

TOP MANAGEMENT TEAM COMPOSITION AND ORGANIZATIONAL ECOLOGY

A nested hierarchical selection theory of team reproduction and organizational diversity

Christophe BOONE (University of Antwerpen, Belgium), Filippo Carlo WEZEL
(Tilburg University, the Netherlands) and Arjen van WITTELOOSTUIJN
(University of Groningen, the Netherlands, and University of Durham, UK)

ABSTRACT

The “upper echelon” literature has mainly produced static empirical studies on the impact of top management team composition on organizational outcomes, ignoring the dynamics of industrial demography. Organizational ecology explicitly studied the dynamics of organizational diversity at the population level, however largely ignoring how the entry and exit of executives shapes organizational diversity over time. In this paper, we try to integrate both streams of demography research and develop a multi-level behavioral theory of organizational diversity, linking selection processes at both levels of analysis. The behavioral mechanism connecting the two levels of analysis is the stylized empirical fact that small groups, including top management teams, routinely reproduce their demographic characteristics over time. We argue that, under certain conditions, the potent forces of team homogenization co-evolve with those of population-level selection to sustain between-firm diversity.

INTRODUCTION

One of the most important research questions in the field of organization sciences is why some organizations are successful, whilst other organizations linger or fail.

Different strands of research tend to predominantly attribute the causes of the fate of organizations either to the external environment in which organizations operate or to the features of their internal functioning. Most organization theories can be put on a continuum ranging from macro to micro with respect to their underlying focus. At the macro side, organizational ecology (OE) has flourished ever since the publication of Hannan and Freeman's seminal 1977 paper. Given that organizations require reliable routines to survive, OE-researchers have systematically analyzed the vital (i.e., founding, change and mortality) rates of organizations as the main drivers of change and of diversity within organizational populations. This has cumulated into an impressive body of knowledge and well-established theory fragments, which has recently been summarized by Carroll and Hannan (2000). Heavily relying on the concept of organizational inertia, ecologists have focused on cycles of variation, selection and retention at the population level, often making abstraction from what happens inside the organization.

At the other end of the continuum, more recent streams (re)stress that people should more prominently picture in theories of organizations as they are the "guts" of formal organizations (Stinchcombe, 1997: 17-18; see also, e.g., Pennings, Lee & van Witteloostuijn, 1998; Haveman, 2000). Especially, Pfeffer (1983) and Hambrick and Mason (1984), departing from a behavioral standpoint, emphasized that organizational actions are history-dependent and based on routines. Because individuals enact routines, it becomes central to study managers' demographic profiles since their

characteristics are presumed to be associated with specific psychological dispositions and subsequent strategic choices (Finkelstein & Hambrick, 1996). The argument is that organizations are, to a certain extent, a reflection of the characteristics of their (upper echelon) members and/or the distribution of their members' traits. These researchers inspired many scholars to empirically investigate the impact of the demographic composition of (groups in) organizations (especially top management teams) with respect to dimensions such as tenure, gender, ethnic background and age on a myriad of organizational outcomes. The focus generally is on the impact of the mean and the spread (i.e., diversity) of these characteristics on criterion variables such as turnover, innovation, diversification, and organizational performance (Boone, van Olffen & van Witteloostuijn, 2005). The potential importance of these contributions should not be underestimated as "they put the individual back into the predominantly macro-level organization theory" (Sørensen, 1999a).

However, although many findings of this young research field are very encouraging, a review shows that the results are not very conclusive and in some instances even contradictory (Williams & O'Reilly, 1998; Boone et al., 2005). One reason for this might be that organizations in these studies are treated as isolated entities that do not compete for human capital on input markets. Similarly, the consequences of within-firm organizational demography for between-firm competition and interaction are not explored (but see Sørensen, 1999a; Wezel, Cattani & Pennings, 2005). We argue that in order to advance organizational demography research we need to develop a dynamic theory in which micro (team) selection processes are integrated into macro (population) ones and *vice versa* (see also Baum & Singh, 1994a; Haveman & Cohen, 1994; March, 1994; Haveman, 1995). As Haveman (2000) stressed, different phenomena at different levels of analysis can be

“understood as parts of a single, broad evolutionary system. Only when we analyze the whole system will we come to grasp the interdependencies among these phenomena” (Haveman, 2000: 482). We do so by applying the principles of variation, selection and retention (Campbell, 1969) at the top management team level of analysis through the lens of OE, with the goal of understanding the dynamics of populations of organizations.

In building our argument, we will try to bring together many disparate pieces of literature, ranging from organizational behavior (attraction, selection and attrition processes: Schneider, 1987), via evolutionary theory and sociology (homophily: McPherson, Smith-Lovin & Cook, 2001; Ruef, Aldrich & Carter, 2003), to organizational ecology (Darwinian population-level selection: Carroll & Hannan, 2000) and market-partitioning theory (multi-form co-evolution: Carroll, 1985), as well as organizational demography and upper-echelon theory (top management team composition: Pfeffer, 1983; Hambrick & Mason, 1984). We will also borrow from and build on McPherson’s ecological theory of affiliation in voluntary organizations (McPherson, 1983) and Sørensen’s (1999a) first attempt to develop a dynamic inter-firm approach to top management team composition. So, on the one hand, we contribute to the predominantly “static” top management team literature by elaborating a dynamic theory of team composition and its implications, in interaction with higher-level processes. Moreover, on the other hand, we contribute to organizational ecology by explicitly putting the individual back into macro-level population dynamics (cf. Pennings et al., 1998; Wezel et al., 2005). In particular, we aim at shedding light on the role of managerial turnover for the maintenance of those routines on which selection operates (Baum & Singh, 1994a; Miner, 1994). Ultimately, therefore, this paper deals with an old classical tension in the social

sciences between individual agency and the dominating pressure of social aggregates (Haveman, 2000).

MICRO-LEVEL HOMOSOCIAL REPRODUCTION

Drive toward homogeneity

A pervasive fact in social life is that social groups (including top management teams and organizations) are not random samples of people (McPherson, Popielarz & Drobnic, 1992). Instead, people are systematically sorted into groups whose members have similar sociodemographic characteristics. Blau (1977) convincingly argued that demographic characteristics influence social interaction: social interaction is more likely to occur between people who are similar with respect to demographic features (McPherson et al., 1992 & 2001). Indeed, evidence shows that “distances along sociodemographic dimensions translate into probability of contact between individuals for almost all kinds of messages passing through the system, whether the messages are money, sociation, attitudes, group formation, or the like” (McPherson et al., 1992: 155). This self-reinforcing relationship between similarity and connection is also known as the ‘homophily principle’.

With respect to group formation, research shows that (groups in) organizations differentiate by carving out niches in social space. The result is that members of groups are, on average, more similar to each other than to members of other groups. McPherson and colleagues (McPherson, 1983; McPherson & Smith-Lovin, 1987; McPherson et al., 1992; McPherson & Rotolo, 1996), building on the seminal work of Blau (1977), systematically studied a large variety of voluntary organizations, ranging from sport clubs to churches in the U.S. They found that in the course of competition for members, these organizations specialize in specific local regions of

sociodemographic space – the so-called Blau space (McPherson et al., 1992). When mapping voluntary organizations onto the demographic dimensions of the member's occupation and education level, they observe that the means in both dimensions differ between organizations and that the within-firm standard deviations are much smaller than a random sample of individuals would produce.

Similar compositional differences between organizations in the for-profit sector were reported in the organizational behavior literature. Interestingly, here researchers did not focus on demographics, but rather on aspects of member personality. For instance, Schneider, Smith, Taylor & Fleenor (1998) used the Myers-Briggs Type Indicator to assess the personality of almost 13,000 managers from 142 organizations, representing a broad cross-sample of U.S. industries. Their key finding is that a substantial part of personality variation can be explained by organizational membership. In addition, nested models of organizations within industries revealed remarkable regularities, demonstrating that sorting does not only occur across populations (as in the studies of McPherson and colleagues), but also between organizations belonging to the same population. This underscores that “homophily is a powerful force of group homogeneity” (McPherson et al., 1992: 156).

The same homophily principle also applies to small groups and management teams. Ruef, Aldrich and Carter (2003) analyzed a unique representative cross-sectional sample of 816 organizational founding teams from the U.S. population, and found that homophily and network constraints based on strong ties were the most important forces driving founding team composition. This appeared to be the case not only for ascriptive characteristics such as gender and ethnicity, but also for achieved characteristics. Ruef et al. (2003: 217) conclude that “even in a situation where we might reasonably expect stringent economic rationality to prevail – and thus lead to

choice based on the functional diversification of achieved characteristics – we find that team composition is driven by similarity not differences.”

The above examples make clear that important cross-sectional differences in the demographic composition of groups can be observed, and that homophily and group homogeneity are two sides of the same coin. However, they do not fully explain how these regularities unfold. In order to be able to fully appreciate the potential consequences of homophily and group composition in an organizational context, one therefore also needs to understand where demographic homogeneity (or, for that matter, diversity) comes from in the first place (Lawrence, 1997; Pfeffer, 1997; Hinds et al., 2000), as well as the determinants of the evolution of demographic composition (Ruef et al., 2003; Boone, van Olffen, van Witteloostuijn & De Brabander, 2004).

Dynamic models of group composition

Two different theoretical accounts have been offered in the past to explain the dynamics of group composition: McPherson’s ecology of affiliation (McPherson, 1983; McPherson et al., 1992) and Schneider’s attraction-selection-attrition (ASA) theory (Schneider, 1987). Both theories propose a Darwinian mechanism of systematic variation, selection and retention of members in groups. Moreover, both theories agree that groups have the tendency to reproduce themselves by the selective recruitment of similar people in the group and by facilitating the turnover of dissimilar people, a directional selection process labeled “homosocial reproduction” by Kanter (1977). These two theories offer seemingly different but complementary explanations on the mechanisms underlying the unfolding of group homophily.

