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DOES TOP MANAGEMENT TEAM DIVERSITY PROMOTE OR HAMPER FOREIGN EXPANSION?

HARRY G. BARKEMA[1]* and OLEG SHVYRKOV[2]
[1] *School of Economics and Business Administration, Tilburg University, Tilburg, The Netherlands*
[2] *Governance Services, Standard & Poor's, Moscow, Russia*

Prior research suggests that top management team (TMT) diversity increases strategic innovation. We extended this argument to the case of entering new geographic areas. In addition to exploring the cognitive implications of TMT diversity, as done in prior research, we explored when diversity may lead to the formation of subgroups within TMTs hampering communication and the propensity to enter new geographic areas. We also examined how these positive cognitive and negative social implications change over time as TMT members interact over the years. The hypotheses were tested using ordinal probit analysis and data on 2,159 expansions of 25 companies over a period of more than three decades. Copyright © 2007 John Wiley & Sons, Ltd.

Companies are increasingly competing on a global scale. Foreign direct investments grew from U.S.$ 1.8 trillion in 1990 to $9.7 trillion in 2004 (United Nations, 2005). Hence, there is an increasing need for top management teams (TMTs) to identify expansion opportunities beyond familiar domains into countries or regions, such as South East Asia, Central and Eastern Europe, or Latin America, that are new to the company.

Strategy researchers have focused on the role of TMT diversity as a driver of strategic innovation. They have argued that cognitive diversity rooted in different experiences, in terms of tenure, education, age, and so on, promotes constructive debate and strategic innovation, in the form of technological and administrative innovation, and entry into new product markets (Bantel and Jackson, 1989; Boeker, 1997a; Wiersema and Bantel, 1992; Hambrick, Cho, and Chen, 1996). We extended this research by exploring how TMT diversity influences the propensity to invest in new countries or entirely new regions, and to develop from being a domestic firm to becoming a multinational one.

Prior studies have found mixed support for the influence of TMT diversity on innovation (Ancona and Caldwell, 1992; Boeker, 1997a, 1997b; Miller, Burke, and Glick, 1998; O'Reilly, Snyder and Boothe, 1993). We focused on tenure diversity and on educational diversity (being an engineer, a lawyer, having an MBA, etc.), both of which seemed particularly relevant for the strategic task in our study, evaluating and selecting investment opportunities. Both kinds of diversity imply different skills, points of view, preferences, and information (Jehn, 1997) regarding the focal task, and so may promote constructive debate and strategic innovation in the form of investments into new geographic areas.

TMT researchers have traditionally ignored the negative implications of diversity (Amason, 1996); for instance, when it leads to the formation of

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*Correspondence to: Harry G. Barkema, School of Economics and Business Administration, Tilburg University, PO Box 90153, 5000 LE Tilburg, The Netherlands. E-mail: barkema@uvt.nl

subgroups within teams (Earley and Mosakowski, 2000). Theoretical research into small groups suggests that the formation of subgroups is particularly likely in the case of so-called strong faultline settings (Lau and Murnighan, 1998); that is, if the subgroups differ in terms of several demographic characteristics at the same time. We argue that strong faultline settings hamper constructive debate and the capacity of the TMT to enter new foreign countries and regions.

We also examined how cognitive diversity and strong faultline settings change as TMT members continue to interact over time, that is, for years. Prior research into team processes typically used experiments over a period that ranged from a couple of hours to 17 weeks, a timeframe dictated by the availability of students for experiments. With the exception of Pelled, Eisenhardt, and Xin (1999), little is known about top managers performing real strategic tasks and interacting over a period of years. We argue that as TMT members exchange information and learn from each other the cognitive diversity of the team is reduced over time (Katz, 1982). We also argue that social interaction reduces strong faultlines in TMTs based on initially perceived surface-level demographic differences. This argument runs counter to earlier suggestions that faultlines deepen over time as tensions increase (Lau and Murnighan, 1998).

We tested our hypotheses on longitudinal data on the TMTs of 25 internationalizing companies engaged in 2,159 investments over a period of more than three decades from 1966 to 1998. The propensity to enter new countries or even entirely new regions, rather than investing only in familiar foreign countries or at home, was modeled using ordered probit analysis. Our measures built on, and extended, previous measures of overlapping team tenure (Carroll and Harrison, 1998) and faultlines (Lau and Murnighan, 1998).

This type of research is also relevant from a practical perspective. As it is difficult to influence the social dynamics within TMTs, it may prove easier to change the composition of a team (Yu, 2002: 17). Hence, it is useful to know how changes in the demographic characteristics of TMTs, say by replacing a 60-year-old engineer who has been a member of the team for many years with a younger manager with an MBA, might influence the cognitive diversity and the social dynamics of the team and thereby its propensity to enter new geographic areas, and further, how this propensity is affected as TMT members interact over a period of years rather than hours or weeks.

BACKGROUND

TMT research

Over the past two decades, upper-echelon researchers have extended Hambrick and Mason's seminal (1984) work on how TMT demographic characteristics can be used to explain corporate strategy. A key assumption of this research program is that demographic characteristics are useful indicators of individual experiences, skills, values, cognitive styles, and information sources (Jackson, 1992; Jehn, Northcraft, and Neale, 1999). Much of this research explored how TMT demographic diversity or 'heterogeneity,' terms we use interchangeably, influences strategic innovation (Finkelstein and Hambrick, 1996; Williams and O'Reilly, 1998).

Early empirical work (Bantel and Jackson, 1989; Wiersema and Bantel, 1992) supported the idea that TMT demographic diversity leads to the consideration of many alternatives and that it enhances creativity and the likelihood that innovative strategic decisions will be made. Later empirical studies showed mixed support for this assumption. Boeker found that diverse TMTs are more likely to enter new product markets (1997a) and to implement administrative innovation (1997b) than homogeneous teams. However, other empirical studies found that TMT tenure diversity decreased technological innovation (O'Reilly *et al*., 1993), that tenure diversity and functional diversity decreased product innovation (Ancona and Caldwell, 1992), and that more diverse TMTs made less comprehensive evaluations of opportunities and threats (Miller *et al*., 1998).

TMT researchers have therefore begun to 'open up the black box' (Lawrence, 1997; Pelled *et al*., 1999) regarding the strategic implications of TMT diversity (Hambrick *et al*., 1996; Miller *et al*., 1998). Some have suggested that team diversity not only promotes diversity of ideas and increases strategic innovation, as the cognitive lens traditionally used in TMT research implies, but also leads to emotional conflict which can be counterproductive (Amason, 1996; Jehn, 1995, 1997; Jehn *et al*., 1999; Pelled *et al*., 1999). Apparently, it is necessary when seeking to explain how TMT diversity

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influences strategic innovation, to separate, both theoretically and empirically, the positive effects of TMT diversity implied by a cognitive lens from its suggested negative social effects.

