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Faraway, Yet So Close: Organizations in Demographic Flux

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Change in firm governance is often associated with inbound and outbound movements of key decision makers. This research extends that observation by treating mobility as a trigger of demographic change in management teams that, in turn, influences organizational survival. Mobility occasions transformations in demographic profiles both within a firm and among firms sharing a competitive arena. In the former case, shifts in diversity may alter the quasi-resolution of conflict achieved by the firm's upper echelons, or, conversely, serve to inject novel views and ideas. In the latter case, migration may modify the demographic overlap among firms and thus rearrange their competitive positioning. We present here an empirical test of this two-pronged manifestation of demographic change and stress the moderating roles of team age and competitive intensity.

Key words: demographic diversity; top management teams (TMT); mobility; team age; competitive overlap
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Introduction

Top management teams, not unlike other human aggregates, are rarely if ever stable. Over time, they exhibit membership additions and departures, implying that their composition is dynamic and evolving. During such episodes, their demographic diversity shifts. Studies on organizational demography should, therefore, attend to *change* in the composition of top management teams as well as to mere composition alone (Hambrick 2007, Harrison and Carroll 2006, Pennings and Wezel 2007). This article represents a new effort to frame and test propositions about diversity and performance by focusing primarily on demographic changes in top team composition. Furthermore, because membership mobility might affect both the focal team and the relationship with its peers, we also compare differences among competing firms over time. We show that inbound and outbound movement of key members transforms the demographic makeup of competing firms' managerial teams and has systematic consequences for organizational survival.

The premise of our research holds that time is a central but relatively understudied dimension of organizational demography (for a discussion, see, for example, Guzzo and Dickson 1996). Time matters for various reasons. Recent reviews have stressed that "regrettably, a number of upper echelons studies have been cross-sectional in their design" (Hambrick 2007, p. 338), and that not much is known about top management team change and dynamics (Williams and O'Reilly 1998). Furthermore, several authors have noted that any theory of demographic diversity and performance that disregards the *length of time* team members have been together should be revised (Harrison et al. 2003, p. 660; Horwitz and Horwitz 2007, p. 1008; Taylor and Greve 2006, p. 737; see also Beckman and Burton 2008). Therefore, a new enquiry on organizational demography requires a longitudinal design in which mobility events become categorized as demographic "shocks" whose effects on survival are investigated.

The present research design, built on these insights, reflects the causal relationship between demographic heterogeneity and performance. In particular, our design provides several benefits. First, given the shortcomings of accounting-based measures for dealing with multiple firms over long periods of time (see, for instance, Schmalensee 1989), we opted for an unambiguous performance indicator, survival, in line with the original insights of Hambrick and Mason (1984, their Figure 2, p. 198). Second, a longitudinal design overcomes the cross-sectional research problem of overestimating explanatory variables (e.g., Davies 1987). Third, as Carpenter et al. (2004) noted, the dynamics of top management team composition ceaselessly alter the context within which firms operate. Our approach allows isolating the unique survival effects of within-firm demographic profiles from those related to between-firm demographic profiles. Finally, the longitudinal perspective adopted here permits recording the conditions that exist prior to a demographic shock and contextualizing them. In particular, we explore the roles

of two moderators of the relationship between demographic diversity and organizational survival: (i) enduring interactions among team members—what we call "team age"—and (ii) competitive intensity.

Organizational demography research to date has primarily centered on *within-firm* diversity and performance, yielding mixed findings—for example, showing that demographic diversity is beneficial to innovation but also financially harmful for outcomes such as returns on equity (see Carpenter et al. 2004 for a review). The literature also dwells extensively on the mechanisms between diversity and various outcomes, most notably relying on the presumption that homogeneity fosters an *esprit de corps*, or a collective truce (Nelson and Winter 1982), among top management team members. However, such intermediate conditions have not been empirically observed to any great extent (see Lawrence 1997), leaving the researcher with two options when examining the diversity–performance relationship. He or she can make inquiries that have a bearing on endogenous team changes, such as a qualitative investigation of the factors undoing/strengthening a team's cohesiveness. Several inquiries have broached this direction and examined the process of decision making in demographically diverse teams (e.g., Smith et al. 1994, Simons et al. 1999). An alternative option is mapping homophilous hiring (or purging of dissenting members) as an exogenous driver of cohesiveness (see, e.g., McPherson et al. 2001), and, vice versa, tracking diversity increases because of mobility as a trigger of dissent. Given our longitudinal concern, we naturally chose this second option and centered the study around mobility events as sources of exogenous changes.

The literature to date on *between-firms* diversity remains rather scant, particularly in the case of strategically interdependent firms (for a review, see Smith et al. 2001). Some authors of demography research have stressed the need to account for the demographic characteristics of competitors (e.g., Sorensen 1999b), noting that firms do not operate in a social vacuum and that mobility events rearrange talents and the demographic distance between competitors. Such a topographic approach resonates well with Sørensen's (1999a, pp. 714–715) statement that "overlap among firms along demographics implies overlap in managerial capabilities." It follows that competition among top teams (that is, among their firms) intensifies when their endowments become more similar as a result of mobility events, especially in the presence of limited resources. Such overlap might be ascribed to managerial teams whose composition converges on relevant demographic attributes (see Sørensen 1999a, Pegels et al. 2000).

One consideration should be added here. Demographic changes evoked by both inbound and outbound movements are presumed to trigger identical effects. However, the former type of event probably carries more weight, because recruitment is premeditated and the realignment associated with it entails the absorption of outsiders (e.g., socialization costs and the like) into the focal firm's upper echelons. The same holds true concerning the dynamics of between-firms diversity. Nonetheless, we decided to leave this issue open to empirical scrutiny. We study these complementary internal and external ecologies in the population of Dutch accounting firms over the period 1880–1986. This paper is organized as follows. The next section presents the theory. Section 3 describes the empirical setting, the data, and the independent and control variables, respectively. Section 4 describes the model and the method we used to test the hypotheses. Results are shown in §5. The discussion of the main implications of the analyses and the conclusions are presented in §6.

Theory

Internal Diversity and Performance

Diversity changes are often induced exogenously. In this respect, mobility should be considered as *the* critical driver of transformations in team heterogeneity. As Carroll and Harrison (1998, p. 657) put it, "Individual teams show a strong relationship between demographic events of entry and exit to the team . . . and measures of demographic heterogeneity." Similarly, Williams and O'Reilly (1998, p. 99) noticed that "once turnover does occur, the heterogeneity of the group will, by definition, change." Whenever a mobility event in which a top manager joins or leaves a team takes place, demographic heterogeneity shifts upward or downward, depending on the manager's profile in relation to the makeup of the exiting team. As diversity correlates with novel ideas and mental frames, the team's decision-making practices and the firm's competitive positioning vis-à-vis its rivals are both transformed. Much of the demography literature shows that heterogeneity is harmful for performance, even though several studies have also uncovered beneficial effects (for a review, see Williams and O'Reilly 1998, Carpenter et al. 2004). The research has traced diversity to performance, under the assumption that organizations mirror the values, goals, and experiences of their preeminent members. Managers' demographic profiles enter into the performance argument because their collective characteristics are presumed to occasion psychological dispositions and subsequent strategic choices (Hambrick and Mason 1984). According to the original formulation of the prevalent theory, traits such as gender, age, and tenure affect managers' decisions and actions through three different filters. First, their background delimits the problems and information to which their attention is attracted. Second, selective perception occurs because managers devote disproportionately more attention to the stimuli in their field of vision. Finally, the information they receive is filtered through their cognitive

lenses. In short, the degree of heterogeneity in demographic characteristics typically amounts to cognitive heterogeneity, with the implication that teams with more variability exhibit divergent cognitive dispositions. The literature supports this claim, as documented by empirical studies on managerial cognition and strategic decision making (e.g., Tripsas and Gavetti 2000). A similar logic applies to the equivalent imprinting of team members who are exposed to identical episodic environments and therefore exhibit cohort-specific cognitive proclivities (cf. Stinchcombe 1965). Demographic heterogeneity enters the fray because divergent mental frames interfere with communication (Zenger and Lawrence 1989) and reduce strategic consensus (Knight et al. 1999).

Although intriguing, the findings of this body of research have been challenged, for instance by Lawrence (1997) and Priem et al. (1999), who argued that the relationship between team demographic composition and organizational outcomes is more complex than originally presumed. Recent reviews of the psychological literature have underscored this multifaceted relationship (e.g., Guzzo and Dickson 1996). A positive effect of heterogeneity was found for complex, uncertain tasks, such as those facing a top management team, for which "informational diversity should theoretically be more beneficial than in routine tasks" (Barsade et al. 2000, p. 809). Other studies have shown a positive relationship between managers' diversity and firm performance for tasks requiring creativity and innovation (Bantel and Jackson 1989, Eisenhardt and Schoonhoven 1990). Although this discrepancy reflects the more general issue of whether demographic variables proxy cognitive proclivities well (Lawrence 1997), a potential explanation of these seemingly conflicting findings relates to the specific dependent variable under investigation. Williams and O'Reilly (1998, pp. 119–120) attribute such discordant findings to "the failure to distinguish between idea generation (or 'creativity') and its implementation"; successful teams should exhibit "both the ability to develop creative solutions and to implement or execute these ideas."

