On the same side of the faultline : inclusion in the leader's subgroup and employee performance

On the Same Side of the Faultline: Inclusion in the Leader's Subgroup and Employee Performance

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ABSTRACT   Extending theory on faultlines and subgroups, we argue that faultlines splitting a team into homogeneous subgroups can have different effects on team members' individual performance, depending on different intra-subgroup processes. Specifically, we propose that the effect of faultline strength on individual performance depends on whether a team member's subgroup includes the team leader. Building on the notion of faultline triggers, we further propose that organizational crises exacerbate this interaction because they make social support by the team leader especially important. We tested these assumptions with objective performance data collected over a period of four years from 3263 financial consultants (325 teams) while controlling for the effects of relational demography. Results showed that in teams with strong faultlines, consultants' performance decreased to a lesser extent in crisis years if the consultants shared a subgroup with their team leader. Thus, faultlines had different effects on team members from different subgroups.

Keywords: faultlines, leadership, performance, subgroups, teams

INTRODUCTION

Complex and innovative tasks are usually delegated to teams (Morgeson et al., 2010; Salas et al., 2008), which have become the basis of modern organizations (Mathieu et al., 2014). At the same time, globalization and workforce mobility continuously increase the heterogeneity of organizations and work teams (van Knippenberg and Schippers, 2007). Therefore, the relationship between team composition, particularly team diversity, and employee performance has been the subject of extensive research (for reviews, see van Knippenberg and Schippers, 2007; Williams and O'Reilly, 1998). However, the findings have not been conclusive, and several recent meta-analytic findings showing no or negative main effects of diversity on team-level

outcomes (Bell et al., 2011; Guillaume et al., 2012; van Dijk et al., 2012; Webber and Donahue, 2001) contradict earlier meta-analyses that found positive effects (Bowers et al., 2000; Horwitz and Horwitz, 2007). As the studies making up this incoherent picture frequently investigated a single attribute or dimension of team diversity (e.g., gender, age, or deep-level diversity), researchers have turned to investigating the effect of the alignment of multiple diversity attributes on team outcomes. In contrast to traditional diversity research, this research focuses on faultlines, hypothetical dividing lines splitting a team in multiple, relatively homogeneous subgroups (Lau and Murnighan, 1998).

Similar to the extant research on team diversity, research on faultlines and subgroups produces findings that are increasingly inconsistent (Meyer, in press). While many earlier studies proposed and found negative effects of faultlines on team-level outcomes such as team performance and conflict (for a meta-analysis, see Thatcher and Patel, 2011), other recent studies found positive effects of certain types of faultlines on team-level outcomes (e.g., Bezrukova et al., 2009, 2012; Carton and Cummings, 2013), and, regardless of the direction, effect sizes are usually small (Thatcher and Patel, 2012).

While research on faultlines and subgroups has undoubtedly made a substantial contribution to the study of diverse teams, we argue that its exclusive focus on inter-subgroup team-level processes (e.g., team conflict) and outcomes (e.g., team performance) limits its potential. If subgroup splits affected the members of different subgroups in different ways, additional insights into the functioning of teams can be gained from predicting how the subgroup structure of a team affects the individual performance of its members. Solely investigating team-level outcomes might conceal such differential effects of faultlines and subgroups on individuals and might be one of the reasons for the increasing heterogeneity of findings at the team level. Our arguments mirror the recent observation that in team research, 'various nested levels within the team may be of relevance' and that diversity scholars have not yet integrated these different levels (Humphrey and Aime, 2014, p. 469). By proposing that different processes within subgroups shape individual-level outcomes, and that these can differ among members of the same team, we broaden the scope of research on faultlines and subgroups and adhere to recent calls for multi-level theories of team phenomena (Kozlowski, 2012).

The narrow focus of prior research on faultlines and subgroups on team-level outcomes also affects diversity management strategies in practice that seek to prevent the potential detrimental effects of faultlines. Prior findings advised practitioners to implement strategies that target all team members of teams characterized by faultlines in the same way, for example by recommending instilling pro-diversity beliefs (Homan et al., 2007). However, if it were known that certain team members are likely to suffer from subgroup splits while others are likely to profit from them, more nuanced diversity management strategies targeting different employees in different ways might be more fruitful for harvesting the inherent potential of the diverse workforce.

In the following, we therefore delineate how team-level faultlines affect *individual* team members' performance by inhibiting exchange and collaboration. We subsequently argue that, in the presence of faultlines, belonging to different subgroups

within a team moderates the effects of faultline strength on individual team members' performance due to the different processes occurring within these subgroups. Specifically, we propose that members of demographic identity-based subgroups, that is, subgroups whose members are assumed to share a common identity based on shared demographic characteristics (Carton and Cummings, 2012), are also more likely to share task-relevant resources. Thus, if one subgroup contains more resources than another one, members of different subgroups are likely to exhibit different levels of performance. We propose that this is especially the case if crises – acting as faultline triggers (Chrobot-Mason et al., 2009) – increase the importance of the resources of a certain member of an identity-based subgroup.

One concrete instance of such a phenomenon is the case where the team leader is a member of a subgroup of a team with a strong faultline. While, as we argue below, faultlines hinder team-wide exchange of task-relevant resources, the members of an identity-based subgroup that is formed by a strong faultline exhibit more interdependence among each other than with other members of their work team (Carton and Cummings, 2012). This increase in interdependence with the team leader provides subgroup members with better access to the team leader's resources (e.g., information, decision power). Hence, we propose that while faultlines have a negative impact on individual team members' performance, belonging to an identity-based subgroup that is created by a given faultline that includes the team leader can attenuate the effect of faultlines on individual team members.

In sum, this study aims at making several contributions to the research on subgroups and faultlines. First, we extend research on faultlines by advocating that faultlines can have differential effects on the individual performance of members of different subgroups, depending on the characteristics of the subgroup. Such an extension of the scope of faultline research below the team-level would also create more practical applications of the detection of faultlines and subgroups: as organizations usually measure and reward individual performance (McClurg, 2001), predicting these with applications of faultline and subgroup theories makes them more compatible with organizational practice. Second, we extend current conceptualizations of subgroup types by arguing that identity-based subgroups can expand to resource-based subgroups, if contextual circumstances (here: crises) make the resources that are held by a specific subgroup member (here: the team leader) especially important. Because we assume that the subgroup-related processes are different from those that are investigated in research on relational demography, we test our assumptions while controlling for the dyadic-level similarity of leader and followers regarding individual attributes.

FAULTLINES, SUBGROUPS, AND INDIVIDUAL PERFORMANCE

Faultlines are hypothetical dividing lines splitting a team into relatively homogeneous subgroups based on multiple attributes (Lau and Murnighan, 1998; Thatcher and Patel, 2012). For example, a medical team with six members can consist of three homogeneous subgroups (or dyads in this case): two young black nurses, two middle-aged Asian medical students, and two older white surgeons. In this team, the three attributes (ethnicity, age, and

profession) form a strong faultline splitting the six-person team into three hypothetical homogeneous subgroups. If the demographic attributes (i.e., ethnicity, age) defining the faultline are conceived as separation, that is, as signalling different identities (Harrison and Klein, 2007), the corresponding subgroups would be characterized as identity-based subgroups (Carton and Cummings, 2012). If the job-related attributes (nurses, medical students, surgeons) were conceived as denoting power and hierarchies by the investigator, the subgroups would be characterized as resource-based subgroups (Carton and Cummings, 2012).