A social lens

Like anyone else, managers are social animals who tend to see situations in terms of groups to which they do or do not belong. Individuals see positively groups with which they identify (Tajfel, 1974; Tajfel and Turner, 1979; Turner, 1982) and assign themselves and others to different categories (Hogg, 1996: 229). Since demographic characteristics are most obvious, they are particularly likely to play a role in shaping first impressions and categorizing oneself and other team members. Indeed, much research has shown that group membership correlates highly with demographic characteristics in organizations (Levine and Moreland, 1998). Observable characteristics such as race, gender, age, departmental affiliation, education, and tenure are particularly likely to elicit stereotypes and lead to categorization (Harrison, Price, and Bell, 1998; Pelled *et al*., 1999; Watson, Kumar, and Michaelsen, 1993).

Social categorization may also occur within teams. As individuals identify with demographically similar peers (Byrne, 1971), relatively homogeneous subgroups may emerge, hampering communication within the team. Recent research into teams (Earley and Mosakowski, 2000; Lau and Murnighan, 1998) investigated when demographic diversity leads to the formation of subgroups within teams, and how this might influence team processes and performance. Lau and Murnighan's (1998) theoretical paper on small groups is particularly relevant to our study. They emphasized the importance of faultlines: the process by which TMTs divide themselves into subgroups based on demographic attributes. Examples are gender and educational faultlines. Educational faultlines might mean that a team is divided into subgroups of lawyers and engineers.

The formation of subgroups within teams is particularly likely in *strong* faultline settings, when several demographic attributes become aligned in the same way (Lau and Murnighan, 1998), such as a team with a subgroup of young, female lawyers and a subgroup of older, male engineers (where the subgroups differ in terms of age, gender, and education at the same time). In these strong faultline settings, emotional conflict may occur (Jehn, 1997; Jehn *et al*., 1999) which causes communication and the exchange of ideas within the team to break down. In such cases, novel, 'frame-breaking' ideas are the first to go (Finkelstein and Hambrick, 1996). This is particularly likely to happen when teams must make decisions that require the consensus of most or all TMT members—entry into a new geographic area, for instance (Hambrick *et al*., 1996).

Entry into new geographic areas

Many researchers (e.g., Aharoni, 1966; Barkema, Bell, and Pennings, 1996; Johanson and Vahlne, 1977) have explored how firms expand beyond their national borders, be it into neighboring countries or further away. Investments in foreign countries give firms experience with other cultures, institutions, and competitive settings, making subsequent investments in those countries more routine and more incremental (Delios and Beamish, 2001; Eriksson *et al*., 1997; Li, 1995).

Cultural blocks have been defined as relatively homogeneous groups of countries having less within-variance in terms of culture when compared with the differences between cultural blocks (Ronen and Shenkar, 1985). First-time investments in new foreign countries, particularly if they are in new cultural blocks, such as South East Asia, Latin America, or Latin Europe, are more innovative from a strategic perspective (Barkema *et al*., 1996; Delios and Henisz, 2003). Hence, a first-time investment in a new cultural block means investing in a cultural and institutional setting that differs considerably from that in which the firm has previously invested, making the investment particularly innovative.

THEORY AND HYPOTHESES

The dependent variable

Hambrick *et al*. (1996: 664) argued that entry into new geographic areas is a particularly appropriate setting in which to examine the influence of TMT diversity, as such a decision is likely to involve the entire TMT, as opposed to when a more incremental or conventional decision is called for, such as expanding the firm's sales force, which might be

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made by a subset of the team. Prior research (Aharoni, 1966; Johanson and Vahlne, 1977) has shown that firms sometimes enter new geographic areas using sales agents. Entry through *direct investments* in new geographic areas, which are more likely to involve the entire TMT, is therefore a more appropriate setting for our study. Hence, we adapted Hambrick *et al*.'s suggestion by exploring how TMT diversity influences the likelihood of new investments being made in new geographic areas rather than in familiar ones. The novelty of the geographic location of new investments is the dependent variable in our theory and empirical analyses.[1]

A cognitive lens

Demographically homogeneous TMTs are less likely to break the mold and make novel strategic decisions (Bantel and Jackson, 1989; Wiersema and Bantel, 1992). Group members are less likely to criticize each other's ideas and may be overly concerned about maintaining unanimity. As a result, TMTs may overlook important details, succumb to inertia, and suffer from groupthink (Hambrick and Mason, 1984; Jehn, 1995), causing them to reinforce rather than break familiar investment patterns (Finkelstein and Hambrick, 1996). Alternatively, demographic diversity implies tapping into a diversity of preferences and beliefs, business and life experiences, skills, and information networks (Jackson, 1992). This opens up a wider range of strategic options to be considered and increases the novelty of strategic decisions (Bantel and Jackson, 1989; Boeker, 1997a; Levine and Moreland, 1998; Wiersema and Bantel, 1992).

Part of the mechanism is that diversity in experience, skill, views, preference, and information within TMTs may stimulate *task-related* constructive criticism and debate (Jehn, 1997; Jehn *et al*., 1999; Simons, Pelled, and Smith, 1999). As a result, team members become aware of more issues, perceive those issues differently, and are more likely to propose alternative courses of action. Hence, task conflict leads groups to develop new ideas and approaches (Amason, 1996; Jehn, 1995) which increase the likelihood of strategic innovation and decrease the likelihood that strategic decisions will be conventional, limited in scope, and will follow familiar patterns (Hambrick *et al*., 1996). The desire to delve deeper into issues, combined with the need to resolve debate, encourages TMTs to collect additional data from outsiders (Ancona and Caldwell, 1992; Miller *et al*., 1998), for instance from analysts within the firm looking at potentially attractive, worldwide markets, or from external consultants whose experiences, skills, beliefs, and networks do not necessarily coincide with those of the TMT. This further increases the likelihood that the firm will invest in new countries or regions.

Task-related debate is especially likely if the diversity in experience, skills, values, and beliefs relates directly to the task (Pelled *et al*., 1999). That is, differences in work-related attributes, such as tenure and education, are more likely to surface in debate and become salient in work situations than are characteristics such as age, gender, or race (Forbes and Milliken, 1999; Jehn, Chatwick, and Thatcher, 1997; Jehn *et al*., 1999; Simons *et al*., 1999). Diversity in the latter attributes was suggested to have a greater influence on social processes, sometimes negatively as with stereotyping, distrust, and emotional conflict, than lead to task-related debate (Jehn, 1997; Jehn *et al*., 1999; Knight *et al*., 1999; Pelled *et al*., 1999).

In the context of our study, *tenure diversity* and *educational diversity* appear to capture relevant differences regarding the focal task of evaluating foreign investments. TMT tenure diversity will likely imply heterogeneity in experience, skills, networks, and viewpoints concerning this task (cf. Pelled *et al*., 1999; Simons *et al*., 1999). For instance, a person who has been a member of the TMT for some years and who probably gained experience with foreign expansions as a team member will likely have a different point of view, experiences, and ways of understanding foreign investments than someone who recently joined the TMT, possibly bringing fresh experience from one of the divisions.

Likewise, diversity in type of education, being an engineer, a lawyer, or having an MBA, may

[1] Our conceptualization of strategic novelty is consistent with behavioral theory (Cyert and March, 1963; March and Simon, 1958) and with the internationalization process research, starting with Johanson and Vahlne (1977), which suggests that most organizational adaptation and change occur in the vicinity of current practices. This is similar to Boeker (1997a), who conceptualized investment in familiar product markets as routine moves and entries into new product markets as strategic innovation. Greve (1998) used a comparable operationalization. In the geographic sense, additional entries at home or in familiar countries are routine moves, while investments into new countries, or even new cultural blocks (Ronen and Shenkar, 1985), imply moving beyond familiar cultural and institutional settings.