Other authors provide an alternative interpretation of such conflicting results and claim that the impact of team diversity on performance goes well beyond simple main effects. We follow this lead and argue that two crucial limitations are potentially responsible for the confounding evidence obtained so far. *First*, as we mentioned at the onset of the paper, cross-sectional research designs permit limited attention to the dynamics of organizational demography—that is, to managerial mobility as the exogenous cause of demographic diversity changes. This deficiency is remarkable, because mobility events inevitably occasion transformations in the demographic composition of a leadership team. As Harrison and Carroll (2006, p. 137) concluded, "TMTs show a strong relationship between demographic events of entry and exit to the team, on the one hand and measures of heterogeneity on the other hand. . . . This relationship implies that the effects of diversity are inextricably tied up with the effects of disruption, making interpretation of the conventional heterogeneity measures and their estimated effects on organizational outcomes problematic." It follows that a focus on *level* of heterogeneity, common in cross-sectional studies, is misplaced and that inquiry should be directed to *changes* in heterogeneity, as occasioned by interfirm mobility or other mobility events. Whenever inflows or outflows occur, quasi-experimental conditions for testing these movements' causal outcomes, as enunciated by the original theory, present themselves. Teams are dynamic and in flux, and their evolving diversity hinges on people moving in and out. We stress demographic diversity as inertia strengthening or weakening, depending on the transformation in membership homogeneity. We believe that a drop in heterogeneity after a mobility event favors firm survival chances, because the resulting members converge further in their shared strategic direction. By contrast, the injection of dissonant members and a surge in demographic diversity produces possible discord. Whereas a growth in homogeneity exacerbates collective momentum and consistency in strategic pursuit, upticks in heterogeneity could have the opposite effect and compromise agreed-upon collective action.[1]

Second, and related to the above, the existing literature has devoted scant attention to the histories of interactions among managers, implicitly assuming that teams are characterized by equally strong ties among their members (see also Sørensen 2000, Harrison et al. 2003). Taylor and Greve (2006, p. 737) echoed this concern, remarking that "future research should focus on concrete measures of the career experiences of team members rather than on surface-level diversity." Similarly, Horwitz and Horwitz (2007, pp. 1007–1008) pointed to team longevity as a critical but underexplored moderator of the relationship between demographic diversity and organizational performance. That point resonates with research dating from Homans (1951) that has underscored the importance of team member interactions for the development of shared values and group attachment. Longer length of interaction results in tighter bonds, more trust, more communication, and better performance (compare Watson et al. 1993, Krackhardt 1999). According to such authors, initial performance differences between demographically homogeneous and heterogeneous teams may disappear over time and potentially cross over (i.e., with the latter performing better than the former; see also Horwitz and Horwitz 2007, p. 1008). That is because lack of joint experience increases the negative effects of member diversity on communication (Pelled et al. 1999), whereas continued interaction among team members renders them more likely to converge around norms, beliefs, and decision-making procedures

(Goodstein and Boeker 1991, p. 312; Levine et al. 2005; Beckman and Burton 2008). In other words, the length of time upper echelons members spend together signals how well ingrained their *modus operandi* has become. Teams with longer periods of association will develop more stable and shared expectations that lower conflict and increase performance (Pfeffer 1983, see also Taylor and Greve 2006).

Such a propensity critically interacts with the first one: whether demographic diversity increases triggered by mobility events are beneficial for an organization's survival depends on the level of joint experience of the organization's current top management team (i.e., team age). In particular, we believe, as Guzzo and Dickson (1996) noted, that the benefits of enduring interaction may have a ceiling, because "familiarity may eventually become a liability as the lack of membership change (*and thus the lack of any unfamiliar members being introduced into a team*) contributes to stultification" (1996, p. 332, emphasis ours). Therefore, a threshold does exist above which the injection, for instance, of demographically distant new members may offset the associated socialization costs and lead to performance improvements. During early stages of their joint experience, team members engage in social learning and collective problem solving, and time is needed to establish shared routines. At this stage, further increments in diversity will be detrimental to organizational performance, but attenuation is beneficial. Older teams exhibit convergence of beliefs and attitudes, and members may become so consensual or uniform in mind, have such low interpersonal communication, and such high tacit acquiescence, that performance is compromised (Katz 1982). Under this scenario, a mobility event (whether inbound or outbound) that enhances demographic heterogeneity may be advantageous because mature teams are better equipped to absorb demographic shifts in composition and benefit from demographic membership changes (see also March 1991). This reasoning suggests a nonlinear relationship between diversity shifts, team age, and survival: although the hazard of organizational dissolution because of increases in demographic heterogeneity grows at low levels of team age, such demographic discontinuities improve the survival odds of long-tenured teams. Because our argument relies on mobility events and their effect on social integration, we propose a baseline hypothesis on the consequences of demographic diversity increments inspired by the overwhelming majority of the relevant findings (see Horwitz and Horwitz 2007).[2] Thus, *holding constant a team's current level of demographic diversity*, we propose the following:

HYPOTHESIS 1A. *Demographic heterogeneity increases* (*decreases*) *among members of an organization's upper echelons positively* (*negatively*) *influence the hazard of organizational dissolution.*

HYPOTHESIS 1B. *Although the hazard of organizational dissolution because of increases in demographic heterogeneity grows at low levels of team age, increases in demographic heterogeneity improve the survival odds of long-tenured teams.*

Firm's Relative Position

Past research on top management teams has been devoid of attention to connections between these groups and the social system within which they are located (see, e.g., Levine and Moreland 1990). Mobility events also affect demographic variations *across* teams of competitively interdependent firms. It behooves us, therefore, to ask whether such events alter their rivalry whenever their leadership undergoes modifications in demographic overlap with commensurate repercussions on firm survival. The modified distance or separation between firms might occasion competitive convergence or divergence. This prediction follows from the reasoning that compositional equivalence among top management teams may drive firms into competition for similar and limited resources. Conversely, mobility events that differentiate their demographic profiles attenuate rivalry and improve the firms' survival prospects. In short, changes in the compositional difference among top management teams because of mobility events could result in intensifying or softening the competitive pressure organizations face.

The mental modes of managerial teams are conceptually linked to members' perceptions and interpretations of their external environment (Reger and Huff 1993). These proclivities could possibly be inferred from the backgrounds of team members—for instance, from their market experiences (see, e.g., Walsh 1995). Researchers (e.g., Pfeffer 1983) have suggested that individuals from equivalent age cohorts exhibit similar values and beliefs. Similarly, Sørenson (1999b) showed that top managers similar in firm tenure and, thus, in capabilities, pursue comparable strategies and use of resources. Demographic backgrounds constitute a strategic precursor because they "provide vital information on a firm's preference for environmental niches to compete [in]" (Pegels et al. 2000, p. 914).

When extending this logic to a competitive context, we surmise that managerial teams with equivalent distributions of demographic traits may exhibit equivalent approaches to a given sector. That explains why market segments are likely to be occupied by firms exhibiting comparable top management team characteristics (Pegels et al. 2000). Top management teams, then, exhibit different capabilities and approaches to a sector when they are demographically distant from other teams. Our interpretation is not deterministic, but probabilistic. Given our research design (longitudinal and relying solely on archival data), intentionality in the rivalry among overlapping firms and their managers is difficult and tenuous to impute. Rather, our argument presumes

that the more their domains overlap, the more they require similar resources to thrive (McPherson 1983, Baum and Haveman 1997). Sørensen (1999a, p. 718) reflects this train of thought when he says that, "Managers with exposure to a common set of events are more likely to have similar perspectives than managers with wholly different experiences." The argument, therefore, takes on a different twist because overlapping interfirm team profiles indicate similar organizational capabilities and, thus, proxy the intensity of competition that organizations are likely to face. Indeed, this conclusion is supported by a vast literature indicating how competition acts locally on relevant dimensions of rivalry, with its intensity being greater when overlap is higher (see, e.g., McPherson 1983, Baum and Haveman 1997).

