

Maximilian M. Wachter

Empirical Studies on the Economic Consequences of Corporate Governance

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First Supervisor: Prof. Dr. Sabine Rau

Second Supervisor: Prof. Franz Kellermanns, Ph.D.

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ABBREVIATIONS

#	Number of observations
β	Slope coefficient
B	Standardized slope coefficient
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht ¹
BAM	Behavioral agency model
CAAR	Cumulative average abnormal return
CEO	Chief executive officer
CV	Coefficient of variation
e.g.	Exempli gratia; for example
i.e.	Id est; that is
F	F-value
FE	Fixed effects
H	Hypothesis
IPO	Initial public offering
KSA	Knowledge, skills and abilities
ln	Natural logarithm
p	P-value
p25	25th percentile
p50	Median
p75	75th percentile
Ph.D.	Doctor of philosophy

¹ German Federal Financial Supervisory Authority

Prof.	Professor
R ²	Coefficient of determination
ROA	Return on assets
SD	Standard deviation
SEW	Socioemotional wealth
SIC	Standard industrial classification
SME	Small and medium sized enterprises
TMT	Top management team
U.K.	United Kingdom
U.S.	United States
w/o	Without
WHU	Wissenschaftliche Hochschule für Unternehmensführung
WpHG	Wertpapierhandelsgesetz ²
Y	Yes

² German law on securities trading

INTRODUCTION TO THE THESIS

Background on Corporate Governance

Corporate governance is concerned about the question how investors can preserve their invested capital and assure an appropriate return (Shleifer & Vishny, 1997). This is of particular interest because the owners, as principals, typically engage managers with specialized human capital, as agents, in order to generate returns on their funds. However, as managers pursue their own agenda they will not always act in the best interests of the owners (Jensen & Meckling, 1976). Accordingly, the separation of ownership and control results in a conflict of interest that is called agency conflict.

In principle, the management and the owners can agree on a complete contract that specifies managerial behavior in all circumstances. However, due to transaction costs and information asymmetries, complete contracts are infeasible (e.g. Akerlof, 1970; Williamson, 1975). Therefore, the management receives residual control rights to allocate the funds of the owners (Grossman & Hart, 1986). This managerial discretion can end up in shareholder expropriation. Specifically, managers might allocate investors' funds for private benefits (e.g. Baumol, 1959; Jensen, 1986; Williamson, 1964) or entrench themselves in order to stay on the job although they are not competent anymore (Shleifer & Vishny, 1989).

Thus, shareholders have a strong incentive to monitor the management. By analyzing information, owners are able to evaluate managerial decision-making, intervene, if necessary, and consequently limit managerial discretion (Maug, 1998). However, monitoring requires time and resources and hence shareholders have to consider their personal costs and benefits of monitoring (Almazan, Hartzell, & Starks, 2005). Whereas the costs are rather a fixed-cost component, the benefits

strongly depend on the owner's ability to exert influence (e.g. Desender, Aguilera, Crespi, & Garcia-Cestona, 2013). This power can be legally guaranteed, e.g., in terms of a certain ownership stake, or be acquired by having exposure to firm-specific knowledge as well as through organizational tenure (e.g. Bunderson, 2003). Therefore, the monitoring efforts of shareholders strongly depend on their formal and informal power. In order to better understand this issue, this thesis discusses the economic consequences of ownership structure and power.

First, the ownership structure determines the inherent resources of the owner group and the functioning of group processes that, in turn, affect performance (e.g. O'Reilly & Williams, 1998). The idea that differences in group composition result in different choices and ultimately in different performance outcomes refers to Hambrick and Mason's (1984) paper on top management teams (TMTs). Numerous studies showed that differences in terms of demographic characteristics affect strategic firm behavior, organizational performance and market reactions (e.g. Campbell & Minguez-Vera, 2010; Joshi & Roh, 2009; Triana, Miller, & Trzebiatowski, 2014). As different owners bring in different perspectives (e.g. Desender et al., 2013) and different capabilities (e.g. Mahmood, Zhu, & Zajac, 2011), this dissertation project examines how ownership composition affects organizational performance and how power disparity, i.e. inequality of ownership shares between the owners, moderates this relationship.

Second, more powerful owners increase the overall monitoring efforts due to their higher incentive to do so and their increased ability to exercise influence (Shleifer & Vishny, 1997). However, shareholders' objectives differ (Krause, Whitley, & Semadeni, 2014). Therefore, the identity of a so-called blockholder, i. e. a shareholder controlling a significant share of the company, is an important

dimension when examining corporate strategy and performance because it implies certain objectives when exercising power (e.g. Desender et al., 2013; Thomsen & Pedersen, 2000). Accordingly, this project aims at better understanding one type of blockholder, namely family blockholders, as a first step to unpack this heterogeneity.

Finally, the power base of owners not only depends on their legally-privileged status but also on their informal power. Particularly, founders play a crucial role in corporate governance as they have imprinted the organization since its origin, have long-lasting informal ties inside and outside of the organization and pursue a unique vision where to take the firm (e.g. Block, 2012; Geroski, Mata, & Portugal, 2010; Jaskiewicz, Combs, & Rau, 2015). These firm-specific resources enable founders to monitor at much lower costs and to better assess the prospects of the firm (Busenitz, Fiet, & Moesel, 2005; Desender et al., 2013). Therefore, this project examines whether informal power impacts the market perception of owners or more specific, how the market reacts to signals sent by founders.

Research Objective

The overarching objective of this thesis is to expand our knowledge on corporate governance, in general, and on ownership constellations, in particular. This thesis consists of three empirical studies, that each individually addresses important aspects of ownership and power on three dimensions. The studies specifically examine the effects of ownership composition and power distribution, the effects of differing preferences of powerful blockholder types and the effects of the implicit power of founders on different levels of economic outcomes, i.e. performance, strategic decisions and market reactions. Table 0-1 provides an overview of these studies.

Table 0-1: Overview of the three Studies in this Thesis

	Study 1	Study 2	Study 3
Title	Owner diversity and performance effects	Takeover premiums and family blockholders	Signaling theory and share purchases by firm founders
Research question	Under what conditions will the benefits of team diversity outweigh the drawbacks?	How do different blockholder types affect strategic firm decisions?	How do different insider types impact signal strength toward other stakeholders at a post IPO stage?
Theoretical foundation	Cognitive resource perspective and social categorization	Socioemotional wealth and the behavioral agency model	Signaling theory
Main theoretical contribution	The study shows that the level of diversity is crucial for organizational outcomes and that power provides boundary conditions for this finding.	The study submits that family blockholders' problem framing and loss aversion result in significantly lower takeover premiums and that this relationship is reinforced in the case of a family CEO.	The study demonstrates that a founder not only strongly impacts the respective firm in early stages, but also (at least in investors' perception) after an IPO. Additionally, the study implies that signal strength increasing elements are not necessarily additive.
Methodology	Quadratic least square regression	Ordinary least square regression	Event study
Sample	514 082 firm-year observations for German SME's	149 German takeover offers	3 023 German insider transactions
Dependent variable	Performance in terms of return on assets (ROA)	The natural logarithm (in percentage) of the price offered on top of the 3-months weighted stock average before the first announcement.	The cumulative average abnormal return (CAAR) on the announcement day and the day after based on the market model for a period of 41 days .
Publication	Unpublished manuscript	This study is published in the Family Business Review (forthcoming)	Unpublished manuscript

The studies are linked in the following way: Study 1 examines how the composition of an owner group and the distribution of power within that group impact organizational outcomes. Literature on group composition and diversity suggests that different constellations result in different group dynamics and, in turn, in varying performance outcomes (e.g. Joshi & Roh, 2009). This is particularly relevant for high-level decision-making teams such as ownership groups, as they have strong incentives and are legally obliged to influence the strategic agenda of the firm. Specifically, in small and medium sized enterprises (SME), owners play a crucial role because they are a significant source of resource in a highly influential position (Zahra et al., 2007). Due to the relevance of owners in SMEs, this study analyzes the influence of ownership composition of German SMEs within the years of 2006 and 2012. The analysis is based on 514 082 firm-year observations. The findings indicate that the actual relationship between ownership composition and performance strongly depends on the distribution of power between the owners.

Study 2 discusses how legally-privileged owners, the so-called blockholders, differ regarding their risk attitude and preferences. The identity of an owner substantially influences his objectives, and hence firms with different blockholders are expected to – strategically – behave differently (Thomsen & Pedersen, 2000). The analysis is based on all 149 takeover offers of publicly-listed firms within the years of 2004 and 2014 in the German “prime standard”, that is, the stock market segment for relatively large and transparent firms.

Finally, Study 3 examines the implicit or informal power of founders. Founders are a unique type of owner because they exert influence since the incorporation of the firm. This enables them to develop a distinctive understanding of the wealth generation processes of the firm that typically results in valuable firm-

specific knowledge and the establishment of close network ties (e.g. Block, 2012). Therefore, the study analyzes whether the market reacts differently to this specific kind of insider compared to other types of insiders. In order to do so, we analyzed 3,023 insider transactions in the German “prime standard” between within 2007 and 2014.

Abstracts of the Three Studies

Abstract of Study 1 – Drawing on social categorization/similarity attraction arguments as well as the cognitive resource perspective, we investigate the relationship between diversity in decision-making teams and firm performance. Specifically, we argue for a u-shaped association between diversity inside the ownership groups of small and medium-sized enterprises (SMEs) and firm performance. We further argue that this relationship is moderated by power derived from ownership. Our empirical results partially support our hypotheses. Contributions and implications for future research are highlighted.

Abstract of Study 2 – Blockholders impact strategic firm decisions because they are better at monitoring managers than dispersed shareholder groups. Nevertheless, we do not sufficiently understand how preferences of different blockholder types impact strategic firm decisions. We discuss this in the context of takeover premiums offered for publicly-listed firms. Prior studies have argued that managers are often tempted to offer excessively high premiums. Consistently, blockholders might better control managers and ensure lower premiums. To better understand the impact of blockholder preferences, we focus on the special case of family firms. Specifically, drawing on the behavioral agency model, we hypothesize that bidders with family blockholders offer lower premiums than bidders with other

blockholders or bidders without blockholders. Our empirical results support our hypotheses based on a sample of 149 takeover offers.

Abstract of Study 3 – Share purchases by firm insiders result in positive and abnormal stock market returns at the time of the announcement because they indicate information not available to financial markets. We argue based on signaling theory that the strength of these signals depends on the type of insider. Specifically, we expect signals to be stronger if the insider is a founder or an executive because these insider types are, among other factors, better at assessing the fair value of the firms. However, we do not expect the effect of founder status and executive role to be additive. Specifically, based on information processing theory we argue that crude signal elements, namely founder status and executive role, result in a pooling equilibrium. Our empirical results support our hypotheses.

Structure of this Dissertation

Each of the following three chapters contains an independent research study. The first study was written together with my second supervisor, Prof. Franz Kellermanns, Ph.D., and with Assistant Prof. Dr. Maximilian Müller. Study 2 was written jointly with Assistant Prof. Dr. Max Leitterstorf and Study 3 was written with Assistant Prof. Dr. Max Leitterstorf as well as with my first supervisor Prof. Dr. Sabine Rau. The last chapter provides a brief summary of the findings and draws an overarching conclusion.

STUDY 1: OWNER DIVERSITY AND PERFORMANCE EFFECTS³**INTRODUCTION**

Ongoing globalization and the associated intensified market competition pose a major challenge for companies in almost any sector. In order to handle this increasing complexity high-level decision-making, teams with diverse backgrounds, knowledge, and expertise have evolved (Horwitz & Horwitz, 2007). In line with Pelled, Eisenhardt and Xin, we define diversity as the “extent to which a unit (e.g. group or organization) is heterogeneous with respect to demographic attributes” (1999:1) such as gender, nationality, or age (e.g. Balkundi, Kilduff, Barsness, & Michael, 2007; Choi, Price & Vinokur, 2003; Ely, 2004; Jehn & Bezrukova, 2004; Schippers, Den Hartog, Koopman & Wienk, 2003). Because group diversity can create idiosyncratic resources that are hard to imitate, group interactions within diverse teams might be impeded. Whereas scholars promoting the similarity attraction paradigm or theories of social categorization predict higher potentials of tension and conflict within diverse teams (e.g. Williams & O’Reilly, 1998), the cognitive resource perspective emphasizes the multilayered resource pool and hence the opportunity for more effective problem-solving and the creation of better alternatives (e.g. Finkelstein & Hambrick, 1996).

Previous research, which has described group diversity as a “double-edged sword”, has found mixed results on the performance consequences of group diversity (e.g. Harrison & Klein, 2007; Milliken & Martins, 1996). Scholars ascribe these

³ This study is an unpublished manuscript written together with co-author Assistant Prof. Dr. Maximilian Müller and Prof. Franz Kellermanns, Ph.D.

mixed findings to differing diversity characteristics in task-related and non-task-related diversity attributes. While the former may offer greater cognitive resources to teams, the latter may foster conflict (Webber & Donahue, 2001). Recent debate, however, suggests that linear relationships might be too limited to capture the complex relationship between team diversity and performance and that this relationship is nonlinear (Horwitz & Horwitz, 2007). Therefore, diversity research seeks to understand under what conditions the benefits of team diversity will outweigh its drawbacks (Nielsen & Nielsen, 2013).

Not only does this study answer the call for research that investigates the curvilinear nature of diversity (Horwitz & Horwitz, 2007), it also focuses on the non-task-related degree of diversity in terms of gender, nationality, and age and provides insights on how different levels of diversity affect performance. These diversity dimensions can strongly affect team functioning (Webber & Donahue, 2001), which is particularly important in smaller firms (e.g., Kellermanns & Eddleston, 2004). This study also stresses the need to investigate potential moderators in diversity relationships (e.g., Joshi & Roh, 2009) by focusing on the distribution of power in a decision-making team (e.g., Bunderson, 2003; Triana et al., 2014), since power affects diversity and its consequences in a team. Specifically, we examine the diversity of decision-making teams in the context of ownership structures of small and medium-sized enterprises (SMEs) in Germany. The sample consists of 514,082 observations from German SMEs from 2006 until 2012. We selected SMEs because owners of these firms significantly influence the knowledge base, social capital, decision-making (Zahra, Neubaum, & Naldi, 2007), and, subsequently, performance.

By considering social categorization theories and the similarity attractions paradigm as well as the cognitive resource perspective, we provide insights on the

dynamic of team diversity via level of diversity. By doing so, we answered the call for a paradigm shift away from the simple linear relationship in diversity literature (Horwitz & Horwitz, 2007). Second, by identifying power as a moderator of the diversity–performance relationship, we answer a call to identify such contingency factors (e.g., Joshi & Roh, 2009). Third, this paper contributes to corporate governance literature by providing insights on the influence of ownership structures on corporate performance. Previous studies have investigated the role of blockholder identity on firm performance (e.g. Thomsen & Pedersen, 2000), but have neglected the role of diversity of the ownership structure. Fourth, we provide insights on the conditions on which non-task-related diversity attributes can foster performance (Nielsen & Nielsen, 2013). Last, our results advance corporate governance literature by examining how the distribution of power within the ownership structure influences firm performance.

THEORETICAL BACKGROUND AND HYPOTHESES

Group Diversity and Performance Effects

Research on the performance effects of group diversity is inconsistent (e.g. Harrison & Klein, 2007; Milliken & Martins, 1996). Scholars found support for positive performance effects (e.g., Ely, 2004; Van der Vegt, Van de Vliert, & Huang, 2005) as well as negative consequences of team diversity (e.g., Jehn, Northcraft, & Neale, 1999; Leonard, Levine, & Joshi, 2004). In order to contribute to disentangle the confusion on performance consequences of team diversity, we operationalize diversity as an aggregate team-level construct that represents heterogeneity among team members with respect to a specific personal attribute (e.g. Jackson, Joshi & Erhardt, 2003; Joshi & Roh, 2009). There are three main perspectives for explaining

the differences in performance effects of group diversity (Williams & O'Reilly, 1998).

Research based on the social categorization theory (e.g. Tajfel, 1981) and the social identification theory (e.g. Turner, 1982) suggests that diversity among group members with respect to demographic characteristics creates the potential for inefficient group behavior and negative performance consequences (Harrison & Klein, 2007). Individuals who try to maintain a high level of self-esteem by comparing themselves to others by using salient characteristics (e.g. age, race, gender etc.) (Tajfel, 1981) place themselves and others in social categories, developing more positive opinions of their own category (in-group) and negative opinions of others (out-group) (Hogg & Terry, 2000). These intragroup distinctions supposedly reduce communication and cooperation within a group, lower cohesiveness, and increase the potential for conflict which, in turn, negatively affect performance (Harrison & Klein, 2007).

This proposed relationship is consistent with the similarity attraction paradigm which states that the perception of being similar to or different from other group members influences performance (Pfeffer, 1983). Since group members with similar demographic characteristics may share experiences and values and find interaction with each other more convenient and fruitful, people tend to be attracted to those group members (Byrne, 1971). Thus, more homogenous groups are expected to have better communication, stronger cohesion, and lower conflict, and, hence, perform better (e.g. Frink et al., 2003; Williams & O'Reilly, 1998).

In contrast, the cognitive resource perspective, which predicts positive performance outcomes of diversity, suggests that group diversity with respect to demographic characteristics is an indicator of the knowledge, skills and abilities

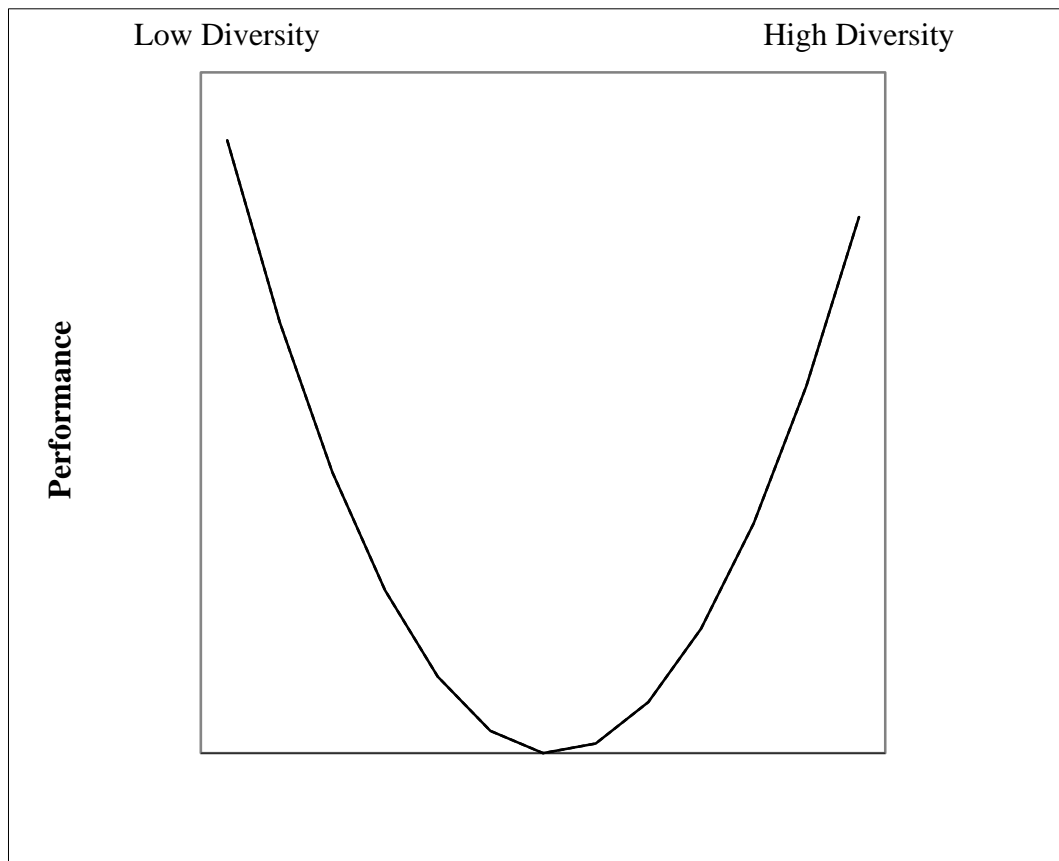
(KSA) available to the group (Hambrick & Mason, 1984; Harrison & Klein, 2007; Wiersema & Bantel, 1992; Webber & Donahue, 2001). Therefore, more diverse groups have a multilayered resource base, different pools of informational resources, and greater access to networks outside their work group; hence, they are more effective in solving complex problems (Finkelstein & Hambrick, 1996; McGrawth, Berdahl, & Arrow, 1995).

Based on the work of Pelled and colleagues (Pelled, 1996; Simmons, Pelled & Smith, 1999), scholars differentiate between task-related and non-task-related diversity attributes to explain performance differences. Task-oriented attributes, such as education or functional backgrounds, are expected to capture experiences and perspectives relevant to the job. Therefore, these attributes provide group members with information about the KSAs available to the group and about the competencies of the other group members (e.g. Pelled et al., 1999). Furthermore, Jehn and colleagues (1999) argue that task-oriented diversity rather results more in constructive task- or process-oriented conflicts than in performance-impeding relationship conflicts. In summary, this type of diversity is assumed to positively influence group processes and performance.

Conversely, non-task-related attributes, such as gender, age, or nationality, provide fewer informative cues about the KSAs of others and are less likely to enhance group performance (e.g. Pelled, 1996). Some scholars even hypothesize that diversity with respect to those attributes reinforces social categorization processes and fosters in-group favoritism and out-group discrimination (Jehn et al., 1999). Therefore, these types of diversity may result in enhanced potential for relationship conflict that can hinder beneficial group processes and, consequently, performance.

