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The Heterogeneity of Founding-Family Firms: Governance, Firm Policy, Economics, and Ownership Dynamics in Lone Founder, Family Founder, and Heir Firms

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Summary

It is an undisputed fact that founders and founding-families are amongst the most influential individual blockholders of publicly-listed firms in almost every economy worldwide. Much less clear and less well understood is the effect of their influence on firm decisions and economics. In fact, founding-family firms are characterized by great heterogeneity which is evident in such particularities as corporate governance, policy decisions, performance, and long-term orientation. This heterogeneity has been substantially neglected in existing scientific work. Largely generalized approaches, undifferentiated pragmatic definitions or simply a lack of data in the still young research field of family firms may cause this shortcoming. As a result, existing studies present mixed or even contradictory evidence on family firm effects.

This work assumes that this problem can be explicitly addressed by applying a differentiated definition approach. This concept suggests extending the well-established *founding-family firm definition* by combining well operationalizable quantitative governance characteristics with a qualitative firm categorization based on three particular owner identity types: lone founders, family founders, and heirs (descendants).

The approach claims that differentiating owner identity categories adds to an improved understanding of family firm heterogeneity. The results of this work highlight that heterogeneous characteristics turn into statistically measurable and economically meaningful differences between owner identity firm types in four particular fields:

1. The heterogeneous character of **corporate governance** features is presented by building on a conceptually new developed heterogeneity index. Family founder firms emerge as the firm type striving the most for continuous and substantial family influence. Lone founder firms—firms without kinship relationships amongst founders, board members, and shareholders—deviate substantially from family founder firms in terms of applied governance settings, though both are first generation firms. Heir firms take an in-between position, particularly applying dual share-class wedges and generally holding substantial voting rights—mean of 50.1% and median of 54%—indicate that descendants seek for enduring majority control.

2. The analysis of **firm policy** provides further evidence of the heterogeneous nature of family firms by showing that different owner identity types can behave differently and even in opposite ways. Lone founder firms invest heavily in risky R&D projects (39% above sample mean) while family founder and heir firms show no statistically noticeable deviation from sample R&D spend. Whereas lone founder and heir firms show moderate capital expenditures (CAPEX), family founder firms substantially underinvest compared to the sample mean (-61%). This underinvestment is even more pronounced when considering external (governance) pressure assumed from competitive industry environment.

   With reference to capital structure decisions, heir firms distinguish themselves by highest debt utilization and leverage characteristics (+10%). On the contrary, lone founder firms have a -32% lower leverage ratio than the sample mean; even further reduced in high industry competition settings. The substantial cash-holdings of lone founder firms, about 57% over the sample mean, could be interpreted as a risk-balancing liquidity buffer. Family founder firms hold less cash surplus compared to lone founders while heir firms display the opposite tendency; their cash-holdings are 26% below sample mean, *ceteris paribus*.

3. Analyzing **valuation and stock performance** as potential outcomes of governance or owner identity effects uncovers a complex field of endogeneity-related pitfalls. Causal interpretations should always be treated with caution, and bearing this in mind, I apply the highest methodological standards to unraveling potential differences in firm economics. The analysis includes: (i) dummy endogenous treatment regressions based on exogenous instruments, (ii) dynamic panel regressions, and (iii) firm fixed effects regressions for analyzing Tobin's Q valuation, as well as (iv) a four-factor asset pricing benchmark model[1] for analyzing stock returns. Across all types of analysis, i.e. from the descriptive agency cost settings evaluation to stock performance analysis, the results show robust and highly relevant differences which stem from moderating owner identity and governance characteristics. Lone founder firms emerge as the group of firms marked by least agency cost problems.

   The multivariate treatment approach confirms this picture strongly: lone founder firms exhibit a Tobin's Q valuation premium of about 10.7% to 22.3%, *ceteris paribus*.[2] This evidence is corroborated in dynamic panel regressions (GMM), following Arellano and Bond (1991). Lone founder settings show a 30.7% valuation premium, family founder settings a -35.7% discount, and heir firm settings a non-significant 7.4% premium. Treatment effects for family founder firm settings mark a valuation discount of approximately -14.9% to -22.9%, *ceteris paribus*, while heir firm settings are not associated with statistically noticeable deviations (5.4% to 8.1% higher valuation, but lacking statistical significance).

   All effects are confirmed by firm fixed effects regressions (and random effects regressions). The discount in family founder firm settings is about -20.4% (-15.8%). Heir firms again show a neutral characteristic, while lone founder firms show a valuation premium of about 25.1%

[1] The four-factor model follows the Fama and French (1993) and Carhart (1997) approach.

[2] The treatment regressions use exogenous instruments to proxy the owner identity dummies and account for potential endogeneity. This approach allows for a more causal interpretation of the respective firm type's influence on firm valuation.

(19.0%).

The stock return analysis corroborates my previous findings: lone founder portfolios realize an abnormal return of 106 basis points per month, or an annualized benchmark-adjusted return of 12.7%. Family founder and heir firm portfolios are well explained with a four-factor benchmark model. A striking side note: owner identity defined firm portfolios show particular factor loadings (SMB, HML, MOMENTUM) suggesting the practical possibility of different investment styles dependent on the favored owner identity firm type.[3]

4. Owner identity characteristics take also an influence on the likelihood of **ownership dynamics**, i.e. substantial shifts in voting rights ownership. The analysis of large negative and positive ownership changes incorporates a multitude of variables based on potentially applicable theoretical explanations. Large negative ownership changes are significantly more likely in lone founder settings. The marginal effect indicates about 7.8% increased likelihood of a negative voting rights shift by -2.5% from previous to actual period. Management board membership emerges as a valid governance and stewardship indicator substantially decreasing the likelihood of founding-family voting rights changes. Similarly, the marginal effect for a large increase in ownership is only observable in lone founder settings and increases this likelihood by about 3%.

   With a marginal effect of 3.5% the likelihood of a complete exit is approximately the same size as a large increase in lone founder settings. Overall this suggests that the heterogeneous characteristics of lone founder, family founder, and heir firms also apply to the dynamics of ownership structures. Family founder firms' and heir firms' ownership structures remain much more stable over time, supporting the argument that families tend to be more long-term oriented. Moreover, the results highlight that stewardship indicators like firms named af-

[3] SMB represents a small versus big market capitalization based factor, HML a book-to-market factor, and MOMENTUM controls for previous stock performance. See section 5.2.2 on Stock Performance.

ter the founder(s), or management and supervisory board influence, substantially and significantly reduce the likelihood of an exit by the founding-family. The particular marginal effects amount to approximately -3%, to -11% and -8%.[4]

Throughout all the topics researched in this dissertation and across the battery of empirical methods and robustness tests, that have been employed, there is one conclusive and decisive outcome: owner identity types do matter; to such an extent that empirical results may flip when owner identity is omitted. These results strongly recommend the benefits of taking owner identity types explicitly into account to prevent the potentially misleading generalization of so-called 'family firm' effects.

These findings are backed by a sound integration of a multidisciplinary theory framework including (i) agency theory, (ii) stewardship theory, and (iii) (social) identity theory, as well as by rigorous empirical methodology including advanced instrumental variable and panel regressions to factor in the threat of endogenous relationships. Ultimately this should be to the benefit of practitioners like regulators, policy makers, equity investors, financial advisers, entrepreneurs, family-firm members, and scholars alike.

This dissertation concludes with a survey of the outlook for future research opportunities. The understanding of founding-family firm behavior is still in its early stages. A deeper analysis of intra-family characteristics, basically fusing a quantitative approach with investigation of further qualitative features of individual, family, and firm characteristics looks as though it could be fruitful. Alongside detailed single-country study approaches like the present work, further comparable international evidence would be highly desirable. To a large extent the comparability of international work will de-

[4] Chapter 9, Ownership Dynamics in Founding-Family Firms, is based on the peer-reviewed and published standalone paper '*The dynamics of voting ownership in lone-founder, family-founder, and heir firms*' by Achleitner et al. (2012), previously presented at the 2011 IFERA (*International Family Enterprise Research Academy*) annual conference in Palermo/Italy.

pend on the future of definition work. This dissertation provides a thorough base for making comparisons with (future) international evidence including generational and family effects, but also for comparison with 'privately-held family firm' evidence—irrespective of geography. The more precise evidence of this work, differentiating three basic founding-family firm types, should generally allow more feasible comparison with future research.

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Nomenclature

ÜbernRLUG	Übernahmerichtlinie-Umsetzungsgesetz
2SLS	Two-Stage Least Squares
3SLS	Three-Stage Least Squares
adjTQ	Industry adjusted Tobin's Q
AG	Aktiengesellschaft
AktG	Aktiengesetz (German Stock Corporation Act)
AnsVG	Anlegerschutzverbesserungsgesetz
APAG	Abschlussprüferaufsichtsgesetz
ATE	Average Treatment Effect
ATT	Average Treatment Effect on the Treated
ATU	Average Treatment Effect on the Untreated
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht
BAWe	Bundesaufsichtsamt für den Wertpapierhandel
BilKoG	Bilanzkontrollgesetz
BilReG	Bilanzrechtsreformgesetz
BMW	Bayerische Motoren Werke

CAPEX	Capital Expenditures
CAPM	Capital Asset Pricing Model
CDAX	Composite DAX
CEFS	Center for Entrepreneurial and Financial Studies
CEO	Chief Executive Officer
cf.	confer
DAX	Deutscher Aktienindex
DCGK	Deutscher Corporate Governance Kodex
e.g.	exempli gratia
et al.	et aliae
etc.	et cetera
EU	European Union
EURIBOR	European Interbank Offered Rate
F-PEC	Family Influence on Power, Experience, and Culture
FAMF	Family Founder Firm
FE	Fixed Effects
FF	Founding-Family
FIBOR	Frankfurt Interbank Offered Rate
FMFG	Finanzmarktförderungsgesetz
FSE	Frankfurt Stock Exchange

GAAP	Generally Accepted Accounting Principles
GCCG	German Code of Corporate Governance
GIndex	Governance Index
GMM	Generalized Method of Moments
HET	Heterogeneity (indicating index variables)
HF	Heir Firm
HGB	Handelsgesetzbuch
HIC	High Industry Competition
HML	High Minus Low
i.e.	id est
I/B/E/S	Institutional Brokers' Estimate System
IAS	International Accounting Standard
IFERA	International Family Enterprise Research Academy
IFRS	International Financial Reporting Standards
IPO	Initial Public Offering
ISIN	International Securities Identification Number
IT	Information Technology
IV	Instrumental Variables
KapMuG	Kapitalanlegermusterverfahrensgesetz
KonTraG	Gesetz zur Kontrolle und Transparenz im Unternehmensbereich

LF	Lone Founder Firm
M&A	Mergers & Acquisitions
MAX	Maximum
MIN	Minimum
MOM	Momentum
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
p.	page
p25	25th percentile
p75	75th percentile
PCAOB	Public Company Accounting Oversight Board
PE	Private Equity
PIPE	Private Investment in Public Equity
pp.	pages
Q	Tobin's Q (abbreviation frequently applied)
R&D	Research and Development
RE	Random Effects
ROA	Return on Assets
ROE	Return on Equity
S&P 500	Standard & Poor's 500

SD	Standard Deviation
SFI	Substantial Family Influence
SIC	Standard Industrial Classification
SMB	Small Minus Big
TE	Treatment Effects
TQ	Tobin's Q
TransPuG	Transparenz und Publizitätsgesetz
TUG	Transparenzrichtlinie-Umsetzungsgesetz
TUM	Technische Universität München
UK	United Kingdom
UMAG	Gesetz zur Unternehmensintegrität und Modernisierung des Anfechtungsrechts
US	United States
VC	Venture Capital
VIF	Variance Inflation Factor
VorstOG	Gesetz über die Offenlegung von Vorstandsvergütungen
vs.	versus
WH	Working Hypothesis
WpÜG	Wertpapierübernahmegesetz
WpHG	Wertpapierhandelsgesetz

1 Introduction

1.1 Research Topic

Is it 'trick' or 'treat'—and for whom? This question might arise when it comes to evaluating the widespread phenomenon of family firms. Not only amongst privately held companies, but also amongst listed firms, companies in which founders and families have a decisive influence play an essential role. Around 50% of firms listed in the German market index, CDAX, over the years 1995 to 2008 were subject to a prevailing founder or founding-family influence. Altogether, those individuals controlled firms that represented around 31% of total market capitalization in the all-share index of FSE (*Frankfurt Stock Exchange*) at year end 2008. In over 83% of the respective firm years, the founder(s) and/or the founding-family held management and/or supervisory board positions, and, on average, those individuals[5] controlled 38% of voting rights and 35% of cashflow rights in those firms. These statistics clearly point to the strong influence of founders and founding families as individual blockholders and board members in Germany.[6] The numbers largely confirm the international evidence that pri-

[5] In this study founding-family defined firms are almost identical with individual blockholder firms, influenced by founders or founding families. About 85% of founding-family defined firm years show blockholdings of those individuals. The correlation between individual blockholding according to this founder and founding-family definition and a wider definition including all types of private blockholders, lacking a founding-family characteristic, is 0.77. The mean over firm years is 71%. Thus, in our sample, even a very broad perspective on individual blockholding represents predominantly the blockholdings of founders and founding families.

[6] See Andres (2008b), Leiber (2008), Achleitner et al. (2009b), Ampenberger et al. (2013), Gottschalk et al. (2011), Günther (2011), Achleitner et al. (2012), Schmid (2013), and Spiegel (2012) for similar evidence on the relevance of founding-family firms in Germany.

vate individuals and families represent the largest group of blockholders in listed firms worldwide, as documented by La Porta et al. (1999), Faccio and Lang (2002), Anderson and Reeb (2003), Barontini and Caprio (2006), Villalonga and Amit (2006), Maury (2006), and Sraer and Thesmar (2007). Thus, founders and founding families as influential blockholders and board members are by no means a sole specific of the German capital market. Even in highly developed capital markets the relevance of entrepreneurs or entrepreneurial families as individual blockholders is undisputed.

The considerable number of firms with founder or family influence is not only the subject of economic and political interest, but also spurs scientific interest in the organizational specifics of those businesses. Whereas the general public cares about the valuable 'economic backbone' and 'job-engine' image of family firms, scholars strive for a more differentiated analysis. As governance characteristics differ notably in family firms, a prominent topic of interest is the implications that those governance characteristics entail (e.g. Bennedsen et al., 2010). In connection with this question, a substantial body of scholarly work examines whether those governance characteristics ultimately affect firm performance (e.g. McConaughy and Phillips, 1999; Anderson and Reeb, 2003; Villalonga and Amit, 2006; Barontini and Caprio, 2006; Maury, 2006). In particular, it is of interest whether this potential performance effect is beneficial or detrimental. Obviously, the powerful position of large blockholders—and families are large blockholders in the majority of cases worldwide—in conjunction with board influence, allows substantial influence on firm policy. Hence essential questions in this field of research deal with the rationale that drives these companies, as well as the potential positive or negative effects of such strong family influence for all involved participants.

Recent scholarly work extended the scope of founding-family research. Although family firm research can still be considered as a relatively new research strand of financial economics literature,[7] various aspects of governance and performance, and also corporate decision-making have come

[7] Chapter 4 introduces prior work of this literature strand.

into focus (e.g. McConaughy and Phillips, 1999; Villalonga and Amit, 2006; Bennedsen et al., 2007; Miller et al., 2007; Andres, 2008b; Le Breton-Miller and Miller, 2008; Villalonga and Amit, 2009; Ampenberger et al., 2013; Miller et al., 2011). These aspects certainly deserve even more attention, especially as many questions are still unanswered or inconclusively covered. Mixed evidence is hampering progress, even in some of the more advanced areas of family firm research, e.g. performance analysis. Indeed, prior empirical research turned out to vary in terms of result direction and statistical significance. One could argue that sample selection plays its role, and that to some degree the mixed evidence is attributable to differences in applied definitions. The latter particularly plagues this field of research. While both are fair arguments, they only hint at the underlying challenge: we have to do way better in understanding the various governance mechanisms and the (family) specifics of individual blockholder firms in a founding-family context.

This is the point where my research begins and from which it extends existing work. My main arguments are that implications drawn from a binary differentiation of family and non-family firms can be significantly flawed, if not misleading, due to the heterogeneity of firms that are commonly termed and categorized as family firms. This heterogeneity includes various distinct settings that might be responsible for ambiguous outcomes of prior studies. The rationale of influential blockholders, the corporate governance setup, as well as firm behavior is assumed to differ across the non-homogeneous group of so-called family firms.

From this perspective, I offer a pronounced discussion of varying subgroups of founding-family firms. My approach is inspired by recent work that has initiated a more precise view on founder and family firms.[8] In particular, I

[8]This approach—I call it an *owner identity approach*—is inspired by recent advances in the founding-family related literature. Amongst those, the most influential are: McConaughy and Phillips (1999), Anderson and Reeb (2003), Pérez-González (2006), Villalonga and Amit (2006), Bennedsen et al. (2007), Miller et al. (2007), Anderson et al. (2009), Adams et al. (2009), Fahlenbrach (2009), and Anderson et al. (2012a). *Lone founder firms*, *family founder firms*, and *heir firms* refer to the firm types that the overarching definition of

introduce family firm subgroups that differ along two dimensions: (i) the generation of a founding-family defined firm and (ii) its kinship relationships. Consequently, I review *lone founder firms* (1st generation founding-family defined firms, no kinship relation), *family founder firms* (1st generation founding-family defined firms, family relationship), and *heir firms* (2nd generation-plus, by definition descendants of the founder).[9] In my opinion, this differentiated approach reflects more adequately the heterogeneous character and rationale of firms which is subject to a founding-family influence and hard to incorporate in analysis with standard variables (e.g. ownership level). In addition, this approach avoids such pragmatic analysis of founding-family firms as one group that prior work predominantly conducted due to the lack of detailed information.

Based on this more precise investigation of founding-family firms, my dissertation aims to shed more light on the diverse behavior of owner identity types and therewith demystifying their 'trick or treat' features. In particular, I analyze:

1. *firm heterogeneity*, with a special focus on (i) implemented governance structures, which reflect the ambition to enhance and preserve control, and (ii) firm policy, which enables a closer look at the general strategic rationale.

2. *firm economics*, with a special focus on firm valuation, which reveals an external market view on such firm types, as well as stock performance from an investor's perspective.

3. *ownership dynamics*, with a special focus on drivers of long-term involvement of founders and families.

founding-family firms comprises according to my initial hypothesis. The definition work and a discussion of this approach follows in chapter 2.

[9] Please see figure 2.3, Owner Identity Types of Founding-Family defined Firms, on page 32 showing the described differentiation.

The last aspect sheds light on the persistence of influence of such individual blockholders. In most cases and general discussions this persistence is assumed in argumentation but rarely documented in empirical work.[10]

In terms of sample selection, I use a novel data set based on the German market index CDAX, which reflects almost one and a half decades of German capital market history, from 1995 until 2008. Over this period, my sample shows that the number of listed firms more than doubled as did the total accumulated sales.[11] Overall, my final panel covers 5,069 firm years and 676 unique firms, suggesting one of the largest, broadest, and longest panels in a Continental European context.[12] The beneficial aspect of the CDAX is its completeness: in terms of its calculation, there is no focus on specific industries, on firm size or past performance. In addition, the CDAX covers approximately 95% of total German market capitalization of listed stocks.[13] Compared to the existing US, Asian and pan-European data sets, this German data set brings new empirical evidence about family-influenced firms. Moreover, the integration of hand-collected data on founders, owners, and board members enables a detailed analysis of family firm heterogeneity.

This data set is a pre-condition for investigating my research topic and developing conceptual frameworks such as an heterogeneity index or a categorization of agency cost settings. Moreover, the sample allows the application of advanced empirical methods. These methods are decisive for validity and robustness of results due to general empirical challenges, and those of endogeneity in specific. The empirical approach includes (i) advanced panel regressions, e.g. firm fixed or random effects, (ii) dummy endogenous treatment regressions following Heckman (1978), (iii) dynamic panel regressions

[10] Beyond an indirect evidence of long-term influence through a firm age indication.

[11] In 1995 the sample contains 160 firms whereas the number increased to 384 in 2008. Total sales increased by a factor of 2.3x from €513 billion in 1995 to €1.2 trillion in 2008. Those calculations exclude the sales figures for firms that are excluded from the final sample, e.g. financial services industry and utilities. See chapter 7 for a detailed description of the sample construction.

[12] Please see table 7.1, Sample Composition, for details on the panel generation process.

[13] See Gegenfurtner (2010, p. 127).

following Arellano and Bond (1991), and (iv) Fama and French (1993) stock performance regressions.

Altogether, the conceptual approach, extensive novel sample data, and advanced empirical approaches provide a compelling framework for a decisive investigation into family firm heterogeneity. In addition, it enables a rigorous analysis of distinct effects on firm policy, economics, and ownership dynamics.

1.2 Research Questions and Contribution

Following the overall structure of this thesis, I organize the research questions into three major topics.

The first topic discusses the heterogeneity of individual blockholder firms from a governance and firm policy perspective. This includes firstly the explicit consideration of owner identity and applied corporate governance mechanisms, such as board influence, ownership specifics, and external governance. Secondly, I focus on diversity in corporate policy. It is crucial to understand the differences in order to prevent generalization across those firms commonly termed 'founding-family firms'. I hypothesize that to properly interpret their characteristics the consideration of their heterogeneity is of distinct importance. Accordingly, the goal of this work is to answer the following research questions:

Research Questions on *Heterogeneity and Firm Policy*

1. Do founding-family firms *differ systematically* according to their *owner identity type* (lone founder, family founder, heir)?

2. What are the *dimensions* of founding-family firm heterogeneity with respect to corporate governance?

3. How does this heterogeneity affect *firm policy decisions*?

This investigation of common and diverging characteristics is followed by an analysis of the economics of those firms. Prior studies indicate that while founders achieve superior valuations of their firms (e.g. Villalonga and Amit, 2006; Adams et al., 2009; Fahlenbrach, 2009), family-managed firms in later generations might show lower valuations (e.g. Pérez-González, 2006; Bennedsen et al., 2007). I analyze valuation and stock performance with respect to the previously proposed differentiation between lone founder, family founder, and heir firms.

The results of these investigations emphasize the economic implications of various heterogeneous owner identity characteristics. They could be of use to regulators, policy makers, equity investors, and family firms alike, in understanding and being aware of family firm heterogeneity. Especially, if we consider that about 50% of listed German firms are founder or family managed and/or owner-influenced.

Research Questions on *Firm Economics*

1. Does founding-family firm heterogeneity transfer into distinctive *firm valuation*?

2. Does founding-family firm heterogeneity transfer into *abnormal stock performance*?

Finally, I study the persistence of founding-family influence. The dynamics of ownership potentially reveal the motives of those individuals. The decision to reduce or increase influence as well as completely exit a firm are thus of great interest. Although there is a lot of anecdotal evidence that suggests family firms have long-term orientation, empirical evidence on this topic is rare.[14] It is astonishing as ownership is an essential criterion that is included in every family firm definition. Nevertheless, ownership dynamics are rarely covered in family firm research.

[14] Klasa (2007) focuses on the final exit of a founding family in listed firms and potential reasons for this exit. Helwege et al. (2007) analyze the transformation of insider ownership dominated firms towards widely held firms after an IPO.

Research Questions on *Ownership Dynamics*

1. Does founding-family firm heterogeneity influence *ownership dynamics*? Which further *determinants* contribute to the explanation of dynamics?

2. What are the *frequency*, *direction*, and *level* of ownership changes?

3. How *persistent* is founding-family influence?

1.3 Dissertation Structure

This chapter has so far presented the topic and motivation for my work. I will now briefly summarize the content of the following chapters.

Chapter 2 introduces the context of individual blockholders and founding-family firms. I describe the institutional and capital market context as well as relevant changes in corporate governance related legislation. I then show the various family firm definition approaches of previous studies and explain the commonalities and differences amongst closely related fields of research, e.g. the effects of *managerial* and *insider ownership*. A large part of this chapter is devoted to the differences that scholars show in the way they define family firms. According to the theoretical background of their work, those definitions vary substantially. The chapter closes with the introduction and characterization of the focused founding-family subtypes, namely lone founder, family founder, and heir firms. This distinction forms the conceptual foundation for all subsequent chapters.

Chapter 3 presents the theoretical background to my analysis. Specifically, family firm research includes theoretical backing from various research strands: agency and contracting theory, as well as general theories of financial economics literature, but also aspects of stewardship theory. Agency theory is to a large extent the basis of any arguments that try to explain valuation differences, but also general aspects of firm decision making. In

addition I present arguments that follow (social) identity theory—an aspect that only recently attracted scholars to investigate family firm differences.

Chapter 4 gives an overview of the related literature. Specifically, I present work that has its origin in financial economics literature that deals with firm governance and large shareholdings, in organizational aspects like managerial and insider ownership, and in entrepreneurial and family firm research. This literature overview comprises theoretical and empirical work. I discuss general aspects of individual blockholding characteristics but also overarching topics like internal versus external governance. Specific work that relates to the major topics of this dissertation follow: there are sections on heterogeneity, firm policy, economics, and ownership dynamics.

In **Chapter 5**, I break down my research questions and develop the hypotheses for the empirical work. I present the arguments and the predictions for those hypotheses.

In **Chapter 6**, I prepare the empirical analysis in a two-fold manner: first, I discuss various aspects of endogeneity. This topic is an integral part of governance-related research. Challenges with unobservable characteristics and reverse causality are not easy to handle. Yet, a founding-family approach can be a relatively clean setting to analyze governance-related effects. Thus, the second part of this chapter develops the technical approach as well as instruments to control for endogeneity-related issues. I also present specific panel regression approaches that target the same empirical goal: the consideration of endogeneity problems.

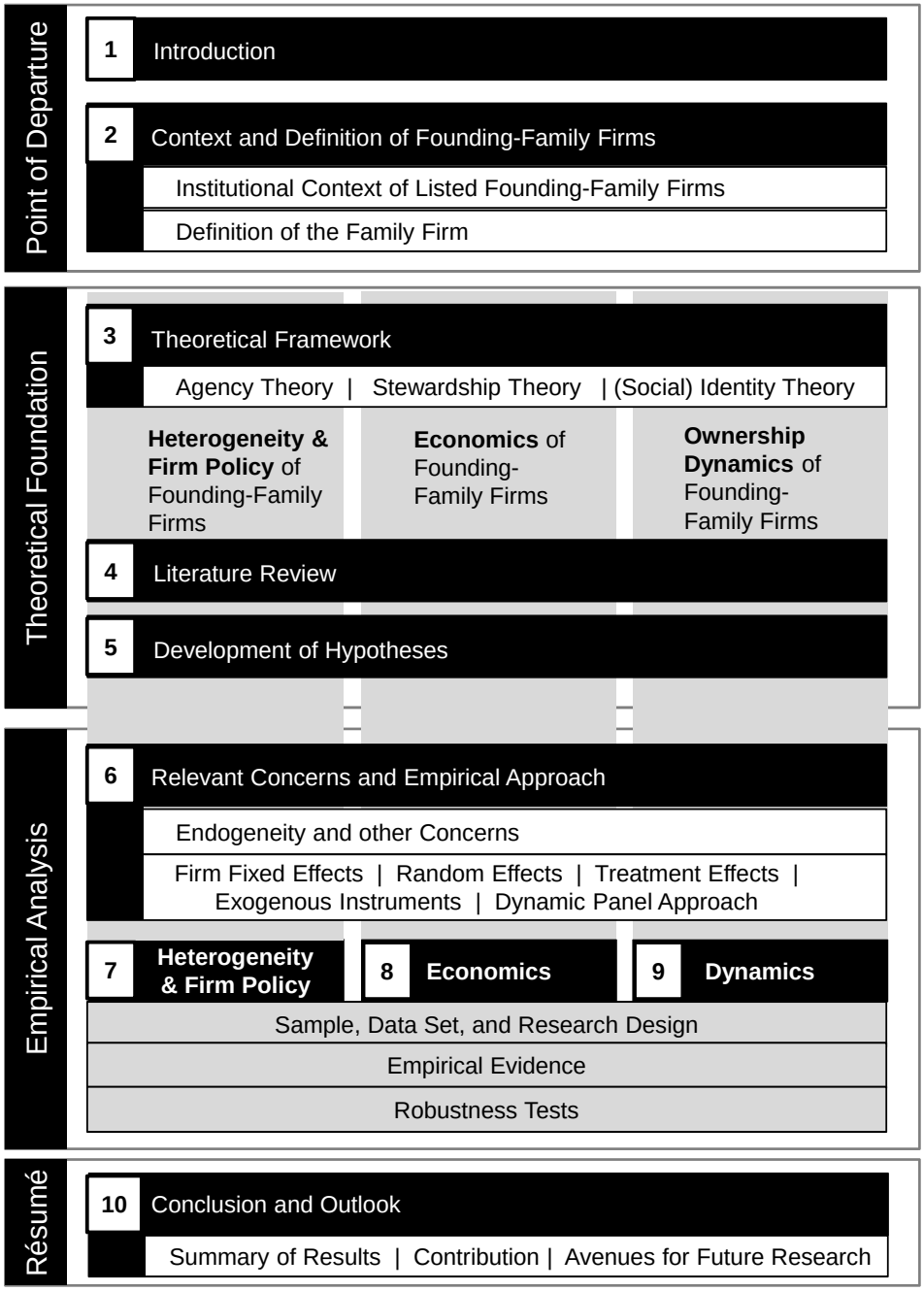
In **Chapter 7**, I apply empirical methods to analyze the various aspects of heterogeneity in founding-family defined firms. This includes the way those firms are governed, but also policy decisions. To assess the degree of applied protective governance mechanisms in founding-family settings, I develop an heterogeneity governance index. In addition, I evaluate firm decisions via firm policy characteristics in lone founder, family founder, and heir firms.

Chapter 8, takes a wide-angle view on firm economics. Predominantly, this includes an analysis of the various aspects of firm performance, especially in terms of valuation. This empirical examination is backed with multiple advanced approaches and extensive robustness tests, explicitly considering endogeneity issues. A distinct focus of this chapter is the conceptual and empirical differentiation of potential agency problems. I differentiate four categories of such agency problems according to the theoretically most beneficial and less beneficial settings.

Chapter 9 takes a fresh look at the dynamics of ownership, an aspect that prior research predominantly excluded from any debate, primarily because ownership is considered to be very sticky. In spite of this general stickiness, I analyze the dynamics of ownership with respect to the distinct family firm subtypes, testing my previously developed theory framework.

Chapter 10 concludes the dissertation. I summarize the key results and contribution of my work. I discuss the implications and limitations, as well as future research options.

Figure 1.1: Structure of Analysis



2 Context and Definition of Founding-Family Firms

2.1 Institutional Context of Listed Founding-Family Firms

The following chapters on the specifics of family firm heterogeneity require a brief introduction of fundamental institutional characteristics in Germany. *First*, I provide information about the institutional context, i.e. the German financial system and capital market setting. *Second*, based on this common understanding of the institutional context, I highlight some changes in the past two decades that are directly associated with governance, i.e. related legislation and corporate governance initiatives.

2.1.1 The German Financial System

According to Schmidt and Tyrell (2004) a financial system describes the existence and interplay of organized capital markets, financial intermediaries, like banks, insurance companies, investors, as well as regulatory authorities. The relatively prominent influence of banks led to a bank-based characterization of the German financial system (e.g. Wenger and Kaserer, 1998; Gorton and Schmid, 2000; Schmidt and Tyrell, 2004; Vitols, 2005).[15] The German

[15] Dependent on the scholarly focus, financial systems are termed differently in previous work. Besides market vs. bank-based systems, financial systems are differentiated as, e.g. outsider vs. insider system, shareholder value vs. stakeholder system, dispersed ownership vs. concentrated ownership system, or market-based vs. control-based system. More details on the specifics are presented in La Porta et al. (1998), Köke (2004), Köke and Ren-

financial system experienced change in terms of legislation and governance initiatives during the 1990s and 2000s. A lively scientific as well as public debate began on questions such as necessary governance developments, tax policy, and excess managerial remuneration, to mention just a few (e.g. Kramarsch and Schmelter, 2003). The scientific discussion of e.g. Hackethal et al. (2003), Hackethal et al. (2005), Vitols (2005) and Goergen et al. (2008a) concludes that, in spite of some major reforms, predominantly in the German governance system, the German financial system still retained some of its fundamental characteristics.[16] Foremost amongst these are the concentrated ownership of insiders and the stakeholder-orientation as emphasized by Franks and Mayer (2001) and Hackethal et al. (2003).

Contrary to a market-based system[17], the traditional German bank-based system was strongly characterized by universal banks and relationship lending as dominant sources of financing (e.g. Gorton and Schmid, 2000; Hackethal et al., 2005). Yet, with the weakening of the so-called Deutschland AG, cross-shareholdings of banks and insurance companies were strongly reduced, lowering the overall governance influence of financial institutions in German corporations (e.g. Höpner and Krempel, 2004; Hackethal et al., 2005; Rapp et al., 2009). Even though the cross-shareholdings were further and further reduced and altered one aspect of overall governance, the general importance of debt-financing did not alter at all.[18]

neboog (2005), Thomsen et al. (2006), Kaserer and Moldenhauer (2007), Moldenhauer (2007), Franks et al. (2009), Ampenberger (2010), and Ampenberger et al. (2013).

[16] Some empirical studies suggest that market- and bank-based systems do not differ simply in their structural setup, but also in their potential effects on the prosperity and development of a national economy; predominantly due to eased capital availability and an intermediary function (cf. King and Levine, 1993; Levine, 1997; Rajan and Zingales, 1998).

[17] In a stylized fashion, a market-based system could be characterized by organized capital markets with large capital supply and easy capital market access for large companies as well as smaller ones. Further, it includes a high level of shareholder protection that eases the involvement of numerous capital market participants. This includes large investors as well as small private investors. Ownership structures are typically more transparent and to some extent more dispersed. External control mechanisms from the market are more pronounced. For a detailed overview compare Demirgüç-Kunt and Levine (1999).

[18] Dittmann et al. (2009) published an interesting paper on bankers on the supervisory board of German non-financial corporations during the years 1994 to 2005. They confirm the change in governance through a substantial decrease of banks' equity shareholdings within this time period, yet find no evidence for improved monitoring by bankers. In

Thus, while some characteristics of governance changed over the period of investigation, others did not. Concentrated ownership of individuals, predominantly founders and/or their families, is still a distinctive feature of the German capital market. Franks and Mayer (2001) report concentrated ownership structures, predominantly blockholding of families and insiders, with partly complex pyramidal characteristics. Consistent with the arguments put forward by Franks and Mayer (2001), work by Köke (2004), Goergen et al. (2008b), Rapp et al. (2009) and Drees and Schiereck (2009) documents changes in control in German corporations being strongly associated with block trades. With respect to the maturity and development of the German financial system, Goergen et al. (2008b) mention a number of hurdles faced in the past, that have since been addressed, including low shareholder protection and transparency standards.[19] However, a number of structural drawbacks with influence on the financial system still exist, as for instance a pay-as-you-go governmental pension system (cf. Vitols, 2005) and a persistently low number of small private shareholders.

Next, I will discuss key characteristics of basic corporate governance features that remained in place, as well as a brief overview of changes in legislation.

2.1.2 The Key Characteristics of a German Stock Corporation

A fundamental aspect of the corporate governance research in this work is the characteristics of a German stock corporation. This particularly applies to the duties of the respective board members and the rights and responsibilities of shareholders in the shareholders' meeting. The key characteristics of a German listed company are defined by the German stock corporation act (AktG, Aktiengesetz). Germany has a two-tier board system. Rather than

contrast, they detect lower valuation and increased lending activities of those banks that have representatives in a respective non-financial institution.

[19] Compare La Porta et al. (1998) and La Porta et al. (2000) for an international comparison and the relationship between improved governance—in terms of investor protection and transparency—and the development of financial markets.

a one-tier system with a board of directors, there is a management and a supervisory board (§30 AktG). The management board members are responsible for running the firm's operations (§76 AktG). Beyond this main duty of running and representing the company (§78 AktG), amongst others, management is responsible for reporting to the supervisory board (§90 AktG) and keeping accounting records (§91 AktG). Based on those records, the management is responsible for sending the annual financial statements and the annual report to the supervisory board, including a proposal for profit distribution in reserves and dividends (§170 AktG).