Faultlines predict team-level outcomes beyond individual-attribute indices of team diversity (Lau and Murnighan, 2005) and faultlines in top management teams can affect the performance of an entire organization (Minichilli et al., 2010). Faultlines can be distinguished between hypothetical faultlines, which do not necessarily need to be perceived by team members, and perceived faultlines, where team members subjectively perceive the split of their team into subgroups. This distinction, which is also referred to as a distinction between dormant faultlines and active faultlines (Bezrukova et al., 2009; Jehn and Bezrukova, 2010), is similar to the distinction between objective diversity and subjective or perceived diversity (Shemla et al., 2014). Importantly, as meta-analytic evidence shows, dormant faultlines affect team processes and outcomes even if they are not perceived (Thatcher and Patel, 2012). In line with these researchers, we use the term faultlines and dormant faultlines synonymously.

Several psychological processes have been proposed to explain the potential negative influence of faultlines on team outcomes. Faultlines can be seen as an operationalization of comparative fit (Meyer et al., 2011), that is, of the extent to which observed similarities and differences between people are perceived as correlated with a division into social categories (Turner et al., 1987). Therefore, members of teams with a strong faultline are more likely to categorize fellow team members in other homogeneous subgroups as their out-group (Lau and Murnighan, 1998, 2005). Accordingly, the stronger the faultline, the higher the probability of an actual split into subgroups (Carton and Cummings, 2012, 2013), which are defined as subsets of two or more members of the same work team 'characterized by a form or degree of interdependence that is unique when compared to that of other members' (Carton and Cummings, 2012, p. 442). Distance theory (Brewer et al., 1993) also posits that members of a homogeneous subgroup will be motivated to assimilate themselves into their subgroup and to distance themselves from the other subgroups (for a review of these processes, see Thatcher and Patel, 2012). On the team level, all of these processes contribute to less social integration, lower levels of cohesion and identification, and, ultimately, lower levels of team performance.

Importantly, all of these processes are assumed to operate on the team level between subgroups. Indeed, all of the studies that Thatcher and Patel (2011, 2012) included in their meta-analyses investigated the relationships between faultlines and team-level outcomes. Recent subgroup theory (Carton and Cummings, 2012) also operates solely at the team level. We deem this team-level approach to the consequences of subgroups as problematic, because it – at least implicitly – assumes that similar processes occur in all subgroups. In this way, team-level theorizing about the consequences of faultlines washes out the differential effects of different within-team

relationships on different team members (cf. Humphrey and Aime, 2014). We thus propose that different processes can occur in different subgroups in the same team, and that these different processes therefore can lead to different outcomes for different members of the same team. In addition, given the possibility that differential effects below the team level might cancel each other out if aggregated to the team level, looking at the effects of faultlines on levels below the team level may help to explain why the team-level effects of faultlines are often small (Thatcher and Patel, 2012) and why some studies found positive effects that are difficult to reconcile with faultline theory.

Team performance emerges from individual team members' behaviour (e.g., Kozlowski, 2012; Larson, 2009) and their affective and cognitive states (Ilgen et al., 2005). Thus, if faultlines affect team-level performance, they have to affect individual team members. Recent theory on within-team coordination and performance (Crawford and LePine, 2013) suggests that the core process through which individual team members coordinate and perform is the formation and maintenance of task- and teamwork ties that facilitate coordination and exchange. Importantly, prior research has shown that team diversity impacts the formation of within-team network ties (Reagans et al., 2004) and that faultlines prevent the formation of network ties between members of different subgroups (Mäs et al., 2013; see also Meyer et al., 2015).

However, the number and characteristics of ties that connect individual team members with other team members influence individual cognitions (Schulte et al., 2012). Thus, if faultlines impact the formation of task and teamwork ties (Crawford and LePine, 2013; Mäs et al., 2013), they are also likely to affect individual team members' cognitions. For example, members of teams that are characterized by a strong faultline are likely to exhibit an increased level of social loafing, but to different extents, depending on differences in subgroup characteristics (Meyer et al., 2015). These arguments suggest that faultlines can negatively impact individual team member performance by affecting individual access to team knowledge and resources and by affecting individual team members' cognitive states. In the following, we delineate how subgroup-level processes shape this relationship.

Our argument that subgroup membership can moderate the effect of faultline strength on individual team-member performance is based on the possibility that homogeneous subgroups can be a strong source of social support (Thatcher and Patel, 2012). Therefore, different subgroup characteristics can translate into different levels of support. This idea is also in line with Carton and Cummings' (2012) theory of subgroups in work teams. They postulated that, depending on the focus of a given research and the context of hypotheses, subgroups can be conceptualized according to whether their members are homogeneous in their identity, resources, or task-relevant knowledge. As different tasks are known to favour different attributes of team members (e.g., Chatman et al., 2008), it is likely that in the case of homogeneous subgroups, some subgroups are better equipped than others to deal with certain task characteristics. The members having more access to resources may be primarily and more willing to share their resources with other members within their identity-based subgroup in comparison to the entire team. Therefore, even identity-based subgroups

may differ with regard to their access to task-relevant resources and information, because these are more likely to propagate within a given subgroup than between subgroups. In sum, these arguments suggest that in the case of strong faultlines, their effects on individual team members' performance are moderated by the characteristics of the focal team member's subgroup and by the processes occurring *within* them.

Collaboration in Identity-Based Subgroups

In this section, we elaborate the conditions under which belonging to a specific subgroup attenuates or amplifies the consequences of faultline strength on individual performance. Subgroups are assumed to have a strong impact on their members: they shape their members' identities (Yoon et al., 1994), acquisition, and use of task-relevant knowledge (Gibson and Vermeulen, 2003). Predicting performance differences between members of different identity-based subgroups is challenging, because different identities need not necessarily be related to different task abilities or task-relevant resources. For example, if age is used to distinguish identity-based subgroups (e.g., a subgroup of older and a subgroup of younger team members), members from the two subgroups need not necessarily differ in performance, as both young and old individuals can contribute equally to tasks, especially if they are complex (Wegge et al., 2008). In fact, it is one of the core assumptions of the categorization-elaboration model of team diversity (van Knippenberg et al., 2004) that members of different social categories can all contribute to team processes because of their different experiences and points of view.

However, a shared identity is assumed to lead to a high 'degree of interdependence' (Carton and Cummings, 2012, p. 442) among the members of a homogeneous identity-based subgroup. This proposition is in line with social network conceptualizations of faultlines and subgroups that suggest that the members of a homogeneous subgroup develop stronger network ties with each other than with team members from other subgroups (see above). These strong ties are known to be the channels through which information, advice, and social support propagate (Cross and Parker, 2004). If subgroup members form close ties on the basis of their identities, we deem it likely that the heterogeneous resources and experiences of the members of the identity-based subgroup are exchanged more freely within the subgroup than with members of a different subgroup (cf. Crawford and LePine, 2013). Thus, while being cut off from the resources of members of other subgroups, the members of an identity-based subgroup are likely to profit from task-relevant resources that are held by other members of their subgroup. A substantial body of literature on in-group favouritism (see, e.g., Chattopadhyay et al., 2004, for a review) supports this notion, as does self-categorization theory (Turner et al., 1987): it postulates that similarities on multiple dimensions will likely result in the salience of similarity, which, in turn, is likely to lead to more liking (i.e., the similarity–attraction-paradigm; Byrne, 1971) and trust (Lount, 2010). Both facilitate the exchange of task-relevant information (van Knippenberg et al., 2004). In sum, we argue that although strong faultlines separate individual team members from the resources of the members of the other subgroups, they bring them closer to the resources of their own identity-based subgroup. In the

following, we argue that an identity-based subgroup is likely to contain task-relevant resources if it includes the team leader.