Although "organizational demographers attribute no causal or mediating force to the demographic characteristics of other organizations" (Sørensen 1999b, p. 714), it now becomes clear that mobility-triggered changes in demographic overlap also serve to drive organizations toward or away from each other. Mobility events producing a greater match in managerial skills among peer firms trigger a convergence in decisions and outcomes as firms and their upper echelons face what might be called demographic crowding with attendant alignment of their competitive actions (Geroski 2001). Clearly, these postulated effects of clustering (or its complementary opposite, dispersion) vary according to the degree to which their market segment is actually contested. The ecological literature holds that overlap (in our case, among organizations' assortment of managerial capabilities) increases the likelihood of competition, especially when their markets witness heightened competitive intensity (see, e.g., Boone et al. 2007). Differentiation—i.e., migrating to less competitive segments—is rewarded and survival chances enhanced (Baum and Singh 1996). Negative selection, then, should exhibit its greatest force when crowding in local markets reaches higher levels, rendering collusive behavior less likely (see Smith et al. 2001, Geroski 2001). Tight competitive conditions in fact increase the struggle for limited resources, ultimately reinforcing its associated negative consequences. Building on this reasoning, we claim that the effect of demographic overlap changes should be stronger during periods of heightened rivalry. Therefore, we hypothesize the following:

HYPOTHESIS 2A. *Increases* (*decreases*) *in demographic similarity among peer firms' upper echelons are associated with an augmented* (*a reduced*) *hazard of organizational dissolution.*

HYPOTHESIS 2B. *The positive effect of demographic overlap among peer firms on organizational dissolution is amplified in the presence of high levels of interfirm competition.*

Empirical Setting

Our empirical setting is the Dutch accounting sector during the period 1880–1986. These firms were single proprietorships or partnerships. Because our study dealt with teams that govern professional partnerships, single proprietorships were dropped. Typically, they comprise partners, or owner-managers, and employees, often called associates. As a combination of owner-managers and employees, partnerships are more or less heterogeneous and share many characteristics with the top management teams of small or medium-sized organizations, even if they also are in some important ways different from public or private corporations (compare Pennings and Wezel 2007).

The Dutch accounting industry remained fairly fragmented during the period of our study. Being small, many organizations competed at the local (province) level, and their human and social capital (e.g., talented professionals and new clients) was local as well. A few larger firms over time expanded their geographic scope beyond provincial boundaries, yet the province was clearly the relevant environment for most of these professional service firms. Given the central relevance of the local environment, we chose *local industry tenure* as the dimension along which we measured demographic heterogeneity and restricted the analysis to mobility events because of inbound or outbound movements involving firms located within the same province. Our choice of localized movements was premised on the consideration that local experience, more than professional or team experience, is the more plausible proxy for managers' mental models (see the section on independent variables).

Most of our partnership measures were therefore constructed at the subpopulation level of analysis—that is, at a provincial and not a national level. Our rationale was that each province represented a distinct selection environment (see also Cattani et al. 2003, Pennings and Wezel 2007, De Pree 1997). Within this sector, firms are embedded in geographic entities with clear political and administrative boundaries and specific socioeconomic properties.

Data

Data consist of information about individual professional accountants and their organizations and were collected from the membership lists (or directories) of accountant associations at one- to five-year gaps or intervals. Pennings et al. (1998) provides a comprehensive description of the sources. The percentages of our temporal gaps are as follows: one year, 24%; two years, 60%; three years, 6%; four years, 8%; five years, 2%. The larger gaps in data challenged our mapping of the effects of demographic diversity variations on organizational dissolution. However, as explained below in the section Model and Method, we controlled for the variance

in interval length in our analyses by creating a variable accounting for diverse time spans. In contrast to Pennings et al. (1998), we eliminated single proprietorships from our risk set, ending up with a set of 676 organizations. The membership lists provided information on the name, address, and status (partner or associate) of each professional accountant in the association. We reconstructed the histories of individual organizations by aggregating individual-level data to the firm level. The data cover the entire population of Dutch accounting firms during the period 1880–1986. In building the data set, we considered the year in which an organization appeared for the first time on the Register of Accountants as the organization's founding year and considered the last year of appearance as its year of dissolution. We coded our dichotomous dependent variable as 0 if a firm was still in existence in a given year and as 1 once it exited the risk set. This coding is consistent with the definition of market exit proposed by Boone et al. (2000) and Wezel et al. (2006); the former noted that "failure, in the sense of bankruptcy, cannot be observed in the audit industry and, therefore, cannot be distinguished from other types of exit" (Boone et al. 2000, p. 368). Thus, organizational dissolution encompasses different types of exits, ranging from the case in which a firm disappeared because its owners were no longer listed in the Certified Professional Accountant directories, to the case of dissolution by acquisition or merger. In all such cases, we coded our dichotomous dependent variable as 1 and removed the firm from the risk set (however, see the section on robustness tests for a detailed discussion).[3]

The concern here is with the survival implications of demographic shifts because of the mobility of partners rather than associates. Accounting firms have a dual stratification, with the top echelons endowed with superior human and social capital. The effects of inbound and outbound movements on within- and between-firm demographic diversity are certainly higher when these movements involve partners rather than associates. Partners are the owners of these firms and have a much greater incentive to exploit their human capital for organizational growth. Partners serve as producer-managers by actively participating in the business as key production workers (Maister 1993). Unlike shareholders of public corporations, they are also engaged in overall firm management. Their decision-making power extends to the task of building/changing routines, including hiring and firing policies, procuring work and deploying junior professionals, differentiation (as a hedge against market shrinkage), investment, personal financial planning, and liability insurance premium decisions.

Independent Variables

The mobility of key members—whether involving new hiring or departures—affects a firm's demographic heterogeneity. Because localized networks and experience are critical in this industry (see Smigel 1969), we measured team members' heterogeneity in terms of local experience. As we highlighted above, the province is the main competitive arena for these firms. That is why we chose length of service or tenure within a focal province as a proxy for managers' demographic homogeneity/diversity. It is reasonable to believe that this measure captures the processes of interest here. Our reasoning implies that two partners with similar industry tenure will exhibit similar mental models and common knowledge. Opting for firm tenure would have led us to "underestimate the extent to which managers are similar" (Sørensen 1999b, p. 727). To understand this issue, consider the case of inbound movement: whenever a partner in a focal firm joins another firm, this variable would take the value 0, regardless of the mobile partner's level of prior experience. This would mean treating all inflowing partners as if they were the same—thereby ignoring their experience differences—every time they start working for a different firm.

Our choice of local tenure as the unique dimension along which we measured demographic heterogeneity remains theoretically grounded. Because "managers operate on mental representations of the world and those representations are likely to be of historical environments rather than current ones" (Kiesler and Sproull 1982, p. 557), we argue that cohorts of managers exposed to similar historical environments share comparable mental representations of the competitive context and are prone to socially integrate. On the premise that "localness" is a valid attribute in the context chosen, similarity of local tenure informs us as to managers' shared understanding of their industry and the likelihood of their reaching consensus about current market conditions. When staffing involves members with comparable local seniority, social homophily will be at work, with effects including a lower likelihood of conflict. Nonetheless, as a more natural candidate for testing a hypothesis on social integration would be team tenure, it is worth noting that the two measures appear to be highly correlated (Finkelstein and Hambrick 1990, p. 492).

Organizational demographers measure the level of tenure heterogeneity via the coefficient of variation, which is the ratio of the standard deviation of tenure to its mean. Models that use the coefficient of variation alone, however, risk confounding the different effects that the mean and the standard deviation may have on social processes (Sørensen 2002). The standard deviation is the more appropriate solution because it overcomes aggregation bias by computing the distance between individuals, irrespective of the mean. To test Hypothesis 1A, we used variation in the value of the standard deviation for local tenure. For each firm, we first calculated the standard deviation of the number of years the partners had spent within a focal province. In particular, we captured change in local tenure heterogeneity

by creating a time-varying variable—*demographic heterogeneity flow*—that measures the change in the value of the standard deviation of the local tenure of a team that can be attributed to partner mobility (i.e., new hires or departures). To test Hypothesis 1B, we computed a variable that captures the overlap in the team tenure of the members as a proxy for their social interaction over time. *Team age* measures the average overlap in tenure among all the possible pairwise combinations of team members at time $t - 1$ (i.e., before the mobility event). To capture the nonlinear returns of interaction between members over time, we squared this value—*team age squared*. We tested Hypothesis 1B by interacting membership duration with *demographic heterogeneity flow*.

To test Hypothesis 2A, we created *demographic overlap flow*, which measures changes in the overlap computed from the average stock of provincial experience between the focal firm and its competitors located within the same province. We chose an average measure because research (Finkelstein and Hambrick 1990; Sørensen 1999a, b) suggests that average industry tenure profoundly affects organizational strategies and performance. The overlap measure varies over time as a result of the mobility of partners. First, for each firm we computed maximum and minimum values by adding and subtracting one standard deviation to (from) the mean value of firm tenure (see also Sørensen 1999a). We quantified the degree of niche overlap by counting the number of firms falling within that band in a given year. Inbound and outbound movements affect mean tenure overlap, so the number of firms falling within this band varies accordingly. To measure changes in overlap, we calculated the difference between the numbers of firms in two consecutive time periods, respectively. We restricted the variation of this variable to cases in which (at least) one mobility event (a new hire or a departure) was observed in a given year. To test Hypothesis 2B, we proxied the severity of competition by mapping the strength of local competition on the geographical dimension and counting the number of firms dissolved within a given province in a given year (*firms exiting province*) and interacted it with *demographic overlap flow*. We opted for this variable and not density (another proxy for competition) because the current number of firms exiting an industry is a more straightforward measure of the realized level of competition. Nonetheless, we also conducted analyses using the interaction between *demographic overlap flow* and organizational density (at the province level), obtaining no significant variations from the results presented here.