The number of seats on the supervisory board is determined by the size of the company always ensuring a number divisible by three. The regular number of supervisory board members is three (§95 AktG).[20] Besides shareholder representatives, the supervisory board can/must include employee representatives, depending on whether the firm is covered by a Co-determination Act (§96 AktG). The supervisory board has a control function over management (§111 AktG). The members of the supervisory board are elected in the shareholders' meeting as representatives of the shareholders, with the exception of employee representatives who are nominated following the respective Co-determination act (§101 AktG).[21] The supervisory board appoints the management (§84 AktG).

At a shareholders' meeting, the present shareholders decide whether they approve and ratify the acts of management and supervisory board for the previous fiscal year (§§119, 120 AktG). In addition, amongst the most important rights of the shareholders' meeting are, as mentioned, the appointment of supervisory board members, approval of the profit distribution and approval over any potential increase or reduction of the share capital. Further, shareholders appoint the auditor and they confirm potential amendments

[20] Companies with a share capital of up to €1.5 million might have a maximum of nine supervisory board members. Similarly, share capital over €1.5 million allows for up to fifteen and over €10 million up to twenty-one supervisory board members (§95 AktG).

[21] At incorporation of a stock corporation, a German AG, the founder(s) appoint(s) the first supervisory board, which appoints the first management board (§30 AktG). In particular, the founders have to establish the articles of association (§3 AktG).

to the articles of association (§119 AktG). At the shareholders' meeting, the shareholders are entitled to request information about the company's affairs, including queries on strategy and legal aspects (§131 AktG).

Resolutions of the shareholders' meeting require a simple majority of votes cast by those present (§133 AktG). This does not apply with respect to: amendments to the articles of association (§179,2 AktG); a capital increase (§182,1 AktG); the dissolution of the corporation (§262,1 AktG); or the approval of enterprise agreements (§293,1 AktG). Those decisions require, unless otherwise specified, at least three quarters of the votes cast.

Evidently, the rights and duties of the management board, supervisory board, and the shareholders' meeting are quite comprehensive. In the case of founder and founding-family firms, the clearly defined and separated elements—management board, supervisory board, and shareholders—exist by definition as in non-family firms, yet the influence of a founding-family is often extended to more than one and up to all three elements. The effects of such governance characteristics are subject to further theoretical and empirical investigation in the following chapters.

However, as a first step the next section briefly summarizes some key changes in corporate governance related developments. Predominantly, this includes changes in legislation as well as recommendations and suggestions for good corporate governance.

2.1.3 Changes in Legislation, Corporate Governance Initiatives, and Accounting

Hackethal et al. (2003) and Goergen et al. (2008a) discuss recent changes in German corporate governance. They welcome initiatives in legislation in the late 90s and post-2000, yet suggest that this does not mean convergence to a market-based system. Nonetheless, to emphasize the various advances in legislation and governance initiatives, I briefly summarize the corner-

stones of this phase of corporate governance development.[22] Goergen et al. (2008b) provide an excellent overview on the development and constituent elements of German governance during this period.[23]

The changes in German law with respect to corporate governance aimed to increase transparency, investor protection, and attractiveness of the German capital market setting. This includes a series of the first to the fourth *Financial Market Promotion Law* (FMFG, Finanzmarktförderungsgesetz) in the years 1990, 1994, 1998, and finally in 2002. In 1994, the *Securities Trading Act* (WpHG, Wertpapierhandelsgesetz) was enacted. In 1995 a voluntary code of conduct, the *German Takeover Code* (Übernahmekodex), was established. There were some adjustments to the code of conduct in 1998, while finally in 2002 the Takeover Act (WpÜG, Wertpapierübernahmegesetz) was enacted (cf. Goergen et al., 2008a; CELOS, 2013).

The *Law on Control and Transparency in the Corporate Sector*, KonTraG, (Gesetz zur Kontrolle und Transparenz im Unternehmensbereich), introduced in 1998, aimed to increase the quality of reporting, the responsibility of the management board for providing and the supervisory board for actively requesting information and controlling the corporation.

In 1999 and in 2004, the OECD published the *Principles of Corporate Governance*, including a set of guidelines to establish good corporate governance (cf. OECD, 2004). Subsequent to the first OECD report, several expert committees were set up to propose suggestions for the improvement in German corporate governance. In 2000, these committees included the *Code of Best Practice* (Frankfurter Grundsatzkommission Corporate Governance), the GCCG *Berliner Initiativkreis German Code of Corporate Governance*, and the *1st Government Committee Corporate Governance* (Baums Kommision).

[22] The sample period of the empirical analysis includes the years 1995 to 2008. The empirical analysis starts with chapter 7.

[23] Moldenhauer (2007) provides a detailed discussion on the most important changes to legislation while focusing on shareholder structure effects, especially on insider ownership. Bress (2008) documents corporate governance characteristics in Germany based on empirical investigation of corporations' compliance with the suggestions of the *German Corporate Governance Codex*.

The first report of the *1st Government Committee Corporate Governance* presented in 2001, made proposals for stock corporation law changes and the introduction of a Corporate Governance Code. In 2002, the *2nd Government Committee Corporate Governance* presented the first German Corporate Governance Code (DCGK). The committee, headed by Mr. Cromme, suggested that stock corporations' annual reports should say which recommendations of the DCGK they complied with, and explain any non-compliance (cf. Theisen, 2003; Moldenhauer, 2007; Bress, 2008; Regierungskommission Deutscher Corporate Governance Kodex, 2013). The DCGK was subsequently updated, in 2002, in 2003, in 2005 and in every year thereafter until 2010.[24]

In 2002, a further law targeting transparency was passed: the *Transparency and Disclosure Law* (TransPuG, Transparenz und Publizitätsgesetz). Besides these changes in legislation in the year 2002, the former institution BAWe (Bundesaufsichtsamt für den Wertpapierhandel) founded in 1995, was integrated with the newly established *Federal Financial Supervisory Authority* BaFin (Bundesanstalt für Finanzdienstleistungsaufsicht). Finally, in 2002, the *Capital Gains Tax* code was altered, resulting in a tax advantage compared to prior legislation when selling blockholdings.[25] In 2003, the Frankfurt Stock Exchange reorganized the market segments. The new segmentation explicitly targeted international investors with the newly established *Prime Standard*.[26]

2004 saw the start of a new series of capital market related laws. The first was the Investor Protection Improvement Act (AnsVG, Anlegerschutzverbesserungsgesetz), predominantly concerned with changes

[24] See Regierungskommission Deutscher Corporate Governance Kodex (2013) for more details, including current changes post-2010.

[25] This concerned especially the various cross-holdings of German corporates, banks, and insurance companies (e.g. Franks and Mayer, 2001). Compare also Höpner and Krempel (2004) or Rapp et al. (2009) for a discussion on the disappearing "Deutschland AG", spurred on by the reduction in cross-holdings.

[26] Firms listed in the second important segment, the *General Standard*, have to fulfill lower transparency requirements. See Neufeld (2003), Wilkens and Wimschulte (2005), or the description in section 8.1.1.

to ad-hoc news, director's dealings, market manipulation, and requirements for financial reporting. The Accounting Law Reform Act, BilReG (Bilanzrechtsreformgesetz) was adopted in late 2004. Key features of BilReG are the implementation of EU regulations concerning the application of international accounting standards, i.e. IAS and IFRS, further specifications on reporting, and especially on the independence of auditors. In addition, BilKoG (Bilanzkontrollgesetz), the Accounting Enforcement Act of 2004, aimed to increase transparency and investors' confidence in proper accounting (cf. Hönsch et al., 2005; Audit Committee Institute, 2013; Regierungskommission Deutscher Corporate Governance Kodex, 2013).[27]

The APAG (Abschlussprüferaufsichtsgesetz), the *Auditor Supervision Act* of 2005, enforced supervision of auditing professionals, including the requirement to build an independent board comparable to the US *Public Company Accounting Oversight Board* (PCAOB). 2005 saw further strengthening of investors' position and transparency. The *Management Compensation Disclosure Act* (VorstOG, Gesetz über die Offenlegung von Vorstandsvergütungen) required the reporting of total management compensation—fixed and variable—on an individual basis (per management board member). The *Act on Corporate Integrity and Modernization of Recission Law* (UMAG, Gesetz zur Unternehmensintegrität und Modernisierung des Anfechtungsrechts) as well as the KapMuG, *Capital Markets Model Case Act* (Kapitalanlegermusterverfahrensgesetz) adjusted liabilities of management and supervisory board members, at the same time strengthening the position of shareholders in court trials as they can now bring collective actions before the court (Hönsch et al., 2005; Moldenhauer, 2007; Audit Committee Institute, 2013).

In 2006 and 2007, two further laws were enacted, the *Takeover Directive Ratification Act* (ÜbernRLUG, Übernahmerichtlinie-Umsetzungsgesetz, 2006) and the *Transparency Directive Ratification Act* (TUG, Transparenzrichtlinie-

[27] BilKoG initiated a two-stage process to enforce accounting rules. In 2005, independent authorities started to randomly review accounting reports of firms listed in the German regulated market.

Umsetzungsgesetz, 2007). The *Takeover Directive Ratification Act* referred to existent law with respect to amongst others, takeover protection mechanisms and squeeze-out adjustments. The latter, the *Transparency Directive Ratification Act*, includes stricter publishing requirements in terms of insider information and directors' dealings, as well as on control thresholds (cf. Beiten Burkhardt Rechtsanwaltsgesellschaft, 2007; CELOS, 2013).

To sum up, throughout the 1990s and the 2000s (incidentally my sample period) there were substantial changes to corporate governance regulation and the law. I have emphasized those background information to make the reader familiar with the changes that are taking place in this area before moving on to the next section dealing with founding-family firm characteristics.[28]

2.2 Definition of the Family Firm

This dissertation analyzes founding-family defined firms with regard to heterogeneous governance characteristics, firm policy, economics, and ownership dynamics. The specific governance features that those firms combine or partly possess, include founder and founding-family blockholding, as well as founder or founding-family managerial influence or control, as prior scholarly work has already elaborated (e.g. McConaughy and Phillips, 1999; McConaughy et al., 2001; Anderson and Reeb, 2003; Villalonga and Amit, 2006; Andres, 2008b; Anderson et al., 2009). The extensive coexistence of these features makes the evaluation of individual effects as well as their interplay a complex endeavor. In fact, the simultaneous existence of varying governance characteristics is already an integral and to some extent necessary part of most *family firm* definitions. However, the fact that there is no accepted common definition of the term *family firm* (e.g. Astrachan et al., 2002; Sharma, 2004; Villalonga and Amit, 2006; Miller et al., 2007; Astrachan, 2010) makes it even more difficult for researchers to interpret research re-

[28] The substantial changes to corporate governance regulation and law are also of importance for the empirical approach and results discussions in the empirical chapters 7, 8, and 9.

sults and to advance the discipline. Therefore, this chapter introduces various definition concepts that exist in this literature strand. At the same time, this chapter on definition marks the foundation for the following empirical analysis of firm heterogeneity, the economics of several firm types, and finally the persistence of such ownership settings.

2.2.1 Role of Existing Definitions

Without doubt, the application and variation of definitions in scholarly work on founder and family firms is of marked importance (cf. Handler, 1989). This section refers to definition practices of prior work and explains the way I treat this fundamental issue in my research.

Research on individual blockholder firms, especially on founder and family firms, is a quite young discipline (cf. Lansberg, 1988; Sharma, 2004; Steier et al., 2004). Potentially, this is one reason why there is no generally accepted definition as scholars have come up with various definitions to identify founder and family firms. Another probable reason is the interdisciplinary character of family firm research (cf. Wortman, 1994; Stewart, 2008). Scholars with finance, business, psychology, and sociology backgrounds cover this topic. Evidently, every discipline sets its own priorities which echo in applied definitions: academia sometimes seems to forgo the benefits of considering a variety of perspectives stemming from outside an individual's discipline.

In addition, there are some hard facts, like percentage of votes controlled by an individual or family and some softer facts like their emotional bonding with the respective company (e.g. Sharma and Manikutty, 2005) that shape definitions. Evidently, large scale empirical research has to favor characteristics that allow a certain degree of operationalization. Softer facts are more difficult to measure, if measurable at all, in a non-interview or non-survey setting. For all these reasons, academia still struggles to reach a common understanding of the constituent elements of a founder or family firm.

Nevertheless, there are common characteristics that appear in every definition of a listed family firm. All presented definitions include either shareholding power of the individuals or family, board influence, or a mixture of the two (e.g. McConaughy and Phillips, 1999; Anderson and Reeb, 2003; Villalonga and Amit, 2006; Miller et al., 2007). Definition differences exist in terms of applied shareholding thresholds, the active influence of founders or families via board participation, the family generation, and the inclusion of cultural aspects. A well-defined framework that has its origins in family firm research is the F-PEC scale (e.g. Astrachan et al., 2002; Klein et al., 2005). The influence of a family is determined by three dimensions: the *power scale* that identifies substantial influence via ownership and boards, the *experience scale* that identifies the generational aspect of a firm including heritage and knowledge, and finally the *cultural aspects* or bonding between a firm and the family (cf. Astrachan et al., 2002). Obviously, the power scale is the most observable and therefore the best applicable dimension in terms of empirical operationalization. Klein (2000) describes this power scale as *substantial family influence* index (SFI), consisting of accumulated ownership, management, and supervisory board influence.

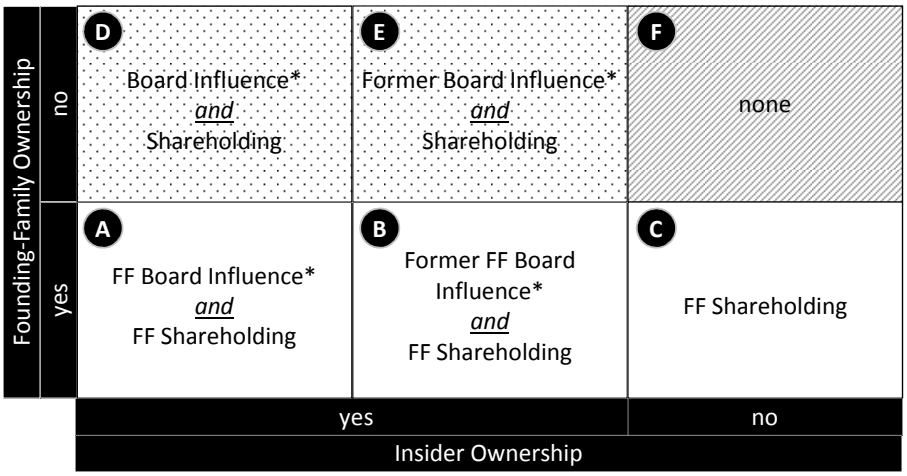
Financial economics literature predominantly follows two distinct definition approaches. The first approach, also followed in this dissertation, is the *founding-family approach* (cf. McConaughy, 1999; Anderson and Reeb, 2003; Villalonga and Amit, 2006; Andres, 2008b). The identification strategy includes analysis of the firms' founders and validation whether either the founders themselves or their heirs still hold substantial numbers of shares in the company, and whether they still manage and/or supervise the firm. The second approach, the *ultimate owner approach*, is predominantly applied in financial economics and law literature, one of the strands that triggered work in today's listed family firm research (cf. La Porta et al., 1999; Claessens et al., 2000; Franks and Mayer, 2001; Faccio and Lang, 2002). The ultimate owner approach emphasizes differences in ownership structures and analyzes control chains therein to identify the ultimate controlling party. Analyzing control chains thus leads to a deep analysis of indirect ownership

structures beyond direct ownership. The resulting evidence triggered much of the listed family-firm research, as the ultimate owner in large blockholder settings emerged in most cases as a family or individual (cf. La Porta et al., 1999; Faccio and Lang, 2002). Yet, initial work based on ultimate ownership has its flaws too. For instance, individuals and privately held companies are undifferentiated in the work of Faccio and Lang (2002), not to mention the lack of generational effects that have proved to be of importance (cf. Villalonga and Amit, 2006; Bennedsen et al., 2007; Miller et al., 2007; Anderson et al., 2009; Fahlenbrach, 2009). In addition, the basic ultimate owner approach solely focuses on ownership structures, ignoring board influence and cultural aspects. However, evidence based on ultimate ownership structures has stimulated modern listed family firm research. But the motivation was not to elaborate differences between those family influenced firms and non-family firms, nor was it the aim to analyze differences amongst family firms. Today, both approaches and combinations of those definitions are applied. In my research, I apply a founding-family definition, yet I consider ultimate ownership characteristics beyond the estimation of direct ownership.

Another relevant question of comparability of research approaches and results concerns empirical evidence based on *insider ownership*.[29] In Anglo-Saxon studies, insider ownership indicates shareholdings of officers and directors with superior knowledge about the firm's prospects.[30] There are differences from the applied founding-family approach in this study (see also figure 2.1, Differentiation of Founding-Family and Insider Ownership). Founding-family ownership and insider ownership may overlap, but they do not have to by definition. Founding-family ownership is not applicable in every managerial ownership setting, whereas insider ownership is. On the other hand, founding-family members might not be insiders according to an insider ownership definition if they lack an active board member status. Yet, some broader insider ownership definitions also include former board

[29] See Kaserer and Moldenhauer (2007) for an extensive study based on the German market.
[30] Compare for instance Morck et al. (1988), McConnell and Servaes (1990), and Agrawal and Knoeber (1996) for early work in this literature strand.

Figure 2.1: Differentiation of Founding-Family and Insider Ownership



Note: The figure shows overlap and difference between founding-family ownership and insider ownership. Section A, B, and C represent founding-family ownership. Sections A, B, D, and E represent insider ownership, broadly defined. The narrower definition of insider ownership based on active board influence would exclude sections B and E. Section F has neither insider ownership nor founding-family ownership. Sections with founding-family ownership are white, sections that have insider ownership but no founding-family ownership are dotted, and section F with neither characteristic is striped. * indicates management and/or supervisory board influence. To conserve space, FF Board Influence is an abbreviation for Founding-Family Board Influence; FF Shareholding is the abbreviation for Founding-Family Shareholding.

Source: Own work.

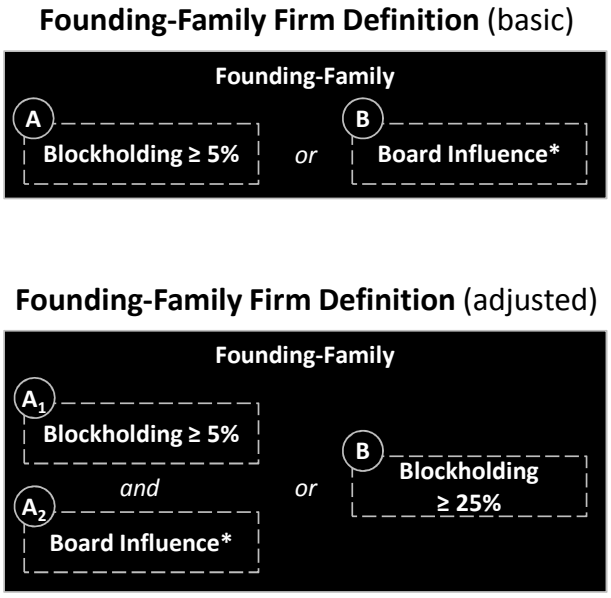
members and related persons. Thus, a comparison of both approaches indicates a high overlap of approximately 72% (in terms of firm years) and a correlation of 0.77. Throughout the study, I focus on the founding-family definition that I introduce in the next section.

2.2.2 Founding-Family Definition

This work differentiates founding-family defined firms from non-founding family firms, before distinguishing owner identity types within the group of family firms.

I therefore propose two definitions: (i) a more general definition that is in accordance with vast international research, and (ii) a more restricted mod-

Figure 2.2: Founding-Family Definition Approach



Note: The figure shows the primary founding-family definition applied in this work (basic), requiring A or B. The adjusted definition requires A_1 and A_2, or B. * indicates management and/or supervisory board influence.

Source: Own work.

ification of the first definition. The latter definition integrates the specific institutional context of Germany. The essential constituents in the *founding-family* definition[31] that comply with the approach in prior literature are:

Influence of individuals or a group of individuals that qualify either as founder or respectively as member of the founding-family, via

- block ownership (controlling at least 5% of voting rights), or
- potential board membership (management and/or supervisory board).

[31] For details on founding-family definitions see the previous section or McConaughy and Phillips (1999), Anderson and Reeb (2003), Villalonga and Amit (2006), Andres (2008b), Achleitner et al. (2009b), Schmid (2013) and Ampenberger et al. (2013).

The second *adjusted founding-family* definition is slightly altered in order to examine German capital market specifics.[32] Beyond the consideration of board influence from management board membership as well as from supervisory board membership to incorporate the characteristics of the German two-tier system, I alter the relevant voting rights thresholds to comply with specifics of German stock corporation law. For instance, I consider the blocking minority (*Sperrminorität*) of 25% plus one share as important threshold (cf. Andres, 2008b). The blocking minority is a reverse construct not specifically mentioned in the stock corporation act or related legislation. Instead, it results from the requirement to have a 75% plus one share majority for blocking decisions or for enforcing important decisions.[33]

Accordingly, the consideration of German capital market specifics and the stricter requirement on family influence, narrows the first definition. The constituent elements in the *adjusted founding-family* definition are slightly stricter:

Influence of individuals or a group of individuals that qualify either as founder or respectively as member of the founding-family, via

- block ownership (controlling at least 5% of voting rights),
  and
  potential board membership (management and/or supervisory board), or

[32] The *adjusted founding-family* definition is the definition that is also officially applied for the joint calculation of the family stock indices, i.e. DAXplus Family and DAXplus Family 30, of Deutsche Börse Group and the CEFS. Deutsche Börse Group (2010a) provides an index portrait. A factsheet and current index composition files are also published by Deutsche Börse Group (2010b). Both indices—in fact all four as each index is calculated as a price and total return index—differ with respect to their more narrow focus on Prime Standard companies from the sample of this work. For a general overview of public family firms in Germany, see Achleitner et al. (2009b). For a similar stock index concept based on insider ownership see Achleitner et al. (2005) and Kaserer et al. (2006).

[33] Compare for instance the German stock corporation law §100,2 AktG, with respect to the qualification of supervisory board members, §103,1 AktG, with respect to the removal of supervisory board members, §179,2 with respect to amendments of articles and the resolution of the shareholders' meeting, §182,1 with respect to a capital increase, §262,1 AktG with respect to the dissolution of the corporation, or § 293,1 with respect to the approval of enterprise agreements.

- accumulated block ownership of the founder or founding family of at least 25% of voting rights plus one share, representing the blocking minority.

The first and fundamental definition component, the founder or founding-family aspect ensures that this work identifies firms as *founding-family* firm that undergo a substantial influence by the respective founder(s) or family/families. In line with family-firm scholars such as Chrisman et al. (2005) or Chua et al. (1999), I consider such substantial influence on decisions and a strong link between firm and family as important features. This founder or founding-family aspect—the so called *familiness*[34]—aims to differentiate pure investments by wealthy individuals from settings with a likely emotional link between family and company since firm inception. Evidently, this is a pragmatic approach to handle this cultural and emotional aspect in the context of large scale empirical research of listed family firms. Yet, besides the well-established application in scientific work (cf. Anderson and Reeb, 2003; Villalonga and Amit, 2006; Andres, 2008b), there are a number of ambiguous 'real life' examples that question the appropriateness of the identification strategy. Probably one of the most ambiguous cases is the BMW Group as the founding-family approach rejects a founding-family characterization. Yet, in a recent interview a Quandt descendent confirms this assessment. He considers himself and his family as strong and reliable anchor investors, but does not look on BMW Group as a family firm.[35] Indeed, the Quandt family is not the founding-family of BMW Group. The founders of BMW, respectively the founders of the predecessor firms *Flugmaschinenfabrik Gustav Otto* and *Rapp Motorenwerke* are Gustav Otto and Karl Rapp. The Quandt family entered subsequently as an investor, when the company was troubled in a deep restructuring process.[36]

[34] See Habbershon and Williams (1999) or Habbershon et al. (2003).
[35] Compare an article by Jungbluth (2012).
[36] For information about the corporate history, see BMW Group (2013).

Another aspect in favor of the *founding-family* approach is an empirical quality: a founding-family approach marks to some extent an ease from endogeneity related suspicion—in contrast to a managerial ownership approach, for instance. By definition, the initial relationship runs from existent founder(s) or founding-family, and thus from the inception of the firm, towards firm decisions, policy, and eventually performance. Yet, a founding-family approach does not imply a *carte blanche* in terms of endogeneity concerns. I will discuss this problem in detail in chapter 6, Relevant Concerns and Empirical Approach.[37]

The second major definition component concerns block ownership. Either as a group of founders or as family, those individuals shall control substantial voting rights in the firm. The term individual blockholder firm derives from this essential definition component and is mainly used interchangeably with the term *founding-family firm* throughout this work. Dependent on the strictness of definitions, *substantial* indicates either control over a block of 5% plus one share (*basic definition*) or at least 25% plus one share (*adjusted definition*). Alternatively, in case of the *adjusted definition*, a substantial influence consists of a block of at least 5% plus one share and at least one board seat represented by the founder(s), the founding-family including heir generations either by blood or by marriage. The *adjusted definition* ensures blockholding influence (direct and indirect) as sole board representation does not qualify for a founding-family firm. The *basic definition* is comparable to international evidence, as for instance Villalonga and Amit (2006). They require at least a founding-family member as corporate officer or director, or a 5% stake on shareholders' equity controlled, either individually or combined as a group (cf. Villalonga and Amit, 2006). The 5% threshold for blockholder related analysis is also applied for instance by Becker

[37] Various aspects might motivate the founders or founding-family to stick with the company, to engage in trading company shares, or to even leave the firm. Now, assume for instance that the decision-making of a founder or a founding-family could be influenced by an indicator like company performance. The scenario makes the founding-family status, the governance indicator, endogenous in such analysis. For similar argumentation in this context confer Demsetz and Villalonga (2001), Adams et al. (2009), or Bennedsen et al. (2010).

et al. (2011) or Block et al. (2011). However, prior work also evaluates stricter definition thresholds, indicating that the 25% threshold in the *adjusted definition* is not exotic. Lins et al. (2011) apply a 25% control threshold in their family-firm definition and conclude:

> "Blockholder definition thresholds vary in the literature, and our more restrictive approach classifies relatively more firms as widely held. [...] In robustness tests, we later on lower the threshold for family control and find our results to be unaffected."[38]

The third part of the definition represents the already mentioned board influence either in the management board and/or in the supervisory board. The German two-tier system differs from the Anglo-Saxon model, which this dissertation considers in its definition work. In an one-tier system this would be comparable to representation in the board of directors.[39]

2.2.3 Definition of Owner Identity Types

Hitherto, the proposed definition does 'only' account for the fact that *founding-family* firms differ from non-founder or non-family influenced firms, but does not account for substantial heterogeneity family firms show amongst each other (e.g. Villalonga and Amit, 2006; Miller et al., 2007). For this reason, the goal of this work is to substantially improve the understanding and evaluation of this heterogeneity. I apply a crucial hypothesis in order to pursue this goal. First of all, this work assumes that heterogeneity could be observed in terms of governance characteristics, generational and family aspects. In fact, prior work documented specific traits of founders and founder firms (e.g. Johnson et al., 1985; Villalonga and Amit, 2006; Palia et al., 2008; Adams et al., 2009; Fahlenbrach, 2009; Li and Srinivasan, 2011) as well as of descendant firms (McConaughy and Phillips, 1999; Pérez-González, 2006; Villalonga and Amit, 2006; Bennedsen et al., 2007; Anderson et al., 2009).

[38] Lins et al. (2011, p. 11).

[39] In the case of the *adjusted definition*, the compulsory blockholding definition aspect remains, even if founders or founding-family members are represented in boards.

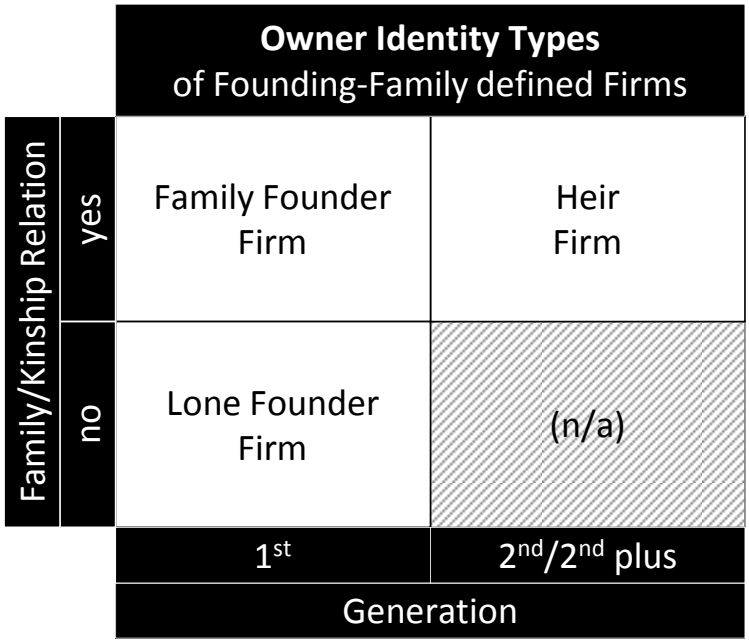
The question is whether the elaborated systematic differences in prior work hold amongst a new sample of founding-family defined firms. Hypothetically, the owner's identity and values could be the origin of different behavior and decisions. For instance, *heirs*, the descendants of the founder(s), could have a different set of goals, values, and pursued strategies from an entrepreneurial team of founders (cf. Miller et al., 2011) with no kinship relation.

As I strive to describe these ambiguous relationships, I have decided to apply an inverted approach. As opposed to analyzing the available data and eventually identifying different firm types, I hypothesize that individual blockholder firms could differ according to the underlying specific owner influence. This approach builds on prior theoretical and empirical advancements (e.g. Burkart et al., 2003; Villalonga and Amit, 2006; Miller et al., 2007; Anderson et al., 2009). Given the documented evidence of prior research, I am able to identify three distinct firm types.[40] Those firm types are purely differentiated according to generation (e.g. Villalonga and Amit, 2006) and family influence (e.g. Miller et al., 2007). I define those firms as follows:

- *Lone Founder Firms*, are firms in a founder generation; the founder's/founders' family/families is/are not involved in the firm; neither as co-founder, board member, nor as shareholder.
- *Family Founder Firms*, are firms in a founder generation; the founder's/founders' family/families is/are involved in the firm; either as co-founder, board member, and/or as shareholder. Firms in a succession process from first to second generation with a founder (first generation) still involved also belong to this category.
- *Heir Firms*, are firms in a second or later generation; the founding family still is involved in the firm; either as board member and/or share-

[40] The theoretical and empirical foundation of this approach is explained in detail throughout the following chapters. The early introduction of owner identity firm types shall improve the general understanding of the applied definition work as well as defining more precisely the scope of this work.

Figure 2.3: Owner Identity Types of Founding-Family defined Firms



Note: The figure shows the differentiation of owner identity types according to the dimension *Generation* and the dimension *Family/Kinship Relation*. There are three distinct owner identity types: (i) Lone Founder Firm, (ii) Family Founder Firm, and (iii) Heir Firm. By definition, the fourth field is not applicable.

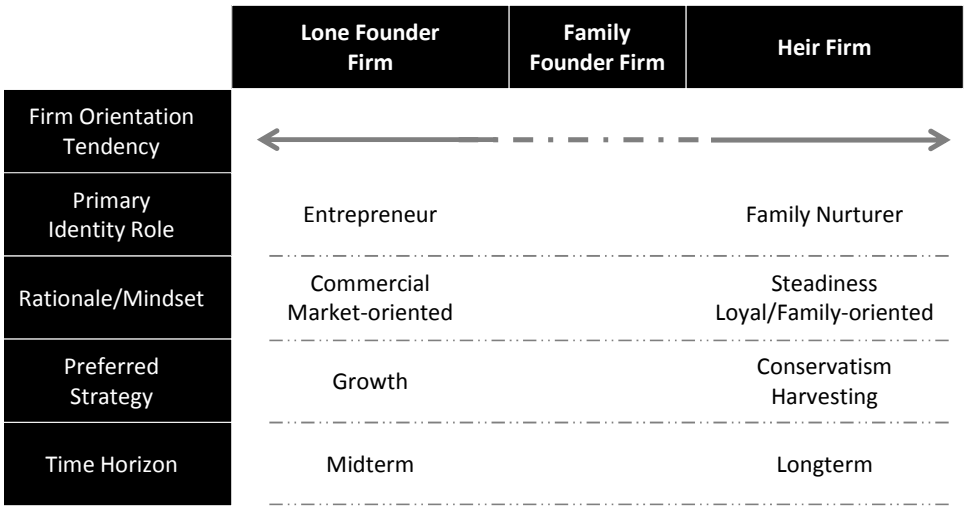
Source: Own work.

holder, or solely as dominant shareholder according to the respective founding-family definition.

The explicit consideration of lone founders, family founders, and heir firms is able to reflect underlying owner identity characteristics and the prevailing level of family influence. Specifically, lone founders have no family ties within the organization, or, with respect to further owners, any kinship relations (cf. Miller et al., 2011). Figure 2.3 illustrates the differences.

Family ties, heritage, and resulting familiness can be valuable assets, as well as a source of complex problems (cf. Habbershon and Williams, 1999; Habbershon et al., 2003; Villalonga and Amit, 2006; Irava and Moores, 2010). The respective rationale of action, strategies, family goals, and motives might

Figure 2.4: Owner Identity Types and Firm Orientation



Note: The figure shows a conceptual overview on a firm orientation continuum with respect to the three defined owner identity types. Firm orientation is presented through four fields, the *Primary Identity Role*, the *Rationale*, the *Preferred Strategy*, and the assumed *Time Horizon*. While Lone Founder Firms are assumed to have primarily entrepreneurial characteristics, Heir Firms are assumed to show predominantly familiness associated features, leaving Family Founder Firms within this continuum.

Source: Own work, based on Le Breton-Miller and Miller (2008) and Miller et al. (2011).

therefore differ in heir firms and family founder firms. Especially heir firms that by definition have experienced at least one succession and involved at least two generations seem to stick to their business (cf. Gersick, 1997; Ward, 1987). Preserving control and wealth within a family might have a significantly higher priority than in a lone founder setting (cf. Ward, 1997). Therefore, heir firms might be more inclined towards a preservation and harvesting strategy, while lone founder firms might be more likely to follow a growth and expansion strategy to increase their market share (cf. Miller et al., 2007; Le Breton-Miller and Miller, 2008; Miller et al., 2011). The overview in figure 2.4 shows a continuum of potential firm orientation according to the three owner identity types. While lone founder firms and heir firms might tend more to the extremes, i.e. entrepreneurial versus familiness, family founder firms might be just in-between.

2.3 Summary

This chapter introduced the institutional capital market setting of this study. Alongside to the dominant role of individual blockholders in a still bank-based system the reader is provided with an overview of the (changing) context within the research period. This especially includes relevant law and governance regulations.

Subsequently, I introduced the founding-family definition as well as the distinction from other approaches and existing definition work. Moreover, I clarified the research subjects that this analysis will focus on in the following pages. I explained also the rationale of the founding-family definition approach and its constituent elements. Only this approach allows for a distinction between the three owner identity types: lone founder firms, family founder firms, and heir firms.

Differentiation of heterogeneous family firms is conducted along two dimensions: generation and kinship relationship. This already hints at potential varying firm rationales and orientation. Consequently, the main aim is to examine common and distinct features of founding-family defined firms. The precondition of this approach is an enormous data collection that allows differentiation of those founding-family defined firm types. The following chapters will show whether founding-family defined firms differ from each other with respect to their owner identity characteristics, i.e. whether it is worth the extra mile of collection and analysis as opposed to the pragmatism seen in prior work.

