as boundary spanners who, through their existing knowledge and networks, have access to important information and resources (Hillman and Dalziel, 2003). According to resource-dependence theory, environmental factors influence organizational characteristics and behaviour. In particular, environmental conditions influence the distribution of power and control within the organization and thereby affect the process of selection and departure of executives (Keck and Tushman, 1993; Thomas and Ramaswamy, 1993). Furthermore, Pfeffer and Salancik (1978: 238) suggest that 'the selection and tenure of chief executives in organizations are consequences of the organization's context and the ability of administrators to cope with the uncertainties and contingencies deriving from that context'.

The characteristics of firm environments are often determined by the characteristics of the industries to which they belong (Dess and Beard, 1984).[2] In their seminal work, Hambrick and Mason (1984) propose that managerial characteristics are influenced by a firm's industry. Accordingly, in one of the early studies on the effects of TMT composition, Norburn and Birley (1988) provided evidence for significant differences in managerial

attributes among five industries. Similarly, Pegels et al. (2000) found that the degree of tenure, educational and functional background diversity in TMTs differs between industry groups. Yet, previous research has not investigated what particular industry characteristics account for such differences and how these industry conditions may interact with the social psychological processes inside the organization in determining TMT selection and composition.

Industry dynamism refers to the environmental instability or the rate of change in the environmental factors affecting an organization (Thompson, 1967). The faster the pace of change in an industry, the higher will be the demand for innovative strategic decisions. In unstable (turbulent) environments, top management teams face high levels of uncertainty, which poses increased information-processing demands (Galbraith, 1973) on the executive team. TMT heterogeneity is a source for meeting the increased information-processing demands as diversity in managerial backgrounds and experiences will increase the knowledge base and the number of perspectives brought to the executive decision-making. This, in turn, will increase the potential solutions considered and the quality of decision-making (Hoffman and Maier, 1961). Consistent with these arguments, research suggests that accurately noticing and responding to environmental variations are enhanced by TMT diversity (Sutcliffe, 1994). Furthermore, Keck (1997) demonstrated that TMT heterogeneity is beneficial for firm performance in periods of high industry turbulence. Hence, turbulent industry environments may provide some pressure for altering TMT composition towards a higher degree of heterogeneity. Such pressures are likely to interact with the natural tendency of executives to select new members similar to themselves. Consequently, the turbulence of the environment is likely to lessen the impact of homosocial reproduction in TMTs.

As formal education reflects an individual's cognitive abilities, heterogeneity in educational background is associated with diversity in top managers' perspectives, knowledge and skill sets (Finkelstein et al., 2008). TMT educational heterogeneity has been linked to a number of organizational outcomes, such as strategy, innovation and performance (Bantel and Jackson, 1989; Wiersema and Bantel, 1992). Finkelstein et al. (2008: 108) argue that some competitive and marketplace conditions call for different educational backgrounds and concomitant open-mindedness, information-processing abilities and cognitive flexibility. By the same token, heterogeneity in executives' industry experience brings along industry-specific knowledge and expertise as well as access to network contacts within a number of industries. Managers can apply these experiences and contacts in evaluating the trends in the firm's industry, quickly assessing threats and opportunities and recommending strategic actions. As such, a wide range of experiences outside the industry in which the firm operates can be a potential source for reducing the complexity and uncertainty related to decision-making in highly turbulent

environments. Similarly, diversity in educational backgrounds may enhance problem-solving and decision-making in dynamic industry environments. Hence, despite the internal social psychological tendencies towards homogeneity, firms facing unstable environmental conditions are more likely to consider diversifying the composition of their TMTs (Finkelstein et al., 2008).

The dynamism of the external environment will expose the limitations of a homogeneous top management team and the similarity–attraction and ASA mechanisms may become less salient. Given the anticipated benefits of diversity in education and industry experience, objective selection criteria may prevail over individual-level processes and TMTs may prefer to expand their cognitive bases by hiring an executive who is dissimilar. Such considerations will reduce the inherent tendency of executives to choose peers with similar background and experiences and work with colleagues with whom they have shared mental models, as the industry environment becomes more dynamic and uncertain. Under such conditions, TMTs are less likely to follow ASA tendencies and appoint a new member who has industry experience or educational background similar to the rest of the TMT:

> **HYPOTHESES 3a AND b**   Industry dynamism is likely to reduce the tendency of TMTs to select new entrants who are similar to the existing team in terms of (a) educational background and (b) industry experience.

In contrast to dynamism, industry munificence is likely to promote homogeneity in top management teams. Munificence refers to the extent to that the environment supports sustained growth (Starbuck, 1976). Industry environments that permit organizational growth help buffer organizations from external threats and allow them to generate slack resources (Cyert and March, 1963; Finkelstein and Hambrick, 1996). In such environments, TMTs operate with less constraint and, as a result, are exposed to less pressure to make radical strategic changes. Hence, when facing growing industry demand there is no urgency to actively pursue new strategies or diversify the executive team composition. As a result, homogeneity in TMTs may be preferred. Furthermore, in munificent environments, firms are less dependent on managerial diversity as a source of securing access to critical resources (Pfeffer and Salancik, 1978). In times of sustained growth, information-processing demands on executives are lower and hence there is less need for diversity in managerial knowledge and perspectives emerging from educational background or industry experiences. When the external industry conditions promote TMT homogeneity, which is in unison with the internal social psychological preferences for keeping the degree of similarity between TMT members low, these two processes will reinforce each other. In such environments, the human tendency to be attracted to similar others will be even stronger and will lead to selection of demographically similar top executives.

HYPOTHESES 4a AND b   Industry munificence is likely to increase the tendency of TMTs to select new entrants who are similar to the existing team in terms of (a) educational background and (b) industry experience.

Methods

Data and sample

The initial sample consisted of all 269 companies listed on the Swiss Stock Exchange (SWX) in September 2004. The following categories of companies were subsequently excluded: (1) investment trusts, (2) companies without websites and investor relations contacts, as well as companies with no annual reports available to the public or very short annual reports, (3) foreign companies listed on the SWX; (4) local cantonal banks and (5) energy companies. Investment trusts are not companies in the traditional meaning of a firm and the criteria for selecting top executives of investment trusts may differ substantially from those in regular publicly listed companies. The lack of information on corporate governance was the reason for exclusion of the second category of companies. Where no annual report (or contact details to request one) was available to the public, no data were obtainable on the characteristics of the members of the top management team and the board. Similarly, short annual reports with no governance section did not detail the information necessary for this study. The last two categories of companies were removed from the sample as the composition of their upper echelons is influenced by national and cantonal regulations and laws and are thus not representative for a population outside the specific country (e.g. Switzerland). This procedure generated a final sample of 165 companies.

Switzerland was chosen as the primary context for the empirical investigation for a number of reasons. First, Switzerland is a preferred home base for many multinational companies due to its political stability, central location and tax advantages. Moreover, multinational corporations report that the second most important reason for location decisions is the presence of qualified managers (Swissinfo, 2004). Switzerland is among the most competitive executive labour markets in Europe with one of the highest percentages of foreign top executives, thus offering a suitable context for studying the antecedents of different dimensions of executive heterogeneity. Finally, Swiss companies offer variability along several dimensions of TMT heterogeneity.