Overall, despite attempts to refine research on the performance effects of diversity, findings are still inconsistent (Nielsen & Nielsen, 2013; Triana et al., 2014). Thus, for the purpose of this study, we focus on non-task-related attributes of gender, age, and nationality. Below, we discuss the proposed u-shaped relationships (see Figure 1) in more detail.

Figure 1-1: Curvilinear Relationship



Gender Diversity and Performance

Kanter's (1977) plea for more research on the effects of gender diversity on organizational outcomes has produced many studies examining such relationships. However, findings on gender diversity vary from positive (e.g., Carter, Simkins & Simpson, 2003) to negative (e.g., Jehn & Bezrukova, 2004) to nonsignificant (e.g., Miller & Triana, 2009). A possible explanation for these mixed findings is the focus on linear theoretical arguments rather than on potential curvilinear relationships.

Scholars promoting social categorization perspectives or the similarity attraction paradigm argue that the mere presence of group members who are different leads to in-group favoritism and out-group discrimination or to fewer opportunities for interpersonal attraction. Hence, gender diversity is associated with complicated cooperation, interpersonal tension, and relationship conflicts (Webber & Donahue, 2001). Triana and colleagues (2014) argue that gender-diverse teams can decelerate strategic change because the decision-making process takes longer due to a greater exchange of information and strategic options. Consistent with these theoretical implications, reviews and meta-analyses have found a weak negative link between gender diversity and both team cohesion and team performance (Horwitz & Horwitz 2007, Webber & Donahue 2001).

From a cognitive resource-based perspective, arguments in favor of a positive relationship between gender diversity and firm performance can be drawn. As gender diversity creates a richness of information, perspectives, and experiences, gender diverse groups should be more efficient in solving complex problems and enhance their potential for innovation (Frink et al., 2003; Torchia, Calabrò & Huse, 2011). This inimitable organizational resource can create a competitive advantage resulting in superior firm performance (Barney, 1991). Furthermore, diversity of information should reduce the likelihood of strategic inertia (Triana et al., 2014).

Taken together, these findings suggest that it might not be the mere existence of group members who are different based on demographic characteristics such as gender that trigger positive or negative performance outcomes but, rather, the level of diversity. The domination of a single demographic group increases the likelihood of social categorization processes (Fiske, 1993; Reskin, McBrier, & Kmec, 1999). Coalition building with like others becomes more likely, resulting in out-group

discrimination (Frink et al., 2003). These intragroup distinctions hinder effective communication, decision-making, and, in turn, performance (Joshi & Roh, 2009). Furthermore, the efforts and achievements of the minority out-group might be less valued; out-group members might be restricted in access to information and resources (Baugh & Graen, 1997; Hultin & Szulkin, 1999; Joshi, Liao, & Jackson, 2006). Therefore, gender-dominated groups might suffer from ineffective interactions that prevent them from exploiting the inherent resources of diversity (Frink et al., 2003; Joshi & Roh, 2009).

In contrast, with high levels of diversity, categorization-based processes are less likely. In order to build relevant coalitions within diverse groups, members have to overcome the boundaries of social categories. Because higher levels of diversity might increase group members' receptiveness and openness towards each other (Harrison & Klein, 2007), the capitalization of gender diversity becomes more likely (Frink et al., 2003). Therefore, we expect that moderate levels of gender diversity associated with the domination of one gender results in negative performance outcomes. As gender diversity increases, however, categorization processes become less likely and the benefits of diverse information, perspectives, and experiences unfold. Given our arguments above, we propose the following hypothesis:

Hypothesis 1: There will be a curvilinear relationship between gender diversity and organizational performance. Moderate levels of gender diversity will be associated with the lowest levels of organizational performance.

National Diversity and Performance

An individual's national origin influences behavior. Formal institutions such as the legal or political system as well as informal institutions such as norms, conventions, and values have an impact on social interactions (North, 1990). Hence, strategic decision-making and problem solving might differ depending on national

origin (Hambrick, Davidson, Snell & Snow, 1998). Particularly, Crossland and Hambrick (2007) showed that the national context affects CEO decision-making processes. Therefore, national diversity "... captures the variety in institutionally-embedded experiences of the team members" (Nielsen & Nielsen, 2013: 374).

Due to the fact that individuals with different national backgrounds may embody different values and experienced different educational cultures (Jehn et al., 1999), social categorization becomes more likely. With increasing interpersonal biasing, the potential for conflict increases (Williams & O'Reilly, 1998). Furthermore, inconsistent norms of social interaction such as communication may lower team cohesiveness and delay decision-making processes (Earley & Mosakowski, 2000; Hambrick et al., 1998). Accordingly, these theoretical underpinnings therefore suggest negative performance consequences of multinational teams.

Nevertheless, advocates of the cognitive resource perspective predict that, due to their diverse institutionally-embedded knowledge and experiences, nationally diverse teams are more likely to solve complex tasks and to create a wider range of innovative alternatives (Hambrick et al., 1998). Consequently, multinational teams are expected to improve the comprehensiveness and quality of decisions and, hence, positively influence performance (Nielsen & Nielsen, 2013).

However, according to Williams and O'Reilly (1998), it is not the mere existence of national heterogeneity within groups that explains performance outcomes but, rather, the level of diversity. Groups with a dominant single demographic group might be more prone to social categorization processes (e.g. Reskin et al., 1999), whereas more diverse groups are likely to overcome these social tensions (Harrison & Klein, 2007). Therefore, we expect a u-shaped relationship

between national diversity within the ownership structure of SMEs and firm performance. This follows Earley and Mosakowski (2000), who suggested that nationally diverse teams develop a shared identity, which, in turn, enhances performance. Accordingly we hypothesize the following:

Hypothesis 2: There will be a curvilinear relationship between national diversity and organizational performance. Moderate levels of national diversity will be associated with the lowest levels of organizational performance.

Age Diversity and Performance

Fundamental work on diversity and organizational demography emphasizes that age is a visible demographic characteristic that influences group processes (Hambrick & Mason, 1984; Pfeffer, 1983). Individuals who grew up at the same time faced similar institutional environments might have similar experiences and are more likely to develop similar value systems (Williams & O'Reilly, 1998). Thus, age is expected to have a strong influence on group functioning, group resources, and performance.

Age, as a prevalent and immutable demographic characteristic, is associated with social categorization processes (Van Knippenberg, De Dreu & Homan, 2004). Whereas group processes can be improved through shared experiences and values, diversity in terms of age might diminish morale and cohesion (Harrison & Klein, 2007). Moreover, age differences might impede effective communication, making it difficult to attain and maintain social integration (Williams & O'Reilly, 1998). Accordingly, diversity in terms of age is associated with higher levels of conflict and lower performance. Specifically, age differences are associated with differing risk-propensities (Vroom & Prahl, 1971). Therefore, in high-level decision-making teams, such as ownership groups of SMEs, age differences are likely to create conflict (Jackson, Brett, Sessa, Cooper, Julin, & Peyronnin, 1991).

On the contrary, a group composed of different age cohorts might bring in a wider range of perspectives. Older group members might have learned qualitatively different things than younger ones (Harrison & Klein, 2007), thus improving team decision quality (Horwitz & Horwitz, 2007). Furthermore, individuals born at different times have different experiences that might lead to more creative solutions and alternatives (Williams & O'Reilly, 1998). Yet, studies show that those group members who differ most in terms of age were the more frequently absent or the most likely to leave (O'Reilly, Caldwell & Barnett, 1989). Therefore, we expect that in age-diverse ownership groups, negative consequences are reduced as receptiveness toward group members who are different increases (Harrison & Klein, 2007); hence groups are more likely to exploit the variety of cognitive resources that age diversity provides. Accordingly we hypothesize the following:

Hypothesis 3: There will be a curvilinear relationship between age diversity and organizational performance. Moderate levels of age diversity will be associated with the lowest levels of organizational performance.

The moderating role of power

Distribution of power is a critical moderator when examining decision-making and organizational outcomes (Bunderson, 2003; Triana et al., 2014). Within the context of owner groups, power can be measured by the ownership stake of a single owner. Because majority owners are able to assert their will at the expense of minority owners, decision-making processes of equally-distributed owner groups can be significantly different from those with ownership concentration (Claessens, Fan & Djankov, 1999; Schulze, Lubatkin, Dino & Buchholtz, 2001). Powerful owners are not only legally-privileged but may also dominate discussions and limit the influence of less powerful group members (de Jong, Van der Vegt & Molleman, 2007). Therefore, the exclusion of group members from decision-making is more likely

within teams with significant differences regarding their power (Finkelstein and Mooney 2003), that is, within groups with high ownership disparity.

Greater dispersion of control, however, i.e. lower power disparity, increases the potential for conflict and decision deadlocks (e.g. Davis & Harveston, 2001; Kellermanns & Eddleston, 2004). Since power enables group members to exert their influence (Finkelstein, 1992), decision-making takes longer. In the extreme case of highly diverse teams with low power disparity, the variety of opinions and the lack of powerful decision-makers might result in a deadlock situation.

Accordingly, high levels of diversity within ownership groups can be regarded as valuable, as legal conditions grants owners the right and duty to exert influence. If these owners are diverse (e.g. gender, nationality, age), each member can draw on unique resources, thus enhancing problem solving (Finkelstein & Hambrick, 1996). Furthermore, group members are more willing to speak out and contribute to decision-making if they have a certain degree of (relative) power and their input is valued (Finkelstein and Mooney 2003; Milliken, Morrison & Hewlin, 2003; Triana et al., 2014). However, there is a dark-side of power within diverse groups. When powerful diverse group members have to make major decisions, consensus can be more difficult to achieve and the potential for conflict increases (e.g. Milliken & Martins, 1996). These potential dysfunctional group dynamics may delay decision-making and may detrimentally affect group performance (e.g. Carpenter & Fredrickson, 2001). Formally stated:

Hypothesis 4a: Ownership power disparity moderates the curvilinear relationship between gender diversity and organizational performance. High power disparity enhances the u-shaped effect of gender diversity, whereas low power disparity weakens this relationship.

Hypothesis 4b: Ownership power disparity moderates the curvilinear relationship between national diversity and organizational performance. High power disparity enhances the u-shaped effect of national diversity, whereas low power disparity weakens this relationship.

Hypothesis 4c: Ownership power disparity moderates the curvilinear relationship between age diversity and organizational performance. High power disparity enhances the u-shaped effect of age diversity, whereas low power disparity weakens this relationship.

METHODOLOGY

Sample

We examined the hypothesized relationships in the context of owner groups, as ownership structure significantly influences firm behavior and, in turn, performance (Desender et al., 2013; George, Wiklund & Zahra, 2005; Thomsen & Pedersen, 2000). We focused on SMEs, defined as firms with an annual balance sheet total not exceeding 43 million euro (European Commission, 2015) because the ownership system of these firms significantly influences the knowledge base available to the firm; hence, diverse owner groups are associated with more “sociocognitive horsepower” (Carpenter, 2002: 280; Zahra et al., 2007). However, the effectiveness of these groups in exploiting those resources strongly depends on group interaction.

Archival data was obtained for the period between 2006 and 2012 from Bureau Van Dijk’s database, DAFNE, for all German nonlisted firms with information on individual owners. We collected individual-level data on gender, age, nationality, and percentage of ownership share. In order to test the effects of diversity based on

demographic characteristics, we limited our study to those firms having only individuals as owners, thus excluding governments, pension funds, or any other type of legal entity. Due to the lack of diversity, we excluded all single-owner firms. These criteria resulted in a final sample of 514,082 firm-year observations. We combined this information with the DAFNE financials of those firms. The firms in our sample are, on average, more than 17 years old and have total assets of 924,053€ average number of owners is approximately 2.5. Table 1 summarizes the relevant descriptive statistics for sample.

Table 1-1: Descriptive Statistics

Variable	#	Mean	S.D.	p25	p50	p75
Performance	514,082	0.034	0.174	-0.016	0.030	0.101
Gender	514,082	0.220	0.239	0.000	0.000	0.500
National	514,082	0.006	0.050	0.000	0.000	0.000
Age	514,082	0.155	0.142	0.040	0.102	0.258
Disparity	514,082	-0.021	0.461	-0.390	-0.333	0.317
# Owners	514,082	2.504	1.291	2.000	2.000	3.000
Firm Size	514,082	924,053	2,416,317	102,690	281,593	768,572
Firm Age	514,082	17.274	19.040	6.000	12.000	21.000
Cash	514,082	0.188	0.222	0.014	0.097	0.292
Leverage	514,082	0.544	0.322	0.256	0.557	0.850
Fixed Assets	514,082	0.181	0.224	0.019	0.090	0.257
Education	514,082	0.047	0.140	0.000	0.000	0.000

Note: Gender, National and Age are uncentered; Firm Size and Firm Age are absolute values

Variables

Dependent variable. We measured performance based on the return on assets (ROA), which is defined as net income divided by total assets. The ROA is an internally-oriented measure and illustrates how efficiently management uses its assets to generate earnings (Chrisman & Patel, 2012). Therefore, it is particularly suitable to measure profitability because it is an objective measure of bottom-line performance (Hiebl, 2013).

Independent variables. We measured *gender diversity* based on the Blau index (1977). The Blau index is calculated as follows:

$$B = 1 - \sum_{i=0}^k p_i^2$$

where k is the number of categories and p_i is the proportion of the i th category. The value range is standardized between a minimum value of zero and a maximum value of $(K - 1)/K$. Blau's index for gender diversity reaches its maximum value of 0.50 when men and women are equally distributed within a group. It is the most commonly employed measure for categorical diversity variables such as gender (Harrison & Klein, 2007).

National diversity within ownership groups was also measured with Blau's index, which is in line with previous research on diversity of nationalities (Nielsen & Nielsen, 2013). While there is a perception that Germany is generally homogenous in terms of its inhabitants, recent statistics show that just over 20% of its residents of have a migration background (Statistische Bundesamt, 2015).

Age diversity was measured with the coefficient of variation (CV). Mathematically, this measure is calculated in the following manner:

$$CV = \frac{\sqrt{\frac{\sum_{k=0}^n (x - \bar{x})^2}{n}}}{\bar{x}} = \frac{\sigma}{\mu}$$

where σ is the standard deviation and μ is the mean of age within ownership groups. The CV is a continuous measure and can range from a lower bound of 0 (if all members have the same age) to infinity, with higher values indicating a higher degree of diversity. The CV is a proper instrument to measure distances between unit members (Harrison & Klein, 2007).

Moderator variable. Based on the individual percentage of ownership of the firm, we calculated the disparity of *power* for each owner. According to Harrison and Klein (2007), the coefficient of variation best measures the concentration of ownership of those who have higher amounts of ownership.

Control variables. In order to enhance the reliability of our model, we included several control variables such as the number of owners, firm size, firm age, financial slack, leverage, and fixed asset intensity. We controlled for firm size, measured as the logarithm of the firm's total assets (Cannella, Park, & Lee, 2008) and for firm age, measured as the logarithm of the difference between the year of incorporation and the year of observation (Leitterstorf & Rau, 2014). As cash is related to good performance, we controlled for financial slack, measured by cash scaled by total assets (Singh, 1986), and we included leverage as control because firms that are highly leveraged are more likely to fail (Desender et al., 2013). We controlled for fixed asset intensity to measure how capital-intense the business model of the firm is, which has significant performance implications (Miller, 1986). In line with diversity research on decision-making teams, we controlled for group size (e.g. Hutzschenreuter & Horstkotte, 2013) and for education as a task-related diversity attribute in order to control for work-related interactions (Pelled, 1996). We coded education as a dummy variable and assigned a value of one when the owner had a college degree and zero otherwise. Finally, we included industry year-fixed effects in our model in order to control for industry-specific effects within a certain year (McKay & Phillips, 2005).

Table 1-2: Descriptive Statistics and Correlations

Variable	Descriptives		Pearson correlation coefficients											
	Mean	S.D.	Performance	Gender	National	Age	Disparity	# Owners	Ln(Size)	Ln(Age)	Cash	Leverage	Fixed Assets	Education
Performance	0.034	0.174	1.000											
Gender	0.000	0.239	-0.013	1.000										
National	0.000	0.050	-0.019	-0.014	1.000									
Age	0.000	0.142	0.000	-0.050	-0.019	1.000								
Disparity	-0.021	0.461	-0.010	0.233	0.015	0.186	1.000							
# Owners	2.504	1.291	0.004	0.059	0.096	0.099	0.120	1.000						
Ln(Size)	12.575	1.533	0.128	-0.034	0.009	0.075	0.025	0.101	1.000					
Ln(Age)	2.391	1.022	0.046	0.084	-0.037	0.058	0.066	0.029	0.303	1.000				
Cash	0.188	0.222	0.194	-0.027	0.007	-0.036	-0.038	0.019	-0.165	-0.105	1.000			
Leverage	0.544	0.322	-0.259	-0.014	0.009	0.010	-0.012	-0.042	0.114	-0.019	-0.437	1.000		
Fixed Assets	0.181	0.224	-0.026	0.022	-0.015	0.051	-0.001	0.057	0.230	-0.006	-0.218	0.151	1.000	
Education	0.047	0.140	-0.001	-0.010	0.033	-0.002	0.039	0.133	0.017	-0.042	0.045	-0.044	-0.017	1.000

Note: Sample N = 514,082

Analyses and Results

To test the hypotheses, we used quadratic least square regression models with industry year-fixed effects and robust standard errors clustered at the firm level. The former allows us to control for over-time correlation within the same industry; the latter allows us to control for over-time correlation within the same firm (Bertrand, Schoar & Thesmar, 2007; Villalonga & Amit, 2006). In order to avoid problems with multicollinearity when testing interactions, we centered the variables (Aiken & West 1991). Table 2 shows the correlations and descriptive statistics among our research variables.

Table 3 contains the results of all regression analyses. In Model 1, performance was first regressed on the control variables. Model 2 to 4 show the main effects when entered individually. Because it is statistically more conservative, we are reporting Model 5, which enters all variables simultaneously.

Hypothesis 1 proposes that gender diversity is curvilinearly related to firm performance. Model 5 shows that hypothesis 1 is supported by displaying significant values for the gender diversity variable ($B = -.007$; $p < .001$) and gender diversity squared ($B = .067$; $p < .05$). Hypothesis 2, which stated that national diversity is curvilinearly related to firm performance, is marginally supported. Whereas the main effect ($B = -.148$; $p < .001$) is highly significant, the squared term is only significant on the 10% threshold ($B = .211$; $p < .1$). Hypothesis 3 proposes that age diversity is curvilinearly related to firm performance. Age diversity ($B = -.002$; non-significant) and its squared term ($B = -.030$; $p < .05$) show an inverted u-shape relationship between age and performance, supporting our third hypothesis. To facilitate the interpretation of the relationships, we have plotted the curvilinear relationships in Figure 2-4.

Table 1-3: Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables	Control	Gender Diversity	National Diversity	Age Diversity	Full Quad.	Gender	Moderation National	Age	Full Mod.
	Dependent Variable: Performance								
Gender		-0.007*** (0.000)			-0.007*** (0.000)	-0.004* (0.032)			-0.005* (0.019)
Gender ²		0.078* (0.013)			0.067* (0.034)	0.050 (0.118)			0.047 (0.146)
Nationality			-0.149** (0.003)		-0.148** (0.003)		-0.102+ (0.052)		-0.108* (0.041)
Nationality ²			0.214+ (0.058)		0.211+ (0.060)		0.111 (0.348)		0.124 (0.295)
Age				-0.001 (0.723)	-0.002 (0.579)			0.001 (0.800)	0.001 (0.714)
Age ²				-0.032* (0.014)	-0.030* (0.024)			-0.031* (0.023)	-0.029* (0.031)
Power disparity						-0.014*** (0.000)	-0.004*** (0.000)	-0.004*** (0.000)	-0.012*** (0.000)
Gender x Power						0.002 (0.636)			0.002 (0.566)
Gender ² x Power						0.183** (0.001)			0.141* (0.017)
Nationality x Power							-0.122 (0.218)		-0.095 (0.338)
Nationality ² x Power							0.228 (0.309)		0.175 (0.438)
Age x Power								-0.018** (0.002)	-0.011+ (0.078)
Age ² x Power								0.050+ (0.058)	0.028 (0.304)
Constant	-0.163*** (0.000)	-0.169*** (0.000)	-0.165*** (0.000)	-0.163*** (0.000)	-0.169*** (0.000)	-0.169*** (0.000)	-0.165*** (0.000)	-0.163*** (0.000)	-0.169*** (0.000)
Firm Controls	Included								
Fixed Effects	Included								
Observations	514,082	514,082	514,082	514,082	514,082	514,082	514,082	514,082	514,082
Adjusted R ²	11.00%	11.01%	11.03%	11.01%	11.04%	11.02%	11.04%	11.01%	11.05%

Robust p-values in parentheses (***) p<0.001, ** p<0.01, * p<0.05, + p<0.1)

Model 6 through 9 test the proposed moderation effect. Last, we entered all interaction terms together (Model 9). The squared term of gender diversity interacting with power is significant ($B = .141$; $p < .05$), thus supporting Hypothesis 4a. Figure 5 presents the plot for the significant moderating effect to facilitate interpretation. Hypothesis 4b and 4c are not supported, as the interaction term is not significant.