3 Theoretical Framework

The constituent elements of a founding-family definition as proposed in chapter 2 highlight the importance of individuals as blockholders and/or board members. This chapter expands on the peculiarities of the interface between organizations and individuals. I introduce several strands of theory that contribute to an improved understanding of the actors' behavior, their potential motivation, and related conflicts in founding-family firm settings. The theories covered in this chapter comprise *agency theory, stewardship,* and *(social) identity theory.*

3.1 Agency Theory

The seminal work of Berle and Means (1932) marked the beginning of a literature stream that theoretically and empirically advanced knowledge of, what they then called, the *modern corporation.* It is the classical image of the large stock corporation, characterized by diffuse ownership and agents, i.e. management, that act on behalf of the principals, i.e. the shareholders of that corporation, that Berle and Means (1932) describe. Their criticism concerns the separation of ownership and management (and control), which allows the management to exploit their discretionary power to the detriment of the (diffuse) shareholders. From this perspective, their work addressed key topics that have since been the focus of corporate governance research (e.g. Tirole, 2006). Though acknowledging the role of product market competition as a powerful efficiency mechanism, Shleifer and Vishny (1997, p. 738) doubt that this mechanism alone solves the problem of separating own-

ership from control as documented by Berle and Means (1932). Accordingly, their view on corporate governance is quite narrow and focuses on:

> "the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment."[41]

Others take a broader view, as for instance Zingales (1998) who defines:

> "a governance system as the complex set of constraints that shape the ex post bargaining over the quasi rents generated in the course of a relationship."[42]

He emphasizes the meaning of governance: "to exercise authority, direction, and control."[43] In the course of his argument, Zingales (1998) applies this broad framework to a narrower financial economics perspective. He concludes that the primary objectives of a corporate governance system are maximization of incentives for value-enhancing investments, reducing the threat of power misuse and inefficient ex-post bargaining, as well as adequate allocation of the residual risk.

Understanding corporate governance requires an understanding of its theoretical antecedents. The predominant theory model is the *principal-agent theory*.[44] Another theory model that has similar roots and influence is the *property rights theory*.[45] Both theories belong to the *new institutional economics*,[46] theories that extend the neoclassical theory with its strict assumptions. The relaxation of such assumptions and inclusion of, for instance, transaction and contracting costs in an agency relationship mean that gov-

[41] Shleifer and Vishny (1997, p. 737).
[42] Zingales (1998, p. 497). Zingales (1998) provides an example of a relationship between a producer and buyer of a customized machine. It is thus much broader as compared to Shleifer and Vishny (1997) and has a more general view on relationships and contracts.
[43] Zingales (1998, p. 497).
[44] I will discuss principal agent theory in more detail in the following paragraphs. Notable work includes Ross (1973), Jensen and Meckling (1976), Holmstrom (1979), Fama (1980), Fama and Jensen (1983b), and Fama and Jensen (1983a).
[45] See Coase (1960), Alchian and Demsetz (1972), Furubotn and Pejovich (1972), Grossman and Hart (1986), and Hart and Moore (1990).
[46] See the seminal work by Coase (1937).

ernance structures matter for (more) efficient outcomes (e.g. Gillan, 2006). Ross (1973) defines such an agency relationship as a social interaction, applicable in a wide array of contexts:

> "We will say that an agency relationship has arisen between two (or more) parties when one, designated as the agent, acts for, on behalf of, or as representative for the other, designated the principal, in a particular domain of decision problems."[47]

The problem that arises in such settings is complex. The basic problem and assumption of agency theory consists in the fact that both parties, agents and principals, are assumed to maximize their utility. The emphasis is on each participant's individual utility, as this respective utility might not necessarily be the same for both (e.g. Tirole, 2006). Berle and Means (1932) describe this as a:

> "[...] condition where the interests of owner and of ultimate manager may, and often do, diverge [...]"[48]

Yet, not only interests may differ. In addition, the whole agency setting is characterized by a choice of actions for the participants. According to the theory, an agency setting also reflects the individuals' diverging attitudes towards risk. While the principal is considered risk neutral, the agent shows more risk aversion. The complexity increases, as the relationship between a principal and an agent contains uncertainty due to information asymmetries. Pre-contracting uncertainty[49] due to the complication of assessing the agent's qualification (adverse selection) and post-contracting due to potential self-interested action (hidden action) by the agent (moral hazard) (e.g. Eisenhardt, 1989). Ross (1973) and Jensen and Meckling (1976) are amongst the first scholars that formally describe the problem and the costs associated with agency settings between agents and principals. Agency costs

[47] Ross (1973, p. 134).
[48] Berle and Means (1932, p. 7).
[49] The theoretical foundation on pre-contracting information asymmetries (adverse selection) is introduced by Akerlof (1970) who explains resulting problems and market failure in the *"Market for Lemons"*.

reflect the existence of information asymmetries, disparities in interest, and the mechanisms to mitigate those aspects. Various scholars identify agency problems and propose mechanisms to handle them.

Various moral hazard (agency) problems are documented in the literature describing a range of actions from selfish, morally questionable, yet legally tolerated activities up to infringement of the law. For example, the principal cannot always observe how much effort the agent chooses to put into their own managerial responsibility (e.g. Harris and Raviv, 1978; Holmstrom, 1979; Eisenhardt, 1989). The free-cash-flow problem (e.g. Jensen, 1986, 1993) that potentially culminates in consumption on the job (e.g. Jensen and Meckling, 1976; Demsetz, 1983; Shleifer and Vishny, 1997) or empire building (e.g. Jensen, 1986; Stulz, 1990) are further examples of moral hazard. Stein (1988, 1989) documents agency conflicts due to differences in capital allocation and time horizons (managerial myopia) between the agent and the principal. Finally, self-dealing is an example of expropriation so serious that it is prohibited by law (e.g. Djankov et al., 2008).

Principals have some options for reducing such agent behavior. Jensen and Meckling (1976) demonstrate how specific contracting mechanisms like *managerial shareholdings* can align agent objectives with the interest of the principal. Agent shareholdings can be also considered as sort of bonding device for an agent in firms with greater potential for agency conflicts (e.g. Jensen and Meckling, 1976; Fahlenbrach and Stulz, 2009). Shleifer and Vishny (1986) propose that substantial ownership by a *large blockholder* assures that the blockholder (principal) has incentives to monitor the management (agent). Similarly, Fama (1980) argues that to a large extent efficient markets monitor and discipline agents (management). For instance *competitive industry pressure* can have a disciplinary effect. Fama and Jensen (1983b) remark further the importance of the *board of directors* as monitors on behalf of shareholders. Jensen and Ruback (1983) name the *market for corporate control* as a disciplining mechanism for managers. They propose that the *market for corporate control* represents a powerful takeover threat for management in the event of poor managerial achievements. In

the family-firm context of this thesis, the work of Fama and Jensen (1983b) is highly relevant. They propose that kinship relations might reduce agency problems:

> "The residual claims of these organizations (especially closed corporations) are also held by other agents whose special relations with decision agents allow agency problems to be controlled without separation of the management and control of decisions. For example, family members have many dimensions of exchange with one another over a long horizon and therefore have advantages in monitoring and disciplining related decision agents."[50]

As demonstrated with the mechanisms mentioned above, the basic problem is the principal's lack of control over agent behavior due to asymmetric information.[51] This problem applied to the management-shareholder-setting is referred to *Agency Problem I*. There is a second agency problem, *Agency Problem II*, between the minority shareholders and a large shareholder (e.g. Villalonga and Amit, 2006). Villalonga and Amit (2006) argue that this conflict is likely in the family firm context.

Below, I present the above-mentioned as well as two further agency conflicts from a specifically founding-family and individual blockholder firm angle.

3.1.1 Agency Conflict I: Manager and (Minority) Shareholder Conflict

Agency theory describes severe conflicts in a corporate setting. *Agency Conflict I* arises between managers (agents) and shareholders (principals) with diffuse ownership in a corporation. The setting is characterized by information asymmetries between the managers and the shareholders. Whereas managers are better informed about the firm's activity and prospects it is

[50] Fama and Jensen (1983b, p. 306).
[51] For additional information on agency theory and potential mechanisms see Eisenhardt (1989).

costly for shareholders to acquire detailed information. Those costs hamper the motivation of a single diffuse shareholder to increase their level of information. This leaves the management with some freedom to take decisions at its own discretion and with potential to engage in actions that diverge from the principals' interests. These are the classical arguments of Berle and Means (1932) and Jensen and Meckling (1976). This problem might be diminished in a setting with a large blockholder. As Shleifer and Vishny (1986) argue, the costs that a large shareholder has to bear in order to reduce information asymmetries might be outweighed by the benefits she[52] gains from monitoring management. Thus, the presence of a large shareholder should reduce the expropriation options of the managers.

The mapping of this conflict to the context of family firms, as described in our setting, is an interesting scenario (cf. Bennedsen et al., 2010). First, this is a very relevant setting, as founders and families are frequently not only blockholders but at the same time active management or supervisory board members, which should mitigate such expropriation. Second, founder and family blockholders should have the incentive to monitor management closely if not represented in the management team.[53] Both cases should clearly reduce information disparities between management and controlling owners, which might positively affect firm economics. Thus, the effects of family governance on firm economics are a key element of this thesis. More specifically, the particular effects of owner identity types—i.e. lone founder, family founder, and heir firm—might not necessarily be the same due to potentially differing governance and therewith agency settings.[54]

Apart from the positive implications, considerable family influence allows for another potential and severe conflict, *Agency Conflict II*.

[52] Throughout this study any notion of gender is free from judgment and applies equally to males and females.

[53] For a theoretical model approach on this topic in various legal settings see Burkart et al. (2003).

[54] For more details on hypotheses, please refer to chapter 5.2; for empirical evidence, please refer to chapter 8.

3.1.2 Agency Conflict II: Minority and Majority Shareholder Conflict

Corporate finance literature is often concerned with contracts that mitigate agency problems between management and shareholders, e.g. incentive and compensation contracts to mitigate *Agency Conflict I*. Nevertheless, an imbalance of shareholder power, e.g. with one or a small group of shareholders accumulating large shareholdings and a large fraction of shareholders with diffuse ownership, may also trigger substantial agency problems. At the expense of the diffuse shareholders, the large shareholder may pursue its own utility and pecuniary benefits (cf. Barclay and Holderness, 1989, 1991; Burkart et al., 1997; Claessens et al., 2002; Cheung et al., 2006; Cronqvist and Fahlenbrach, 2009; Bebchuk and Weisbach, 2010). Certainly, deviation from *one-share-one-vote* policy (cf. Grossman and Hart, 1988; Burkart and Lee, 2008; Adams and Ferreira, 2008), and likewise the general adoption of control-enhancing mechanisms including pyramidal ownership are potential vehicles enjoying private benefits of control (cf. Barclay and Holderness, 1989). Further, depending on thresholds and votes present, the accumulated votes of such large shareholders might even allow them to virtually bypass ballots and influence decisions taken at a shareholders' meeting. Whether such behavior is open to a large shareholder depends on the legal setting, likewise on shareholder protection enforcement, and on external governance forces in general. From this perspective, the question remains—who monitors the monitor (cf. La Porta et al., 1999; Tirole, 2006)?

However, as described above, a large shareholder might be associated with positive monitoring effects which could benefit minority shareholders (cf. Shleifer and Vishny, 1986). A priori, it is not clear which agency effect is stronger and what would be the net effect. This remains an empirical challenge.

In terms of family firm research, the distinctive features of those firm settings require a deep consideration of *Agency Conflict II*. While there are valid arguments that the likelihood of *Agency Conflict I* could be lower in

individual blockholder settings, problems potentially caused by a disparity between large shareholders (the founders, the founding-family) and outside (minority) investors should receive some attention. The large family blockholders have extensive power to influence firm decisions. As Anderson et al. (2012b) document, family members can enjoy privileges and information advantages over minority shareholders. They present evidence of family members who take advantage of superior information to the detriment of non-insider shareholders as they engage in short-selling before negative earnings announcements. Similarly, Villalonga and Amit (2006) argue that especially in old-money firms—i.e. later generation family firms—large family shareholders might take the opportunity to exert influence that potentially hurts minority shareholders. Gomez-Mejia et al. (2001) document examples of family ties protecting management from the market of corporate control, basically decoupling CEO responsibility from firm performance. Thus, minority shareholders might experience detrimental effects in entrenched family settings.

3.1.3 Agency Conflict III: Altruism

There are two further agency conflicts worthwhile mentioning: *Agency Conflict III*, or the *Altruism Conflict* (cf. Schulze et al., 2002a; Chrisman et al., 2004), and *Agency Conflict IV*, the *Debtholder and Shareholder Conflict* (cf. Anderson et al., 2003). As demonstrated in the context of *Agency Problems I* and *II*, family members might be valuable managers and/or monitors. Yet, beyond those beneficial characteristics, other complex issues might arise in family firm settings that cause agency costs.

Thus, the third agency problem that should be considered in a family firm research context is the *Altruism Conflict*. Schulze et al. (2002a) define altruism as:

> "[...] a trait that positively links the welfare (both intrinsic and extrinsic) of an individual to the welfare of others. Altru-

> ism is thus motivated by both other-regarding (altruistic) and self-regarding (egoistic) preferences [...]"[55]

This definition implies both, positive aspects like caring and supporting family members, and potential negative aspects, as such support might include a generosity affecting firm resources or decisions. This implies the Janus-like character of altruism. While Becker (1976) describes the positive side of altruism as reducing one's utilitarian benefit in favor of others, awareness of the potential downside of altruism to cause further agency costs, is important in the founding-family firm context. Related problems are also termed the 'Samaritan's dilemma' (cf. Buchanan, 1975; Schulze et al., 2002a). In a given situation, decision-making from an objective perspective, might have different outcomes compared to decision-making from an altruistic perspective. In fact, problems might be caused as decisions in a family firm context often involve the struggle to make the best choice from the family decision-maker's perspective, from the family's perspective, and finally from the firm's perspective. Due to self-control problems and a higher level of consumption, decisions may not be the optimum choice from a business perspective, causing the agency problems (e.g. Schulze et al., 2002a, 2003; Lubatkin et al., 2005; Karra et al., 2006). The literature further includes nepotism (e.g. Pérez-González, 2006) and other negative forms of altruism (cf. Schulze et al., 2002a; Karra et al., 2006).

While altruism is considered beneficial and is partly described as a source of competitive advantage in the early phase of a company's existence including product and market introduction, it might become more problematic in the later stages (e.g. Schulze et al., 2002a, 2003; Karra et al., 2006). Ward (1987), Handler (1990), and Schulze et al. (2002b) emphasize problems of underinvestment, slowing growth, as well as administrative and resource constraints that potentially result in transition failure from first- to second-generation family firms. In fact, several studies claim that about 60% to 70%

[55] Schulze et al. (2002a, p. 252). See also Simon (1993) who considers altruism as an important element in the context of economics, especially of understanding individuals and their decisions, as well as aspects of firm identification.

of founder firms do not make this transition to the second generation.[56] Schulze et al. (2002a) argue that this relates partly to decision inertia, influenced by traits of altruism. They cast some doubt on the beneficial view of owner-management suggested by Fama and Jensen (1983b). Besides there are positive aspects of altruism like firm identification and commitment. Positive forms of altruism are an important component of stewardship theory. I consider those positive characteristics in the next section.

3.1.4 Agency Conflict IV: Debtholder-Shareholder Conflict

I will conclude the current section with a brief introduction to *Agency Conflict IV*, the *Debtholder and Shareholder Conflict* (cf. Anderson et al., 2003; Chrisman et al., 2004). Lenders have to make efforts to obtain information about firms before contracting, in order to reduce the risk of making an adverse selection. Long-term relations might decrease the cost of debt. Decisions taken by a firm could, potentially, be detrimental to lenders, causing them to install monitoring contracts and mechanisms to prevent moral hazard. After all, contracts and relations to lenders involve a certain amount of monitoring and agency costs. Some scholars argue that when it comes to long-term banking or credit market relationships, family firms could enjoy lower agency costs of debt.

As the lender-shareholder conflict is of lower importance to my specific research questions, it will be the aspect of agency conflict that receives least attention. Nevertheless, I introduce this agency problem alongside the other three in the interests of completeness. All four agency problems are relevant to my general research question as founding-family firms can be affected by all these problems, though the degree of those problems might vary.

Nevertheless, there are limitations to agency theory explanations. The assumed rationality, efficiency, and of course the general model of man as

[56] Literature on family firm succession planning, succession failure, and performance after succession includes Beckhard and Gibb Dyer Jr. (1983), Lansberg (1988), Handler (1990), Handler (1994), Miller et al. (2003), Le Breton-Miller et al. (2004), Pérez-González (2006), and Bennedsen et al. (2007).

Homo oeconomicus, are underlying assumptions that are most likely too strong and too narrow. I will now explore further theories that should support the understanding of firm heterogeneity, especially in a family firm context.

3.2 Stewardship Theory

Whereas agency theory assumes divergent interests between an agent and the principal, stewardship theory criticizes this negatively flavored view of human behavior (*model of man*).[57] Instead, stewardship theory rests on the assumption that agents have a choice to act in a way that is not solely self-interested or only driven by the maximization of benefit to themselves. Intrinsic motivation and satisfaction as well as non-financial incentives are at the core of the stewardship theorists' argument (cf. Donaldson, 1990; Donaldson and Davis, 1991; Davis et al., 1997). From this perspective, stewardship theory can be seen as an extension and special case of a principal-agent relationship.[58]

Davis et al. (1997) offer theoretical advances in stewardship theory. In their work, the authors state:

> "Stewardship theory defines situations in which managers are not motivated by individual goals, but rather are stewards whose motives are aligned with the objectives of their principals."[59]

Again this shows movement away from the rather one-dimensional view of the *Homo oeconomicus*, the underlying assumption in agency theoretical argumentation. The dominant *model of man* in stewardship theory includes intrinsic motivation, appreciation of immaterial values, and collectivistic,

[57] For fundamental theoretical advancements on the two different types of the *model of man* (theory X and theory Y), please refer to McGregor (1960).
[58] For a discussion on the differentiation of stewardship and agency theory from a theoretical point of view refer to Albanese et al. (1997), Davis et al. (1997), and Caers et al. (2006).
[59] Davis et al. (1997, p. 21).

pro-organizational and altruistic behavior rather than describing a purely self-serving economic individual. Further, a convergence with the principal's goals is explained in terms of identification with the organization and alignment with firm goals, firm mission, and shared vision. Nonetheless, the principle has to establish a (firm) culture that allows steward-like acting (cf. Davis et al., 1997).

What are the implications to be drawn for family firm research? Stewardship theory delivers explanation alternatives beyond agency theory in individual blockholder settings. The widely existing unity of ownership and control in founding-family firms is an ideal precondition for the existence of stewardship conditions. Consequently, numerous works on family firms rely on stewardship argumentation (e.g. Corbetta and Salvato, 2004; Klein, 2005; Miller and Le Breton-Miller, 2006; Eddleston and Kellermanns, 2007; Astrachan, 2010). In particular, the potential for conflict between management and shareholders due to separation of ownership and control could be much reduced in stewardship-like settings. Founders and families as individual blockholders are often represented on boards (cf. Miller and Le Breton-Miller, 2006; Velte, 2009) and thereby contribute to suitable conditions for stewardship behavior. Moreover, in firms that carry the family name, founding-family members should show strong identification and feel that their reputation is at risk (e.g. Dyer and Whetten, 2006), which arguably should increase stewardship behavior. The same should be true for family firms that are characterized by long-term orientation, heritage of traditions over generations, and strong emotional bonds (e.g. Miller and Le Breton-Miller, 2006; Bertrand and Schoar, 2006; James Jr., 1999).

With respect to my research questions, it is highly interesting and relevant to consider potential stewardship behavior in founding-family defined firms. Again, owner identity characteristics could be decisive in the analysis of effects on firm policy, economics, and ownership persistence, as they could impact the extent of stewardship-related behavior.[60]

[60] For details on hypotheses, please refer to chapter 5; relevant empirical evidence is presented throughout the chapters 7 to 9.

3.3 (Social) Identity Theory

While *stewardship theory* has already opened up the theory framework of this thesis for a *model of man* that is also inspired by sociology and psychology theories, the *(social) identity theory* further extends this theoretical foundation. To be precise, there are two very closely related theories–-*identity theory* and *social identity theory*—from which I draw extensively. Hogg et al. (1995) explain their respective characteristics as follows:

> "Identity theory is principally a microsociological theory that sets out to explain individuals' role-related behaviors, while social identity theory is a social psychological theory that sets out to explain group processes and intergroup relations. Both theories place their major theoretical emphasis on a multifaceted and dynamic self that mediates the relationship between social structure and individual behavior."[61]

Apparently, both theories differ in their perspectives. *Identity theory* focuses on self, the self-concept and the reciprocal relationship between self and behavior (cf. Burke, 1980; Burke and Reitzes, 1981). The concept of 'roles' plays a central part in *identity theory* (cf. Stryker and Burke, 2000). The terms 'identity' and 'role' are applied interchangeably with one slight distinction:

> "Identities are meanings one attributes to oneself in a role (and that others attribute to one)."[62]

This implies that an individual can take several identities, or roles. Or better, one can take several role identities (cf. Hogg et al., 1995).

Social identity theory has another focus. Its foundations rest on group membership, or simply other social categories that in turn influence the self of

[61] Hogg et al. (1995, p. 255). As the authors emphasize, the differences in both theories might be caused by the fact that both stem from different academic disciplines. While identity theory stems from sociology, the research strand of social identity theory comes from psychology.
[62] Burke and Reitzes (1981, p. 84).

a person. As a member of such a group or category one adopts behavior, norms, and motives (cf. Tajfel and Turner, 1979; Ashforth and Mael, 1989; Hogg et al., 1995).

Evidently, the theories are abstract enough to define roles and social groups for my research setting. It is also a conclusive and accepted foundation of theories on which I can build. Therefore, I map both theories to the founding-family firm topic. As result, I come up with three distinct owner identity types—lone founders, family founders, and heirs.[63] Although there exists no such thing as *owner identity theory*, this term could be used to describe the approach in the following chapters. It is assumed that identities of owners are influenced by their social context. For instance the family as a group and source of behavior and cognitive characteristics, or fellow entrepreneurs and venture capitalists (cf. Miller et al., 2011). This approach also captures shared perspectives and identification with role identities. All these influences are evidently important, yet hardly measurable. But, instead of totally ignoring them, my approach is to define founding-family subgroups as demonstrated above. This perspective is missing from much of the research into listed founding-family firms. The biggest exception is the work of Miller et al. (2007), Le Breton-Miller and Miller (2008), and Miller et al. (2011) that emphasizes the characteristics of lone founder firms.

In terms of individual blockholder research, the question of owner identity is an interesting piece of the puzzle that could deliver insights beyond the explanations of traditional theories. I cannot emphasize enough that a main problem of family firm research remains the adequate consideration of heterogeneous (firm) characteristics; beyond definition work and sample selection that often hampers clear-cut results. Therefore, an owner identity approach might target (moderating) characteristics that are beyond the explanation of agency aspects.

Specifically, those characteristics could include values, goals, strategies, and logic that founders and families might follow. The identity characteristics

[63] See chapter 2, section 2.2.3 for a definition of according firm types.

might influence their way of evaluating situations, risk taking, and acting in general. Identity characteristics are built through interaction with a community or circle of people, like a family or a group of people like entrepreneurs (e.g. Tajfel and Turner, 1979; Ashforth and Mael, 1989; Miller et al., 2011). Whereas stewardship theory argues that agents might feel a deep identification with an organization or with higher targets[64], (social) identity theory claims an identification with a role or a group of like-minded people. Certainly, a family could be such a group. Social identity theory postulates that this group belonging could be the ultimate source of certain values, goals, and behavioral logic. Evidently this could influence firm culture, decisions, and actions taken by organizations.[65] Therefore, (social) identity theory delivers strong arguments for the explicit consideration of lone founder, family founder, and heir firm types, beyond a generic individual blockholder examination. Again, it is the aim of this work to elaborate the identity effects of founding-family firm types on such important topics as firm policy, economics, and ownership persistence.[66]

3.4 Summary

The theory section introduced four types of agency problems. With respect to the first two problems, the management-shareholder conflict and the minority-majority-shareholder conflicts, there is a structural advantage for family firm research: scholars enjoy a relatively clean governance setting, a useful framework for analyzing the effects of those governance specifics.[67] In addition, I expect new insights with respect to agency problems and governance specifics from the 'owner identity' approach. 'Owner identity' defined sub-types might apply different governance mechanisms. For that rea-

[64] For details, please refer to the previous section on Stewardship Theory.

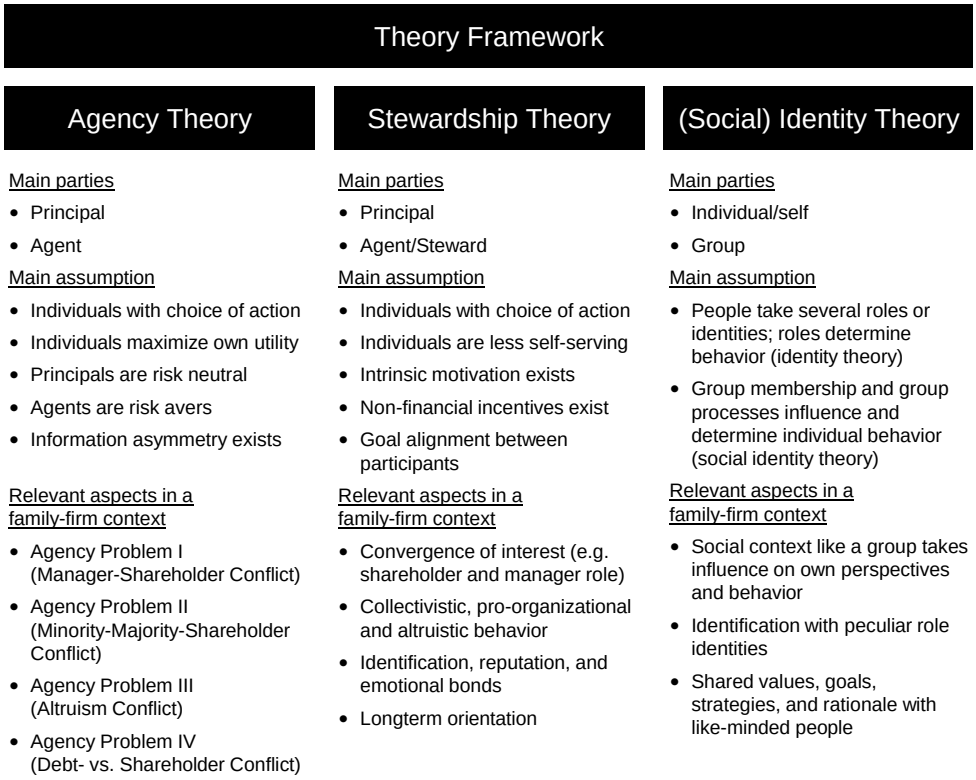
[65] To some extent, identity theory aspects can also be interpreted in the light of the *resource based view*. For instance, based on the *resource based view*, Habbershon and Williams (1999) argue that familiness, as a bundle of resources and capabilities, can be a source of competitive advantage.

[66] For details on hypotheses, please refer to chapter 5; relevant empirical evidence is presented throughout the chapters 7 to 9.

[67] For a similar argument, see Bennedsen et al. (2010).

son, they might also show different agency problems. While the shareholder-debtholder problem is somewhat neglected in the following, the altruism conflict already shows the boundaries of agency theory explanations. The assumed rationality, efficiency, and of course the model *Homo oeconomicus*, are very strong underlying assumptions in agency theory. I have therefore introduced two further theories that should support the understanding of family firm heterogeneity. Stewardship theory and (social) identity theory seem to be suitable to generate further explanation of family firm specifics. (Social) identity theory in particular supports the fundamental proposal made in this thesis to divide heterogeneous founding-family defined firms into three distinct categories. Generational and kinship characteristics represent the decisive dimensions of categorization as explained in chapter 2, Context and Definition of Founding-Family Firms. Figure 3 summarizes the Theoretical Framework.

Figure 3.1: Theory Framework



Note: This figure presents the theory framework. It describes the main characteristics of the three theory pillars: (i) agency theory, (ii) stewardship theory, and (iii) (social) identity theory.
Source: Own work.

4 Literature Review

This chapter introduces the current state of individual blockholder as well as founding-family firm related research, including fundamental research strands as well as recent developments. The literature review starts with theoretical and empirical advances in corporate governance-related research. The focus is then on concentrated ownership structures and its implications for firm economics and firm policy. The effects of internal and external governance characteristics are also introduced. Finally, I present existing scholarly work on ownership dynamics, a very immature and young field of research.

4.1 Ownership Structures of Public Companies

4.1.1 Research Inception

The inception of research on governance structures and its implications can be traced back to the work of Berle and Means (1932). Their criticism of the public corporations' induced managerial opportunism and management dominance as opposed to the interests of dispersed shareholders provides the argumentation base for agency related theoretical work (cf. Jensen and Meckling, 1976). These findings spurred interest in and the empirical evidence of a more detailed analysis of the characteristics of governance structures. Ownership structures and their implications were of particular interest. With the ground-breaking work of La Porta et al. (1999) and the subsequent work of Faccio and Lang (2002) as well as Claessens et al. (2000),

the relevance of individuals and families as the most common group of large blockholders was documented.

La Porta et al. (1998) and La Porta et al. (1999) reveal the link between investor protection law and the occurrence of concentrated ownership structures. Only in strong shareholder protection regimes do less concentrated ownership structures appear. This is somewhat qualified by Holderness (2009) who argues that considerable blockholding exists also in the most developed capital markets, as he demonstrates for a random U.S. sample. However, Eisenberg (1976) had already cast doubt on the *dispersed ownership myth*. Empirical evidence on share concentration amongst the largest non-financial US corporations in the 1960s shows that individuals and families are prominent in the group of influential blockholders.[68] In subsequent research, there was a general interest in blockholding and concentrated ownership, in various types of blockholders, and especially in the implications of such large shareholders' presence.

Would a large shareholder act as a counterbalance to management with incentives to control or as a selfish shareholder who extracts rents at the expenses of small fellow shareholders? Early empirical work on valuation aspects of large shareholders—on private benefits extraction—includes for instance Barclay and Holderness (1989). Notable advance in the field of concentrated ownership and closely related aspects of corporate governance contribute, amongst others, Demsetz (1983), Demsetz and Lehn (1985), Shleifer and Vishny (1986), Grossman and Hart (1988), Harris and Raviv (1988), Zeckhauser and Pound (1990), Bebchuk (1994), Burkart et al. (1997), and Burkart et al. (1998). The common bottom line of this research is the fact that even in the largest firms in the strongest shareholder protection regimes worldwide there exists a number of examples of concentrated shareholding. This concentration decreases with an increasing company size and also relates inversely to shareholder protection (e.g. Morck et al., 1988; Holderness and Sheehan, 1988; Holderness et al., 1999). Yet the fact remains that concentrated blockholding is not an exception to the norm.

[68] See Eisenberg (1976, pp. 43-53).

Instead, government, individuals, and families remain the largest types of shareholders worldwide. Their powerful position can be both a valuable monitoring device, and also a serious expropriation mechanism at the expense of minority shareholders (cf. Barclay and Holderness, 1989; Demsetz and Lehn, 1985; Shleifer and Vishny, 1986; Lins, 2003).

Empirical evidence on ownership concentration in Europe and specifically for Germany is presented by e.g. Gorton and Schmid (2000), Franks and Mayer (2001), Edwards and Weichenrieder (2004), Ehrhardt et al. (2006), Kaserer and Moldenhauer (2007), Franks et al. (2008), and Bennedsen and Nielsen (2010). The dominant role of family and individual blockholders in the US is analyzed by e.g. Anderson and Reeb (2003), Villalonga and Amit (2009), and Villalonga and Amit (2010).[69]

4.1.2 Research Branches

In order to provide the reader with a clear framework of related literature, I have structured the corporate governance literature in several strands. One way to approach the various perspectives of governance[70] is to differentiate them by the key forces that control a corporation. Jensen (1993) and Denis (2001) differentiate the following four aspects:

1. legal and regulatory influence,
2. internal governance,
3. external governance, and
4. product market competition.

It is not the intention in this work, nor do I claim to give an extensive overview of all four perspectives. Rather, I focus on individual blockholders, and in particular on the founding-family literature as introduced above.

[69] For further international studies, e.g. Japan or Canada, please refer to Prowse (1992), Berglöf and Perotti (1994), and Morck et al. (1988).

[70] For details on corporate governance and the institutional context of individual blockholder firms, please refer to 2.1.

This literature strand primarily draws on the second perspective, i.e. the *internal governance* view. Ownership and board structures are at its core. Hence, I only selectively introduce the further perspectives and only to the extent that they are relevant to this work. Noteworthy in respect of the further perspectives are controls for external governance, for example external blockholders, as well as the level of industry competition. The latter is a powerful device for which it is unlikely that even entrenched companies can afford to neglect.[71]

The research strand of insider ownership, introduced in chapter 2.2 on definitions, is closely related to the *founding-family* literature strand. This traces back to Jensen and Meckling (1976) and the agency problems already discussed[72]—primarily the management-shareholder conflict. Insider ownership deals with the effects of managerial or director ownership which springs from the Anglo-Saxon one-tier board model. The argument goes as follows: a substantial amount of ownership sets an incentive for the manager (or the insider in general) to align his interests with other shareholders (cf. Morck et al., 1988; McConnell and Servaes, 1990; Agrawal and Knoeber, 1996).[73] In consequence, a deviation in terms of spending for perks should be reduced as the manager is affected by such behavior.[74] I do not want to dive too deep into insider ownership literature, but it is worth noting that there is substantial overlap with the founding-family approach, in respect of identified ownership in listed firms. This holds especially true for Ger-

[71] Compare for instance the theoretical advancements by Hart (1983) who shows that product market competition reduces managerial slack and thus should enforce cost efficient behavior. See also Shleifer and Vishny (1997), Giroud and Mueller (2011), Guadalupe and Pérez-González (2011), and Kim and Lu (2011) for the effects of product market competition (industry competition) on overall governance and the reduction of private benefits of control.

[72] For the theoretical underpinnings of agency problems, please refer to chapter 3.1, Agency Theory.

[73] One has to carefully differentiate the definition of the insider in a insider ownership approach versus a founding-family approach. An insider in an insider ownership approach does not necessarily belong to the group of founding-family members. See chapter 2, Context and Definition of Founding-Family Firms, for more details.

[74] Yet, as Jensen and Meckling (1976) show, agents (managers) could realize the full utility out of this behavior while bearing pro-rata costs. Contract design aims to control for such action.

many, where insider ownership should be driven even more by individuals like founders and their families than by stock options related management remuneration in the US (cf. Kaserer and Moldenhauer, 2007). A further commonality is the (causal) analysis of performance and ownership structure. The common finding seems to be that the relationship tends to be hump-shaped (inverted U shape). Whereas a certain amount of insider ownership has a supposed positive performance (valuation) effect, at large amounts of insider ownership the negative entrenchment effects seem to overshadow the positive alignment effects (cf. Morck et al., 1988; McConnell and Servaes, 1990; Bebchuk et al., 2009). Yet, those findings might alter when further governance mechanisms take effect. Kim and Lu (2011) review CEO ownership settings with respect to valuation. They identify the hump-shaped relation characteristic as documented by Morck et al. (1988) and McConnell and Servaes (1990) only if external governance is weak.[75] In case of strong external governance there is no significant relationship. Kim and Lu (2011) suggest that external governance is a counterbalancing governance device that prevents expropriation in managerial ownership settings.

This general problem of one large shareholder expropriating the other shareholders is exactly what *Agency Problem II* describes—the minority-majority-shareholder conflict (e.g. Claessens et al., 2002; Gompers et al., 2003).[76] This conflict is also of major relevance in the founding-family literature (cf. Villalonga and Amit, 2006). It is also important to note that both strands of research attempt to deal with the general problem of endogeneity. Amongst the most critical authors that cast substantial doubt on the *governance-performance relationship* findings are Demsetz (1983), Demsetz and Lehn (1985), and Demsetz and Villalonga (2001). They claim that to some degree prior work does not adequately consider endogeneity. However, endogeneity is a major topic, as Denis (2001) points out:

[75] Kim and Lu (2011, p. 276) calculate various measures of external governance. They apply an industry sales concentration ratio based on the top four industry players, two versions of a Herfindahl concentration measure, and the institutional ownership concentration.

[76] For the theoretical underpinnings of agency problems, please refer to chapter 3.1, and specifically to section 3.1.2.

> "The culprit [...] is endogeneity, which presents both a curse and an important set of challenges to researchers in empirical corporate governance."[77]

The mentioned conflicts are of equal relevance in the *founding-family* literature which I will introduce next. In fact, some authors argue that the earlier work on insider ownership fails to control for family control and might therefore be misdirected (cf. McConaughy and Phillips, 1999). From this perspective, one could also consider the work on family control as an extension of the analysis of insider ownership effects.