Control Variables

In addition to our variables of theoretical interest, the final model included several control variables measured at the historical, provincial, and organizational levels to rule out a number of competing hypotheses and to improve comparability with existing research on this industry (Pennings et al. 1998, Wezel et al. 2006, Pennings and Wezel 2007).

Historical Controls. Important events that might well affect organizational survival chances in specific years have marked the history of the Dutch accounting industry. In particular, we created two dummy variables for the governmental regulations dealing with the occurrence of *World War* I (1914–1918) and *World War* II (1941–1946). Since the 1960s, the Dutch accounting industry has witnessed several fundamental regulatory changes. More stringent requirements, such as higher required levels of education and experience, and a required examination to become a certified public accountant, have over time restricted the entry of potential competitors. In particular, four major regulatory changes have affected both the supply and the demand of professional accounting services. In 1966, with the Law on Registered Accountants, one professional organization, NIvRA (Nederlands Instituut van Register Accountants), was created. Since then, every professional accountant in public practice has been a member of this association. We created the variable *single association,* coded 1 for 1966 and later years, 0 otherwise. Then, the 1970 Act on Annual Accounts of Companies (which took effect in 1971) expanded the number of firms required by law to disclose audited annual accounts by requiring large private firms and cooperative societies, in addition to public companies, to do so. Finally, in 1983 the number of firms needing audits was further enlarged with the institution of Title 8 of Book 2 of the Civil Code: every company, public or private, and every cooperative society was forced to disclose audited annual accounts. After the promulgation of definitive guidelines in 1984, the practice became less compulsory for small and medium-sized firms, which were "allowed to submit abridged annual accounts" (Boone et al. 2000, p. 366). We captured the effect of the regulatory changes enforced in 1971 and 1984, which significantly heightened the demand for audit services, with two dummy variables: *Regulation of* 1971 (1 if year is 1971 or later) and *Regulation of* 1984 (1 if year is 1984 or later). As the coding of period effects is overlapping, the estimated coefficients should be compared with the previous period's. Last, we used the rate of unemployment (*unemployment*), a time-varying variable measured at the national level, to control for the general economic climate of the nation.

Provincial Controls. We included the linear and quadratic effects of density measured at the provincial level—i.e., *focal province density* and *focal province density squared*—to estimate the extent to which more general ecological phenomena affect organizational survival. In the presence of high concentration, just a few organizations control most of the available resources. We

thus measured concentration of the focal industry as the total market share of the top four firms (*C4*).

The risk of organizational failure also depends on how many firms are founded or disappear each year, and both counts reflect environmental munificence. Accordingly, we created two variables, *firms entering province* and *firms exiting province*, to account for the number of firms founded and dissolved within a given province. We proxied variations in carrying capacity (e.g., the number of potential clients) with number of inhabitants (*provincial inhabitants*). We accounted for other systematic geographical differences using provincial fixed effects.

Organizational Controls. We measured *size* as the logarithm of a firm's annual number of professional accountants (partners and associates) and measured *age* as the number of years since firm inception. We also controlled for the level (i.e., the stock) of diversity and overlap at $t-1$ with variables called *demographic heterogeneity stock* and *demographic overlap stock*, respectively. Thus, our model's design provides a stricter test of the "acceleration" in the rate of organizational failure that is a result of increases above the existing level of diversity, while controlling for the level of heterogeneity, which is affected by several mechanisms (new hires, voluntary exits, firings, etc.). We expected both of these variables to be positively related to organizational dissolution. Additionally, we tried to capture part of endogeneity by controlling for a few other firm characteristics. For each year, we also computed a ratio in which the numerator is the sum of the years of provincial experience of all organizational members (including associates) before the measured inflows and outflows of partners, and the denominator is the mean value of the provincial experience of local competitors (*relative position*). The rationale for this variable is that competitively stronger organizations are less exposed to the hazard of failure. Such an advantage guarantees the selection of inflows from a larger pool of applicants. Second, failing to control for team size is likely to bias the estimation of team heterogeneity effects (Carpenter et al. 2004). We avoided this bias by adding a variable that counts the number of partners composing a team (*team size*). Third, we controlled for the a firm's degree of demographic turbulence by summing the yearly number of members (partners and associates) entering and exiting the organization (*mobility count*). Last, because the impact of a standard deviation is critically affected by the mean of the same variable (Sørensen 2002), we controlled for the mean of a firm's local experience with *partners' mean local tenure* (see also Pennings et al. 1998).[4] To ensure exogeneity with respect to the dependent variable, we lagged our covariates by one period. Table 1 reports the descriptive statistics and the correlation values for the variables used in the analysis.

Table 1 Descriptive Statistics and Pairwise Correlations

Variable	Mean	Std. dev.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 *Age*	14.665	13.626	1.00																
2 *Provincial inhabitants*	1,809,836	652,922	−0.02	1.00															
3 *C4*	0.239	0.121	−0.26	0.22	1.00														
4 *Unemployment*	7.399	8.006	0.06	−0.17	−0.20	1.00													
5 *Firms entering province*	14.385	11.967	0.04	0.35	0.08	0.15	1.00												
6 *Firms exiting province*	14.126	12.927	0.00	0.48	0.18	0.08	0.45	1.00											
7 *Provincial density*	70.487	37.070	0.21	0.50	−0.44	0.12	0.20	0.34	1.00										
8 *Relative position*	1.169	0.901	0.29	0.00	−0.11	0.07	−0.01	0.00	0.10	1.00									
9 *Size* (log)	1.408	0.933	0.12	0.15	0.17	−0.06	0.13	0.16	0.05	0.25	1.00								
10 *Team size*	5.577	13.614	−0.01	0.12	0.23	−0.03	0.13	0.17	−0.01	0.17	0.74	1.00							
11 *Mobility count*	0.951	5.981	0.07	0.05	0.08	−0.05	0.02	0.06	0.03	0.15	0.34	0.43	1.00						
12 *Team age*	11.235	9.487	0.52	−0.05	−0.22	0.13	0.06	−0.03	0.15	0.06	−0.05	−0.08	−0.04	1.00					
13 *Average team experience*	3.135	5.074	0.02	0.09	0.00	−0.08	−0.07	0.06	0.10	0.18	−0.07	−0.03	0.09	−0.07	1.00				
14 *Demographic heterogeneity stock*	1.450	1.850	0.03	0.10	0.07	−0.11	−0.04	0.07	0.07	0.24	0.24	0.21	0.41	−0.12	0.58	1.00			
15 *Demographic heterogeneity flow*	0.451	3.110	0.06	0.03	0.02	−0.02	0.01	0.03	0.01	0.05	0.03	0.04	0.26	−0.04	0.53	0.51	1.00		
16 *Demographic overlap stock*	7.140	4.670	−0.12	0.31	0.10	−0.13	0.16	0.25	0.29	−0.10	0.13	0.11	0.04	−0.13	0.02	0.05	0.03	1.00	
17 *Demographic overlap flow*	1.510	17.310	−0.05	0.02	−0.01	−0.03	−0.02	−0.02	0.00	−0.06	−0.04	−0.03	−0.01	−0.04	−0.01	−0.04	−0.02	0.03	1.00

Model and Method

Following a standard procedure, we partitioned the life of each organization into organization years (Tuma and Hannan 1984). After single proprietorships are excluded, the final data set includes the lives of 676 firms divided into 5,404 year segments, for a total of 518 exit events. Although the percentage of exiting firms seems rather high, it resembles the distribution of failing firms observed in other industries (see Klepper 1997). Because our data were collected at irregular intervals, the use of continuous event history analysis might have biased our estimates (see Allison 1982). Following previous studies using similar data (e.g., Pennings et al. 1998), we used discrete event history analysis. A discrete time hazard rate is defined as

$$P_{it} = \Pr(T_i = t \mid T_i \geq t, X_{it}),$$

where T is the discrete random variable measuring the uncensored date of failure, and P_{it} is the probability that an event will occur to firm i at time t, given that the firm did not experience such an event in any previous interval. A further analytic complication was the presence of crude observation points, which challenged the use of a logit model. As Yamaguchi (1991) noted, a logit model can be interpreted as a ratio of two odds, and such a ratio approaches the ratio of two rates only if the interval between observations is sufficiently small. A valid alternative is a continuous time data specification, which can be used to derive a model for data grouped into intervals (Allison 1995). A complementary log-log specification accomplishes this goal:

$$P_{it} = 1 - \exp[-\exp(\gamma_t + \boldsymbol{\delta}'\mathbf{x}_{it})].$$

Or, after taking the logarithm of both sides,

$$\log[-\log(1 - P_{it})] = \gamma_t + \boldsymbol{\delta}'\mathbf{x}_{it},$$

where γ_t is an unspecified function of time, $\mathbf{x}_{it}$ is a vector that includes both firm-level characteristics and environmental variables measured at different levels of analysis, and $\boldsymbol{\delta}$ is the vector of coefficients. The log transformation of the left-hand side is called the complementary log-log function. The model resembles a piecewise specification, with the difference that the hazard of failure is not forced to remain constant over intervals, but is allowed to fluctuate in various ways so long as the assumption of proportionality within each of them is satisfied. We set those intervals equal to the time gaps in our data and controlled for a curvilinear effect of firm age.