McPherson’s (macro-)sociological theory, building on Blau’s *Inequality and Heterogeneity* (1977), stresses the importance of network ties associated with the

position of individuals in sociodemographic space. In this view, social structure, via its impact on network ties, drives the selective entry and exit of members into and out of groups. As people tend to develop network ties with other people sharing similar sociodemographic characteristics, people joining to form groups are relatively similar. This similarity is perpetuated due to conservative, selective recruitment of new members (McPherson et al., 1992; Popielarz & McPherson, 1995). In a similar vein, Feld (1992) argued that the social homogeneity of organizational foci strongly enhances the formation of homophilous network ties, and found that these foci produced ties that were twice as homogeneous as would be expected by chance. So, selective recruitment implies selection via social contact.¹

Selective recruitment is reinforced by the principle that members who are atypical of the group will leave the group first (the niche-edge hypothesis), especially when groups are subject to competition from other groups (Popielarz & McPherson, 1995). The putative reason is that demographic dissimilarity from group members acts as a centrifugal force because homophily implies that atypical members have more external ties to non-members and are less closely tied to fellow group members (Popielarz & McPherson, 1995). Empirical research on voluntary organizations indeed suggests (1) that entry and exit of group members depend upon the number and strength of social network ties that connect group members to each other and to non-members (McPherson et al., 1992), and (2) that atypical members will leave the group first (Popielarz & McPherson, 1995). McPherson et al. (1992) claim that homophily mainly follows from social structure, and not from human agency (cf. Popielarz & McPherson, 1995). Group formation is determined by general constraints in the social network with respect to logically possible choices, rather than by “individual utilities or imputed production functions” that guide our choices to join

and stay in groups (McPherson & Ranger-Moore, 1991: 38). That is, an individual's position in the social structure determines her or his opportunity set.

The attraction-selection-attrition (ASA) theory of Schneider (1987) offers a complementary view. ASA theory summarizes many different strands of research in the field of organizational behavior (see also Schneider, Goldstein & Smith, 1995), stressing the importance of human agency and choice in producing homophily.² Although the original model focused on “soft” people characteristics such as attitudes and personality, it also applies to demographics (Westphal & Zajac, 1995; Zajac & Westphal, 1996; Boone et al., 2004).³ The ASA model outlines the forces operating to restrict organizational diversity in members' characteristics, producing so-called trait homogenization (Schaubroeck, Ganster & Jones, 1998). That is, organizations move toward member homogeneity because individuals are attracted to, selected by, and stay with organizations that suit their personality characteristics (Schaubroeck et al., 1998). ASA theory provides a behavioral rather than a structural (i.e., network ties) account of the dynamics of homosocial team reproduction.

Why would people prefer to associate or to work with similar ‘alter egos’? Several related reasons can be offered (see also Westphal & Zajac, 1995; Zajac & Westphal, 1996; Boone et al., 2004). First, there is ample evidence in social psychology that similarity on a salient dimension enhances (dyadic) interpersonal attraction (for a review, see Huston & Levinger, 1978). Although many underlying mechanisms have been proposed, theory and evidence suggest that this similarity – attraction response is likely to be deeply rooted in human beings as it is directly reinforced by positive affectivity (Byrne, 1971; Clore & Byrne, 1974). Second, self-categorization theory posits that people derive self-esteem and self-identity from perceived group membership. As demographic similarity provides a salient basis for

group membership, people may seek to construct or maintain homogeneous groups in order to sustain or enhance their self-esteem and identity (Westphal & Zajac, 1995). Third, Hogg and Mullin (1999) argue that reducing uncertainty is a primary individual motivator or “fundamental need” guiding behavior. Given that similarity enhances the (perceived) predictability of the behavior of others, the psychological need for stability strongly motivates people to reduce uncertainty by forming homogeneous groups (see also Hinds et al., 2000).

A final set of reasons follow from the fact that groups in most cases (e.g., in organizations) compete with other groups for resources or are nested in higher-order groupings (Baum & Singh, 1994a; Campbell, 1994). It is well established that inter-group competition alters behavior of members in important ways (an insight dating back to, at least, the Robber’s cave experiments of Sherif, Harvey, White, Hood & Sherif, 1961; see also LeVine & Campbell, 1972). For instance, it is a stylized fact that people are more likely to cooperate in a social dilemma when it is embedded in the context of inter-group conflict (Bornstein & Ben-Yossef, 1994; Bornstein, 2003). The reason for this is that from the standpoint of the individual such behavior increases the survival chances of the group. However, within-group cooperation is only sustainable when people trust each other and / or deviance from reciprocity can easily be monitored and sanctioned (Campbell, 1994; van Witteloostuijn, 2003). It is likely that group homogeneity facilitates trust and reciprocal altruism in face-to-face groups (Ruef et al., 2003; Boone et al., 2004) – clique selfishness in Campbell’s (1994) words. As he (1994: 28) puts it: “All group uniformities on trait – specifically neutral features – would be useful signs in such a reciprocal altruistic pact.”

Closely related to this, group homogeneity might also enhance group survival because of sociopolitical reasons. That is, homogeneity is likely to increase a group’s

power to control competition between groups in nested settings. For instance, top managers might prefer to hire and promote people in the top management team who are similar – e.g., having the same functional background and sharing the same strategic preferences – to perpetuate and institutionalize their managerial power. At the same time, similarity facilitates communication within a team, and diminishes the likelihood of conflict and within-team power struggles (Pfeffer, 1983; Boone, van Olffen & van Witteloostuijn, 1998).⁴ At the organization level, Beckman, Haunschild and Phillips (2004) argue that when uncertainty is high, organizations will strive for homogeneity, reducing uncertainty through interactions with similar others. Specifically, organizations, as a threat-rigidity response (Staw, Sandelands & Dutton, 1981), will seek to establish stability and trust by increasing their commitment towards existing partners instead of seeking new (uncertain) relationships. Their analyses reveal that “market uncertainty leads firms to reinforce their existing networks, and firm-specific uncertainty ... leads firms to reduce their broadening networks” (Beckman et al., 2004: 273).

This type of findings show that uncertainty or, in more general terms, pressure on the group increases the tendency of the social entity to close its ranks as a threat-rigidity and uncertainty-reducing response. The fact that exogenous forces trigger this process suggests to us that the role of choice, albeit unconscious, should not be underestimated. We expect that especially in top management teams choice-driven homophily might be important, as in most cases the market for managerial talent is carefully screened before candidates are selected into the team (Schneider et al., 1998; Sørensen, 1999b). Note that whatever the source of homophily, structural or choice-based, the end result is the same: groups tend to become more homogeneous over time

by selectively replacing “distant” members with people who are similar to themselves (see also Lawrence, 1997).

Empirical evidence and theorem on firm-level homogenization

A very limited number of top management team studies focus on team composition from a dynamic standpoint, and all reveal, in one way or another, this general tendency towards homophily: top executive management teams tend to selectively hire and fire to the effect that their own demographic characteristics are strengthened, so promoting their homosocial reproduction. Westphal and Zajac (1995), who apply these ideas to the board of director selection process, hypothesized that the extent to which incumbent CEOs can realize their preference for demographically similar new directors depends on the relative power of the CEO *vis-à-vis* the board of directors. They test their argument on a sample of 413 *Fortune/Forbes* 500 companies from 1986 to 1991. Consistent with their arguments, they found that “(1) when incumbent CEOs are more powerful than their boards of directors, new directors are likely to be demographically similar to the firm’s CEO; (2) when boards are more powerful than their CEOs, new directors resemble the existing board”. Indeed, this pair of findings provide evidence for homosocial reproduction, where power determines which group’s demographics is being reproduced – the executive or the non-executive team.

These ideas of Westphal and Zajac can also be applied in the context of the selection of new executive managers into top management teams. Indeed, Jackson, Brett, Sessa, Cooper, Julin & Peyronin (1991), studying 93 top management teams in bank holding companies over a four-year period, found that reliance on internal recruitment as a means for filling team vacancies resulted in greater subsequent team homogeneity. With respect to the turnover process, the authors demonstrated that (1)

teams, on average, are relatively homogeneous, (2) heterogeneity is a relatively strong predictor of team turnover rates, and (3) team members whose personal attributes are dissimilar to their team mates are more likely to leave the team than team members with similar attributes.

Finally, Boone et al. (2004) systematically analyzed the processes of selective entry into and exit from top management teams of the five largest newspaper-publishing companies in the Netherlands in the period from 1970 to 1994. They argued that top management teams, when having the power to do so, tend to hire likes (in terms of demographics), while at the same time fire or “relieve” unlikes, making the team gravitate toward homogeneity. The authors also suggested that rational-economic forces might operate as a countervailing force at the organizational level to undermine these ASA cycles. Specifically, they theorized that the cycle of homosocial reproduction cannot be sustained when top management teams face a compelling need for team composition diversity caused by conditions such as poor organizational performance, high corporate diversification and tough market competition.

Interestingly, many of their expectations were not supported. Relating to entry, they report that poor performance and high diversification causes teams to select likes, which is exactly opposite to what they expected. In addition, although more powerful teams do tend to select likes, their tendency to do so is even stronger when competitive intensity increases. Concerning exit, they found that poor organizational performance increases the overall likelihood of executive exit, and that dissimilar managers tend to leave first. In addition, the likelihood of dissimilar managers’ leaving appeared to be greater when firm diversification is high, which was again not as expected. Taking together these findings, they conclude that homosocial

reproduction does occur, and particularly so when the organizations face conditions that at first glance require more team diversity.