Figure 1-2: Curvilinear Relationship between Gender Diversity and Performance

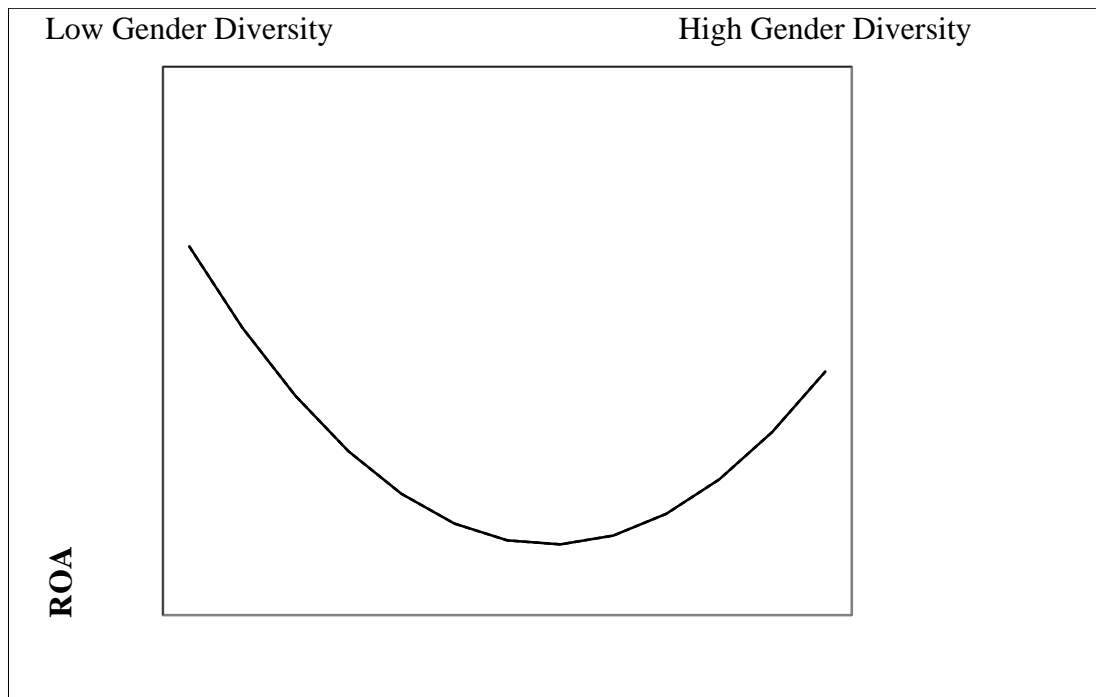


Figure 1-3: Curvilinear Relationship between National Diversity and Performance

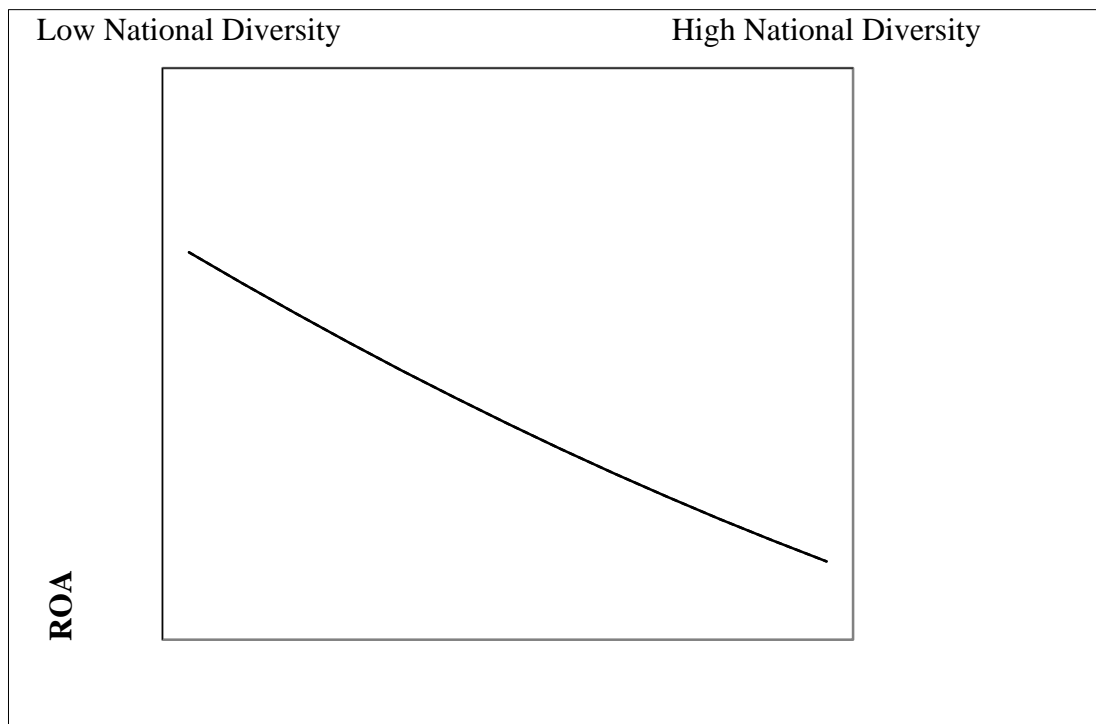


Figure 1-4: Curvilinear Relationship between Age Diversity and Performance

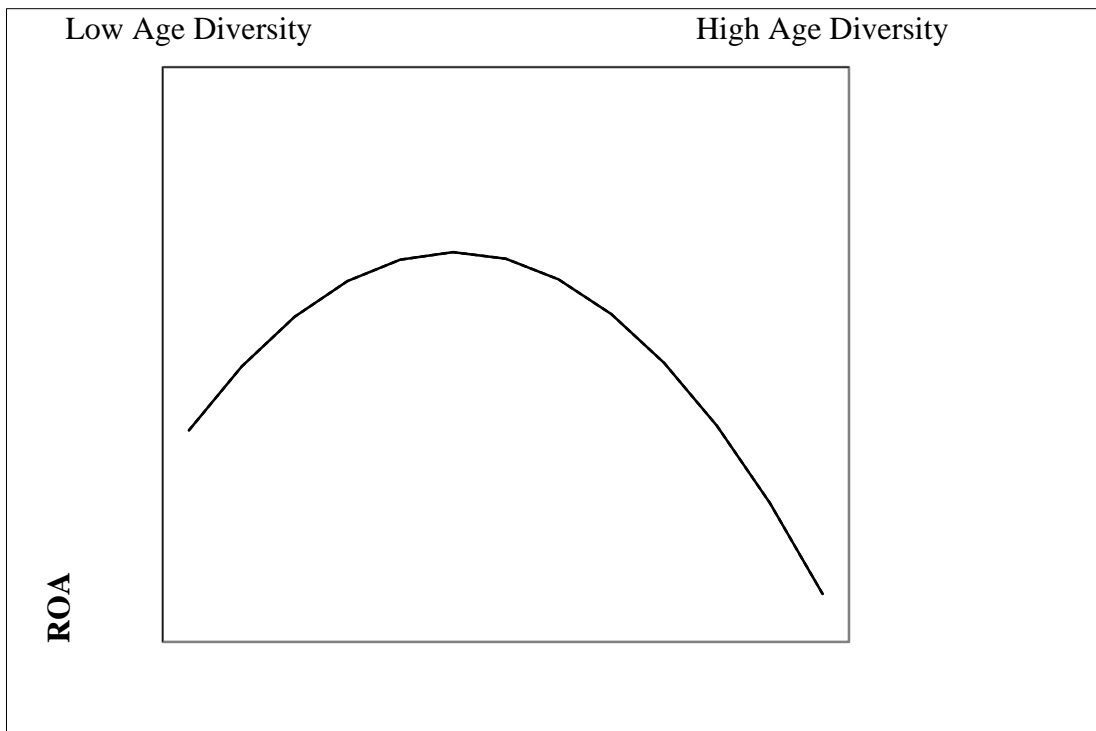
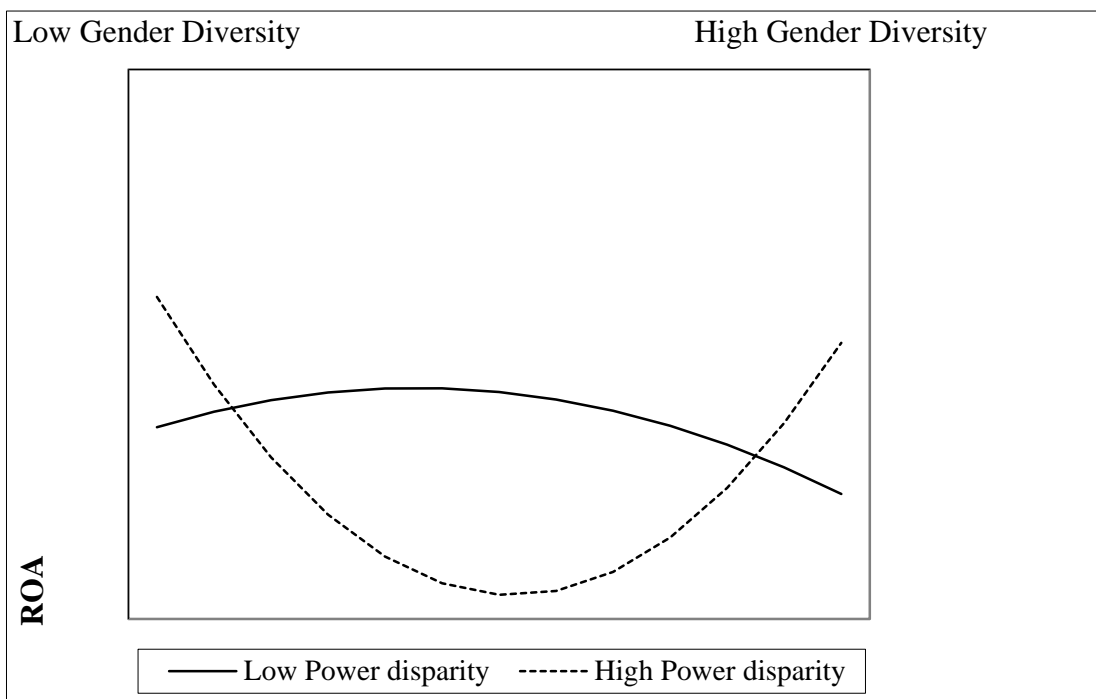


Figure 1-5: Moderated Curvilinear Relationship between Gender Diversity and Performance



DISCUSSION AND CONCLUSION

We discussed the performance effects of non-task-related team diversity in the context of ownership groups of SMEs and investigated power as a potential moderator in these relationships. We chose this context because owners of SMEs strongly influence strategic decision-making and, hence, firm performance. Social and economic developments such as gender equality, globalization, and the demographic development lead to more diverse ownership groups, particularly in terms of non-task-related diversity attributes. While the current stream of migrants/refugees to Germany has been widely discussed in the popular press, 20% of individuals residing in Germany have a migration background (Statistische Bundesamt, 2015), making issues like the diversity of nationalities in the ownership group a very salient issue.

Specifically, we focused on non-task-related diversity attributes such as gender, nationality, and age and their u-shaped influence on performance. We argued that moderate levels of diversity have the worst performance outcomes. Figure 2 shows the graphical representation of our findings for Hypothesis 1, which claims that gender diversity is curvilinearly related to performance. Indeed, high levels of diversity (the Blau index of .5 indicates a perfect balance of the genders) and as well as no diversity in the ownership team are associated with the highest performance outcomes, while teams dominated by one gender have lower performance levels, thus supporting our hypothesis.

Figure 3 captures our main effect for Hypothesis 2. Here again, high levels of diversity lead to better performance outcomes. In such groups, culture diversity (Hofstede, 2001) is salient and efforts are likely made to manage these cultural differences explicitly. At the same time, homogeneity in nationality is positively

associated with the highest organizational performance, indicating that the induced benefits of a diversity of nationalities are not fully offset by required need and cost to manage these differences.

Figure 4 shows the relationship between age diversity (0 = no diversity and 1 = high diversity) and indicates that moderate levels, albeit leaning to more homogenous age structures, are most highly related to performance. This suggests that the potential for gaining information diversity through the inclusion of younger members is offset by the potential for disruptive group processes that might be induced (e.g., relationship conflict, faultiness). As age diversity is particularly salient, intragroup distinctions that might develop through higher levels of age diversity may hinder effective communication, decision-making, and, in turn, performance (e.g. Frink et al., 2003; Joshi & Roh, 2009).

Our moderation hypotheses were partly supported. Figure 5 shows the relationship, while the moderation between nationality and power as well as between age and power was not significant. Since different cultural backgrounds are more willing to exercise and tolerate power (Hofstede, 2001), the effect of power and nationality may have “washed out” due to the different cultural dispositions on power distance present in our sample. Yet, turning to the significant (Figure 5) interaction of gender diversity, we show that high power disparity, that is, high inequality of ownership shares between owners, results in a u-shaped relationship. More specifically, firms outperform when ownership is concentrated and the ownership group is homogeneous, perhaps because the potential for conflict is low and decision-making power is concentrated, avoiding extensive discussions. Similarly, high diversity and high power disparity result in superior performance.

Although diverse groups might face more tensions and conflicts, concentrated power enables the powerful owner(s) to exploit the manifold resources within the team and simultaneously take decisions without achieving consensus in controversial issues. However, ownership constellations with high power disparity and moderate diversity might underperform due to the higher potential for conflict compared to homogeneous groups and their lack of resources compared to highly diverse groups. In contrast, we find an inverted u-shaped relationship for low power disparity, indicating that equally-distributed power enhances performance only when one group is able to build coalitions in order to take decisions. In the cases of high diversity, the owners might be unable to achieve consensus and end up in an interlocking constellation, while homogeneous groups will lack fruitful resources, resulting in inferior performance. In summary, our results suggest that within high-level decision-making teams it is essential to either have concentrated power or the domination of a certain subgroup in order to avoid inefficient decision-making and, thus, poor performance. These findings complement research on the effects of power structures within diverse groups on firm-level outcomes (e.g. Bunderson, 2003; Triana et al., 2014).

Our study adds to diversity literature by showing that the relationship between different types of diversity and performance is curvilinear and differs by type of diversity. Scholars promoting social categorization/similarity attraction arguments as well as scholars promoting a cognitive resource perspective on diversity provide useful insights for a linear effect. We consolidated both streams of literature to develop a theoretical foundation for the curvilinear relationship between different levels of diversity and performance within decision-making teams. Furthermore, by

identifying power as a potential moderator, we contribute to the ongoing debate on boundary conditions of diversity (Nielsen & Nielsen, 2013).

In addition, we answered the call for a paradigm shift away from the simple linear relationship within diversity literature (Horwitz & Horwitz, 2007). Among others, Earley and Mosakowski (2000) claim that the effects of diversity on team outcomes are complex and driven by team interactions that are not captured by linear relationships. We demonstrate that non-task-related levels of diversity are characterized by a u-shaped relationship. Finally, our study contributes to corporate governance literature. Whereas previous studies showed that different blockholder types such as private equity investors, governments, banks, non-financial companies, families, and founders have differing influences on performance effects (e.g. Thomsen & Pedersen, 2000), corporate governance literature has yet to fully explore the influence of diversity within the ownership groups on performance. So far, research has focused on the diversity of executive teams and its consequences on firm outcomes. We show that particularly in SMEs, owners are a relevant group of decision-makers who strongly influence firm performance.

Implications for Practice

Understanding the effects of such diversity is crucial to SMEs. Due to a lack of an efficient capital market of SMEs, owners are tied to each other, at the very least in the short-run. An inadequate awareness of the potential problems or benefits can have substantial performance consequences. Since these firms cannot readily solve problems within the ownership group by selling their stakes, an awareness and potential management of diversity becomes important within these firms.

Yet, solutions advocated by political decision makers may not lead to the desired performance consequences. While targeted at larger organizations Germany

has mandated a 30% quota on female board members for its largest publically traded companies⁴. While our study focused solely on owners, it may still suggest that such a governance approach falls short and an equal representation among the genders is warranted to achieve the best performance effects.

Indeed, owners should be aware of levels diversity (and distribution of ownership). While moderate levels of diversity can garner positive performance consequences, high levels need to be managed carefully. Those scenarios call for an organizational culture that incentivizes every team member to overcome tensions and exploit the multilayered resources available to the team (Harrison & Klein, 2007).

Limitations and Future Research

It is important to discuss the limitations of our study as well as the opportunities these limitations provide for future research. First, although our study is based on panel data, we did not use panel analysis techniques. As ownership data typically shows small within-firm variation it would be hard to find a meaningful relationship between ownership and performance (e.g. Griliches & Hausman, 1986; Zhou, 2001). Accordingly, we use quadratic least square regression models with industry year-fixed effects and robust standard errors clustered at the firm level.

Although we hypothesized about the influence of team diversity on performance, we did not measure inherent decision-making processes. Because any demography research is looking at proxies of actual behavior (Hambrick & Mason, 1984), our explanations regarding team processes are speculative. Nevertheless, future research might be able to collect data on decision-making processes within a

⁴ See the German act on equal participation of women and men in management positions (BGBI. I p. 642).

group of owners and link diversity-related constructs directly to decision making processes. Furthermore, it is important to expand the list of investigated variables. While we focused on non-task-related diversity, researchers may want to expand the variables under investigation, both in terms of additional task-related diversity (e.g., Cannella et al., 2008; Van der Vegt & Bunderson, 2005) and non-task-related diversity (e.g., Balkundi et al., 2007; Leonard et al., 2004).

Furthermore, our analysis focused on SMEs, many of which have the potential to be family firms. We know, however, that family firms undergo unique psychodynamic processes that other firms do not experience (Kellermanns & Eddleston, 2004). While we believe that our findings are generalizable to both family and nonfamily firms, a more detailed analysis family firm-specific diversity in these ownership groups may be beneficial (see also Ling & Kellermanns, 2010).

Our focus on non-task-related diversity can only be seen as a first step to assess diversity consequences in ownership groups. Additional forms of diversity (e.g., faultiness) could be explored (e.g., Lau and Murnighan, 1998). Our theoretical approach aimed to provide insights on performance effects of different diversity attributes and refrained from examining a unified diversity concept. However, future research is encouraged to apply faultline literature to ownership groups, as this theory might provide fruitful insights (e.g., on social categorization processes).

Link between Study 1 and Study 2

Study 1 supports the argument that the ownership structure is a crucial corporate governance variable, in general, and that the ownership composition impacts organizational outcomes, in particular. The level of diversity affects group interactions and hence group effectiveness of the ownership group. Consequently, organizational performance depends on the ability of the owners to cooperate, build coalitions, and, accordingly, exploit the resources available to the group.

However, the relationship between owner diversity and firm performance strongly depends on power disparity. Because different owners pursue different objectives', power plays a decisive role in the decision-making process. Therefore, Study 2 examines theoretically and empirically how different blockholder identities, i. e. a shareholder controlling a significant share of the company, influence strategic decision-making. The focus is on one blockholder type, namely family blockholders, as a first step to unpack blockholder heterogeneity.

STUDY 2: TAKEOVER PREMIUMS AND FAMILY BLOCKHOLDERS⁵⁶**INTRODUCTION**

Numerous scholars have studied the conflict of interest between managers and shareholders since Jensen and Meckling (1976) coined the term ‘principal-agent-conflict’. It is well established that managers tend to pursue individual interests such as salary optimization and that shareholders try to protect their own interests by monitoring managers or by providing incentives (Jensen & Murphy, 1990). The degree of shareholder interest protection often depends on the relative power of shareholders and managers. A strong blockholder, i.e., a shareholder controlling at least 25% of the voting rights (simply ‘blockholder’ for the remainder of the text), is assumed to impact strategic firm decisions by improving monitoring of managers (Shleifer & Vishny, 1997).

Nevertheless, we currently do not sufficiently understand how different blockholder types impact strategic firm decisions. Most importantly, ownership concentration simply measures shareholders’ ability to exercise power, whereas the identity of the blockholder implies certain objectives when exercising this power (Thomsen & Pedersen, 2000). Generally speaking, blockholder preferences are heterogeneous regarding risk attitude and reference point (Krause et al., 2014). We aim at better understanding one blockholder type as a first step to unpack this

⁵ This study is written together with co-author Assistant Prof. Dr. Max Leitterstorf and published in the *Family Business Review* (forthcoming).

⁶ This study (with the same title) was presented at the AoM (Academy of Management) conference 2015 together with co-author Assistant Prof. Dr. Max Leitterstorf.

heterogeneity. Specifically, we choose family blockholders, i.e., individuals from one family who are major owners or executives over time or contemporaneously, because they consider financial as well as non-economic aspects (Miller, Le Breton-Miller, Lester, & Canella, 2007; Gómez-Mejía, Makri, & Larraza-Kintana, 2010). Family blockholders are also known for ‘problem-framing’, i.e., potential outcomes of decisions are compared to current utility, and ‘loss aversion’, i.e., avoiding losses is more important than obtaining gains (e.g., Chrisman & Patel, 2012). We submit that these characteristics significantly impact strategic firm decisions.

We discuss the impact of blockholders and their objectives on strategic firm actions in the context of takeover premiums offered for publicly listed firms. Specifically, we argue that takeover premiums are on average too high to be justified by shareholder considerations such as synergies (Hayward & Hambrick, 1997). Thus, excessive takeover premiums might result from managers who pursue their own interests such as salary optimization, whereas differences among non-excessive premiums might be linked to blockholder preferences. Takeover premiums are an appropriate context for our purposes because takeovers are strategic decisions visible to shareholders. Our approach is consistent with previous studies demanding a stronger focus of analysis on discrete board decisions that are related to agency costs between shareholders and managers (e.g., Mallette & Fowler, 1992; Sundaramurthy, 1996).

We examine 149 takeover offers for publicly listed German firms between 2004 and 2014 in order to test our hypotheses. This is an exhaustive sample of all takeover offers for publicly listed German firms fulfilling the transparency standards of the German stock market segment ‘prime standard’. We select Germany because it offers a high number of family blockholders and an active capital market with a

sufficient number of public takeover offers (Fiss & Zajac, 2004). Our results support our hypotheses. Bidders with blockholders offer lower takeover premiums than bidders without blockholders. However, our more differentiated regression model reveals that family blockholders offer lower takeover premiums than other blockholders and that this effect is reinforced by the presence of a family CEO.