The Role of the Leader

By definition, leaders of teams have more power and influence in the team than the other team members (Yukl, 1994) and, through their higher position in the organizational hierarchy, are more likely to have access to important information on the organizations' operations. We propose that in the case of strong faultlines and due to the processes delineated in the previous section, a leader who is a member of an identity-based subgroup is more likely to share access to these resources and information within the subgroup than with other team members outside the subgroup. Importantly, we propose that these processes operate *beyond the dyadic leader-follower* level: due to the within-subgroup interdependencies that exist within identity-based subgroups (Carton and Cummings, 2012), we assume that if the team leader shares important information or other task-relevant resources with another member of his or her identity-based subgroup, this subgroup member is in turn more likely to share these resources with other members of the subgroup as well. In other words, since the members of an identity-based subgroup exhibit a higher level of interdependence, the leader does not need to share his or her resources with all subgroup members for the resources to propagate to the entire subgroup. This view is also in line with recent findings showing that leadership has an impact on the development of within-team social networks (Zhang and Peterson, 2011).

It is important to emphasize that the subgroup-level dynamics, which we assume to operate in the presence of strong faultlines in identity-based subgroups containing the team leader, operate on a different level than the dyadic-level effects of leader similarity that have been investigated by researchers in the area of relational demography (e.g., Epitropaki and Martin, 1999; Riordan, 2000; Tsui et al., 2002, 1994). Based on the similarity–attraction paradigm (Byrne, 1971), this stream of research primarily investigated whether dyadic similarity on (demographic) attributes between leaders and their subordinates has positive effects on the subordinates. In contrast to the moderating process on the subgroup-level proposed above, this research assumed that an employee can only benefit from the leader's resources through an immediate direct dyadic exchange process. We propose that employees who are in the leader's identity-based subgroup can also benefit from the leader's resources if the leader shares them with *another* subgroup member, as we explained above.

Furthermore, subgroup research differs from relational demography research in its approach to studying differences. Whereas all available faultline measures rely on multiple attributes for determining the extent of a team's split into subgroups (Meyer and Glenz, 2013), relational demography research investigates individual attributes of similarity (e.g., age, tenure, and gender). Although some relational demography researchers have used composite measures combining several attributes (Ferris et al., 1994; Turban and Jones, 1988), Tsui et al. (2002) discouraged the use of such measures because of their ambiguous meaning (we address this issue below). Therefore, subgroup dynamics that are based on the similarity across multiple identities could

potentially be stronger than the dynamics that are based on single-attribute similarity. This argument is also mirrored in the somewhat inconsistent findings that single-attribute relational demography has produced: some researchers found positive effects (Epitropaki and Martin, 1999; Ferris et al., 1991; Tsui et al., 1994; Turban et al., 2002), some found no effect (Liden et al., 1993), and some found negative effects for similarity with regard to education and job tenure and positive effects with regard to age (Tsui et al., 2002).

In sum, our proposition that the inclusion of the team leader in an identity-based subgroup attenuates the detrimental effect of faultlines on individual team members' performance assumes a different process (i.e., subgroup dynamics) compared to relational demography research (dyadic dynamics). It is also situated on a different level (cross-level vs. dyadic) and builds upon faultlines based on multiple attributes rather than single-attribute similarities as investigated in relational demography research. Therefore, the processes that we postulate operate independently of the potential benefits or disadvantages of dyadic leader–member (demographic) similarity.

All in all, whereas prior faultline and subgroup research has proposed that identity-based faultlines are detrimental for all team members, we assume that subgroup dynamics influence individual team members' performance: if team members are in the leader's subgroup, this can attenuate the effects of faultlines. In other words, we assume that the contextual influence of a team's faultline structure has differential effects on individual members of different subgroups and thus, in line with Joshi and Roh (2009), construe the effects of team diversity in a contextual way. We propose:

> *Hypothesis 1*: When controlling for dyadic member–follower similarity, the effect of identity-based faultline strength on individual team members' performance is moderated by the leader's inclusion in a given team member's faultline-based subgroup: in the presence of strong faultlines, the inclusion of the team leader in a given team member's subgroup attenuates the detrimental effect of faultlines, whereas the leader's exclusion exacerbates the detrimental effects of faultlines on individual performance.

Organizational Crises as Amplifiers of Subgroup Splits

Precipitating events can exacerbate the activation of faultlines and the corresponding formation of subgroups (Chrobot-Mason et al., 2009; Jehn and Bezrukova, 2010). We propose that an organizational crisis is likely to act as such an amplifier for the effects of faultlines. An organizational crisis is defined as a low-probability, high-impact event that poses a threat to the organization (Pearson and Clair, 1998) as there is little time to respond and resources are potentially inadequate (Mishra, 1996). Crises have severe impacts on the social relations among employees and team members (Kahn et al., 2013). Importantly, in times of crisis, employees 'might draw very close to some individuals and groups for protection and support' (Kahn et al., 2013, p. 381). As identity-based subgroups can be a source of strong support (Thatcher and Patel, 2012), we believe that in the case of strong faultlines, it is very likely that team

members seek protection and support within their subgroup, that is, crises amplify the effects of faultlines in such a way that the subgroup structure that is created by the faultline becomes more consequential for team member performance.

As we argued above, some identity-based subgroups can provide better support than others, because particular subgroup members have access to more resources, as exemplified by the role of the team leader. Therefore, if crisis strikes, an identity-based subgroup that contains the leader might be a better source of support: faultlines are especially detrimental for information elaboration (Homan et al., 2007; Meyer and Schermuly, 2012), and hindered information elaboration should become more evident and therefore salient to team members in the case of an organizational crisis because they require information elaboration for dealing with them (Morgeson and DeRue, 2006). Thus, crisis situations render potential additional informational resources that are available to the leader especially valuable. Belonging to the leader's identity-based subgroup is vital in such situations because the leader is a potentially powerful source of protection and support. In other words, in the presence of strong faultlines, we believe that a team member's inclusion in the team leader's identity-based subgroup is helpful for coping with crises. More specifically, we propose that these team members are less severely affected by a crisis than their peers who are not part of the leader's subgroup: faultlines disrupt team members' access to the resources of the members of other subgroups and crises make these disruptions more consequential. However, still having access to the team leader because he/she is in one's subgroup may attenuate the detrimental combined effects of faultlines and organizational crises on individual performance. In sum, we propose that organizational crises, acting as faultline triggers, moderate the effects of faultlines and the leader's position in such a way that they exacerbate their effects on individual performance. We thus postulate:

> *Hypothesis 2*: When controlling for dyadic member–follower similarity, the occurrence of an organizational crisis moderates the interaction of identity-based faultlines and inclusion in the leader's subgroup on individual team members' performance: in the event of a crisis, being in the same subgroup as the team leader will attenuate the negative consequences of faultlines on individual performance to a stronger extent, while a crises will exacerbate the negative effect of faultlines on team performance in the absence of the team leader from a team members' subgroup.