Apparently, top management teams tend to close ranks when environmental pressure or uncertainty increases. At the inter-firm level, these findings are remarkably similar to the conclusions of the network tie research of Beckman et al. (2004; see also Podolny, 1994). At the individual level, these results are in line with behavioral research into the uncertainty-reducing effect of routinized behaviors (Heiner, 1983; Egidio, 1996). Uncertainty, broadly defined, apparently induces a threat-rigidity response with respect to demographic team composition, too (Boone et al., 2004). The consistency of this observation in very different settings suggests that this reaction is strongly embedded in human and, by extension, organizational behavior. So, in an important respect – the composition of their upper echelon – firms reveal a clear tendency toward homogenization. By way of summary, we therefore propose

Theorem 1: Particularly – but not exclusively – in the face of uncertainty, top management teams tend to selectively hire and fire to the effect that their own demographic characteristics are strengthened (homosocial reproduction), leading to team homogeneity.

HOMOSOCIAL REPRODUCTION AND DIFFERENTIATION

Team homogenization and competitive differentiation

Do homosocial reproduction and ASA processes serve an adaptive purpose or do they undermine organizational performance? Schneider et al. (1995) speculate that homogeneity might be beneficial for organizational performance in the short run, for young organizations in particular, because it facilitates coordination, communication

and cooperation. However, survival in the long run and for old organizations may be undermined by the atrophying consequences of homogeneity. That is, heterogeneity “should provide the kinds of alternative perspectives and conflicts that stimulate accurate sensing of the environment and the concomitant changes required to adapt and cope with changes that might not otherwise be perceived” (Schneider et al., 1995: 766). However, the upper echelon research (or homogeneity) reviewed above remains inconclusive on the impact of top management team heterogeneity on performance (Williams and O’Reilly, 1998).

An important reason of these inconclusive findings is that top management team research focuses on short-run outcome variables (e.g., ROI), failing to include long-run organizational performance measures such as growth, survival and innovation. Incorporating such measures is, however, necessary to unravel the complicated relationship between team diversity and organizational performance (Boone et al., 2004). Moreover, a full appreciation of the survival consequences of homosocial reproduction – and, for that matter, of top management diversity – can be reached only by moving beyond the atomistic perspective of the theory and conceiving the organization as part of an environment within which it competes for managerial talents and resources in the output market (see also Sørensen, 1999a; Cattani, Pennings & Wezel, 2004).

In more general terms, any evolutionary theory of organizational adaptation requires the study of the interplay between selection processes at different, nested levels of analysis (Baum & Singh, 1994a). To assess the adaptiveness of top management team selection processes (Wiersema & Bantel, 1993) one needs to deal with the fact that units of adaptation are located within ecologies of other units: “Units of adaptations are *nested*, so that some adapting units (e.g., individuals) are integral

parts of other adapting units (e.g., organizations). The structure of relations among them arises from an interaction among the various nested units responding to a shifting environment and their own internal dynamics. These features of organization considerably complicate any multilevel evolutionary story” (March, 1994: 43). Such nested selection processes imply that what might be local adaptation at the team level, can be dysfunctional at the organizational level (Campbell, 1994; Baum & McKelvey, 1999; Miller, 1999).

Meyer (1994) is very explicit on this, and argues that uncertainty and bounded rationality make organizational adaptation to the external environment almost impossible. Most people do not adapt to environments, but to organizational cues such as goals and sub-goals. This local adaptation is especially triggered when organizations are faced with bad news (e.g., low performance) or external threats. According to Meyer (1994: 110), these strategies can be very adaptive for individual people in order to preserve a modicum of certainty and power over their own lives: “internal adaptation (the kind used by people) may be independent of external adaptation (the kind made by organizations), and sometimes inimical to it.” In a similar vein, homosocial team reproduction processes can be considered as local team-level adaptations to external uncertainty and pressure. Whether such top management team-level adaptations are functional or dysfunctional will depend on the consequences of these processes for the higher-level ecology in the population of competing organizations to which these teams belong.⁵

Here, our starting point is Campbell’s (1994) claim that internal group homogeneity and inter-group variability set the stage for higher-level selection. Specifically, migration into and out of top management teams is such that selection and retention processes reduce within team-variation, implying that teams will, on

average, become more homogeneous over time. As organizational features, such as routines and strategies, can partly be considered to be a reflection of top management team composition (Hambrick & Mason, 1984), these homosocial reproduction processes have an impact on the higher-level selection entities – i.e., organizations that compete for growth and survival in the marketplace. The upper echelon research tradition has indeed demonstrated that organizational routines and strategies do not exist independently of the characteristics of individual human beings (Miner, 1994).

The unfolding of homosocial reproduction along specific demographic characteristics and experiences of executives implies that capabilities, decisions and policies get reinforced over time. That is, by hiring likes and relieving unlikes routines and strategies are perpetuated, which in turn reinforces the tendency toward homosocial team reproduction. As the degree of heterogeneity in demographic characteristics amounts to a “proxy for cognitive heterogeneity, representing innovativeness, problem-solving abilities, creativity, diversity of information sources and perspectives, openness to change and willingness to challenge and be challenged” (Finkelstein & Hambrick, 1996: 125), the unfolding of homosocial processes will inevitably reduce the spectrum of opportunities available to the organization. The result is that organizations gradually carve out a specialized niche in resource space. As these processes apply to all organizations within a given population, homosocial team reproduction goes hand in hand with between-firm differentiation in top management team composition, reducing niche overlap among organizations. Paradoxically, team homogenization processes may well trigger and sustain population-level organizational diversity (Boyd & Richerson, 1985; Campbell, 1994).^{6,7}

Need for differentiation and organizational diversity

Before connecting micro to macro logic more precisely, we must first briefly review the latter. A central question in OE relates to the explanation of organizational diversity: where does organizational diversity come from, and what explains its evolution over time? In the past three decades, a series of theory fragments in OE has sought – and still does so – to answer this key question (Hannan, 2005). In the context of the current paper, we briefly discuss three of such theory fragments: the localized competition argument (Hannan & Freeman, 1977), the resource-partitioning model (Carroll, 1985) and niche-overlap logic (Baum & Singh, 1994b & c). What this set of theory fragments have in common, is that they start from the ecological concept of the niche. Organizations address with their offer certain client or customer tastes, indicated by points in the n -dimensional resource space.

First, localized competition was already introduced in Hannan and Freeman's 1977 classic contribution. The key argument is that an organization is particularly subject to competition from rivals that are located on close distance in resource space. That is, the closer organization i and j are in resource space, the more intense their competition will be. Subsequent work further specified the underlying distance notion. For example, size-localized competition (Hannan, Ranger Moore & Banaszak-Holl, 1990; Amburgey, Dacin & Kelly, 1994) argues that competition is partitioned along the size gradient: i.e., similarly sized organizations compete most intensely. The reason for this is that the kind of resources firms' use or the type of strategy they pursue is closely associated with their size. More generally, localized competition relates the intensity of rivalry to distance in a multidimensional space, introducing such aspects as capacity, geography, price, product and technology next to mere size (Baum & Mezias, 1992; Baum & Haveman, 1997; Dobrev et al., 2002).

Second, in 1985, Glenn Carroll introduced a resource-partitioning argument to explain a paradoxical phenomenon observed in many industrial populations: increasing firm concentration can open the way for entry of new organizations at the market peripheries. Resource-partitioning theory distinguishes two organizational types according to their niche spans. On the one hand, generalist organizations are characterized by a broad fundamental niche: their products attract people from very different taste groups. On the other hand, specialist organizations have a narrow niche: their offer focuses on specific tastes. The generalists' advantage derives from their broad and rich potential customer base. But because of their broad appeal, their offer cannot be as precisely tuned at the customers' wishes as that of specialists. This is in contrast with the sharply put stance of specialist organizations, which can exploit their niche with high effectiveness, attracting a high percentage of the clients from their narrower customer base. The resource-partitioning model describes how selection processes structure organizational populations according to their niche spans when resources are unevenly distributed in the environment, forming a market center abundant in demand *vis-à-vis* a resource-scarce market periphery (Carroll, 1985; Carroll and Hannan, 2000). Evidence abounds that indeed generalist concentration is positively associated with specialist viability (for an overview, see Carroll & Swaminathan, 2000).

Third, niche overlap is argued to have two potentially opposing effects on organizational performance (Baum & Haveman, 1997; Boone, Wezel & van Witteloostuijn, 2005). On the negative side, more niche overlap implies more intense crowding competition for similar resources; on the positive side, more niche overlap may produce mutualistic agglomeration-type of benefits. On the one hand, in a series of studies, Baum and colleagues explore the crowding effect of niche overlap (and its

complement: the mutualistic impact of non-overlap). In their study of Torontonians day care centers, Baum and Singh (1994b) find support for their hypothesis that niche-overlap density decreases entry in the focal niche, whereas non-overlap density increases founding rates. The former effect is argued to relate to crowding and competition, whilst the latter is explained by the potential benefits of mutualism when entrepreneurs enter niches that border other viable niches with low overlap. Similarly, Baum and Singh (1994c) reveal that niche-overlap density and non-overlap density are positively and negatively associated with mortality rates, respectively. In line with this finding, Baum and Singh (1996) report that differentiation – i.e., moving to less competitive niches – increases the day care centers' survival chances. Finally, Baum and Oliver (1996) report evidence in the context of founding rates in Torontonians day care centers that mutualistic non-overlap is enhanced in the presence of crowding. On the other hand, Baum and Haveman (1997) and Boone et al. (2005) add to this logic that niche overlap might have a mutualistic impact as well, pointing to a set spillover effects that may benefit organizations that cluster together.