4.2 Evidence on Individual Blockholder and Founding-Family Firms

This part focuses on individual blockholder firms according to the *founding-family* definition introduced above. Chronologically and in terms of total work published, the performance aspect of *founding-family* influenced firms is at the center of one of the most important literature strands for family firm research in the financial economics literature. A family firm setting offers an interesting field of governance and contract mechanisms which researchers are keen to explore. The analysis of those mechanisms' effects on firm economics—valuation, operating performance, and profitability—seems natural. Yet, there are still plenty of unsolved questions in the context of *founding-family* influenced firms' economics, and beyond. Below, I present the current state of findings in the field of *founding-family* research.

4.2.1 Firm Heterogeneity

Chapter 2 already introduced the problem of capturing the various characteristics of *(founding-)family* firms in definition work. Those conceptual problems are the flip-side of the fact that individual blockholder firms are very heterogeneous. Several scholars elaborate aspects of this heterogeneity.

[77] Denis (2001, p. 198). For an extensive discussion of endogeneity and further empirical concerns, please refer to chapter 6, Relevant Concerns and Empirical Approach.

I introduce the most important features in the following. I consider *importance* in terms of relevance (i) to the research questions of this dissertation, (ii) for solving empirical roadblocks, and (iii) for the specific interpretation. It is important to note, that the majority of studies in the context of family firms merely focuses on the contrast between family firms and non-family firms. A closer look on the heterogeneity within the group of family firms has so far only been undertaken by a few scholars.

Family or founder influence is exhibited at various strengths and with various characteristics. Some scholars argue that this relates to a business life-cycle or governance life-cycle (e.g. McConaughy and Phillips, 1999; Le Breton-Miller and Miller, 2008; Franks et al., 2009). This aspect is connected with the size and of course age of the company. The evolution of founder or family influence in a corporation is also mitigated by the owners' goal structure as Le Breton-Miller and Miller (2008) argue and by country-specific capital market characteristics as Franks et al. (2009) state.

Similarly, business models and industry adherence can be very different. Though family firms can be found across industries there is some clustering in terms of industry adherence. Villalonga and Amit (2010) argue that industry features exist that increase the propensity that a firm of a certain industry is a family firm. They propose that founder and founding-family controlled firms are more likely to exist in industries where their characteristics turn out to be of a competitive advantage. Amongst others, Villalonga and Amit (2010) name as key features of such industries the importance of long-term orientation, a distinct need to monitor employees, and a lower efficient scale.[78]

Bertrand and Schoar (2006) argue strongly in favor of increasing research into heterogeneous family characteristics. For them, individual family char-

[78] Coles et al. (2012) argue that managerial ownership is more likely to exist in firm settings where the relative productivity of managerial input is higher compared to the relative productivity of capital. Thus, their argument is closely related to the industry's efficient scale argument by Villalonga and Amit (2010).

acteristics are a somewhat neglected source of heterogeneous characteristics. Specifically, they argue:

> "We believe that much can be learned by taking seriously the 'family' part of 'family firms'. Our understanding of the nexus between family and firm should improve with more microeconomic studies that analyze how the structure of a given family—including its size, gender and age composition—alters the strategic choices and eventual performance of the family firm."[79]

So far, the data availability on founder and family specifics is the limiting factor for a large scale empirical investigation to answer these questions as Bertrand and Schoar (2006) point out. Therefore, they recommend that the advances in this field require a detailed country-by-country research set-up. This would also enable the adequate reflection of national and cultural specifics. Yet, research on family firms has steadily aimed to improve the operationalization of family influence. This is especially true for governance related work. In order to operationalize the strength of family influence, some family research scholars introduced concepts to measure the degree of influence. Two concepts that follow this approach are the SFI—for substantial family influence—and the F-PEC scale (cf. Klein, 2000; Astrachan et al., 2002; Klein et al., 2005). Both deliver evidence of the heterogeneous characteristics of family or founder firms. Recent work tends to emphasize more differences between founder and descendant influence.

My work differentiates founding-family firms according to owner identity types that reflect generational and family/kinship relationships as constituent elements. Seminal work in this context has been presented by Miller et al. (2007), Le Breton-Miller and Miller (2008), and Miller et al. (2011). They initially brought up the lone founder concept and revealed significant differences between this subgroup of 'family firms' and firms where there is family influence in its genuine sense. Further work corroborates generational

[79] Bertrand and Schoar (2006, p. 95).

differences and family influence, predominantly with respect to governance characteristics, operating performance, and valuation (e.g. Villalonga and Amit, 2006; Pérez-González, 2006; Bennedsen et al., 2007).

In addition to the top-level differentiation of family/kinship and generation characteristics, the implementation of governance mechanisms is a decisive element that indicates the value founders and founding-families attribute towards controlling or protecting their influence. Villalonga and Amit (2009), Gompers et al. (2010), and King and Santor (2008) present evidence of a dual-share class wedge application, an important control-enhancing mechanism. A further control enhancing mechanism—i.e. having more voting than cash-flow rights—includes pyramidal ownership structures (e.g. La Porta et al., 1999; Denis and McConnell, 2003; Bebchuk and Weisbach, 2010).

Firms seem to have different preferences in terms of installing governance mechanisms. Some of these differences could relate to owner identity specifics. The type of founder or family influence appears to matter with respect to the applied governance choice.

4.2.2 Firm Policy

Firm policy is a set of actions that the controlling blockholder and management can choose to pursue (cf. Hansmann, 1988; Cronqvist and Fahlenbrach, 2009; Becker et al., 2011). The possible choices are limited by determinants like firm size, growth options, industry rivalry and so on. Yet, in terms of controlling individual blockholders the limiting factor, aside from these general features, might also be the respective characteristics—or as already described, the owner identity characteristics—of the individual blockholders. In other words, for example (lone) founder firms might have a different appetite for risk, debt financing, or a different approach to investment activities compared to family firms or non-family firms.[80] It is the goal of these sections to collect and present the related research evidence on founder and family firms in terms of firm policy and behavior. There is scant research on

[80] For more details refer to chapter 2.2.3, Definition of Owner Identity Types.

the specifics of firm policy and individual blockholders like founders and families. In general, firm policy encompasses several categories; I focus on (i) investment policy and (ii) financing and risk policy in the following.[81]

Certainly, the choice of distinct governance mechanisms represents a form of firm policy, too. Nevertheless, I choose to dedicate the previous section on firm heterogeneity (including governance mechanisms) to this complex topic, as not every kind of governance characteristic is subject to free choice, e.g. the appearance of external blockholders.

4.2.2.1 Investment Policy

From a theoretical perspective, agency theory as well as identity theory (and even stewardship theory) deliver arguments assuming that large individual blockholders influence firm policy, especially the allocation of firm resources. Either as controlling blockholder or in conjunction with board influence, founders and families should have a keen interest in influencing investment policy.[82] Certainly, one aspect is that investment activities have a direct link to the firm-related wealth of a founder or family.[83] Thus, a certain level of discipline could be assumed. In addition to this wealth impact, investment projects are a substantial part of long-term business planning and strategy.[84]

[81] Topics such as payout policy and diversification policy are out of my research scope. Extensive discussion and empirical evidence can be found in e.g. Schmid et al. (2008), Ampenberger (2010), and Trinchera (2012).

[82] Motivation for influencing firm policy may differ with respect to the applied theory framework. In the context of agency theory, arguments like utility maximization, altruism, or control enhancement would dominate; in the context of stewardship theory behavior derives from personal intrinsic motivation, while owner identity theory derived motives stem from group membership, group attitude, and role identities. For more details, please refer to chapter 3, Theoretical Framework.

[83] Ward (1987) and Dreux (1990) discuss the potentially conflicting situation of interrelated family and firm wealth. Holmen et al. (2007) present evidence on the undiversified firm-related family wealth in Sweden. About 50% of family wealth is invested in the family firm stock.

[84] For a more detailed analysis of the influence of time horizons and long-term planning please refer to e.g. Laverty (1996), Narayanan (1985), and Stein (1989). Fazzari et al. (1988),

McConaughy and Phillips (1999) for instance find substantially higher R&D and CAPEX investment ratios for founder controlled firms compared to descendant firms. Both R&D and CAPEX are scaled by total sales. Compared to non-family firms, the coefficient for R&D is higher for founder-controlled firms and lower for CAPEX. Yet, both firm types show on R&D and CAPEX highly significant coefficients (controlled for firm age). McConaughy and Phillips (1999) argue that variation in the investment characteristics in conjunction with growth and profitability characteristics between founder and descendant-controlled firms could hint at a life-cycle explanation. Whereas McConaughy and Phillips (1999) rely on founding-family control and OLS estimates, Cho (1998) analyzes investment ratios and the relationship to insider ownership. Cho (1998) applies simultaneous equation regression models (2SLS) and concludes from the results that OLS estimates are biased due to the endogenous characteristic of insider ownership. Specifically, Cho (1998) argues that investment policy is a determinant of firm valuation which in turn affects ownership structures—not the other way around.

Additional evidence by Fahlenbrach (2009) suggests that founder-CEOs spend 5.4 percentage points more on R&D (IV regression), respectively 1.2 percentage points in case of firm fixed effects regressions. The latter approach includes only firms that change founder-CEO status within the sample period 1993 to 2002. Compared to the founder-CEO, successors—regardless of whether the successor-CEO is a family member or a non-family CEO—invest 22.6% less in R&D. A treatment effects estimation amounts to a R&D investment by founder-CEO firms of 32.1% above sample mean. Throughout the three estimation approaches, all effects are highly statistically significant ($p<0.01$). In terms of capital expenditures, the most conservative effect comes from firm fixed effects regressions. Even so, founder-CEO controlled firms show a 2.4 percentage points higher CAPEX estimation which equals CAPEX that exceed the sample average by 38.7%. Fahlenbrach (2009) argues that these strong firm fixed effects results indicate that the

Audretsch and Elston (2002), and Andres (2008a) specifically review investment policy in the light of financial constraints.

investment effects are not simply growth firm characteristics but relate to the founder-CEO status.[85]

Anderson et al. (2012a) review the investment characteristics of the 2000 largest listed U.S. companies at the year end 2003, from which they exclude financial and utility companies. Their panel spans the years 2003 to 2007. Anderson et al. (2012a) hypothesize that there is a trade-off between risk concerns of family firms on the one hand and on the other a long-term orientation (horizon) that potentially determines the way family firms invest. They further assume that R&D investment is the riskier form of investment with higher volatility in its outcome. Anderson et al. (2012a) report a 7.5% lower investment (total investment scaled by total assets) by family firms compared to non-family firms. But separating out the total investment in R&D and CAPEX indicates that family firms invest relatively less in R&D, specifically 31% less, and approximately 15.6% more in CAPEX. The results remain robust when the authors apply a 2SLS instrumental variable approach and break up the (family) effects in a control and a management perspective. There is a strong negative relationship between family ownership and total investment, which does not materially change with the inclusion of founder, professional, and descendent CEO types. In addition, Anderson et al. (2012a) include a robustness test for missing R&D values (selection bias controlled via Heckman (1979) approach) and an analysis for R&D effectiveness. The results indicate that family firms do not do worse or better in terms of patent generation per unit R&D spend, yet show lower patent citations (a rough indicator for patent value and importance) compared to non-family firms. Overall, Anderson et al. (2012a) conclude that the differences between non-family and family firms in terms of investment policy are better explained by a risk mitigation motive for the controlling family and less by better monitoring capabilities.

[85] Fahlenbrach (2009) also includes M&A activities in his analysis on founder-CEOs. He reports an equal commitment to M&A investments independent of a founder-CEO status. The number of acquisitions is slightly increased for founder-CEOs, yet the most intriguing result is that founder-CEO acquisitions are mostly non-diversifying, i.e. focused on the respective industry in which the founder-CEO has gained experience. Founder-CEO deals are primarily stock rather than cash deals.

Block (2012) analyzes S&P 500 firms with respect to R&D intensity and productivity. Block (2012) explicitly considers a lone founder differentiation and identifies significantly higher R&D spending as well as R&D productivity in lone founder firms. Again, this evidence proves the relevance of this thesis' research questions and the initial working hypotheses to differentiate founding-family firms in lone founder, family founder, and heir firms.[86]

Ampenberger (2010) and Andres (2008a) offer a perspective on firm investment decisions in German family firms. Ampenberger (2010) analyzes panel data from 1995 to 2006 and finds a significant higher intensity of CAPEX investments in family firms, but fails to identify differences in R&D investments. Andres (2008a) relates financing constraints to investment policy in family firms. His empirical evidence reveals that family firms pursue investment opportunities relatively irrespective of operating cash flows. Therewith, Andres (2008a) argues that the commonly assumed financial constraints in family firms do not necessarily prevent investments. The author suggests family ownership settings bear lower agency costs, which in turn enable preferred relationships with external capital suppliers.

4.2.2.2 Financing and Risk Policy

Individual blockholders might make their policy decisions with a special notion and sensitivity of firm-related risk. Their firm-related wealth depends on value-increasing decisions and the management of firm specific risks.[87] For this reason founders and families might consider the management of leverage and liquidity as important risk mitigation elements (cf. Mishra and McConaughy, 1999). Especially as firm-related wealth is probably to a substantial extent tied up with the company.[88]

[86] A further paper of Block et al. (2010) addresses patent data to explicitly consider the outcome of innovation, not only the R&D investments as input measure.

[87] Ward (1987) and Dreux (1990) discuss the potential conflicting situation of interrelated family and firm wealth.

[88] Holmen et al. (2007, p. 1475-1477) estimate firm-related wealth diversification in Sweden of about 50% (median of 51.9 and mean of 49.9). Probably the better description is wealth concentration as 50% of net wealth of founders and families are tied up in the sharehold-

King and Santor (2008) for instance argue that family firms apply distinct governance mechanisms like a dual-share class wedge to inflate assets while still controlling the firm. They prefer equity with less control rights for outside shareholders to cheaper debt as debt implies increased creditor monitoring through covenants. This indicates the importance that families attribute to the threat of loosing control. Obviously, decisions on meeting capital requirements are made with consideration for the ambition to retain control and for avoidance of strict creditor monitoring.

Nonetheless, those preferences do not prevent family firms from using debt. In fact, debt utilization could be the result of available and for family firms attractive financing conditions. Anderson et al. (2003) report, that family firms show higher levels of leverage, yet at lower costs. Anderson et al. (2003) suppose that better monitoring incentives reduce agency conflicts which in turn results in favorable financing terms. Especially notable are the results for descendant-CEO firms. Ellul (2008) adds a further angle to this discussion. The author finds, similar to Anderson et al. (2003), higher leverage ratios in family firms. He claims that family firms might use leverage as a strategic control device, where control enhancing mechanisms like ownership pyramids and dual-share classes do not exist to not dilute their voting stock. He also documents higher leverage ratios in family firms when minority shareholder protection is weak.

This partly contradicts the results of Schmid (2013) who identifies lower leverage in family-managed firms for a German sample. He argues that con-

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ings of their company. The sample includes 157 publicly listed firms (232 firm years) at Stockholm Stock Exchange in the years 1988 and/or 1991. Holmen et al. (2007) benefit from rigorous disclosure requirements in Sweden. Due to the *offentlighetsprincipen* postulated in the Swedish constitution since 1766, official records such as tax returns have to be publicly accessible. Their analysis further indicates a range of 0.4% to 147% of wealth diversification for managerial firms (i.e. various founder, entrepreneurial, and family firm types combined). 147% indicates a highly levered position, emphasizing the importance that founders and families attribute to control, while accepting leverage and waiving diversification. Similar findings are documented by Anderson et al. (2003, p. 267) and Anderson and Reeb (2003, p. 1304) for the US. Based on the *Forbes* list they estimate that families have on average 69% of their wealth concentrated in the firm (where the firm is listed in the S&P 500).

trol considerations of founders and families are important determinants that influence the leverage of family firms. According to Schmid (2013) the influence of a founding-family on firm leverage is most evident if one or more members of the founding family are active in the management board. In terms of this active family firm involvement the market leverage of such a family firm reduces by 5 percentage points or 20% below sample mean. Compared to this OLS evidence, the firm fixed effects model indicates a 3.1 percentage points lower market leverage, and a reduced market leverage of 12.4%. In contrast the international evidence shows a 2.3% higher leverage for family firms with family management. This translates to a 6.6% higher market leverage (OLS estimation). Thus, with respect to the contradictory findings for international evidence, Schmid (2013) emphasizes the importance of geographical characteristics. He argues that the lower leverage in family managed firms relates to strong creditor monitoring in Germany. Therefore, family managers would fear a potential decreasing control which in turn keeps them from higher firm leveraging. In contrast to this *fear of losing control* argument of Schmid (2013), Stulz (1988) suggests the exact opposite situation—an increasing leverage—arises when managerial shareholders want to increase the voting power of their existing equity stake. So, to sum up, there is no clear evidence in terms of risk and control considerations, especially in differentiating the effects from each other. The mixed evidence again suggests that it will be advantageous to add the owner identity perspective to capital structure analysis of family firms.

Arguably, the undifferentiated consideration of corporate cash-holdings might also deliver mixed results. Although differences in cash-holdings can be explained by the argument that riskier cash-flows induce higher cash-holdings (cf. Opler et al., 1999), this work considers several aspects of risk mitigation in order to have a more conclusive picture of family and founder choices in terms of risk (management) policy. But Opler et al. (1999) also argue that management piles up cash if it is able to do so, supporting the argument for a control and governance aspect to cash-holdings. Dittmar and Mahrt-Smith (2007) confirm the sensitivity of cash holding effects to the

quality of governance. Dittmar and Mahrt-Smith (2007) report only negative effects of high cash-holdings on valuation if the firm shows poor governance characteristics. Evidence drawn from the US capital market by Harford et al. (2008) suggests that weaker governance is related to lower cash-holdings, as cash resources are spent either as CAPEX, share repurchases, or in acquisitions. Stronger governance is indicated by the (low) GIndex[89] and higher levels of insider ownership (cf. Harford et al., 2008).

4.2.3 Economics

Individual blockholder economics comprise a field that extends the research topic of performance. In most cases the performance indicator is in fact a valuation characteristic. The majority of valuation studies analyze the Tobin's Q ratio. The original measure relates the market value of assets to the replacement value of assets. Generally, a replacement value for assets is hard to determine. Therefore, empirical studies adjust the measure and apply the book value of assets instead of the replacement value as denominator. As Chung and Pruitt (1994) show, this short-cut calculation of Tobin's Q explains over 96% of Tobin's Q based on a replacement value calculation. Their evidence strongly supports deviating from the original definition in order to reduce data requirements and time. Perfect and Wiles (1994) corroborate this evidence. As a result, Tobin's Q can be considered as a proxy for the market valuation of total assets to the book value of total assets within a certain tradition in ownership and performance-related studies.[90] Some scholars argue that the application of Tobin's Q is somewhat superior to the more distorted accounting based return figures. While these are subject

[89] See Gompers et al. (2003) for the construction and interpretation of the governance index (GIndex). Gompers et al. (2003) divide into *dictatorship* firms in which the power is predominantly with the management. This implies generally low shareholder rights. Hence the GIndex is defined as high for high dictatorship and low shareholder rights. The opposite applies for *democracy* firms.

[90] Morck et al. (1988) are amongst the first scholars that apply Tobin's Q as a dependent variable, analyzing ownership effects in Fortune 500 firms in 1980.

to potentially higher accounting or earnings policy[91], Tobin's Q includes a market component that reflects the valuation perception of the market participants (cf. Villalonga and Amit, 2006; Adams et al., 2009; Block et al., 2011).[92]

Yet the economic performance of a firm also includes operating performance, or even asset pricing. I therefore extend the performance (valuation) perspective to include those aspects in the economics section. Nevertheless, in terms of what is measured, the hitherto presented papers are similar. What changed over the course of time is in line with the motivation of this thesis: the inclusion of more peculiarities of family or founder influence as well as the application of more sophisticated empirical approaches. The consideration of endogeneity concerns has received much more attention in empirical work.[93]

I split the following overview on existing research into country/region specific evidence and family/founder evidence. The country/region split reflects different legal environments and institutional settings, especially shareholder protection law, which have proved to be important determinants of firm valuation in general. The differentiation of family and founder evidence will emphasize the specifics documented in existing founding-family research.

It should be stated at the outset that empirical evidence on firm economics is predominantly mixed concerning the question of whether family firms are the superior type of organization. Again, this supports the proposition that the heterogeneous character of family firms has been neglected.

[91] For further details on the role of earnings management see Cornett et al. (2008). For an analysis of earnings management in German founding-family defined firms see Günther (2011).

[92] I do not want to engage in a discussion about the efficiency of markets in processing information. The argument focuses mainly on the general fact that a market perspective, an external assessment, is included in the calculation of the Tobin's Q measure.

[93] See chapter 6, Relevant Concerns and Empirical Approach, for an extensive discussion of endogeneity concerns.

4.2.3.1 Family Firm Evidence from the US

McConaughy and Phillips (1999) do not claim to provide evidence for causality in founder and descendant firms' characteristics. Yet they were amongst the first to analyze valuation and various ratios of profitability, efficiency, growth, and financing of founding-family control in large corporations. Based on the *Business Week* CEO 1000 list as of October 1987 they identify a final sample of 147 founding-family controlled firms. They match those firms with listed non-family firms according to their industry adherence (2-digit to 3-digit SIC). The sample period comprises the years 1986 to 1989. McConaughy and Phillips (1999) calculate the various ratios as average over the sample period before they regress (OLS) them on the founder and descendant dummy variables. Both, founder and descendant firms trade at a valuation premium as compared to non-family firms. Yet, there is no statistical difference between founder and descendant firms' *Market-to-Book* ratio. In terms of operating profitability, descendant firms are the strongest. Their *Return on Assets* statistically exceeds that of non-family and founder firms on a 0.01 confidence level, benefiting from a superior profit margin in conjunction with a higher asset turnover.[94]

Anderson and Reeb (2003) analyze founding-family ownership and performance (valuation) in a panel analysis over the years 1992 to 1999. Their sample consists of large listed companies, specifically the *S&P 500* firms at year end 1992. In terms of applied methods and robustness of results, Anderson and Reeb (2003) show that founding-family firms are both higher valued and higher performing organizations. Anderson and Reeb (2003) apply two-way fixed effects panel regressions, pooled time-series regressions, Fama and MacBeth (1973) regressions, and random effects panel regressions. The results for *Tobin's Q* and *Return on Assets* hold also for various

[94] McConaughy and Phillips (1999, p. 131) define the return on assets as net income scaled by total assets (return on assets=net income/total assets). The implication indicated here is evident if one multiplies the profit margin (net income/total sales) with the asset turnover (total sales/total assets). Both, the profit margin and the asset turnover are just elements of the decomposed return on assets (net income/total assets=(net income/total sales)x(total sales/total assets)).

sample adjustments, e.g. exclusion of technology firms or controlling for survivorship bias. Their examination includes a differentiation of active and passive control by the founding-family. They highlight the notion that founder CEO and non-family CEO settings are higher valued settings. Heir CEOs (descendant CEOs) have no effect on valuation which is in contrast to the findings of Pérez-González (2006) or Bennedsen et al. (2007) which estimate negative effects of descendant or heir management. In general, Anderson and Reeb (2003) discover a non-monotonic relationship between founding-family ownership and firm performance, similar to the evidence of Morck et al. (1988) and McConnell and Servaes (1990).

Further, Villalonga and Amit (2006) conducted a very advanced study on founding-family ownership, management, and control (mechanisms). They analyzed a panel of large listed U.S. firms that had been included in the Fortune 500 list at least once within the years 1994 to 2000. They emphasize that the way family firms are defined governs the outcome. In this respect, their major contribution is the insight they offer on valuation effects dependent on the interplay of the three dimensions *ownership*, *control* and *management*. As in other papers already mentioned, the dependent variable to analyze valuation is *Tobin's Q*. Villalonga and Amit (2006) suggest that founders as CEO or Chairman (with a non-family member as CEO) increase overall firm value while heirs as CEO or Chairman destroy it. According to Villalonga and Amit (2006) the ownership component without control or management influence does not create value. Yet, the approach of Villalonga and Amit (2006) considers diligently the effects of control, especially those of excess control. Control-enhancing mechanisms, e.g. the application of dual-share classes, decrease value. The magnitude of this decrease increases proportionally with the difference between voting and cash-flow rights. Yet, Villalonga and Amit (2006) do not find evidence that minority investors are worse off compared to non-family firms.

In terms of robustness, Villalonga and Amit (2006) conduct several sensitivity analyses with different levels of definition strictness and with various empirical techniques. They conclude that the valuation premium of family

firms that scholars observed in prior studies, is in fact driven by the inclusion of founder firms. A restriction of the sample by exclusion of first generation family firms would turn the results towards a valuation discount of family firms vis-à-vis non-family firms. In order to consider endogeneity, omitted variables, and self-selection as potential driving forces of the results, Villalonga and Amit (2006) apply a Heckman treatment effects regression. The result of the self-selection indicator, i.e. the lambda sign, indicates that in founder firms unobserved factors that keep the founders running the firm are negatively correlated with value (negative lambda sign). If those negative selection bias effects are considered, the valuation effects, i.e. treatment effects, become even stronger. The opposite is true for heir firms. Their influence results, corrected for the selection bias, in a negative valuation effect.

Similarly, Anderson et al. (2009) analyze the active information policy of family firms on the one hand and on the other hand the market scrutiny for family firms. Altogether, they develop an opacity index for family firms—they differentiate between founder and heir firms—and for non-family firms. They conclude that the previously identified strong valuation performance of family firms is only observable when the highest transparency levels apply to the respective family firm.

4.2.3.2 Family Firm Evidence from Europe

Whereas the hitherto presented studies represent evidence drawn from the largest publicly traded U.S. firms, Barontini and Caprio (2006) take a look at listed European family firms. They analyze large corporations in eleven Continental European countries with total assets exceeding €300 million at year end 1999. The total sample runs over three years from 1999 to 2001 with an initial number of 675 corporations that narrows down to 606 in 2001. The multivariate regressions include 1,852 firm years. The main interest of Barontini and Caprio (2006) is the analysis of firm valuation and operating performance. Hence, the investigated key performance indicators are *Tobin's Q* and *ROA*. As indicated in section 2.2.1, Barontini and Caprio

(2006) do not follow a founding-family definition. Instead, they apply an ultimate owner approach, following Faccio and Lang (2002). Nevertheless, Barontini and Caprio (2006) split their sample also according to founder and descendant influence. In addition, this influence is differentiated according to board (executive) influence and ownership of cash-flow rights (cash-flow rights of the largest shareholder). Family CEOs show a 8.4% higher valuation and a 14% higher operating performance. Whereas neither founder nor descendant settings show negative valuation or performance characteristics, the performance and valuation effects are merely a result of *founders as CEO* and *founders as monitors* in non-executive positions. A founder-CEO increases Tobin's Q by 14.3% and ROA by 20.1% (compared to the overall averages). Finally, in scenarios with a founder as non-executive monitor the valuation has a plus of 19.9% and the operating performance increases by 37.5%. The more general regression setting shows that founder control increases Q by 12.3% and 28.2% for ROA. Again the indication is that founders have a superior effect. In terms of robustness, Barontini and Caprio (2006) show that selection effects due to firms with total assets exceeding €300 million are of minor importance, as those firms do not have superior valuation and performance effects compared to smaller firms (except the smallest). In addition, they approach endogeneity with an altered instrumental variable approach.[95] They can confirm the OLS evidence in terms of Q but fail to show statistical significance in terms of operating performance. The setup of Barontini and Caprio (2006) specifically controls for the negative effects of control-enhancing mechanisms. Once they include the wedge (difference between control and cash-flow rights) in the regressions, the family effects improve which demonstrates the negative effect of control-enhancing governance structures.

Maury (2006) does similar research on large listed European family firms. He applies the ultimate ownership data set of Faccio and Lang (2002) and identifies the non-financial firms in 13 European countries. The final sample comprises 1,672 firms for which financial, accounting, and control vari-

[95] Barontini and Caprio (2006) apply a LIML (limited information maximum likelihood) estimator instead of 2SLS approach.

ables are available at the (fiscal) year end of 1998. The dependent variables are *Tobin's Q*, *Return on Assets* (*ROA*), and *Return on Equity* (*ROE*). The dependent variables as well as control variables, which are calculated as ratios, are truncated at the 5th and 95th percentile to reduce the problem of outliers. The cross-sectional evidence of this paper for 1998 has the following central findings: family control, i.e. the controlling shareholder that holds at least 10% of voting shares is a family or individual, results in a higher *Q* of 7% and a higher *ROA* of 16% compared to non-family firms with controlling shareholders. Family involvement in management further increases profitability (operating performance increases by 36%), while active ownership (family in an executive position) does not change the valuation premium—the effect is neither favorable nor unfavorable.

Maury (2006) further identifies non-linearities via piecewise regressions. At high levels of voting control (30-40% and 40-50%) profitability increases substantially in economical and statistical terms. Yet the valuation increases predominantly at lower family control levels (10-20%). While valuation effects are also observable at a mid but not majority level (30-40%), those effects are entirely diminished at higher levels close to or exceeding majority control. Nevertheless, there is no indication for negative valuation effects. Although the indicator for a deviation of control and cashflow rights is negative it is not significant in statistical terms. In addition, Maury (2006) contributes to a better understanding of investor protection characteristics in conjunction with family control. He argues that the expropriation potential decreases as legal requirements and transparency characteristics increase. The consideration of country specifics and differentiation between high and low investor protection regimes shows that positive valuation effects of family-control (and family management) are only observable in high investor protection countries.[96]

[96] Maury (2006) applies several robustness tests to confirm the evidence. This includes the analysis of financial firms, the exclusion of technology firms, and alternative empirical approaches. He applies a treatment effects regression (Heckman approach) to encounter self-selection and reverse causality problems. Maury (2006) applies the following instruments in the first stage: (i) the logarithm of total shareholders' equity, (ii) the logarithm of market value of equity, (iii) the standard deviation of 5-year net income scaled by total

Sraer and Thesmar (2007) analyze French listed firms and link firm performance with firm behavior. Their panel comprises 2,973 firm years over the period 1994 to 2000 of which they analyze firm related information, founding-family ownership characteristics, as well as wage and skill specifics. Sraer and Thesmar (2007) differentiate founding-family firms from widely held firms.[97] Their total sample consists of 71% family firms and 29% widely held firms. In 31% founders manage the firm, some 24% of French firms are managed by heirs and 16% are controlled by a founding-family but managed by a non-family executive. In terms of family performance Sraer and Thesmar (2007) predominantly analyze operating performance. They identify superior performance in terms of ROA (1.7 percentage points or 15.8% above sample mean) and ROE (9.6 percentage points or 50.5% above sample mean) for family firms as a whole. The statistically highly significant coefficients do not change materially with respect to the CEO type of the family firm. Yet, heir CEOs outperform widely-held firms the most in terms of *ROA*, while founder CEOs achieve the highest *ROE*. In terms of market-to-book, only founder-CEOs manage to have a statistically significant premium in valuation (about 10.7% above sample average). The striking operating performance triggers Sraer and Thesmar (2007) to make a deeper analysis of this phenomenon, after some robustness checks in order to lessen potential endogeneity concerns as explanation for superior accounting profitability in the cross-section. Specifically, they analyze the effects of labor productivity, of debt financing, and M&A activities. They detect higher labor productivity, especially in heir firms managed by the family. After controlling for skill characteristics the lower labor costs are still a factor in heir CEO settings (but not in outside CEO family firms). In addition, Sraer and Thesmar (2007) observe smoothing effects in family firms in terms of labor adjustments in business cycles. They fire fewer people in industry sales cycles which according to the authors could explain the lower labor costs at

assets, (iv) a dummy variable in case of missing data for the risk measure (i.e. iii), and (iv) the respective performance variable (either Tobin's Q or ROA). Next to the instruments, he adds all controls that enter the second stage including industry dummies (2-digit SIC). As an alternative profitability ratio, Maury (2006) estimates ROE effects.

[97] A firm is considered as founding-family firm if either the founder(s) or the descendant(s) control(s) above 20% of voting stock.

comparable skill levels. They assume that employees in heir managed firms value an implicit long-term employment insurance contract for which they accept lower wages (around 4-5%). Nevertheless, outside CEOs in family firms show better skills in capital management and financing. They pay significant lower interest rates of about 160 basis points and tend to engage in no value-detracting acquisitions. Heir managed firms' acquisitions tend to be value-detracting. A 2 to 3 year period after acquisition results in a up to 20% value detraction for a buy-and-hold investor.

4.2.3.3 Founder Firm Evidence

As presented, prior work often combined a family as well as founder perspective in one study. Yet, there are some highly elaborated founder firm studies with particular relevance of my work. This section highlights the findings of these studies.

Fahlenbrach (2009) does not cover family firms in a second plus generation. He focuses in detail on the specifics of founder firms, i.e. founder CEO firms. As identified by Anderson and Reeb (2003) and Villalonga and Amit (2006) for instance, there is evidence of a founder premium especially in founder-managed firms. Hence, Fahlenbrach (2009) analyzes valuation specifics, stock returns, and firm investment policy in listed U.S. founder CEO firms. He covers the sample period 1992 to 2001 with a total of 2,327 unique firms resulting in up to 13,881 firm years. Fahlenbrach (2009) identifies 15.5% unique founder CEO firms corresponding to 10.6% founder-CEO firm years. Based on a dummy endogenous variable model[98] he identifies a Tobin's Q that is about 25.9% higher compared to firms that have a non-founder CEO. Those effects are statistically robust, yet the coefficient size and the resulting effect of 12.7% higher Q is lower in a firm fixed effects regression scenario. Fahlenbrach (2009) then extends the analysis from a *stock market returns* perspective. Based on a Fama and French (1993) and Carhart

[98] Compare chapter 6, Relevant Concerns and Empirical Approach, for more details on (Heckman, 1978) dummy endogenous variables models.

(1997) four-factor benchmarking approach, Fahlenbrach (2009) estimates a monthly alpha of 89 basis points or an annual rate of 10.68% for a value weighted founder CEO portfolio. An equal weighted founder CEO portfolio shows an alpha of 69 basis points which corresponds to 8.28% over the period 1993 to 2002. All estimations consider in addition to the market factor the well known size factor (SMB), the book-to-market factor (HML), as well as the momentum factor (MOM).[99] Non-founder CEO firms show no significant alpha. Several robustness tests yield to similar effects, yet the statistical significance and the size of the alpha reduces a little when the founder-CEO portfolio is reduced by technology companies (value weighted monthly alpha of 69 basis points and an annual rate of 8.28%; equal weighted monthly alpha of 48 basis points and an annual rate of 5.76%), is divided in different time periods (value weighted monthly alpha of 95 to 101 basis points and an annual rate of up to 12.06%; equal weighted monthly alpha of 39 to 106 basis points and an annual rate of 4.67% to 12.65%), or the returns are industry-adjusted (value weighted monthly alpha of 53 basis points and an annual rate of 6.36%; equal weighted monthly alpha of 44 basis points and an annual rate of 5.28%).[100] Similarly, a Fama and MacBeth (1973) approach confirms the positive and statistically significant difference in performance between founder-CEO and non-founder CEO firms. Specifically, the outperformance yields 36 to 37 basis points above industry-adjusted monthly stock returns, corresponding to annual rates of 4.3% to 4.4%, respectively.

A paper that focuses predominantly on the endogeneity aspects in the field of founder-CEO valuation, as well as operating performance, is presented by Adams et al. (2009). Their emphasis is on a technical as well as empir-

[99] Compare section 8.3, Owner Identity and Stock Performance, for more details on a Fama and French (1993) and Carhart (1997) four-factor benchmark model.