Note that this three-way interaction hypothesis extends across multiple levels: an organizational crisis is hypothesized to moderate the effect of a team-level variable, faultlines, onto individual level performance, while the subgroup-level leader position is assumed to exert a further moderating influence. In this way, the theory adheres to calls for multi-level conceptualizations of organizational phenomena (Kozlowski, 2012) and for intra-team microdynamic approaches to team processes (Humphrey and Aime, 2014). This approach requires a task for which individual performance measures are meaningful and available. We therefore tested the hypotheses in a financial service organization where employees are integrated into a team structure but still have certain degrees of

freedom regarding the achievement of personal goals, as we explain in the following section.

METHODS

Sample

The sample consisted of 3263 financial consultants working in 325 teams in a large financial consulting company in Germany in the period between 2005 and 2008. There was a certain degree of fluctuation in the sample as not all consultants worked for the company throughout the whole time. There were 2318 consultants in the first measurement year, 2298 in the second, 2462 in the third, and 2507 in the fourth year, resulting in 9585 measurements of performance. Consultants were organized in teams and each team had one formal team leader (i.e., a unit manager): there were 250 teams in the first measurement year, 250 in the second, 244 in the third, and 249 in the fourth year. Over time, some teams continued to exist, some were discontinued, and some were newly formed. The conjoined set of unique teams across the four years consisted of 325 teams with an average size of 11.8 persons (SD = 3.70), including the team leader. The sample was diverse with regard to age (M = 34.47, SD = 6.33), tenure (M = 5.34 years, SD = 4.23), and gender (14% women). Demographic data was elicited from both the consultants and the team leaders. As our hypotheses make assumptions about team members' performance based on their relative position to the team leader, team leaders were excluded from the final sample (after determining their subgroup position, see below) as no hypotheses pertained to their performance. As these data were obtained from the organization, there were no missing values.

The consultants individually sell insurances and other financial products to private and small enterprise customers. However, team members interact with each other on a daily basis and rely on each other regarding information on the products. They hold formal weekly meetings under the supervision of their formal team leader and more frequent informal meetings. Moreover, they are under the supervision of a formal leader, who takes responsibility for their professional development and for communication with the higher management levels. Team members also share a secretary and the team leader's bonus is partially dependent on the performance of his or her team. Therefore, despite some competition, team members share a common goal (sell as many products as possible), perceive themselves as members of a team (due to their formal team membership, frequent team meetings, competition against other teams, and a formal leader), and are – at least to some extent – interdependent and rely on each other and on their team leader for task- and product-relevant information. As these features of the participants' work are aligned with the core features of group work (Larson, 2009), we deem this sample as appropriate for testing the hypotheses.

Measures

Performance. Consultants' performance was operationalized through their end-of-year sales-based commission, which we obtained from the files of the organization for each

of the four years. For anonymity and data protection reasons, the organization disclosed this information in the shape of a percentage measure indicating a person's commission level compared with the average commission level of the year 2004. The distribution of the performance measure followed a log-normal distribution: high performance scores occurred on the right tail of the distribution, with some deviating more than four standard deviations from the sample mean, some to extreme levels (i.e., a performance score of 1000 or higher). Therefore, in line with common statistical procedures (e.g., Bortz and Weber, 2005), we took the natural logarithm of the performance measure. This resulted in a normal distribution of the performance variable, which we subsequently Z-transformed. We subsequently removed a single measurement point that was more than eight standard deviations away from the sample mean (no other measurement points exceeded the mean for more than three standard deviations).

Crises. In the beginning of 2006, changes in German tax and financial legislation rendered a successful financial product of the company illegal. As a result, despite a rising economy in Germany (reflected in the annual mean DAX value; see Figure 1), the company suffered an extensive decline in performance from 2005 to 2006 (see Figure 1). Thus, the year 2006 was coded as a crisis. The organization started to adapt to this new situation in 2007, indicated by the slight rise in average performance. In 2008, the real estate market in the United States and in Europe collapsed, sending Germany into a recession (see Figure 1). Therefore, 2008 was also coded as a crisis year. In both 2006 and 2008, employees' average sales performance dropped in comparison to the previous year. As all organizations operating on the free market
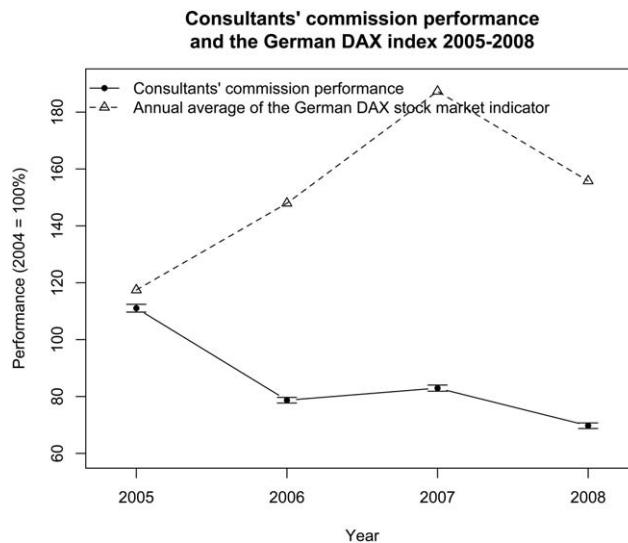

Figure 1. Consultants' mean commission performance across four years in comparison with the overall economic situation in Germany as represented by the DAX Stock Exchange Index. Note the onset of the economic crisis in 2008

thrive for growth, the fact that both of these years were associated with losses also underlines their conceptualization as crisis years.

Identity-based faultline strength. For each team in each year, we computed the strength of the faultline that can potentially split a team into subgroups with the average silhouette width (ASW) algorithm (Meyer and Glenz, 2013). Contrary to the most-frequently employed *Fau* measure of faultline strength (Thatcher et al., 2003), ASW does not assume the existence of two subgroups but detects the number of subgroups and their homogeneity in a given team with a cluster-analytic procedure. Further, contrary to the subgroup algorithm (Carton and Cummings, 2013), the ASW algorithm is suitable for teams of more than ten members (Meyer et al., 2014).

The ASW algorithm detects subgroups and calculates faultline strength with a procedure involving several steps (for details and an exhaustive example, see the appendix of Meyer and Glenz, 2013). First, for a given team, a cluster analysis determines a large set of possible subgroup partitions based on the distribution of team members' attributes. This cluster analysis starts with a subgroup configuration where each team member is placed in his or her own subgroup of size 1. As the cluster analysis continues in a stepwise way, clusters (i.e., subgroups) with very similar team members are merged into new larger subgroups. In each step, the two most similar subgroups are merged. After the final step, all team members are part of the same cluster encompassing the entire team. All intermediate steps (i.e., subgroup configurations) – from one subgroup per team member to one subgroup for all team members – are stored in the computer's memory. For each of these possible subgroup configurations, the algorithm subsequently computes the ASW value. It is the average of the so-called silhouette widths (Rousseeuw, 1987) that are calculated for each team member. Silhouette widths quantify how well a team member fits into his or her subgroup. Therefore, the *average* silhouette width (ASW) quantifies the average fit of all team members to their subgroup. The ASW value ranges between −1 and 1, where 1 represents the case where all identified subgroups are completely homogeneous. ASW is 0 if no homogeneous subgroups exist. Values below 0 characterize ill-formed subgroups where members of the same subgroup are more dissimilar to each other than to members of different subgroups. For a given team, the subgroup configuration returning the highest ASW value is chosen, and its according ASW value is returned. For each team, the algorithm also returns information on the subgroup configuration that resulted in the highest ASW value: the number of subgroups, which team member was placed into which subgroup, and the size of the given subgroup. As the ASW value quantifies the extent to which a team is split into homogeneous subgroups *and* also determines the quality of the subgroup partition for a given team, it represents a straightforward operationalization of the extent to which a team can be split into hypothetical homogeneous subgroups.