Data were collected on both the members of a firm's supervisory board (*Verwaltungsrat*) and the top management team (*Geschaeftsleitung*). The top management team was defined as the top tier of executives who are responsible for firm strategy and identified as members of the executive team in the company annual report. Information on top management and board composition for the eight-year period (2000–7) was obtained from

the corporate governance section of the companies' annual reports and websites. A total of 1214 new TMT members were appointed in the sample companies over the period. Data were collected at the individual level (TMT members) and aggregated to the team level for some of the diversity measures. Data on company size, business and geographical segment sales, as well as industry data were compiled from the Worldscope databases of Thomson One Banker.

Variables and measures

Nationality was recorded as stated in the annual report and reflected the country of origin of the particular top management team member. Consistent with previous operationalizations in upper echelons studies (Wiersema and Bantel, 1992), education was coded in four main categories: (1) economics and business administration, (2) law, (3) technical education (engineering) and (4) others. Due to limited availability of information, professional experience was measured with the use of dummy variables. International experience was coded as 1 if the top executive had international assignment or full-time work experience from a foreign country and as 0 if his/her entire career had been spent in Switzerland. Industry experience was coded as 1 if the executive had previous work experience in an industry different than the one in which the company operates and to 0 otherwise. Tenure was measured in months since a person became a member of the top management team or the board of directors.

Following Westphal and Zajac (1995), the demographic similarity between existing and new TMT members was measured by four continuous measures of similarity, using information on TMT members in the year the new executive joined the TMT. Similarity between the TMT and the new entrant was assessed by aggregating similarity measures of all possible TMT member–new entrant dyads. A modified Blau index measured the proportion of TMT members $(p_i)^2$ who shared category i. For instance, similarity in nationality between the new TMT member and the rest of the team indicated the squared proportion of TMT member–new entrant dyads in which both individuals share the same nationality. Educational background similarity, international experience similarity and industry experience similarity were calculated the same way. Alternative similarity measures based on the Euclidean distance as suggested by Tsui et al. (1992) yielded similar results. While some scholars advocate the use of an average (uncorrelated) similarity measure (e.g. Boone et al., 2004), this approach was not applicable in this study as the hypotheses specified different moderators for the different demographic dimensions.

Two different measures were used to aggregate the data to the team-level heterogeneity. Simple ratios (percentage members out of the total number of team members) were created for the dichotomous variables *TMT international*

experience heterogeneity and *TMT industry experience heterogeneity.* The degree of team heterogeneity based on categorical variables (*TMT nationality heterogeneity* and *TMT educational background heterogeneity*) was measured by Blau's (1977) index, a measure of group heterogeneity commonly used in top management team research (Carpenter, 2002; Finkelstein and Hambrick, 1996); $B = [1 - \sum (p_i)^2]$ where B is the heterogeneity measure and p is the percentage of team members in the ith group (i.e. nationality, education). The higher the value of B, the greater is the heterogeneity on a particular variable. All heterogeneity measures had possible values between 0 and 1. In order to assess *TMT homogeneity*, each of the four heterogeneity measures was subtracted from 1. Consistent with Boone et al. (2004), the degree of TMT homogeneity was assessed in the year prior to the appointment of a new member. An alternative measure of homogeneity of the top management team in the same year (excluding the newly appointed members) yielded similar results.

International diversification was operationalized using the entropy measure of corporate diversification (Palepu, 1985) similar to previous research in the field (Hoskinsson et al., 1993; Jensen and Zajac, 2004; Wiersema and Bantel, 1992). The entropy measure is calculated with the formula $\sum P_i [\ln(1/P_i)^2]$ where P is the percentage of sales in each geographical segment and (1/P) is used as a weight to account for the importance of each segment in the total sales of a company. Following Dess and Beard (1984), industry characteristics were calculated on the basis of sales figures for each two-digit primary SIC code of the companies listed on the Swiss Stock Exchange. *Industry munificence* was measured as the rate of growth (the regression coefficient of time on the annual average sales for each industry in the period 2000–7) divided by the mean value of sales for those years. *Industry dynamism* was measured as the dispersion about the regression line obtained in the regressions estimating munificence by dividing the standard error of the regression slope by the mean value of sales.

As previous research demonstrated that TMT heterogeneity declines with the tenure of the CEO (Keck and Tushman, 1993), *CEO tenure* was used as a control variable. Similar to Zajac and Westphal (1996), a measure of the tenure of the CEO relative to average board tenure was calculated. In order to account for whether the CEO joined the TMT before or after the majority of the executives, the ratio of the CEO tenure to the average tenure of the other TMT members was used as an alternative measure. As the results remained essentially the same, the results are reported with relative CEO board tenure as a control variable. As changes in TMT composition are more likely when firms are performing poorly (Hermalin and Weisbach, 1988), *firm performance,* measured as the return on sales (ROS), was used as a control. *TMT size* was included as it is an important control variable in upper echelons research (Carpenter et al., 2004). *Company size* was measured as the logarithm of firm sales. *Product diversification* was operationalized with

an entropy measure similar to the one used for international diversification. Finally, year dummies were added to control for any temporal influences (*time effects*).

Analytical strategy

The research design resulted in a nested hierarchical structure, where individuals are nested within teams/firms, which, in turn, are nested within industries. This created a hierarchical data structure with three levels of random variation: between individuals within firms (teams) (level 1), between firms within industries (level 2) and between industries (level 3). Datasets with a nested structure that include unexplained variability at each level of nesting are usually not adequately represented by the probability model of ordinary least squares (OLS) regression analysis. Instead, a hierarchical linear model, which is an extension of multiple regression to a model that includes nested random coefficients, is recommended (Raudenbush and Bryk, 2002; Snijders and Bosker, 1999). In multilevel analysis it is important to pay due attention to the nested structure of the data and the lack of independence among observations in order to avoid drawing wrong conclusions about observed relationships (Klein et al., 1994). As individuals within teams are more similar to each other than individuals across teams/firms, and firms within an industry share common characteristics, it is important to model this lack of independence in multilevel analysis.

In strategy research, the influence of higher level factors has typically been investigated based on the principle of disaggregation (for each micro-unit within a macro-unit the higher level factor is recorded repeatedly). The main problem with disaggregation is that it is statistically incorrect and sample size is dramatically exaggerated (Snijders and Bosker, 1999). In upper echelons research, while theoretically acknowledged and empirically measured, higher level contextual factors are often studied in a rather simple way by splitting the sample according to different industries or by using industry dummies. Alternatively, in order to explore the influence of firm environment as a moderator, interaction variables between TMT and environmental characteristics are entered in the regressions (e.g. Cannella et al., 2008). With the development of multilevel analytical techniques, however, it is possible to use a random slope model to investigate how the observed relationships vary with higher level contextual factors.