[100] A Fama and French (1993) and Carhart (1997) analysis by Corstjens et al. (2006) for French, German, UK, and US firms with respect to family and non-family firms, identifies no statistically significant alpha. Corstjens et al. (2006) conclude that the four factor model well explains family firms' stock returns. Yet, they identify differences in the respective factors in terms of geography as well as between family and non-family firms. The authors suggest that both—geography and ownership structure—matter for investors.

ical discussion of endogeneity.[101] Therefore, Adams et al. (2009) estimate *Tobin's Q* and *Return on Assets* OLS regressions and contrast the results with those from a dummy endogenous regression approach according to Heckman (1978). The founder-CEO dummy indicates a premium of about 20% above average Q of 2.04 in an OLS regression that controls for CEO specifics (ownership, tenure, and equity remuneration). The dummy endogenous regression model estimates for the same variable set a substantially higher valuation premium of about 54% above sample mean, again highly statistically significant. Similarly, operating performance is about 1.7 percentage points above mean (6.66) in OLS and 3.6 percentage points higher in the Heckman (1978) estimation. Adams et al. (2009) argue that the results suggest for a negative correlation between the performance indicators and the founder-CEO status which reduces the OLS estimation of the founder-CEO coefficient. Thus, the dummy endogenous regression applies two instruments in the initial probit regression—a *dead founder* dummy and the *number of founders*—to estimate founder-CEO status. The statistical significance of both instruments suggests no weak instruments problem.[102]

Adams et al. (2009) confirm that in treatment effects regressions the most powerful effects run from founder-CEO towards performance. Those effects are stronger compared to an OLS estimation.[103] Specifically, in cases where the direct effect from founder-CEO towards performance is estimated, the remaining correlation that a founder-CEO remains in charge is negative. The authors question this effect where positive performance yields to a positive effect on founder-CEO departures. They propose four hypotheses that they test accordingly. One hypothesis, the *bad performance* hypothesis presumes that founder-CEOs could stay due to their entrenched position. The entrenchment could be interpreted as bad governance which in consequence could imply a substantially worse performance. In that

[101] A closely related paper on *powerful CEOs* is presented by Adams et al. (2005).
[102] A detailed discussion of the applied approach as well as the interpretation of treatment and selection effects in such regression approaches can be found in chapter 6, Relevant Concerns and Empirical Approach.
[103] A Hausman (1978) specification test confirms a highly statistical difference between the instrumented and OLS founder-CEO indicator.

case bad governance firms would be more likely to perform badly and have an entrenched founder. Thus, this hypothesis would indicate an omitted variable problem, i.e. lacking a total governance quality variable. The authors mention another alternative hypothesis, called *controlled succession*, i.e. an assumption that a founder-CEO is more likely to resign after a period of very good performance where the company is in good shape. Another quite similar hypothesis, named *founder benevolence* or *paradox of entrepreneurial success*, argues that a successful performance period might lead to the achievement of predefined milestones or goals, which in turn could imply an earlier step-down for the founder-CEO. The fourth hypothesis concerns *wealth effects* and opportunistic behavior. Founder-CEOs could take advantage from a superior valuation or even benefit from information advantages to maximize the conversion of their firm-related wealth to cash.

The empirical investigation of Adams et al. (2009) implies that operating performance—negative as well as positive ROA—particularly increases the likelihood of a founder-CEO step-down. In the event that operating performance is in the top quartile, the likelihood of a step-down increases by 8 percentage points. For bottom quartile performance, a founder-CEO step-down almost doubles.[104] Specifically, bottom quartile performance indicates an increase of 15.8 percentage points. This clearly contradicts the entrenchment assumption (*bad performance* hypothesis). Founder-CEOs might not fully shield themselves from disciplining mechanisms.

Q as performance indicator does not show statistical significance and thus lacks predictive power with regard to founder step-down. Similarly, *wealth effects*, i.e. founders with above average ownership stakes, have no explanatory power. Thus, the authors conclude that the identified results are best explained by the *controlled succession* and *founder benevolence* arguments.

[104] Adams et al. (2009) apply dummy variables as indicators for superior (top quartile) and inferior (bottom quartile) performance.

There is a further study analyzing valuation characteristics of founder firms. Palia et al. (2008) document higher valuation of large founder-led firms in the US and lower responsiveness of those founders towards performance based compensation. The authors argue that this could be the result of higher entrenchment and raise doubts about compensation regulation effectiveness in founder-dominated firms.

4.2.3.4 Summary

This section showed the depth and breadth of founding-family and individual blockholder research in terms of firm policy and economics, primarily valuation and stock performance. While this section does not claim to be conclusive, it nevertheless introduced key aspects. There are differences between individual blockholder and non-individual blockholder firms, as well as amongst founding-family blockholder firms. Those differences are in the majority of cases statistically significant and economically meaningful. Specifically founder firms—whether measured by a founder-CEO or similar dummy or via ownership stake of a founder—seem to be more likely to outperform other firms. Yet, any generalization should be treated very carefully. Against this background, Miller et al. (2007) introduced the lone founder concept as a crucial differentiator in family firm heterogeneity. Recent work adopts the lone founder concept successfully in generating distinct empirical results and meaningful conclusions (e.g. Le Breton-Miller and Miller, 2008; Block, 2012; Anderson et al., 2012a; Achleitner et al., 2012).

Moreover, effects can vary with geography and hence legal shareholder protection settings (cf. Maury, 2006), with definition work (cf. Villalonga and Amit, 2006), with econometric approach (cf. Adams et al., 2009), and also with sample selection (cf. Miller et al., 2007).

Evidence is based primarily on large listed companies, and the effects on smaller firms, more comparable to non-listed firms, are rare. As Miller et al. (2007) document, a sample consisting of smaller firms partly lack the per-

formance features of a large cap index such as the S&P 500. Therefore two features are of particular interest.

Firstly, and this has already been hinted at in the overview of prior research, endogeneity plays a major role in really understanding and correctly interpreting the relationship between family governance, firm policy, and performance. Accordingly, I address these concerns thoroughly in the course of this thesis by implementing advanced empirical approaches.[105]

Secondly, the reasons for certain governance choices and policy decisions have not yet been satisfactorily researched. The explicit consideration of moderating effects should be helpful in order to explain some of the questions that remain concerning the governance-performance-relationship in founder and family firms. The identity characteristics of influential owners might affect firm behavior and decisions. Presumably, the differentiation of founder and family firms into lone founder, family founder, and heir firms could support an assessment of founding-family heterogeneity.

4.2.4 Ownership Dynamics

As demonstrated with the above review of scholarly work, the widespread assumption that listed firms show predominantly dispersed ownership structures and only rarely blockholding is not appropriate. Amongst others, Anderson and Reeb (2003), Heiss and Köke (2004), Villalonga and Amit (2006), Klasa (2007), Bennedsen et al. (2007), Franks et al. (2009), Fahlenbrach and Stulz (2009), Benson and Davidson III (2009), and Holderness (2009) show the substantial influence of blockholders in public equity markets. The general extent of blockholding and rate of dispersion might vary from economy to economy, i.e. with respect to institutional frameworks on investor protection as Foley and Greenwood (2009) illustrate. Yet, the substantial influence of blockholders can be observed even in the most developed capital markets (cf. Holderness, 2009). Founding-families represent a considerable fraction of these influential blockholders in public companies (cf. La Porta

[105] For more details please refer to chapter 6, Relevant Concerns and Empirical Approach.

et al., 1999; Faccio and Lang, 2002; Anderson and Reeb, 2003; Barontini and Caprio, 2006; Andres, 2008b).

4.2.4.1 Dynamics of Insider Ownership and Block Ownership

Going beyond the topics of firm policy and economics, this section investigates further the influential role of founding-families as individual blockholders. In particular, it spans the heterogeneous character of founding-family influence by founders, heirs, and their respective families and its effect on ownership dynamics.[106]

Surprisingly, research rarely covers the dynamic character of individual blockholdings in listed family firms. This fact is even more striking, when considering the fundamental impact of ownership characteristics on such interesting topics as family firm definition, firm heterogeneity, and long-term orientation. However, ownership changes[107] of individual blockholders are not a daily phenomenon. Zhou (2001) and Andres (2008b) even describe ownership as 'sticky' over time. The research gap may therefore have arisen partly from the lack of appropriate panel data to ensure observations and ultimately variation over longer periods.

Notwithstanding this non-trivial empirical challenge, the likely reasons that induce change in ownership structures are unclear. Several scholars, e.g. Helwege et al. (2007) and Foley and Greenwood (2009) suggest that distinct institutional settings, valuation, and investor protection are potential drivers of ownership transformation. Helwege et al. (2007) identify ownership, stock market characteristics, and valuation as core drivers in the transformation process, from insider ownership towards ownership dispersion post IPO. Fahlenbrach and Stulz (2009) analyze managerial ownership

[106] Related research includes aspects of the identity of owners, such as families and other individuals, blockholder effects or managerial ownership (cf. Morck et al., 1988; Fahlenbrach and Stulz, 2009).

[107] In this work ownership changes encompass drops as well as increases in voting rights.

changes and potential effects on valuation. They identify on average a negative change in managerial ownership and only positive valuation effects after substantial increases in managerial ownership.

Further research stems from Heiss and Köke (2004) who analyze ownership and survival characteristics of German companies. They find that high financial pressure, poor firm performance, and small firm size are key drivers of ownership dynamics (cf. Heiss and Köke, 2004). Similar evidence is reported by Denis and Sarin (1999). They document large ownership dynamics following economic (industry-wide) shocks. As a result of those shocks, the firms show poor operating performance and finally changes in boards and ownership characteristics.

Although this research strand of ownership dynamics is still young, especially for direct focus on family firms, it is important to note that the aforementioned studies do not explicitly consider owner identity, and therefore potentially ignore individual blockholder heterogeneity. Thus, previous studies have disregarded blockholder motives that could drive or hamper ownership dynamics.

4.2.4.2 Dynamics of Family Ownership

The studies described above focus either on insider ownership of management and directors or on blockholding in general. There is less specific evidence focused on family firm dynamics. The work of Klasa (2007) constitutes an exception, as it takes a closer look at the final exit of family shareholders from listed family firms. Klasa (2007) interprets the dynamics of family firms as a subsequent sale of ownership to minority shareholders post IPO. This follows the general findings of Mikkelson et al. (1997), Ellingsen and Rydqvist (1997), Mello and Parsons (1998), and Helwege et al. (2007). Mikkelson et al. (1997) document a substantial reduction of managerial ownership levels post IPO, yet no enduring negative influence on operating performance. Ellingsen and Rydqvist (1997) argue that the information ag-

gregation of a public market allows for beneficial subsequent sales of the ownership stake by a founder. Mello and Parsons (1998) highlight that an IPO is most probably a way to broaden the investor base with small passive investors, while a sale of control should only follow an IPO. Helwege et al. (2007) document decreasing insider ownership post IPO, with particular dependence on performance and stock liquidity. The common findings are (i) the substantial reduction of insider or founder ownership post IPO, as well as (ii) a staging characteristic of transferring control well after the IPO.

Therefore, the ultimate exit of the family is assumed to be the most relevant milestone in terms of ownership transfer, often characterized by a block transfer. Klasa (2007) tests for several hypotheses to explain the exit of a founding-family. According to the author, hypothetically, founding-family firms exit because of:

- small private benefits of control fail to exceed the risk-bearing costs of blockholding,
- general risk considerations of concentrated firm-related wealth,
- organizational complexity, lack of expertise and resulting inefficiencies,
- lack of suitable candidates from within the family,
- outside blockholders' presence,
- perceived overvaluation and a stock market timing motive,
- lacking financial resources to fund valuable growth projects.

The empirical results suggest that general risk bearing considerations and private wealth concentration as well as a lack of management expertise that goes along with increasing corporate complexity and diversification play a role in family exits. Further, succession situations and the presence of outside blockholders increase the propensity for a family exit (Klasa, 2007).

Stock market timing or a lack of financial resources are of minor importance and play a negligible part in explaining *leaving family* situations.

Burkart et al. (2003) advanced the theoretical understanding of founder to heir succession. They suggest that the decisive factor in whether a family succession occurs is the level of private benefits of control. In turn, those private benefits of control depend on the legal shareholder protection, i.e. the institutional environment. Similar to the theoretical findings of Burkart et al. (2003) is the empirical evidence that Franks et al. (2009) report. They find the UK's shareholder protection to be substantially stronger than in Continental Europe. According to the authors, a life-cycle of ownership change is more likely to occur in UK family firms, in an outsider system, whereas it is less likely to occur in an Continental European insider system.[108]

Comparable to the Burkart et al. (2003) approach, Bhattacharya and Ravikumar (2001) added to the theoretical understanding of family firm dynamics. Bhattacharya and Ravikumar (2001) argue that the level of maturity of primary capital markets is associated with the existence and persistence of family firms.

Summing up, the review of existing work on ownership highlights the lack of numerous and reliable empirical studies. There is a large demand for insights on: how dynamic are family shareholdings? Are there drops as well as increases of shareholdings? Which set of potential explanations for changes is valid? Moreover, the consideration of owner identity types should be of equal importance to understand the logic of ownership dynamics.

4.3 Summary

This chapter presented existing literature in the field of founder and founding-family research. Specifically, this review documents the various strands of research, including managerial and individual blockholding, that have collectively contributed to the development of today's research.

[108] Please note that unlike the previous citations of empirical work, Franks et al. (2009) analyze both publicly-listed and privately-held family firms.

The presented literature-based evidence focuses on founding-family firms governance heterogeneity, the influence of founders and families on firm policy, as well as effects on firm economics and ownership dynamics. Depending on the topic there are differences in the extent of existing scholarly work, as well as in the level of covering founding-family specifics. The fundamental hypotheses for the empirical sections rest upon this thorough literature review. I develop those hypotheses in the following chapter.

5 Development of Hypotheses

This chapter builds on the previously presented theoretical framework as well as on the (empirical) evidence as summarized in chapter 4 the Literature Review. I maintain the structure of

1. *heterogeneity* and *firm policy*,
2. *firm economics* (*valuation* and *stock performance*), and
3. *ownership dynamics*

that I introduced in the literature section. This structure of analyzed perspectives remains the core framework throughout the analytical parts of this thesis.

Previous studies did not take account of the fruitful multidisciplinary fusion of various theory and literature streams that stems from different (sub)disciplines, even though it addresses the same research subject, that is, founding-family defined firms. I therefore consider that the following hypotheses are an important aspect of understanding behavior and effects examined in the empirical sections that follow.

5.1 Firm Heterogeneity and Firm Policy

5.1.1 Firm Heterogeneity

As documented in the previous chapters, the majority of studies on family firms focuses on comparisons between family and non-family firms. Yet,

various scholars have suggested analyzing the heterogeneous characteristics of *founding-family defined* firms beyond a binary differentiation. For instance, Bertrand and Schoar (2006)

> "believe that much can be learned by taking seriously the 'family' part of 'family firms'."[109]

Miller et al. (2011) argue that *founding-family-defined* firms differ from each other in their institutional logic and strategies.[110]

Following and extending this notion, I develop hypotheses to clarify possible variation within the group of family and founder firms. The focus is on potentially divergent governance characteristics—a multitude of applied governance mechanisms, that enable specific control and decision making. These features are at the core of family firm definitions and reflect family firm idiosyncrasy. To some degree, these characteristics might have their origin in the institutional logic and ultimately in roots and heritage of the firms, shaped by the founders and its families. Nevertheless, the introduction of various governance mechanisms is the subject of explicit choice that—according to theory—alters the overall agency setting.[111]

While shedding more light on governance characteristics of family firms, the essential assumption I make, is a differentiation between *lone founder*, *family founder*, and *heir firms*. The underlying concept, introduced in chapter 2, Context and Definition of Founding-Family Firms, is purely driven by two dimensions:[112]

- the *generational* aspect, i.e. whether the respective company is a founder or heir firm, and

[109] Bertrand and Schoar (2006, p. 95).
[110] Miller et al. (2011) support a differentiation in two distinct and guiding rationales: a *conservation* versus a *growth* strategy.
[111] See section 3.1, Agency Theory, and especially section 3.1.2, Agency Conflict II: Minority and Majority Shareholder Conflict, for more details.
[112] Miller et al. (2007) introduced the distinction of lone founder firms from family firms. Le Breton-Miller and Miller (2008) and Miller et al. (2011) advanced this concept in theoretical and empirical work.

- a *family/kinship* aspect.

The family/kinship aspect is found in heir firms by default—an heir firm is by definition at least in the second family generation[113]—but not in founder firms. The *family* dimension differentiates founder firms with family influence from so called lone founder firms that follow a founding-family definition, but lack kinship characteristics amongst the founders. Lone founders are either single founders or belong to a mixed team of founders without kinship relations. Miller et al. (2007), Le Breton-Miller and Miller (2008), and Miller et al. (2011) were the first scholars to come up with empirical as well as theoretical advancements of lone founder characteristics. Amongst others, Villalonga and Amit (2006, 2009) and Anderson et al. (2009) share the idea of heterogeneous characteristics in founding-family defined firms. They document considerable generational differences.[114]

There are three reasons for the application of the three owner identity firm types. *First*, prior theoretical and empirical research identified specifics in governance and performance for founder-led as opposed to heir firms (e.g. Burkart et al., 2003; Villalonga and Amit, 2006; Fahlenbrach, 2009). In keeping with this, I differentiate the *generational* dimension in first and second plus generation firms. *Second*, an in-depth consideration of family characteristics is the most demanded (and at the same time toughest to incorporate) feature in this field of research (e.g. Bertrand and Schoar, 2006). This is no surprise as *familiness*[115] is an intangible and abstract construct that is hardly measurable. At the same time, it is the key objective of empirical research to operationalize and to measure effects. Therefore, it remains a necessary aspiration to identify and apply relevant indicators for diverse family characteristics, especially as familiness is potentially a source of specific preferences and rationale that impacts governance and policy

[113] See Anderson et al. (2009) for a similar differentiation of founder and heir firms for the US.

[114] Please consider also chapter 2 on definition work, chapter 3 on the theoretical foundation, and chapter 4 on related literature for detailed arguments in favor of the proposed approach.

[115] See Habbershon and Williams (1999) or Habbershon et al. (2003).

making.[116] Similarly, the previously introduced theories—stewardship and (social) identity theory—offer convincing arguments to the idea of potential groups within founding-family defined firms. Consequently, the family/kinship dimension that differentiates lone founder firms from family founder and heir firms seems promising. *Third*, limited differentiation of founding-family firm types, i.e. owner identity types and their respective governance features, potentially leads to interpretations based on blended characteristics. Therewith, the likelihood of misinterpretation or comparability problems increases. This last aspect has turned out to be particularly decisive in the past: differences in definition of research entities and sample composition led to contradictory results (e.g. Astrachan et al., 2002; Sharma, 2004; Miller et al., 2007). Not only academia is affected by inconclusive research results; investors, bankers, policy makers, press, and family entrepreneurs alike experience ambiguity about the 'real' nature of the family firm. Evidently, there are more aspects that could alter results beyond the proposed differentiation of three distinct owner identity types of firms. However, consideration of those aspects should increase comparability with future work. Additionally, it seems to be beneficial for deeper and more refined analysis of phenomena in founding-family influenced firms. Accordingly, my basic assumption results in the following working hypothesis[117]:

- **Working Hypothesis (WH):** Founding-family defined firms differ in terms of their owner identity characteristics.

Theoretically, the differences should be highest between lone founder and heir firms, as family founder firms could be a blended firm type, reflecting both, the entrepreneurial founder as well as the family characteristics (cf. Villalonga and Amit, 2006; Miller et al., 2007; Le Breton-Miller and Miller, 2008;

[116] Habbershon and Williams (1999), Habbershon et al. (2003), and Sirmon and Hitt (2003) provide seminal work in the context of familiness and the resource-based view. Castanias and Helfat (2001) and Hillman and Dalziel (2003) focus on governance and board structure in the light of family firm specific resources.

[117] There is one important aspect I want to mention: I apply both terms, *basic assumption* and *initial working hypothesis,* in this dissertation interchangeably. As described in Turabian (2007), I applied this approach to guide my research and to develop further measurable hypotheses in the course of this work.

Anderson et al., 2009; Miller et al., 2011).[118] Yet, whether there are systematic, statistically significant, and meaningful differences within the group of founding-family firms is subject to an empirical investigation. The following hypotheses aim to support an operationalization of potential owner identity effects.

Prior literature suggests that founding-family firms show differences in *corporate governance characteristics* (cf. Anderson and Reeb, 2003; Villalonga and Amit, 2006; Miller et al., 2007; Andres, 2008b; Villalonga and Amit, 2009). More recent research approaches (cf. Villalonga and Amit, 2006; Miller et al., 2007; Villalonga and Amit, 2009) indicate that there is variation in the strength and nature of applied governance mechanisms that alters overall founding-family influence and agency characteristics. Thus, the heterogeneity of founding-family governance and potential mechanisms to increase influence and control are of particular interest. In general, the sample of German listed founding-family firms shows three common levers of influence that founders or founding-family members apply: (i) influence through management board membership, (ii) supervisory board membership (as a specific of the German two-tier system), and (iii) substantial shareholding. I suggest that especially founders exert active managerial influence through board membership. The results in previous research even hint at founders as CEOs (e.g. Wasserman, 2003; Villalonga and Amit, 2006; Fahlenbrach, 2009; Adams et al., 2009).

In contrast, heir firms might show less management board influence. As they are by definition at least in a second generation, the likelihood that professional non-family management took over the operating responsibility in daily business should increase. Yet, there is a substantial number of documented family successions in which heirs assume further managerial responsibility (e.g. Pérez-González, 2006; Bennedsen et al., 2007; Cucculelli and Micucci, 2008; Bloom and Van Reenen, 2007). As a specific of the German two-tier board context, heirs could exert relatively more board influ-

[118] Please compare figure 2.4, Owner Identity Types and Firm Orientation.

ence via supervisory board membership (e.g. Andres, 2008b).[119] Board characteristics in a two-tier system have further specifics that could differ between the owner identity firm types. For instance, *total board influence*, or the fraction of firms that have both founding-family influence in the management, and in the supervisory board (*both-board influence*), might be differentiators for lone founder, family founder, and heir firms. Especially firms with family/kinship relations could have high incentives to keep as much control as possible within the family (e.g. Gersick, 1997; Gersick et al., 1999; Ward, 1987). In addition, succession situations in family firms could result in substantial influence via both boards, having two generations engaged at the same time. Hence, a combined influence in management and supervisory board could be less likely in lone founder firms.

These suggestions result in the following hypotheses:

- **H1.1.a** Lone Founder firms are positively associated with high (management) board representation.
- **H1.1.b** Family Founder firms are positively associated with high (management) board representation.
- **H1.1.c** Heir firms are not associated with high (management) board representation.
- **H1.2.a** Lone Founder firms are negatively associated with both-board representation.
- **H1.2.b** Family Founder firms are positively associated with both-board representation.
- **H1.2.c** Heir firms are positively associated with both-board representation.

Alongside board influence, direct measures for the control via shareholdings, such as accumulated control rights, respectively cash-flow rights, enable empirical analysis of founder and family influence. Another crucial way to estimate the willingness of founders or the family to keep control in their inner circle, is the analysis of *mechanisms that artificially induce a gap between voting rights and cash-flow rights*. The

[119] This is comparable to a non-executive director in a one-tier board system.

introduction of such control-enhancing mechanisms requires explicit decision making by family firms. Moreover, those mechanisms are a transparent indicator for a family firm's ambition to preserve control. The prime example is the application of different *share classes* that result in such a gap or *wedge* as it is termed in related literature (e.g. DeAngelo and DeAngelo, 1985; Cronqvist and Nilsson, 2003; Goergen et al., 2008b; Holmen and Nivorozhkin, 2007; King and Santor, 2008; Villalonga and Amit, 2009; Gompers et al., 2010). A higher wedge indicates more willingness to prevent or obstruct outside parties from having an influence in corporate decisions. Thus, *Agency Conflict II*, the majority vs. minority shareholder conflict should be more pronounced.[120] The benefit for a founding-family of issuing dual-class stock (in the sense of *preferred stock*, specifically *Vorzugsaktie*) is that the raised capital does not have implications in terms of control dilution. As such, it has mezzanine financing characteristics (e.g. Daske and Ehrhardt, 2002). Evidently, this could be more pronounced in family/kinship settings compared to lone founder firms if the family firm were to favor a strategy to preserve family influence in the long-term. Nonetheless, the dual-share class construct includes the feature that in the event the preferred payout (i.e. *preferred dividend* or *Vorzugsbetrag*) is not available, absent voting rights become actual voting rights.[121] I conclude therefore that this mechanism should be less pronounced in founder-led firms with higher growth options and generally lower payout likelihood (e.g. Miller et al., 2011). Founder-led firms could fail to meet dividend provisions and thus consider a dual share-class setting as too risky due to lacking cash-flow stability, or simply as the wrong instrument. Heir firms should be most likely to use this protection mechanism, given their life-cycle stage and assuming a desire on the part of the family to continue to control the firm. Villalonga and Amit (2009) identify a frequency of 62% dual-stock controlled firms by family and founders compared to prior work, e.g. by Nenova (2001) who identifies family firms in 95% of dual-class settings in

[120] See section 3.1.2, Agency Conflict II: Minority and Majority Shareholder Conflict.

[121] The German stock corporation act, the AktG defines the detailed characteristics of a *Vorzugsaktie*. See §139 for key characteristics, §140 for the rights of the shareholder, and §141 for actions to terminate the preferred stock characteristic.

the US, and 77% for Germany.[122] Again, family founder firms could have blended characteristics dependent on which argument is most applicable for them—the wedge benefit of control or the threat of loosing control due to cash-flow volatility.

These suggestions result in the following hypotheses:

- **H2.1.a** Lone Founder firms are negatively associated with the highest levels of blockholding.
- **H2.1.b** Family Founder firms are positively associated with the highest levels of blockholding.
- **H2.1.c** Heir firms are positively associated with the highest levels of blockholding.
- **H2.2.a** Lone Founder firms are negatively associated with dual-class shares/wedges.
- **H2.2.b** Family Founder firms are positively associated with dual-class shares/wedges.
- **H2.2.c** Heir firms are positively associated with dual-class shares/wedges.

Another aspect of differentiation could relate to the *concentration of shareholdings* in the respective companies. Per definition, part of the presence of individual blockholders is their accumulation of shareholdings. Although a measure of share concentration should not only reflect the shareholdings of a founding-family but also of other blockholders, the difference in stock concentration characteristics between a founding-family and other outside blockholders might indicate the level of dominance of a founding-family defined firm. *Outside blockholders* are a distinct external governance device as those shareholders should be incentivized to monitor family blockholders. Monitoring by large outside blockholders should materially alter the overall agency setting (e.g. Shleifer and Vishny, 1986; Cronqvist and Fahlen-

[122] For details see Nenova (2001, p. 22). Villalonga and Amit (2009) suggest that the lower frequency in their estimations could be explained by a change of the controlling shareholder in existing dual-share class settings. In most cases a founding-family established the dual-share class construct, and either sold its controlling stake, or the new controlling shareholder is a foundation if the founders died heirless (cf. Villalonga and Amit, 2009, p. 3066).

brach, 2009; Becker et al., 2011). Generally, German listed firms, are likely to have blockholders. For instance Lehmann and Weigand (2001), Edwards and Weichenrieder (2004), Köke (2004), Kaserer and Moldenhauer (2007), Goergen et al. (2008b), and Andres (2008b) refer to this specific capital market characteristic. Consequently, concentrated shareholdings could apply to each founding-family defined firm type. However, the question that remains to be answered is whether firm types potentially differ in terms of higher or lower concentration and in terms of shareholder dominance[123] characteristics. I hypothesize that family/kinship influenced firms have higher levels of founding-family stock and higher share concentration than lone founder firms. A firm type that might be more directed towards a growth strategy is more likely to dilute founder-stock compared to a firm type that is more characterized by a preservation strategy (e.g. Helwege et al., 2007). Potentially, founder-stock might be even diluted prior to the IPO by venture capital investors. In addition, founders might further reduce their exposure of firm-related wealth and risk, once the firm is a listed stock corporation (e.g. Adams et al., 2009). In general, this argument applies to both lone founder and family founder firms. Yet the latter might even be more willing to keep the firm within the family's control which would also be in line with stewardship theory arguments (e.g. Donaldson and Davis, 1991; Davis et al., 1997). Potentially, family founder firms would keep a larger 'cushion' of total voting stock to meet various legal voting stock thresholds. Otherwise, the strategic options might be threatened. For example, a capital increase with a new share issue might dilute the founding-family influence as the founding-family is most likely not able or willing to participate pro-rata.[124] In turn, that means a reduced set of equity financing options, or at least a permanent need to consider meeting favored control thresholds.[125]

These suggestions result in the following hypotheses:

[123] The dominant characteristic applies if the individual blockholder is free of or experiences comparably limited control by outside blockholders.

[124] The stock corporation law governs the legal aspects of a capital increase. See §§ 182-189 AktG.

[125] A discussion about the specific topic of ownership and legal thresholds follows in chapter 9, Ownership Dynamics in Founding-Family Firms.

- **H2.3.a** Lone Founder firms are positively associated with a high level of outsider blockholdings.
- **H2.3.b** Family Founder firms are negatively associated with a high level of outsider blockholdings.
- **H2.3.c** Heir firms are negatively associated with a high level of outsider blockholdings.
- **H2.4.a** Lone Founder firms are positively associated with venture capital/private equity blockholders.
- **H2.4.b** Family Founder firms are negatively associated with venture capital/private equity blockholders.
- **H2.4.c** Heir firms are negatively associated with venture capital/private equity blockholders.

Up to this point, I have constructed hypotheses on heterogeneity that are based on governance specifics. Table 5.1, Summary of Firm Heterogeneity Hypotheses, provides an overview of proposed hypotheses. Evidently, there are more heterogeneity characteristics and general characteristics that need to be controlled for in an empirical comparison of those firms. Non-governance heterogeneity characteristics include *firm age* since firm inception which is very likely to be different for, say, a founder and a heir firm. Similarly, *firm size* should be an important criterion as well as *industry specifics*. Evidently, not controlling for this kind of heterogeneity would make the results vulnerable to severe, and justified, criticism.

I continue with the development of hypotheses regarding firm policy characteristics.

Table 5.1: Summary of Firm Heterogeneity Hypotheses

#	HYPOTHESES	EXPECTED SIGN
	FIRM HETEROGENEITY	
WH	**Founding-family defined firms** differ in terms of their **owner identity characteristic**s.	
	BOARD INFLUENCE	
H1.1.a	**Lone Founder** firms are positively associated with high (management) board representation.	+
H1.1.b	**Family Founder** firms are positively associated with high (management) board representation.	+
H1.1.c	**Heir** firms are not associated with high (management) board representation.	**o**
H1.2.a	**Lone Founder** firms are negatively associated with both-board representation.	–
H1.2.b	**Family Founder** firms are positively associated with both-board representation.	+
H1.2.c	**Heir** firms are positively associated with both-board representation.	+
	BLOCKHOLDING INFLUENCE	
H2.1.a	**Lone Founder** firms are negatively associated with the highest levels of blockholding.	–
H2.1.b	**Family Founder** firms are positively associated with the highest levels of blockholding.	+
H2.1.c	**Heir** firms are positively associated with the highest levels of blockholding.	+
	CONTROL–ENHANCING MECHANISM	
H2.2.a	**Lone Founder** firms are negatively associated with dual-class shares/wedges.	–
H2.2.b	**Family Founder** firms are positively associated with dual-class shares/wedges.	+
H2.2.c	**Heir** firms are positively associated with dual-class shares/wedges.	+
	OUTSIDE BLOCKHOLDING INFLUENCE	
H2.3.a	**Lone Founder** firms are positively associated with a high level of outsider blockholdings.	+
H2.3.b	**Family Founder** firms are negatively associated with a high level of outsider blockholdings.	–
H2.3.c	**Heir** firms are negatively associated with a high level of outsider blockholdings.	–
H2.4.a	**Lone Founder** firms are positively associated with venture capital/private equity blockholders.	+
H2.4.b	**Family Founder** firms are negatively associated with venture capital/private equity blockholders.	–
H2.4.c	**Heir** firms are negatively associated with venture capital/private equity blockholders.	–

Note: This table presents an overview of hypotheses on firm heterogeneity. The signs "+", "–" and "o" indicate a *positive*, a *negative*, and a *neutral* association.

Source: Own work.

5.1.2 Firm Policy

The ultimate question guiding this section is whether owner identity characteristics influence firm decisions and thereby firm policy. For this reason, this section on firm policy develops various aspects of founding-family firms' heterogeneity and tries to illuminate potential differences between lone founder, family founder, and heir firms.

Behavior and decision making are rather artificial constructs for empirical research which are hardly observable. Yet, some forms of firm policy offer the option of empirical analysis while drawing potential conclusions on owner identity characteristics. This is the direction I pursue with the following hypotheses.

The special focus of this analysis is on firm policy aspects that (i) have a direct link to financial decisions, (ii) are linked to the founder(s) or family wealth, or (iii) have risk implications thereon. *First*, this should ensure a certain observability. *Second*, these decision types have a strategic notion and should reflect underlying strategic imperatives. Prior work suggests such strategic rationale: Le Breton-Miller and Miller (2008), Fahlenbrach (2009), and Miller et al. (2011) describe a *growth* or *preservation* strategy, while Anderson et al. (2012a) identify a *risk avoidance* versus a *long-term horizon* strategy.[126]

5.1.2.1 Investment Policy

Amongst the various aspects of firm policy, I hypothesize that individual blockholder firms show different characteristics in terms of their investment policy. Both, *capital expenditures* (CAPEX) as well as *research and development* (R&D) should indicate the variation in decisions of lone founder, family founder, and heir firms. While both investment types have a tendency to indicate long-term commitment, R&D tends to be considered the riskier in-

[126] Please refer to section 2.2.3 for a comprehensive argumentation and comparison of owner identity firm types.

vestment as cash-flows are subject to higher uncertainty (e.g. Fahlenbrach, 2009; Becker et al., 2011; Anderson et al., 2012a).[127] I do not want to enter into discussion of whether one individual blockholder type is more innovative than the other. Evidently, both measures are input measures towards potential innovation and growth, yet I cannot conclude on their successful outcome. For instance, I do not have access to data on patent generation or commercialization of those. Hence, I interpret those measures as the willingness of individual blockholder types to engage in (risky) investments given their firm-related wealth exposure. Yet, as a side note, Anderson et al. (2012a) investigate patent generation and patent citations as efficiency measures for R&D investments in a founding-family context. Their results indicate a similar number of patents per unit R&D spending, yet lower citations thereof. Anderson et al. (2012a) conclude that founding-family firms in their sample (largest 2,000 US firms and years 2000-2007) have no higher R&D efficiency.[128]

I suggest that founder firms are generally more apt to invest in both ways—CAPEX and R&D. Given the assumed growth characteristics and high managerial influence (e.g. Block and Thams, 2008; Block, 2012) their R&D investment activities could be even higher compared to non-family and heir firms. On the one hand, heir firms are potentially less likely to have high investments—especially on risky R&D projects—given the potential harvesting strategy (cf. Le Breton-Miller and Miller, 2008; Gersick, 1997) and their firm-related wealth accumulation. On the other hand, a long-term perspective and steward-like behavior might go along with decent invest-

[127] Another aspect that I discuss and consider in the empirical section hints at the differences in R&D investments in terms of accounting policy. This aspect is even more pronounced as during the period of the investigation sample firms followed different accounting standards, including German GAAP (HGB), US GAAP, and IFRS. R&D investments are treated differently in these accounting standards. Therefore, the empirical models include a dummy for international accounting standards versus German GAAP. For more details on particular accounting requirements see Coenenberg et al. (2012, pp. 178-186).

[128] See Block et al. (2010) or Spiegel (2012) for an analysis of the economic value of innovation. The authors evaluate patent data of founder and family firms. They find supporting evidence of technologically and economically higher innovation achievements by founder firms.

ments for the future. Related work by Becker et al. (2011) suggests that large non-managerial blockholders influence firm policy in terms of capital expenditure. The authors estimate a 7% reduced investment rate when those blockholders are present.[129]

Based on this prior evidence, I suggest the following hypotheses:

- **H3.1.a** Lone Founder firms are positively associated with high capital expenditures (CAPEX).
- **H3.1.b** Family Founder firms are positively associated with high capital expenditures (CAPEX).
- **H3.1.c** Heir firms are not associated with high capital expenditures (CAPEX).
- **H3.2.a** Lone Founder firms are positively associated with high research and development investments (R&D).
- **H3.2.b** Family Founder firms are positively associated with high research and development investments (R&D).
- **H3.2.c** Heir firms are not associated with high research and development investments (R&D).

The hitherto presented hypotheses assume implicitly discretionary choice that family-firms have with respect to firm policy decisions. Yet, the question whether those decisions are really fully controlled by the individual blockholder might arise. While certain governance decisions might be in full realm of the founder or family—e.g. through protection mechanisms, majority control, etc.—they might not fully protect themselves from outside industry specific pressure. Product market competition could be such external governance device that might influence corporate policy decisions. I therefore explicitly control for the level of industry competition via HIC for *high industry competition* and LIC for *low industry competition* scenarios in the empirical analysis.