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imply different skills, views, and ways of understanding and evaluating investments. For instance, an engineer might be more likely to focus on the manufacturing side of the expansion, a lawyer on legal aspects of investing in foreign markets, and an MBA on organizational and financial issues. Such a TMT would be expected to have a greater diversity in perspectives than a team made up only of engineers. At higher levels of diversity, both in education and tenure, benefits may increase at a diminishing rate due to information overload.[2]

In summary, when it comes to the focal task in our study, evaluating foreign investment opportunities, both types of TMT diversity, tenure and type of education, may stimulate constructive task-related debate, possibly leading to more innovative decisions in that domain.

Hypothesis 1a: TMT tenure diversity increases the novelty of the geographic location of investments.

Hypothesis 1b: TMT educational diversity increases the novelty of the geographic location of investments.

A social lens

As mentioned earlier, faultlines are particularly likely if several demographic attributes align within teams, implying the same divide (Erickson, 1988) as in strong faultline settings. Divides within teams involving only one demographic attribute may emerge only in specific situations; for instance, divides based on professional background may emerge only when specific professional issues are being discussed, and those based on age and gender only in the context of more general social issues. A team may subdivide differently depending on the situation so, at most, weak faultlines are likely (Lau and Murnighan, 1998).

In contrast, in strong faultline settings several demographic attributes align and divide teams into hardened subgroups. An example of a strong faultline in a TMT based on age, education, and tenure simultaneously would be a subgroup of older managers with only secondary schooling who have served on the team for many years, and a subgroup of younger managers with MBAs all of whom have only recently joined the team. In such cases, people within the same subgroup may serve as peers on an entire range of issues while others consistently belong to other subgroups, which may lead to the formation of stable subgroups and deep faults (Earley and Mosakowski, 2000; Moscovici and Doise, 1994).

Strong faultline settings may enhance feelings of safety within a subgroup, leading members of the team to identify with the subgroup rather than with the TMT (Edmondson, 1999; Li and Hambrick, 2005). Li and Hambrick have argued that subdivision of a diverse team along aligned demographic attributes may lead to what they term 'behavioral disintegration,' that is lower levels, or even the total absence, of information exchange, joint decision making, and interaction between subgroups (Hambrick, 1994). Thatcher, Jehn, and Zanutto (2003) suggest that in such conditions not only does communication between subgroups diminish but also that it contributes little to the task (see also Lau and Murnighan, 2005). When the communication between subgroups breaks down, the team may not fully use the cognitive resources of its members. It is therefore less likely that novel strategic options are proposed or considered by the entire TMT (Finkelstein and Hambrick, 1996). It becomes more difficult to make joint decisions, achieve consensus, and get a commitment from all, or even most, TMT members, a necessary condition for important strategic initiatives such as investments in new geographic areas (Hambrick *et al*., 1996).

Moreover, a strategic initiative that might have been welcomed by members of other subgroups may never reach the entire TMT if a given subgroup quietly dismisses the initiative behind the scenes (Finkelstein and Hambrick, 1996; Miller *et al*., 1998). A divided TMT may give subsidiary managers at home or abroad room to push their own initiatives for local expansion and empire building (Birkinshaw, 1997), leading to incremental and conservative investments made in countries where the firm has already invested rather than moving into new geographic areas. In summary, we expect that strong faultline settings would imply lower levels of strategic innovation and a decrease in the likelihood of investments into new geographic areas rather than in familiar domains.

Hypothesis 2: Strong faultline settings decrease the novelty of the geographic location of investments.

[2] We are grateful to an anonymous reviewer for this suggestion.

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TMT diversity over time

A cognitive lens

Over time, continued interaction between the same team members diminishes the cognitive diversity of the TMT, which in turn decreases entry into new geographic areas. New members interacting with senior members of the TMT may increasingly assimilate the knowledge, values, views, and expected behaviors of the team (Erickson, 1988; Van Maanen and Schein, 1979). On the other hand, senior managers may adopt new ideas from those who have more recently joined the team, especially as their tenure overlap increases. Experiments with students that ran from a couple of hours up to 17 weeks have shown that newly formed, diverse groups may benefit from the first weeks or even months of common experience as a common language, trust, and routines facilitate the exchange of ideas (Gruenfeld *et al*., 1996; Watson *et al*., 1993). However, research into social team member interaction over longer periods of time, 11 years in the study done by Katz (1982), suggests that such interaction eventually reduces the diversity of preferences and flow of ideas of teams, thereby reducing constructive debate and strategic innovation (Finkelstein and Hambrick, 1996). While team members interacting over long periods of time may become more successful in avoiding or resolving conflict, they are also less likely to experience the knowledge asymmetries from which productive task conflicts arise (Gruenfeld *et al*., 1996: 13). One of the reasons is that as team members become familiar over time with each other's views they increasingly anticipate criticism of their ideas by their peers and present them in ways they think will make them acceptable or refrain from voicing them altogether (Pelled *et al*., 1999: 9). This reduces intra-group communication and constructive debate, consequently reducing the capacity of the team to learn new ideas from one another (Katz, 1982: 85).

Over time, team members develop a common understanding of the tasks of the TMT and how they should be handled (Katz, 1982). Creativity and the desire to generate novel initiatives and ideas are reduced as team members increasingly focus on consensus building rather than on entertaining novel ideas (Jehn, 1995, 1997). While new team members bring fresh perspectives and new approaches, the interaction of the same members over time reduces the likelihood that they will ask advice from outsiders, delve deeply into issues, engage in constructive task-related debate, or launch new initiatives. Ultimately this may lead to groupthink, rigidity, and strategic inertia (Katz, 1982) as diversity in easily observable demographic characteristics of the TMT masks increasing homogeneity in preferences, values, and beliefs (Harrison *et al*., 1998; Pelled *et al*., 1999), reducing task conflict, strategic innovation, and entry into new geographic areas. In summary, continued interaction of TMT members over a period of years, during which tenure increasingly overlaps, diminishes the positive impact of TMT demographic diversity on the novelty of the geographic location of investments.

> *Hypothesis 3: Overlapping team tenure negatively moderates the effect of TMT demographic diversity on the novelty of the geographic location of investments.*

A social lens

Over time, as team members get to know one another well, perceived social categories within a TMT based on demographic attributes may eventually become blurred (Chatman and Flynn, 2001; Harrison *et al*., 1998; Pelled *et al*., 1999). Demographic characteristics which initially served as the basis for self-categorization and division into subgroups become less salient as TMT members continue to interact and gain more personal information about each other, reducing stereotyping and emotional conflict along faultlines in teams (Chatman and Flynn, 2001). At the outset, demographically different team members may be hesitant to share ideas and cooperate with those they categorize as members of an out-group. However, as surface-level demographic characteristics become less salient over time, demographically dissimilar group members begin to see themselves and others in the TMT as fellow in-group members. The boundaries of 'in' and 'out' fade and individuals with whom interaction is frequent gradually are accepted as fellow group members (Cialdini and Trost, 1998; Van Maanen and Schein, 1979). As a result, barriers to proposing and discussing novel ideas and initiatives gradually disappear (Chatman and Flynn, 2001; Harrison *et al*., 1998; Watson *et al*., 1993).