Whatever are their differences, the alternative theories of market partitioning share a common key assumption: at the demand side of the market, the variety of tastes is such that a need for differentiation arises. That is, customers in niche i prefer a product offer that is quite different from their counterparts in niche j . The further apart niches i and j are in resource space, the larger is this taste difference. Take, again, Carroll's (1985) resource-partitioning model, to start with. Resource-partitioning processes emerge if a number of necessary conditions are met (Boone, Carroll & van Witteloostuijn, 2002 & 2004; Boone & van Witteloostuijn, 2004). A critical one is that the resource space must reveal sufficient heterogeneity, with a resource-abundant center and a resource-poor periphery. In a similar vein, other

theories of market partitioning need such a resource space heterogeneity assumption. For instance, niche-packing theory (Péli & Nooteboom, 1999) assumes a flat resource space, implying that resources are distributed over a (wide) variety of taste niches.

Without taste variety, market partitioning will not emerge. For instance, if the resource space features resource-rich homogeneity only, then specialist organizations cannot operate viably. After all, in such a market, there is no peripheral demand for specific offerings, as all customers prefer the same middle-of-the-road variety. For instance, demand for special types of petrol or salt is very limited: for by far the majority of customers, only price matters. Then, the demand side's low variety of tastes is reflected in supply-side homogeneity. Market partitioning will not emerge, because the demand side's preferences reflect a need for homogeneity, rather than a desire for heterogeneity.

In all, the above logic gives our second theorem.

Theorem 2: Under the condition of sufficient demand-side heterogeneity (i.e., taste variety), firms tend to differentiate themselves away from their competitors to the extent that they spread across the resource space's niches, leading to industry heterogeneity.

A MULTI-LEVEL THEORY OF REPRODUCTION AND DIVERSITY

Conditions and propositions

We are now ready to illustrate how, under certain conditions, macro-level partitioning may unfold from micro-level processes of homosocial reproduction, linking Theorem 1 to Theorem 2. Before turning to more specific propositions, it is useful to make explicit the major assumptions underlying the theory. That is, how this micro-macro interaction evolves over time, very much depends upon the underlying conditions at

the supply side (potential managers) and the demand side (potential customers). A minimum level of resource diversity is needed at both the input and output side of organizations to produce the between-firm differentiation effects described above. It is clear that if the distribution of demographic characteristics of top managers who may enter into a population has low variance, then the compositional differences between teams in the industry will be low as well, irrespective of the potency of homosocial reproduction. As a result, team reproduction can then not be a source of market-level partitioning.⁸ The same reasoning applies to output markets. A minimum level of resource heterogeneity with respect to customer tastes is required for organizations to be able to differentiate and occupy isolated niches (for an overview of the impact of different resource environments, see van Witteloostuijn & Boone, 2006).⁹ So, the main necessary conditions are:

Condition 1: Supply-side heterogeneity with respect to demographic characteristics of top managers is sufficiently high.

Condition 2: Demand-side heterogeneity with respect to customer tastes is sufficiently high.

By way of illustration, several more specific propositions can be derived from our theory. Without losing generality, we focus on two firms only (firm *i* and *j*), for the sake of parsimony. The model distinguishes three levels of analysis – team, organization and market (i.e., population) –, linking micro-level processes of team adaptation with ecological selection at the market level.

At the most general level, we predict that markets over time will show features of market partitioning (e.g., localized competition, monopolistic competition, niche packing or resource partitioning) the more top managers are sorted into teams based on the principle of homophily. That is, every organization eventually specializes to

serve niches with minimal overlap with the niches of other organizations. In economics terms, in the extreme, every firm may then act as a local monopolist in the niche of the market where its product offer comes closest to the taste of local customers – this is the classic case of monopolistic competition (Hotelling, 1929). The reasoning is as follows. If the ASA processes within the firms' upper echelons lead to different team characteristics, organizations will carve out different niches, resulting in strategic differentiation. If sets of organizations, however, happen to reproduce around similar top manager characteristics, they will carve out similar niches, resulting in niche overlap. Niche overlap will put pressure on organizations to differentiate, especially when the carrying capacity of the niche is low. Figure 1 illustrates how the process unfolds.

[INSERT FIGURE 1 ABOUT HERE]

To summarize, our theory suggests that market partitioning may result from top management team homogenization (given that teams gravitate toward different team demographic compositions). Because differentiation can boost organizational performance (Hotelling, 1929; Baum & Mezias, 1992; Boone et al., 2002 & 2004), it reinforces the process of homosocial reproduction at the team level (a feedback loop not shown in figure 1, for the sake of parsimony). That is, in order to avoid the downsides of crowding, spreading across the resource space's niche structure stimulates organizational performance by reducing niche overlap, on average. Similarly, competition among organizations – i.e., niche overlap – directly spurs team homogenization. Indeed, McPherson and colleagues showed that competitive pressures from other organizations for members sharpen and focus the compositional features of the group (the so-called social niche), resulting in organizational homogeneity (McPherson, 1983; McPherson & Smith-Lovin, 1987) – a result that is

in line with the findings from research on inter-firm, team and individual behavior (e.g., Heiner, 1983; Beckman et al., 2004; Boone et al., 2004). The end result of such positive feedback cycles is that there will be a fairly tight match between top management team composition and organizational niche position in the long run. In all, this suggests

Proposition 1: Provided that Conditions 1 and 2 hold, the higher the potency of homosocial reproduction at the top management team level, (a) the higher the extent of market partitioning and (b) the lower the level of niche overlap.

Given our prediction that uncertainty increases the tendency toward homosocial reproduction, we expect that the process of market partitioning will especially materialize in periods of high uncertainty. Podolny (1994) also suggested that uncertainty reinforces market partitioning. In a sense, one could argue that the team-level process of homosocial reproduction is adaptive at the population level. This is because the threat-rigidity response at the team level eventually decreases niche overlap and competition at the market level, reducing the uncertainty that triggered the process in the first place. Note that a tightly packed resource space reduces uncertainty in another way, too, as it hampers entry (Péli & Nooteboom, 1999) and stabilizes organizational density.

Moreover, the model predicts that homosocial reproduction sets in motion a process of differentiation between pairs of firms, both with respect to the compositional characteristics of their top management teams, as well as the strategic niche positions these organizations occupy. Different organizations will gravitate towards different specific top management team demographic characteristics. Given that average compositional differences imply variance in capabilities and preferences, these firms will also develop different routines and strategies (Finkelstein &

Hambrick, 1996; Sørensen, 1999a; Cattani et al., 2004). Therefore, we expect for each dyad of organizations, and given that the carving of specialized niches will be more forcefully present when teams are relatively homogeneous,

Proposition 2: (a) A focal firm's distance from a competitor with respect to its top management team's average demographic composition is positively related to its strategic distance vis-à-vis this competitor, (b) especially under conditions of high uncertainty.

From the literature on crowding and niche overlap cited above follows that differentiation decreases competition, and therefore increases organizational performance. As Hotelling (1929) explained, for example, positive price premia emerge if products are different, since then each firm can operate as a local monopolist in the niche of the market where its product offer comes closest to the taste of local customers. Similar predictions have been made in the strategic management literature. Gimeno and Woo (1996), for instance, find in their sample of more than 3000 city-pair markets in the U.S. airline industry that strategic similarity among airlines increases the intensity of rivalry. Specifically, the yield to an airline, defined as the average price charged by a firm to passengers in a city-pair market divided by the distance of the market, decreases when the average strategic similarity to competitors increases.¹⁰ Moreover, Sørensen (1999a) found that commercial television stations grow faster the more the average tenure of the top management team differs from that of its competitors. Taken together, this suggests that the positive impact of differentiation with respect to team composition on organizational performance is mediated by strategic dissimilarity resulting from demographic differences. This argument leads to

Proposition 3: There is a positive impact of a focal firm's (a) average distance from competitors with respect to its top management team's mean demographic composition on (long run) organizational performance,¹¹ where (b) this relationship is mediated by the average strategic distance of the focal firm from its competitors.

Finally, the model also helps to unravel the performance implications of top management team demographic diversity. Most authors have suggested and presented evidence that top management team homogeneity facilitates (or, at least, does not hamper) performance in the short run (Schneider, 1987; Boone et al., 1998; Boone et al., 2004; McPherson & Smith-Lovin, 1987). As mentioned earlier, research is not conclusive with respect to the long-run implications of top management team diversity. Our ecologically informed model suggests that the (long run) performance consequences of top team homogeneity depend on market-partitioning processes and the position of other firms in product space. On a general level, we expect that homogeneity will only be positively associated with (long-run) organizational performance, particularly the likelihood of survival, in partitioned markets with low niche overlap among competitors. That is, an individual organization's likelihood of survival depends critically upon its position in resource space.

More specifically, a focal organization with a homogeneous top team will outperform its competitors when it occupies isolated positions in product market space and, *mutatis mutandis*, in the distribution of managerial demographic characteristics. Conversely, if the organization happens to be located in an overly crowded niche, long-run organizational performance will be harmed. Again, homosocial reproduction will fuel this process. If an organization is located in an unfavorable niche, short-run performance will suffer. As a threat-rigidity and

uncertainty-reducing response, ranks will be closed by hiring ‘clones’ and ‘relieving’ atypical executives (Boone et al., 2004). This implies that the organization further digs its own grave by investing in routines and strategies that fit with the ‘wrong’ niche. Overall, this logic results in

Proposition 4: Top management team homogeneity increases (long-run) organizational performance, when (a) the focal firm’s average distance from competitors with respect to its top management team’s mean demographic composition is large,¹² where this relationship is mediated by the average strategic distance of the focal firm from its competitors.