[129] The large blockholder definition by Becker et al. (2011) is not fully comparable with that proposed in this thesis. Closest would be either heir firms with non-managerial responsibility or private non-founding individuals or families as blockholders. The latter would be qualified non-founding family firms in this work.

5.1.2.2 Financing and Risk Policy

Hypothetically, corporate liquidity policy and risk mitigation could further differentiate aspects of family firm sub-types. More specifically, *cash-holdings* and *leverage* could indicate owner preferences. Becker et al. (2011) document the influence of large shareholders on cash-holdings. Opler et al. (1999) suggest that companies focused on growth show higher cash-holdings due to a high level of growth investment requirements coupled with a high level of cash-flow uncertainty. Hence, I suggest that founder firms that show a more pronounced growth strategy and potentially higher operating uncertainty are most likely to show increased cash-holdings. Following the arguments of Miller et al. (2011), this should apply especially to lone founder firms. Yet, Agrawal and Nagarajan (1990) find some evidence that higher cash-holdings are a more general phenomenon in family managed firms. Agrawal and Nagarajan (1990) analyze all-equity versus leveraged firms. They argue that the substantially higher cash-holdings in all-equity firms support arguments of risk-aversion by managers. The cash-holdings are even significantly higher in all-equity family firms.[130] On the other hand, excessive cash-holdings allow for a discretionary spending by management and engaging in various activities not necessarily aligned with other shareholders (e.g. Harford et al., 2008).

Pérez-González (2006) documents for a US sample on family succession that on average, heir successions amounted to 36.4 percent.[131] According to the findings of Pérez-González (2006), heir firms could be more likely to have outside management compared to lone founder and family founder firms. Assuming further the supervision of management by a controlling founding-family shareholder, potentially in combination with a higher cash-flow stability in more developed firms, heir firms might show lower cash-holdings compared to other founding-family firm types. In terms of family

[130] See Agrawal and Nagarajan (1990, p. 1329). Levered firms have median (mean) ratio of cash and marketable securities to total assets of 3.67% (6.25%), all-equity firms of 17.43% (22.57%), and all-equity family firms of 23.72% (27.06%).

[131] By implication, about two thirds of family successions have outside management involved post succession.

founder firms the suggestions are less conclusive. On the one hand, the founder growth characteristics and the risk buffer motive of cash-holding could apply, on the other hand a certain amount of generated cash could also be subject to dividend distributions (potentially required by the family). Thus, the net effect for family founder firms is more an empirical subject rather than a clear a priori proposition.

These suggestions result in the following hypotheses:

- **H4.1.a** Lone Founder firms are positively associated with excess cash-holdings.
- **H4.1.b** Family Founder firms are not associated with excess cash-holdings.
- **H4.1.c** Heir firms are negatively associated with excess cash-holdings.

Similarly, capital structure decisions of firms are a topic of ongoing debate in financial economics literature (e.g. Modigliani and Miller, 1958; Myers, 1984, 2001). This applies equally to the separate field of founding-family firm research (e.g. Mishra and McConaughy, 1999; Anderson et al., 2003; Ampenberger et al., 2013; Schmid, 2013). Anderson et al. (2003) argue that the distinct agency setting of founding-family firms and bondholders results in lower agency conflicts in family firms and in turn in lower debt-financing costs in bond markets. The Anderson et al. (2003) sample suggests that this advantage is most pronounced in family firms with non-family CEOs and a family as monitor.[132] Mishra and McConaughy (1999) claim that the risk of losing control leads to a debt avoidance tendency in family firms. Ampenberger et al. (2013) find lower leverage levels in German listed family firms. Schmid (2013) argues that the influential role of banks in an institutional setting like Germany could have a pronounced influence on the debt avoidance of family firms.[133]

[132] Anderson et al. (2003) propose substantial family shareholdings of about 12%, *ceteris paribus*, as the most beneficial level.

[133] The argument particularly emphasizes the relative strength of creditor versus investor protection.

I suggest, that although these arguments are valid, owner identity characteristics should also be considered in terms of leverage. A growth strategy approach could conflict with higher leverage ratios, due to the level of uncertain success. Hence, founder firms could have lower access and as a consequence lower levels of leverage (e.g. Myers, 2001). According to this view, lone founder firms potentially use debt very moderately or even show no debt at all. Despite the founder characteristics of family founder firms, their preference could tend more to an increase in debt rather than an equity offering to protect their level of influence. The same should apply to heir firms, which are even more likely to have an increased leverage ratio due to their assumed general lower level of cash-flow volatility. Yet, on the other hand this might not suit to the perspective of the heirs[134] and their firm-related wealth concentration. Thus, taking into account the owner identity characteristics does not lead to a clear hypothesis. The most appropriate arguments have to be identified via empirical analysis.

However, previous suggestions result in the following hypotheses:

- **H4.2.a** Lone Founder firms are negatively associated with high leverage ratios.
- **H4.2.b** Family Founder firms are not associated with high leverage ratios.
- **H4.2.c** Heir firms are positively associated with high leverage ratios.

Table 5.2, Summary of Firm Policy Hypotheses, summarizes the proposed hypotheses on firm policy.

[134] Heirs might also fear tighter creditor monitoring (cf. Schmid, 2013).

Table 5.2: Summary of Firm Policy Hypotheses

#	HYPOTHESES	EXPECTED SIGN
	INVESTMENT POLICY	
H3.1.a	**Lone Founder** firms are positively associated with high capital expenditures (CAPEX).	**+**
H3.1.b	**Family Founder** firms are positively associated with high capital expenditures (CAPEX).	**+**
H3.1.c	**Heir** firms are not associated with high capital expenditures (CAPEX).	**o**
H3.2.a	**Lone Founder** firms are positively associated with high research and development investments (R&D).	**+**
H3.2.b	**Family Founder** firms are positively associated with high research and development investments (R&D).	**+**
H3.2.c	**Heir** firms are not associated with high research and development investments (R&D).	**o**
	FINANCING & RISK POLICY	
H4.1.a	**Lone Founder** firms are positively associated with excess cash-holdings.	**+**
H4.1.b	**Family Founder** firms are not associated with excess cash-holdings.	**o**
H4.1.c	**Heir** firms are negatively associated with excess cash-holdings.	**–**
H4.2.a	**Lone Founder** firms are negatively associated with high leverage ratios.	**–**
H4.2.b	**Family Founder** firms are not associated with high leverage ratios.	**o**
H4.2.c	**Heir** firms are positively associated with high leverage ratios.	**+**

Note: This table presents an overview of hypotheses on firm policy. The signs "+", "–" and "o" indicate a *positive*, a *negative*, and a *neutral* association.

Source: Own work.

5.2 Economics

There is a substantial body of research in the financial economics literature that relates to individual blockholding, specifically individual shareholding of managerial insiders and the implications of those shareholders for corporate valuation (e.g. Shleifer and Vishny, 1986; Morck et al., 1988; McConnell and Servaes, 1990). What has changed over the decades is the precision of the research approach, the degree of detail, and the consideration of econometric issues, but levels of interest in the valuation relationship are unchanged.

5.2.1 Firm Valuation

In the founding-family research that emerged from the aforementioned literature strand, the studies undertaken became more and more advanced and described a variety of aspects of founding-family characteristics in conjunction with firm performance. This work includes papers like Anderson and Reeb (2003), Villalonga and Amit (2006), Pérez-González (2006), Bennedsen et al. (2007), and Villalonga and Amit (2009) to name but a few. Despite the increasing attention to detail the results of these studies as well as their agency implications are pretty mixed.

Taking this evidence forward, I hypothesize that *firstly* much of the contradictory findings in terms of firm economics has its origin in definition sensitivity and sample work which hinders ample comparison. *Secondly*,—and this is the contribution I intend to make—my studies abandon an *average consideration* of founding-family firms, specifically with reference to the owner identity differentiation reflecting family involvement and generational aspects (cf. Villalonga and Amit, 2006; Miller et al., 2007). To the best of my knowledge, there is no study—especially not in the European context—that controls for individual stockholders' owner identity as previously defined in this work that shows comparable breadth and depth of analysis. Going beyond the often analyzed governance characteristics, the mostly overlooked identity characteristics should allow for a better under-

standing of the individual blockholder effect. In conjunction with improved empirical approaches, the answers to unsolved questions should be even more robust.

The hitherto unanswered questions will refer to evidence beyond the indications of potential valuation or stock performance relationships. The hypotheses have to clarify whether underlying characteristics of lone founder, family founder, and heir firms contribute towards a more causal interpretation of founding-family influence, and not just correlation evidence. I argue that analysis of owner identity and strategic rationale increases understanding of firm organizations and policy which might translate into their respective economics. I do not rule out the option that economics might shape the owner identity, organizational, and governance characteristics. In fact, a couple of scientific studies suggest that governance characteristics might be endogenous with respect to firm economics. Nevertheless, the stronger effects should have the direction *'governance towards performance'* (Adams et al., 2009). However, it is subject to proper empirical analysis to attempt to separate out the two effects.[135]

Given prior research results, a potential valuation premium should be more pronounced in founder firms in which founders are at least in the leadership team, if not even the CEO or chairman (cf. Villalonga and Amit, 2006; Adams et al., 2009; Fahlenbrach, 2009; Li and Srinivasan, 2011). This makes family founder firms again a firm-type with in-between characteristics that might blend features of lone founder and heir firms. Assuming a harvesting and preservation strategy for heir firms (e.g. Gersick, 1997; Miller et al., 2011) would lead to a hypothesized average or below average valuation. Potentially the distinct influence, or more precisely dominance of the family, could imply an effect on performance. For instance, reasons that would support this view could include a potentially defensive investment policy given family-wealth exposure to the firm. Further, reasons like higher payout rates to satisfy family shareholders, the general threat of expropriation by a dom-

[135] See chapter 6, Relevant Concerns and Empirical Approach, for a discussion on relevant empirical concerns and applied methods to approach those challenges best.

inant family shareholder, or family executives that might be able to protect themselves from disciplining market mechanisms could partly influence an heir firm's valuation. The topic of heirs in managerial positions is the subject of lively debate in founding-family research with inconclusive effect implications. Some scholars identify detrimental effects on valuation (e.g. Pérez-González, 2006; Bennedsen et al., 2007) while others identify no statistically substantial effects (e.g. Sraer and Thesmar, 2007)—neither positive nor negative. Given the various aspects that may alter the general heir firm dummy effect, the previous arguments imply a broad set of controls in the empirical section.

These suggestions result in the following hypotheses:

- **H5.1.a** Lone Founder firms are positively associated with superior firm valuation (Tobin's Q).
- **H5.1.b** Family Founder firms are positively associated with superior firm valuation (Tobin's Q).
- **H5.1.c** Heir firms are not associated with superior firm valuation (Tobin's Q).

5.2.2 Stock Performance

Given the valuation hypotheses above, an investor would ask whether a strategy of investing in founding-family firms or in a sub-type would yield returns beyond what can be explained by exposure to the general stock market, size characteristics, a market-to-book indication, or previous performance. Such characteristics can be analyzed in an equity returns framework, based on the previous work of Fama and French (1993) and the extension by Carhart (1997). Thus, the answer to the stock performance characteristics of individual blockholder firms is subject to empirical analysis.[136] Based on total monthly returns, Fahlenbrach (2009) identifies superior returns for founder-CEO firms beyond the four-factor benchmark in a Fama and French (1993), respectively Carhart (1997), model. A transfer of those results

[136] Gompers et al. (2003) are amongst the first authors to apply the Fama and French (1993) model in empirical corporate governance research.

towards my sample is very questionable, as the general stock market characteristics are different, the time period diverges, and the characteristics of the sample firms differ. For instance, Corstjens et al. (2006) take a comparable approach and analyze US, UK, German, and French family firms, yet fail to detect unexplained alpha. Thus stock performance seems to be well explained via the four-factor model.[137]

Nevertheless, I hypothesize that if a Fama and French (1993) approach would deliver an alpha for an investment strategy in a particular lone founder, family founder, or heir firm portfolio, such alpha would be more likely to be identified in a founder firm portfolio given the evidence previously put forward by Fahlenbrach (2009). Yet, a founder firm characteristic is something the market can observe, and thus should be factored into stock returns. Again, whether there is an alpha is more than questionable, especially as the source would be unclear. A lone founder firm portfolio might have generally the characteristics *small* and *growth* while heir firms might have *big* and *value* characteristics.[138] Similarly, the characteristics of family founder firms are not precisely predictable. The characteristics should also have a tendency towards *small* and potentially also towards *growth* given the first generation property. This would imply that the portfolios of founding-family defined firms do not have the same characteristics, or conversely, that an investor could pursue different investment styles given a differentiated portfolio investment strategy according to individual blockholder type categorization. On the other hand, an investment in the group of founding-family firms—an undifferentiated investment—would exhibit a blended investment style.

There is an important technical aspect I have to mention: as opposed to the previous hypotheses, the hypotheses on abnormal stock performance

[137] Interestingly, the authors document different factor exposures for different geographies and between family and non-family firms.

[138] Fahlenbrach (2009, pp. 461-463) suggests that the alpha in his research could relate to distinct investment behavior of founder-CEOs in his sample, their specific growth strategies, and a potentially marked attitude towards risk. But he also reminds readers of the exceptional capital market performance throughout the 1990s which may have influenced overall sample results.

(alpha) do not suggest any direction, i.e. I am not arguing for the existence of a potential alpha. As before, the prior suggestions result in the following hypotheses:

- **H5.2.a** Lone Founder firms are not associated with abnormal stock market performance (alpha).
- **H5.2.b** Family Founder firms are not associated with abnormal stock market performance (alpha).
- **H5.2.c** Heir firms are not associated with abnormal stock market performance (alpha).
- **H5.3.a** A Lone Founder firm portfolio is positively associated with SMB and negatively with HML characteristics.
- **H5.3.b** A Family Founder firm portfolio is positively associated with SMB and negatively with HML characteristics.
- **H5.3.c** An Heir firm portfolio is negatively associated with SMB and positively with HML characteristics.

To summarize, valuation characteristics as well as stock return specifics could diverge between founding-family defined firms. The underlying economic drivers as well as owner identity characteristics could contribute to distinct valuation characteristics. Yet, whether an investment strategy in a distinct group of founding-family defined firms yields superior returns for the investigation period of this analysis is doubtful. Nevertheless, the analysis of owner identity differentiated portfolios could indicate the predominant investment styles investors would follow with their capital allocation, a characteristic that no previous research has investigated.

Table 5.3, Summary of Firm Economics Hypotheses, summarizes the proposed hypotheses on firm economics.

Table 5.3: Summary of Firm Economics Hypotheses

#	HYPOTHESES	EXPECTED SIGN
	VALUATION	
H5.1.a	**Lone Founder** firms are positively associated with superior firm valuation (Tobin's Q).	**+**
H5.1.b	**Family Founder** firms are positively associated with superior firm valuation (Tobin's Q).	**+**
H5.1.c	**Heir** firms are not associated with superior firm valuation (Tobin's Q).	**o**
	STOCK PERFORMANCE	
H5.2.a	**Lone Founder** firms are not associated with abnormal stock market performance (alpha).	**o**
H5.2.b	**Family Founder** firms are not associated with abnormal stock market performance (alpha).	**o**
H5.2.c	**Heir** firms are not associated with abnormal stock market performance (alpha).	**o**
H5.3.a	A **Lone Founder firm portfolio** is positively associated with SMB and negatively with HML characteristics.	**+/–**
H5.3.b	A **Family Founder firm portfolio** is positively associated with SMB and negatively with HML characteristics.	**+/–**
H5.3.c	An **Heir firm portfolio** is negatively associated with SMB and positively with HML characteristics.	**–/+**

Note: This table presents an overview of hypotheses on firm economics. The signs "+", "–" and "o" indicate a *positive*, a *negative*, and a *neutral* association.
Source: Own work.

5.3 Ownership Dynamics

This section investigates the heterogeneous character of founding-family influence of founders, heirs, and their respective families and its effect on ownership dynamics.[139] The evaluation of ownership dynamics differentiates three major aspects: large positive ownership changes, large negative ownership changes, and a special example of a negative change, the complete family exit. Due to the immature research strand of ownership dynamics in family firms, I deliberately apply a broad theory framework that incorporates several explanations for ownership dynamics.[140] Due to this approach the outline of this section emphasizes even more the theoretical perspectives compared to the previous two sections.

5.3.1 Owner Identity Perspective

A number of categories of founder or family influence (cf. Le Breton-Miller and Miller, 2008; McConaughy and Phillips, 1999; Miller et al., 2007, 2011) and owner generation (cf. Bennedsen et al., 2007; Pérez-González, 2006; Sonfield and Lussier, 2004) prove to be necessary to understand family-firm specifics. In particular, differentiation of founding-family firms into *lone founders*, *family founders*, and *heir firms* is expected to be valuable to gain more detailed insights on family firms in general and ownership dynamics in particular. All three firm types share common governance characteristics. Yet, they may not follow the same strategic rationale, motives, or values. As prior research has revealed (owner) identity characteristics have pronounced effects (cf. Ashforth and Mael, 1989; Burke and Reitzes, 1981; Hogg et al., 1995) on firm strategy and behavior (cf. Miller et al., 2011) exist. As a result, it is a reasonable assumption to expect these characteristics to influence ownership dynamics as well.

[139] Related research includes aspects of the identity of owners, such as families and other individuals, blockholder effects or managerial ownership (cf. Morck et al., 1988; Fahlenbrach and Stulz, 2009).

[140] See Bhattacharya and Ravikumar (2001) or Burkart et al. (2003) for theoretical advances in this field. For a more general discussion and assessment of suitable theory frameworks in a family firm context, see Mazzi (2011).

Lone founders might pursue a more focused growth strategy and accept a higher dilution of their voting stock. Thus, I argue that features typically associated with family features might not apply to those firms in the same way or to the same extent. This is irrespective of the fact that they fulfill a founding-family-definition (e.g. Anderson and Reeb, 2003; Villalonga and Amit, 2006) and show significant individual blockholding in their ownership structure.

I therefore hypothesize that lone founders show stronger willingness to reduce their voting ownership, which should be in line with a growth strategy approach. Presumably, the nurturer and long-term characteristics associated with familiness are more typical for family firms, especially heir firms. Family founder influenced firms might represent blended characteristics of both 'worlds'.

A large ownership increase might be associated with the exploitation of a temporary valuation underperformance by founders or founding families. From that perspective this might be interpreted as signalling of insiders. Further possibilities are the accumulation of additional stock when there are plans to go private or to attain a certain ownership threshold for any of a multitude of potential reasons. It is hardly possible to predict what kind of owner identity type should be more or less associated with a large ownership increase. Thus, this question ultimately remains subject to empirical investigation.

- **H6.1.a** The likelihood of a negative ownership change is positively associated with ***Lone Founder*** owner identity characteristics.
- **H6.1.b** The likelihood of a negative ownership change is negatively associated with ***Family Founder*** owner identity characteristics.
- **H6.1.c** The likelihood of a negative ownership change is negatively associated with ***Heir Firm*** owner identity characteristics.
- **H6.2.a** The likelihood of a positive ownership change is not associated with ***Lone Founder*** owner identity characteristics.
- **H6.2.b** The likelihood of a positive ownership change is not associated with ***Family Founder*** owner identity characteristics.

- **H6.2.c** The likelihood of a positive ownership change is not associated with ***Heir Firm*** owner identity characteristics.

5.3.2 Agency Perspective

Founding-family firms exhibit distinctive forms of agency settings and governance structures. An essential governance feature of founding-family firms is substantial and mostly concurrent influence on board(s) and ownership. Sharma (2004) emphasizes this

> "interchangeable and additive influence of family power through ownership, management, and/or governance."[141]

Empirical evidence supports this view of combined board and ownership influence in founding-family settings, but not without pointing out the benefits as well as the shortcomings of certain settings (cf. Villalonga and Amit, 2006). An agency theoretical perspective (cf. Jensen and Meckling, 1976; Ross, 1973; Eisenhardt, 1989) supports an understanding of the advantages as well as non-trivial problems (cf. Villalonga and Amit, 2006).

In general, beneficial governance settings reduce agency costs that arise due to the separation of ownership and control in listed firms (Jensen and Meckling, 1976). One beneficial governance mechanism could be the aligned interest scenario that arises when a management position is held by an individual blockholder (lone founders, family founders, and heirs). Therefore, I suggest that a change in ownership is less likely as long as the individual blockholder holds a management board position. This scenario should apply predominantly to founder-controlled firms. Similarly, I assume that control via supervisory board participation should indicate a more stable family influence. As before, the likelihood of an ownership change should be reduced. Nevertheless, a family could reduce their stock ownership while

[141] See Sharma (2004, p. 4). Compare the SFI concept as described in Klein (2000) and the F-PEC scale as proposed by Astrachan et al. (2002) to incorporate several dimensions of family influence. The constituent elements of the F-PEC are power, experience, and culture.

potentially balancing their influence with board representation—at least as long as they still meet important control thresholds.

Shleifer and Vishny (1986) and Claessens et al. (2002) describe the specific implications of a large blockholder with voting control and pronounced incentives to control external management. This scenario with a founding-family firm as a large blockholder might be a source of competitive advantage and has the potential to deliver cost advantages. Shleifer and Vishny (1986) emphasize the incentive for large shareholders to monitor management. With respect to this argument, a relatively undiversified family should have strong motivation to apply reasonable monitoring efforts. On the other hand, less diversification might imply higher risk-aversion (e.g. Fama and Jensen, 1983a) and a potential costly divergence of interest from the interest of minority shareholders as described by Shleifer and Vishny (1997). Thus, substantial control by a large shareholder allows enforceability of interest, application of expropriation mechanisms, and the ability to defend against consequences of such action (i.e. entrenchment). These mechanisms might yield to pecuniary and non-pecuniary benefits for a founding-family, i.e. private benefits of control. In a moral hazard situation the individual blockholder can alleviate negative consequences of his action to the detriment of minority investors. A clearly disadvantageous situation for minority investors could arise when the individual blockholder exploits his voting power to enforce self-interested decisions (e.g. Jensen and Meckling, 1976; McConaughy et al., 2001; Villalonga and Amit, 2006).

With respect to ownership dynamics, I hypothesize that an individual blockholder is more likely to reduce his influence in the case of lower private benefits of control. As private benefits of control are hard to measure, I rely on approximations to operationalize them. An individual blockholder might apply a dual-share class wedge (cf. Villalonga and Amit, 2009) or deploy a pyramidal ownership structure to achieve voting rights that exceed cash-flow rights. However, an even more obvious way to secure such private benefits of control is adherence to legal voting right thresholds such as 5%, 25% or 50% (according to the Stock Corporation Act or the Securities Acquisi-

tion and Takeover Act, cf. Goergen et al., 2008b) which confer distinct legal rights.

Listed founding-family firms are simultaneously subject to external scrutiny by various market participants and observers (cf. Anderson et al., 2009). Information availability, disclosure quality or—more commonly—the level of opaqueness might influence the extent of private benefits of control. Hence, I expect that the substantial presence of external governance by outside blockholders affects the extent of private benefits of control due to clear information policy enforcement. Ultimately, this could influence ownership dynamics of lone founder, family founder, and heir firms. Outside blockholders should perceive an incentive to control the family owner in order to reduce the entrenchment potential (Shleifer and Vishny, 1986). Thus, I would argue that such a setting could be robust and lasting. Even minority investors could benefit. On the other hand, the existence of external blockholders could indicate acquisition scenarios and thus a voluntary or forced exit route for individual blockholders. The latter case would indicate an increase in ownership dynamics.

- **H7.1.a** The likelihood of a negative ownership change is negatively associated with ***board representation*** of individual blockholders.
- **H7.1.b** The likelihood of a negative ownership change is negatively associated with ***high private benefits of control*** (i.e. wedges, pyramids).
- **H7.1.c** The likelihood of a negative ownership change is negatively associated with ***strong external governance*** (i.e. external blockholders).
- **H7.2.a** The likelihood of a positive ownership change is positively associated with ***board representation*** of individual blockholders.
- **H7.2.b** The likelihood of a positive ownership change is negatively associated with ***high private benefits of control*** (i.e. wedges, pyramids).
- **H7.2.c** The likelihood of a positive ownership change is negatively associated with ***strong external governance*** (i.e. external blockholders).

5.3.3 Stewardship Perspective

The stewardship perspective is the third strand of theory from which I derive hypotheses on ownership dynamics. Stewardship theory (Caers et al., 2006; Davis et al., 1997; Eddleston and Kellermanns, 2007; Muth and Donaldson, 1998) goes beyond classical principal-agent theoretical argumentation and focuses on intrinsic motivational aspects, such as trust, firm identification and goal alignment that are likely to prevail in founding-family firms (Miller and Le Breton-Miller, 2006; Miller et al., 2011). This exact requirement of discussing governance characteristics and implications in a broader theoretical framework is supported by Daily et al. (2003).

Depending on the existence of strong or weak stewardship scenarios, ownership changes may be more or less likely (cf. Corbetta and Salvato, 2004; Miller and Le Breton-Miller, 2006; Miller et al., 2011). I expect significant (management) board influence of an individual blockholder to be a strong identification and alignment indicator. A further measure of a strong identification between the founding-family and the firm could be a direct link between the family and the firm name as argued by Adams et al. (2009), for instance.

On the contrary, a larger number of (individual) blockholder parties involved in a company might indicate a lower firm identification attributable to each individual blockholder, which could imply less stewardship behavior and ultimately a higher likelihood of ownership change dynamics.

- **H8.1.a** The likelihood of a negative ownership change is negatively associated with ***high management board representation***.
- **H8.1.b** The likelihood of a negative ownership change is negatively associated with a ***strong linkage between firm and family***.
- **H8.1.c** The likelihood of a negative ownership change is positively associated with the ***number of different (individual) blockholders***.
- **H8.2.a** The likelihood of a positive ownership change is positively associated with ***high management board representation***.

- **H8.2.b** The likelihood of a positive ownership change is positively associated with a ***strong linkage between firm and family***.
- **H8.2.c** The likelihood of a positive ownership change is negatively associated with the ***number of different (individual) blockholders***.

5.3.4 Financial Theory Perspective

Financial theory might deliver further arguments that can explain ownership dynamics. At an early stage of a firm's existence, equity ownership is a feasible way to substitute for potentially lower cash income for the entrepreneur(s). Nevertheless, the entrepreneur—or individual blockholder in my study—has to bear a certain level of risk: foremost is the problem of a strong wealth concentration. This diversification problem also exists in a similar flavor at a corporate level as Schmid et al. (2008) demonstrate. Founding-family firms are less diversified in terms of business segments and thus are probably more exposed to pronounced industry shocks. I hypothesize that due to these characteristics, individual blockholder firms might consider a negative adaptation of their blockholdings (assuming that they consider the current share price favorable). In addition, I explore arguments related to potential ownership changes that stem from opportunistic behavior. Potential knowledge advantages of a founding-family might lead to the exploitation of windows of good stock market performance, excellent operating performance, or an anticipated downshift. Thus, a major individual blockholder, an insider, might take advantage of good market timing. This could apply to decisions to sell stock in the case of a perceived overvaluation, as well as to decisions to buy stock in the case of a perceived undervaluation (cf. Helwege et al., 2007; Klasa, 2007). At the same time, other investors could interpret trading of such insiders as signals.

- **H9.1.a** The likelihood of a negative ownership change is positively associated with ***high stock valuation***.
- **H9.1.b** The likelihood of a positive ownership change is positively associated with ***low stock valuation.***

Table 5.4, Summary of Ownership Dynamics Hypotheses, summarizes the proposed hypotheses on ownership dynamics.

5.4 Summary

Following the structure introduced in chapter 4, the Literature Review, the previous sections presented hypotheses on founding-family firm governance heterogeneity, firm policy, economics, and ownership dynamics. The tables in each section summarize the hypotheses and indicate the respective assumptions for quick reference. All hypotheses ultimately rest upon the initial working hypothesis, stating that owner identity aspects are an important differentiator that affects founding-family heterogeneity. This section has already demonstrated the comprehensiveness and depth of the various perspectives on founding-family defined firms that this work offers. The following chapter changes the perspective: from theory concepts and prior empirical evidence on founding-family related work towards a specific focus on the technical requirements of the following empirical sections. In fact, the proposed research questions and derived hypotheses call for rigorous research design with a particular emphasis on the empirical methodology.

Table 5.4: Summary of Ownership Dynamics Hypotheses

#	HYPOTHESES		EXPECTED SIGN
	OWNER IDENTITY PERSPECTIVE		
H6.1.a	The likelihood of a *negative* ownership change	is positively associated with **Lone Founder** firms.	+
H6.1.b	…	is negatively associated with **Family Founder** firms.	–
H6.1.c	…	is negatively associated with **Heir** firms.	–
H6.2.a	The likelihood of a *positive* ownership change	is not associated with **Lone Founder** firms.	**o**
H6.2.b	…	is not associated with **Family Founder** firms.	**o**
H6.2.c	…	is not associated with **Heir** firms.	**o**
	AGENCY PERSPECTIVE		
H7.1.a	The likelihood of a *negative* ownership change	is negatively associated with **board representation**	–
H7.1.b	…	is negatively associated with **high private benefits of control**	–
H7.1.c	…	is negatively associated with **strong external governance**	–
H7.2.a	The likelihood of a *positive* ownership change	is positively associated with **board representation**	+
H7.2.b	…	is negatively associated with **high private benefits of control**	–
H7.2.c	…	is negatively associated with **strong external governance**	–
	STEWARDSHIP PERSPECTIVE		
H8.1.a	The likelihood of a *negative* ownership change	is negatively associated with **high management board representation**	–
H8.1.b	…	is negatively associated with a **strong linkage between firm and family**	–
H8.1.c	…	is positively associated with **the number of different (individual) blockholders**	+
H8.2.a	The likelihood of a *positive* ownership change	is positively associated with **high management board representation**	+
H8.2.b	…	is positively associated with a **strong linkage between firm and family**	+
H8.2.c	…	is negatively associated with **the number of different (individual) blockholders**	–
	FINANCIAL PERSPECTIVE		
H9.1.a	The likelihood of a *negative* ownership change	is positively associated with **high stock valuation**	+
H9.1.b	The likelihood of a *positive* ownership change	is positively associated with **low stock valuation**	+

Note: This table presents an overview of hypotheses associated with a negative or positive ownership change. The signs "+", "–" and "o" indicate a *positive*, a *negative*, and a *neutral* association.

Source: Own work, based on Achleitner et al. (2012).

6 Relevant Concerns and Empirical Approach

The empirical analysis of governance effects is a challenge (e.g. Demsetz and Lehn, 1985; Himmelberg et al., 1999; Demsetz and Villalonga, 2001; Börsch-Supan and Köke, 2002; Coles et al., 2012). Prior research documents a complex relationship of the dependent variable—e.g. a performance, value, or policy measure—and the various governance and firm specific explanatory variables. Therefore, it is hardly surprising that empirical evidence on governance—specifically on ownership structures—is quite mixed with partly contradictory evidence (cf. Demsetz and Lehn, 1985; Morck et al., 1988; McConnell and Servaes, 1990; Himmelberg et al., 1999; Zhou, 2001; Demsetz and Villalonga, 2001).[142] As illustrated in previous chapters, these conflicting results may be attributable to the lack of family firm differentiation, from a theoretical point of view. From an empirical perspective, one essential part of the disagreement within results could derive from the application of OLS regressions. When endogenous variables are not adequately considered, i.e. when those variables are treated as exogenous, while they are in fact endogenous, the estimation results can be biased.[143]

Given this caveat, what are the implications for this work on founding-family defined firms? Obviously, in the light of prior evidence, endogeneity related concerns cannot be ignored. Accordingly, I discuss the potential weaknesses of OLS regressions—as well as possible sources of endogeneity bias—in the following sections. Please bear in mind, that the highlighted

[142] See chapter 4 for additional sources and a detailed literature review.
[143] See Adams et al. (2009) for highlighting this problem in a related context—the founder-CEO performance relationship.

issues are addressed only as far as they relate to my research and not in order to elaborate on the general problem (as in a textbook).[144] Taking this approach, I identify the following relevant endogeneity related biases:

- *First*, the regression set-up might fail to include particular independent variables resulting in an *omitted variables bias* or unobserved heterogeneity (e.g. Wooldridge, 2009).
- *Second*, the coefficient of interest—i.e. the coefficient of an owner identity dummy variable as this work proposes—might be biased due to its potential endogenous characteristic or reverse causality. This problem can also arise due to a so-called *self-selection bias* (e.g Maddala, 1983; Li and Prabhala, 2007; Wooldridge, 2009; Greene, 2008).
- *Third*, a *simultaneity bias* (cf. Coles et al., 2012) is also a form of endogeneity.
- *Fourth*, further issues include a *dynamic time-lag bias* (cf. Wintoki et al., 2012) or *measurement error*.[145]

Without doubt those problems can be severe if they turn out to exist. On the one hand, this should be given serious consideration. On the other hand, one should not assume endogeneity problems per se, ignoring the context of the setting. For instance, Gugler and Weigand (2003) cast doubt on the general suspicion of endogeneity problems in ownership related research in the German context. As opposed to the managerial ownership finding of being endogenous in the US context, Gugler and Weigand (2003) reject such endogeneity concern for a panel of German listed firms.[146] Further scholars share their view of a probably less severe problem of endogeneity in ownership studies in the German context. For instance, Edwards and Nibler (2000), Kaserer and Moldenhauer (2007), and Andres (2008b) consider this

[144] The interested reader is referred to standard literature, such as Greene (2008) or Wooldridge (2009).

[145] Beyond those specific concerns, there are further aspects like sample selection bias or survival bias.

[146] Gugler and Weigand (2003) analyze the effects of ownership structure on operating performance (ROA).

to be a smaller problem in the German capital market, as managerial ownership in the German context is rarely the result of stock option remuneration schemes, but often related to concentrated ownership of founders or founding-families. In fact, this could be considered a major advantage of analyzing a German ownership panel compared to US panels.

In addition to these empirical arguments, there is a strong argument in favor of further analysis beyond OLS. While OLS is not able to differentiate between a treatment effect, i.e. the potential effect of an owner, and a selection effect, i.e. the choice of such owner to remain invested, there are more advanced approaches that do differentiate these effects. Such evidence is of the highest interest from an economic and a business perspective and delivers potential insights on the heterogeneity of founding-family defined individual blockholder firms.

The empirical challenges can be approached in several ways—clearly each approach has its own strengths and weaknesses, which are summarized in the following sections.

6.1 Endogeneity and General Empirical Concerns

Arguably, one of the key challenges in the field of empirical finance and governance is the adequate consideration of the potentially endogenous characteristic of governance indicators.[147] I consequently propose two assumptions throughout this particular study: *First*, I argue that scholars should decompose ownership by owner types, to reflect the various blockholder types and their specifics.[148] I extend this idea to founding-family firms, which previous studies have predominantly treated as one *homogeneous* group, potentially altered in robustness tests, yet the general line of argument in those studies focuses on founding-family firms versus non-family

[147] Examples of such potentially endogenous variables include indicator dummies such as founding-family, founder, or founder-CEO and further similar variables like blockholding, insider ownership, voting or cash-flow rights. See also Roberts and Whited (2012).

[148] See Demsetz and Villalonga (2001) and Cronqvist and Fahlenbrach (2009) and the underlying research questions of this thesis.

firms. In contrast, my approach splits those founding-family defined firms and differentiates three distinct firm types—lone founder, family founder, and heir firms.[149] *Second*, I assume that founding-family ownership should be carefully considered in terms of its potential non-exogenous character, though a founding-family approach as initial set up diminishes some concerns vis-à-vis a general large blockholder concept for instance. It is evident that the founding-family has been invested since firm inception and has not been initially attracted by, for example, performance.[150] Yet, the duration of a founding-family firms' long-term involvement can be affected by such characteristics. Hence, I consider the remaining threat of endogeneity and self-selection in my empirical approach. The seriousness of this underlying problem is underlined by the following statement of Demsetz and Villalonga (2001) who reviewed prior empirical work related to ownership structures, especially the effects of managerial ownership:

> "Our analysis suggests that none of the studies we examine treat ownership structure appropriately. It should be modeled not only as an endogenous variable but also, simultaneously, as an amalgam of shareholdings owned by persons with different interests."[151]

Scientific work has developed more sensitivity and more sophisticated approaches towards this problem since the criticism of e.g. Demsetz and Lehn (1985) or Demsetz and Villalonga (2001). The applied owner identity approach implements this critical aspect in this work. Therefore, my analysis explicitly considers the potentially different interests that go along with founding-family influence.