Hierarchical linear modelling (HLM) for three-level data (Raudenbush et al., 2004) was used to avoid the potential problems outlined above and model cross-level interaction effects. Specifically, Hypotheses 2a, 2b, 3a, 3b, 4a and 4b are cross-level interaction hypotheses. A hierarchical linear model is defined by its statistical parameters: regression parameters (fixed effects) and variance components (random effects). Hypothesis testing is based on both: fixed effect results are interpreted like regression coefficients and are tested

through *t*-tests; random effects are estimated through variance components and are tested through *F*-test statistics. The deviance index is used to assess model fit. Deviance is defined as $-2 \times$ log-likelihood of a maximum likelihood estimate and the smaller the value, the better the model fit. The difference in deviance for two nested models is distributed as chi-square with degrees of freedom equal to the difference in the number of parameters. The variables were entered in the regression in a hierarchical approach (first the main effects and then the interactions). Each of the models included all four TMT homogeneity measures in order to avoid specification error.[3] In the interaction models, the cross-level interaction relevant to the dependent variable of interest was added. All significant cross-level interactions are based on the final models.

Results

Table 1 reports the descriptive statistics and the correlations for all variables.

Table 2 reports the results of the null model in which no predictors are tested. It also represents the variance decomposition for the individual similarity measures. The null model provides a test of the significance of the between-firm and between-industry variances by examining the residuals at level 2 and level 3. All intercept variances at level 2 and level 3 were statistically significant. The results demonstrate that the largest proportion of the variance is at the individual level (level 1) for three of the four characteristics (educational background, industry experience and international experience). In the case of national origin, firm-level factors (level 2) account for 52 percent of the variance (whereas 42 percent is at the individual level). Firm-level factors account for between 27 and 36 percent of the variance in the educational background, industry experience and international experience similarity of newly selected TMT members. The importance of industry (level 3) ranges from 2 percent for international experience to 15 percent for educational background similarity between the new entrant and the rest of the team.

Main effects results

Hypotheses 1a–d predicted that the degree of homogeneity of the TMT is positively associated with the demographic similarity of new TMT members to the rest of the team. Support was found for all four demographic dimensions (see Models 1, 3, 5 and 7): nationality (b = .91, $p < .001$), international experience (b = .20, $p < .01$), educational background (b = .89, $p < .001$) and industry experience (b = .24, $p < .001$). Among the level 1 control variables, the relative tenure of the CEO to the board was negatively associated with the nationality similarity (b = –.05, $p < .01$) and positively associated with

Table 1 Descriptive statistics and correlations[a]

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Individual similarity in nationality	.40	.39	1.00															
2 Individual similarity in international experience	.57	.34	.18	1.00														
3 Individual similarity in educational background	.33	.26	.07	.03	1.00													
4 Individual similarity in industry experience	.56	.32	.07	.07	.04	1.00												
5 TMT homogeneity in nationality	.58	.27	.75	.13	.02	.09	1.00											
6 TMT homogeneity in international experience	.71	.28	.28	.25	–.10	–.06	.35	1.00										
7 TMT homogeneity in education	.53	.17	.11	.04	.62	.06	.10	–.07	1.00									
8 TMT homogeneity in industry experience	.62	.31	–.06	–.09	.03	.40	–.07	–.19	.05	1.00								
9 CEO board relative tenure	1.10	.95	–.13	.05	.08	.01	–.12	.03	.15	.08	1.00							
10 TMT size	7.63	3.18	–.35	–.14	–.14	–.11	–.35	–.07	–.14	.05	.06	1.00						
11 Firm performance	3.94	11.41	–.05	–.03	.00	–.06	–.08	–.07	–.04	–.07	.07	.12	1.00					
12 Firm size	6.35	2.04	–.27	–.14	.01	–.07	–.32	–.31	.03	.07	.03	.34	.23	1.00				
13 International diversification	.90	.52	–.35	–.16	–.14	–.03	–.39	–.25	–.17	.02	–.08	.25	.05	.42	1.00			
14 Product diversification	.80	.50	–.15	–.07	.02	–.14	–.18	–.20	.03	–.08	–.07	.13	.04	.39	.25	1.00		
15 Industry munificence	.09	.10	–.03	–.10	.09	.07	–.03	–.06	.11	.13	.00	.01	–.06	.06	.07	–.11	1.00	
16 Industry dynamism	.03	.03	–.02	–.04	.03	–.02	–.02	.05	.01	.00	.01	.09	–.05	.00	–.05	–.09	.53	1.00

[a] All correlations above $r = .07$ are significant at $p < .05$.

Table 2 Variance decomposition

Variance components	Individual level			
	Nationality	International experience	Education	Industry experience
e_{ijk}	.07	.07	.04	.06
r_{ojk}	.08	.04	.02	.04
u_{ook}	.01	.00	.01	.01
	.16	.12	.07	.11
Variance decomposition (percentage)				
Level 1	42.49	62.04	58.51	52.89
Level 2	51.75	35.95	26.72	36.31
Level 3	5.76	2.01	14.77	10.80

the educational similarity (b = .03, p < .05) of newly appointed executives to the rest of the TMT members. TMT size was negatively associated with similarity of new members in terms of nationality (b = −.01, p < .05). In addition, international diversification was significantly negatively related to the nationality (b = −.06, p < .05) and international experience (b = −.12, p < .05) similarity of new entrants. Product diversification was negatively related to industry experience (b = −.10, p < .05).

Further examination of the results revealed possible cross-effects among the four homogeneity dimensions. Specifically, TMT nationality homogeneity was positively associated with similarity in international experience (b = .15, p < .05) and industry experience (b = .16, p < .05). These results point to possible complementarity effects between these dimensions. Moreover, TMT international experience homogeneity was negatively associated with new entrants' similarity in educational background (b = −.08, p < .05) and industry experience (b = −.16, p < .05), thus suggesting potential substitution effects.

Cross-level interactions

Slopes-as-outcomes models were estimated in HLM to assess the moderating effects of firm internationalization and industry characteristics on the relationship between TMT homogeneity and the similarity of new entrants to the team. The results of these analyses are presented in Table 3. The level 2–level 1 interaction models (Models 2 and 4) showed significant cross-level interactions between international diversification and TMT homogeneity in nationality (b = −.27, p < .01) and in international experience (b = −.82, p < .001), providing support for Hypotheses 2a and 2b. The results of the level 3–level 1 interactions are presented in Models 6 and 8 in Table 3. Industry dynamism was found to negatively moderate this relationship for industry experience (b = −7.59, p < .05) as predicted by Hypothesis 3b.