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If new members join the TMT, they may initially form new subgroups with demographically similar team members and, temporarily, new faultlines may be created. However, as team members continue to interact over time and their tenure increasingly overlaps, faultlines and the implied barriers to communication, exchange of ideas, and strategic innovation may gradually disappear, increasing the probability of entry into new geographic areas.

Hypothesis 4: Overlapping tenure of TMT members positively moderates the effect of faultlines on the novelty of the geographic location of investments.

METHODS

Sample

Our sample contains data on the expansions of 25 large, non-financial Dutch firms from 1966 to 1998. These firms were active in a wide variety of industries including chemical and pharmaceutical products, paper and packaging, food products, brewing, retailing, publishing and printing, trade, tank storage, as well as many others. We selected all non-financial firms listed on the main segment of the Amsterdam Stock Exchange in 1993.[3] No data were gathered on the four largest firms—Royal Dutch Shell, Unilever, Philips, and Akzo—as they differed considerably from the other firms in terms of breadth of activities, international experience, scope, and size. Most firms in our sample began, almost from scratch, to make FDIs in the late 1960s or even later. By the end of our window of analysis, 1966–98, they had invested in 93 countries within nine cultural blocks (Ronen and Shenkar, 1985). In 1993, their average number of employees was 13,907 (median: 10,327) and their average sales were $2566 million (median: $1898 million).

The database contains information on all direct investments, both domestic and foreign, reported in the annual reports of the firms between 1966 and 1998. The annual reports also contain data on the TMTs of the firms. An attractive feature of the Dutch setting is that firms have clearly defined TMTs—*Raad van Bestuur* in Dutch. TMTs are typically comprised of the heads of the main functional departments, such as marketing, finance and accounting, and operations, and are the main governing body of the firm for strategic decisions, although larger investments need the approval of the Board of Directors. The *Raad van Bestuur* meets regularly, typically once a week, to decide on major strategic issues, with the Chairman of the *Raad van Bestuur* acting as a *primus inter pares*. Hence, our study is free of the problem that has plagued some others, namely the need to make arbitrary decisions as to who to include in the TMT (see also Wiersema and Bantel, 1992). Another characteristic of our sample is that the TMTs of these companies were almost completely homogeneous in terms of nationality, race, and gender as team members were almost exclusively Dutch Caucasian males. Data on tenure and educational type, i.e., engineer, lawyer, etc., of TMT members were also obtained from annual reports.

This led to a sample of 2,159 expansions: 721 domestic and 1,438 foreign investments.

Analysis

Ordered probit analysis is the econometrically preferred way to capture the ordinal ranking of the dependent variable (McKelvey and Zavoina, 1976). Our dependent variable ranks the novelty of the geographic location of a new investment according to the following scale of increasing novelty: (1) for an investment in the home country of the expanding firm (The Netherlands in our sample); (2) for an investment in a foreign country where the firm had previously invested; (3) for an investment in a foreign country where the firm had not previously invested but which was in a cultural block where the firm had previously invested, e.g., South East Asia, Latin America, Africa (cf. Ronen and Shenkar, 1985); and (4) for an investment in a foreign country and cultural block in neither of which the firm had previously invested. As mentioned above, we tested our hypotheses using ordered probit analysis (using STATA). This procedure was used to estimate the continuous (latent) dependent variable y_i^* reflecting, in this case, the unobserved novelty of the expansion:

$$y_i^* = \mathbf{x_i}'\boldsymbol{\beta} + \varepsilon_i$$

[3] The firms on the Amsterdam Stock Exchange were divided into two segments: 'main funds,' which were frequently traded, and less-traded funds, which were those of smaller firms that were infrequently traded. The first segment contained 35 firms, the second around 230 firms. We selected our firms from the main funds segment.

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where the vector $\mathbf{x_i}$ contains the values of the explanatory variables for observation i, and ε_i is a normally distributed error term. The model is also used to estimate the cut-off points m_j which define the range of values of y_i^* corresponding to a specific category of the observed ordinal variable, in this case

$$y_i = 1 \text{ if } y_i^* < m_1$$
$$y_i = 2 \text{ if } m_1 \leq y_i^* < m_2$$
$$y_i = 3 \text{ if } m_2 \leq y_i^* < m_3$$
$$y_i = 4 \text{ if } y_i^* \geq m_3$$

where y_i represents the observed (ordinal) dependent variable. The probability of an expansion occurring, for instance, in a new country in a familiar cultural block (category 3) was defined as

$$P(y_i = 3) = \Phi(m_3 - \mathbf{x_i}'\boldsymbol{\beta}) - \Phi(m_2 - \mathbf{x_i}'\boldsymbol{\beta})$$

The parameters were estimated using a modified maximum likelihood procedure. Since our data included multiple observations for the same firm—i.e., there were distinct groups of non-independent observations—we used an estimation procedure that accounted for this within-group dependence. This adjusted maximum likelihood estimator, the 'cluster' command line in STATA (Carpenter, 2002) is similar in its assumptions and interpretation to a random effects estimation in a linear model. We chose this approach primarily because this estimation procedure has greater efficiency than the fixed-effects specification which is often used as an alternative. We checked whether our data had the asymptotic properties necessary for the random effects estimation to be consistent; these tests involved the construction of a quasi-fixed-effects estimator and are detailed in the 'Sensitivity analysis' section. Another advantage of our specification is its relatively easy application to models involving limited dependent variables. The adjustment for the clustering of firms takes the following form (StataCorp, 2001: 242):

$$\hat{V}(\hat{\boldsymbol{\beta}}) = \mathbf{D}\left[\frac{n_c}{n_c - 1}\sum_{j=1}^{n_c}\left(\sum_{i \in c_j}\mathbf{u}_i\right)'\left(\sum_{i \in c_j}\mathbf{u_i}\right)\right]\mathbf{D}$$

where C_j contains the indices of the observations belonging to the jth cluster (firm) for $j = 1, 2, \ldots n_c$, with n_c being the total number of clusters (firms). $\mathbf{D}$ is the negative of the inverse of the Hessian, i.e., the conventional covariance matrix estimate in maximum likelihood, and $\mathbf{u_i}$ are the score vectors, $\mathbf{u_i} = S(\hat{\boldsymbol{\beta}}; y_i, \mathbf{x}_i) = \partial l_i / \partial \hat{\boldsymbol{\beta}}$.

As is common in studies of interaction effects, we centered all variables involved in interactions (Jaccard, Turrisi, and Wan, 1990).

Variables

The novelty of the geographic location of investments

As mentioned before, this rank-ordered variable, the dependent variable in our study, had four categories based on the geographic location of the investment, with value 1 = if the investment was in the home country (The Netherlands); 2 = in a foreign country where the firm had invested before; 3 = in a new country in a familiar cultural block (Ronen and Shenkar, 1985); and 4 = in a new country and new cultural block. A positive slope coefficient for an explanatory variable implies a positive effect on the novelty of the geographic location of investments. The distribution of observations for each level of the dependent variable was 721, 965, 324, and 149, respectively.