One potential concern involves the endogeneity problem that may arise from self-selection among firms and their mobile partners. We addressed this concern in several other ways. We lagged the variables by one period. Because in our data a period ranged from one to five years, for 84% of the firms in our database a one-period lag corresponds to one to two years, and for 16%, it is three to five years. But selectivity may stem from systematic differences among firms in their probability of hiring or dismissing. For instance, a firm may hire new partners or discharge current ones when it performs poorly. Moreover, selectivity may be associated with the characteristics of mobile members. High-profile partners (i.e., those with high-quality human and social capital), for instance, exhibit different mobility tendencies than poor performers. Empirical evidence suggests that "stars" are less likely to move (Groysberg et al. 2007). If so, our results measuring the impact of member transfer on organizational survival are at risk of being biased by some kind of "adverse selection": low-quality professionals are more likely to move and, thus, more likely to be hired. In a similar vein, the inclination to remain in the same geographical area, if not in the same firm, may also be heterogeneous among professionals. This potential scenario renders endogenous any entry to organizations located in the same area, potentially biasing the estimates of the coefficients.

We explored the impact of selectivity in several ways. The spurious effect of poor performance on the probability of transfers could be ruled out by controlling for a lagged accounting measure of performance. Because accounting data on firm performance are not available, we opted for a different solution. We computed the probability of failure for each firm on the basis of the estimates of Model 1 (controls only) and added this value into an equation in which the likelihood of at least one transfer is modeled. The results obtained (which are consistent with those shown in Table 2) are discussed in the section on robustness checks. Second, an observed partner mobility event may be systematically biased rather than random. Labor economists suggest that a great deal of uncertainty accompanies the "churning" of employees (Jovanovic 1979). Usually, high levels of short-term turnover are used to capture uncertainty in matching person with firm (e.g., Belzil 2001). We computed the number of years sandwiched between individual movements. The findings suggest that partners stayed put for an average of eight years. Considering the time gaps in our data, we interpret this mobility frequency as further confirming the existence of substantive uncertainty in the job search process. Moreover, we checked the existence of any underlying relation between the partners' human/social capital and the geographical destinations of moves by analyzing individual-level behavior. We reconstructed the history of all the accountants in our database and measured their probability of changing firms as contingent on a set of personal (i.e., human and social capital) and environmental characteristics (i.e., period effects, provincial density, and firm-specific controls). Human capital was captured with relative time to promotion; social capital was measured as the number

of years of local experience. Omitting single proprietorships, we ended up with a sample of 867 events. The estimates of the coefficients of the human and social capital variables, albeit aligned with the direction suggested by past research (i.e., those with high social capital are unlikely to move), turned out to be far from statistically significant. We repeated the analysis, comparing moves in which accountants remained in the same province with moves in which they went to a different one (62% within-province and 38% across-province incidents). Again, the results showed that human and social capital randomly distribute across provinces upon mobility.

Another serious concern involves unobserved heterogeneity, or unobserved firm-level differences that might bias duration dependence and potentially inflate the covariates' coefficients. A fixed-effects approach would have made it possible to control for all stable characteristics of firms, even if those characteristics could not be measured. Although fixed-effects methods are widely available, such an approach is not feasible when each experiences no more than one event (for an exception, see Allison and Christakis 2006). Needless to say, moving to a discrete time approach and using a fixed-effects logit formulation would have eliminated the constant events (i.e., the censored cases, namely those not making a transition from 0 to 1) from the sample, significantly biasing our estimates. So, a random-effects model specification should be used. Within this family of "frailty" models applied to discrete time models, the gamma distribution has been the most popular. In particular, as Jenkins (2005) shows, for the complementary log-log model (the one adopted here), it is straightforward to assume a normal or gamma distribution for the frailty. We checked the impact of any systematic differences across firms because of unobserved effects by running a random-effects complementary log-log model with gamma heterogeneity estimated via the "pgmhaz8" routine. We present these results in Table 3 (see the robustness checks). All the estimates were obtained using Stata 9 and adding geographical dummies (i.e., at the province level) to account for unobserved geographical differences across provinces.

Results

Table 2 presents the maximum-likelihood estimates for the complementary log-log models of organizational dissolution. Model 1 includes the control variables and the variable *demographic heterogeneity flow*, which we used to test Hypothesis 1A, while controlling for *demographic heterogeneity stock*. Model 2 adds the interaction between *demographic heterogeneity flow* and the *team age* linear and squared terms (see Hypothesis 1B). Then, we repeat the same logic for the overlap measures. In Model 3 we tested Hypothesis 2A by entering *demographic overlap flow* with *demographic overlap stock*. Model 4 tests Hypothesis 2B by adding the interaction between *demographic overlap flow* and *firms exiting province*.

In Model 1, few of the controls are statistically significant. At the organizational level, the controls point to the existence of a curvilinear age effect: accounting firms are more likely to dissolve when very young or rather old. A stock of human capital higher than the provincial average (*relative position*) significantly reduces the risk of dissolution. As expected, dissolution rates increase with the number of recruits and departures (*mobility count*). Turning to the independent variables of theoretical interest, we find that the estimates obtained for the demographic variables are in line with our reasoning. As expected, team age exhibits a U-shaped effect on the odds of dissolution, with very young and very experienced teams exposed to higher risks, whereas high levels of heterogeneity drive firms out of business. According to these estimates, the maximum benefits obtained by shared experience are reached after 24 years or so. Hypothesis 1A stated that diversity-increasing mobility events (inbound and outbound) increase the likelihood of organizational dissolution. Our results confirm the existence of such an effect with a significant finding obtained while the stock of demographic diversity is held constant. Model 2 adds the interaction between diversity shifts and team age (linear and squared; see Hypothesis 1B). It is worth noting that when we add this interaction, which helps to contextualize mobility events, *mobility count* loses statistical significance. The model also shows that the interaction of changes in diversity with team age has the predicted effect on organizational dissolution. In the presence of mobility-induced diversity increases, firms with very old teams endure lower failure than younger ones. To explore these complex relationships further, we split the mobility events into two categories: inbound-movement-triggered and outbound-movement-triggered diversity shifts.

Until this point, the reported analyses treated inbound and outbound movements of partners as equivalent triggers of diversity alterations. Yet these two classes of events might have divergent implications. We thus replicated Model 2 in Table 2 to see if any differences in dissolution rates because of diversity could be attributed to inflows (third pair of columns) and outflows (fourth pair of columns). In this replication, it appeared that the reduced failure rates associated with diversity increases in older teams (see Model 2) hinged very much on diversity caused by inbound movements. Conversely, firms with older teams were at greater risk of dissolution if departures rendered them more heterogeneous. This finding raises the question of mobility motive: is it retirement or defection and, in the latter case, are considerations involved other than those that can be attributed to, for example, starting a new firm? Although the probing of such motives is beyond the reach of our archival

Table 2 Complementary Log-Log Models for Dissolution Rate of Dutch Accounting Firms, 1880–1986