Table 3 Results of HLM analysis

| Variables	Nationality		International experience		Educational background		Industry experience	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	.41***	.40***	.52***	.47***	.31***	.32***	.68***	.66***
Industry munificence	–.13	–.10	–.30	–.25	.06	.08	.41	.62*
Industry dynamism	.40	.00	–.70	–1.16	–.51	–.45	–.83	–1.66
Product diversification	.01	.01	.01	–.01	.00	.00	–.10*	–.10
International diversification	–.06*	–.03	–.12*	–.03	–.03	–.03	–.06	–.06
Firm size	–.01	–.01	.01	.00	.00	.00	.00	.00
CEO board tenure	–.05**	–.05**	.01	.00	.03*	.03*	–.01	–.01
TMT size	–.01*	–.01*	.00	.00	.00	.00	–.01	–.01
Year 2001	–.06	–.06	.08	.08	.01	.01	–.05	–.06
Year 2002	–.03	–.03	.02	.03	.00	.00	–.16*	–.16*
Year 2003	.01	.01	.11	.11	.02	.01	–.12	–.12
Year 2004	–.03	–.04	.10	.11	.04	.03	–.12	–.12
Year 2005	–.01	–.02	–.06	–.05	.01	.01	–.06	–.06
Year 2006	.00	.00	–.03	–.01	.00	.00	–.10	–.09
Year 2007	–.02	–.02	–.02	–.01	.02	.01	–.14	–.13
TMT nationality homogeneity	.91***	.95***	.15*	.13*	–.04	–.04	.16*	.14*
TMT education homogeneity	.11	.10	.02	.01	.89***	.81***	.02	.00
TMT ind. exp. homogeneity	.01	.00	.00	.02	–.02	–.02	.24***	.16*
TMT int. exp. homogeneity	.03	.03	.20**	.41***	–.08*	–.07*	–.16*	–.14*
Firm performance	.00	.00	.00	.00	.00	.00	.00	.00
TMT homogeneity × international diversification		–.27**		–.82***				
TMT homogeneity × international munificence						.22		1.45*
TMT homogeneity × international dynamism						–4.48		–7.59*
Number of parameters	23	24	23	24	23	25	23	25
Deviance	36	28	231	201	–294	–296	72	65

* p < .05, ** p < .01, *** p < .001.

Industry munificence was found to increase the positive association between TMT homogeneity and similarity of a new member to the rest of the team in terms of industry experience (b = 1.45, p < .05) in support of Hypothesis 4b. No support was found for Hypotheses 3a and 4a, as the cross-level interactions between industry characteristics and team homogeneity in education were not significant. Figures 1 and 2 illustrate the significant moderating effects of firm strategy and industry characteristics.

Discussion

Responding to recent calls for a comprehensive multilevel approach that integrates the micro (individual), meso (team or organization) and macro (industry or population) levels (Boone and van Witteloostijn, 2007), this study explored the factors that influence the selection of new top management team members. The empirical results support previous theoretical work by Carpenter et al. (2004) and Finkelstein et al. (2008), who predicted that TMT composition is influenced simultaneously by industry, organizational and TMT factors, suggesting that inclusion of different level antecedents of TMT composition is a fruitful area of research. Rather than exploring the effects of such antecedents as if they were independent from each other, the interactions between different level factors were conceptualized and empirically verified. Specifically, this study provides evidence of the interactions between countervailing forces, operating at different levels, which simultaneously pull towards higher heterogeneity/homogeneity in the TMT composition, and helps explain under what conditions the one mechanism may outweigh the other.

The evidence of this study provided consistent, strong support for ASA and similarity–attraction mechanisms taking place at the individual level which resulted in selecting new members who are demographically similar to the existing members of the TMT in terms of nationality, international experience, educational background and industry experience. However, the study further revealed that opposing mechanisms pertaining to external pressures resulting from firm strategy and environmental conditions may reduce the tendency of the TMTs to clone themselves. At the strategic level, the results suggest that firms' attempts to reflect the strategic complexity in the makeup of the top management team reduces the effects of the ASA processes. It should be noted, though, that not all heterogeneity dimensions are equally important for firm diversification strategies; as firms internationalize they seem to put a premium on diverse nationalities and international experiences among TMT members, perhaps because these background characteristics may help curb the negative effects of liability of foreignness (Zaheer, 1995). Specifically, when faced with high degrees of international diversification, homogeneous TMTs experience limitations in their information-processing

(a)   Moderating effect of international diversification on nationality
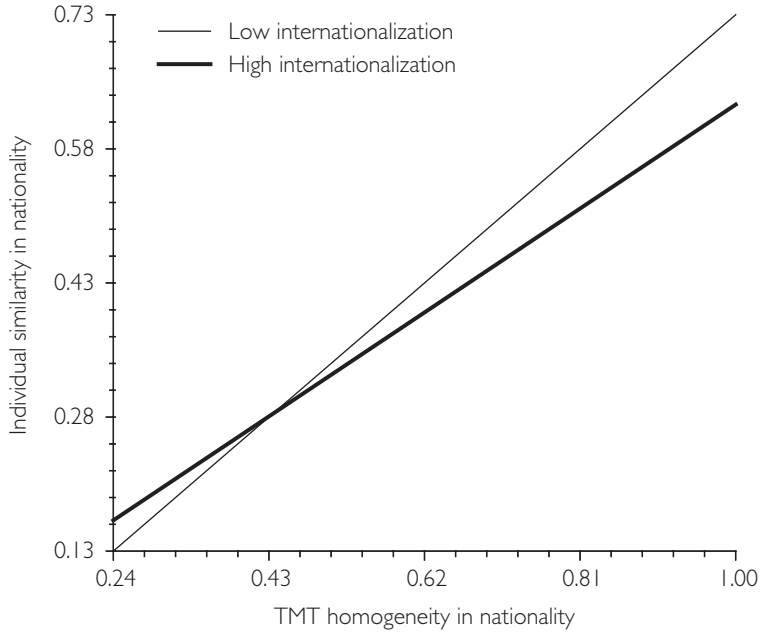
(b)   Moderating effect of international diversification on international experience
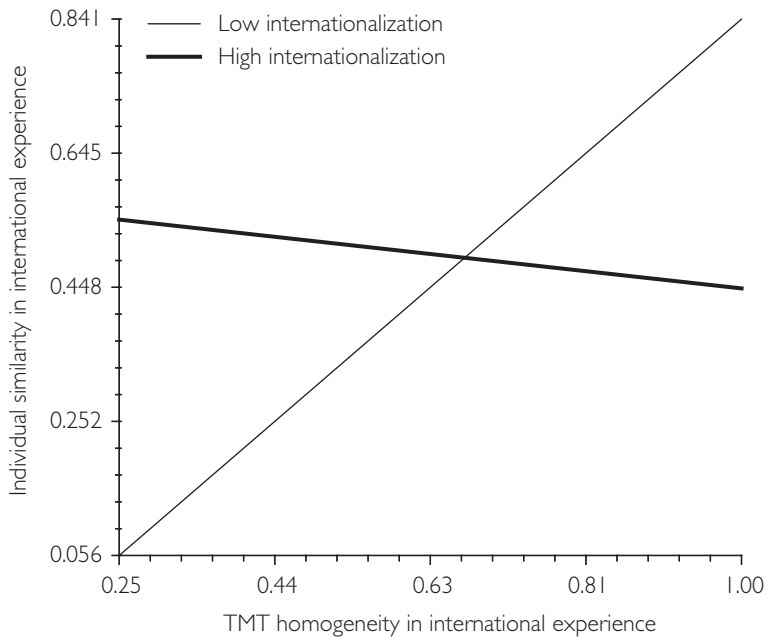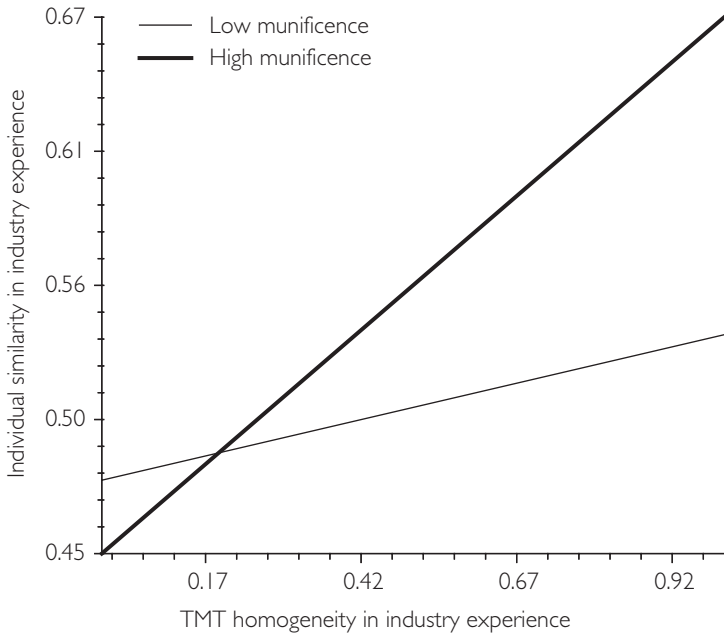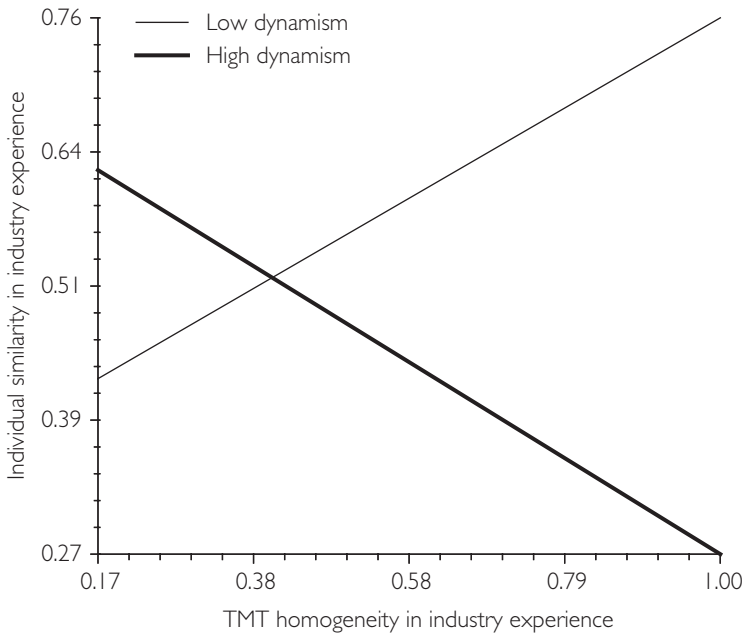