TMT tenure diversity

TMT tenure refers to the number of years of membership of an individual in the TMT. Tenure diversity was computed in the conventional way, using the coefficient of variation (Bantel and Jackson, 1989; Wiersema and Bantel, 1992). Diminishing returns from tenure diversity due to information overload were modeled by taking the log of this variable.[4]

[4] In an earlier version, we modeled nonlinear effects. Theoretically, at extreme levels of cognitive diversity, groups may lack common frames of reference, a common 'language,' and operating routines, and hence may perform worse on cognitive tasks than more homogeneous groups (Watson *et al*., 1993; Terborg, Castore, and DeNinno, 1976). At such extreme levels, at least in theory, diversity may even hamper creativity and learning. Therefore, in an earlier version of this paper, we modeled both a linear and a quadratic term of the tenure diversity measure and observed a pattern of results which was similar to the results presented here as our main model (i.e., an inverted U-shape with a peak three standard deviations above the mean, and hence an increasing function over the relevant domain of observations for our sample, Barkema and Shvyrkov, 2000). A logistic transformation of the diversity measure produced an accurate approximation of this relationship. For this reason, and also because the

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TMT diversity in type of education

The diversity in type of education was measured using Blau's heterogeneity index (Wiersema and Bantel, 1992), calculated as the reverse of the Herfindahl–Hirshman homogeneity index:

$$H = \sum_{i=1}^{n} S_i^2$$

where H is the homogeneity index, S the percentage of TMT members with a dominant educational track i, and n is the number of different educational backgrounds. Subtraction from unity yields Blau's heterogeneity index. The following titles are used to indicate degrees in the Dutch educational system: 'Drs' for university graduates in Economics and Social Sciences, including MBAs, 'Mr' for a university degree in Law, and 'Ir' for a university degree in Engineering. Normally, managers who do not have a university degree have completed vocational training. They were categorized as 'no degree' in our study. We took the log of this variable for the same reason we did so for diversity.

Overlapping tenure within the TMT

We used the measure of common historical experience, TLAP, proposed by Carroll and Harrison (1998) to capture the overlap in tenure of team members as a proxy for their social interaction over time. This variable averaged pair-wise overlap in tenure for all possible pairs in the TMT:

$$\text{TLAP} = 1/N \sum_{i \neq j} \min(u_i, u_j)$$

where N is the total number of pair-wise comparisons. To capture the diminishing effects of interaction between team members over time (Carroll and Harrison, 1998; Cialdini and Trost, 1998), we used the logarithmic transformation of TLAP in our analysis.[5] Taking the logarithmic form reflects the idea that joint tenure has a diminishing marginal effect, consistent with prior research on tenure and socialization showing that early years of experience lead to greater changes in cognitions and team processes (Katz, 1982; Gruenfeld *et al*., 1996; Watson *et al*., 1993).

Faultlines

The operationalization of faultlines was based on Lau and Murnighan (1998). The most likely demographic attributes favoring subdivisions within teams are those which are 'impermeable' (Pelled *et al*., 1999), meaning that individuals cannot move in, or out, at will, e.g., gender, race, nationality, age, tenure, and education type and level. Although age and tenure do increase with time, individuals are unable to return to a previous age or tenure, which makes these categories highly impermeable (Pelled *et al*., 1999). Therefore, our measure of faultlines was based on the age, tenure, and education type and level of team members. Data on the age of TMT members were obtained from annual reports, *Who's Who*, direct contact with companies, and other sources. Since the Dutch system of higher education does not classify in terms of BA, MBA, and so on (cf. Boeker, 1997b; Wiersema and Bantel, 1992), the level of education of TMT members was operationalized, using a three-level categorical variable with value 0 = no university degree, 1 = university degree, and 2 = doctorate.[6]

Logically, the identification of strong faultline settings requires two steps, first to determine whether or not faultline situations exist in TMTs, and second to distinguish between weak and strong faultline settings (Lau and Murnighan, 1998). Consistent with Lau and Murnighan's recommendations, we adopted a two-step approach, with an objective procedure in the first step (i.e., latent cluster analysis, which used both ratio- and nominal-scale data) to determine whether or not faultline situations existed in TMTs, i.e., whether subgroups could be identified or not. In the second step, we applied Lau and Murnighan's (1998) qualitative procedure to distinguish between weak and strong faultlines. A more detailed description of the procedure is given in the Appendix.

logistic estimates were easier to interpret in our model which also includes interactions with diversity variables, we adopted the simpler model in the present paper.

[5] This formulation implies a small correction of the original specification in Carroll and Harrison (1998). Correspondence with the authors confirmed that there was a typing error in their original article.

[6] We did not use 'years of schooling' as derived from titles (cf. Wiersema and Bantel, 1992) because the underlying data structure would be rank-ordered in any case (with three levels) and any transformation resulting in 'years of schooling' would suggest more precision than was actually present in our sample.

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Control variables

TMT size

We measured size by using the number of members of the TMT, including the Chair. These data, as well as data on other control variables, were available from annual reports.

Firm size

Entry decisions may also be influenced by the size of the firm, since larger firms are more likely to have the resources and expertise to successfully enter foreign markets. Firm size may also correlate with team size, as larger firms tend to have larger TMTs, and possibly with other TMT variables as well. Hence, we controlled for firm size which was measured by the logarithm of the number of employees.

Firm profitability

The implied financial slack may also influence entry decisions. Cash-strapped firms may be less likely to take the risk of entering foreign and, especially, unfamiliar markets. We included return on assets in our models to control for these effects.

International experience

We also controlled for the firm's international experience, which we measured using the number of prior foreign expansions. Top managers with international experience are likely to have richer and more accurate cognitive maps of foreign conditions in comparison to managers with less international experience. This may reduce the novelty of foreign entries for managers of fully fledged multinational corporations (Barkema and Vermeulen, 1998; Johanson and Vahlne, 1977).

Year dummies

We included year dummies in our models to control for time-specific effects. (As mentioned earlier, firm effects were controlled for using appropriate adjustments of standard errors.) Table 1 presents the descriptive statistics and correlation coefficients of the variables in our study.

RESULTS

The estimation results are presented in Table 2. The dependent variable captured the novelty of the geographic location of investments. Hence, a positive slope coefficient means that a variable increases the novelty of location decisions. The likelihood ratio test indicated a significant improvement of the model fit owing to the inclusion of interaction terms ($p < 0.01$ going from Model I to Model II). The following discussion is based on the complete and fully specified Model II.