Our study offers several theoretical contributions. First, regarding agency theory, we analyze a potential conflict between managers and shareholders in the context of takeovers. Our sample offers further empirical support for the notion that blockholders are better able to control managers than dispersed shareholder groups. Second, regarding the behavioral agency model (BAM), we show the impact of different blockholder preferences on strategic firm decisions. Specifically, in the context of takeovers, family blockholders' 'problem-framing' and 'loss aversion' is related both to economic as well as non-economic utility and results in significantly lower takeover premiums. Third, we contribute to the family firm heterogeneity debate by differentiating between different types of family firms (e.g., Miller et al., 2007). Specifically, we argue that a family CEO reinforces the relationship between family blockholders and takeover premiums because a family CEO increases the family's utility at stake in terms of 'loss aversion'. Fourth, we increase our understanding of the phenomenon of takeover premiums. Specifically, the explained variance of takeover premiums increases after adding the blockholder variable and even further increases if we include different blockholder types.

Our study also offers several practical implications. Minority shareholders need to realize that an investment in a potential takeover target might prove lucrative (if a takeover premium is offered later on), whereas an investment in active bidders in the takeover market should be reassessed regarding sufficient management control

(e.g., Jensen & Meckling, 1976). Minority investors considering an investment in likely bidders should not only prefer firms with blockholders in general, but with family blockholders in particular. Moreover, takeover targets that receive an offer from a family firm might try to actively seek a potentially higher counter-offer from a non-family firm.

THEORETICAL BACKGROUND AND HYPOTHESES

The context of takeover premiums

Double-digit takeover premiums, i.e., the premiums offered on top of the average share price in the three months prior to the first announcement, are the norm for takeovers of publicly listed firms all around the world. For example, although different definitions complicate comparability, Moeller (2005) reports roughly 30% average takeover premiums for a U.S. sample and Moschieri and Campa (2009) report a 24% average takeover premium for an European sample. There are two main lines of argumentation for explaining these takeover premiums.

The first line of reasoning focuses on justifying premiums with potential value generating measures after the takeover. Specifically, poor management of the target firm that fails to maximize shareholder value will be forced out of office by acquirers attempting to extract such value (e.g., Fama, 1980). Alternatively, even given a well-managed target firm, potential synergies between the bidder and the target might justify takeover premiums from a shareholder's perspective.

The second line of reasoning stresses that premiums cannot be justified with poor target management or synergies. If that is the case, then managers of the bidders do not serve their shareholders' interests (Morck, Shleifer, & Vishny, 1990). These managers either suffer from hubris, i.e., they overestimate their own ability to

increase the value of the target company (Hayward & Hambrick, 1997), or they simply ignore shareholder interests in order to pursue their own interests (Berle & Means, 1932). Specifically, managers often succeed in increasing their own salary after increasing firm size with acquisitions (e.g., Bebchuk & Grinstein, 2005; Dominguez-Martinez, Swank, & Visser, 2008). More generally, the term ‘empire building’ refers to managers’ ability to extract not only higher compensation, but also status, power, and prestige from a larger firm (e.g., Jensen, 1986; Jensen & Murphy, 1990; Murphy, 1985; Stulz, 1990). In addition, larger firm size decreases managers’ unemployment risk and makes managers more indispensable (Shleifer & Vishny, 1989; Amihud & Lev, (1981; 1999)).

This second line of reasoning (i.e., takeover premiums are on average too high) appears convincing given several empirical observations. Most importantly, previous studies have reported a discrepancy between managers’ enthusiasm for pursuing acquisitions and shareholder returns after acquisitions (Kroll, Walters, & Wright, 2008). Specifically, bidders’ stock prices often fall on the day of a takeover announcement (‘adverse market reaction’), indicating that investors on average do not believe in value creation through takeovers (Hayward & Hambrick, 1997). In addition, looking back on prior acquisitions, many scholars conclude that acquisitions did not meet expectations at the time of the takeover (e.g., Andrade, Mitchell, & Stafford, 2001; Datta, Pinches, & Narayanan, 1992; Jensen & Ruback, 1983). A meta-analysis on the topic has revealed that on average and across commonly studied variables, acquiring firms’ performance is negatively affected by acquisitions (King, Dalton, Daily, & Covin, 2004). Thus, we assume that on average takeover premiums cannot be justified with poor target management or potential

synergies, but that high takeover premiums are a form of agency costs between shareholders and managers of the bidder.

Blockholders and takeover premiums

The main issue in corporate governance research is the non-alignment of ownership and management interests. Due to excessive transaction costs it is impossible for owners and managers to agree on a complete contract which aligns the interests of both contracting parties (Williamson, 1985). Therefore, managers have a certain level of discretion on how to invest shareholders' funds (Shleifer & Vishny, 1997).

Monitoring is one key approach to protect shareholders. By gathering and analyzing information, shareholders can intervene in corporate affairs, limit managerial discretion, and protect shareholder interests (Maug, 1998). Consistently, previous studies stress that monitoring impacts strategic firm decisions directly (Deutsch, 2005). However, this task is time-consuming and requires shareholders that are actively engaged in business decisions (Almazan et al., 2005). Thus, monitoring is a fixed-cost investment that is only reasonable for larger shareholders. Consequently, dispersed ownership structures allow executives to enjoy personal benefits at the expense of shareholders (e.g., Shleifer & Vishny, 1986). This argument above is reinforced by the so-called free-rider problem, i.e., the notion that shareholders can benefit from the monitoring efforts of other shareholders, as well as by high transaction costs to coordinate monitoring efforts.

Monitoring of managers is sometimes ensured via intermediaries. Specifically, in the German context, publicly listed firms are legally obliged to have a dual board structure, where the executive board is responsible for the day-to-day operations and the supervisory board appoints and monitors the members of the executive board on

behalf of shareholders (Dittmann, Maug, & Schneider, 2010). Thus, the supervisory board is a legal instrument to diminish the misalignment of management and shareholder interests by delegating monitoring to experts. Managers supply supervisory board members with information which enables them to monitor strategic decisions such as acquisitions (Kroll et al., 2008). However, managers are rather reluctant to transmit information to supervisory board members because this would limit their discretion (Adams & Ferreira, 2007). Thus, it depends on shareholders' power to ensure the transmission of information. Consequently, supervisory board members representing dispersed shareholders have higher information asymmetries toward managers than supervisory board members representing blockholders (Desender et al., 2013). Generally speaking, the ability to monitor effectively depends on the ability to enforce monitoring mechanisms.

These arguments on monitoring point towards the importance of blockholders. Specifically, large shareholders have strong incentives to gather relevant information and have the power to put pressure on the management (Shleifer & Vishny, 1997). Additionally, blockholders have by definition lower transaction costs relative to the value of their shares than dispersed owners. Thus, while dispersed owners have time and money restrictions to discipline management, blockholders have strong incentives to do so (Anderson & Reeb, 2003; Burkart, Gromb, & Panunzi, 1997). The incentive of blockholders to control management is reinforced through the reduced liquidity of their shares. Specifically, blockholders cannot immediately sell a substantial stake in the company on the stock market without accepting a negative price reaction. Therefore, at least in the short run, they are tied to the firm and do not sell their shares as an alternative to ensuring effective monitoring of managers (Maug, 1998).

Additionally, blockholders are less dependent on the supervisory board to monitor the management. Due to their strong incentive to gather information directly they have access to insider information (Heflin & Shaw, 2000), are involved in corporate strategy decision-making (Davies, 2001), and get extraordinary attention from the management (Useem, 1996). Therefore, they do not only have the power to enforce monitoring, but are also able to maintain close ties to the management which grants direct information (Desender et al., 2013). Hence, blockholders are able to monitor misalignment of interests beyond supervisory board meetings.

The potential link between blockholders and the (perceived) quality of strategic firm decisions is supported by stock market reactions. Specifically, Kroll, Wright, Toombs, and Leavell (1997) find positive stock price reactions for firms with blockholders in response to acquisition announcements. This is particularly important given the generally negative stock market reaction to acquisition announcements (Hayward & Hambrick, 1997). Thus, stock markets appear to believe that acquisitions destroy firm value on average, but increase firm value in case of blockholder influence on the acquisition decision.

In summary, ownership concentration in the hand of a blockholder is an essential element in solving the agency conflict between shareholders and managers (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). Specifically, a blockholder lowers agency costs because blockholders can better monitor managers than a group of dispersed shareholders. Based on the notion that high takeover premiums result from insufficiently monitored managers pursuing their own interests we expect that:

Hypothesis 1: Firms with a blockholder offer lower takeover premiums than firms without a blockholder.

Blockholder identities and takeover premiums

Previous studies have classified several different blockholder identities (or types of blockholders) (e.g., Desender et al., 2013). Specifically, scholars have frequently categorized private equity investors, governments, banks, non-financial companies, families, and founders (e.g., Shleifer & Vishny, 1997; Thomsen & Pedersen, 2000; Tribo, Berrone, & Surroca, 2007). Out of these blockholder types, the most common around the world is a controlling family (Bianco, Bontempi, Golinelli, & Parigi, 2013; La Porta, Lopez-De-Silanes, & Shleifer, 1999).

Whereas the agency considerations leading to Hypothesis 1 treat blockholders as a monolithic group, we now look at a specific blockholder type in more detail. This is consistent with the notion that owner identities provide important implications for corporate strategy (Thomsen & Pedersen, 2000). According to Desender and colleagues (2013), we assume that all types of blockholders are able to monitor managers in the context of takeover premiums. Thus, the following differentiation between blockholders does not focus on their ability to monitor, but on their respective preferences.

In the context of blockholder categories it is crucial to point out the ongoing debate regarding controlling families versus controlling lone founders. In order to structure this debate, Miller et al. (2007) have provided the following definitions: “*We distinguish lone founder businesses in which there are one or more founders, who have no relatives in the business, with family businesses in which there are multiple major owners or executives over time or contemporaneously from the same family.*” This differentiation helped explain the previously mixed empirical evidence on performance of family versus non-family firms (e.g., Anderson & Reeb, 2003; Villalonga & Amit, 2006). The key underlying difference is that family firm owners

rather assume the role identities and logics of family nurturers, whereas lone founders tend to embrace the identities and logics of entrepreneurs (Miller, Le Breton-Miller, & Lester, 2011). Most importantly in our context of strategic firm actions, this typically results in conservation strategies of family firms versus growth strategies of lone founder firms (Miller et al., 2011). The following arguments leading to Hypotheses 2 and 3 focus only on family firms (sometimes called true family firms) and not on lone founder firms.

Family blockholders are distinctly different from other blockholders in terms of blockholder preferences. Most importantly, family firms, i.e., firms controlled by a family blockholder, are characterized by the behavioral agency model (BAM) (Wiseman & Gómez-Mejía, 1998). According to the BAM, family firm behavior is strongly impacted by ‘problem-framing’ and ‘loss aversion’ (Cyert & March, 1963; Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, & Moyano-Fuentes, 2007; Wiseman & Gómez-Mejía, 1998). ‘Problem-framing’ stresses that choices are evaluated regarding potential losses and gains compared to current utility (Gómez-Mejía, Makri, & Kintana, 2010; Kahneman & Tversky, 1979). ‘Loss aversion’ means that avoiding losses is more important than obtaining gains (Chrisman & Patel, 2012).

In the takeover context, ‘problem-framing’ means that family firms evaluate potential acquisition outcomes compared to pre-acquisition utility. This comparison is relevant because takeovers are not only major firm decisions, but also decisions that potentially affect shareholders for many years to come (Kroll et al., 2008). Put differently, firm takeovers are often characterized by their high variance of outcomes. Specifically, there are examples of firm bankruptcies after expensive acquisitions (Hayward & Hambrick, 1997) as well as examples of success stories

after adequate acquisitions (Weston, 2002). These observations can be explained not only by the difficulty to properly evaluate a potential target firm, but also by the uncertainty regarding the required effort as well as the success probability of the post-acquisition-integration.

The comparison with pre-acquisition utility is complicated by ‘loss aversion’. This concept is based on prospect theory and stresses that avoiding losses is more important than obtaining gains (Kahneman & Tversky, 1979; Krause et al., 2014). Specifically, avoiding a potential worst-case bankruptcy scenario is far more relevant for families than a potential doubling of utility. In the context of takeover offers for publicly listed firms, the pre-acquisition stock price offers an approximate ‘fair value’ for the target as a stand-alone entity (Fama, 1970). Thus, a loss averse blockholder needs to be convinced that a premium offered on top of this stand-alone fair value can be justified by synergies or other value increasing measures even given a nightmare integration of the target after the acquisition. This can be directly linked to the observation that family firms are particularly parsimonious in resource use (Carney, 2005).

We argue that family blockholders employ ‘problem-framing’ and ‘loss aversion’ with respect to their overall utility. Many family firm scholars submit that this overall utility consists of both economic and non-economic utility (e.g., Chrisman, Chua, & Sharma, 2005). This non-economic utility that families derive from their ownership position in a firm is often referred to as socio-emotional wealth or SEW (Gómez-Mejía et al., 2007). In several contexts family firms face a trade-off between both utilities. For example, Leitterstorf and Rau (2014) demonstrate that family blockholders willingly sacrifice economic utility in terms of share value at the IPO in order to protect their non-economic utility related to family influence and

reputation. Similarly, Gómez-Mejía et al. (2010) observe that many family firms do not diversify firm activities because of their ‘loss aversion’ with respect to non-economic utility even if this increases the risk for their economic utility. However, in the takeover context, we argue in the following that family blockholders tend towards lower takeover premiums in order to protect both their economic and their non-economic utility.

Regarding the economic utility it is important that most family shareholders have an insufficiently diversified personal wealth with the majority of wealth tied to the respective family firm (Miller, Le Breton-Miller, & Lester, 2010). Thus, a bankruptcy of the firm has a far greater impact on the economic utility of a family blockholder than on the economic utility of a sufficiently diversified shareholder. Based on this observation several scholars argue that family firms focus on minimizing bankruptcy risk (Demsetz & Lehn, 1985; Faccio, Lang, & Young, 2001; Shleifer & Vishny, 1997). Consistently, Kroll et al. (2008) argue that members of business-owning families in the supervisory board closely monitor managers in the takeover context because their personal wealth is at stake.

Regarding the non-economic utility or SEW (Gómez-Mejía et al., 2007), it is important that a ‘worst-case scenario’ of bankruptcy would destroy SEW completely. Our argument that SEW strongly impacts family firm decisions (such as takeover offers) is consistent with previous studies. For example, in order to protect SEW, family firms pursue significantly fewer socially or environmentally harmful activities than non-family firms (Berrone, Cruz, Gómez-Mejía, & Larraza-Kintana, 2010), conduct more philanthropic activities (Déniz Déniz & Cabrera Suárez, 2005), avoid downsizing (Stavrou, Kassinis, & Filotheou, 2007), implement more care-oriented contracts for non-family managers (Cruz, Gómez-Mejía, & Becerra, 2010),

and diversify less if diversification makes it more difficult to place trusted family members in key positions (Gómez-Mejía et al., 2010; Jones, Makri, & Gómez-Mejía, 2008).

In addition to the higher bankruptcy costs for family blockholders (due to SEW and insufficient wealth diversification) family firms have patient capital (Sirmon & Hitt, 2003) and scrutinize business opportunities with greater intensity than other firms (Anderson & Reeb, 2004). Thus, if excessive takeover premiums are required for acquiring a specific target (e.g., in times of over-optimism at stock markets) a family firm might opt for investing in government bonds or hoarding cash. This is underlined by most families' particular interest in liquidity buffers (Astrachan & McConaughy, 2001).

In summary, we argue that all blockholders have the same levers for controlling managers, but that family blockholders differ from other types of blockholders regarding how they use these levers. Specifically, 'problem-framing' and 'loss aversion' of family firms result in a cautious approach towards takeovers that are characterized by their potentially extreme impact on business success. Thus, we expect that:

Hypothesis 2: Firms with family blockholders offer lower takeover premiums than firms with other types of blockholders or firms without blockholders.

Family CEOs and takeover premiums

The CEO of a firm is a key person involved in strategic firm decisions. Most importantly, the CEO is not only a key actor with the discretionary power to take certain decisions unilaterally, but also influences the firm's overall decision-making process (Gómez-Mejía et al., 2010). Specifically, CEOs usually set the board's agenda and steer the flow of information (e.g., Desender et al., 2013; Tuggle,

Sirmon, Reutzel, & Bierman, 2010). In the takeover context, CEOs are usually extensively involved because acquisitions require high-level negotiations, involve major corporate outlays, and often fundamentally impact the firm (Haspeslagh & Jemison, 1991). Thus, it is not surprising that previous studies on takeovers premiums have highlighted CEO effects. For example, Hayward & Hambrick (1997) argue that CEO hubris is positively linked to takeover premiums because hubris leads to an overestimation of personal abilities to extract potential synergies from the takeover target. In our context the key question is whether different types of CEOs impact the main relationship between family firm status and takeover premiums.

The most prominently discussed CEO aspect in the family firm literature is whether the CEO is part of the business-owning family or not (e.g., Bennedsen, Nielsen, Perez-Gonzalez, & Wolfenzon, 2007; Jaskiewicz & Luchak, 2013). Surprisingly, there is no universally valid and generally accepted assessment of these two CEO types. For example, advocates of family CEOs stress that they are often endowed with firm-specific knowledge (Morck, Shleifer, & Vishny, 1988) and are more likely to exploit social capital (Uhlener, Matser, Berent-Braun, & Flören, forthcoming), whereas critics highlight that choosing a candidate from the restricted labor pool of the family excludes potentially more qualified candidates (Anderson & Reeb, 2003). Given the importance of CEOs for strategic firm actions as well as the relevance of CEO types for family firms, we analyze how family versus non-family CEOs impact takeover premiums. If family firms with and without family CEOs follow the principles of ‘problem-framing’ and ‘loss aversion’ in the takeover context, then differences between these two types of firms could be based on a different reference point when taking the decision on a takeover offer. In the

following we will analyze this starting point from the non-economic as well as the economic perspective.

From a non-economic perspective, we argue that a family CEO increases the emotional attachment of the family to the firm due to the daily exposure to the firm's affairs. Naldi, Cennamo, Corbetta, & Gómez-Mejía (2013) argue that a family CEO is a key element in SEW preservation of business-owning families. More specifically, the practice of having a family CEO facilitates the attainment of SEW objectives such as execution of control over the firms' resources due to the CEO's direct involvement in the management (Chua, Chrisman and Sharma, 1999; Hall & Nordqvist, 2008). In addition, stakeholders such as employees directly associate firm decisions publicly announced by a family CEO with the business-owning family. Thus, the link between firm publicity and family reputation is reinforced in case of a family CEO (Berrone et al., 2010; Vardaman & Gondo, 2014). Based on these arguments we suggest that a family CEO increases the non-economic utility that the respective family draws from the firm.

From an economic perspective a family CEO increases the economic dependence of the family on the firm for two reasons. First, in most cases a family CEO receives a compensation for working for the respective family firm and consequently does not generate relevant salaries from outside the firm. Second, in case of serious crises, a family CEO might have difficulties finding a comparable job in other firms (Gómez-Mejía, Larraza-Kintana, & Makri, 2003). This is supported by the notion that the extensive firm-specific human capital of the family CEO (Morck et al., 1988) is valuable for the respective family firm, but not for other potential employers. Thus, if the CEO is a family member, then the economic utility that the respective family draws from the firm is increased.

In summary, both the economic as well as the non-economic family utility at stake in case of a potential bankruptcy is significantly increased if the CEO is a member of the business-owning family. Given the BAM element of ‘problem-framing’ this results in a higher pre-takeover utility that potential outcomes of decisions are compared against. Consequently, a family firm with a family CEO is even less likely to offer excessively high takeover premiums that might endanger the firm. Thus, we expect that:

Hypothesis 3: The negative relationship between family firm status and takeover premiums is reinforced if the CEO of the bidder is part of the business-owning family.

METHODOLOGY

Sample

Our sample consists of all 149 takeover offers between 2004 and 2014 for publicly listed firms in the German ‘prime standard’, i.e., the stock market segment for relatively large and transparent firms. Germany offers an active stock market with a high number of family firms, often considered the backbone of the German economy (Fiss & Zajac, 2004). Consistently, according to our definition, almost one third of bidders in our sample are true family firms. The size of takeover targets is, on average, greater than 1 billion Euros in terms of offer price multiplied by number of shares.

We employ several data sources for our analysis. First, the list of takeover offers including announcement dates and the involved firms was obtained from BaFin, the German stock market regulator. Second, details on each takeover offer

such as offer price were manually collected from the respective takeover prospectus. Third, stock market data such as the shares prices of takeover targets before the initial announcement of takeover intentions by the bidder was derived from Datastream. Fourth, missing data in particular on ownership structures was completed with databases from Bureau Van Dijk (DAFNE/AMADEUS). Employing these sources is not only necessary for collecting data directly related to the variables in our hypotheses, but also for several control variables that according to previous studies potentially impact acquisition outcomes (e.g., Kroll et al., 2008).

Variables

Takeover premium. In the context of German takeover offers, the three-months weighted stock average before the first announcement of takeover intentions is defined as the main reference point by the German stock market regulator BaFin. Thus, we calculate the natural logarithm (in percent) of the price offered on top of this three-months weighted average. We focus on takeover premiums offered (in contrast to takeover premiums actually paid) in order to include non-successful takeover offers that also show bidders' willingness to pay.