Figure 1   Moderating effects of international diversification

(a) Moderating effect of industry munificence on industry experience

(b) Moderating effect of industry dynamism on industry experience

Figure 2 Moderating effects of industry characteristics

capacity and ability to deal with complex international situations. Under such circumstances, rational economic reasons may outweigh social psychological processes at the individual level. The evidence suggests that high international diversification reduces the tendency to hire a new TMT member coming from a country similar to the rest of the team, indicating that, in such conditions, purely domestic TMTs or TMTs with only a few dominant nationalities on the team may consider hiring a foreigner from a different country in order to diversify their cultural composition.

Similar mechanisms take place in regard to the international experience of newly selected TMT members. Interestingly, pressures due to strategic complexity not only reduce the similarity in international experience of new entrants to the rest of the team but even outweigh the homogeneity tendencies. In conditions of a high degree of internationalization, more homogeneous TMTs are more likely to select a new TMT member who is *dissimilar* in international experience. These results suggest that international diversification exposes the limitations of the current TMT composition and is likely to lead to changes in their demographic profiles. More importantly, it indicates that when presented with pressures to extend the international backgrounds and expertise of their members, TMTs are more likely to hire a domestic executive with international experience rather that a foreign national. This choice is logical as nationality is a more salient dimension for social categorization than international experience. Foreign nationality is a readily observable dimension, typically detected by the accent of the individual and is likely to cause communication difficulties, misunderstandings and negative affective reactions (Hambrick et al., 1998). It also has much stronger influence on executive orientations and behavior than other demographic characteristics (Geletkanycz, 1997). International experience, however, brings similar benefits to those of foreign nationality but is not associated with the same negative consequences. Hence, top executives who strive towards maintaining the status quo of their top management team composition are likely to prefer to hire an executive who is similar to them in terms of nationality but has international experience.

Industry characteristics were found to interact with social psychological processes leading towards higher homogeneity in determining the similarity of new entrants to the TMT. As predicted, TMTs in munificent industries were even more likely to select an executive with similar industry experience. This indicates that during times of sustained growth, firms tend to uphold the status quo and become even more homogeneous in their executive ranks. Industry dynamism, on the other hand, exhibited a negative influence on this tendency. When faced with highly turbulent environmental conditions, executives are more likely to rely on objective criteria for matching their composition to the environment and increase the information-processing demands. As a result, in industries characterized by high degrees of dynamism,

these objective reasons seemed to outweigh the social psychological processes and lead homogeneous TMTs to select new members who had experience from industries different than the one in which the focal firm operates. These results point to the importance of considering a number of industry characteristics simultaneously, as munificence and dynamism seem to have opposing effects on TMT tendency towards homosocial reproduction.

Building on the work of Boone et al. (2004), this study advances theory and our understanding of the determinants of TMT composition in several ways. Specifically, it advances theory by distinguishing between different aspects of TMT composition rather than using a composite heterogeneity measure. First, recognizing that different conditions may require different *types* of heterogeneity, separate hypotheses were specified for each of the four distinct demographic diversity dimensions: nationality, international experience, educational background and industry experience. In particular, this study delved into the dynamics behind decisions for appointment of individual top executives and investigated to what extent such decisions reflect individual, team, organizational and industry characteristics. Given that the motives behind hiring a foreign national might be very different from the motives for hiring an executive with a non-traditional educational background or with experience outside the focal firm industry, precise theorizing in regard to each particular diversity dimensions is needed. By linking specific contextual dimensions (e.g. role of nationality and international experience for internationalized companies, industry experience and educational background for particular industry conditions) to TMT composition, this study responded to calls to move beyond the general construct of TMT heterogeneity (Jackson, 1992) and provided new insights into why TMTs look the way they do.