The first two hypotheses predicted positive effects of TMT tenure diversity and type of education diversity, respectively. We found support for Hypothesis 1a ($p < 0.05$), but not for Hypothesis 1b. Since all variables involved in interactions were centered, this means that, on average, i.e., at average values of TLAP, tenure diversity positively influenced the likelihood of entering new markets. Hypothesis 2, regarding the detrimental effect of strong faultline settings on the likelihood of entering novel geographic areas, was partially supported ($p < 0.1$ at *average* values of log TLAP). These model estimates imply, for

Table 1. Descriptive statistics and correlations

	Mean	S.D	1	2	3	4	5	6	7	8	9
1. Log employees	9.227	0.858	1								
2. ROA	0.073	0.088	−0.008	1							
3. International experience	38.586	35.402	0.325	0.2	1						
4. Team size	4.652	1.944	0.122	0.02	−0.011	1					
5. Tenure diversity	0.673	0.279	0.034	0.022	0.171	0.07	1				
6. Educational diversity	0.463	0.206	0.089	−0.069	−0.036	−0.28	0.107	1			
7. Log TLAP	1.449	0.522	0.257	−0.009	0.067	0.003	−0.437	0.001	1		
8. Weak faultline	0.277	0.448	0.039	−0.101	−0.021	0.35	−0.021	0.118	0.052	1	
9. Strong faultline	0.065	0.246	−0.050	−0.077	−0.190	0.051	0.039	0.030	−0.048	−0.163	1

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Table 2. Coefficients and *t*-statistics for ordered probit model dependent variable: novelty of FDI location decisions[a]

Variable[b]	Model I[c]	Model II
Log employees	−0.058	−0.059
ROA	0.494	0.580
Log international experience	0.277***	0.281***
Log team size	−0.018	0.003
Percent with degree	−0.282	−0.307
Log tenure diversity	0.027	0.045*
Log educational diversity	−0.013	−0.015
Log TLAP	−0.022	−0.073
Weak faultline	−0.015	−0.025
Strong faultline	−0.245*	−0.215†
Log tenure diversity × log TLAP		−0.097**
Log educational diversity × log TLAP		−0.004
Weak faultline × log TLAP		0.158
Strong faultline × log TLAP		0.458*
N	2159	2159
Log likelihood	−2489.436	−2483.096
LR		12.68**

[a] Home country = 1 ($N = 721$); familiar foreign country = 2 ($N = 965$); new country in a familiar block = 3 ($N = 324$); new cultural block = 4 ($N = 149$).
[b] Year dummies not shown.
[c] ** $p < 0.01$; * $p < 0.05$; † $p < 0.10$ (one-tailed if hypothesized, two-tailed if not).

instance, that the investments made by a diverse TMT (two standard deviations above the mean in terms of tenure diversity, no strong faultlines) had a 3 percent higher probability of being in a new cultural block and a 9 percent lower probability of being made at home than those made by a moderately diverse TMT, i.e., having average tenure diversity, when a strong faultline exists.

Hypothesis 3 was also corroborated. The interaction of overlapping team tenure (TLAP, our proxy of social interaction between team members over time) with the effect of TMT tenure diversity showed a significant, negative relationship with the dependent variable ($p < 0.05$), which is consistent with the idea that continued interaction over time diminishes the beneficial effect of tenure diversity on strategic novelty. Following Jaccard *et al*. (1990), we calculated the effects of tenure diversity and the corresponding standard errors at several levels of tenure overlap. The effect of tenure diversity remained significant ($p < 0.05$) until 3.25 years of tenure overlap. No significant effect was found for higher levels of tenure overlap and of social interaction.

Hypothesis 4 was corroborated as well. Tenure overlap (TLAP) significantly diminished the detrimental effect of strong faultline settings ($p < 0.05$). Continued interaction between TMT members over time apparently eroded these faultlines and their negative influence on the propensity to expand into new geographic areas. Additional calculations (Jaccard *et al*., 1990) showed a significant ($p < 0.05$) effect of strong faultline settings over the first 3.75 years of tenure overlap (close to the mean of this variable). No significant effect was found for higher levels of overlapping tenure and longer periods of socialization. Apparently, the time required to erode strong faultlines is similar to that taken to erode cognitive diversity owing to tenure diversity.

Finally, most control variables had statistically insignificant relationships with the dependent variable. Only international experience had a significant positive effect.

Sensitivity analysis

Our theory implies a rank-ordering of the four categories of the dependent variable. Nevertheless, we explored the validity of this assumption by estimating a multinomial model which did not impose a rank-order restriction (Boroah, 2002; StataCorp, 2001). The estimates from the multinomial model corroborated the rank-order assumption. The pattern of the relative order of the estimated effects of the variables on the separate categories, i.e., new cultural blocks, new foreign countries in familiar blocks, familiar foreign countries, and investments at home as the omitted category, was similar to the pattern of results from the ordered-probit model and to the pattern hypothesized.

We also did some sensitivity analysis regarding our measure of faultlines. In our main analysis, we applied Lau and Murnighan's subjective classification for the second step of the classification to distinguish between strong and weak faultlines. To test for the robustness of this subjective classification, we conducted an alternative fully quantitative test based on *k*-means cluster analysis and multivariate analysis of variance.[7] In

[7] The advantage of this alternative test was that it did not require qualitative judgment at all. The disadvantage was that it did not

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the first step, the strongest intra-team split, i.e., the most likely faultline, was identified using iterative *k*-means cluster analysis. We used ClustanGraphics 5.25, which allowed us to calculate distances between subjects based on continuous and nominal attributes. After potential subgroups were identified, we used the associated measure to compare the total multivariate variance of the team with the variance within subgroups. High values of this measure, (i.e., high total-to-within ratios, indicated better separated subgroups and stronger faultlines, while lower values indicated weaker faultlines. We replicated the regression analysis, replacing 'strong faultline settings' and 'weak faultline settings' by the continuous measure and observed a similar pattern of support.

We also tested the validity of the random effects specification in our study. Theoretically, we could not exclude the possibility of this model yielding inconsistent estimates, for instance, if the unobserved propensity to enter new markets, a firm effect, correlated with observed characteristics (Hsiao, 1986). Hence, on theoretical grounds alone, we could not exclude the possibility of variables such as international experience and firm size correlating with the unobserved effect. Therefore, as an additional test we parametrized this relationship by entering firm averages of international experience, firm size, and other explanatory variables as additional variables. This specification is often referred to as a quasi-fixed effects model, and is consistent under the same set of assumptions as fixed effects (Hsiao, 1986). The estimated coefficients, capturing our hypotheses, were similar to those reported in Table 2.

Sensitivity analysis, including average tenure as a control variable, did not affect the coefficients and standard errors of other variables. Replacing the coefficient of variation with the standard deviation, as has been done in some other studies (Hambrick *et al*., 1996, for instance), did not lead to different conclusions.

Finally, we examined the possibility that CEOs have more powerful positions than other TMT members. We ran models controlling for CEO dissimilarity from the rest of the TMT (Tsui, Egan, and O'Reilly, 1992) in terms of age, education, and tenure. We also reran our procedure for identifying faultline settings but this time allowing for CEOs potentially being a one-person subgroup. We controlled for such situations using a dummy variable in our empirical models. The conclusions from the analyses did not change when explicitly accounting for potentially more powerful CEOs.