[149] See chapter 2.2.3, Definition of Owner Identity Types.

[150] Compare the complex empirical setup with a geographical instrument that Becker et al. (2011) choose to weaken endogeneity concerns when analyzing the effects of large non-managerial blockholders.

[151] Demsetz and Villalonga (2001, p. 211). It should be mentioned, that the authors refer to insider versus outsider blockholding, yet the argument is very similar to the one of Cronqvist and Fahlenbrach (2009) who deal with large blockholders. Each study documents the necessity to cast doubt on an assumption that discusses blockholder characteristics without a differentiation of blockholder types. Blockholders must not share the same interests, behavior, or strategies.

Additional empirical challenges are introduced in the following sections. I moreover explain how I approach these aspects within my research.

6.1.1 Omitted Variables Problem

The *omitted variables* problem or unobserved heterogeneity problem can arise when an OLS regression specification ignores statistically relevant independent variables that should be controlled for. As a result, the coefficient of an independent variable that might be correlated with the omitted variable is biased. If the omitted variable correlates with more variables or the included variables correlate amongst each other, further coefficients are biased, too (cf. Wooldridge, 2009).

To cope with this potential problem, I apply various regression models beyond an OLS approach, e.g. advanced panel models (e.g. firm fixed effects or random effects) or instrumental variables approaches. As we will see next, a self-selection bias can be also interpreted as omitted variable bias in the estimation.

6.1.2 Endogenous Variables and Self-Selection Problem

The second crucial aspect concerns the aspiration to achieve an appropriate modeling of potential endogenous variables and reverse causality. The general problem is a potential estimation bias caused by the inclusion of endogenous variables. The specific problem is meeting the preconditions to get empirically robust results that permit an analysis of relationship, beyond a potential evidence of correlation. Recalling previous empirical analysis on the *ownership-performance relation*, the possibility that an OLS estimation could be biased should not be ruled out. Given the following model, I explain this bias more formally:

$$y_{i,t} = \beta_0 + \gamma_1 d_{i,t} + \beta_k \vec{X}_{i,t} + YearDummies_i + IndustryDummies_i + \varepsilon_{i,t} \tag{6.1}$$

with y as a firm economics indicator like valuation or performance, d as binary random dummy indicator that e.g. takes 0 for a non-lone founder firm and 1 for a lone founder firm, γ and β as random coefficient parameters, next to $\vec{X}$ a random vector of covariates and ε as error term (cf. Adams et al., 2009; Wooldridge, 2002, 2009). In the event that the error term is uncorrelated with d and vector $\vec{X}$ then no bias exists. Yet, if I assume for instance a correlation between d and ε, i.e. $cov(d,\varepsilon) \neq 0$ the estimated results of γ cannot be considered as unbiased. Therefore, the existence of a bias, the potential magnitude of a bias and the direction of the potential covariance have to be estimated. The resulting estimation model is known as an endogenous dummy variable model according to Heckman (1978). For instance, Miller et al. (2007) use a treatment effects regression to correct for endogeneity.[152] Miller et al. (2007) argue:

> "The advantage of two-stage treatment regression over full information structural approaches such as GMM, full information maximum likelihood, or three-stage least squares, is its lesser susceptibility to the proliferation of specification error and distortion (Greene, 2003:411–415 and personal communication)."[153]

The approach applied by Miller et al. (2007) and described by Greene (2008) is therefore included in the following empirical section, along with additional estimation methods.

The biases mentioned above are not isolated econometric problems. Instead, a biased and inconsistent OLS estimation could be the result of various sources of bias. The proposed approach by Heckman (1978) decomposes for instance treatment as well as selection effects. In terms of self-selection bias, the subject of research, an individual, a firm, etc. can choose whether they participate in a program, show a behavior and so on (cf. Wooldridge, 2009, p. 253). Thus the general endogeneity problem occurs

[152] Miller et al. (2007) apply the *treatreg* function in STATA with the *Heckman two-step* option.
[153] Miller et al. (2007, pp. 844-845).

as the binary choice, that a dummy variable represents in the regression model, can be influenced by unobserved (omitted) variables.

In the context of this thesis, the founding-family shareholders have a choice between continuing to be shareholders or retiring as shareholders. Thus, technically speaking, they have the choice of changing the status and thus altering a founding-family or owner identity dummy in this analysis.[154] A sample selection bias might arise as such founding-family shareholders could be influenced in their decision-making by some unobserved factors. For instance, Wasserman (2003) describes the *paradox of entrepreneurial success* postulating that founders leave the firm earlier than assumed if they have exceeded milestones or successfully introduced a new product. Both examples would be unobserved in my regression settings. On the other hand, a founder or a founding-family could remain a shareholder longer than planned if they feel emotionally responsible in precarious times, or simply have an entrenched position to protect the status quo. The rationale of those decisions would be hardly controllable in a regression setting—and more probably omitted. Again, these features would lead to an inconsistent OLS regression result, as a treatment effect and a selection effect are not distinguishable from each other.[155] Thus, Villalonga and Amit (2006) or Miller et al. (2007) propose the application of a self-selection test in the context of founder or founding-family research. Accordingly, I apply a Heckman (1978) approach in the empirical section.

6.1.3 Simultaneity Bias and Dynamic time-lag Bias

A simultaneity bias can arise if one or likewise several independent variables are jointly determined (simultaneously) with the dependent variable. An exemplary case of such simultaneity is an equilibrium mechanism, for

[154] For simplicity, I ignore the fact that in some situations shareholders might be forced to change their ownership status, e.g. in case of financial distress.

[155] A further potential source of endogeneity in OLS regression models is the problem of *measurement error* in the independent variables. The measurement error of independent variables might be the result of wrong coding or reporting. In this thesis, all variables are calculated or collected with caution and were cross-checked and validated several times.

instance a supply and demand equilibrium (e.g. Greene, 2008). Again, the endogeneity indication is a correlation of the independent variable(s) with the error term and hence, a biased OLS estimation (e.g. Wooldridge, 2009). In this work, a simultaneity bias could exist because the dependent variable, be it an economic, performance, or firm policy measure, might influence several aspects of governance and vice versa. Coles et al. (2012) review the managerial ownership and performance relationship. They argue that this relationship could be interpreted as a value maximizing mechanism between the ownership and performance variable. Thus, Coles et al. (2012) argue that ownership and performance are endogenous and determined by an equilibrium process. In spite of the fact that Coles et al. (2012) discuss the relationship of managerial ownership and performance, not founding-family ownership, I will briefly present their thoughts about an equilibrium model. They argue, that a relative productivity between managerial input versus capital requirements determines the level of managerial ownership. If this productivity ratio is high, managerial ownership is high.[156] The authors explain this non-linear relationship with an optimal-contracting model which has the problem that standard proxy variables do not sufficiently care for endogeneity problems with regard to managerial ownership and firm valuation (Tobin's Q). Similar criticism towards the exogenous treatment of ownership is raised by Cho (1998) and Palia (2001). Coles et al. (2012) argue that their research suggests a time-variant contracting environment, i.e. productivity parameters change over time, which makes, for instance, a firm fixed effects analysis less efficient.[157] As convincing as the approach of Coles et al. (2012) appears, the general setting does vary substantially from my founding-family setting: For instance, the authors estimate mean managerial ownership of 3.28% and respective median of 1.33% (effective ownership including stock option holdings). Thus, productivity parameters and stock related compensation schemes should, almost by definition, mat-

[156] This is also a potential explanation of why family firms are common amongst the service and IT industries. See table 7.3, the Fama & French Industry Classification, for data on my sample.

[157] A firm fixed effects regression approach would be efficient if the omitted productivity-parameters were time-invariant.

ter much more in such a setting, compared to large founder or even inherited blockholdings as reviewed in this sample. Gugler and Weigand (2003), Edwards and Weichenrieder (2004), Kaserer and Moldenhauer (2007), and Andres (2008b) formulate similar arguments. However, I do not cast doubt on the general proposal that the relative productivity of managerial versus capital input could influence the level of managerial ownership.

In terms of coping with the problem of simultaneity in this work, I apply an instrumental variables approach, which is described below. Before that, I introduce another endogeneity concern: the *dynamic time-lag bias*.

As Wintoki et al. (2012) argue, an often neglected aspect of endogeneity concerns time-lagged effects between dependent and independent variables. Specifically, dependent variables like firm performance in previous periods could bias governance measures of the current period. They argue that conventional approaches to limit endogeneity like firm fixed effects might have limited power to control for such *dynamic time-lag bias* and criticize the general disregard of this aspect of endogeneity in corporate finance literature. Hence, I approach this potential conflict with a GMM, a generalized method of moments estimator, in a dynamic panel approach.

6.1.4 Survivorship Bias and Sample Composition

As opposed to the self-selection bias discussed above, a general sample selection error can result from the way the sample is generated. To allay concerns, I base the analysis on a sample generated from the broadest German stock index CDAX. The panel is unbalanced and thus allows for sample attrition and inclusion of companies.[158] The panel spans a total of 14 years. The CDAX index includes all stock corporations with a German ISIN and listed at FSE that fulfill the required transparency conditions of the General

[158] For more on unbalanced panel characteristics and mortality see Wooldridge (2002) or Baltagi (2008).

Standard or Prime Standard.[159] There is no focus on market cap or other size requirements, nor an industry focus. This is a distinct advantage over Fortune 500 and S&P 500 studies for instance. Fortune 500 firms are selected with respect to the revenue size and S&P 500 firms with respect to market capitalization.[160]

I construct my CDAX sample based on the electronic index composition file reported by *Deutsche Börse Group*. Thereby, the year end index composition of $year_t$ builds the initial composition for $year_{t+1}$ to prevent a survivor bias in my panel. The sub sample generation of founding-family influenced firms is always transparent according to the definition which is applied at different levels of strictness.[161]

Given the rigorous sample generation process a survivor bias should therefore be of limited concern. Yet, the focus on listed companies does bring its own limitations, as these companies have commonly had past success which potentially enabled the listing.[162] However, such survivor bias should be even more pronounced in samples based on the already mentioned selection indices as Fortune 500 or S&P 500. Li and Prabhala (2007) discuss the documented evidence of Villalonga and Amit (2006) with respect to a potential survivorship bias. Li and Prabhala (2007) suggest, that

> "[t]his question [on survivorship] can perhaps be resolved by looking at broader samples that incorporate smaller firms outside the Fortune 500 universe."[163]

In addition to the advantage of my broad market sample which unlike others goes beyond large firms and also includes medium and small firms, the German economy itself shows that even large companies do not have to have a stock market listing. In other words, there are similar firms privately-

[159] Before 2003, the relevant FSE segments were called *Amtlicher Handel* and *Geregelter Markt*. See Neufeld (2003) or Wilkens and Wimschulte (2005) for the new segmentation at FSE.
[160] Compare Villalonga and Amit (2006, p. 394).
[161] See chapter 2, Context and Definition of Founding-Family Firms.
[162] See Brown et al. (1995) for a discussion of survivor bias in empirical finance.
[163] Li and Prabhala (2007, p. 78).

held—small and very large—too. A recent study of the *Stiftung Familienunternehmen* identifies the largest 500 family firms in Germany according to *total sales* over the years 2006 to 2010 (cf. Gottschalk et al., 2011). Only 3 out of the 10 largest family firms are listed. Amongst the top five, only 1 is listed. The range of total sales in 2010 of those top ten family firms were largest to smallest, €67 billion to €13 billion respectively. For the top 500 firms, the median firm had €617 million and the smallest €250 million in total sales.[164] Compared to the median, total sales of €177 million in my overall sample indicate that my sample does not focus solely on large firms, but reflects all firm sizes.

6.2 Empirical Approach

Given the general setting of empirical governance studies, first best empirical approaches like a *natural experiment* or *exogenous instruments* are hardly applicable (e.g. Wintoki et al., 2012). Nevertheless, there are related studies that incorporate external shocks in their analysis to allow for more causal inference. For instance, financial economics studies introduced the sudden death of an executive or insider blockholder and this influence on stock price or valuation (cf. Johnson et al., 1985; Slovin and Sushka, 1993). Tax related empirical studies applied the introduction of a new tax regime as natural experiment (e.g. Sautner and Villalonga, 2010) that affect all firms in the sample. However, events of this kind are rare and so less applicable to scientific work.

It appears that there is no single superior approach to solve the endogeneity problems—at least the theoretically best models are not always applicable to the available data or its accommodated constraints. Wintoki et al. (2012) emphasize the scarcity of such approaches:

> "When available, natural experiments or carefully chosen strictly exogenous instruments remain the 'gold standard' for consistently identifying the effect of an explanatory variable on

[164] See Gottschalk et al. (2011, p. 99).

> a dependent variable. However, given the infrequent occurrence of natural experiments, such as unexpected regulatory changes, and the relative paucity of exogenous instruments, inference in corporate finance research is likely to continue to rely on cross-sectional regressions using panel data."[165]

As proposed, the application of *instrumental variables in simultaneous equation models* or *treatment effects models* enables explicit modeling of endogeneity in the estimation process. I will discuss in detail the application of exogenous instruments—the 'gold standard' as Wintoki et al. (2012) call it—as well as their preconditions.

Further feasible approaches to handle endogeneity concerns include *firm fixed effects regressions*. Yet, this approach is limited in that it can only be applied to time-invariant omitted variables problems.[166]

For all the reasons already mentioned, in order to meet the various challenges appropriately, robustly and in a feasible manner, this work does not draw conclusions from a single kind of empirical estimation approach. Conclusions are rather drawn from various specification settings and a battery of advanced empirical approaches to increase the robustness of my findings.

6.2.1 Two-way Fixed, Firm Fixed, and Random Effects

The unbalanced panel I analyze offers several possibilities for empirical approaches. The obvious approach is to employ (pooled) OLS cross-sectional regressions that control for two-way fixed effects (year and industry). Yet, as indicated above such approaches are potentially prone to an omitted variables problem. In terms of such omitted variables biases or unobserved heterogeneity, scholars typically apply a *firm fixed effects* regression approach,

[165] Wintoki et al. (2012, p. 584).

[166] The pros and cons as well as the fit to the presented research problems are extensively discussed below.

granted that panel data is available.[167] Yet, a firm fixed effects estimation only compensates for unobserved heterogeneity for time-invariant omitted variables. Time-invariant omitted variables are eliminated in the estimation process. The downside is that the problem remains with time varying omitted variables. Another problem with a firm fixed effects approach is a variable of interest that is time-invariant, which could not be identified by this approach either. In summary, ownership and owner identity related research might at least have to cast doubt on the fully appropriateness of firm fixed effects regression for this field.[168] However, in the event that panels span a larger period of investigation and owner identity characteristics as well as potential explanatory variables are not fully time-invariant, the approach should not be ruled out a priori (cf. Chi, 2005; Fahlenbrach, 2009). Accordingly, the empirical analysis of this work includes firm fixed effects regressions next to other approaches.

In order to emphasize both cross-sectional effects in governance characteristics and the advantage of a panel structure, I also apply random effects regressions.[169] Yet, a random effects approach puts high demands on the applicability. Random effects regressions are biased, similar to OLS, when unobserved characteristics correlate with the error term (e.g. Wooldridge, 2002; Baltagi, 2008). As mentioned there is always a trade-off between meeting empirical model requirements and estimating effects with theoretically required empirical approaches. In this regard, I continue to emphasize that only a broad investigation, based on several empirical approaches, establishes credibility of evidence.

[167] With respect to ownership structures, founder, or family-related research, studies that apply firm fixed effects models are, e.g. Himmelberg et al. (1999), Cucculelli and Micucci (2008), or Fahlenbrach (2009).

[168] With respect to firm fixed effects estimation, compare the findings of Himmelberg et al. (1999) and the critical comment by Zhou (2001). Zhou (2001) argues that governance characteristics are slowly changing over time and thus firm fixed effects estimation might be inefficient, i.e. potentially not able to detect effects even if they did exist. For the same reason, Palia et al. (2008) prefer an instrumental variables approach over firm fixed effects estimation.

[169] For instance, Andres (2008b) and Block (2012) argue in a similar vein for a random effects approach.

6.2.2 Treatment Effects Models and Self Selection

6.2.2.1 Formal Model

As already described, there are various sources of endogeneity bias. Similarly, there are several approaches to incorporating the potential endogenous characteristic of a variable in an empirical analysis. Simultaneous equation models such as 2-stage-least-square (2SLS) or 3-stage-least-square (3SLS) are amongst the recognized and commonly applied approaches endogenizing a variable. These models estimate the potentially endogenous variable with one or more exogenous instruments in case the instrumented variable is a continuous measure.

The variable that I want to instrument is a dummy variable indicating a founding-family defined firm, and specifically an owner identity firm type. In this case, the 2SLS or 3SLS regression approaches are less efficient. A more efficient estimation model is the *dummy endogenous regression approach* following Heckman (1978). The major goal is—as in 2SLS or 3SLS—to factor in the potential endogenous character of the independent variable of interest. The Heckman (1978) approach controls for an omitted variable problem caused by a potential self selection bias. This form of endogeneity problem is potentially present when governance effects are analyzed with respect to firm policy decisions or economics, such as valuation (e.g. Li and Prabhala, 2007; Adams et al., 2009; Fahlenbrach, 2009; Becker et al., 2011; Roberts and Whited, 2012).[170]

As presented above, the base OLS model specification is as follows:

$$y_{i,t} = \beta_0 + \gamma_1 d_{i,t} + \beta_k \vec{X}_{i,t} + YearDummies_i + IndustryDummies_i + \varepsilon_{i,t} \tag{6.2}$$

[170] Heckman (1978), Maddala (1983), Greene (2008), and Guo and Fraser (2010) are valuable sources that present the general methodology irrespective of a financial economics application.

This model represents the main regression (second stage) for the estimation following the dummy endogenous regression approach. The first stage probit regression applies one or more exogenous instruments to determine the endogenous dummy that is applied to the main regression. The following probit model describes this first stage probit approach:

$$d^*_{i,t} = \beta + \beta_1 z_i + \beta_k \vec{X}_{i,t} + YearDummies_i + IndustryDummies_i + u_{i,t} \tag{6.3}$$

$$d_{i,t} = \begin{cases} 1, & d^*_{i,t} > 0 \\ 0, & d^*_{i,t} \leq 0 \end{cases} \tag{6.4}$$

where $d^*_{i,t}$ is the instrumented variable estimated via the first stage probit regression. The indicator z_i represents an instrument and $\vec{X}_{i,t}$ is a vector of control variables. The various empirical models apply up to three distinct instruments. Hence, instead of z_i one could think of a model including $z_{a,i}$, $z_{b,i}$, and $z_{c,i}$ in the first regression. $\varepsilon_{i,t}$ and $u_{i,t}$ are bivariate normal with zero mean and the following covariance matrix:[171]

$$\begin{bmatrix} \sigma^2 & \rho\sigma \\ \rho\sigma & 1 \end{bmatrix} \tag{6.5}$$

Rho, ρ, is the estimated correlation between $\varepsilon_{i,t}$ and $u_{i,t}$—the error of the main and of the probit regression—and sigma, σ, is the estimated variance of the main regression's error term. Together, they allow for the estimation of lambda, λ, as the product of ρ and σ. The indicator λ is the so-called

[171] For a discussion of the bivariate normality—the dominant assumption in related literature—compare Li and Prabhala (2007, p. 47). Li and Prabhala (2007) remark also that one of the few analyses that explicitly modeled non-normality eventually showed no major differences from a bivariate normal estimation. Greene (2008, p. 891) argues that the generality of the normal distribution might be questioned, yet due to the fact that selection effects could seriously affect an estimation and the lack of substantial superior models, the joint normal distribution remains the favored assumption.

inverse Mills ratio or non-selection hazard. A significant positive lambda suggests a potential selection effect that would lead to an overstated OLS result, while the opposite, an understated OLS result, would apply for a significant negative lambda. I will present the lambda (hazard ratio) in the respective tables to evaluate whether an endogeneity problem could occur in case of an alternative straightforward OLS estimation.[172]

From an economic perspective, λ is only of minor interest. The more interesting indicator is γ, the coefficient that describes the treatment effect in the main regression. More specifically it is the ATT, the average treatment effect on the treated. In fact there are three effects: the ATT, but also the ATE (average treatment effect) and ATU (average treatment on the untreated). The average treatment effect represents the outcome of randomly drawn firms from the population (e.g. Roberts and Whited, 2012). The treatment of the treated effect stems from randomly drawn firms that have the treatment. I am interested in the latter, the average treatment of the treated effect; which is what γ is supposed to indicate. Adams et al. (2009) correctly remark that γ might be lying in a continuum between ATT and ATE, dependent on the quality of the instruments separating the treated from the untreated firms. The average expected treatment effect, randomly drawn from the untreated population, ATU, is the third effect.

The general problem that this treatment effects approach tries to solve is that one observation can only have one particular outcome. Thus, the approach must compare treated firms with untreated firms to estimate the treatment effect. This problem of a direct comparison between treated and untreated results in the potential appearance of the selection effect λ. The reason is that the group assignment might be non-random or, in other words, subject to choice. This might be exactly the problem in a family firm setting. Founders or founding-family members could choose whether they

[172] Please find further technical information, theory, and proofs on this approach in Heckman (1978), Maddala (1983), Li and Prabhala (2007), StataCorp (2009, pp. 1969-1984), and Guo and Fraser (2010, pp. 96-108).

remain a family firm or whether they exit the firm.[173] Therefore, in spite of being repetitive, the advantage of the *dummy endogenous regression approach* is to differentiate the treatment and a potential selection effect. An OLS regression would deliver a biased result if a selection effect was present.

6.2.2.2 Exogenous Instrument Requirements

As Wintoki et al. (2012) state, the identification of valid instruments is a major challenge.[174] Valid applicable instruments must fulfill certain requirements. Specifically, the validity of a strictly exogenous instrument is determined by two facts: *First*, the instrument has to be relevant. That means it has to be correlated with the independent variable of interest (in the probit regression that estimates the instrumented variable). The *second* requirement that an instrument must fulfill is the exclusion of influence of the instrument on the error term in the main regression, i.e. there should not be a partial effect of the instrument on the dependent variable if controls are included in that regression (e.g. Maddala, 1983; Li and Prabhala, 2007; Roberts and Whited, 2012). Put more simply, the exogenous character requires the exogenous instruments to be correlated with the dummy variable d and uncorrelated with the dependent variable y.

The expected benefit of this costly identification process over plain OLS estimation is the exclusion of a potential self-selection or reverse causality bias. As I mentioned before, I do not draw conclusions from one approach only. As Roberts and Whited (2012) suggest, it is important to consider the limitation of an instrumental variables approach. Besides the general problem of identifying strictly exogenous variables, the main regression might include variables that still bias results, even with the inclusion of an exogenous instrument. Therefore, I consider this approach as a very strong approach, but back it up with various specifications and most importantly, through

[173] See Adams et al. (2009) and Fahlenbrach (2009) for treatment effects analysis in a founder-CEO setting.

[174] See for instance Adams et al. (2009), Fahlenbrach and Stulz (2009), or Becker et al. (2011) for an instrumental approach in my field of research.

further empirical approaches. In my view, the trade-off between a strong empirical approach, explicitly targeting endogeneity, and the consideration of other potential econometric problems is best met in this way, especially as I explicitly factor in a potential endogeneity bias that prior work partly neglected.

6.2.2.3 Exogenous Instruments

As described above, the dummy endogenous treatment approach relies on the identification of valid exogenous instruments. They have to be highly correlated with the variable that is supposed to be instrumented and strictly exogenous in the main equation of interest.

Based on rigorous analysis, I propose seven potential instruments as exogenous proxies for lone founder, family founder, and heir firms in chapters 7, Heterogeneity and Firm Policy of Founding-Family Firms, and 8, Economics of Founding-Family Firms. As these potential instruments are not yet tested for validity, the presentation of the following instrument candidates should be considered as a pre-selection. The validity check of the instruments follows in the respective empirical chapters.

NUMBER OF FOUNDERS

A count variable that represents the number of founders of the respective company. To identify the founders, I trace the history of the company back to the founding event of the firm. I assume that the number of founders should not be suspected of any direct effect on the dependent variables in the main regressions, be it firm policy or firm performance. In a similar analysis, Adams et al. (2009) apply such an instrument in their analysis of founder-CEO effects.

SINGLE FOUNDER

A dummy variable that indicates whether a single person or a team of founders founded the firm. As with the argument above, years after firm

inception, whether one founder or several founders started the company, should not have a direct effect on the main regression.

INITIAL POOLING

This dummy variable represents the pooling of the shareholdings at IPO. This is not a pyramidal characteristic as might appear, and I control for pyramidal characteristics separately. On a first level of ownership, a pooling of ownership by a family, a group of individuals, or institutions appears at the IPO. This is not a characteristic that could only appear in founding-families, but I do suggest that it applies in family situations more often. INITIAL POOLING is probably more common in family settings than in unrelated founder team settings which would probably not pool their shares. Thus, it might be a good proxy for the differentiation between kinship-influenced and non-influenced firms.

AGE AT IPO

This count variable indicates the time from firm inception until IPO. I hypothesize that an early access to the stock market, or an early listing should be more inline with firms that are willing to follow a distinct growth strategy and accept a reduction or even exit from their shareholdings at an earlier stage in firm history. The downside of this variable is a potential correlation with firm age, which might turn out to hamper proper analysis. I will analyze this issue in the empirical sections.

FIRM FOUNDER NAME

This dummy variable analyzes whether the firm name at IPO is related to the family name, or an acronym of the family name of one or more founders. The assumption is that this firm founder name dummy is predominantly an indicator for family firms, whereas founder, especially lone founder firms, could choose a firm name related to a technology or a product. Compare for instance SAP, identified as a lone founder firm. The accronym of the firm name relates not to the founders, but to technology and product. The firm name at the time of the IPO should not correlate with contemporaneous

policy or performance-related controls. See Fahlenbrach (2009) for a similar argument and application of this instrument.

EARLY INCEPTION

With early inception of a firm, the dummy refers to firms incorporated prior to 1960. It is close to the dead founder instrument that Adams et al. (2009) apply or the short-cut approach taken by Fahlenbrach (2009). While Fahlenbrach (2009) assumed that the incorporation date, which he applied to proxy for dead founders, is negatively related to founder firms, I also assume that this instrument is positively associated with older family firms, i.e. heir firms. Thus, I expect my dummy, indicating an incorporation prior to 1960, is positively associated with heir firms. The downside of this instrument could be an implicit time effect. Given that I control for firm age, this should be less of a concern, yet supports the identification of second plus generation family firms.

REGISTERED SHARE

Another potential instrument could be a share characteristic that is chosen at IPO. There are differences in ordinary shares with respect to share registration. The REGISTERED SHARE dummy indicator would assign 1, in the event that the (outside) shareholder has to be registered. It is a mechanism for identifying the shareholder base. Thus, one could assume that family firms which generally seek control and conservation of their influence, are interested in their shareholder base. Thus, I assume this instrument could be more pronounced in family founder and heir firms. A potential drawback could be, that such shares were increasingly in vogue over the time-frame of this study and this also applies to firms controlled by the government (e.g. infrastructure). Yet, this should be less of a problem, as I try to identify the respective share type since listing.

I evaluate these potential instruments in the empirical analysis. Obviously, these instruments have to fulfill rigorous requirements, and so far it is not clear whether they can fulfill them. I will test this in the empirical section.

6.3 Summary

Chapter 6 documents the potential problems that scholars have to consider when dealing with ownership structures, governance characteristics, firm performance, or firm policy. In essence, the predominant hurdles are caused by endogeneity or reverse causality. This chapter accordingly offers an in-depth insight into the relevant empirical challenges and offers some strategies for potential relief. For the reader's convenience, the figure below indicates the empirical strategy that the following chapters apply.

Figure 6.1: Empirical Strategy

Heterogeneity & Policy	Economics	Ownership Dynamics
Main objective • Test of working hypothesis of 'heterogeneous founding-family defined firms' • Analysis of potential differences in governance and firm policy by lone founder, family founder, and heir firms	**Main objective** • Analysis of valuation and stock performance characteristics of lone founder, family founder, and heir firms • Consideration of owner identity and various agency cost settings	**Main objective** • Analysis of longevity of founding-family influence • Consideration of ownership changes with respect to owner identity, governance, stewardship, and financial performance indicators
Conceptual approach • Development of a new heterogeneity (governance) index • Identification of exogenous instruments to analyze investment policy, risk tolerance, and capital structure decisions	**Conceptual approach** • Differentiation of agency cost settings • Explicit tackling of endogeneity via exogenous instruments • Assessment of valuation effects (Tobins' Q), separating treatment and selection effects	**Conceptual approach** • Development of theory framework • Identification of large negative, large positive ownership changes, and complete ownership exits • Exploration of potential reasons for substantial shifts in voting rights
Applied empirical methods • Index scoring • OLS, two-way fixed effects • Random effects • Dummy endogenous treatment effects (including control for self-selection)	**Applied empirical methods** • Dummy endogenous treatment effects • Dynamic panel regressions • Firm fixed effects • Random effects • Four-factor asset pricing model	**Applied empirical methods** • Pooled probit • Pooled logit • Firm fixed effects
Robustness tests* • Variation in empirical methods • Variation in firm policy variables • Lagged variables and controls • Differentiation of high/low industry competition (HIC/LIC)	**Robustness tests*** • Variation in empirical methods • Variation in performance variables (e.g. industry adjusted) • Interaction terms • Lagged variables and controls • Variation in sample composition • Variation in governance characteristics • Operating performance	**Robustness tests*** • Variation in empirical methods • Variation in ownership dynamics variables • Lagged variables and controls • Sensitivity analyses

* The application of industry and year dummies besides general firm controls is not explicitly mentioned but included in every regression.

Note: This figure presents the empirical strategy for the following chapters. It describes the main objectives, the particular approach, the applied methods and robustness features.
Source: Own work.

7 Heterogeneity and Firm Policy of Founding-Family Firms

This chapter addresses the initial working hypothesis of this thesis, stating that *founding-family defined firms differ in terms of their owner identity characteristics*.[175] The theoretical and empirical evidence of prior work strongly supports the existence of such heterogeneous characteristics, initially resulting in my differentiation of lone founder, family founder, and heir firms. Moreover, heterogeneity might appear in a multitude of further aspects. This chapter thoroughly analyzes two fields of this heterogeneity:

(i) the heterogeneity of governance, and

(ii) the heterogeneity of firm policy decisions.

In the context of this study, the term *heterogeneity* summarizes the hypothesized differences in the characteristics of founding-family defined firms. As argued in chapter *5*, there might be various governance indicators, such as the level of ownership and board influence, or the application of control enhancing mechanisms that individually and collectively account for potential *heterogeneous* or *different* characteristics amongst founding-family defined firms. Motivated by this interplay of governance mechanisms, I develop a new *heterogeneity index* as a supportive tool to thoroughly analyze whether statistically significant differences exist between the hypothesized groups of lone founder, family founder, and heir firms. The index is a new conceptual approach. It is inspired by the scientific work of e.g. Gompers et al. (2003) with respect to governance as index topic or Anderson et al. (2011)

[175] See chapter 5, Development of Hypotheses.

with respect to index construction. The *heterogeneity index* measures the total strength of mechanisms that secure control of the founder or founding-family. Arguably, the level of control protection—achieved through the various governance devices applied—could reflect the rationale and attitude of a founder or founding-family. With the index as a vehicle, I elaborate upon whether there are convincing and conclusive arguments that would argue for a separate consideration of those individual blockholder groups in a further empirical analysis. In fact, this refers back to the initial working hypothesis. In order for this hypothesis to be accepted, these groups should systematically differ from each other.[176]

The second part of this chapter revolves around firm policy decisions. The key question is whether owner identity types differ in firm decisions and ergo in firm policy characteristics. This encompasses the question, of whether owner identity types moderate certain governance characteristics and hence firm policy. For instance, the argument of Le Breton-Miller and Miller (2008) and Miller et al. (2011) suggests distinctive (strategic) rationales of lone founder, family founder, and heir firms. Therefore, it is possible that those aspects could shape the way a firm is governed and policy decisions are made.[177]

It is the goal of this chapter to shed light on these open questions. They are key to a revised understanding of founding-family firms' characteristics and the role of owner identity in this context. I continue with a presentation of the empirical setting and empirical evidence including a brief overview of general German capital market characteristics.

[176] Following this notion of a systematic difference, a second way to interpret the term *heterogeneity* relates to an empirical perspective. Please refer to chapter 6, Relevant Concerns and Empirical Approach, for discussion of an omitted variable bias, a bias that might arise due to *unobserved heterogeneity*.

[177] Hence, it should be at least questioned whether this could lead to a bias caused by *unobserved heterogeneity* in a conventional estimation approach.

7.1 Sample, Data Set, Research Design

7.1.1 Sample Construction

The sample for this analysis is the result of a thorough combination of several data sources. The first pillar is the stock index composition *CDAX (the Composite German Stock Index)* for the years 1995 to 2008. The index composition for each sample year is based on the previous year's index composition at year end to avoid a major survivor bias in the empirical analysis. The CDAX itself is the German all-share index of the *Frankfurt Stock Exchange (FSE)*. Investors consider the *CDAX* to be the German market index as it includes all *FSE* listed firms—irrespective of industry affiliation or size characteristics like market capitalization or revenue. The entry requirements are a German ISIN and compliance with either the *General Standard,* based on minimum EU-regulation requirements or the *Prime Standard*, based on even higher international transparency standards. *General Standard* and *Prime Standard* are the two highest transparency standards at FSE.[178]

I control the resulting 1,008 CDAX share classes for double counting of dual listed firms and exclude 75 share classes for this reason. The result is 933 unique CDAX firms over the period 1995–2008. In order to control for industry affiliation, I require a SIC classification, respectively a Fama French industry classification[179] that rests upon a proper SIC classification for each unique CDAX firm. Due to inadequate classification, I have to exclude further 13 share classes. Due to structural differences, e.g. in accounting, I follow the common practice of excluding financial companies from the sample. Based on the respective SIC code—6000 to 6999—I reduce the sample by further 174 share classes. Similarly, I leave out 24 utility and further regulated companies (4900 to 4949 and 9111 to 9999) as their regulation characteristics hamper comparison with non-regulated firms. This leaves 722 share classes. Several additional checks further reduce the sample by a total of

[178] For an overview, please refer to Deutsche Börse Group (2013).

[179] The industry classification scheme follows Fama and French (1997). French (2013) publishes the classification schemes at his homepage.

Table 7.1: Sample Composition

APPROACH	# FIRMS	# FIRM YEARS
CDAX SHARE CLASSES (1995–2008)	**1,008**	**8,644**
Exclusion of double counting for dual listed companies	-75	-581
UNIQUE CDAX FIRMS (1995–2008)	**933**	**8,063**
Exclusion of non-industry classified Firms	-13	-46
Exclusion of Financial Institutions	-174	-1,502
Exclusion of Utilities and other regulated Firms	-24	-195
GROSS SAMPLE CDAX FIRMS (1995–2008)	**722**	**6,320**
Short Fiscal Year Adjustment	-5	-712
Founder Identification Adjustment	-24	-155
Exclusion due to lacking accounting variables	-9	-244
Exclusion due to lacking governance variables	-8	-140
NET SAMPLE CDAX FIRMS (1995–2008)	**676**	**5,069**

Note: This table presents the sample composition.
Source: Own work.

46 share classes. The first adjustment is an exclusion of 5 share classes due to *short fiscal years* ('Rumpfjahre'), the second is an exclusion of 24 firms for which founder information is lacking. A third adjustment of a further 9 share classes is caused by lacking key accounting variables (*Total Assets*, *Total Shareholders Equity*, and *Total Sales*). In addition, I have to exclude a further 8 firm years due to absent ownership (governance) variables. Thus, the final sample comprises 676 share classes and 5,069 firm years (see table 7.1).

The second and the third pillars of the data are governance and firm founder information. The following section explains the identification approach in detail.

7.1.1.1 Governance Data

I hand-collect ownership data (voting rights) and board structure information from the primary data source *Hoppenstedt Aktienführer*. Twice a

year, *Hoppenstedt* provides a data-CD with ownership and board structure information. I choose the first issue for each year. This issue provides information on the second half of the previous year's ownership and board characteristics as of 31 December. The *Hoppenstedt* ownership data for a firm includes the particular shareholder—a person or an organization—as well as the percentage of its shareholdings (voting rights). In terms of reported pyramidal ownership chains, I collect the ultimate owner. In a second step, I classify the shareholders according to my shareholder classification scheme. Table 7.2 describes this classification. It separates five shareholder categories and a total of 28 distinct shareholder types. Category A—the founding-family defined ownership category—is the focus of this work. The table shows all shareholder types with their respective definition and also includes the mean value and standard deviation for the sample. This overview demonstrates the relevance of founding-family defined shareholdings, which amount to a mean sample value of 19.8%. This substantial shareholding category is the primary source of the substantial insider ownership, which shows a sample mean of 23.9%.