Second, distinguishing between different dimensions of TMT composition allows for consideration of possible cross-effects among these dimensions. According to the notion of requisite variety (Ashby, 1956), team heterogeneity will enable top executives to cope with the challenges of a firm's environment. However, while some heterogeneity aspects have similar anticipated benefits (e.g. diversity in information, perspectives for industry and educational background diversity or country-specific knowledge and access to networks for international experience diversity and nationality diversity), they may have differential influence on strategic decision-making. This poses the question as to whether such heterogeneity dimensions complement or substitute each other. Interestingly, the results indicate some presence of such effects. For instance, the similarity of international experience of new entrants to the rest of the team seems to be determined not only by the degree of TMT international experience homogeneity but also by TMT nationality homogeneity. Since both coefficients are positive, these results indicate that TMT nationality diversity and international experience represent two dimensions of TMT international capacity and orientation that may

complement each other. On the other hand, TMT international experience was negatively associated with the similarity in educational background and industry experience of newly selected TMT members, indicating possible substitution effects. It seems that TMTs characterized by homogeneity in international experience are more likely to appoint new members with diverse educational backgrounds and/or industry experiences. Such substitution effects might occur in an attempt to avoid potential conflicts within the team as a result of high heterogeneity on all dimensions. From a normative perspective, this points to the importance of considering possible complementary and substitution effects among multiple dimensions when selecting new TMT members. This may, in turn, help prevent creation of team faultlines (Lau and Murnighan, 1998), which has been shown to hamper TMT strategic decision-making (Barkema and Shvyrkov, 2007).

Finally, the study advances our understanding of the factors determining TMT composition by considering the effects of industry characteristics in a multilevel setting. While Boone et al. (2004) focused on a single industry and found evidence that TMTs close their ranks when facing high competitive intensity, the present study examined the moderating effects of two different characteristics across multiple industries. The results suggest that these characteristics have opposing effects: whereas industry munificence strengthens TMTs' tendency to homosocial reproduction, industry dynamism reduces this tendency. More importantly, these results suggest that the ASA processes and their effects on executive selection may differ across industries – that is, the relationship between TMT homogeneity and similarity of new entrants might be strong in some industries and weak in others. Together, these results point to the importance of applying multilevel theory and method in studies of TMT composition.

Whereas this study considers the moderating effects of higher level factors influencing the composition of top management teams, as noted by Boone and van Wittelostijn (2007), the opposite hierarchical logic in linking individual differences with macro-level system outcomes may also be relevant. While most conventional statistical techniques require that the dependent variable is at the lowest level of analysis, multilevel structural equation modelling (SEM) allows researchers to investigate outcomes at higher levels. Future research may utilize the recent advances in multilevel SEM to test for the opposite hierarchical logic of linking different level factors.

Acknowledgements

Notes

1 The upper echelons literature identifies a number of other demographic characteristics, which are not included in this study for the following reasons. In terms of function, typically a new entrant is simply a replacement in the same function as an exiting member (no data were available on executive functions occupied in the course of their careers as suggested by Bunderson and Sutcliffe [2002] and Cannella et al. [2008]). Similarly to function, age is not an objective selection criterion as an older member who retires is typically replaced by a younger executive. Tenure is a function of executive change and executives cannot be selected on the basis of team tenure. Gender diversity is very limited among Swiss top executives as only 2.5 percent of all TMT members are women.

2 Dess and Beard (1984) identify three industry characteristics: munificence, dynamism and complexity. As the previous hypotheses deal with complexity at the firm level (pertaining to firm strategy), these hypotheses focus on industry munificence and dynamism only.

3 As new team members' nationality, education, industry and international experiences are not independent, but rather jointly determined, the error terms of the models for the four similarity dimensions are likely to be correlated. Re-estimation using a seemingly unrelated regression (SUR) revealed no differences compared to the HLM results.

References

Ashby, W. R. (1956) *An Introduction to Cybernetics.* London: Chapman and Hall.

Athanassiou N. and Nigh, D. (1999) 'The Impact of US Company Internationalization on Top Management Team Advice Networks', *Strategic Management Journal* 20: 83–92.

Bantel, K. A. and Jackson, S. E. (1989) 'Top Management and Innovations in Banking: Does the Composition of the Top Team Make a Difference?', *Strategic Management Journal* 10: 107–24.

Barkema, H. G. and Shvyrkov, O. (2007) 'Does Top Management Team Diversity Promote or Hamper Foreign Expansion?', *Strategic Management Journal* 41: 7–26.

Baskett, G. D. (1973) 'Interview Decisions as Determined by Competency and Attitude Similarity', *Journal of Applied Psychology* 57: 343–5.

Becker, G. S. (1962) *Human Capital.* Chicago, IL: The University of Chicago Press.

Blau, P. (1977) *Inequality and Heterogeneity.* New York: Free Press.

Boeker, W. and Wiltbank, R. (2005) 'New Venture Evolution and Managerial Capabilities', *Organization Science* 16 (2): 123–33.

Boone, C. and van Witteloostijn, A. (2007) 'Individual-level Heterogeneity and Macro-level Outcomes', *Strategic Organization* 5(3): 259–70.

Boone, C., van Olffen, W., van Witteloostuijn, A. and de Brabander, B. (2004) 'The Genesis of Top Management Team Diversity: Selective Turnover among Top Management Teams in Dutch Newspaper Publishing', *Academy of Management Journal* 47: 633–56.

Bunderson, J. S. and Sutcliffe, K. M. (2002) 'Comparing Alternative Conceptualizations of Functional Diversity in Management Teams: Process and Performance Effects', *Academy of Management Journal* 45: 875–93.

Byrne, D. (1971) *The Attraction Paradigm.* New York: Academic Press.

Cannella, A. A. and Holcomb, T. R. (2005) 'A Multi-level Analysis of the Upper Echelon Model', in A. Dansereau and F. Yammarino (eds) *Multi-level Issues in Strategy and Methods.* Oxford: Elsevier.

Cannella, A. A., Park, J. and Lee H. (2008) 'Top Management Team Diversity and Firm Performance: Examining the Environmental Uncertainty and Team Member Co-location', *Academy of Management Journal* 51(4): 768–84.

Carpenter, M. A. (2002) 'The Implications of Strategy and Social Context for the Relationship between Top Management Team Heterogeneity and Firm Performance', *Strategic Management Journal* 23: 275–84.

Carpenter, M. A. (2005) 'Moving (finally) toward a Multi-level Model of the Upper Echelons', in A. Dansereau and F. Yammarino (eds) *Multilevel Issues in Strategy and Methods.* Oxford: Elsevier.

Carpenter, M. A., Sanders, W. G. and Gregersen, H. B. (2001) 'Bundling Human Capital with Organizational Context: The Impact of International Assignment Experience on Multinational Firm Performance and CEO Pay', *Academy of Management Journal* 44: 493–511.

Carpenter, M. A., Geletkanycz, M. A. and Sanders, W. G. (2004) 'Upper Echelons Research Revisited: Antecedents, Elements, and Consequences of Top Management Team Composition', *Journal of Management* 30(6): 747–78.

Certo, S. T., Lester, R. H., Dalton, C. M. and Dalton, D. R. (2006) 'Top Management Teams, Strategy and Financial Performance: A Meta-analytical Examination', *Journal of Management Studies* 43(3): 813–39.