	Model 1		Model 2		Inbound only		Outbound only		Model 3		Model 4	
	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.
WWI	−0.152	0.619	−172	0.618	−0.13	0.6204	−0.090	0.6175	−0.019	0.619	−0.20	0.619
WWII	0.581	0.271**	0.524	0.271**	0.4321	0.2671	0.6932	0.2714**	0.532	0.270**	0.52	0.270**
Age	−0.036	0.014*	−0.035	0.014*	−0.0282	0.0142**	−0.043	0.0144**	−0.023	0.015	−0.023	0.015
Age^2	0.0004	0.0002**	0.0004	0.0002**	0.0005	0.0002**	0.0006	0.0003**	0.0002	0.0003	0.0002	0.0002
Single association	0.432	0.249*	0.481	0.249*	0.491	0.242**	0.246	0.2494	0.618	0.248	0.64	0.250**
Regulation 1971	−0.271	0.243	−0.257	0.243	−0.182	0.242	−0.28	0.2405	−0.235	0.244	−0.24	0.245
Regulation 1984	0.792	0.181**	0.772	0.180**	0.8382	0.1843**	0.954	0.1805**	0.670	0.182**	0.67	0.182**
Provincial population (in 10,000s)	−0.003	0.02	−0.008	0.02	0.0012	0.0025	0.0025	0.0024	−0.001	0.002	−0.002	0.002
C4	2.33	1.150**	2.25	1.146**	2.10	1.12**	2.11	1.14**	1.89	1.13	1.82	1.13
Unemployment	−0.072	0.012**	−0.074	0.012**	−0.0735	0.0122**	−0.062	0.0122**	−0.067	0.012**	−0.063	0.012**
Firms entering province	0.003	0.005	−0.0005	0.005	−0.0015	0.051	0.0069	0.0051	0.003	0.005	−0.003	0.005
Firms exiting province	0.044	0.005**	0.045	0.005**	0.0436	0.0047**	0.043	0.0047**	0.046	0.005**	0.044	0.005**
Provincial density	0.005	0.012	0.012	0.012	−0.0042	0.0122	−0.0133	0.0122	0.003	0.012	0.003	0.012
Provincial density^2 (in 1,000s)	0.0496	0.0810	0.0596	0.0808	0.0832	0.0802	0.1208	0.0807	0.0261	0.0811	0.021	0.0813
Relative position	−0.512	0.073**	−0.488	0.072**	−0.401	0.0771**	−0.581	0.0738**	−0.479	0.073**	−0.484	0.074**
Size (log)	0.101	0.083	0.0895	0.083	0.077	0.0840	0.0991	0.0827	0.081	0.083	0.089	0.083
Team size	−0.008	0.006	−0.006	0.006	−0.0059	0.0060	−0.0081	0.0057	−0.007	0.006	−0.006	0.006
Mobility count	0.016	0.008**	0.012	0.009	0.0101	0.0125	0.018	0.007**	0.012	0.009	0.013	0.009
Team age	−0.054	0.018**	−0.074	0.019**	−0.0814	0.0199**	−0.0315	0.0186*	−0.073	0.019**	−0.073	0.019**
Team age^2	0.0012	0.0004**	0.0015	0.0004**	0.0015	0.0004**	0.0072	0.0004*	0.0016	0.0004**	0.0016	0.0004**
Partners mean local tenure	0.083	0.008**	0.078	0.008**	0.088	0.0077**	0.1009	0.0086**	0.083	0.008**	0.083	0.008**
Demographic heterogeneity stock	0.136	0.027**	0.151	0.033**	0.235	0.049**	0.039	0.025	0.156	0.035**	0.154	0.036**
Demographic heterogeneity flow	0.191	0.014**	0.177	0.015**	0.193	0.047**	0.354	0.028**	0.181	0.015**	0.183	0.015**
Demographic heterogeneity flow · Team age			0.015	0.0066**	0.015	0.007**	−0.0055	0.0010**	0.016	0.006**	0.0137	0.0064**
Demographic heterogeneity flow · Team age^2			−0.0004	0.0002**	−0.006	0.0019**	0.00023	0.00005**	−0.0004	0.0002**	−0.0003	0.0002*
Demographic overlap stock									0.057	0.013**	0.058	0.013**
Demographic overlap flow									0.0041	0.0015**	0.0011	0.0026
Demographic overlap flow · Firms exiting province											0.00025	0.0015*
Constant	−1.68	0.420**	−1.59	0.412**	−1.89	0.426**	−1.891	0.419**	−2.004	0.447**	−2.751	0.450**
Log-likelihood	−1,289.5		−1,286.4		−1,313.5		−1,302.2		−1,272.3		−1,271.1	
Number of events		518		518		518		518		518		518
Provincial fixed effects	Included		Included		Included		Included		Included		Included	
Offset	Included		Included		Included		Included		Included		Included	

*$p < 0.10$; **$p < 0.05$; two-tailed tests.

Table 3 Alternative Models for Dissolution Rate of Dutch Accounting Firms, 1880–1986

	Random effects		Selection		Model 4, Table 2 for inbound only		Model 4, Table 2 for outbound only	
	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.
WWI	−0.189	0.637	−0.241	0.620	−0.018	0.623	−0.102	0.618
WWII	0.34	0.294	0.621	0.308**	0.46	0.267	0.685	0.270**
Age	0.013	0.022	−0.037	0.015**	−0.017	0.015	−0.035	0.014**
Age^2	−0.000	0.000	0.001	0.000**	0.000	0.000	0.0005	0.0003**
Single association	0.521	0.293	0.693	0.254**	0.651	0.253**	0.38	0.250
Regulation 1971	−0.297	0.278	−0.251	0.243	−0.193	0.244	−0.29	0.242
Regulation 1984	0.951	0.239**	0.673	0.250**	0.762	0.185**	0.84	0.181**
Provincial population (in 10,000s)	−0.001	0.001	−0.002	0.002	−0.001	0.003	0.001	0.002
C4	3.45	1.20**	1.83	1.13	1.66	1.11	1.77	1.136
Unemployment	−0.079	0.016**	−0.064	0.012**	−0.068	0.012**	−0.055	0.012**
Firms entering province	−0.005	0.006	0.004	0.005	−0.003	0.005	0.005	0.005
Firms exiting province	0.052	0.006**	0.047	0.005**	0.046	0.005**	0.043	0.004**
Provincial density	−0.003	0.015	0.0025	0.013	−0.002	0.012	−0.010	0.012
Provincial density^2 (in 1,000s)	0.005	0.098	0.029	0.082**	0.021	0.081	0.104	0.081
Relative position	−0.48	0.089**	−0.421	0.072**	−0.484	0.078**	−0.581	0.073**
Size (log)	0.086	0.104	−0.036	0.088	0.017	0.086	0.074	0.082
Team size	−0.009	0.008	0.007	0.005	−0.0002	0.005	−0.007	0.006
Mobility count	0.012	0.009	0.898	0.179**	0.522	0.118**	0.018	0.008*
Team age	−0.086	0.023**	−0.019	0.021	−0.064	0.020**	−0.030	0.018
Team age^2	0.0018	0.0005**	0.0005	0.0004	0.0014	0.0004**	0.0007	0.0004*
Partners mean local tenure	0.112	0.042**	0.025	0.016	0.083	0.008**	0.104	0.007**
Demographic heterogeneity stock	0.152	0.004**	0.025	0.004**	0.166	0.038**	0.043	0.026*
Demographic heterogeneity flow	0.219	0.024**	0.012	0.002**	0.184	0.015**	0.36	0.028**
Demographic heterogeneity flow · Team age	0.019	0.0078**	0.00089	0.00051*	0.012	0.007**	−0.056	0.010**
Demographic heterogeneity flow · Team age^2	−0.0005	0.0002**	−0.00004	0.00002**	−0.0004	0.0002**	0.0023	0.0005**
Demographic overlap stock	0.075	0.017**	0.044	0.007**	0.057	0.013**	0.062	0.013**
Demographic overlap flow	0.0003	0.003	0.011	0.031	0.002	0.002	0.005	0.009
Demographic overlap flow · Firms exiting province	0.00035	0.00019*	0.0025	0.0015*	0.0002	0.00012*	0.0005	0.0007
Constant	−2.51	0.591**	−0.755	0.602	−1.971	0.452**	−2.29	0.444**
Log-likelihood	−1,261.6		−1,309.1		−1,264.3		−1,285.8	
Number of events		518		518		518		518
Provincial fixed effects	Included		Included		Included		Included	
Offset	Included		Included		Included		Included	

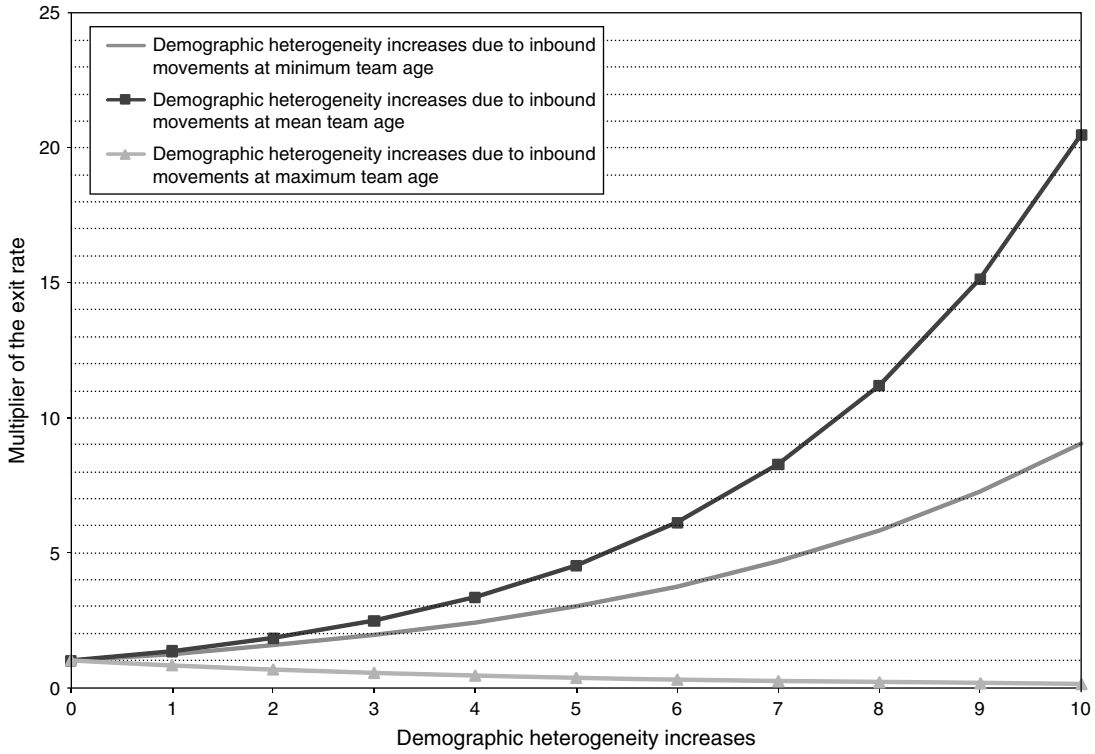
*$p < 0.10$; **$p < 0.05$; two-tailed tests.

data, we scrutinized the exodus scenarios in which firms became significantly more diverse after outbound movements. A subgroup analysis revealed a limited number of outlier cases involving collective departures associated with large-scale spin-offs. This subset involves 34 firm-year observations marked by a mean of outbound events six times larger than that of the remaining sample. Such outliers carry considerable weight for the outbound analysis. When these few cases are removed, the positive relationship between diversity and dissolution at high team age turns negative and barely significant. The linear interaction loses statistical significance too. Dropping the same observations from the specification that includes both inbound and outbound movements does not alter the findings reported by Model 2.