Market capitalization. We control for size of the target firm, defined as the natural logarithm of market capitalization based on the offer price and number of shares. Information tends to be more readily available about larger firms, which could impact valuations. We used market capitalization as it measures the equity side of the target and hence the related deal size (e.g., Ang & Kohers, 2001; Leitterstorff & Rau, 2014).

Control before offer. Takeover premium are influenced by information asymmetries between bidders and targets and a high ownership stake in a firm grants access to more detailed information on the firm (Desender et al., 2013). Thus, we

assess the percent of shares that the bidder owns of the target before the takeover announcement because this might allow the bidder to value the target more appropriately and to adjust the offered takeover premium.

Target age. We calculate the natural logarithm of the difference between the year of the takeover offer and the founding year of the target firm. Generally speaking, a firm's valuation uncertainty declines with increasing age because of the track record of the business model (e.g., Capron & Shen, 2007).

Market to book ratio. We calculate the market to book ratio as the market value of the target (based on Laamanen, 2007) divided by the last available book equity before the takeover announcement. The market to book ratio has been shown to correlate strongly with Tobin's q, an alternative variable frequently employed for firm valuations (Villalonga, 2004) and appears appropriate in the takeover context due to the ratio's focus on equity.

Stock performance. Consistent with prior studies (e.g., Hayward, 2002) we control for each target's stock market return in the 12 months before the first announcement of the takeover intentions. A strong stock market performance might cause over-optimism with respect to the target's potential.

Bidder age. We calculate the natural logarithm of the difference between the year of the takeover offer and the founding year of the bidder. We include bidder age in our analysis to ensure that we truly measure the effects of different blockholder identities and not the related average differences in terms of firm age (e.g., Block, Miller, Jaskiewicz, & Spiegel, 2013; Hansen, 1992).

Fixed effects. Year dummies were included for each of the years represented in our sample (2004–2014)⁷ in order to control for temporal effects unique to the

⁷ Reference category: Year 2004

various years (Hayward, 2002). Furthermore, we used SIC industry dummies⁸ in order to take industry effects into account. This is consistent with prior studies (e.g., Block et al., 2013).

Blockholder. We assign a dummy variable equal to one if the bidder has a blockholder with at least 25% of equity. This threshold is reasonable for our sample because in Germany a 25% stake grants the right to block major firm decision.

Family blockholder. Consistent with Miller et al. (2007) we define a (true) family firm as a firm “in which there are multiple major owners or executives over time or contemporaneously from the same family”. The blockholder threshold of 25% is consistent with the family firm definition by the European Commission (2009). Family blockholder is treated as a dummy variable by assigning a value of one to family firms.

Family CEO blockholder. Within the group of family firms we further differentiate with respect to the CEO. We assign an additional dummy variable equal to one if the CEO is a member of the business-owning family (e.g., Anderson & Reeb, 2003).

Lone founder blockholder. We follow the definition of Miller et al. (2007): “Lone founder firms are defined as those in which an individual is one of the company's founders with no other family members involved, and is also an insider (officer or director) or a large owner.” This results in a dummy variable equal to one if a lone founder is present.

Bank blockholder. We assign a dummy variable equal to one if the blockholder is a bank. Banks as blockholders might differ from other blockholders with respect to their impact on takeover premiums because they focus on generating

⁸ Reference category: SIC 1

information and building relationships rather than monitoring managers (e.g., Dittmann, Maug, & Schneider, 2010).

Government blockholder. We assign a dummy variable equal to one if the blockholder is a government or a firm fully controlled by a government. Governments might differ from other blockholders because they include political interests such as employment in their considerations (Thomsen & Pedersen, 2000).

Private equity blockholder. We assign a dummy variable equal to one if the blockholder is a private equity firm. Private equity funds might differ from other blockholders because they sometimes are under time pressure to invest which might impact the willingness to take risks in terms of takeover premiums (Metrick & Yasuda, 2010).

Other blockholder. We assign a dummy variable equal to one if the blockholder is not part of one of the above defined blockholder types. Examples of other blockholders include cooperatives (2 observations) and cooperations (2 observations). We bundle these types due to their low number in our sample (4 out of 149 takeover offers).

Results

Binary correlations among our research variables appear in Table 1. The following results in this table are particularly noteworthy. First, most correlation coefficients are rather low, except, of course, for those between the different family firm variables. Second, takeover premiums are negatively correlated with the existence of a blockholder as well as with family firm status. Consistent with prior studies, we examine the variance inflation factors in order to test for multicollinearity (e.g., Kroll et al., 2008). None of the variance inflation factors

approach the commonly accepted threshold of 10; the highest is 1.95. These results suggest that multicollinearity is not a problem in our analysis.

Tables 2, 3, and 4 provide an overview of key descriptive statistics along three main dimensions. Table 2 differentiates premiums according to the bidder's shareholder structure. Bidders with diluted shareholders offer on average the highest premiums and bidders with lone founder or family blockholders offer on average the lowest takeover premiums. Table 3 shows the average premiums offered in each year and underlines the importance to control year effects. Table 4 offers a similar overview by showing premiums for different target industry groups based on SIC codes. Table 5 presents the results of our regression analyses. In our control model only the variables controlling for bidder age impact takeover premiums significantly. Model 1 offers empirical support for our argument that the existence of a blockholder lowers takeover premiums significantly. However, more importantly, Model 2 reveals that blockholder effects need to be differentiated by blockholder identities. Specifically, only the family blockholder variable impacts takeover premiums significantly. Finally, Model 3 demonstrates that the family blockholder effect is stronger in case of a family CEO. Our results also improve our understanding of the phenomenon of high takeover premiums. Specifically, the adjusted R² (measuring the explained variance of the dependent variable) increases from 0.04 to 0.05 for the general blockholder effect and to 0.09 for the more differentiated blockholder effects. Thus, blockholders appear to be crucial for explaining different takeover premiums.

Table 2-1: Descriptive Statistics and Correlations

	mean	p50	sd	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Premium	2.49	2.87	1.42	1.00															
2. Market capitalization	19.40	19.16	1.82	0.03	1.00														
3. Control before offer	32.55	30.47	29.79	0.01	-0.19	1.00													
4. Target age	3.33	3.18	0.96	-0.03	0.24	-0.13	1.00												
5. Market to book ratio	2.60	1.82	2.79	-0.05	0.13	0.03	-0.09	1.00											
6. Stock performance	0.23	0.18	0.52	0.01	0.17	-0.10	-0.05	0.19	1.00										
7. Bidder age	3.31	3.33	1.34	0.19	0.17	-0.06	0.14	-0.04	0.08	1.00									
8. Blockholder	0.73	1	0.44	-0.18	-0.18	0.08	-0.04	0.11	0.06	-0.18	1.00								
9. Lone founder blockholder	0.14	0	0.35	-0.15	-0.25	0.14	-0.06	-0.03	-0.13	-0.27	0.25	1.00							
10. Family blockholder	0.29	0	0.45	-0.13	-0.03	-0.02	0.09	0.11	0.15	0.17	0.39	-0.26	1.00						
11. Bank blockholder	0.07	0	0.25	0.06	0.06	-0.01	-0.03	0.10	0.02	0.01	0.16	-0.11	-0.17	1.00					
12. Government blockholder	0.07	0	0.25	0.07	0.07	0.03	-0.09	-0.04	0.05	-0.01	0.16	-0.11	-0.17	-0.07	1.00				
13. Private-equity blockholder	0.14	0	0.35	-0.01	-0.05	-0.04	-0.03	-0.02	-0.03	-0.20	0.25	-0.16	-0.26	-0.11	-0.11	1.00			
14. Other blockholder	0.03	0	0.16	0.01	0.03	0.01	0.02	0.00	-0.03	0.01	0.10	-0.07	-0.11	-0.04	-0.04	-0.07	1.00		
15. Family blockholder with family CEO	0.16	0	0.37	-0.15	-0.15	-0.04	-0.03	0.20	0.05	-0.08	0.27	-0.18	0.69	-0.12	-0.12	-0.18	-0.07	1.00	
16. Family blockholder w/o family CEO	0.13	0	0.33	-0.01	0.13	0.02	0.15	-0.07	0.15	0.32	0.23	-0.15	0.60	-0.10	-0.10	-0.15	-0.06	-0.17	1.00

We can also interpret the economic significance of the coefficients. First, the coefficient for family blockholder is -0.98 in terms of the logarithm of the takeover premium. If we reverse the logarithm, this corresponds to 0.38 indicating that, *ceteris paribus*, the predicted takeover premiums is reduced by 62% in case of a family blockholder when compared to diluted shareholder structures (the reference category). Second, the coefficients are -1.10 for family CEOs and -0.83 for non-family CEOs. If we reverse the logarithm, this corresponds to 0.33 and 0.44 indicating, *ceteris paribus*, predicted reductions of premiums by 67% in case of a family CEO and 56% in case of a non-family CEO (both compared to diluted shareholder structures). Given the average size of takeover targets of more than 1 billion Euros this results in double-digit million Euro sums offered less in case of family blockholders.

Table 2-2: Descriptive Statistics on Blockholder Types

Bidder	#	Premium		
		mean	p50	sd
Lone founder blockholder	21	1.98	2.33	1.46
Family blockholder	43	2.21	2.44	1.47
with family CEO	24	2.00	2.23	1.32
w/o family CEO	19	2.47	3.21	1.64
Bank blockholder	10	2.81	3.20	1.14
Government blockholder	10	2.88	3.56	1.63
Private-equity blockholder	21	2.45	2.88	1.27
Other blockholder	4	2.58	2.76	1.98
Diluted	40	2.90	3.02	1.32
Total	149	2.49	2.87	1.42

Table 2-3: Descriptive Statistics Over Time

Year	#	Premium		
		mean	p50	sd
2004	11	2.38	2.84	1.21
2005	9	2.32	2.80	1.37
2006	14	2.36	2.68	1.13
2007	19	2.83	3.40	1.41
2008	26	2.93	3.46	1.49
2009	11	2.53	3.03	1.48
2010	9	1.48	1.42	1.46
2011	14	2.47	3.04	1.42
2012	14	3.25	3.62	1.18
2013	11	2.08	2.49	1.49
2014	11	1.53	1.61	1.37
Total	149	2.49	2.87	1.42

Table 2-4: Descriptive Statistics on Industry Sectors

SIC	#	Premium		
		mean	p50	sd
1	3	2.93	3.64	1.31
2	13	2.23	2.64	1.37
3	37	2.73	3.21	1.43
4	8	2.37	2.91	1.19
5	13	2.26	2.70	1.74
6	23	2.08	2.43	1.51
7	33	2.62	2.84	1.42
8	19	2.62	2.61	1.27
Total	149	2.49	2.87	1.42

Table 2-5: Regression Results

	Model 0		Model 1		Model 2		Model 3	
Constant	2.03	(1.91)	2.62	(1.87)	2.12	(1.82)	2.39	(1.88)
Market capitalization	0.04	(0.08)	0.02	(0.08)	0.02	(0.08)	0.01	(0.08)
Control before offer	-0.01	(0.01)	-0.01	(0.01)	-0.01	(0.01)	-0.01	(0.01)
Target age	-0.09	(0.16)	-0.08	(0.15)	-0.04	(0.15)	-0.04	(0.15)
Market to book ratio	0.01	(0.03)	0.02	(0.03)	0.03	(0.03)	0.04	(0.03)
Stock performance	0.17	(0.30)	0.21	(0.29)	0.36	(0.30)	0.36	(0.30)
Bidder age	0.17 †	(0.09)	0.14	(0.10)	0.18 †	(0.10)	0.17 †	(0.10)
Strong blockholder			-0.51 †	(0.28)				
Other blockholder					0.34	(0.52)	0.31	(0.53)
Private-equity blockholder					-0.08	(0.52)	-0.10	(0.52)
Government blockholder					-0.14	(0.38)	-0.17	(0.39)
Bank blockholder					-0.11	(0.65)	-0.13	(0.66)
Lone founder blockholder					-0.55	(0.50)	-0.59	(0.50)
Family blockholder					-0.98 **	(0.33)		
Family blockholder with family CEO							-1.10 **	(0.35)
Family blockholder w/o family CEO							-0.83 †	(0.49)
Industry FE	Y		Y		Y		Y	
Year FE	Y		Y		Y		Y	
Observations	149		149		149		149	
Adjusted R2	0.04		0.05		0.09		0.08	
F	2.13 **		2.58 **		2.97 **		2.88 **	

Note. Diluted shareholder structure is the omitted reference category for the different blockholder types analyzed.

** p<0.01, * p<0.05, † p<0.1

Robustness of Results

The calculation of takeover premiums hinges on what we consider the relevant pre-offer stock price of the target. As stated in the variable description section, we employ the weighted three-months average of the daily stock closing prices for several reasons: A point in time too close to the takeover announcement might be biased by rumors and a point in time too early (e.g., a year before the takeover) is hardly relevant (e.g., Hayward & Hambrick, 1997). In addition, a weighted average reduces the effect of short term random stock price movements. Nevertheless, we would like to test the robustness of our results with respect to different takeover premium definitions (e.g., Hayward & Hambrick, 1997). Specifically, as an alternative measure, we calculate takeover premiums based on the last closing price before the first announcement of the takeover intention as well as the closing price one month before that date. Table 6 shows that we find empirical support for Hypothesis 2 for these different takeover premium definitions.

Our results might also depend on the equity threshold employed for our blockholder definition (e.g., Miller et al., 2007). Thus, we recalculated our regression model with the equity thresholds of 10%, 20%, 30%, and 50%. Table 7 shows that we find empirical support for Hypothesis 2 for all of these equity thresholds.

Table 2-6: Robustness of Results with respect to Takeover Premiums

	Definitions		Definitions	
	1 day before offer		1 month before offer	
Constant	-2.37	(2.67)	-0.26	(2.11)
Market capitalization	0.10	(0.11)	0.07	(0.09)
Control before offer	0.00	(0.01)	-0.01	(0.01)
Target age	0.09	(0.20)	0.10	(0.18)
Market to book ratio	-0.01	(0.06)	-0.12 **	(0.06)
Stock performance	-0.29	(0.48)	0.89 **	(0.41)
Bidder age	0.52 **	(0.15)	0.36 **	(0.14)
Other blockholder	1.31	(1.07)	0.07	(1.10)
Private-equity blockholder	0.75	(0.54)	0.25	(0.53)
Government blockholder	0.54	(0.67)	0.22	(0.56)
Bank blockholder	0.88	(0.87)	0.17	(0.71)
Lone founder blockholder	0.13	(0.56)	0.23	(0.56)
Family blockholder	-1.13 **	(0.48)	-0.92 **	(0.44)
Industry FE	Y		Y	
Year FE	Y		Y	
Observations	149		149	
Adjusted R2	0.21		0.13	
F	12.17 **		5.39 **	

Note. Diluted shareholder structure is the omitted reference category for the different blockholder types analyzed.

** p<0.01, * p<0.05, † p<0.1

Table 2-7: Robustness of Results with respect to Blockholder Definitions

	10% Threshold		20% Threshold		30% Threshold		50% Threshold	
Constant	-0.15	(0.62)	-0.14	(0.64)	-0.19	(0.67)	-0.42	(0.67)
Market capitalization	0.02	(0.08)	0.02	(0.08)	0.01	(0.08)	0.03	(0.08)
Control before offer	-0.01	(0.01)	-0.01	(0.01)	-0.01	(0.01)	-0.01	(0.01)
Target age	-0.07	(0.16)	-0.04	(0.15)	-0.07	(0.16)	-0.09	(0.15)
Market to book ratio	0.03	(0.03)	0.03	(0.03)	0.03	(0.03)	0.02	(0.03)
Stock performance	0.39	(0.31)	0.38	(0.31)	0.32	(0.30)	0.29	(0.32)
Bidder age	0.20 †	(0.10)	0.18 †	(0.10)	0.17 †	(0.10)	0.15	(0.10)
Other blockholder	-0.12	(0.67)	-0.11	(0.67)	-0.04	(0.64)	-0.06	(0.62)
Private-equity blockholder	-0.06	(0.44)	-0.16	(0.38)	-0.17	(0.42)	-0.21	(0.44)
Government blockholder	-0.09	(0.54)	-0.06	(0.52)	0.11	(0.55)	0.03	(0.68)
Bank blockholder	0.06	(0.57)	0.34	(0.53)	0.31	(0.52)	0.22	(0.51)
Lone founder blockholder	-0.44	(0.49)	-0.49	(0.50)	-0.70	(0.52)	-0.68	(0.52)
Family blockholder	-0.95 **	(0.36)	-0.97 **	(0.33)	-0.83 **	(0.31)	-0.84 **	(0.32)
Industry FE	Y		Y		Y		Y	
Year FE	Y		Y		Y		Y	
Observations	149		149		149		149	
Adjusted R2	0.07		0.08		0.07		0.06	
F	2.80 **		2.97 **		3.07 **		2.63 **	

Note. Diluted shareholder structure is the omitted reference category for the different blockholder types analyzed.

** p<0.01, * p<0.05, † p<0.1

DISCUSSION AND CONCLUSION

In short, we discuss agency costs and blockholder preferences for strategic firm decisions in the context of takeover premiums. We chose this context because takeovers are strategic firm decisions that are visible for shareholders and strongly impact the economic success of the firm. Thus, shareholders are likely to express their preferences regarding takeovers. In addition, takeover premiums are an important market phenomenon that has not yet been fully explained with respect to both average size as well as variance.

Regarding agency costs, we demonstrate that a blockholder is an essential element in solving the agency conflict between shareholders and managers (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). Specifically, blockholders lower agency costs because they can better monitor managers than a group of dispersed shareholders. We assume that takeover premiums are on average too high to be justified by shareholder considerations such as synergies and consequently represent agency costs between managers and shareholders of the bidder. This assumption is strongly supported by prior empirical evidence (e.g., King et al., 2004). Specifically, we assume that high takeover premiums result from insufficiently monitored managers pursuing their own interests. Based on this assumption we argue that firms with blockholders offer lower takeover premiums than firms with dispersed shareholder structures.

Regarding blockholder preferences, we focus on the special case of family blockholders. We argue that all blockholders have the same levers to control managers, but that family blockholders differ from other types of blockholders regarding how they use these levers. Specifically, ‘problem-framing’ and ‘loss aversion’ of family firms result in a cautious approach towards takeovers that are

characterized by their potentially extreme impact on the economic success of the firm as well as on the family's SEW. Thus, the potential worst-case scenario of a bankruptcy after a failed acquisition would result in a decrease of utility that is stronger for a family blockholder than for a different type of blockholder in a similar situation (without SEW and with a lower economic dependence on the respective firm).

Family firm scholars stress in the so-called family firm heterogeneity debate that different types of family firms differ significantly from each other (Chua, Chrisman, Steier, & Rau, 2012; Pazzaglia, Mengoli, & Sapienza, 2013). A prominently discussed heterogeneity dimension is whether the CEO is part of the business-owning family (e.g., Bennedsen et al., 2007). We argue that in case of a family CEO the family's economic dependence on the firm as well as the emotional attachment to it is higher. Consequently the economic as well as the non-economic family utility at stake (in the extreme case of bankruptcy) is higher. Thus, the reference point of pre-takeover utility is higher resulting in a reinforced relationship between family firm status and takeover premiums.

Our empirical results support our hypotheses. Specifically, firms with blockholders offer on average lower takeover premiums than firms without blockholders. However, more importantly, if we differentiate blockholder identities, family blockholders offer significantly lower premiums than other types of blockholders. This relationship between the existence of a family blockholder and takeover premiums is reinforced if the CEO is a member of the business-owning family.

Our study offers several theoretical contributions. First, regarding agency theory, we demonstrate the beneficial impact of blockholders on a potential conflict

between managers and shareholders in the context of takeovers. Second, regarding the behavioral agency model (BAM), we show the impact of family firms' 'problem-framing' and 'loss aversion' on strategic firm decisions. Third, we contribute to the family firm heterogeneity debate by analyzing the effect of family CEOs. Specifically, the BAM appears to appropriately describe strategic firm decisions of family firms with and without family CEOs, but family CEOs appear to increase the family's reference point in terms of pre-decision utility. In addition, our results improve our understanding of the phenomenon of takeover premiums. Specifically, the explained variance of takeover premiums increases after adding the blockholder variable and even further increases if we include different blockholder types.

Our study also offers several practical implications. Minority shareholders need to realize that an investment in a potential takeover target might prove lucrative (if a takeover premium is offered later on), whereas an investment in active bidders in the takeover market should be reassessed regarding sufficient management control (e.g., Jensen & Meckling, 1976). Investors assessing likely bidders should not only prefer firms with blockholders in general, but family blockholders in particular. Moreover, takeover targets that receive an offer from a family firm might try to actively seek a potentially higher counter-offer from a non-family firm.

Our conclusions need to be considered in light of some limitations. First, we assume that takeover premiums are on average too high to be justified by synergies or value increasing measures. This assumption is crucial for the development of our hypotheses. However, empirical evidence from many prior studies support this argument (e.g., Andrade et al., 2001). Moreover, King and colleagues (2004) showed in a meta-analysis that on average and across commonly studied variables, acquiring firms' performance is negatively affected by acquisitions. Second, our sample

focusses on bidders' decision to attempt a takeover. Consequently, a firm's decision against making a takeover offer (for example motivated by 'loss aversion') is not included. Third, due to the moderate size of our sample some of the commonly defined blockholder identities are hardly represented. Fourth, although we had strong reasons to choose Germany for our empirical data, we have to acknowledge that the relatively high number of firms with a family blockholder is a characteristic of Continental Europe rather than Anglo-Saxon markets.