Chaganti, R. and Sambharya, R. (1987) 'Strategic Orientation and Characteristics of Upper Management', *Strategic Management Journal* 8: 393–401.

Cyert, R. M. and March, J. A. (1963) *A Behavioural Theory of the Firm.* Englewood Cliffs, NJ: Prentice-Hall.

Daily, C. M. and Schwenk, C. (1996) 'CEOs, Top Management Teams, and Board of Directors: Congruent or Countervailing Forces?', *Journal of Management* 22(2): 185–208.

Daily, C. M., Certo, S. T. and Dalton, D. R. (2000) 'International Experience in the Executive Suite: The Path to Prosperity', *Strategic Management Journal* 21: 515–23.

Datta, D. K. and Guthrie, J. (1994) 'Executive Succession: Organizational Antecedents of CEO Characteristics', *Strategic Management Journal* 15: 569–77.

Dess, G. G. and Beard, D. W. (1984) 'Dimensions of Organizational Task Environments', *Administrative Science Quarterly* 29: 52–73.

Eisenhardt, K. M. and Schoonhoven, C. B. (1990) 'Organizational Growth: Linking Founding Team, Strategy, Environment and Growth among US Semiconductor Ventures, 1978–1988', *Administrative Science Quarterly* 35: 504–29.

Elron, E. (1997) 'Top Management Teams within Multinational Corporations: Effects of Cultural Heterogeneity', *Leadership Quarterly* 8(4): 393–412.

Finkelstein, S. and Hambrick, D. C. (1996) *Strategic Leadership: Top Executives and their Effects on Organizations.* St Paul, MN: West Publishing.

Finkelstein, S., Hambrick, D. C. and Cannella, A. A. (2008) *Strategic Leadership: Theory and Research on Executives, Top Management Teams and Boards.* New York: Oxford University Press.

Galbraith, J. (1973) *Designing Complex Situations.* Reading, MA: Addison-Wesley.

Geletkanycz, M. A. (1997) 'The Salience of "Culture's Consequences": The Effects of Cultural Values on Executive Commitment to the Status Quo', *Strategic Management Journal* 18: 615–34.

Gong, Y. (2006) 'The Impact of Subsidiary Top Management Team Nationality Diversity on Subsidiary Performance: Knowledge and Legitimacy Perspectives', *Management International Review* 46(6): 771–89.

Gupta, A. K. and Govindarajan, V. (1984) 'Business Unit Strategy, Managerial Characteristics, and Business Unit Effectiveness at Strategy', *The Academy of Management Journal* 27(1): 25–41.

Guthrie, J. P. and Datta, D. K. (1997) 'Contextual Influences on Executive Selection: Firm Characteristics and CEO Experiences', *Journal of Management Studies* 43(4): 538–60.

Guthrie, J. and Olian, J. D. (1991) 'Does Context Affect Staffing? The Case of General Managers', *Personnel Psychology* 44: 263–92.

Hambrick, D. C. (2007) 'Upper Echelons Theory: An Update', *Academy of Management Review* 32(2): 334–43.

Hambrick, D. C. and Mason, P. A. (1984) 'Upper Echelons: The Organization as a Reflection of its Top Managers', *Academy of Management Review* 9: 193–206.

Hambrick, D. C., Davidson, S. C., Snell, S. A. and Snow, C. C. (1998) 'When Groups Consists of Multiple Nationalities: Towards a New Understanding of the Implications', *Organization Studies* 19(2): 181–205.

Hermalin, B. E. and Weisbach, M. S. (1988) 'The Determinants of Board Composition', *RAND Journal of Economics* 19: 589–606.

Hillman, A. J. and Dalziel, T. (2003) 'Board of Directors and Firm Performance: Integrating Agency and Resource Dependence Perspectives', *Academy of Management Review* 28(3): 383–96.

Hitt, M. A. and Tylor, B. T. (1991) 'Strategic Decision Models: Integrating Different Perspectives', *Strategic Management Journal* 15: 327–51.

Hitt, M., Beamish, P., Jackson, S. and Mathieu, J. (2007) 'Building Theoretical and Empirical Bridges across Levels: Multilevel Research in Management', *Academy of Management Journal* 50(6): 1385–400.

Hoffman, L. R. and Maier, N. (1961) 'Quality and Acceptance of Problem Solutions by Members of Homogeneous and Heterogeneous Groups', *Journal of Abnormal and Social Psychology* 2: 401–7.

Hofstede, G. (1980) *Culture's Consequences*. Newbury Park, CA: SAGE.

Hoskinsson, R. E., Hitt, M. A., Johnson, R. A. and Moesel, D. D. (1993) 'Construct Validity of an Objective (Entropy) Categorical Measure of Diversification Strategy', *Strategic Management Journal* 14(3): 215–35.

Jackson, S. E. (1992) 'Consequences of Group Composition for the Interpersonal Dynamics of Strategic Issue Processing', in P. Shrivastava, A. Huff and J. Dutton (eds) *Advances in Strategic Management*, Vol. 8. London: JAI Press.

Jensen, M. C. and Zajac, E. J. (2004) 'Corporate Elites and Corporate Strategy: How Demographic Preferences and Structural Position Shape the Scope of the Firm', *Strategic Management Journal* 25: 507–24.

Johansson, J. and Vahlne, J.-E. (1977) 'The Internationalization Process of the Firm: A Model of Knowledge Development and Increasing Foreign Market Commitments', *Journal of International Business* Studies 8(1): 23–32.

Kanter, R. M. (1977) *Men and Women in Corporation*. New York: Basic Books.

Keck, S. (1997) 'Top Management Team Structure: Differential Effects of Environmental Context', *Organizational Science* 8: 143–56.

Keck, S. L. and Tushman, M. L. (1993) 'Environmental and Organizational Context and Executive Team Structure', *Academy of Management Journal* 36: 1314–44.

Klein, K. J., Dansereau, F. and Hall, R. J. (1994) 'Level Issues in Theory Development, Data Collection and Analysis', *Academy of Management Review* 19: 195–229.

Knight, D., Pearce, C. L., Smith, K. G., Olian, J. D., Sims, H. P., Smith K. A. and Flood, P. (1999) 'Top Management Team Diversity, Group Process and Strategic Consensus', *Administrative Science Quarterly* 39(3): 412–38.

Kobrin, S. J. (1984) *International Expertise in American Business: How to Learn to Play with the Kids on the Street*. New York: Institute of International Education.

Kor, Y. Y. (2003) 'Experience-based Top Management Team Competence and Sustained Growth', *Organization Science* 14(6): 707–19.

Lau, D. C. and Murnighan, J. K. (1998) 'Demographic Diversity and Faultlines: The Compositional Dynamics of Organizational Groups', *Academy of Management Review* 23: 325–40.

Lawrence, B. S. (1997) 'The Black Box of Organizational Demography', *Organization Science* 8(1): 22.

Michel, J. G. and Hambrick, D. C. (1992) 'Diversification Posture and Top Management Team Characteristics', *Academy of Management Journal* 35: 9–37.

Milliken, F. J. and Martins, L. L. (1996) 'Searching for Common Treads: Understanding the Multiple Effects of Diversity in Organizational Groups', *Academy of Management Journal* 21: 402–33.