We interpret these results as indicating that inbound movements lend themselves better than outbound ones to an unequivocal mapping of dissolution chances. Such movements are taxing to a top management team, and the addition of demographically discordant outsiders causes it to incur considerable adaptation and other absorption costs. The ensuing heterogeneity has strong consequences for firm performance, but here too the relationships vary over the range of team age and increments and decrements in diversity. We present the findings concerning these two variables graphically in Figure 1.

Figure 1 plots the effect of heterogeneity shifts on firm dissolution rate at three levels of team age: the mean (12), the minimum (1), and the maximum (50).

Figure 1 Relationship Between Inflow-Based Diversity Changes and Firm Dissolution for Teams Differing in Age

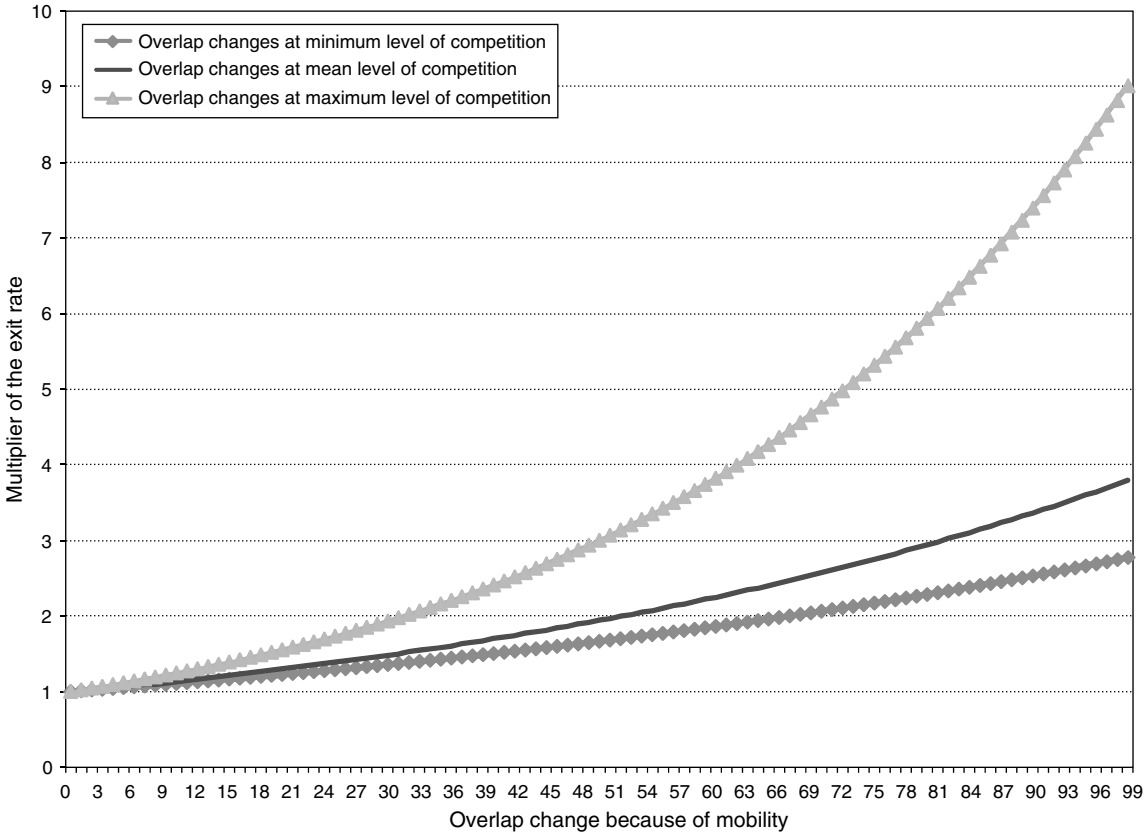


Heterogeneity increments improve the survival chances of firms marked by long-tenured teams. Firms whose burgeoning or "adolescent" teams are still engaged in social learning exhibit higher failure rates when joined by new entrants whose arrival makes them collectively more unalike as members. By contrast, for older teams joined by discordant outsiders the opposite holds—a "fresh blood" scenario. This heterogeneity increment induced by inbound movements is beneficial for survival, as indicated by the associated lower dissolution rates, and the more such recruitment shrinks tenure homogeneity, the better off the firm. The performance implications for diversity are therefore contingent on the chronology of a mobility event. Further investigations of the team age variable reveal that the threshold above which organizations do benefit from discordant (diversity-boosting) hires is set at 36 years. Such old teams are represented in our data set by 26 organizations, contributing 154 firm-year observations. To appreciate the relevance of this portion of the data set, the reader should consider that only 1,014 firm-year observations of our sample are marked by even one mobility event. Future studies should check whether this finding remains robust beyond this limited set of values.

Let us now also review the results on demographic differences among firms induced by mobility events. Model 3 presents the estimates of such a model, controlling for the existing level of overlap. A shift in demographic overlap has the hypothesized effect on organizational dissolution, as the coefficient of *demographic overlap flow* indicates. The positive and significant estimate of *demographic overlap stock* confirms the harmful effects of between-firm demographic overlap. This finding lets us see that external overlap changes that occur on inbound and outbound movements directly impact organizational survival. Whether the relation between these two variables is independent or multiplicative (i.e., an interaction effect) remains an empirical question. We explored this hypothesis by estimating an interaction effect between intrafirm and interfirm diversity shifts. The results obtained were weakly significant ($p < 0.20$) and seem to point to the existence of two independent effects.

Last, Model 4 tests the impact of the interaction between the overlap shifts and an adverse market environment. The interaction term is positive but only marginally significant, only hinting that such shifts could be more pronounced when the market witnesses adverse conditions. These findings therefore do provide some support to Hypothesis 2B.[5] Figure 2 graphs the impact of this interaction effect, again at the mean, minimum, and maximum of the moderating variable. The figure shows how competitive intensity amplifies the positive effect of demographic overlap on organizational dissolution. The analysis of demographic overlap and competition does confirm that the findings are stronger for inbound than outbound movements, suggesting that poaching of partners from demographically proximate cohorts exhibits a stronger effect on dissolution rates. The last two columns

Figure 2 Relationship Between Inflow-Based Diversity Changes and Firm Dissolution at Different Levels of Competition



of Table 3 replicate the estimates of Model 4 for the specific case of inbound and outbound movements.

Robustness Tests

As mentioned in the model section, unobserved variables correlated or uncorrelated with the covariates might bias our reported coefficient estimates. We performed extra analyses designed to estimate the coefficients through a random-effects complementary log-log specification (Jenkins 2005). Nevertheless, endogeneity might still be an issue. We reestimated the models adopting a two-stage specification. First, we computed firm-specific probability by estimating *the number* of transfers based on the predicted probability of firm failure (and controls). Then, we added this predicted probability as a control and reestimated Model 4. The congruence between the estimates reported in Tables 3 and 2 reassured us about the robustness of our findings.

Although the operationalization of organizational dissolution does not coincide with "failure," it is nevertheless consistent with previous research (e.g., Boone et al. 2000) defining failure as exit from the market, whether through bankruptcy, break-up, or merger/acquisition. But exits because of merger and acquisition are quite distinct from exits because of failure or extremely poor performance. Therefore, we checked the robustness of our findings in three different ways. First, we returned to the raw data and recoded the dissolution events, transforming into zeros (i.e., censored) those events involving companies that reentered in the next observation period under a name containing at least 50% of the content of a previous name (e.g., one part was kept and another part added or replaced). We interpreted these events as involving mergers or acquisitions, if not partial exits. Although the statistical significance of the *across*-firm diversity effects appears to be slightly weaker with this reassessment, the results obtained remain qualitatively consistent with those presented here. This result is not surprising, because mergers and acquisitions are often seen as failure to grow autonomously. As Maister (1993, p. 311) reports, professional service firms tend to grow internally, and the "avoidance of mergers plays a critical role in both creating and preserving the sense of institutional identity." Being aware of the subjectivity of such a procedure and considering multiple potential cases of homonymy, we also validated our findings through a second method. After obtaining five sets of 50 random numbers equivalent to about 10% of our subsample of dissolution events, we repeated the analysis by recoding as censored each firm whose identification number matched that obtained from the random number generator. The results obtained closely resemble those reported in Table 2. Last, we performed a further check on the relative frequency of dissolution events between

two periods (before and after 1966) by creating a variable that measures the ratio of dissolution events to the density observed in the population. We detected no significant differences between these portions of the data set, only marginal ones.