APPRAISAL AND CONCLUSION

Two important streams of demographic research have developed independently over the last 25 years or so: within-firm organizational demography (Pfeffer, 1983), with an emphasis on (top management) team composition (Hambrick & Mason, 1984), and population-level demography or organizational ecology (Hannan & Freeman, 1977), studying the dynamics of diversity among organizations. Both research traditions strictly focused on the selection processes operating within the boundaries of the chosen level of analysis: micro (individual and team) versus macro (organization and population). We argued, however, that in order to advance the field of top management team research (and organizational ecology, for that matter) we need to build more comprehensive evolutionary models of organizational adaptation explicating the interplay between selection processes at different, nested levels of analysis (Baum & Singh, 1994a). In this paper, we made a first attempt by theorizing about how the within-team variety-reducing behavioral mechanism of homophily

shapes between-firm competitive outcomes and organizational diversity, and *vice versa*.

Five final comments and limitations are worth mentioning. First, discovering the general mechanisms behind the origin of organizational diversity has attracted the attention of many scholars for more than a century. Durkheim (1893/1933: 266) already speculated on how organizational diversity is driven by endogenous forces as follows: “if work becomes divided more as societies become more voluminous and denser, it is not because external circumstances are more varied, but because the struggle for existence is more acute.” In the present paper, we build on this insight by explicating one such endogenous mechanism, arguing that team homogenization processes, paradoxically, drive population-level organizational diversity. In other words, homosocial reproduction magnifies social differences, rather than mitigating them (see also Popielarz & McPherson, 1995: 699).

We acknowledge that the behavioral theory of organizational diversity we presented here is extremely general and, as a result, that the predictive power in any specific setting will be relatively low, on average. To be able to develop more specific hypotheses, additional conditions must be introduced, reflecting the specificities of the case at hand. Above, we illustrated this for the case of market partitioning, imposing two additional conditions upon the argument as to sufficient heterogeneity at the demand or output side (i.e., potential customers) and the supply or input side (i.e., potential managers) of the market. Specifically, we think that the field of organization theory and strategy badly needs general theories that unify the increasingly disparate pieces of literature and provide a parsimonious baseline logic to understand complicated phenomena based on firmly grounded behavioral principles. In this respect, we follow McPherson and Ranger-Moore (1991: 37), who defend their

approach in modeling the impressive diversity of forms found in the voluntary sector as follows: “our model is a unified view of one process that underlies all this otherwise confusing diversity. By grounding the model in universal aspects of organizations (i.e., all organizations contain people), sociodemographic variables (i.e., all individuals have a value of age), and social networks (i.e., all networks are homophilous), and ignoring the aspects for which we cannot yet account ... we avoid the pitfall of focusing on uniqueness at the expense of generality and redirect attention to those phenomena that we may be able to explain” (see also Mark, 1998). Similarly, we hope to have illustrated that simple general mechanisms such as homosocial reproduction, niche carving and strategic distance generate novel propositions with respect to team composition outcomes. This really implies integrating ecology and strategy arguments, which we think has great potential. In future work, we hope to explore the ecology – strategy interface further, particularly by developing similar arguments for other cases than market partitioning.

Second, because top management research in the past has mainly focused on demographic characteristics of executives, we also did so in developing our theory, ignoring the social networks of executives. One should be aware that there exists an ongoing debate in the literature about the relative explanatory power of the attributes of individuals *per se* versus the relations between them (Popielarz & McPherson, 1995; Reagans, Zuckerman & McEvily, 2004). In future work, it might be worthwhile (though probably even more demanding) to also collect longitudinal data on the network ties of executives (McPherson et al., 2001). Luckily, however, the work of McPherson and colleagues shows that the relative positions of individuals in social space can act as a proxy for the network connections people have, making the debate less salient. Specifically, “through the organizing structure of social space, the

attributes of individuals summarize their homophilous relations with others who are near and distant in social space” (Popielarz & McPherson, 1995: 716).

Third, we were silent about executive migration. It may be, though, that the market-partitioning outcome of the process is only sustainable when top management team mobility between organizations is relatively low. That is because frequent within-industry migration fosters transmission of routines and strategies across the population’s organizations, increasing their similarity (Wezel et al., 2005). Indeed, Sørensen's (1999b) study on executive migration among commercial television stations suggests that recruitment of executives from competitors increases niche overlap and competition. Two additional comments on within-industry executive migration are worth making, though. For one, migration probably also follows predictable patterns (see the introduction in Baum & Singh, 1994a). Specifically, it is not unlikely that migration of managerial characteristics and related capabilities (Sørensen, 1999b) mainly occurs among organizations that are similar. If this is the case, then the countervailing impact of managerial mobility on the market-partitioning process will be tempered.

Moreover, recent empirical research shows that within-industry executive mobility is especially high in homogeneous compared to heterogeneous industries. Parrino (1997: 195), studying 977 CEO succession events in large public firms between 1969 and 1989, finds that “the likelihood of turnover, forced turnover and outside succession increase with the similarity of the firms in an industry. Furthermore, the likelihood that a fired CEO is replaced by an executive from another firm in the same industry also increases with industry homogeneity.” In homogeneous industries, organizations pursue similar strategies, and as a result need similar managerial talent. This facilitates the exchange of executives among organizations within the industry.

Interestingly, this suggests that the market-partitioning process we described above is difficult to revoke, as organizational diversity hampers the transmission of routines between organizations via executive migration.

Fourth, note that the ideas developed in this paper are similar to the arguments presented in the seminal work of McPherson and colleagues on voluntary organizations, and Sørensen's work on the ecology of managerial tenure distributions. However, there are important differences. McPherson's ecological analyses are restricted to competition among voluntary organizations for members, invoking the principle of homophily to predict the location of organizations in Blau (demographic) space. In other words, their focus is on organizational input markets, ignoring the specific output of these voluntary organizations, and the competition resulting thereof in output or product markets. Although it might be interesting to do so, we did not focus on competition among organizations for managerial talent (for an exception, see Sørensen, 1999b). Instead, we theorized on how homosocial reproduction impinges on competition in output (product) markets, which is important when one wants to extend the study of the implications of homophily to for-profit organizations.

Sørensen (1999a) does focus on competition between organizations in products markets in his study of organizational growth of commercial television stations. His main finding is that the distance of a focal firm's top management team mean tenure to the mean tenure of competitors increases a focal firm's growth rate. The putative reason is that overlap in tenure goes hand in hand with overlap in managerial capabilities, which leads to greater competition for resources since managers shape a firm's pattern of resource utilization. Although Sørensen also urges researchers to analyze the ecological interplay of top management team composition in relation to other organizations, we extend this logic in three ways. Firstly, Sørensen

restricts his analysis to the firm's mean managerial tenure, whereas our focus is on demographic homogeneity. Secondly, Sørensen does not theorize on where specific demographic team distributions come from in the first place, which is the central starting point of our theory. Thirdly, Sørensen empirically models firm growth, whereas we try to develop a more comprehensive model linking micro-level team composition dynamics, strategic behavior and market-level outcomes.

Fifth, we would like to reflect on the adaptation-selection debate with reference to the accompanying paper by Wiersema and Moliterno in this volume. We believe that our and their contributions are complementary in at least three ways. First, our paper stresses, as do Campbell (1994) and Meyer (1994), the importance of internal adaptation, whereas Wiersema and Moliterno focus on external adaptation. That is, in our model, managers adapt to internal goals, preferences, and opportunities and threats, resulting in team reproduction and homogeneity. This is a baseline process that does not exclude the fact that managers need to adapt – and do try so – to external (exogenous) shifts in the environment as well (cf. Boone et al., 2004). Second, the internal adaptation processes we described above are evolutionary in nature, and are well placed to explain incrementally emerging and evolving processes. Wiersema and Moliterno define external adaptation as reactions to punctuated or discontinuous change, which disturb periods of incremental (internal) adaptation. So, one could argue that punctuated shocks from time to time disrupt the target of team reproduction. Third, all hypotheses of Wiersema and Moliterno are consistent with our argument. Homosocial reproduction is most forcefully operating when TMTs have the power to reproduce their characteristics. Hence, in settings where the financial stakeholders are relatively powerful (e.g., in the case of many institutional

investors and large blockholders), the process of TMT reproduction may well be undermined.

A more fundamental issue is that Wiersema and Moliterno do not make a distinction between the event of CEO dismissal and the adaptive value of such an event. The adaptive power of CEO dismissal is, however, highly questionable, as Wiersema and Moliterno acknowledge in their discussion (see also Wiersema, 2002). For one, evidence to date has not revealed that CEO dismissal leads to better performance. Moreover, our multi-level theory suggests that the massive hypish wave of CEO dismissals, resulting from pressures of the financial community, might even be non-adaptive (cf. Sorge & van Witteloostuijn, 2004). That is, if firms hire similar CEOs (e.g., with a financial background), then homogeneity and competition are likely to increase, which may ultimately undermine firm performance in the long run. In this respect, Wiersema and Moliterno claim that diversity in the US automobile industry was lower in the old era compared to the new era. These opposite claims (is CEO diversity decreasing or increasing over time?) suggest an interesting avenue for future research.

Finally, we realize that the theory we presented here is very demanding with respect to data collection. One needs longitudinal demographic data on executives, executive entry and exit events have to be carefully recorded, and team-level data have to be linked to organization-level information on strategies, niches and performance. So, the research design involves a combination of the already demanding requirements of ecology and demography studies. Nevertheless, recent work, focusing on parts of the model, shows that it is doable and, more importantly, that the results are very promising (Sørensen, 1999a; Boone et al., 2004; Cattani et al., 2004). Indeed, we strongly believe that this is the type of ecology – strategy dialogue

that is very likely to produce new insights in the future, linking different levels of analyses in an overarching adaptation – selection logic.