To determine the strength of identity-based faultlines, we calculated ASW across the three attributes gender, age, and tenure, all of which can underlie identity-based subgroups (Carton and Cummings, 2012). Gender was included because the financial industry is male-dominated and women are rare (Franco, 2007). As diversity attributes have to be interpreted in the context of their frequency within the organization,

underrepresented categories (i.e., organizational minorities) are likely to become more salient (Joshi and Roh, 2009), and are likely to have more guidance in determining one's own situational identity (Logel et al., 2009). Thus, gender was included due to its potential salience.

Age and tenure both have a long history in diversity research as proxies for different social identities. As Williams and O'Reilly (1998) noted in their review:

> Age is a visible demographic characteristic that, from the social categorization perspective, may easily affect group process. For example, individuals born at similar times may develop similar outlooks on life and shared experiences. From both a social categorization and similarity/attraction perspective, these similarities should increase the likelihood of shared values. (p. 102)

Such shared values are in turn the constituting element of identity-based subgroups (Carton and Cummings, 2012).

Tenure, although correlated with age, has a distinct meaning for employees' identities, as Williams and O'Reilly (1998) summarize: '[Pfeffer (1983)] argued that similarity in time of entry leads to increased communication which can promote integration and cohesion, as well as increasing similarity' (p. 93). Further, 'the assumption is that individuals identify with others who enter the organization or group at the same time' (p. 93). Thus, tenure (homogeneity) can constitute another important basis for shared organizational identities. To rule out the possibility that tenure, age, and gender were also informative of task-relevant resources, we controlled for their impact on performance as we explain below.

Team-level ASW faultline strength was calculated using the asw.cluster package in the supplemental material of Meyer and Glenz (2013) in R (R Development Core Team, 2013). Calculations resulted in an average ASW faultline strength of 0.74 (SD = 0.16), that is, teams tended to be split into homogeneous subgroups based on the employed attributes. The algorithm detected an average number of 3.21 subgroups per team (SD = 1.33). On average, subgroup size (excluding the team leader) was 5.54 (SD = 3.95). As team compositions changed from year to year, ASW was calculated for each team every year.

If a faultline algorithm delivers a low value, one cannot assume the presence of subgroups, which is why Carton and Cummings (2013) suggested a cut-off value. If the faultline strength in a given group is smaller than this value, the existence of subgroups cannot be assumed. Thus, importantly, if there are no subgroups to begin with, the team leader can also not be a member of a given subgroup. For this reason, the faultline strength and the position of the leader in the subgroup structure of the team are not independent of each other, which we consider in the analyses below.

In line with the subgroup algorithm (Carton and Cummings, 2013), we determined whether the presence of identity-based subgroups could be assumed or not for each team by employing a (conservative) cut-off value: following conventions in moderation analysis (Aiken and West, 1991), we assumed that it would be safe to say that teams whose ASW value was one standard deviation below the sample mean were cross-cut and did not include identity-based subgroups. Teams below this threshold received a

value of 0; for teams beyond this threshold where subgroups were likely, the extent of the faultline was denoted with the ASW value. This resulted in a detection of 718 subgroups in the first two measurement years, of 606 in the third, and of 629 in the fourth.

Leader inclusion in the subgroup. Next to the ASW faultline strength for a given team, the ASW algorithm also provides information on which team members were grouped into which subgroup and on subgroup sizes. If identity-based subgroups could be assumed in a team to at least some extent (see above), based on the information returned by the ASW algorithm, these were coded as 0 if they did not include the team leader and as 1 if they did. In the first measurement year, 711 consultants were grouped into their leaders' subgroup, and 1607 were not. In the second year, this ratio was 736 to 1562; it was 933 to 1529 in the third, and 1010 to 1497 in the fourth.

Control variables. We controlled for *team size* in the analysis, because team size can play an important role in the effects of diversity on individual outcomes (Wegge et al., 2008). We also controlled for *number of subgroups* in a given team, because there are potentially different processes in teams with more subgroups than with fewer (i.e., two) subgroups (Carton and Cummings, 2012). In the presence of strong faultlines, we also controlled for *subgroup size*.

Besides their meaning for team members' social identities, gender, age, and tenure can also influence performance. To be able to interpret potential effects of subgroups based on these three attributes as identity-based, we tested the hypothesis while controlling for the impact of *age*, *gender*, and *tenure* on individual team members' performance.

Furthermore, team diversity with regard to the attributes constituting a faultline and faultline strength tend to be correlated, because faultlines are most likely in the case of medium levels of diversity (Lau and Murnighan, 1998). Therefore, we controlled for *gender diversity*, operationalized with the Blau index (Blau, 1977), and for *age* and *tenure diversity*, which we operationalized with the according within-team standard deviations.

In our sample, a large number of consultants changed teams between the years. We thus controlled for *team change* by adding a dichotomous measurement time-level variable to the model that was coded as 0 if a consultant's team in a given year was the same as in the previous year and as 1 if it was not. In the first year, this variable was set to 0 for all consultants.

The hypotheses propose that the interaction between faultline strength and consultants' inclusion in the team leader's subgroup influences performance while controlling for relational demography. We therefore controlled for the dyadic leader–subordinate gender similarity (coded as 0 = different gender and 1 = same gender), for the dyadic leader–subordinate age similarity (computed by subtracting the subordinate's age from the leader's age; see Tsui et al., 2002), and for dyadic leader–subordinate tenure similarity, which was coded analogously. We deliberately chose to not combine these three attributes into one compound measure of dyadic

leader–follower similarity for two reasons. First, prior research on relational demography has explicitly discouraged the use of such compound measures due to their arbitrary meaning (Tsui et al., 2002). Second, there is no consensus on how to weigh attributes with different scales (e.g., age and gender) when combining them into a single-attribute individual-level distance measure such as the Euclidean distance. This absence of guidelines for combining multiple dimensions into one measure in relational demography research stands in strong contrast to the faultline literature, where this issue has been elaborated and where solutions have been suggested (Zanutto et al., 2011) and implemented in the ASW algorithm (Meyer et al., 2014).

Analysis strategy. We specified the model as a discontinuous multilevel growth model (Bliese et al., 2007) with four measurement time points of individual performance as dependent variable. Across these, the organizational crises were coded as 0,1,0,1 (meaning that a crisis occurred in the second year and in the last year). The model further included a linear effect of measurement time.

RESULTS

Level Issues

The analyses span four levels: measurement time, individual, subgroup, and team. Repeated measurements of performance within consultants were non-independent $(ICC(1) = 0.56, F(3262,6321) = 4.79, p < 0.001)$. Consultants were also distinguishable with regard to their mean levels of performance $(ICC(2) = 0.79)$. To a significant extent, consultants' commission performance was also dependent on their team membership $(ICC(1) = 0.14, F(324,9259) = 5.62, p < 0.001)$, and teams were distinguishable with regard to their mean levels of performance $(ICC(2) = 0.82)$, adding further credibility to our assumption of consultants' within-team interdependence. Importantly, performance was also non-independent within the ASW-identified subgroups $(ICC(1) = 0.17, F(1197,2613) = 2.66, p < 0.001)$, and subgroups were distinguishable with regard to their mean levels of performance $(ICC(2) = 0.62)$. This finding already indicates that subgroup characteristics play a role in the determination of individual team members' performance.