This study has helped us identify several avenues for future research. Additional research might focus on the potentially varying monitoring abilities of different blockholder types. Furthermore, empirical support is needed for the idea that family firms refrain more often from making a takeover offer than other types of firms. Moreover, interviews with bidder CEOs could reveal additional motivations for takeover premiums. Most importantly, we argue that the relationship between the existence of a blockholder and strategic firm actions is too simplistic and that we have to unpack the heterogeneous group of blockholders. We address this issue by developing hypotheses for the specific sub-group of family blockholders by drawing on the key aspects of the BAM. Of course this is only a first step and future research needs to look in more detail at other blockholder groups. Based on our study, we can only speculate on the exact preferences of the individual blockholder groups, but we can argue and empirically support that the preferences of family firms result in particularly low takeover premiums.

Several objectives of other blockholder types in our sample might serve as a starting point for future analyses. First, banks have a natural interest in selling their financial services such as support at issuing debt. Thus, banks as blockholders might focus on generating information and building relationships rather than monitoring

managers (e.g., Dittmann et al., 2010). In an extreme scenario a bank blockholder accepts that managers offer excessive takeover premiums because the advisory fee for the bank in the following takeover outweighs the economic damage of the excessive premium. Second, governments as blockholders include political aspects such as employment in their considerations (Thomsen & Pedersen, 2000). Thus, a government might allow managers to pay excessive premiums if the takeover increases the number of jobs provided in the respective country. Third, a private equity fund that has collected capital is under pressure to invest this money quickly because most funds raise capital every three to five years and need to show success stories (Metrick & Yasuda, 2010). Thus, under time pressure a private equity blockholder might accept a higher risk with respect to whether a certain takeover premium pays out during the investment horizon. Fourth, lone founders typically follow growth rather than conservation strategies (Miller et al., 2011). This ambition to grow could tempt lone founders to offer premiums with a relatively high risk of not being justified (e.g., by synergies).

Family firm researchers are often asked to not only apply research results from more mature research areas to the special case of family firms, but to actively return insights to these research areas. We base this paper on the existing discussion regarding the strategic decision of offering takeover premiums. By analyzing the special blockholder identity of family firms, we offer a key explanation for the variance in takeover premiums that is relevant beyond family firm research. We hope that our research enriches the discussion on how blockholder preferences differ and how these preferences impact strategic firm decisions.

Link between Study 2 and Study 3

Study 2 argues that the identity of a blockholder impact strategic firm decisions. Different blockholders have different preferences' and differ regarding their risk-attitude. The influence of these blockholders is based on a certain threshold of formal power, such as ownership concentration.

However, owners can also possess and execute informal power. Specifically, founders typically have a high degree of informal power as they have been continuously involved with the firm since the foundation resulting in a maximum exposure to historic developments of the firm and a thorough understanding of the wealth creation processes. This firm specific knowledge and their close and long-term relationships to key employees, suppliers, and financiers put founders into a particularly powerful position. Consequently, Study 3 analyzed whether the market reacts differently to information disclosed by founders compared to other types of insiders.

STUDY 3: SIGNALING THEORY AND SHARE PURCHASES BY FIRM FOUNDERS⁹

INTRODUCTION

Numerous scholars have studied different types and elements of signals since Spence (1973) analyzed the education signals by high-quality prospective employees towards employers and created the foundation of signaling theory. The core idea of the signaling theory is that information asymmetries between two parties are reduced by a signal from the signaler to the receiver (Connelly, Certo, Ireland, and Reutzel, 2011). When this signal is either more costly for a low quality sender or penalty costs for a false signal are sufficiently high, then this results in a separating equilibrium, i.e., the receiver can trust that the signal distinguishes the high quality from the low quality sender (Bergh, Connelly, Ketchen, and Shannon, 2014).

Signaling theory has been, among other applications, further developed in the context of stock markets where the signals send by so-called insiders help investors overcome information asymmetries and learn about unobservable qualities of companies. A specific focus are founders and their role in IPOs (Shane and Cable, 2002), especially the impact of retained shares by founders on investors' perceptions of possible agency costs (e.g., Brennan and Franks, 1997). Signaling theory suggests that founders can mitigate agency problems by taking actions that are prohibitively costly to founders of lower quality firms (Downes and Heinkel, 1982). In a post-IPO signaling context, founders are insiders with a continuing, but usually decreasing, importance for the firm (Amit, Glosten, and Muller, 1990; Willard, Krueger, and

⁹ This study is an unpublished manuscript written together with co-author Assistant Prof. Dr. Max Leitterstorf and Prof. Dr. Sabine Rau.

Feeser, 1992). Specifically, the founder's share of the firm's equity is typically diluted at financing rounds before the IPO as well as at the time of the IPO (Bruton, Chahine, and Filatochev, 2009; Lerner, 1998). While the influence of the founder decreases, the influence of the other insiders increases, especially the one of insiders with executive roles (Fidrmuc, Goergen, and Renneboog, 2006). Signals sent from this group are especially valuable for investors (Jeng, Metrick, and Zeckhauser, 1999). Whether or not signals from founders, from executives, or from founders in executive roles are more relevant for investors is still open to debate. Thus, we are curious about the following questions: "How do different insider types impact signal strength toward other stakeholders at a post IPO stage?" Similarly: "How do signal strength increasing elements (characteristics of the signaler in our case) interact with each other?"

We discuss these research questions in the special context of insider transactions / director dealings, i.e., the share purchases or sales by firm insiders such as executive board members. These firm insiders possess private information that increases their ability to assess firm value in particular when compared to minority shareholders who have to rely on public information (Fidrmuc et al., 2006). Thus, insider share purchases signal a potential undervaluation of a firm. We focus on share purchases because share sales might not only be motivated by insider information but also by the seller's need for additional liquidity (Lakonishok and Lee, 2001; Friederich, Gregory, Matatko and Tonks, 2002). Insider share purchases are an ideal context for signaling because these signals are costly for the signaler and easily observable for receivers, thus fulfilling key prerequisites of successful signaling (e.g., Bhattacharya and Dittmar, 2001; Certo, 2003; Lampel and Shamsie, 2000).

We argue that two possible characteristics of the insiders (i.e., the signalers) impact the strength of signals. First, founder signals are stronger than non-founder signals because founders are known for their deep firm-specific knowledge which enables them to better assess the fair value of the respective firm (Busenitz et al., 2005). We further argue that signals from founders are more credible because their reputation is intermingled with the firm and they have typically higher equity stakes than other types of insiders (e.g., Block, 2012). In addition, we theorize that investors respond in particular to insider share purchases of founders and that they welcome an increasing founder equity stake in the firm (Bruton et al., 2009). Second, signals from executives are stronger than signals from non-executives because of, among other factors, different access to relevant firm information (Fidrmuc et al., 2006). Our empirical data set of insider share purchases allows analyzing both effects separately as well as the combination of the two effects.

Our study offers contributions to several streams of literature. First, regarding signaling theory, we find two characteristics of the signaler (i.e., founder status and executive role) that increase signal strength independently. However, the presence of both or either one of these characteristics results in similarly strong signals. This implies that signal strength increasing elements are not necessarily additive. Specifically, based on information processing theory we argue that crude signal elements, namely founder status and executive role, result in a pooling equilibrium. Second, our study demonstrates that a founder not only strongly impacts the respective firm in early stages, but also (at least in investors' perception) after an IPO and even after the founder's "retirement" to a non-executive role. Third, we offer an explanation why previous empirical results did not find conclusive evidence for the information hierarchy hypothesis. Specifically, according to this hypothesis,

share purchases of insiders with executive roles should result in higher stock market reactions than share purchases of other insiders (Fidrmuc et al., 2006). If previous results did not support the information hierarchy hypothesis, then researchers need to analyze whether founders are sufficiently represented in both insider groups, i.e., executives and non-executives.

THEORETICAL BACKGROUND AND HYPOTHESES

Background on signaling theory

Signaling theory aims at describing behaviors when two parties, a sender and a receiver, have access to different information (Connelly, et al., 2011). Typically, the sender chooses whether and how to signal that information and the receiver interprets the signal (Connelly, et al., 2011). Prerequisites of successful signaling include observability of signals and transaction costs (to avoid imitation) of signals (Ross, 1977; Spence, 1973). Overall, signaling theory offers a powerful model for strategic management research because it explains how key actors such as managers and owners navigate informational uncertainties and the hazards associated with them (Bergh et al., 2014).

Researchers have employed signaling theory in numerous contexts and settings. Previous research showed that firms' competitive actions are strategic signals to the market (e.g., Basdeo, Smith, Grimm, Rindova, and Derfus, 2006). However, not only firms, but also individual persons as signalers provide decisive information. For example, Goranova, Alessandri, Brandes, and Dharwadkar (2007) employed signaling in the context of top executive ownership stakes and the communication of firm strategies. Similarly, Bruton and colleagues (2009) showed

that founder's and investor's retained ownership in entrepreneurial IPOs result in different levels of underpricing.

Several signaling aspects determine the strength of signals in addition to the prerequisites of signal cost and signal observability (Connelly et al., 2011). Most of these elements refer to the signal itself, the signaler, or the receiver. The signal can be analyzed in terms of fit / quality, i.e., the extent to which the signal is correlated with the unobservable quality (Busenitz et al., 2005; Zhang and Wiersema, 2009) as well as signal frequency (Baum and Korn, 1999; Carter, 2006) and consistency (Chung and Kalnins, 2001; Fischer and Reuber, 2007). Signalers can be differentiated according to honesty, i.e., actual presence of the quality being signaled (Arthurs, Busenitz, Hoskisson, and Johnson, 2008; Ndofor and Levitas, 2004) as well as credibility, i.e., the combination of honesty and fit (Busenitz et al., 2005; Sanders and Boivie, 2004). Receivers impact signal strength in terms of receiver attention, i.e., the extent to which receivers vigilantly scan the signaling environment (Gulati and Higgins, 2003; Janney and Folta, 2006) as well as receiver interpretation, i.e., the amount of distortion introduced by the receiver, and/or weights applied to signals by the receiver (Perkins and Hendry, 2005). In addition, signal strength might also be modified by feedback from the receiver to the sender (e.g., Gulati and Higgins, 2003) or by distortions such as noise by other signalers (e.g., Zahra and Filatotchev, 2004).

For signals to work a separating equilibrium is required, in other words, either the cost to send the signal have to be different for high quality and low quality signalers (Spence, 1973) or the penalty cost for sending a false signal have to be high (Busenitz et al., 2005). The separating equilibrium distinguishes, for example, promising from less promising firms. If all signalers send the same signals and the

receiver cannot differentiate between the quality of the senders, then we speak of a pooling equilibrium (Bergh et al., 2014).

Background on insider transactions

The term ‘insider transactions’ sometimes has negative connotations because of potential illegal activities such as a banker’s share purchase of a firm that soon afterwards receives a takeover offer from a different firm that the banker supported in the deal’s context (Meulbroek, 1992). Thus, it is important to stress that this paper does not deal with illegal insider trading, but focuses on legal trading regulated by the respective government. In this context it is worth noting that allowing insider trading increases the information that share prices incorporate and results in more efficient financial markets (Leland, 1992).

The definitions of the insiders themselves vary across different studies. For example, Lakonishok and Lee (2001) define insiders as officers, directors, other key employees, and shareholders holding more than 10% of any equity class. Other studies examine the effects of insider trading between managers and outsiders (Ataullah, Davidson, Le, and Wood, 2014). For the remainder of this paper, we define insiders as executive or non-executive (i.e., supervisory) board members because of their involvement in important firm decision.

These firm insiders possess private information that increases their ability to properly assess firm value. This is true in particular when compared to minority investors that have to rely on public information. Thus, a share purchase or sale by an insider is a positive or negative signal (if reported to investors soon after the transaction) regarding potential differences between prices and fair values of shares. We focus on share purchases because share sales might not only be motivated by

insider information but also by the seller's need for additional liquidity (Lakonishok and Lee, 2001; Friederich et al., 2002).

Previous studies on insider transactions have either analyzed short-term or long-term share price reactions. First, given relatively efficient capital markets, stock prices might react to the additional information of the insider transaction immediately after the announcement. Second, researchers have also analyzed share price developments up to 12 months after the transaction in order to assess insiders' ability to properly assess firm values (Lakonishok and Lee, 2001). For the purpose of our study we focus on the short-term effects because they are directly linked to the strength of the signal created by the transaction. Numerous previous studies have found empirical evidence for positive abnormal returns after insider share purchases (e.g., Chang and Suk, 1998; Gregory, Matatko and Tonks, 1997; Seyhun, 1986).

It is crucial for the development of our hypotheses that insider transactions are an appropriate context for discussing elements of signaling theory. According to Bergh et al., (2014) this requires the identification of the fundamental characteristics of the signaling scenario, i.e., signalers, receivers, observed signals, unobserved quality, and possibly boundary conditions. In our case the insider is the signaler who sends the signal of a share transaction to investors without insider information (the receivers). The unobserved quality is the firm's fair value in comparison to current stock prices.

The essential predictive mechanism of signaling theory is the separating equilibrium, i.e., a condition that prevents an imitation of high quality signals (Bergh et al., 2014). In the original context of Spence's (1973) labor market this equilibrium was ensured by the notion that low-quality employees would need to pay prohibitively high costs for sending the signal of high job qualifications. One might

argue that the signaling costs incurred at the share purchase of an insider are similarly high irrespective of firm or insider characteristics. Nevertheless, the separating equilibrium can also be achieved with penalty costs linked to insider ownership (e.g., Bergh et al., 2014; Busenitz et al., 2005). Specifically, managers of overvalued firms might imitate share purchases of managers of undervalued firm, but they are less likely to do so because their personal wealth is at stake. In other words, the financial commitment of a share purchase results in a personal loss if the firm does not perform well (Jain and Tabak, 2008). More generally, managerial ownership creates a separating equilibrium not by differential signal costs, but by differential penalty costs (Filatotchev and Bishop, 2002; Goranova et al., 2007).

Nevertheless, depending on receivers' interpretation, signals might not generate a separating equilibrium but a so-called pooling equilibrium. This is the case when signaling costs are similar for higher- and lower quality senders and receivers cannot accurately differentiate between the two groups. Consequently, the separating equilibrium cannot plausibly be sustained if "the market has a way of finding the pooling equilibria" (Spence, 2002, p. 440).

In summary, insider share purchases are an ideal context for signaling. These signals are (among other factors) costly for the signaler and easily observable for receivers. Moreover, penalty costs ensure the existence of a separating equilibrium between signals on undervalued versus overvalued firms. Thus, insider transactions fulfill key prerequisites of successful signaling (Connelly et al., 2011).

Signal strength based on founder status

Previous studies have highlighted the importance of founders for their respective firms in various contexts. First, founders pursue a growth oriented and entrepreneurial logic that often results in superior performance (Miller, Le Breton-

Miller, and Lester, 2011). Second, founders are associated with stronger psychological attachment and commitment to their firms (Arthurs and Busenitz, 2003). Third, founders have developed a thorough understanding of the business and its underlying processes (Block, 2012). Moreover, in our context of insider purchases it is important that founders often continue to play a central role in the firm even after IPOs (Carpenter, Pollock, and Leary, 2003; Jayraman, Khorana, Nelling, and Covin, 2000). The crucial question in our context is whether financial markets react differently to insider share purchases by founders when compared to insider share purchases by non-founders.

We submit that founder status (i.e., the insider being the only or one of the founders of the respective firm) increases signal strength of insider share purchases in several ways. The following arguments in support of this are structured along key elements of signaling theory (e.g., Connelly et al., 2011). Specifically, we discuss the relationship between founder status of the insider and signal strength in terms of signal fit, signal credibility, receiver attention, and receiver interpretation.

In terms of signal fit, we argue that founders are better at assessing the fair value of the respective firm than non-founders. First, founders create firm-specific knowledge crucial for assessing the long-term potential of the firm (Busenitz et al., 2005). This tacit knowledge is embedded in the skills and capabilities of the founders and hence impossible to fully communicate or copy (Alvarez and Busenitz, 2001). Second, most founder insiders have usually been continuously involved with the firm since the foundation resulting in a maximum exposure to historic developments of the firm (He, 2008). Third, most founders have informal ties with many employees granting access to additional information irrespective of the founder's formal role in the firm (Block, 2012). These informal ties are not only

created by a shared history at the firm, but often by a sense of gratitude of employees towards the founder. And finally, founders have a vision where to take the company that goes beyond the mid-term written and discussed plans such as investment plans (Kelly, Athanassiou, and Crittenden, 2000). Thus, signals such as share purchases may contribute to reduce the information asymmetry between founders and potential investors.

In terms of signal credibility, we argue that investors are less likely to doubt the honesty of the signal if the insider purchase is made by a founder. Generally speaking, all purchases are costly signals to the respective insider because of the invested amount of money. Nevertheless, founders usually have relatively high equity stakes in the respective firm resulting in an insufficiently diversified personal wealth (e.g., Block, 2012; Bruton et al., 2009). Thus, for founders the financial cost of the signal can be considered higher. This is consistent with the idea of penalty costs that create a signaling equilibrium between founders of undervalued versus founders of overvalued firms (Bergh et al., 2014). In addition, founders of public firms face scrutiny of the investment communities (Chahine, Filatochev, and Zahra, 2011). Accordingly, the reputation of the founder among investors can suffer in case of dishonest signals resulting in negative long-term consequences (e.g., Daily and Dalton, 1992).

In terms of receiver attention, we argue that minority investors are more likely to take notice of an insider share purchase in case of a founder. One reason for this is the founder's reputation and the resulting recognition of the founder's name (Jayraman et al., 2000). This is supported by the notion that firm valuation and survival probability are higher in founder-led firms at the time of an IPO indicating a positive founder effect (Fischer and Pollock, 2004; Nelson, 2003). In addition,

founders of publicly listed firms have usually founded a privately-held firm and hence sold some of their shares at an IPO (e.g., Bruton, et al., 2009; Arthurs et al., 2008). Moreover, for many founders an IPO is the first opportunity to extract relevant amounts of cash from their firms (Bruton et al., 2009). Thus, if founders choose to reinvest this extracted cash a few years or even months later, then we expect capital markets to analyze what could have changed the founder's mind. Consequently we expect receiver attention to be higher in case of a share purchase by a founder.

In terms of receiver interpretation, we argue that investors might welcome an increasing founder equity stake in a firm. Performance studies have demonstrated the beneficial impact of founder influence on firm performance (e.g., Miller, Le Breton-Miller, Lester, and Cannella, 2007). Theoretical arguments in support of this founder performance effect include the reduced agency costs between managers and shareholders (Jensen and Meckling, 1976). Bruton and colleagues (2009) argued that, up to a certain point, higher ownership of the founder aligns the interests of the founder and the investors as higher ownership signals that the founder believes in the high value of the firm and seeks to maximize firm value. Practitioners also see the stock market performance of famous founder-dominated firms like Google and Amazon and sometimes even employ investment strategies based on founder influence. This is consistent with the core idea of information processing theory that is closely linked to signaling theory (Thomas and McDaniel, 1990). This theory predicts that if receivers cannot process all information about all signals in a complex environment, then a crude signal element that receivers can process quickly may be more effective than a more information-laden signal element. Thus, the crude

signal element of the insider's founder status might be a key influence on the receiver's interpretation of the share purchase signal.

In summary, key elements of signaling theory point towards an increased signal strength of insider purchases in case of a founder. We submit that founders are better at assessing the fair value of their company and create more credible signals as well as that founder purchases increase the attention of investors and are followed by favorable interpretations. Based on the arguments above, we expect that:

Hypothesis 1: Insider share purchases by founders result in stronger stock price increases than insider share purchases by non-founders.

Signal strength based on insider role

Previous studies have argued that the degree of relevant non-public firm information available to the respective insider depends on the insider's formal role in the firm (Seyhun, 1986; Lin and Howe, 1990). Specifically, insiders involved in day-to-day operations possess more valuable private information than other insiders (Fidrmuc et al., 2006). Thus, we differentiate between insiders with and without executive roles in the respective firm.

In line with key elements of signaling theory we expect that the information content of trades from executive insiders is higher compared to insiders with non-executive roles. In terms of signal fit, some insiders "are more 'inside' than others" (Jeng et al. 1999: 32). Executives are expected to possess an informational advantage due to their involvement in day-to-day business and hence are better at assessing the fair value of the firm (e.g., Fidrmuc et al., 2006; Jeng et al., 1999). In terms of signal credibility, the compensation, reputation and job security of executives is strongly tied to the respective firm (e.g., Amihud and Lev, 1981; Morck, Shleifer, and Vishny, 1990). In contrast, insiders without executive roles often hold similar

positions in several other firms (Fiss and Zajac, 2004). Accordingly and consistent with the idea of a signaling equilibrium created by penalty costs (Bergh et al., 2014), financial and reputational costs of executive board members are higher. In terms of receiver attention, executive power increases scrutiny of market participants and regulators (Jeng et al., 1999) and in terms of receiver interpretation, prior literature states that increased ownership stakes of directors reflect their commitment to focus on shareholder value creation (Fidrmuc et al., 2006). Thus, a share purchase of executives raises not only investors' attention, but is interpreted as a particularly positive signal.

This argument is even reinforced by the rationale of the information processing theory. Specifically, according to most national capital market legislations (including the United States, Great Britain or Germany), insiders are required to specify their roles in the firm when filing their trades. Thus, the insider's role might be a crude signal element. This crude signal element can be processed quickly by the receivers (Thomas and McDaniel, 1990) and might impact the receiver's interpretation of the overall share purchase signal.