Acknowledgement. We would like to thank Joel Baum and Stanislav Dobrev for their very insightful comments. Of course, all remaining errors are ours.

REFERENCES

- Amburgey, T. L., Dacin, T. and Kelly, D. (1994). Disruptive Selection and Population Segmentation: Interpopulation Competition as a Segregating Process. In J. A. C. Baum and J. V. Singh (Eds), *Evolutionary Dynamics of Organizations* (pp. 240-254). New York: Oxford University Press.
- Axelrod R. and Hamilton, W. D. (1981). The Evolution of Cooperation. *Science* 211, 1139-1136.
- Baum J. A. C. and Haveman, H. (1997). Love thy Neighbor?: Differentiation and Agglomeration in the Manhattan Hotel Industry, 1898-1990. *Administrative Science Quarterly* 42, 304-338.
- Baum, J. A. C. and McKelvey, B. (1999). *Variations in Organization Science: In Honor of Donald T. Campbell*. Oxford UK: Sage Publications.
- Baum J. A. C. and Mezias S. (1992). Localized Competition and Organizational Failure in the Manhattan Hotel Industry 1898-1990. *Administrative Science Quarterly* 37, 580-604.
- Baum, J. A. C. and Oliver, C. (1996). Toward an Institutional Ecology of Organizational Founding. *Academy of Management Journal* 39, 1378-1427.
- Baum, J. A. C. and Singh, J. V. (1994a). Organizational Hierarchies and Evolutionary Processes: Some Reflections on a Theory of Organizational Evolution. In J. A. C. Baum and J. V. Singh (Eds), *Evolutionary dynamics of organizations* (pp. 3-22). New York: Oxford University Press.
- Baum, J. A. C. and Singh, J. V. (1994b). Organizational Niche Overlap and the Dynamics of Organizational Founding. *Organization Science* 5, 483-502.

- Baum, J. A. C. and Singh, J. V. (1994c). Organizational Niche Overlap and the Dynamics of Organizational Mortality. *American Journal of Sociology* 100, 346-380.
- Baum, J. A. C. and Singh, J. V. (1996). Dynamics of Organizational Responses to Competition. *Social Forces* 74, 1261-1297.
- Beckman, C. M., Haunschild, P. R. and Phillips, D. J. (2004). Friends or Strangers? Firm-Specific Uncertainty, Market Uncertainty, and Network Partner Selection. *Organization Science* 15, 259-275.
- Blau, P. M. (1977). *Inequality and Heterogeneity*. New York: The Free Press.
- Boone, C., Carroll, G. R. and Witteloostuijn, A. van (2002). Resource Distributions and Market Partitioning: Dutch Daily Newspapers, 1968 to 1994. *American Sociological Review* 67, 408-431.
- Boone, C., Carroll, G. R. and Witteloostuijn, A. van (2004). Size, Differentiation and the Growth and Profitability of Dutch Daily Newspapers. *Industrial and Corporate Change* 13, 117-148.
- Boone, C., Olffen, W. van and Witteloostuijn, A. van (1998). Psychological Top Management Team Make-Up and Economic Firm Performance: An Experimental Study. *Journal of Economic Psychology* 19, 43-73.
- Boone, C., Olffen, W. van and Witteloostuijn, A. van (2005). Team Locus-of-Control Composition, Leadership Structure, Information Acquisition, and Financial Performance: A Business Simulation Study. *Academy of Management Journal* 48, 889-909.
- Boone, C., Olffen, W. van, Witteloostuijn, A. van and B. De Brabander (2004). The Genesis of Top Management Team Diversity: Selective Turnover among Top

- Management Teams in Dutch Newspaper Publishing, 1970-94. *Academy of Management Journal* 47, 633-656.
- Boone, C., Wezel, F. C. and Witteloostuijn, A. van (2005). An Ecological Theory of Population-Level Diversity Dependence. *Working paper*. Antwerpen: University of Antwerpen.
- Boone, C. and Witteloostuijn, A. van (2004). Towards a Unified Theory of Market Partitioning: Integrating Resource Partitioning and Sunk Cost Theories of Dual Market Structures. *Industrial and Corporate Change* 13, 701-726.
- Bornstein, G. and Ben-Yossef, M. (1994). Cooperation in Intergroup and Single-Group Social Dilemmas. *Journal of Experimental Social Psychology* 30, 52-67.
- Bornstein, G. (2003). Intergroup Conflict: Individual, Group, and Collective Interests. *Personality and Social Psychology Review* 7, 129- 145.
- Boyd, R. and Richerson, P. J. (1985). *Culture and the Evolutionary Process*. Chicago: University of Chicago Press.
- Byrne, D. (1971). *The Attraction Paradigm*. New York: Academic Press.
- Campbell, D. T. (1969). Variation and Selective Retention in Socio-Cultural Evolution. *General Systems* 16, 69-85.
- Campbell, D. T. (1994). How Individual and Face-to-Face Group Selection Undermine Firm Selection in Organizational Evolution. In J. A. C. Baum and J. V. Singh (Eds), *Evolutionary Dynamics of Organizations* (pp. 23-38). New York: Oxford University Press.
- Carroll, G. R. (1985). Concentration and Specialization: Dynamics of Niche Width in Populations of Organizations. *American Journal of Sociology* 90, 1262-1283.
- Carroll, G. R. and Hannan, M. T. (2000). *The Demography of Corporations and Industries*. Princeton, NJ: Princeton University Press.

- Carroll, G. R. and Swaminathan, A. (2000). Why the Microbrewery Movement? Organizational Dynamics of Resource Partitioning in the American Brewing Industry after Prohibition. *American Journal of Sociology* 106, 715-762.
- Cattani, G., Pennings, J. M. and Wezel, F. C. (2004). Heterogeneity Shifts due to Member Mobility: New Insights on Diversity and Performance. *Working paper*. Tilburg: Tilburg University.
- Clore, G. L. and Byrne, D. (1974). A Reinforcement Affect Model of Attraction. In T. L. Huston (Ed.), *Foundations of Interpersonal Attraction* (pp. 143-170). New York: Academic Press.
- DiMaggio, P. J. and Powell, W. W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review* 48, 147-160.
- Dobrev, S. D. (2006). Career Mobility and Job Flocking. *Social Sciences Research* (forthcoming).
- Dobrev, S. D., Kim, T.-Y. and Carroll, G. R. (2002). The Evolution of Organizational Niches: U.S. Automobile Manufacturers 1885–1981. *Administrative Science Quarterly* 47, 233-264.
- Durkheim, E. [1893] (1933). *The Division of Labor in Society*. Translated by George Simpson. New York: Free Press.
- Egidi, M. (1996). Routines, Hierarchies of Problems, Procedural Behaviour: Some Evidence from Experiments. In K. Arrow, E. Colombatto, M. Perlman and C. Schmidt (Eds), *The Rational Foundations of Economic Behaviour* (pp. 303-333). London: Macmillan.
- Feld, S. (1982). Structural Determinants of Similarity among Associates. *American Sociological Review* 47, 797-801.

- Finkelstein, S. and Hambrick, D. C. (1996). *Strategic Leadership: Top executives and their effects on organizations*. St. Paul MN: West Publishing Company.
- Gimeno, J. and Woo, C. Y. (1996). Hypercompetition in a Multimarket Environment: The Role of Strategic Similarity and Multimarket Contact in Competitive De-escalation. *Organization Science* 7, 322-341.
- Hambrick, D. C. and Mason, P. A. (1984). Upper Echelons: Organizations as a Reflection of Its Top Managers. *Academy of Management Review* 9, 193-206.
- Hamilton, D. (1964). The Genetic Evolution of Social Behavior. *Journal of Theoretical Biology* 7, 1-16.
- Hannan, M. T. (2005). Ecologies of Organizations: Diversity and Identity. *Journal of Economic Perspectives* 19, 51-70.
- Hannan, M. T. and Freeman, J. (1977). The Population Ecology of Organizations. *American Journal of Sociology* 83, 929-984.
- Hannan, M. T., Ranger-Moore, J. and Banaszak-Holl, J. (1990). Competition and the Evolution of Organizational Size Distributions. In J. V. Singh (Ed.), *Organizational Evolution: New Directions*. Beverly Hills CA: Sage.
- Haveman, H. A. (1995). The Demographic Metabolism of Organizations: Industry Dynamics, Turnover, and Tenure Distributions. *Administrative Science Quarterly* 40, 586-618.
- Haveman, H. A. (2000). The Future of Organizational Sociology: Forging Ties among Paradigms. *Contemporary Sociology* 29, 476- 486.
- Haveman, H. A. and Cohen, L. E. (1994). The Ecological Dynamics of Careers: The Impact of Organizational Founding, Dissolution, and Merger on Job Mobility. *American Journal of Sociology* 100, 153-195.