We analysed the hierarchical data with the lme4 package (Bates et al., 2011) in R (R Development Core Team, 2012). To identify the random effects structure, we followed the recommendations of Bliese (2009) and Bliese and Ployhart (2002): we started testing the proposed relationships with simpler models and added random effects in a stepwise way, comparing the -2 log-likelihood-based model fits for selecting the best-fitting baseline model. To this baseline model, we added the predictors comprising our hypotheses in a stepwise way.

As team membership of some consultants changed from year to year, the performance measure of a specific consultant was sometimes associated with one team in a given year, but with another team in the next year. Therefore, a model where measurements are nested in consultants and years independently appeared plausible. We

therefore specified a four-level random-intercept model with crossed random effects (Maindonald and Braun, 2010) and tested whether it fitted to the data better than a conventional four-level model. Indeed, the model with crossed random effects fitted better ($\Delta\chi_{(0)}^2 = 1398.70$, p < 0.001).

We compared this model to a corresponding random-intercept-and-slopes model that allowed the relationship between performance and crisis to vary freely between consultants and teams. This model fitted the data significantly better than the random-intercept model ($\Delta\chi_{(6)}^2 = 51.84$, p < 0.001). This means that there was significant variation in the measurement-time level effect of crisis on performance between consultants and between teams. This model also fitted significantly better than a three-level random-slopes model that did not take the subgroup level into account ($\Delta\chi_{(3)}^2 = 11.86$, p < 0.01). We subsequently tried to explain the between-consultant, between-subgroup, and between-team variances of performance by adding further predictors to this initial baseline model.

As a next step, we added the control variables and the main effect of the identity-based faultline strength to the model. Of note, the number of subgroups and the subgroup size are only meaningful predictors if subgroups are present. Therefore, we added these predictors in interaction with a dummy-coded dichotomous variable that indicated whether subgroups were present, coded as 1, or not, coded as 0. The model is summarized in Step 1 of Table I.

Faultline Strength and Leader Inclusion in the Subgroup

Hypothesis 1 predicted that in the presence of splits into homogeneous subgroups, stronger splits lead to higher performance if the subgroup includes the team leader. To test it, we included the subgroup-level variable that denotes whether a subgroup contained the team leader or not to the previous model, as well as its interaction with the faultline strength; see Step 2 in Table I. In rejection of the hypothesis, the interaction term was not significant.

Hypothesis 2 predicted that faultline strength has a stronger impact on individual performance if the team member's subgroup includes the team leader and if the organization experiences a crisis. To test it, we included the three-way interaction between faultline strength, leader inclusion, and presence of a crisis in the model. Since the variable denoting ASW-based faultline strength carried the value of 0 in the absence of subgroups, the entire term equalled 0 in this case. In this way, the interaction term contrasted groups with a faultline and subgroups, in interaction with the extent of the split, leader inclusion, and crises, with groups with no subgroups. In this model, we also controlled for the two-way interaction between faultline strength and crises and for the two-way interaction between faultline strength and inclusion of the team leader in the subgroup. Note that we deliberately did not include the two-way interaction between crisis and inclusion of the team leader in the subgroup, because the inclusion of the team leader in the subgroup is only meaningful if faultlines are present in the first case. If there are no faultlines, the ASW measure is 0, and this case is already covered by the three-way interaction between ASW-based faultlines, inclusion of the team leader in the subgroup, and crisis, as described above. In other words,

Table I. Random coefficient models regressing the z-transformed performance score on independent and control variables (9585 measurements on level 1, N = 3263 unique individuals across years on level 2, N_{sg} = 1195 unique subgroups across years on level 3, and N_g = 325 teams on level 4)

	Step 1 γ (SE)	Step 2 γ (SE)	Step 3 γ (SE)
Fixed Effects Level 1			
Intercept	0.57 (0.22)*	0.56 (0.22)*	0.48 (0.22)*
Measurement time	−0.26 (0.01)***	−0.26 (0.01)***	−0.26 (0.01)***
Crisis (S)	−0.21 (0.02)***	−0.21 (0.02)***	−0.11 (0.04)**
Fixed Effects Level 2			
Age	−0.02 (0.01)***	−0.02 (0.01)***	−0.02 (0.01)***
Gender	0.05 (0.07)	0.05 (0.07)	0.06 (0.07)
Tenure	0.07 (0.01)***	0.07 (0.01)***	0.06 (0.01)***
Age difference	−0.02 (0.01)**	−0.02 (0.01)**	−0.02 (0.01)**
Gender difference	<0.01 (0.03)	<0.01 (0.03)	<0.01 (0.03)
Tenure differences	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Change of team	−0.02 (0.02)	−0.02 (0.02)	−0.02 (0.02)
Fixed Effects Level 3			
Subgroup size*	<0.01 (<0.001)	<0.01 (<0.001)	<0.01 (<0.001)
Subgroup includes team leader (L)*		0.03 (0.05)	0.03 (0.05)
Fixed Effects Level 4			
Age diversity (SD)	−0.01 (0.01)	−0.01 (0.01)	−0.01 (0.01)
Gender diversity (blau)	−0.05 (0.09)	−0.05 (0.09)	−0.04 (0.09)
Tenure Diversity	0.08 (0.02)***	0.08 (0.02)***	0.08 (0.02)***
Identity-based faultline strength (ASW)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)
Number of subgroups*	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)
Cross-level interactions			
ASW × L		0.01 (0.08)	0.24 (0.30)
ASW × Crisis			−0.28 (0.07)***
ASW × L × Crisis			0.15 (0.05)**
Random Effect Variances			
Intercept (Level 2)	0.65	0.64	0.65
Crisis (Level 2)	0.01	0.01	0.01
Intercept (Level 3)	6.09×10^{-10}	0.02	0.00
Crisis (Level 3)	1.15×10^{-8}	0.03	1.66×10^{-10}
Intercept (Level 4)	0.09	0.08	0.08
Crisis (Level 4)	0.02	0.01	0.02
Residual	0.57	0.57	0.57
AIC	22617.47	22609.96	22607.51

Notes: [a]In interaction with subgroup presence, i.e., in those groups that contained subgroups (see text); *p < 0.05; **p < 0.01; ***p < 0.001 (two-tailed).

because of the dependency between the two variables faultline strength and inclusion of the team leader in the subgroup, the two-way interaction between the two is included in the three-way interaction described above, and an inclusion of both would

result in a correlation of 1 between the terms, leading to a failure of the model to converge.

The final model is presented in Step 3 in Table I. The significance of the three-way interaction indicated potential support for Hypothesis 2. To facilitate the interpretation of the interaction, we employed the fitted model to predict performance values under the two conditions of the crisis variable (no crisis/crisis) under three further conditions: for the case of an absence of faultlines, for the case of strong faultlines where the subgroup includes the leader, and for the case where the subgroup does not include the leader; see Figure 2.