Norburn, D. and Birley, S. (1988) 'The Top Management Team and Corporate Performance', *Strategic Management Journal* 9: 225–37.

Palepu, K. (1985) 'Diversification Strategy, Profit Performance and the Entropy Measure', *Strategic Management Journal* 6(3): 239–55.

Pegels, C. C., Song, Y. I. and Yang, B. (2000) 'Management Heterogeneity, Competitive Interaction Groups, and Firm Performance', *Strategic Management Journal* 21: 911–23.

Pettigrew, A. (1992) 'On Studying Managerial Elites', *Strategic Management Journal* 13: 163–82.

Pfeffer, J. and Salancik, G. (1978) *The External Control of Organizations: A Resource-Dependence Perspective*. New York: Harper and Row.

Prahalad, C. K. and Bettis, R. A. (1986) 'The Dominant Logic: A New Linkage between Diversity and Performance', *Strategic Management Journal* 7: 485–501.

Priem, R. L., Lyon, D. W. and Dess, G. (1999) 'Inherent Limitations of Demographic Proxies in Top Management Team Heterogeneity Research', *Journal of Management* 25(6): 935–53.

Raudenbush, S. W. and Bryk, A. S. (2002) *Hierarchical Linear Models: Applications and Data Analysis Methods*. Thousand Oaks, CA: SAGE.

Raudenbush, S. W., Bryk, A. S., Cheong, Y. F., Congdon, R. and du Toit, M. (2004) *HLM: Hierarchical Linear and Nonlinear Modeling*. Chicago, IL: Scientific Software international.

Roth, K. (1995) 'Managing International Interdependence: CEO Characteristics in a Resource Based Framework', *Academy of Management Journal* 38: 200–31.

Sambharya, R. B. (1996) 'Foreign Experience of Top Management Teams and International Diversification Strategies of US Multinational Corporations', *Strategic Management Journal* 17: 739–46.

Sanders, W. M. and Carpenter, M. A. (1998) 'Internationalization and Firm Governance: The Roles of CEO Compensation, Top Team Composition, and Board Structure', *Academy of Management Journal* 41: 158–78.

Schaubroeck, J., Ganster, D. C. and Jones, J. R. (1998) 'Organization and Occupational Influences in the Attraction–Selection–Attrition Process', *Journal of Applied Psychology* 83: 869–91.

Schneider, B. (1983) 'The Attraction–Selection–Attrition Framework', in K. S. Camron and D. A. Wetten (eds) *Organizational Effectiveness: A Comparison of Multiple Models*. New York: Academic Press.

Schneider, B. (1987) 'The People Make the Place', *Personnel Psychology* 40: 437–53.

Schneider, B., Smith, D. B., Tayloer, S. and Fleenor, J. (1998) 'Personality and Organizations: A Test of the Homogeneity of Personality Hypothesis', *Journal of Applied Psychology* 83: 462–70.

Smith, K. G., Smith, K. A., Olian, J. D., Sims, H. P., O'Bannon, D. P. and Scully, J. A. (1994) 'Top Management Team Demography and Process: The Role of Social Integration and Communication', *Administrative Science Quarterly* 39: 412–38.

Snijders, T. A. B. and Bosker, R. J. (1999) *Multi-level Analysis: An Introduction to Basic and Advanced Multilevel Modeling*. London: SAGE.

Staples, C. L. (2007) 'Board Globalization in the World's Largest TNCs 1993–2005', *Corporate Governance: An International Review* 15(2): 311–21.

Starbuck, W. H. (1976) 'Organizations and their Environments', in M. D. Dunnette (ed.) *Handbook of Industrial and Organizational Psychology*, pp. 1069–123. Chicago, IL: Rand McNally.

Sutcliffe, K. M. (1994) 'What Executives Notice: Accurate Perceptions in Top Management Teams', *Academy of Management Journal* 37: 1360–78.

Swissinfo (2004) 'Switzerland Continues to Draw Multinationals', 2 December; at: www.swissinfo.org/eng/swissinfo.html?siteSect=111&sid=5378556

Szilagyi, A. D. and Schweiger, D. M. (1984) 'Matching Managers to Strategies: A Review and Suggested Framework', *Academy of Management Review* 9: 626–37.

Tajfel, H. (1981) *Human Groups and Social Categories: Studies in Social Psychology*. Cambridge: Cambridge University Press.

Thomas, A. S. and Ramaswamy, K. (1993) 'Environmental Change and Managerial Staffing: A Comment', *Journal of Management* 19(4): 877–87.

Thomas, A. S., Litschert, R. J. and Ramaswamy, K. (1991) 'The Performance Impact of Strategy-Management Coalignment: An Empirical Examination', *Strategic Management Journal* 12: 509–22.

Thompson, J. D. (1967) *Organizations in Action.* New York: McGraw-Hill.

Tsui, A., Egan, T. D. and O'Reilly, C. A. (1992) 'Being Different: Relational Demography and Organizational Attachment', *Administrative Science Quarterly* 37: 549–79.

Turner, J. (1982) 'Toward a Cognitive Definition of the Group', in H. Tajfel (ed.) *Social Identity and Intergroup Relations.* Cambridge: Cambridge University Press.

Turner, J. (1987) *Rediscovering the Social Group: A Social Categorization Theory.* Oxford: Blackwell.

Westphal, J. D. and Zajac, E. J. (1995) 'Who Shall Govern? CEO/Board Power, Demographic Similarity, and New Director Selection', *Administrative Science Quarterly* 40(1): 60–83.

Wiersema, M. and Bantel, K. (1992) 'Top Management Team Demography and Corporate Strategic Change', *Academy of Management Journal* 35: 91–121.

Williams, K. Y. and O'Reilly, C. A. (1998) 'Demography and Diversity in Organizations: A Review of 40 Years of Research', in B. M. Staw and L. L. Cummings (eds) *Research in Organizational Behaviour*, pp. 77–140. Greenwich, CT: JAI Press.

Zaheer, S. (1995) 'Overcoming the Liability of Foreignness', *Academy of Management Journal* 38(2): 341–63.

Zajac E. J. and Westphal, J. D. (1996) 'Who Shall Succeed? How CEO/Board Preferences and Power Affect the Choice of New CEOs', *Academy of Management Journal* 39: 64–90.

Sabina Nielsen is assistant professor at the Department of International Economics and Management, Copenhagen Business School. She received her PhD from the University of St Gallen, Switzerland and was a visiting scholar at the University of Washington, Seattle. Her research interests include the composition, dynamics and decision-making of top management teams and boards of directors. Her research has been published in international scholarly journals such as *Journal of Management Studies*, *Journal of Business Ethics*, *Journal of Management and Governance*, *Corporate Governance: An International Review* and *European Management Journal* and in the *Best Paper Proceedings of the Academy of Management and the Academy of International Business*. *Address:* Copenhagen Business School, Department of International Economics and Management, Porcelaenshave 24a, 2000 Frederiksberg, Denmark. [email: sta.int@cbs.dk]