- Heiner, R. (1983). The Origin of Predictable Behaviour. *American Economic Review* 73, 560-595.
- Hinds, P. J., Carley, K. M., Krackhardt, D. and Wholey, D. (2000). Choosing Work Group Members: Balancing Similarity, Competence, and Familiarity. *Organizational Behavior and Human Decision Processes* 81, 226-251.
- Hogg, M. A. and Mullin, B. A. (1999). Joining Groups to Reduce Uncertainty: Subjective Uncertainty Reduction and Group Identification. In D. Abrams and M. A. Hogg (Eds), *Social Identity and Social Contagion* (pp. 249-279). Malden MA: Blackwell.
- Hotelling, H. (1929). Stability in Competition. *Economic Journal* 39, 41–57.
- Huston, T. L. and Levinger, G. (1978). Interpersonal Attraction and Relationships. *Annual Review Psychology* 29, 115-156.
- Jackson, S. E., Brett, J. F., Sessa, V. I., Cooper, D. M., Julin, J. A. and Peyronnin, K. (1991). Some Differences Make a Difference: Individual Dissimilarity and Group Heterogeneity as Correlates of Recruitment, Promotions, and Turnover. *Journal of Applied Psychology* 76, 675-689.
- Kanter, R. M. (1977). *Men and Women of the Corporation*. New York: Basic Books.
- Lawrence, B. S. (1997). Opening the Black Box of Organizational Demography. *Organization Science* 8, 1-22.
- Lazarsfeld, P. F. and Merton, R. K. (1954). Friendship as a Social Process: A Substantive and Methodological Analysis. In M. Berger, T. Abel and C. H. Page (Eds), *Freedom and Control in Modern Society* (pp. 18-66). New York: Van Nostrand.
- LeVine, R. A. and Campbell, D. T. (1972). *Ethnocentrism: Theories of Conflict, Ethnic Attitude and Group Behavior*. New York: Wiley.

- Maijor, S. J. and Witteloostuijn, A. van (1996). An Empirical Test of the Resource-Based Theory: Strategic Regulation in the Dutch Audit Industry. *Strategic Management Journal* 17, 549-569.
- March, J. M. (1994). The Evolution of Evolution. In J. A. C. Baum and J. V. Singh (Eds), *Evolutionary Dynamics of Organizations* (pp. 239-52). Oxford UK: Oxford University Press.
- Mark, N. (1998). Birds of a Feather Sing Together. *Social Forces* 77, 453-485.
- McPherson, J. M. (1983). An Ecology of Affiliation. *American Sociological Review* 48, 519-532.
- McPherson, J. M. and Ranger-Moore, J. R. (1991). Evolution on a Dancing Landscape: Organizations and Networks in Dynamic Blau Space. *Social Forces* 70, 19-42.
- McPherson, J. M. and Rotolo, T. (1996). Testing a Dynamic Model of Social Composition: Diversity and Change in Voluntary Groups. *American Sociological Review* 61, 179-202.
- McPherson, J. M. and Smith-Lovin, L. (1987). Homophily in Voluntary Organizations: Status Distance and the Composition of Face-to-Face Groups. *American Sociological Review* 52, 370-379.
- McPherson, J. M., Popielarz, P. A. and Drobnic, S. (1992). Social Networks and Organizational Dynamics. *American Sociological Review* 57, 153-170.
- McPherson, J. M., Smith-Lovin, L. and Cook, J. (2001). Birds of a Feather: Homophily in Social Networks. *Annual Review of Sociology* 27, 415-444.
- Meyer, M. W. (1994). Turning Evolution Inside the Organization. In J. A. C. Baum and J. V. Singh (Eds), *Evolutionary Dynamics of Organizations* (pp. 109–116). Oxford UK: Oxford University Press.

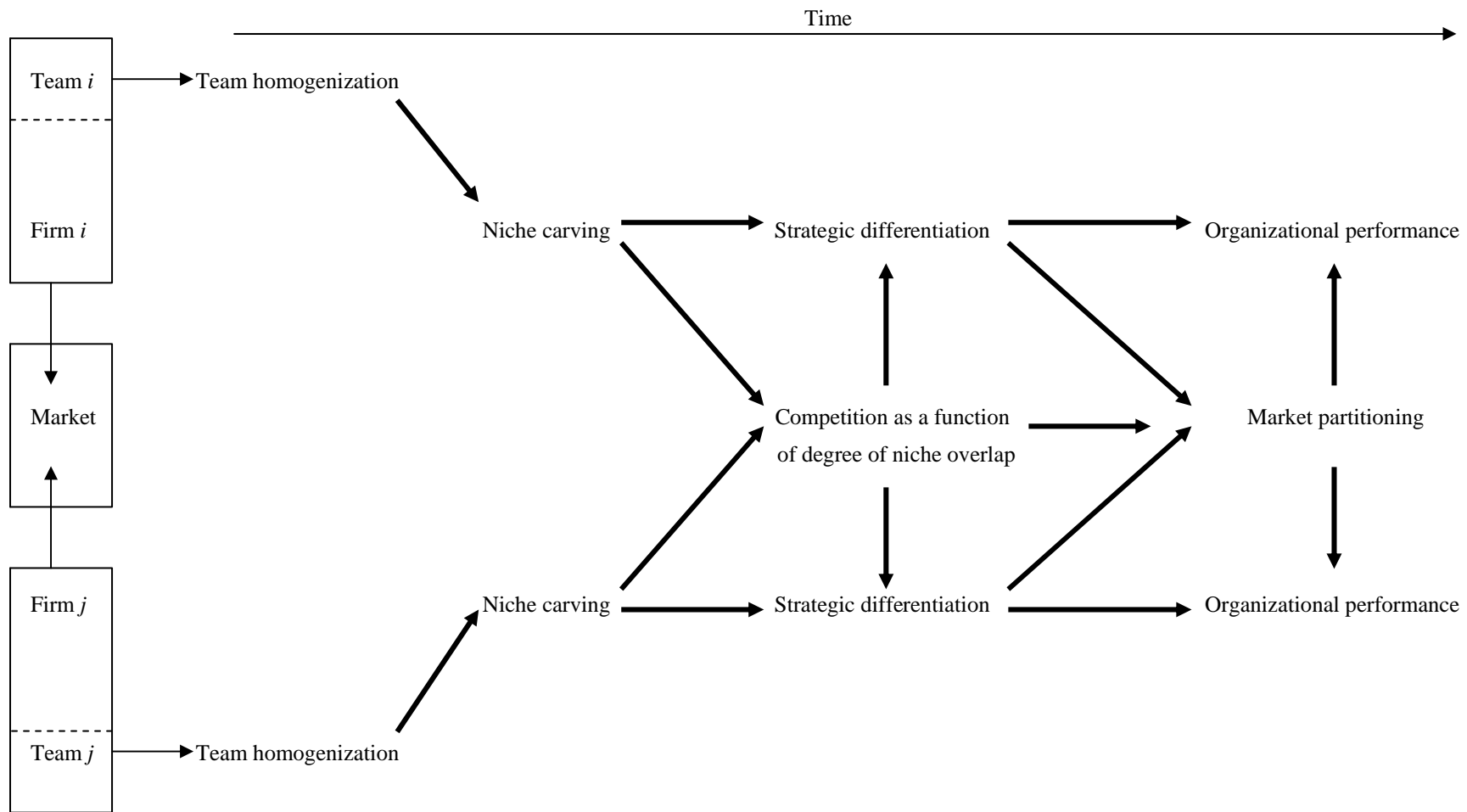
- Meyer, J. W. and Rowan, B. (1977). Institutionalized Organizations: Formal Structure as Myth and Ceremony. *American Journal of Sociology* 83, 340-363.
- Miner, A. S. (1994). Seeking Adaptive Advantage: Evolutionary Theory and Managerial Action. In J. A. C. Baum and J. V. Singh (Eds) *Evolutionary Dynamics of Organizations* (pp. 76-89). Oxford UK: Oxford University Press.
- Miner, A. S. and Anderson, P. (1999). Industry and Population-Level Learning: Organizational, Inter-Organizational and Collective Learning Processes. In A. S. Miner and P. Anderson (Eds), *Advances in Strategic Management: Population-Level Learning and Industry Change* (pp. 1-31). Stamford CR: JAI Press.
- Miner, A. S. and Haunschild, P. R. (1995). Population-Level Learning. In L. L. Cummings and B. M. Staw (Eds), *Research in Organizational Behavior* (pp. 115-166). Greenwich CN: JAI Press.
- Miller, D. (1999). Selection Processes Inside Organizations: The Self-Reinforcing Consequences of Success. In J. A. C. Baum and B. McKelvey (Eds), *Variations in Organization Science* (pp. 93-112). Thousand Oaks: Sage.
- Parrino, R. (1997). CEO Turnover and Outside Succession: A Cross-Sectional Analysis. *Journal of Financial Economics* 46, 165-197.
- Péli, G. & B. Nooteboom (1999). Market Partitioning and the Geometry of the Resource Space. *American Journal of Sociology* 104, 1132-1153.
- Pennings, J. M., Lee, K. and Witteloostuijn, A. van (1998). Human Capital, Social Capital, and Firm Dissolution. *Academy of Management Journal* 41, 425-440.
- Pfeffer, J. (1983). Organizational Demography. *Research in Organizational Behavior* 5, 299-357.
- Pfeffer, J. (1997). *New Directions for Organization Theory: Problems and Prospects*. New York: Oxford University Press.

- Podolny, J. M. (1994). Market Uncertainty and the Social Character of Economic Exchange. *Administrative Science Quarterly* 39, 458-483.
- Popielarz, P. A. and McPherson, J. M. (1995). On the Edge or in between: Niche Position, Niche Overlap, and the Duration of Voluntary Association Memberships. *American Journal of Sociology* 101, 698-720.
- Reagans, R., Zuckerman, E. and McEvily, B. (2004). How to Make the Team: Social Networks vs. Demography as Criteria for Designing Effective Teams. *Administrative Science Quarterly* 49, 101-133.
- Ruef, M., Aldrich, H. E. and Carter, N. M. (2003). The Structure of Founding Teams: Homophily, Strong Ties, and Isolation among U.S. Entrepreneurs. *American sociological Review* 68, 195-222.
- Schaubroeck, J., Ganster, D. C. and Jones, J. R. (1998). Organization and Occupational Influences in the Attraction-Selection-Attrition Process. *Journal of Applied Psychology* 83, 869-891.
- Schneider, B. (1987). The People Make the Place. *Personnel Psychology* 40, 437-453.
- Schneider, B., Goldstein, H. W. and Smith, D. B. (1995). The ASA Framework: An Update. *Personnel Psychology* 48, 747-773.
- Schneider, B., Smith, D.B., Taylor, S. and Fleenor, J. (1998). Personality and Organizations: A Test of the Homogeneity of Personality Hypothesis. *Journal of Applied Psychology* 83, 462-470.
- Sherif, M., Harvey, O., White, B., Hood, W. and Sherif, C. (1961). *Intergroup Conflict and Cooperation: The Robber's Cave Experiment*. Norman OK: Institute of Group Relationships of the University of Oklahoma.