DISCUSSION

The ability of organizations to renew themselves and to move beyond familiar territory is a fundamental issue in management research. It is also important from a practical perspective as firms increasingly compete with other firms to develop new products and technologies and to enter new countries and regions (Barkema, Baum, and Mannix, 2002; Brown and Eisenhardt, 1997; Hitt, Hoskisson, and Kim, 1997). There is an increasing interest in how TMT diversity influences strategic innovation (Chatman and Flynn, 2001; Earley and Mosakowski, 2000). Researchers in the upper-echelon tradition have argued that demographic diversity in TMTs enhances creativity and the likelihood of strategic innovation, for instance, in the form of technological and bureaucratic innovation and entry into new product markets (Bantel and Jackson, 1989; Boeker, 1997a; Wiersema and Bantel, 1992). We developed the theory that task-related diversity, such as TMT tenure diversity and educational diversity, increases the likelihood that a firm will enter new geographic areas rather than familiar ones. Consistent with our predictions, we found that TMT tenure diversity increased the likelihood of investing in new geographic markets. No support was found for TMT educational diversity. One possible explanation for this is that by the time managers reach higher echelons in their multinational corporations, they have gained so much experience in different work settings that their formal education, which typically took place decades before, is no longer a good proxy for differences in cognitive characteristics.

We also extended upper-echelon research in other ways. We were inspired by previous research showing mixed or negative effects of TMT diversity (Ancona and Caldwell, 1992; O'Reilly *et al*., 1993) and by the suggestion that TMT diversity not only has positive cognitive implications but also negative social implications (Lawrence, 1997; Hambrick *et al*., 1996; Miller *et al*., 1998;

treat weak faultline settings, for which our theory did not make predictions, as a separate category which implied a less valid measure of 'strong faultline settings' and a less valid test of our theory.

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Pelled *et al*., 1999). We built on theoretical work with small groups (Lau and Murnighan, 1998) when demographic diversity leads to the formation of subgroups in teams. This is particularly likely in strong faultline settings where several demographic attributes align to divide teams into subgroups (Lau and Murnighan, 1998). As Li and Hambrick (2005) recently argued, these teams may suffer from behavioral disintegration, i.e., less communication within teams and a lower likelihood of reaching consensus with new ideas and strategic initiatives being the first to suffer (Finkelstein and Hambrick, 1996). Our evidence supports these ideas. We found that strong faultline settings in TMTs decreased the likelihood that firms would invest in new geographic areas as opposed to investing in familiar locations.

Our models contained weak or moderate faultline settings as a control variable. Conceptually, the role of intermediate faultlines is ambiguous as moderate negative social implications (Jehn, 1997; Jehn *et al*., 1999; Knight *et al*., 1999; Pelled *et al*., 1999) may be balanced by positive effects of informational diversity (Thatcher *et al*., 2003) and a psychological sense of safety within subgroups (Edmondson, 1999, 2002; see also Gibson and Vermeulen, 2003). None of our models showed significant effects of moderate faultline settings, either positive or negative, which in itself might be consistent with mixed effects; obviously, we have to be careful in interpreting this non-significant effect. In contrast, our study found significant empirical support for the idea that strong faultline settings are detrimental and decrease strategic innovation.

Erosion of cognitive diversity and strong faultlines

We further extended upper echelon research by investigating how social interaction changes TMT diversity over time. Experiments with diverse teams have shown that social interaction may build trust and facilitate interaction in the first week or months as individuals get to know one another (Watson *et al*., 1993). However, interaction among team members over longer periods of time, over many years for example, eventually reduces cognitive diversity and leads to inertia, rigidity, and groupthink. This increases the likelihood that strategic actions will be incremental and conventional instead of innovative. This theory was corroborated in our context of internationalizing firms using a new measure of social interaction—overlapping team tenure (Carroll and Harrison 1998)—and data on real managers performing real tasks, namely evaluating and deciding on FDI projects, over a period of more than three decades. We found that social interaction between TMT members over time significantly decreased their cognitive diversity. Calculations showed that tenure diversity had a significant, positive effect for up to 3.25 years of overlapping tenure, while at higher levels of overlapping tenure and socialization no significant effect was found.

As mentioned earlier, while social interaction may initially build trust and improve communication within diverse teams, these beneficial processes may be more difficult and protracted in strong faultline settings where several demographic attributes align to divide teams into subgroups (Lau and Murnighan, 1998). Lau and Murnighan have even suggested that faultlines deepen over time as a result of increasing tension between subgroups. The managers in our sample held formal meetings regularly, often weekly. We argued that interaction of that frequency eventually reduces negative social effects as team members get to know each other better, improve the exchange of information and ideas within the TMT, and increase the likelihood of entry into new geographic areas. Consistent with these predictions, we found that the negative implications of strong faultline settings decreased over time, becoming insignificant after 3.75 years of overlapping tenure.

Finally, our evidence from data on managers over a period of three decades corroborated earlier suggestions (Hambrick *et al*., 1996; Lawrence, 1997; Miller *et al*., 1998; Pelled *et al*., 1999) that it is important to separately model, both conceptually and empirically, the cognitive and social implications of TMT diversity, and their change over time owing to social interaction.

Carpenter and Fredrickson (2001) found some support for the idea that highly internationalized companies are run by demographically diverse TMTs and that firms at lower levels of internationalization tend to be run by more homogenous teams. Further, they argued (2001: 543) that more dynamic research on expansions into new geographic areas is needed. Our study follows their recommendations. So far, little is known about

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how TMT diversity, as a proxy for cognitive diversity, influences the decision to invest in new geographic areas. Our study is also among the first to explore the social implications for strategic decisions of TMT demographic diversity, for instance, of strong faultline settings, and how this effect changes as team members interact over long periods of time. We encourage other researchers to provide more insight into how TMT characteristics drive successful internationalization, and into how and why these effects change over time.

Limitations and suggestions for further research

A limitation of upper-echelon research (Hambrick and Mason, 1984) is that cognitive diversity is not measured directly. This is a cause for concern, particularly since a number of studies have failed to find support for predictions of how demographic variables, as measures of cognitive diversity, influence innovation (O'Reilly *et al*., 1993; Ancona and Caldwell, 1992; Miller *et al*., 1998). '(T)he distance from the phenomena should concern us' (Lawrence, 1997: 16). In fact, this was one reason why instead of arguing that cognitive diversity generally increases innovation, we argued that variables such as tenure diversity and educational diversity implied relevant cognitive diversity for the focal task in our study (i.e., task-related diversity)—the evaluation of investments. We also controlled for social effects from faultline settings as captured by demographic variables, presumably leading to cleaner proxies of cognitive diversity than in most previous studies. Nevertheless, as is the case with prior studies in our tradition, we do not measure cognitive diversity directly. Using demographic measures enabled us to collect reliable data over a window of several decades. This would have been much more difficult, if not infeasible, had we used direct measures of cognitive diversity. These data, in turn, enabled us to explore how TMT cognitive diversity and strong faultline settings changed over the years owing to social interaction in the team. Nevertheless, future studies using more direct measures of cognitive diversity would complement the current study.

Although diversity in tenure and education proved to be useful measures of cognitive diversity in earlier research (Hambrick *et al*., 1996; Wiersema and Bantel, 1992), other sources of diversity, such as international experience, may also be important for the making of strategic international decisions (Sambharya, 1996). Furthermore, the TMTs in our sample of Dutch firms, like TMTs in most other European countries, possibly worldwide, showed little diversity in nationality, gender, and race, although it should be said that this appears to be slowly changing. Despite the limited range, we found that cognitive diversity and strong faultline settings, as captured by these demographic attributes, influenced strategic innovation. Support for strong faultline settings was found, although the theoretically most extreme cases of strong faultlines were absent (see Appendix). The restricted range could be seen as providing a conservative test of our hypothesis that strong faultline settings reduce the likelihood of strategic innovation. It would be interesting to extend this research to settings which showed significant variations in race, gender, and nationality—i.e., potentially even stronger faultlines.