In summary, insiders with executive roles are better at assessing the fair value of the firm if they truly have more relevant private firm information than insiders with non-executive roles. However, even if all insiders are similarly able to assess the fair value of the firm, then investors' attention and interpretation could increase signal strength in case of share purchases by executives. Thus, similar to Fidrmuc and colleagues (2006) we expect that:

Hypothesis 2: Share purchases by insiders with executive roles in the firm result in stronger stock price increases than share purchases by insiders with non-executive roles in the firm.

Signal strength based on founder status and insider role

In the sections above we hypothesize two main effects, namely that founder status as well as an executive role in the firm increase stock price reactions to insider transactions. Obviously founders as well as non-founders can fulfill executive as well as non-executive roles in a firm. Accordingly, we define four types of insiders along these two dimensions: Founders with executive roles, non-founders with executive roles, founders with non-executive roles, and non-founders with non-executive roles. This leads to the crucial question of whether signal strength increasing elements, i.e., founder status and executive role, reinforce each other or not. We discuss this in terms of the key signaling elements, i.e., signal fit, signal credibility, receiver attention, and receiver interpretation.

In terms of signal fit we have argued above that founders as well as executives are better at assessing the fair value of the respective firms than other types of insiders. Nevertheless, the reasons for this increased ability differ significantly. Specifically, founders benefit from their deep knowledge of long-term firm developments as well as informal ties to many employees (e.g., Busenitz et al., 2005), whereas executives benefit from their access to all current top-level firm documents and decisions (e.g., Fidrmuc et al., 2006). If each set of information is relevant for assessing firm value, then the access to both sets is favorable to the access to only one set of information. Thus, we conclude that founder status and executive role each independently increases the ability to assess firm value and that both elements reinforce each other in terms of signal fit.

In terms of signal credibility we have argued above that founders as well as executives face higher penalty costs for incorrect signals than other types of insiders. Nevertheless, the reasons for these increased penalty costs differ significantly.

Specifically, founders face higher penalty costs primarily due to the often insufficiently diversified personal wealth (e.g., Block, 2012; Bruton et al., 2009), whereas in the case of executives the compensation, reputation and job security is strongly tied to the respective firm (e.g., Amihud and Lev, 1981; Morck et al., 1990). Thus founders with an executive role in the firm face additive elements for increased penalty costs. This is supported by the observations that founder executives enjoy particularly strong intrinsic benefits (e.g., Gao and Jain, 2012) and are expected to exhibit a higher need for achievement (Begley, 1995). Thus, we conclude that founder status and executive role each independently increases penalty costs and that both elements reinforce each other in terms of signal credibility.

In terms of receiver attention we have argued above that founders as well as executives increase the curiosity of potential investors. Nevertheless, an investor that reads the list of recently announced director dealings either looks into the details of a certain deal or not. If as argued above, founder status or an executive role of the insider is sufficient for drawing attention, then it hardly matters whether there is an additional reason for looking into a particular transaction. Thus, we conclude that founder status and executive role each independently increases receiver attention, but that the two elements do not reinforce each other.

In terms of receiver interpretation we have argued above that founders as well as executives cause more favorable interpretations by potential investors than other types of insiders. Both of these arguments are based on crude signals in the sense of the information procession theory. However, information processing theory predicts that an aggregation of signals results in diminished effectiveness with respect to receiver's interpretation (Bergh et al., 2014). In our context of signal elements – namely founder status and executive role – investors might be unable to process the

informational content of the different elements. Consequently, investors might differentiate between signalers with and without signal strength increasing elements, but not differentiate between high-quality and very-high-quality signalers. The resulting state is called pooling equilibrium in which investors cannot accurately differentiate between the quality of signals (Spence, 2002). Consequently, signal elements are interpreted in a non-additive manner. Thus, we conclude that founder status and executive role each independently improve receiver interpretation, but that the two elements do not reinforce each other.

In summary, founder status and executive role reinforce each other in terms of signal fit and signal credibility, but it depends on receivers whether this translates into an additive effect on signal strength or not. Thus, consistent with the previous hypotheses, we argue that non-founders with non-executive roles should cause the weakest signals. However, fulfilling both signal strength increasing elements (founder status and executive role) does not result in a stronger signal than fulfilling only one of these elements because of the receiver's attention to and interpretation of crude signal elements. Thus, we propose the following two hypotheses:

Hypothesis 3a: The stock price increases following insider share purchases is higher if one of the following elements is in place: Founders with executive roles, insiders who are founders or insiders who have executive roles.

Hypothesis 3b: Insider share purchases by non-founders with non-executive roles in the firm result in weaker stock price increases than share purchases by other insider types.

METHODOLOGY

Sample

Our sample consists of insider purchases between January 2007 and December 2014 of publicly listed firms in the German ‘prime standard’, i.e., the German stock market segment for relatively large and transparent firms. We choose Germany for our analysis because it offers an active and regulated stock market (Fiss and Zajac, 2004) as well as many listed firms with founders still active in various roles in the firm. Another advantage of Germany for our analytical purposes is the dual board structure. Most importantly, shareholders of German firms appoint a supervisory board who appoints and controls an executive board but does not take part in executive board meetings (Kroll, Walters, and Wright, 2008). This system results in a clear information gap between different types of insiders. Specifically, members of the executive board (hereafter synonymously to insiders with executives roles) in practice know (or even prepare) all documents available to members of the supervisory board (hereafter synonymously to insiders with non-executives roles). The opposite is usually not the case given that the executive board can take many important operative decisions such as product launches or price changes without having to inform the supervisory board. Moreover, only a limited number of meetings are held each year where the supervisory board receives information.

We started our data collection based on all insider transaction announcements published during our sample period by the firms in our sample. Firms were included in the sample if they were in the prime standard during the year 2014. We excluded the trades linked to options, transfers of shares (sometimes from an insider to a legal entity fully owned by the same insider), trades associated with share purchase plans and trades associated with capital increases. Furthermore, we did not include the sale

of shares in our analysis because share sales might not only be motivated by insider information but also by the seller's need for additional liquidity (Lakonishok and Lee, 2001; Friederich et al. 2002). We also excluded transactions if the announcement was more than 30 days after the transaction. In Germany, firm insiders are legally obliged to ensure the announcement of their trades within five business days (§ 15a WpHG, the German law on securities trading). Nevertheless, in a few cases insiders do not meet this legally defined deadline. Excluding very late announcements (i.e., more than 30 days after the announcement) improves comparability to previous studies (e.g., Fidrmuc et al., 2006). Then, also consistent with Fidrmuc et al. (2006), we consolidated announcements if they were on the same day, by the same insider, and regarding the same firm. It is worth noting that (in contrast to the U.S. and the U.K.) former board members and large shareholders without board positions do not have to report their trades according to the German Securities Trading Act¹⁰.

Based on the steps above we obtained 4,111 signals based on insider purchases. Out of these signals we excluded 22 signals because the IPO was less than 20 days before the announcement day, 91 signals because they were conducted neither by management nor by supervisory board members (typically managers below executive board members who have access to some board documents), and 47 signals because an insider sale announcement was at the same day as the insider purchase. This sample can be further modified by a focus on industries with founders as well as by winsorizing. The focus on industries with founders is relevant because founder effects are at the heart of our analysis. Winsorizing is important because the market is likely to ignore very small transactions (announcements included share

¹⁰ Wertpapierhandelsgesetz

purchases for less than 1,000 Euros). Additionally, large transactions might be a strategy to expand and subsequently exercise power which results in different signal interpretations by minority shareholders (e.g., David, Bloom, and Hillman, 2007; Smith, 1996). Thus, we excluded the 1% largest as well as the 1% smallest transactions (please refer to our robustness tests for different thresholds). This procedure left us with 3,023 signals (“final sample”) which is a sample size comparable to those employed in previous research on insider transactions (e.g., Fidrmuc et al., 2006; Lakonishok and Lee, 2001).

The signals in our final sample are based on the insider transactions of 175 firms. These firms are on average more than 30 years old and have an average market capitalization of more than 2 billion Euros. Firms are from various industries including telecommunication, pharma and healthcare, consumer, media, technology, industrial, software, retail and construction. The median size of insider transactions is about 33,000 Euros in terms of share price multiplied by number of shares.

We cross-referenced several data sources for our analyses. The list of firms in the German prime standard was obtained from Deutsche Börse, the operator of the Frankfurt stock exchange. For each firm, we collected the information on insider transactions from “Unternehmensregister”, a database licensed by the German government to provide various information on German firms, as well as from “DGAP”, an official media body collecting mandatory firm announcements. The information in these sources included the details on the deal (announcement day, trading day, number of shares, share price, purchase versus sale of shares, etc.) as well as details regarding the respective insider (insider name and role in firm). We extracted further firm information such as founding year from DAFNE a database of Bureau Van Dijk. Moreover, market data such as stock prices and market index

values were gathered from Datastream. Finally, we collected information on the founder of the sample firms from their company profiles on their homepages or from their annual reports.

Variables

Cumulative (average) abnormal return. We calculate daily abnormal returns by using the market model for a period of 41 days centered on the announcement day of an insider transaction. Based on these daily abnormal returns we can compute various cumulative average abnormal returns (CAARs). The CAAR in our main model (CAAR 0;1) is the average of the abnormal returns on the announcement day (day “0”) and the day after that (day “1”). The calculation of abnormal returns requires a proxy for the market return. We focus on the Prime All Share Index because we analyze transactions of prime standard firm shares. The beta is estimated over a period of 200 to 21 days prior to the event day (e.g., Fidrmuc et al., 2006).

Days to announcement. We control for the number of days between transaction and announcement, because the longer this time span, the lower the relevance of this signal for financial markets (e.g., Greene and Smart, 1999).

Market capitalization. We control for size of the respective firm, defined as the natural logarithm of market capitalization at the time of the transaction announcement. Information tends to be more readily available about larger firms, which could impact the probability and potential relevance of additional insider information (Ataullah et al., 2014).

Firm age. We control for age of the respective firm, defined as the natural logarithm of the difference between the year of the transaction and the founding year. Information tends to be more readily available about older firms, which could

impact the probability and potential relevance of additional insider information (e.g., Capron and Shen, 2007).

Years listed. We control for the time since the IPO of the firm, defined as the natural logarithm of the difference between the year of the transaction and IPO year. Signals could be weaker for firms with a long stock market quotation because uncertainty and information asymmetry typically decreases with the period of stock market quotation (Das, Guo, and Zhang, 2006).

Signal size. We define signal size as the percentage of shares involved in the respective transaction, i.e., transaction size divided by the market capitalization of the firm. Obviously, larger transactions might result in stronger signals towards capital markets. This control is crucial because the earlier support of the information hierarchy story by Seyhun (1986) as well as Lin and Howe (1990) may have been caused by average CEO trades twice as large as trades by other insiders (Fidrmuc et al., 2006).

Insider ownership. We controlled for insider ownership, measured as the ratio of the total number of ordinary shares of the insider to the total number of the firm's shares outstanding. Prior research suggests that the level of ownership impacts the information content of signals from firm insiders (e.g., Fidrmuc et al., 2006; Bruton et al., 2009). At modest levels of insider ownership share purchases might reflect the commitment of the insider to focus on shareholder value creation and hence are a positive signal for the market (Fidrmuc et al., 2006). However, investors might respond negatively to a director's purchase if his ownership is already substantial because of greater managerial discretion and potential for entrenchment (e.g., Morck, Shleifer, and Vishny, 1988).

Signal repeated. We assign a dummy variable equal to one if the respective announcement was preceded by a similar signal (i.e., an insider purchase preceded by an insider purchase in the same firm) in the 30 days before the announcement date. The reaction to the respective signal might be weakened by the existence of a previous signal if financial markets do not believe in additional insider information since the previous transaction announcement.

Signal reinforced at the same day. We assign a dummy variable equal to one if at least two different insiders conduct a similar transaction (i.e., at least two insider share purchases by different insiders) on the same day. Two or more insider purchases increase the credibility of the signal to financial markets (e.g., Fidrmuc et al., 2006).

No countersignal one month before. We assign a dummy variable equal to one if the announcement of an insider purchases was not preceded by the announcement of an insider sale in the 30 days before. Although share sales are difficult to interpret, financial markets might question a potential undervaluation of shares if at least one of the insiders sells shares.

Volatility of share. We control for share volatility because the strength of share price fluctuations has a severe influence on share price reactions to relevant events such as insider transactions (Pagan and Schwert, 1990). We calculate share price volatility based on the standard deviation of daily stock price returns in the month before the announcement.

Volatility of index. We further control for the volatility of the Prime All Share Index, because index movements are crucial for the abnormal returns resulting from share price relevant events such as insider transactions (French, Schwert, and

Stambaugh, 1987). We calculate index volatility based on the standard deviation of daily returns in the month before the announcement.

Relative share price. We calculated the relative share price by comparing the share price at the day before the transaction announcement with the average share price in the year before. This variable accounts for the fact that, for example, a relatively “cheap” valuation might incentivize insiders to send a positive signal to the market at relatively low costs.

Relative index level. We account for macro-level market trends by comparing the index level at the day before the transaction announcement with the average index level in the year before.

Fixed effects. Year dummies were included for each of the years represented in our sample (2007–2014)¹¹ in order to control for temporal effects unique to the various years (Hayward, 2002). Furthermore, we used the industry sector classification of the “Deutsche Börse”, i.e., a classification of all German prime standard firms in the following 18 categories¹², in order to take industry effects into account: Automobile, basic resources, chemicals, construction, consumer, food and beverages, industrial, media, pharma and healthcare, retail, software, technology, telecommunication, transportation and logistics, and utilities.

Founder. We assign a dummy variable equal to one if the insider of the respective transaction is the founder or one of the founders of the firm.

Executive board member. Germany has a dual board system, where the executive board (“Vorstand”) is responsible for the day-to-day operations and the supervisory board (“Aufsichtsrat”) appoints and monitors the members of the

¹¹ Reference category: Year 2007

¹² Reference category: Automobile

executive board on behalf of shareholders (Dittmann, Maug, and Schneider, 2010). Consequently, the levels of information available to the two boards can differ significantly.¹³ We assign a dummy variable equal to one if the insider is a member of the executive board and zero if otherwise, meaning that the insider is a supervisory board member.

Executive board member is founder of the firm. Within the group of executive board members we further differentiate whether the insider is a founder or not. We assign a dummy variable equal to one if the insider is the founder of the firm and an executive board member.

Executive board member is not founder of the firm. We assign a dummy variable equal to one if the insider is not founder of the firm, but an executive board member.

Supervisory board member is founder of the firm. Within the group of supervisory board members we further differentiate whether the insider is a founder or not. We assign a dummy variable equal to one if the insider is the founder of the firm and a supervisory board member.

Supervisory board member is not founder of the firm. We assign a dummy variable equal to one if the insider is not founder of the firm, but a supervisory board member.

Results

Descriptive statistics and correlations among the research variables appear in Table 1. The following results in this table are particularly noteworthy. First, most correlation coefficients are rather low. Second, there are negative correlation

¹³ Precise information on the information rights and duties of the supervisory board in German provides the German corporation law (§ 90 AktG)

coefficients between cumulative average abnormal returns (CAARs) and the dummy variable for supervisory board members who are not founders. Consistent with prior studies, we examine the variance inflation factors in order to test for multicollinearity. None of the variance inflation factors exceeds the commonly accepted threshold of 10. These results suggest that multicollinearity is not a problem in our analysis.

Table 2 presents descriptive statistics for different CAARs and separately for the different insider roles analyzed. With an increasing event window of the CAARs, the standard deviation declines for every single insider role defined. This implies that market adjustments smooth over time and supports the assumption of informational efficiency of the market – at least to some degree (e.g., Friederich et al., 2002). Accordingly, share prices adjust rapidly to insider trades and hence the CAAR (0;1), i.e., the CAAR with respect to the announcement day and the day after, is suitable for our analyses.

Table 3 presents the results of regression analyses used to test the hypotheses. In Model 0, our control model, only the control variable for firm age ($\beta = 0.002$; $p = 0.029$), index volatility ($\beta = -0.272$; $p = 0.0028$) and relative index level ($\beta = -0.018$; $p = 0.008$) impact the 2-day CAAR significantly. The adjusted R² is 0.0117 which is similar to values in previous studies on insider transactions (e.g., Autallah et al., 2014; Fidrmuc et al., 2006).

Table 3-1: Descriptive Statistics and Correlations

	Descriptives				Correlations																			
	Mean	S.D.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. CAAR (0;1)	0.00	0.03	-0.27	0.14	1.00																			
2. Founder	0.15	0.36	0.00	1.00	0.02	1.00																		
3. Executive board member	0.55	0.50	0.00	1.00	0.06	0.18	1.00																	
4. Founder is member of the executive board	0.12	0.32	0.00	1.00	0.01	0.86	0.33	1.00																
5. Executive board member is not Founder	0.44	0.50	0.00	1.00	0.05	-0.37	0.79	-0.32	1.00															
6. Founder is member of the supervisory board	0.04	0.19	0.00	1.00	0.02	0.45	-0.22	-0.07	-0.17	1.00														
7. Supervisory board member is not Founder	0.41	0.49	0.00	1.00	-0.06	-0.36	-0.93	-0.31	-0.73	-0.16	1.00													
8. Days between transaction and announcement	2.84	3.36	0.00	40.00	-0.03	-0.03	-0.14	-0.03	-0.12	-0.01	0.14	1.00												
9. Logarithm of market capitalization	5.54	1.93	1.54	11.32	0.01	-0.16	0.05	-0.15	0.14	-0.05	-0.03	-0.03	1.00											
10. Logarithm of firm age	3.44	0.96	0.00	5.85	0.05	-0.25	-0.08	-0.24	0.08	-0.06	0.11	-0.03	0.31	1.00										
11. Logarithm of years listed	2.45	0.84	0.00	4.96	0.05	-0.11	-0.04	-0.09	0.02	-0.05	0.05	-0.05	0.32	0.49	1.00									
12. Signal Size	0.00	0.00	0.00	0.01	0.00	0.15	-0.09	0.11	-0.16	0.11	0.05	0.02	-0.23	-0.07	-0.04	1.00								
13. Insider ownership	11.43	20.62	0.00	100.00	-0.02	0.34	-0.19	0.28	-0.38	0.18	0.13	0.00	-0.09	0.18	0.21	0.13	1.00							
14. Signal repeated	0.51	0.50	0.00	1.00	-0.03	0.13	-0.05	0.15	-0.15	0.00	0.05	-0.04	-0.03	-0.05	-0.01	-0.06	0.15	1.00						
15. Signal reinforced	0.19	0.39	0.00	1.00	0.00	-0.07	0.07	-0.10	0.14	0.04	-0.09	-0.06	0.07	0.00	-0.09	-0.02	-0.01	-0.04	1.00					
16. No countersignal	0.94	0.24	0.00	1.00	-0.01	0.04	0.04	0.04	0.01	0.01	-0.04	-0.02	-0.01	0.04	0.02	0.00	0.02	-0.04	-0.04	1.00				
17. Share volatility	0.03	0.02	0.01	0.16	-0.02	0.01	0.02	0.02	0.01	-0.02	-0.02	0.00	-0.28	-0.25	-0.25	0.11	-0.10	0.08	0.07	0.03	1.00			
18. Index volatility	0.02	0.01	0.00	0.05	-0.03	0.03	0.00	0.01	-0.01	0.04	-0.02	0.00	-0.10	-0.02	-0.08	0.06	0.05	0.13	0.02	0.09	0.52	1.00		
19. Relative share price	-0.21	0.56	-11.37	0.54	0.07	0.05	0.00	0.06	-0.04	-0.01	0.01	-0.02	0.13	0.14	0.19	-0.05	0.08	-0.06	-0.09	-0.04	-0.56	-0.46	1.00	
20. Relative index level	-0.05	0.18	-0.62	0.19	0.02	-0.02	-0.01	0.00	-0.01	-0.05	0.03	0.00	0.10	0.02	0.07	-0.05	-0.03	-0.12	-0.04	-0.08	-0.49	-0.85	0.53	1.00

Table 3-2: Descriptive Statistics with respect to different Insider Roles

Insider role	Count	CAAR (0;1)					CAAR (0;5)				
		Mean	S.D.	Max	Median	Min	Mean	S.D.	Max	Median	Min
Founder	473	0.002	0.022	0.107	-0.001	-0.102	0.002	0.012	0.068	0.001	-0.052
Executive board member	1676	0.002	0.024	0.138	0.000	-0.102	0.002	0.012	0.068	0.001	-0.066
Founder is member of the executive board	364	0.001	0.022	0.098	-0.001	-0.102	0.001	0.012	0.049	0.000	-0.052
Executive board member is not founder	1312	0.002	0.024	0.138	0.001	-0.095	0.002	0.013	0.068	0.001	-0.066
Founder is member of the supervisory board	110	0.003	0.023	0.107	0.000	-0.065	0.003	0.014	0.068	0.002	-0.040
Supervisory board member is not founder	1238	-0.001	0.028	0.104	-0.001	-0.269	-0.001	0.012	0.071	0.000	-0.059