Discussion and Conclusions

Drawing from the literature on organizational demography and managerial mobility, in this study we sought to assess the relationship between team diversity and firm survival via a longitudinal research design. In essence, we asked how the mobility of senior managers shapes organizational behavior that in turn conditions the competitive interactions among the firms in a sector. Our argument is that the migration of key members is prone to alter the demographic makeup of a partnership's leadership internally as well as compared with the demographic makeups of salient peer firms. Empirically, we proposed an initial test of the theoretical arguments using a sample of firms belonging to a professional service sector, and we traced the movements of professionals between firms. Some tentative, albeit limited, support for the propositions presented here was found.

Following the insight of Hambrick and Mason (1984), we interpreted the extent of the change triggered by transfers as proportional to the demographic distance of a migrating member. Thanks to our longitudinal research design, with its attendant advantage of distinguishing between the stock of heterogeneity versus change in heterogeneity, we hope to have contributed to the literature on organizational demography and top management teams' composition in particular. The general view and putative presumption hold that diversity is mostly harmful because it taxes the integration of a team's members and challenges their ability to reach a quasi-resolution of conflict (e.g., Nelson and Winter 1982). In some other cases, diversity has been shown to be beneficial, especially for creativity and for detaching a firm from its legacy (Bantel and Jackson 1989). Our results show that positive and negative effects of diversity on performance may coexist and be contingent on the level of shared experience exhibited by the focal top management team. The social metabolism of firms, then, seems rather complex and influenced by both contemporaneous dynamics (e.g., demographic diversity) *and* longitudinal ones (e.g., time spent together by team members). Moreover, inflow-derived diversity effects seem to be more pronounced than those associated with outflows. A departure through death or retirement could certainly unravel the demographic wholeness of a cohesive team, especially an older team, perhaps dislodging an existing coalition or resetting members' evolutionary clock as they adapt to a different demographic makeup. But outflows might also be the result of strife, a possibility we suggested in the case of collective departures. Absorbing new managers is a more or less intrusive exogenous event depending on whether the host team is young or old and whether the outsider exacerbates or attenuates the deleterious effect of diversity. Concerning inbound mobility events, our results indicate that for established and lasting management teams, homogeneity is harmful if further entrenchment occurs, whereas the opposite holds if the arrival of newcomers results in a demographic reshuffling of management teams. Although encouraging, the reliability of the findings presented on this matter should be tested by future research.

The logic presented here points to a joint consideration of firm and interfirm levels of analysis. Shifts in the composition of a firm's upper echelons were observed in relation to the firm's rivals, and changes in the focal firm were not confined to the firm itself, but included interfirm differences as well. Demographic characteristics condition the strategic positioning of firms, so mobility events involving management teams occasion shifts in similarity among competitors. A focal firm's niche (or executive labor market segment) becomes more crowded if its collective leadership is pulled toward equivalent strategic postures, and unfavorable survival prospects become apparent. The opposite also holds when arrivals (especially) or departures draw the focal firm away from incumbents of its demographically defined niche, redirecting that firm toward a different and less contentious strategy, for example. By linking mobility with firms' demographic repositioning, we assumed competitors' demographic attributes remained constant; the main source of demographic repositioning was focal firm mobility. This assumption may raise doubts about the causality of the explanation. To back up our claims, we replicated the analyses under various stringent conditions, devoting particular attention to periods in which (1) the number of firms entering and exiting the industry was limited and (2) the repositioning of incumbents because mobility was low. The results obtained were comparable to those presented here. Although encouraging, such findings have to be replicated to tease out the potential confounding effect of various alternative mechanisms responsible for variations in overlap above and beyond managerial mobility, such as strategic moves by competitors—information that falls outside the purview of our data.[6]

We do not want to overstate the present findings; like any study, this research has significant limitations, and above all it provides only limited empirical support for the theoretical argument presented. One potential shortcoming concerns the ambiguity on demographic characteristics matching cognitive ones. To date, researchers have assumed that tenure diversity produces divergent mental frames without substantiating this claim. By no means is our study immune from such criticism. We likewise assumed that managers with comparable demographic traits exhibit similar mental models and,

by implication, convergence in strategic decisions and behaviors. Our data, however, do not allow establishing a clear empirical link between demographic characteristics and mental proclivities. We believe that of all the possible demographic attributes, industry tenure, and especially local tenure, are defensible as precursors to cognitive disposition. In knowledge-intensive industries such as accounting, in which professionals and their clients have close ties, lasting exposure to regional conditions appears more germane to common perceptions and attitudes. The implied socialization within geographical markets is bound to instill commonality in professional norms and values, unlike in settings where propinquity is not paramount.

Our results—especially those concerning the main effect of demographic heterogeneity—may also be affected by the empirical context chosen, as we also have spelled out earlier (Pennings and Wezel 2007). The accounting sector is relatively static; firm and industry routines are well established, and widely accepted standards of governance prevail. Demographically homogenous partnerships are prone to higher degrees of compliance and strongly ingrained norms, but when they are jolted by misfit and divergent members joining, their exposure to industry exit increases. The accounting sector strives toward reliability and replicability, both in individual firms and the industry as a whole. Innovations occur slowly and are subject to stringent regulation and standard setting. This industry would therefore be expected to benefit from homogeneity because it facilitates compliance with accounting rules and conventions. Partnerships might endow firms in certain sectors with "intelligence" that accounts for their continued prevalence, whereas their receding presence in other sectors (e.g., advertising and investment banking) hints at their less than optimal governance in other institutional settings (see Kraatz and Moore 2007, Hambrick et al. 2008). We should press for additional research in high technology and other emerging industries, where the longitudinal findings on diversity and governance might be contrary to ours.

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Endnotes

[1]Tracking performance to a shared set of local market experiences reveals more readily the causal diversity performance link, precisely because our demographic indicator (see the methods section for a description) is germane to the rising or diminishing *coherence* of members' proclivities toward firm and market strategies.

[2]We could have developed Hypothesis 1A by elaborating the two opposing views and testing them against each other (Hypothesis 1A versus Hypothesis 1B). However, our intent was to more clearly test the relationship between demographic diversity and performance, as originally formulated by Hambrick and Mason (1984), and to show that the coexistence of positive and negative findings may depend on team members' level of shared experience.

[3]Survival is a *stochastic* proxy that measures a firm's risk of dissolution and is more encompassing than immediate and concrete expressions of organizational effectiveness, not to mention performance indicators, at lower levels of analysis. The probability of dissolution entails an ongoing development of the firm's health or viability, rather than the achievement of some other performance target. In this respect, survival may be considered as contextual and time-neutral, whereas targets are considered as arbitrary and period-idiosyncratic. The methods section gives more details concerning the technique adopted to model this variable.

[4]It should be noted that the unit of analysis adopted here for the computation of this measure is the *province*, whereas in Pennings et al. (1998) it was the *nation*. The earlier findings, however, point to a U-shaped effect of this variable on dissolution (Pennings et al. 1998, Table 2, Model 2, p. 436). Computing the minimum of that function shows that average industry experience reduces failure up to a value of 0.36 years. After this value, an increase in organizational dissolution is observed. We interpret this low value as related to the inclusion of single proprietorships in their sample.

[5]Touching on an issue beyond the purview of the present inquiry, we note parenthetically that the results reported here fit best with the subset of firms whose size is between 2 and 10 members. Results (not reported here) are weaker for firms exceeding the threshold of 12. Therefore, we adopted a cutoff of 9.21 as the mean size of the firms included in our sample, after excluding individual ones. The above finding is not surprising, because three-fourths of the firms in our sample belong to the 2–10 employees category. Albeit seemingly small, their distribution closely resembles that of other contexts. In fact, about 91% of firms belonging to service sectors in the United States, for instance, are in the 1–19 employees size class, and 93% of European Union-based firms have fewer than 10 workers (Aldrich 1999, p. 10).

[6]The findings of this study also move the inquiry beyond an earlier study (Pennings et al. 1998) on the level of human and social capital and organizational survival. The earlier work, which centered on a firm's stock of human and social capital and its impact on organizational survival, remained agnostic about diversity in intangible assets and, more important, downticks and upticks in such assets. By contrast, the present work focuses on how the (demographic) matching of migrating members of a focal firm does influence survival through a series of inferred internal (i.e., revision of the existing truce and refashioning of the status quo) as well as external adjustments. In so doing, we advance inquiry by using partners' characteristics to position firms in a geographically anchored "capabilities" landscape. The geographic arguments resonate with the concept of bounded rationality: the consequences of demographic shocks are traced to propinquity.

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