The shape of the interaction supports Hypothesis 2: in crisis years, strong faultlines were associated with higher individual performance if the subgroup included the team leader in comparison to cases where it did not include the team leader. Thus, in crisis years, being in the same subgroup as the leader attenuated the negative effects of faultlines during crises. Surprisingly, in years that were not coded as crisis years, consultants' performance generally seemed to profit from faultlines. We will address these findings in the discussion section below.

Hypothesis 2 warrants testing whether the slope of the performance score between crisis years and non-crises years differs between consultants who were classified as
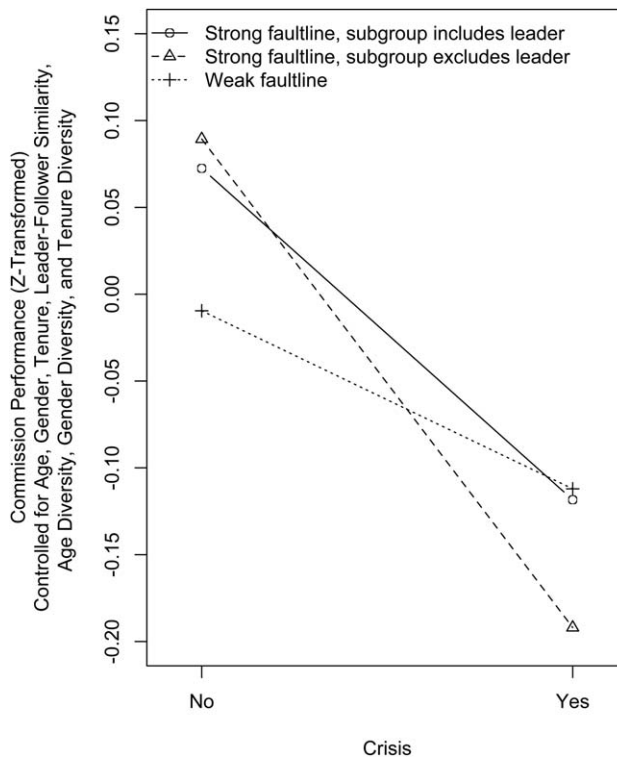

Figure 2. Performance as a function of organizational crises, extent of ASW-based identity-based faultline strength, and inclusion of the leader in the subgroup under control of measurement time, demographic variables, relational demography variables, and team diversity indicators (see text).

belonging to the leader's subgroup and consultants who were not. However, simple slope and slope difference tests for three-way interactions (Dawson and Richter, 2006) are not defined for discontinuous mixed models with custom cross-level interactions as in the current case. We therefore obtained an approximation of the slope difference via non-parametric bootstrapping: employing the subsamples of observations for teams with strong faultlines only, we obtained 1000 estimates for the slope for those participants that were classified as belonging to the leader's subgroup and 1000 estimates for the slope for those who were not. These resulted in 1000 estimates of the slope difference (M = 0.11, SD = 0.004). Using the sample estimate of the standard error as denominator, this slope difference resulted in a z-value of 26.20 (p < 0.001), which we interpret as further support for Hypothesis 2.

Calculations of pseudo-R^2 values are not meaningful in the presence of cross-level interactions (Bliese, 2009), especially not in the case of crossed random effects (Maindonald and Braun, 2010) as the assignment of variance components to the different levels of the model becomes arbitrary. For this reason, the result that the inclusion of faultlines and leader inclusion as explanatory variables of the variance of crisis explained almost 98% of the variance of the crisis slope on the subgroup level (see the variances in Table I) is most certainly inflated. However, the finding that the interaction effects reported above are responsible for a span of almost 0.30 standard deviations of the performance variable (see Figure 2) underlines its significance. The good fit of the final model that included the three-way interaction also becomes evident in its AIC value, which, despite the larger number of predictors, is below the AIC of the initial model; see Table I.

Finally, as a further robustness check, we re-ran the analysis while excluding the 505 measurements (out of initially 9585) where team members were placed into a subgroup that contained only themselves. This led to the same pattern of effects, that is, all terms exhibiting significance in the third step of the initial model (see Table I) were also significant in this supplementary analysis, albeit the level of significance of the two-way interaction of faultline strength × crisis dropped from p < 0.001 to p < 0.01, and the level of significance dropped from p < 0.01 to p < 0.05 for the three-way interaction, potentially due to the weaker power of the supplemental model. This finding underlines our assumption that the moderating processes operate at the subgroup-level of analysis.

DISCUSSION

We argued that different features of different subgroups within the same team can affect its members in different ways. Specifically, we hypothesized that faultlines negatively impact individual team members' performance, that crises strengthen this relationship, and that being in the same subgroup as the team leader weakens it. Our results partially support the hypotheses: faultlines had no negative main effect on individual performance. However, they did impair individual team members' performance in times of crises and this effect was exacerbated if a team member's subgroup excluded their team leader. If a team member's subgroup did include the team leader, the effect of faultlines on team member performance during crises was

attenuated. However, in the non-crisis years, employees in teams with strong faultlines outperformed employees in teams without subgroups, and members of leaderless identity-based subgroups performed even slightly better than members in the same subgroups as the team leader.

With these results, our paper contributes to research on faultlines and subgroups in several ways. First, to our best knowledge, it is the first empirical study that takes a differential cross-level perspective regarding the influences of faultlines and subgroups on individual team members' performance and reveals beneficial effects (i.e., attenuation of the effects of crises) for some team members but detrimental effects (i.e., exacerbation of the effects of crises) for others. This finding highlights the importance of conceptualizing team processes in ways below the team level, as recently advocated by several researchers (Guillaume et al., 2014; Humphrey and Aime, 2014; Kozlowski, 2012; Mathieu et al., 2014).

If our study had simply investigated how team-level faultlines affect between-team variance of team performance, it would have resulted in the finding that faultlines exacerbate the impact of crises on performance. Only by taking the subgroup level into account were we able to show that in the face of a crisis, some subgroups actually *profit* from faultlines, because they include the team leader. This example shows that there is much to learn from taking a subgroup-level approach to the study of faultlines and subgroups. The importance of subgroup-level processes is further illustrated by the finding that they operate on top of the effects of relational demography, that is, they go beyond dyadic leader–member demographic similarity. In replication of the findings by Tsui et al. (2002), age similarity between team members and the team leader had a positive effect on team members' performance, but, as in Tsui et al.'s study, gender and tenure similarity did not. The fact that faultlines based on age, tenure, and gender had an effect on individual performance while controlling for the aforementioned dyadic effects indicates that leader–member dyadic similarities and subgroup processes operate simultaneously and – at least to some degree – independently of each other. The subgroup processes that we investigated also appeared to operate beyond individual-level demographic effects, that is, beyond a negative impact of age and a positive impact of tenure on individual consultants' performance. This finding also shows that the subgroups that we investigated were not resource-based subgroups. If gender, tenure, and age had all been indicative of resources, they would have had to positively correlate with consultants' performance. However, age was negatively related to performance, tenure was positively related, and gender was unrelated to performance. In sum, these observations speak in favour of subgroup-level processes that operate beyond individual, dyadic, and team-level processes of diversity.