- Sørensen, J. B. (1999a). The Ecology of Organizational Demography: Managerial Tenure Distributions and Organizational Competition. *Industrial and Corporate Change* 8, 713-745.
- Sørensen, J. B. (1999b). Executive Migration and Interorganizational Competition. *Social Science Research* 28, 289-315.
- Sorge, A. M. and Witteloostuijn, A. van (2004). The (Non)Sense of Organizational Change: An *Essai* about Universal Management Hypes, Sick Consultancy Metaphors and Healthy Organization Theories. *Organization Studies* 25, 1205-1231.
- Staw, B. M., Sandelands, L. E. and Dutton, J. E. (1981). Threat-Rigidity Effects in Organizational Behavior: A Multi-Level Analysis. *Administrative Science Quarterly* 26, 501-524.
- Stinchcombe, A. (1997). On the Virtues of the Old Institutionalism. *Annual Review of Sociology* 23, 1-18.
- Wegberg, M. J. A. M. van and Witteloostuijn, A. van. (2001). Strategic Management in the New Economy: Modern Information Technologies and Multichannel Contact Strategies. In J. A. C. Baum and H. R. Greve (Eds), *Advances in Strategic Management: Multiunit Organization and Multimarket Strategy* (pp. 265-306). Greenwich CT: JAI Press.
- Westphal, J. D. and Zajac, E. J. (1995). Who Shall Govern? CEO/Board Power, Demographic Similarity, and New Director Selection. *Administrative Science Quarterly* 40, 60-83.
- Wezel, F. C., Cattani, G. and Pennings, J. M. (2005). Competitive Implications of Inter-Firm Mobility. *Working paper*. Tilburg: Tilburg University.

- Wiersema, M. F. (2002). Holes at the Top: Why CEO Firings Backfire. *Harvard Business Review* 80, 70-77.
- Wiersema, M. F. and Bantel, K. A. (1993). Top Management Team Turnover as an Adaptation Mechanism: The Role of the Environment. *Strategic Management Journal* 14, 485-505.
- Wiersema, M. F. and Moliterno, T. P. (2006). CEO Turnover in the New Era: A Dialogue with the Financial Community. In J. A. C. Baum, S. D. Dobrev and A. van Witteloostuijn (Eds), *Strategy and Ecology: Advances in Strategic Management*, 23 (pp. xx-xx). Oxford UK: JAI/Elsevier.
- Williams, K. Y. and O'Reilly, C. A. (1998). Demography and Diversity in Organizations: A Review of 40 Years of Research. In B. Staw and R. Sutton (Eds), *Research in Organizational Behavior* 20 (pp. 77-140). Greenwich CT: JAI Press.
- Witteloostuijn, A. van (2003) A Game-Theoretic Framework of Trust. *International Studies of Management & Organization* 33 (2), Part II, 53-71.
- Witteloostuijn, A. van and Boone, C. (2006). A Resource-Based Theory of Market Structure and Organizational Form. *Academy of Management Review* (forthcoming).
- Witteloostuijn, A. van and Wegberg, M. J. A. M. van (1992). Multimarket Competition: Theory and Evidence. *Journal of Economic Behavior and Organization* 18, 273-282.
- Zajac, E. J. and Westphal, J. D. (1996). Who Shall Succeed? How CEO/Board Preferences and Power Affect the Choice of New CEOs. *Academy of Management Journal* 39, 64-90.

FIGURE 1: A process model of homosocial reproduction, competition and long-run organizational performance



NOTES

¹ Note that this role of network ties is assumed rather than estimated in the McPhersonian line of work. Indeed, Dobrev (2006) job-flocking's argument suggests that "ecological ties of observability" may be enough. That is, even without direct social ties, career outcomes are affected by homophily in larger professional communities (such as top managers).

² Admittedly, McPherson and colleagues do not argue that preference and choice are not important. In fact, they (*ex post*) defend their choice to focus on voluntary associations because "they represent a unique arena for watching the strong interplay of structurally induced and choice-produced homophily" (McPherson, Smith-Lovin & Cook, 2001: 432). Notwithstanding this disclaimer, these authors overwhelmingly focused on the structural sources of homophily.

³ Interestingly, in the majority of recent sociological work on homophily researchers limit attention to ascriptive demographic characteristics such as gender and ethnicity. There is, however, no reason to exclude other individual characteristics from the analysis. Note, in fact, that most classical sociological treatments of homophily such as Lazarsfeld and Merton (1954) did not restrict it to ascriptive characteristics (McPherson et al., 2001; Ruef et al., 2003). The bottom line for a purely homophilous mechanism to apply to both achieved and ascribed characteristics is that the functional contributions of those characteristics must be ruled out (Ruef et al., 2003: 196). That is, functional theories would suffice if group members are mainly selected based on the valuable and complementary competences they possess to ensure the success of the collectivity.

⁴ Note that the set of reasons we offer for people's preference for homogeneity do not necessarily imply conscious, deliberate choices that people make with respect to, for

instance, the recruitment of similar members in groups – on the contrary. As already suggested, these preferences are firmly rooted in human beings as they probably have evolutionary origins. Specifically, evolutionary theories of human cooperation, such as kin selection (Hamilton, 1964) and reciprocity (Axelrod & Hamilton, 1981), trace the capacity of humans to behave cooperatively back to the evolutionary advantage resulting from fostering kin and from tit-for-tat behavior. What both theories have in common is that cooperation is expected to be more common among similar individuals, even if the underlying mechanisms are different.

⁵ Yet another insight of Campbell (1994), related to Meyer's (1994) argument, deserves further attention: executives as parasites. His argument is that the executives' efforts to maximize their own fitness are likely to be at odds with the fitness of their firm. If so, we need to shift the level of analysis from firms to executives. In this paper, we developed a similar logic, arguing that particularly homogeneous top management teams may be more interested in their own team fitness than in the fitness of their firms. Combining this with Campbell's argument would imply that the likelihood of survival of a firm decreases with the homogeneity of its top management team. In their attempt to survive as a group, particularly if under threat, the executives as parasites will be involved in homosocial reproduction strategies that will negatively impact upon the survival chances of their host – i.e., the firm they are heading. In future work, we hope to test this hypothesis.

⁶ This suggests a further refinement of the argument. Top management team homogeneity is positively associated with inertia, because 'cloned' executives share a preference for similar routines. Such inertia can be an advantage or a disadvantage, from the organization's perspective. On the one hand, organizational ecology argues that such inertia is positively related with survival by providing a buffer against

changes that would harm the organization's accountability, reliability and reproduceability, as well as its identity. On the other hand, this inertia may turn into a disadvantage in turbulent times, since than the stifled routines may no longer fit with the new environmental conditions. So, it may be that top management team homogeneity is positively associated with the likelihood of organizational survival in stable environments, but negatively so in dynamic ones. Note that this hypothesis has already been explored in group research, providing evidence for the above logic (Boone et al., 2005).

⁷ A similar logic might be applied at the population level (cf. Miner & Haunschild, 1995; Miner & Anderson, 1999). Top management team reproduction may be either beneficial or harmful for the survival changes of the population as a whole by promoting organizational diversity, depending upon the nature of environmental change the population is facing.

⁸ Interestingly, this implies that organizational diversity will be relatively low in populations where entry to a specific profession is highly regulated and institutionalized by, for instance, professional associations – a proposition consistent with institutional theory (Meyer & Rowan, 1977; DiMaggio & Powell, 1983). In such cases, higher-order imitation and selection processes homogenize the pool of managerial talent that enters into an industry (for an example, see the Dutch audit industry: Maijor & van Witteloostuijn, 1996; cf. Campbell, 1994). More broadly, homophily processes may occur at the level of the population as a whole, rather of the organization. In the current paper, we ignore this case.

⁹ Both conditions are here taken to be exogenous. Of course, we could complicate the argument further by taking aboard endogeneity of this pair of conditions. For instance, clever top managers may be able to carve out new niches by creating new demand for

a novel product, or smart non-executives may decide to attract new types of executives from outside the current “population” of (potential) candidates. We leave these endogeneity issues for future work.

¹⁰ Note that this finding only appears after controlling for multi-market contact among rivals. As predicted, multi-market contact decreases rivalry because the threat of competitive retaliation increases when competitors meet in several markets (van Witteloostuijn & van Wegberg, 1992; van Wegberg & van Witteloostuijn, 2001). This underscores Gimeno and Woo’s plea to disentangle crowding from multi-market contact effects.

¹¹ Unlike Proposition 2, this proposition is formulated at the level of the organization, and not at the dyad level. This is because the dependent variable is organizational performance. It is not very meaningful to use an absolute distance measure of performance between two firms as a criterion variable.

¹² Note that as interaction effects are symmetric, we also expect that specialist organizations (i.e., with a large strategic distance from competitors) will perform well especially when their top management teams are homogeneously composed.