Table 3-3: Regression Results

VARIABLES	Model 0 CAAR (0;1)			Model 1 CAAR (0;1)			Model 2 CAAR (0;1)			Model 3 CAAR (0;1)			Model 4 CAAR (0;1)		
	Coeff.	Std. Err.	P-values	Coeff.	Std. Err.	P-values	Coeff.	Std. Err.	P-values	Coeff.	Std. Err.	P-values	Coeff.	Std. Err.	P-values
Days between transaction and announcement	0.000	0.000	0.164	0.000	0.000	0.198	0.000	0.000	0.301	0.000	0.000	0.333	0.000	0.000	0.340
Logarithm of market capitalization	0.000	0.000	0.387	0.000	0.000	0.364	0.000	0.000	0.323	0.000	0.000	0.309	0.000	0.000	0.308
Logarithm of firm age	0.002	0.001	0.029	0.002	0.001	0.015	0.002	0.001	0.025	0.002	0.001	0.017	0.002	0.001	0.021
Logarithm of years listed	0.001	0.001	0.128	0.001	0.001	0.104	0.001	0.001	0.135	0.001	0.001	0.115	0.001	0.001	0.126
Signal Size	0.128	0.199	0.519	0.073	0.199	0.714	0.140	0.199	0.482	0.102	0.200	0.611	0.129	0.199	0.516
Insider ownership	0.000	0.000	0.224	0.000	0.000	0.047	0.000	0.000	0.429	0.000	0.000	0.192	0.000	0.000	0.347
Signal repeated	-0.001	0.001	0.315	-0.001	0.001	0.241	-0.001	0.001	0.347	-0.001	0.001	0.330	-0.001	0.001	0.366
Signal reinforced	0.000	0.001	0.920	0.000	0.001	0.967	0.000	0.001	0.823	0.000	0.001	0.844	0.000	0.001	0.783
No countersignal	-0.001	0.002	0.541	-0.001	0.002	0.483	-0.001	0.002	0.473	-0.001	0.002	0.446	-0.001	0.002	0.458
Share volatility	0.053	0.049	0.277	0.052	0.049	0.284	0.052	0.049	0.289	0.054	0.049	0.271	0.054	0.049	0.270
Index volatility	-0.272	0.124	0.028	-0.270	0.124	0.030	-0.272	0.124	0.028	-0.272	0.124	0.028	-0.273	0.124	0.028
Relative share price	0.003	0.003	0.309	0.003	0.003	0.327	0.003	0.003	0.309	0.003	0.003	0.316	0.003	0.003	0.307
Relative index level	-0.018	0.007	0.008	-0.018	0.007	0.010	-0.018	0.007	0.008	-0.018	0.007	0.011	-0.018	0.007	0.010
Founder				0.003	0.001	0.021									
Executive board member							0.002	0.001	0.015						
Founder is member of the executive board										0.004	0.002	0.013			
Executive board member is not Founder										0.003	0.001	0.029			
Founder is member of the supervisory board										0.005	0.003	0.067			
Supervisory board member is not Founder													-0.003	0.001	0.005
Industry fixed effects									Included						
Year fixed effects									Included						
Constant	-0.007	0.006	0.284	-0.008	0.006	0.226	-0.008	0.006	0.221	-0.008	0.006	0.185	-0.005	0.006	0.407
Observations		3,023			3,023			3,023			3,023			3,023	
Adjusted R-squared		0.01167			0.01290			0.01354			0.01404			0.01437	

In order to test H1, that insider purchases of founders significantly impact the CAARs, we added the founder variable ($\beta = 0.003$; $p = 0.021$) to our model. Model 1 explained more variance (adjusted $R^2 = 0.0129$) and supported our hypothesis. In Model 2 we found support for the information hierarchy hypothesis ($\beta = 0.002$; $p = 0.015$) with an adjusted R^2 of 0.0135. Specifically, we showed that market reactions are stronger when executive board members make share purchases. Further, our analysis supports H3a and H3b. We did not find a significant difference between founder executive board members ($\beta = 0.004$; $p = 0.013$) and non-founder executive board members ($\beta = 0.003$; $p = 0.029$) indicating that the signal elements, namely founder status and executive role, are not additive. Moreover, we find a weak effect of founders as supervisory board members on the CAARs ($\beta = 0.005$; $p = 0.067$) supporting the relevance of founders. The adjusted R^2 reaches 0.0140. Model 4 supports this prediction by displaying a highly significant negative effect of share purchases from non-founder supervisory board members on the CAARs ($\beta = -0.003$; $p = 0.005$) compared to all other categories (founder is an executive board member, non-founder executive board member and founder is a supervisory board member). The adjusted R^2 increases further to 0.01437.

Robustness of results

In order to ensure that our results were not an artifact of model specification or sample selection bias we reran the regression with a variety of adjustments. In our main model, we truncated our data on a 1% level because we wanted to prevent that our data is blurred by small or large transactions. Specifically, very small transactions might be ignored by the market (e.g., Fidrmuc et al., 2006) and very large transactions might be strategic decisions to expand and subsequently exercise power (Smith, 1996). Nevertheless, we want to ensure that our results are not driven

by our choice of the 1% threshold. Accordingly, we reran our analyses with different thresholds and truncated the data on a 5% level and on a 10% level.¹⁴ The results are robust to both adjustments.

In order to control for our industry adjustments we reran the regression based on a sample including all industries (including industries without founders in our sample). Table 4 illustrates the results. The analyses still generally support our hypotheses. However, the P-values are slightly higher and the adjusted R² of the models is lower indicating less predictive power.

The calculation of CAAR is determined by the event period. Based on prior studies we employ a two day window starting with the announcement day. This choice is based on the assumption that markets are characterized by information efficiency (e.g., Jaffe, 1974; Friederich et al., 2002). Nevertheless, we would like to test the robustness of our results with respect to different event windows (e.g., Fidrmuc et al., 2006). Specifically, we calculated CAARs with a three, five and twenty day event window based on the announcement day and the subsequent days. We found empirical support for our hypotheses when we expand the event window. Specifically, the explained variance increases significantly (CAAR (0;3) adjusted R² > 0.016, CAAR (0;5) adjusted R² > 0.04 and CAAR (0;20) adjusted R² > 0.16) with a longer event window. Table 5 shows the results for CAAR (0;5).¹⁵

¹⁴ The tables for different cut-off thresholds are available by request from first author.

¹⁵ The tables for the different event windows (CAAR (0;3); CAAR (0;20)) are available by request from first author.

Table 3-4: Robustness of Results without Industry Adjustments

VARIABLES	Model 0 CAAR (0;1)			Model 1 CAAR (0;1)			Model 2 CAAR (0;1)			Model 3 CAAR (0;1)			Model 4 CAAR (0;1)		
	Coeff.	Std. Err.	P-values	Coeff.	Std. Err.	P-values	Coeff.	Std. Err.	P-values	Coeff.	Std. Err.	P-values	Coeff.	Std. Err.	P-values
Founder				0.003	0.001	0.034									
Executive board member							0.002	0.001	0.053						
Founder is member of the executive board										0.003	0.001	0.053			
Executive board member is not Founder										0.002	0.001	0.087			
Founder is member of the supervisory board										0.003	0.002	0.180			
Supervisory board member is not Founder													-0.002	0.001	0.012
Control variables									Included						
Industry fixed effects									Included						
Year fixed effects									Included						
Constant	0.002	0.004	0.588	0.002	0.004	0.684	0.001	0.004	0.786	0.001	0.004	0.859	0.003	0.004	0.454
Observations		4027			4027			4027			4027			4027	
Adjusted R-squared		0.002			0.003			0.003			0.003			0.004	

Table 3-5: Robustness of Results with CAARS based on a Five Day Period

VARIABLES	Model 0 CAAR (0;1)			Model 1 CAAR (0;1)			Model 2 CAAR (0;1)			Model 3 CAAR (0;1)			Model 4 CAAR (0;1)		
	Coeff.	Std. Err.	P-values	Coeff.	Std. Err.	P-values	Coeff.	Std. Err.	P-values	Coeff.	Std. Err.	P-values	Coeff.	Std. Err.	P-values
Founder				0.001	0.001	0.058									
Executive board member							0.002	0.000	0.000						
Founder is member of the executive board										0.002	0.001	0.011			
Executive board member is not Founder										0.002	0.001	0.000			
Founder is member of the supervisory board										0.003	0.001	0.038			
Supervisory board member is not Founder													-0.002	0.000	0.000
Control variables									Included						
Industry fixed effects									Included						
Year fixed effects									Included						
Constant	0.000	0.003	0.957	-0.001	0.003	0.858	-0.001	0.003	0.754	-0.001	0.003	0.685	0.001	0.001	0.743
Observations		3,023			3,023			3,023			3,023			3,023	
Adjusted R-squared		0.041			0.042			0.047			0.049			0.049	

DISCUSSION AND CONCLUSION

In short, we discuss signals of potential private information in the context of insider transactions. Legal insider transactions are an ideal context for signaling studies because these transactions are signals that are observable and costly to imitate. Moreover the signal strength of different insider transactions can be compared based on short-term share price reactions after the transaction announcements. Consistent with previous studies we argue that the announcement of share purchases by insiders should result in positive stock price reactions.

We employ key elements of signaling theory in order to hypothesize two main effects. First, we argue that founder transactions should create stronger signals than non-founder transactions because of (among other factors) founders' close ties to firm developments and employees resulting in an improved ability to assess firm values. Second, we also argue that insiders with executive roles should create stronger signals than insiders with non-executive roles due to additional information. We combine these two main effects in order to analyze the interaction of signal strength increasing elements. Specifically, based on the insiders' ability to assess firm values (signal fit) as well as their penalty costs (signal credibility) we argue that founders with executive roles should create the strongest signals and non-founders with non-executive positions should create the weakest signals. However, based on information processing theory we also submit that the receivers' attention to signals as well as their interpretation of signals could be similarly strong if either one or both signal strength increasing elements (founder status or executive role) are given. This is supported by the notion that receivers cannot process all information about all signals in a complex environment. Generally speaking, receivers can process a crude

signal element quickly and more effectively than a more information-laden signal element.

Our empirical results support our hypotheses. Specifically, share price reactions to insider purchases are significantly higher in case of a founder or in case of an insider with an executive role. The differentiation into four insider groups based on founder status and executive role reveals that signals by insiders who are neither founder nor executive are particularly weak. In contrast, we did not find significant differences between the three other insider groups. Thus, the crucial differentiation between insiders is whether they fulfill at least one of the two characteristics associated with increased signal strength, i.e., founder status or executive role. Thus, we find a pooling equilibrium.

Our findings might help solve the riddle regarding the information hierarchy hypothesis. Specifically, Fidrmuc et al., (2006) argue that transactions of board members with better access to firm information should cause stronger market reactions, but do not find conclusive empirical support for this hypothesis. Our results not only support the information hierarchy, but also demonstrate that the formal role of the respective insider (i.e., executive versus supervisory board member in our case), which was the focus in previous studies, is only one dimension for differentiating the signal strength of different insiders. Founder versus non-founder status appears to be a dimension that is just as important as the formal role in the firm. Consequently, previous analyses that did not find support for the information hierarchy hypothesis need to check whether this is due to a neglect of the founder dimension. In an extreme sample founders might dominate the group of non-executive insiders. In that case it would not be surprising if a comparison of

signal strength only along the dimension of formal roles did not lead to significant differences.

This study provides theoretical arguments and empirical evidence for founders' relevance even in later firm stages. Entrepreneurship literature has focused on the role of founders in the start-up or nascent phase (e.g., Cliff, Jennings, and Greenwood, 2006) or around the IPO (e.g., Arthurs et al., 2008; Bruton et al., 2009) and has suggested a diminishing relevance of the founder in later stages of the development of the firm (e.g., Chahine et al., 2011; Gedajlovic, Lubatkin, and Schulze, 2004). However, our results indicate that founders and their actions are not only relevant for investment decisions of venture capitalists in early stages (Zacharakis and Meyer, 1998) but also for minority investors of – later stage – publicly listed firms. This appears to be the case even after the founder's "retirement" to a non-executive role.

Further, our study answers the call for research on multilevel equilibria and signal aggregation. Bergh and colleagues (2014) theorize a portfolio of signals may result in a variety of equilibria. We analyzed two characteristics of the signaler (i.e., founder status and executive role) that increase signal strength independently. Our results indicate that on a "crude" level founder status as well as executive role yields in a separating equilibrium. However, we investigate that the combination of both signals results in a pooling equilibrium. This is consistent with information processing theory which suggests that a crude signal element that receivers can process quickly may be more effective than a more information-laden signal element. Consequently, in the context of share purchases of firm insiders, founder status and executive role serve as substitutable signal elements.

Our results also have implications for agency considerations in the context of dual board structures. Specifically, in Germany supervisory board members are appointed by shareholders (at the annual shareholders meeting) in order to control executive board members (among other responsibilities). Our results indicate that shareholders believe that supervisory board members not only have less firm information than executive board members, but that this information gap includes elements relevant for determining the fair value of the firm's shares. If this shareholder belief is correct, then the intended control of the executive board by the supervisory board is clearly impeded. Thus, policy makers interested in good governance and the adequate control of executive boards need to ensure a better flow of information between the two boards (e.g., mandatory distribution of all executive board documents to supervisory board members).

Our study offers additional practical implications. Our results indicate that more transparency regarding personal information of the insider such as whether she or he is the founder or not might increase market efficiency. Specifically, German policy makers should extend legal requirements of insider transaction announcements to founders irrespective of formal firm roles. Minority investors should *ceteris paribus* incorporate insider share purchases into their investment decisions. However, these investors should realize in particular that signals by non-founders without executive roles are weaker than signals by other insiders.

These conclusions should be considered in light of some study limitations. First, although the context of the German dual-board structure was useful for our analysis (it ensured a clear information difference based on formal roles in the firm), generalization of our study to countries with single board structures need to be carefully adjusted. Second, by adding the different insider groups into our regression

models, we can increase the explained variance of CAAR. Unfortunately, (similar to previous studies on insider transactions) the explained variance is still rather low. Thus, many other unobserved effects drive share price developments.

Future research should apply our approach in particular to the United States in order to retest the information hierarchy hypothesis while taking possible founder effects into account. Moreover, interviews with investors might reveal the extent to which insider transactions in general and transaction by certain insider groups in particular impact investment decisions. In this context researchers also need to assess how diligently financial intermediaries monitor insider transactions announcements and incorporate these signals into share purchase recommendations. Lastly, it would be intriguing to analyze whether crude signal elements are non-additive not only in the short-term, but also in the long-term, i.e., when receivers have sufficient time to analyze all signal elements.

In conclusion, our study demonstrates that the signal strength of insider share purchases increases with founder status as well as an executive role in the firm. Both dimensions appear to be important, but fulfilling both or either one these criteria results in similar signal strength. Thus, at least in our context, factors increasing signal strength (founder and executive role) do not appear additive. Thus, we hope that our research enriches our understanding of founder effects in post-IPO stages as well as the discussion on how different elements linked to signal strength interact when determining the overall strength of signals.

DISCUSSION AND CONCLUSION OF THE THESIS

The overarching objective of this thesis is to gain insights on corporate governance, in general, and on the influence of ownership constellations, in particular. The thesis consists of three empirical studies, each one addressing important aspects of ownership and power on three dimensions. Study 1 analyzes how the composition of owner groups and the distribution of power within that group impact organizational outcomes. Study 2 discusses how blockholders differ regarding their risk-attitude and preferences. Study 3 examines how the market perceives founders as a distinct insider group with a – informal – powerful position. By analyzing the economic effects on three different levels, i.e. performance, strategic firm decisions and market reactions, this thesis underscores the economic importance of ownership. Subsequently, I summarize the theoretical contributions as well as the limitations and the avenues for further research of this thesis. I focused on those aspects that are relevant to all studies in order to avoid redundancies with respect to the discussions in the individual studies.

Theoretical contributions

This thesis contributes to corporate governance literature on three dimensions. First, by taking ownership composition into account, this thesis provides further support for the relevance of ownership structures in organizational outcomes. More specifically, this study showed that group interaction of the owner group as high-level decision-making team has a substantial influence on organizational performance. Furthermore, by identifying power as a potential moderator, we contribute to the ongoing debate on boundary conditions of diversity (Nielsen & Nielsen, 2013). Power is a relevant factor of group involvement and strongly

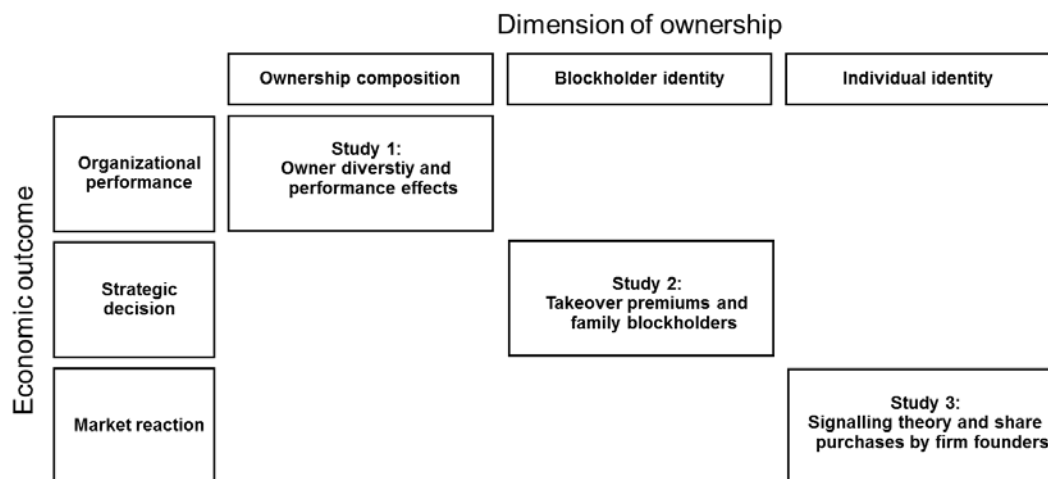
influences the ability of a group to achieve consensus (e.g. Bunderson, 2003). This dissertation project underscores this view in the special case of ownership groups.

Second, traditional agency theory suggests that ownership concentration is an important factor to discipline the management and to align the interest of owners and managers (e.g. Jensen & Meckling, 1976). However, this perspective neglects that blockholders are not a unified group, but that rather "...the identity of the owners has implications for their objectives and the way they exercise their power, and this is reflected in company strategy with regard to profit goals, dividends, capital structure, and growth rates" (Thomsen & Pedersen, 2000: 689). This thesis helps to unpack this heterogeneity by showing that 'problem-framing' and 'loss aversion' of family blockholders impact strategic firm decisions. More specifically, this study contributes to the family firm heterogeneity debate by analyzing the effect of family CEOs. Although the BAM appropriately describes strategic firm decisions of family firms with and without family CEOs, family CEOs appear to increase the family's reference point in terms of pre-decision utility.

Finally, owners differ not only in the way they exercise their formal – legally protected – power but they also vary regarding the possession and execution of informal power. The power of an owner can be demonstrated in different forms and it does not only derive from its equity ownership (e.g. Finkelstein, 1992; Triana et al., 2014). Particularly, the founder status grants owners a very powerful position (Daily & Johnson, 1997). Founders have usually been continuously involved with the firm since its foundation, resulting in a maximum exposure to historic developments of the firm and a thorough understanding of the wealth creation processes (He, 2008). Additionally, founders usually have informal ties with important stakeholders, granting them access to additional information, irrespective

of the founder's formal role in the firm (Block, 2012). Consequently, founders are expected to be particularly valuable and powerful (Desender et al., 2013). By analyzing the market reactions on share purchases of founders, this study provides theoretical arguments and empirical evidence on the relevance of founders even in later firm stages. Entrepreneurship literature has suggested a diminishing relevance of the founder in later stages of the development of the firm (e.g., Chahine et al., 2011; Gedajlovic, Lubatkin, and Schulze, 2004), particularly after the IPO (e.g., Arthurs et al., 2008; Bruton et al., 2009). However, this thesis indicates that founders and their actions are not only relevant in early stages (Zacharakis and Meyer, 1998) but also for minority investors of – later stage – publicly listed firms.

Figure 4-1: Overview of Topics addressed in this Thesis



In summary, this dissertation project suggests that corporate governance and ownership is multidimensional. When addressing the economic consequences of ownership, such as performance, strategic decisions or market reactions, scholars have to consider the group dynamics and ownership distribution within the ownership group, the differing objectives of powerful blockholders, and the influence of informally powerful owners like founders. Figure 4-1 shows the

different dimensions of ownership and the different economic outcomes addressed in this thesis.

Limitations and future research

The aforementioned conclusions should be considered in light of some limitations. First, the analyses of this thesis are based on different German samples. Thus, the generalization of the results for other countries should be made with caution. Specifically, the German corporate governance characteristics have to be considered when interpreting the results. Future research should apply the approaches of the different studies to other corporate governance regimes.

Although we hypothesize about the influence of team diversity on performance in Study 1 and about the objectives' of blockholders in Study 2, we did not measure the inherent decision-making processes and objectives. Accordingly, our explanations regarding team processes and objectives are speculative. Nevertheless, future research might be able to collect data in decision-making processes within a group of owners and link diversity-related constructs to decision-making processes directly or to capture the blockholders' true objectives.

Concluding remarks

The main issue in corporate governance research is the alignment of interests between the shareholders and the management. According to Jensen and Meckling (1976), ownership is crucial to effectively control the management and exercise power. However, owners are not a homogeneous group but rather a diverse group with manifold interests and objectives. Consequently, the goal of this thesis was to examine the economic consequences of ownership. The three research projects conducted in the course of this dissertation provided practical and theoretical insights on three dimensions of ownership, namely on group composition, blockholder

identity and founder identity. By examining group dynamics within ownership groups, blockholder objectives, and the informal power of founders on organizational performance, strategic decision-making and the market reaction, this thesis provided empirical support for the economic consequences of ownership.

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AFFIRMATION – STATUTORY DECLARATION

Last Name: Wachter

First Name: Maximilian

Affirmation – Statutory Declaration According to § 10 part 1 no. 6 of the Doctoral Studies' Guide Lines (dated 5th March 2008 as amended on the 8th March 2012)

I hereby declare, that the

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submitted to the Wissenschaftliche Hochschule für Unternehmensführung (WHU) - Otto-Beisheim-Hochschule - was produced independently and without the aid of sources other than those which have been indicated. All ideas and thoughts coming both directly and indirectly from outside sources have been noted as such.

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