Second, the paper also illustrates the importance of taking the broader organizational contexts into account when studying faultlines and subgroups (Thatcher and Patel, 2011, 2012): the rejection of Hypothesis 1, which proposed an interacting effect of faultline-based subgroup splits and sharing a subgroup with the team leader on employee performance, might have resulted from the differential influences of faultlines in different organizational circumstances. As our findings show, if an organization is functioning well, that is, in the absence of a crisis, members of leaderless

subgroups in teams with strong faultlines might have dared to be more experimental and innovative, which is in line with Nishii and Goncalo's (2008) proposition that under certain circumstances, faultlines might boost team members' creativity. This process might account for their (small) superior performance in comparison with subgroups that did include team leaders in times of stability. However, members of these leaderless subgroups in teams with strong faultlines suffered to the strongest extent when a crisis struck, possibly because they were cut off from team leaders' information and resources that are vital for surviving the predicament. This would also explain why the members of leaders' identity-based subgroups performed as well as members of teams without faultlines: as faultlines are assumed to hinder the team-wide exchange of task-relevant information (Homan et al., 2007; Lau and Murnighan, 1998), the absence of subgroups in teams potentially provided access to team leaders' valuable information and resources to all team members in times of crisis, although some individual dyadic effects occurred as the positive impact of leader–follower age similarity on performance demonstrates. The finding that faultline strength as quantified with the ASW measure only impacted individual performance in times of crises also supports the notion that to become meaningful, certain events need to trigger the salience of faultlines (Chrobot-Mason et al., 2009).

Third, by showing that the position of a team leader within the subgroup structure of a team matters, our study underlines the importance of leadership in the context of subgroups (which has already been established in research on team diversity in general; e.g., Gratton et al., 2007; Kearney and Gebert, 2009). To this regard, our findings point towards the possibility that subgroups forming along identity-based faultlines might be an antecedent of differential leadership (Wu et al., 2010). We revisit this possibility in the discussion of further research avenues below. Moreover, the role of leadership in teams that are characterized by faultlines also differs across organizational circumstances: echoing previous researchers' emphasis on the role of leadership during organizational crises (Grant and Mack, 2004), our findings indicate that leadership dynamics in teams with strong faultlines were especially powerful in turbulent times.

Fourth, our finding that the performance of members of the same team can be affected in different ways by faultlines and subgroups may also have implications for team diversity research as a whole. So far, meta-analyses have been unable to identify consistent effects of team-level diversity on team-level outcomes (e.g., Bell et al., 2011; Guillaume et al., 2014; van Dijk et al., 2012). Our findings point towards the possibility that team diversity in general can affect different team members in different ways, which could be masked if aggregated to the team level.

On a methodological level, our results demonstrate the importance of employing a faultline measure that does not presuppose two homogeneous subgroups. On average, the teams in our sample had about three homogeneous subgroups. A measure presupposing two subgroups, such as the frequently-employed *Fau* (Thatcher et al., 2003) or *Fau × Distance* (Bezrukova et al., 2009), would have underestimated the homogeneity of the subgroups and would have led to different results. Thus, our findings call for the application of advanced clustering procedures such as ASW (Meyer and Glenz, 2013; Meyer et al., 2014) in faultline research.

Finally, our results showed that over the years, the percentage of employees that were categorized as being in the leader's in-group in the presence of strong faultlines steadily increased from 41 per cent in the first measurement year to 66 per cent in the last. This could indicate that employees who are a member of their leader's identity-based subgroup in the presence of strong faultlines are more likely to remain in the organization; future research could thus investigate turnover (intentions) as a potential consequence of faultlines.

Practical Implications

Our findings also have several practical implications. First, they show that team composition matters for employees' performance, especially if the organization faces difficult times. If diversity in teams increases the likelihood of the formation of relatively homogeneous subgroups, these subgroups can become an important source of advice and information. In the face of a crisis, employees' performance can partly depend on the task-relevant resources that they find within their subgroup. That is why, in our investigation, employees performed comparatively well in the face of a crisis if their subgroup contained the team leader – or if their team contained no subgroups at all. In this way, subgroups can have positive effects on some employees and detrimental effects on others. In our investigation however, less than a third of the employees benefitted from their position within the subgroup structure of their team.

The finding that diversity-based faultlines can have different effects on different team members has profound consequences on strategies for managing diversity. Prior studies on team-level consequences of faultlines suggested diversity management practices that do not distinguish between members of different subgroups or different social categories, for example the instilment of pro-diversity beliefs (Homan et al., 2007; van Dick et al., 2008), the implementation of goal structures that cross the subgroup structure of teams (Rico et al., 2012), and the establishment of high levels of task motivation (Meyer and Schermuly, 2012). However, our findings suggest that resources for diversity management practices could be employed best if they were used to address the needs of those who are impaired by their environment's diversity-based subgroup structure to the strongest extent. In our study, this applied to those members of the organization who were most dissimilar to their team leader in terms of their age, gender, and tenure. In this case, a successful diversity management strategy might be to motivate the team leaders to interact with these individuals as frequently as with their in-group. In other words, our results show that all team members can profit from good team leadership if the team leaders do not distribute their attention differentially (e.g., by favouring their in-group) but adapt more of a 'we'-focused leadership style towards all team members without treating certain employees more favourably than others (Wu et al., 2010). Our results indicate that that is more likely to happen in teams where splits into homogeneous subgroups are less likely.

Limitations

We see the biggest limitation of our study in the absence of subjective psychological process data. Although we tried to infer identity-based subgroup processes through

faultline-based detection of subgroups, we can only infer the assumed underlying process. Unfortunately, the organization did not provide us with questionnaire access to the teams; it would have been ideal to show that the process postulated here is mediated by team members' perceptions of differential leadership (Wu et al., 2010). Increased levels of perceived relationship quality, as captured by the leader–member exchange (LMX) construct (Graen and Uhl-Bien, 1995), would also be a likely mediating process that explains the positive effects of being in the same identity-based subgroup as the team leader in the face of strong faultlines during times of crisis. Furthermore, regardless of the position of the team leader within the subgroup structure of the team, it would have been interesting to investigate whether employees experience a higher level of exchange quality with members of their own subgroup (e.g., perceived team member exchange, Seers, 1989).

While our study explored the effects of faultlines and – in the case of strong faultlines – subgroups while controlling for vertical dyadic similarity (i.e., for similarity between a given team member and the team leader), we did not explore horizontal relational demography, that is, similarity between a given team member and all other team members in our analysis. While such horizontal dyadic similarities might also serve as the basis for alternative explanations of our findings, their analysis would require more extensive elaborations regarding the conceptual and statistical overlap between measures of horizontal relational demography, faultline strength, and subgroup size and configurations.

The effects of the interactions between faultline strength, subgroup membership, and crises on performance were small, visible in the small decrease of the AIC value across the models and also in Figure 2. We believe that this is not surprising, however: individual sales performance over the course of an entire year operationalizes the result of a highly complex behaviour, influenced by countless variables and process dynamics. Since relatively simple psychological models can never explain large portions of variance of complex social human behaviour, effects were expected to be small, and we believe that this does not necessarily speak against the theory.

CONCLUSIONS

Our findings indicate that when members and leaders find themselves in the same homogeneous subgroup in a diverse team characterized by a faultline, team members perform better in the face of organizational crises. In this way, we showed that employing faultline algorithms is a viable tool for moving research on faultlines and subgroups beyond the team level. Our model and analysis therefore mark a way for deriving even more information from the distribution of diversity attributes within teams and organizations. In sum, the findings of this study underline the importance of multilevel and contextual investigation of the effects of diversity and subgroups on team members' performance.

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