Prior work has explored the effects of executive demography on a wide range of organizational outcomes such as strategic change (Hambrick *et al*., 1996; Wiersema and Bantel, 1992), performance (Keck, 1997), and so on. Our approach somewhat resembles that of Boeker (1997a), who found support for the idea that the composition of the TMT influences decisions to enter new businesses. We studied how demographic attributes affect strategic innovation in the form of entering new foreign markets. The decision to invest abroad is in some ways similar to investing in new businesses in that there are new competitors, new clients, and so forth, yet in some ways dissimilar as firms entering new foreign countries are confronted with a new national culture, new institutional and legal conditions, and new macroeconomic conditions. Investments in new countries, and especially in new cultural blocks, typically impose high demands on joint information processing of TMTs. This makes such investments particularly germane to TMT research. TMT researchers have recently begun to adopt an international perspective (Carpenter and Fredrickson, 2001) and we would welcome more research in this domain.

Our models were tested on data from Dutch firms, which have a reputation for consensus seeking. Perhaps managers in this setting are better able to make use of diversity. Recently, Van der Vegt, Van der Vliert, and Huang (2005) argued

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that the ability of team members to make the best use of diversity is affected by their national culture. These authors found that cultures with low power distance, as defined by Hofstede (1980), stimulated the creative use of diversity, such as tenure diversity. This suggests that TMTs in countries having cultures with low power distance, such as the Netherlands and the United States, may become less innovative over time as socialization makes them more homogeneous. Alternatively, in countries having cultures with greater power distance, such as Japan, the initial positive effects of diversity may be less pronounced, or even negative, but socialization over time may lead to more innovative teams. We hope that future research will provide more insight into how cultural contingencies affect group socialization and the ability of team members to be innovative over time.

Finally, our result that strong faultlines disappear over time was found for a setting where the two most extreme cases of strong faultlines that are theoretically possible (see the Appendix) were absent. Future research may provide more insight into how strong faultlines change over time, for different types of strong faultline settings, under different patterns of social interaction, and so on. In our Dutch TMTs, and presumably in many other European countries as well as in other parts of the world, where the most extreme cases of strong faultlines are absent, and where as part of their work TMT members meet and interact regularly, conditions favor the erosion of strong faultlines over time. In more extreme cases of strong faultline settings, however, the processes described by Lau and Murnighan, increasing conflicts and tensions, and hence deepening faultlines over time, are more likely. Under what conditions do surface-level demographic differences and their potentially detrimental effects on strategic innovation and other tasks disappear, or alternatively, become stronger over time? A better understanding of this issue is also important from a practical perspective as heterogeneous teams of managers and other workers are becoming increasingly common as firms increasingly venture beyond their home base. We focus in our study on conflict within teams, but the issue is relevant across a wide range of settings, i.e., between different departments or business units, between acquiring and acquired firms, between different national and regional entities, and even between ethnic and religious groups. It is important to better understand these phenomena and how they can be managed successfully, and we strongly encourage more research in this domain.

CONCLUSION

Our study appears to be the first to explore the influence of strong faultline settings in TMTs on strategic outcomes. Building on work by Lau and Murnighan (1998), and consistent with recent insights by Li and Hambrick (2005), we developed the argument that strong faultline settings hamper important strategic innovations which require communication within TMTs and the consensus of most or all team members, in our case deciding on whether to investment in new geographic areas. Our evidence, based on decisions by managers spanning a period of more than three decades, supported this idea, especially at low levels of overlapping tenure of TMT members. After three or four years of social interaction, the significant detrimental effect had disappeared. Our theory and evidence suggest that the concept of 'strong faultline settings' is a fertile area for future research in strategy.

Our research also has practical implications. Companies that need to innovate strategically, for instance to enter new geographic areas, regularly need to add fresh blood to the TMT, in the form of new members. This provides the team with fresh points of view and promotes constructive debate as newcomers have different experiences, skills, networks, and views form members who have served much longer on the team. This fosters strategic innovation, as long as members of the team have not been overly socialized into the team. However, firms should be careful not to appoint members to the team whose combination with existing TMT members is likely to create strong faultline settings, as this is likely to hamper strategic innovation.

APPENDIX: MEASURING FAULTLINE SETTINGS

Lau and Murnighan (1998) used conventional measures of diversity for ratio-scale variables and qualitative judgment to assess whether, in their examples of four-member teams, (1) faultlines existed,

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and (2) whether the faultlines were weak or strong. However, they emphasized that a composite quantitative measure, including both ratio-scale and nominal-scale demographic characteristics, would be desirable (Lau and Murnighan, 1998: 327).

Interestingly, such quantitative econometric methods have recently been developed. Hence, for the *first* step mentioned above, following Lau and Murnighan's recommendation, since team characteristics include both continuous (tenure, age) and categorical (amount and type of education) variables, we used a mixture-model or latent class technique specifically developed for categorical and mixed-type data (Dillon and Kumar, 1994). This technique can handle indicators of different scale types (Everitt, 1993). It was particularly important for our study to use an objective method for the first step since many of our TMTs, unlike those of Lau and Murnighan (1998), had more than four members and a qualitative assessment of the existence of faultlines would have been difficult. We used the latent class clustering procedure LatentGOLD (Statistical Innovations Inc.) to evaluate for each separate team-year whether a division into separate clusters or subgroups best fit the data, thus avoiding qualitative judgment in the first step. Using this procedure, we identified clusters in 34 percent of the team-years.

For the *second* step, we applied Lau and Murnighan's 1998 classification to distinguish between strong faultline settings and weak or moderate settings—terms which we use interchangeably. We identified the number of possible ways to subdivide a team along the four available demographic attributes, which we labeled 'ways.' The minimum number was one if only a single demographic attribute suggested group subdivision. If two attributes suggested the same subdivision, this encompassed one way as well, and so on. The maximum number of different ways was four—the number of attributes in our analysis. Next, we counted the number of attributes that aligned, labeled 'align', producing the same subdivision: this value ranged from one, when every 'active' attribute suggested a different pattern of subgroup formation, to four, all attributes aligned, i.e., implying the same subgroup. Finally, we used Lau and Murnighan's classification of the strength of faultlines based on the number of ways of group division and their alignment, labeled 'align-ways': 1–1 = strong; 1–2, 1–3, 1–4 = weak; 2–1 = strong; 2–2 = weak. Alignways 3–1 and 4–1, which would have indicated very strong faultlines, were not present in our sample. Our theory and hypotheses concerned the implications of strong faultline settings; they did not imply a prediction for the effect of weak faultlines, for instance, zero or negative—the effect was an empirical matter. Therefore, in addition to a dummy capturing strong faultline settings, our regression analyses contained a separate dummy to capture, and control for, weak faultline settings.

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