The detailed information that *Hoppenstedt* provides enables the board identification approach. In order to follow a founding-family approach, I have to evaluate whether either board members or/and shareholders belong to the founding-family. I therefore collect the full name of management board members and supervisory board members. The final sample as described above contains 16,579 hand-collected management board member entries and 38,332 supervisory board member entries over the respective firm years.[180] All board members in management and supervisory boards and also shareholders are checked for the founding-family affiliation. Unfortunately, all work has to be done manually. *Firstly*, electronic databases that have ready-to-use, cleaned-up governance information do not exist in the German context. *Secondly*, my approach requires a thorough analysis of persons and organizations. Spelling errors, changes in abbreviations, etc. make

[180] These illustrative figures include double-counting if a given board member from a previous period is still on the same board, or for instance, if that person left the management board and joined the supervisory board.

automatic classification impossible or could introduce a major measurement error. The same applies for the identification of the founding-family.

7.1.1.2 Founder Data

The founding-family approach and the research questions require the identification of a company's founder(s). The primary tool for this purpose is *Hoover's Company Profiles* from *Hoover's Online* database. In addition to checking overall ambiguous or neglected information I review *Commerzbank "Wer gehört zu wem?"* and *Bureau van Dijk's Amadeus* database. In a third step, I cross-check with official publications of the respective companies or of predecessor companies. This includes IPO prospectuses and company reports as well as public information sources which I investigate via *Factiva*, *LexisNexis,* and further literature research. Based on the assembled governance raw data, the shareholder classification scheme and the founder identification process, I can classify the shareholders of my raw data sample.

Over the sample period, the regulatory obligation to give public notice of control over a certain shareholding threshold changed from 5% to 3%. Hence, in order to reflect information without reporting bias, I assume the application of a consistent cut-off threshold of 5% for blockholding.[181] For instance, larger companies might report more detailed information, data providers might have easier access to data of larger firms, or even worse for my purposes, founding-family firms might just report the minimum required in terms of shareholding.[182]

Based on the identified shareholding categories, I can select firms that are founding-family influenced. I review those firms again and look at all the information sources described above to determine whether this firm is still

[181] This approach is more conservative as lower shareholding levels are ignored. Yet, it ensures that the shareholding requirements are consistent over the investigation period and over several firms' and shareholders' transparency practices.

[182] See Anderson et al. (2009) for a discussion of serious differences in information practices and its effects in the context of founding-family firms.

influenced by its founder(s) or already under the influence of an heir generation. In addition, I thoroughly review whether a founder influenced firm is also characterized by kinship relations amongst the founding-family shareholders or board members. This approach enables me to differentiate and assign a dummy variable for lone founder, family founder, and heir firms.

Table 7.2: Shareholder Classification Types

Shareholder Category / Type	N	MEAN	SD	Shareholding by ...
A. Founding Family				
FF	5,069	0.198	0.278	… (a) founding-family member(s)
FFMB	5,069	0.120	0.233	… (a) founding-family management board member(s)
FFSB	5,069	0.051	0.170	… (a) founding-family supervisory board member(s)
B. Insider Ownership				
IOC	5,069	0.239	0.287	… (an) insider(s). Insider ownership cumulated, including founding-family
IOCMB	5,069	0.151	0.248	… (a) management board member(s). MB insider ownership cumulated, including founding-family MB
IOCSB	5,069	0.088	0.204	… (a) supervisory board member(s). SB insider ownership cumulated, including founding-family SB
IOMB	5,069	0.031	0.112	… (a) management board member(s). MB insider ownership, excluding founding-family MB
IOSB	5,069	0.036	0.125	… (a) supervisory board member(s). SB insider ownership, excluding founding-family SB
C. Corporations				
CORP	5,069	0.034	0.102	… a strategic investor, holding below majority (<50%)
CORPF	5,069	0.011	0.056	… a foreign strategic investor, holding below majority (<50%)
BGR	5,069	0.091	0.256	… a business group, holding at least the majority (>50%)
BGRF	5,069	0.053	0.206	… a foreign business group, holding at least the majority (>50%)
BANK	5,069	0.020	0.078	… a bank
BANKF	5,069	0.001	0.014	… a foreign bank
D. Institutional Investors				
INSR	5,069	0.007	0.037	… an insurance company
INSRF	5,069	0.000	0.004	… a foreign insurance company
INST	5,069	0.021	0.087	… an institutional investor
INSTF	5,069	0.014	0.052	… a foreign institutional investor
VCPE	5,069	0.029	0.107	… a venture capital or private equity investor
VCPEF	5,069	0.011	0.075	… a foreign venture capital or private equity investor
ENDO	5,069	0.001	0.017	… an endowment fund
ENDOF	5,069	0.000	0.009	… a foreign endowment fund
E. Other Shareholders				
GOV	5,069	0.006	0.057	… a government or government institution
GOVF	5,069	0.001	0.012	… a foreign government or government institution
PRIV	5,069	0.019	0.090	… a non-founding family and non-insider private individual
EMP	5,069	0.002	0.015	… employees
TRE	5,069	0.003	0.022	… the corporate itself (treasury stock)
OTHER	5,069	0.002	0.019	… an other non-classifiable shareholder

Note: This table presents the shareholder classification types, divided in five categories. The categories C, D, and E include shareholder types separated in domestic and foreign. The capital letter 'F' appended to the end of the shareholder type name, e.g. BANKF, indicates foreign. The second column contains sample firm-years, the third the mean voting rights and the fourth the corresponding standard deviation. All voting right calculations require a 5% blockholding share. The last column defines the shareholder types.

Source: Own work.

7.1.2 Variables

All variables that relate to capital market data come from *Thomson Financial Datastream*. Accounting data, industry classification, and listing year come from *Thomson One Banker/Worldscope*.

In terms of the empirical analysis, I differentiate three parts: the *first* part highlights the German capital market development. I present several governance measures—especially ownership-related—for the whole sample, partly differentiated for distinct panel years. The *second* part sets the spotlight on *Lone Founder*, *Family Founder*, and *Heir Firms*. I collapse the sample to those firm types to review the heterogeneity characteristics of their governance. The *third* part addresses firm policy characteristics. I compare policy characteristics amongst all firms with a distinct emphasis on individual blockholder firm types.

The explanation of applied variables follows the structure of the three distinct empirical parts of this chapter.

7.1.2.1 Governance Variables

The first part of the empirical section accentuates the specifics of the German capital market setting, i.e. general governance characteristics. I present the number of blockholders (# BLOCKS) per firm year as well as more detailed measures of ownership characteristics. For instance, C1C2, C1C3, and the HERFINDAHL measure illuminate the stock concentration over the sample period—in individual blockholder settings as well as in non-individual blockholder settings. All measures show the general level of blockholder influence. C1C2 and C1C3 represent the accumulated shareholdings of the two largest, and three largest blockholders respectively. The HERFINDAHL is a concentration measure, calculated as the sum of the squared blockholdings per firm and firm year.

I further present the accumulated founding-family defined voting rights (FF VR) as well as the total accumulated insider ownership (IOC VR)[183] in sample firms. Both measures indicate the presence and relevance of individuals and (founding) families in listed German firms. In addition to insider blockholders, I apply OUTSIDER BLOCK VR, the accumulated voting rights of outside blockholders.

7.1.2.2 Heterogeneity Index Variables

Due to the complex character of owner influence, I develop a *(Governance) Heterogeneity Index* for individual blockholder firms. The goal is to identify the level of founding-family influence in several dimensions and up to protective extremes. The *Heterogeneity Index* consists of six distinct variables. I calculate each measure's quintiles and assign points from 1 to 5 to the respective quintile. The higher the number, the more protective behavior is assumed for the respective measure.

The index is inspired by three related publications: The first is by Gompers et al. (2003) who create a governance index. The second is by Anderson et al. (2011) who review the heterogeneous characteristics of external directors of US boards. For instance, they differentiate cultural or educational characteristics and calculate an index out of the appearance of those characteristics. I apply a similar construction approach, also I do not evaluate agency costs and valuation effects in the first step—the most important aspect Anderson et al. (2011) review in their work. The third related publication stems from Miller et al. (2011) who review growth versus harvesting strategies in founding-family firm settings. The authors were amongst the first to differentiate lone founder firms from those firms that have family influence in its genuine meaning, namely having a *founding-family* involved.

My index analysis focuses on lone founder, family founder, and heir firms. Therefore, I collapse the sample and exclude non-founding family defined

[183] IOC VR is a broad measure of insider ownership that includes founding-family insider ownership as well as non-founding family insider ownership.

firms. The composite index includes information in the following categories:[184]

1. the total board representation of founders and/or family as a percentage measure of all seats (FF BOARD REPRESENTATION),
2. a dummy indicator for presence of the founders and/or founding-family on both boards, i.e. the management as well as the supervisory board (BOTHBOARDS),
3. the level of voting rights under control of the founder(s) or the founding-family (FF VR),
4. the level of a potential cash-flow wedge due to dual-class share structures (WEDGE),
5. the level of voting rights under control of outside blockholders (OUTSIDER BLOCK VR), and
6. the voting rights of venture capital and private equity investors (VCPE VR).

This choice of categories provides a broad and specific coverage of governance mechanisms and should reflect the founders' or founding-families' level of control.

Along with the index, I calculate the SFI measure, the power dimension of the F-PEC scale introduced earlier (cf. Astrachan et al., 2002; Klein et al., 2005), for robustness purposes. The SFI incorporates the sources of the *Substantial Family Influence* in the power, specifically governance, dimension, i.e. voting rights, management, and supervisory board representation, in a single measure.[185]

[184] For more details on the conceptual approach of the index and its constituent variables, please refer to section 7.1.3.1, Heterogeneity Index Analysis.

[185] Compare Klein (2000), Klein et al. (2005), Jaskiewicz (2006), and Achleitner et al. (2009b) for the SFI introduction and application. See also section 2.2.1 and section 4.2.1. The SFI measure summarizes voting rights, management, and supervisory board membership.

7.1.2.3 Firm Policy Variables

Beyond governance related dependent variables, I review firm policy in the robustness section of this chapter. The main purpose of this analysis is the examination of potential heterogeneous characteristics beyond corporate governance aspects. If owner identity types really differ in governance characteristics the logical question would be *what determines those differences?* Further, if one would argue that owner identity differentiates firm types resulting in heterogeneous underlying strategic intent or behavioral rationale, the follow-up question would be *whether this also influences firm policy*?

Thus the hypothesis of this reverse approach predicts that if individual blockholder firms differ in their strategic intent, owner identity could reflect this intent in firm policy evaluations—of course, only if appropriately controlled for various governance and firm specifics. According to the evidence of Le Breton-Miller and Miller (2008) and Miller et al. (2011), firms following a growth investment strategy should differ from those that are more inclined towards a protective or a skim-off (harvesting) strategy. Thus, I evaluate firm policy by the following dimensions: I review (i) the general investment behavior, i.e. CAPEX, (ii) the tendency to invest in risky projects, i.e. R&D, (iii) the cash-holdings and cash equivalents (CASH), as well as (iv) the debt holdings (DEBT/MVEQUITY or LEVERAGE). The underlying firm policy decisions are highly strategic and thus potentially reflect a general logic. Section 7.2.3 contains the details on variables and approach.

7.1.2.4 Control Variables

I control for several firm characteristics in the course of this analysis to ensure the best possible consideration of firm characteristics such as age, size, or industry affiliation. Evidently, such characteristics could largely influence the outcome of the analysis.

For instance, 35% voting rights, two out of four management board members, and no supervisory board member amounts to a SFI of 0.85 (0.35+0.50+0.00=0.85).

Specifically, I control for the firm age (years since firm inception) via AGE, respectively Ln AGE. I take the log of age as it is common practice. Similarly, I take the log of the firm's size via its total assets, Ln TOTAL ASSETS (M), where the (M) indicates total assets in millions. Further, I control for BETA, as (systematic) risk measure. I calculate BETA for each firm year, based on the firm-specific correlation, calculated as the covariance of the weekly total return and CDAX index total return over the period of the previous 52 weeks divided by the variance of the CDAX index. In terms of the debt-to-equity ratio, I calculate the DEBT/MVEQUITY ratio, the book value of debt scaled by the market value of equity.

Next to general firm characteristics, I integrate additional control variables with respect to capital market specifics. Certainly, some companies are subject to more transparency than other firms, thanks to easier and faster access to information. The transparency or the opaqueness of a firm is certainly crucial to understanding their strategy and rationale, their operating decisions and firm policy, as well as their performance (e.g. Anderson et al., 2009). Although a proxy of information availability should be highly correlated with size—larger firms should generally attract more investors and public interest—I include the ANALYST FOLLOWING as additional variable. ANALYST FOLLOWING is the I/B/E/S based number of analysts that cover the respective firm, i.e. that made earnings forecasts nine months before fiscal year end.[186] I also control for a specific stock market segment membership, the NEUER MARKT MEMBER. The *Neuer Markt* was a specific platform attracting high growth technology, internet, and business services firms over the years 1997 to 2002.[187] I hand-collect the *Neuer Markt* index composition from the BÖRSENZEITUNG at year end and assign a dummy variable set to the value of 1 in the event that the respective firm is

[186] I follow Anderson et al. (2009) in this approach.

[187] The official last day of trading was on June 5th, 2003, granting a transition period from 2002 to 2003 after the new segmentation of the FSE. Sell (2006) provides more details on the *Neuer Markt* as well as on the interesting subject of information transmission for such a specialized market segment.

a *Neuer Markt* member in that year.[188] Given the importance and number of founder firms that fitted in the pattern of the *Neuer Markt*, this control dummy is essential, especially in terms of robustness and inference.

Similarly important is the control of industry dummies, which are included in all regressions (with the exception of the per definition exclusion in firm fixed effects regressions) based on the Fama and French (1997) industry classification. Table 7.3, Fama & French Industry Classification, presents an overview of the industry classification scheme.

Table 7.4, Summary Statistics, and table A.6, Rank-sum Test—Owner Identity, represent the overall summary statistics and a respective median rank-sum test of group differences. An introduction to descriptive sample characteristics is given in chapter 7.2.1.

[188] Unfortunately, there is no comprehensive survivor-bias free list of the *Neuer Markt* index members electronically available.

Table 7.3: Fama & French Industry Classification

FAMA & FRENCH INDUSTRY CLASSIFICATION SCHEME (49)	FIRM YEARS	SAMPLE WEIGHT	LF	LF WEIGHT	FamF	FamF WEIGHT	HF	HF WEIGHT	TOTAL (LF, FamF, HF)	TOTAL in % FIRM YEARS
1 AGRICULTURE	9	0.18%	6	0.53%	0	0.00%	3	0.39%	9	100%
2 FOOD PRODUCTS	55	1.09%	4	0.36%	0	0.00%	0	0.00%	4	7%
3 CANDY & SODA	23	0.45%	0	0.00%	0	0.00%	0	0.00%	0	0%
4 BEER & LIQUOR	91	1.80%	0	0.00%	0	0.00%	23	2.99%	23	25%
6 RECREATION	11	0.22%	1	0.09%	0	0.00%	0	0.00%	1	9%
7 ENTERTAINMENT	206	4.06%	90	8.01%	34	5.06%	8	1.04%	132	64%
8 PRINTING AND PUBLISHING	54	1.07%	18	1.60%	5	0.74%	14	1.82%	37	69%
9 CONSUMER GOODS	139	2.74%	4	0.36%	23	3.42%	51	6.63%	78	56%
10 APPAREL	104	2.05%	12	1.07%	15	2.23%	31	4.03%	58	56%
11 HEALTHCARE	65	1.28%	15	1.34%	31	4.61%	0	0.00%	46	71%
12 MEDICAL EQUIPMENT	100	1.97%	37	3.29%	17	2.53%	20	2.60%	74	74%
13 PHARMACEUTICAL PRODUCTS	134	2.64%	26	2.32%	23	3.42%	17	2.21%	66	49%
14 CHEMICALS	126	2.49%	6	0.53%	11	1.64%	24	3.12%	41	33%
15 RUBBER AND PLASTIC PRODUCTS	89	1.76%	3	0.27%	13	1.93%	10	1.30%	26	29%
16 TEXTILES	44	0.87%	0	0.00%	0	0.00%	14	1.82%	14	32%
17 CONSTRUCTION MATERIALS	176	3.47%	3	0.27%	13	1.93%	75	9.75%	91	52%
18 CONSTRUCTION	88	1.74%	0	0.00%	5	0.74%	22	2.86%	27	31%
19 STEEL WORKS	70	1.38%	0	0.00%	0	0.00%	11	1.43%	11	16%
20 FABRICATED PRODUCTS	31	0.61%	10	0.89%	0	0.00%	0	0.00%	10	32%
21 MACHINERY	542	10.69%	67	5.97%	34	5.06%	123	15.99%	224	41%
22 ELECTRICAL EQUIPMENT	102	2.01%	19	1.69%	8	1.19%	0	0.00%	27	26%
23 AUTOMOBILES AND TRUCKS	234	4.62%	15	1.34%	5	0.74%	60	7.80%	80	34%
24 AIRCRAFT	5	0.10%	1	0.09%	0	0.00%	0	0.00%	1	20%

FAMA & FRENCH INDUSTRY CLASSIFICATION SCHEME (49) *(continued)*	FIRM YEARS	SAMPLE WEIGHT	LF	LF WEIGHT	FamF	FamF WEIGHT	HF	HF WEIGHT	TOTAL (LF, FamF, HF)	TOTAL in % FIRM YEARS
25 SHIPBUILDING, RAILROAD EQUIPMENT	15	0.30%	0	0.00%	2	0.30%	0	0.00%	2	13%
26 DEFENSE	11	0.22%	0	0.00%	11	1.64%	0	0.00%	11	100%
28 NON-METALLIC AND INDUSTRIAL METAL MINING	21	0.41%	0	0.00%	0	0.00%	0	0.00%	0	0%
30 PETROLEUM AND NATURAL GAS	3	0.06%	0	0.00%	0	0.00%	0	0.00%	0	0%
32 COMMUNICATION	144	2.84%	70	6.23%	16	2.38%	9	1.17%	95	66%
33 PERSONAL SERVICES	53	1.05%	2	0.18%	4	0.60%	16	2.08%	22	42%
34 BUSINESS SERVICES	530	10.46%	242	21.55%	108	16.07%	36	4.68%	386	73%
35 COMPUTER HARDWARE	56	1.10%	26	2.32%	9	1.34%	0	0.00%	35	63%
36 COMPUTER SOFTWARE	552	10.89%	249	22.17%	151	22.47%	1	0.13%	401	73%
37 ELECTRONIC EQUIPMENT	239	4.71%	114	10.15%	46	6.85%	17	2.21%	177	74%
38 MEASURING AND CONTROL EQUIPMENT	52	1.03%	12	1.07%	4	0.60%	19	2.47%	35	67%
39 BUSINESS SUPPLIES	87	1.72%	0	0.00%	17	2.53%	0	0.00%	17	20%
40 SHIPPING CONTAINERS	29	0.57%	0	0.00%	0	0.00%	0	0.00%	0	0%
41 TRANSPORTATION	94	1.85%	8	0.71%	0	0.00%	0	0.00%	8	9%
42 WHOLESALE	471	9.29%	54	4.81%	55	8.18%	96	12.48%	205	44%
43 RETAIL	210	4.14%	5	0.45%	12	1.79%	69	8.97%	86	41%
44 RESTAURANTS, HOTELS, MOTELS	2	0.04%	2	0.18%	0	0.00%	0	0.00%	2	100%
49 OTHER	2	0.04%	2	0.18%	0	0.00%	0	0.00%	2	100%
ALL	5,069	100%	1,123	100%	672	100%	769	100%	2,564	51%

Note: This table reports an industry classification scheme according to Fama and French (1997) that differentiates 49 distinct industries according to SIC codes. By sample definition the following industries are excluded from this analysis: UTILITIES (31), BANKING (45), INSURANCE (46), REAL ESTATE (47), and TRADING (48). In the event that there are no firm years in the sample universe that represent a distinct industry, this respective industry is excluded from the overview table, e.g. TOBACCO PRODUCTS (5).

Source: Own work, based on the definitions of the industry classification scheme provided by French (2013).

Table 7.4: Summary Statistics

Panel A: Firm Characteristics								
TOTAL ASSETS (M)	4,754.133	271.138	216.366	54.912	163.424	61.743	3,511.517	355.742
TOTAL SALES (M)	3,899.843	368.093	216.268	46.266	162.707	60.355	4,008.450	495.908
GROWTH	0.106	0.041	0.370	0.119	0.247	0.104	0.075	0.056
EMPLOYEES	16,945.200	2,242.000	1,305.856	266.000	1,270.498	341.000	19,217.320	2,858.000
EMPLOYEE_GROWTH	0.104	0.009	0.327	0.072	0.280	0.063	0.366	0.021
AGE	82.087	80.000	16.271	15.000	22.198	19.000	101.702	94.000
Ln AGE	3.991	4.382	2.632	2.708	2.855	2.944	4.472	4.543
CAPEX_TA	0.058	0.045	0.056	0.029	0.053	0.037	0.074	0.052
RND_TA	0.049	0.031	0.096	0.070	0.086	0.065	0.043	0.033
CASHSTE_TA	0.112	0.064	0.264	0.203	0.250	0.165	0.094	0.059
DEBT/MVEQUITY	0.844	0.300	0.528	0.078	0.534	0.108	0.929	0.432
LEVERAGE	0.640	0.659	0.444	0.435	0.465	0.426	0.633	0.640
PAYOUT	0.039	0.021	0.019	0.000	0.025	0.000	0.045	0.035
DIVERSIFICATION	3.493	3.000	2.710	3.000	2.851	3.000	3.257	3.000
INT ACCOUNTING	0.523	1.000	0.860	1.000	0.784	1.000	0.433	0.000
BETA	0.502	0.405	0.784	0.696	0.716	0.620	0.481	0.370
AVG_BID_ASK	0.062	0.018	0.042	0.021	0.044	0.022	0.049	0.023
TQ	1.437	1.213	1.981	1.311	1.865	1.301	1.332	1.186
Ln TQ	0.272	0.193	0.417	0.271	0.384	0.263	0.226	0.170
IND TQ	0.158	-0.004	0.683	0.076	0.547	0.042	0.075	-0.010
ROA	0.038	0.059	-0.066	0.029	-0.033	0.043	0.064	0.069
ROE	0.148	0.196	-0.126	0.063	-0.034	0.086	0.261	0.233
ROS	0.013	0.045	-0.261	0.026	-0.160	0.042	0.056	0.052
MARGIN	0.076	0.092	-0.128	0.065	-0.065	0.091	0.098	0.099
NI_TA	0.008	0.027	-0.079	0.006	-0.050	0.018	0.025	0.029
CF_TA	0.067	0.075	-0.053	0.021	-0.017	0.036	0.082	0.078
INITIAL POOLING	0.084	0.000	0.133	0.000	0.414	0.000	0.108	0.000
NUMBER FOUNDERS	1.285	1.000	1.882	1.000	1.932	2.000	1.540	1.000
SINGLE FOUNDER	0.406	0.000	0.550	1.000	0.488	0.000	0.632	1.000
EARLY INCEPTION	0.679	1.000	0.000	0.000	0.058	0.000	0.905	1.000
AGE AT IPO	57.962	53.000	11.957	11.000	17.439	14.000	85.244	74.000
FIRM FOUNDER NAME	0.288	0.000	0.180	0.000	0.241	0.000	0.762	1.000
REGISTERED SHARE	0.058	0.000	0.039	0.000	0.054	0.000	0.085	0.000

(*continued*)	NON		LONE FOUNDER FIRM		FAM FOUNDER FIRM		HEIR FIRM	
	MEAN	MEDIAN	MEAN	MEDIAN	MEAN	MEDIAN	MEAN	MEDIAN
Panel B: Gov. & Owner Identity								
FF VR	0.006	0.000	0.299	0.278	0.394	0.405	0.501	0.540
FF BOARD REPRES.	0.000	0.000	0.192	0.167	0.216	0.200	0.128	0.111
SFI MB	0.000	0.000	0.363	0.333	0.349	0.333	0.162	0.000
SFI SB	0.000	0.000	0.079	0.000	0.129	0.000	0.106	0.083
BOTHBOARDS	0.000	0.000	0.119	0.000	0.249	0.000	0.178	0.000
LONE FF BOARD	0.000	0.000	0.192	0.167	0.000	0.000	0.000	0.000
FAMILY FF BOARD	0.000	0.000	0.000	0.000	0.216	0.200	0.000	0.000
HEIR FF BOARD	0.000	0.000	0.000	0.000	0.000	0.000	0.128	0.111
FCEO	0.000	0.000	0.673	1.000	0.650	1.000	0.000	0.000
HCEO	0.000	0.000	0.003	0.000	0.027	0.000	0.384	0.000
FCHM	0.000	0.000	0.117	0.000	0.202	0.000	0.003	0.000
HCHM	0.000	0.000	0.000	0.000	0.002	0.000	0.191	0.000
CF_VOTING_COMB	0.229	0.000	0.089	0.000	0.141	0.000	0.283	0.000
PYRAMID	0.087	0.000	0.100	0.000	0.394	0.000	0.126	0.000
DUAL WEDGE	0.156	0.000	0.051	0.000	0.116	0.000	0.378	0.000
WEDGE	0.003	0.000	0.011	0.000	0.016	0.000	0.096	0.000
50% OWNER	0.477	0.000	0.203	0.000	0.257	0.000	0.472	0.000
NUMBER BLOCKHOLDERS	1.872	1.000	2.498	2.000	2.829	3.000	1.923	1.000
C1C2	0.567	0.578	0.459	0.456	0.476	0.490	0.621	0.618
C1C3	0.596	0.621	0.507	0.515	0.530	0.541	0.654	0.675
HERFINDAHL	0.357	0.260	0.192	0.139	0.199	0.159	0.384	0.314
OUTSIDER BLOCK VR	0.609	0.651	0.240	0.188	0.179	0.115	0.183	0.056
IND_HERF	0.256	0.187	0.196	0.156	0.179	0.156	0.254	0.201
ANALYST FOLLOWING	8.176	2.000	3.679	2.000	3.261	2.000	7.638	3.000
NEUER MARKT MEMBER	0.048	0.000	0.347	0.000	0.308	0.000	0.020	0.000
PRIME STANDARD	0.295	0.000	0.508	1.000	0.461	0.000	0.339	0.000
AMTLICHER HANDEL	0.420	0.000	0.053	0.000	0.112	0.000	0.464	0.000
LONE FOUNDER FIRM (D)	0.000	0.000	0.743	1.000	0.000	0.000	0.000	0.000
LONE FOUNDER FIRM	0.000	0.000	1.000	1.000	0.000	0.000	0.000	0.000
FAMILY FOUNDER FIRM (D)	0.000	0.000	0.000	0.000	0.879	1.000	0.000	0.000
FAMILY FOUNDER FIRM	0.000	0.000	0.000	0.000	1.000	1.000	0.000	0.000
HEIR FIRM (D)	0.000	0.000	0.000	0.000	0.000	0.000	0.841	1.000
HEIR FIRM	0.000	0.000	0.000	0.000	0.000	0.000	1.000	1.000

Note: This table reports the summary statistics for non founding-family defined firms (NON), for lone founder firms, family founder firms, and heir firms. The table consists of two panels: Panel A includes general firm characteristics while panel B shows governance and owner identity related characteristics. The Appendix includes the results of a rank-sum test (table A.6) between the four groups. The Appendix provides also the complete sample statistics as well as all variables and definitions.

Source: Own work.

I distinguish between at least seventeen different industries. A detailed overview of the sample based on 49 industries is provided in table 7.3, Fama & French Industry Classification. To control for time specific trends, I include year dummies in every regression. In terms of construction specifics, I winsorize variables calculated as ratios at the 1st and 99th percentile to increase the robustness with respect to outliers. I conduct the adjustment process for each panel year individually. Further, I apply lagged independent variables over the course of analysis and robustness sections to lower the influence of contemporaneous effects.

7.1.3 Empirical Approach

7.1.3.1 Heterogeneity Index Analysis

This part focuses on the assessment of founding-family firms' heterogeneity, as hypothesized in the basic working hypothesis in section 5.1.1. This requires empirical testing of the influence of owner identity types. Alongside, further corporate governance mechanisms are supposed to be diverse between lone founder, family founder, and heir firms. I therefore start with a new conceptual approach. I construct an *Heterogeneity Index* that allows for a multivariate analysis of the strength of founder and founding-family influence.[189] The index selects governance mechanisms that represent the influence of a founding family; thus the index continuum ranges from very low, to moderate, up to protective influence and control preservation. Thus, this *Heterogeneity Index* should support the identification of potential governance differences in individual blockholder types. I emphasize this dimension because a closer look at governance characteristics should support reflection on the prevailing arguments connected with it:

Firstly, the evaluation of various beneficial and detrimental governance settings is commonly based on differences in agency costs. Yet, there might be so many peculiarities in agency characteristics that a more detailed look

[189] As described in section 7.1.2.2, the index is inspired by previous work, such as Gompers et al. (2003), Anderson et al. (2011), and Miller et al. (2011).

would improve any argument. *Secondly*, a founding-family firm could also signal the will to protect its influence by the level of influence itself. Thus a deeper analysis could also find insights for the underlying rationale of the respective individual blockholder firms.

The Heterogeneity Index consists of six measures, as described above:

(1) FF BOARD REPRESENTATION, the total board representation of a founding-family defined firm. This measure includes management board and supervisory board influence (a value of 0 indicates no board influence, a value of 1 would indicate 100% founding-family board influence). This measure is inspired by the common evidence of founders or founding family members in management and/or supervision, e.g. Klein (2000), Villalonga and Amit (2006), Andres (2008b), and Achleitner et al. (2009b). Higher board representation indicates a higher demand for influence by the founding family.

(2) BOTHBOARDS, a dummy variable that indicates whether the founding family is represented on both boards—the management and supervisory board.[190] A presence on both boards should highlight cases where a founding-family has managerial influence and supervisory control in a listed family firm. A governance setting of this kind enables special control protection for the insiders—the family blockholders—yet results in a highly entrenched agency setting.[191] A dummy value of 1 indicates a higher demand for influence by the founding family.

(3) FF VR, the accumulated voting rights of a founding family. This measure is inspired by previous work on (family) ownership structures, agency conflicts, and incentives; e.g. Jensen and Meckling (1976), Demsetz and Lehn (1985), Anderson and Reeb (2003), or Villalonga and Amit (2006). Higher voting rights indicate a higher demand for control by the founding family.

[190] The sources of (1) FF BOARD REPRESENTATION and the summary statistics indicate that members of the founding family might be represented in both boards.
[191] Please refer to chapter 3.1 for a discussion on the various agency problems.

(4) WEDGE, the difference between voting rights and cash-flow rights. This measure is inspired by conflicts between shareholder groups caused by deviation from *one-share-one-vote* policy, e.g. DeAngelo and DeAngelo (1985), Adams and Ferreira (2008), King and Santor (2008), or Villalonga and Amit (2009). A larger wedge indicates a higher demand for influence by the founding family.

(5) OUTSIDER BLOCK VR, accumulated voting rights by outside blockholders. This measure is inspired by the assumed monitoring incentive for strong external shareholders, e.g. Shleifer and Vishny (1986). Klasa (2007) suggests that the exit of a founding family is more likely if outside blockholders are present. I assume that outsider blockholding decreases the influence of the founding family.

(6) VCPE VR, the voting rights held by a venture capital or private equity company. This measure is inspired by, e.g. Miller et al. (2011) who argue that the presence of investors could influence the behavior of founders or founding families. Moreover, the per se will to sell equity to VC or PE investors is supposed to differ amongst family firm types.[192] Anderson et al. (2012b) document blockholding of private equity investors in listed family firms, while Puri and Zarutskie (2012) show differences in venture capital financed and non-venture capital financed firms. Involvement of a venture capital or private equity investor decreases the influence of the founding family.

I assign 1 to 5 points for the respective quintiles for each variable. The minimum points for the total index are therefore 6 and the maximum is 30 if a company were to consistently score the highest points. The highest score would indicate a strongly influenced and shielded founding-family defined firm that protects its control heavily. Therefore, (5) OUTSIDER BLOCK VR

[192] The argument here tends towards an initial VC or PE investment, before the IPO—the predominant sequence of venture capital and private equity investments. Nevertheless, so called PIPE investments, private equity investors or hedge funds that acquire stakes in publicly listed companies emerge (e.g. Brophy et al., 2006; Achleitner et al., 2009a), as well as going privates (e.g. Achleitner et al., 2013), backed by financial sponsors.

gets a reversed points assignment, i.e. low outsider influence gets a score of 5 for high founding-family protection tendency, the highest outsider influence quintile a score of 1. The same applies for the influence of venture capitalists or private equity investors, expressed by (6) VCPE VR. I have deliberately included these distinct dimensions in the index to reflect an external governance component.

Given the conceptual work presented on the heterogeneity index, a question may arise as to whether this approach contradicts the earlier argument for decomposing heterogeneity? I do not think so, as the inclusion of several governance dimensions should add to the picture. Additionally, family firms definitely have a multitude of control tools available that they may or may not apply, depending on their overall preferences. Hence, in this specific case, only the 'amalgam' of control mechanisms can reflect the real founding-family logic. I therefore apply the following basic multivariate regression model to measure governance aspects with the *Heterogeneity Index* ($HI_{i,t}$):

$$HI_{i,t} = \beta_0 + \beta_1 OI_{i,t} + \beta_k \vec{X}_{i,t} + YearDummies_i + IndustryDummies_i + \varepsilon_{i,t} \tag{7.1}$$

$OI_{i,t}$ represents an indicator variable for *Owner Identity*, i.e. either lone founder, family founder, or heir firm. The vector $\vec{X}_{i,t}$ represents a number of control variables. I further include year dummies and industry dummies in the analysis. The regression models comprise pooled OLS and random effects panel regressions.[193] The specifications include alteration with lagged variables and the SFI measure to increase robustness.[194]

[193] For advanced panel regression approaches see Wooldridge (2002) and Baltagi (2008).
[194] See Klein (2000), Jaskiewicz (2006), Achleitner et al. (2009b), or section 2.2.1 for the applied SFI measure.

7.1.3.2 Firm Policy Analysis

I expect that a firm policy review enables a further increase in the understanding of individual blockholder firms' behavior and strategic intents. Clearly, interpretation of firm policy involves a potentially endogenous relationship between decision maker and policy. In order to establish credibility, I apply exogenous instrumental variables in a dummy endogenous treatment effects model.[195]

As elaborated in section 5.1.2, I review several variables in this firm policy analysis to test the proposed hypotheses. In terms of investment decisions, I analyze the capital expenditures, CAPEX, as well as the investment in riskier research and development projects, the R&D investments.[196] Besides allocation of capital, i.e. investment decisions, I consider capital structure decisions, i.e. the leverage ratio and debt to equity ratio (LEVERAGE, DEBT/MVEQUITY, DEBT/EQUITY). Finally, I consider the cash and cash equivalents, the cash-holdings of a firm (CASH). All measures can be interpreted in the light of agency theory, governance strength, risk aversion, and time horizons. To consider potential endogeneity biases, I apply exogenous instruments in a treatment approach. The treatment results tables indicate the treatment effect on a firm policy characteristic along with the potential bias in an equivalent OLS setting.[197]

[195] For the applied instruments as well as the general problem of endogeneity compare chapter 6.

[196] R&D reporting requirements differ with accounting standards. This aspect is even more pronounced as over the time period of the investigation different accounting standards, including German GAAP (HGB), US GAAP, and IFRS, were in force, and the firms themselves varied the standards they followed. R&D investments are treated differently in the named accounting standards. German GAAP does not allow the capitalization of R&D investments, yet allows its reporting on a voluntary basis. US GAAP similarly prohibits capitalization, yet requires reporting in the annual report. IFRS requires capitalization if certain requirements are met but only for development costs, not for research. R&D investment reporting is mandatory for IFRS accounting. Accordingly, the empirical models include a dummy for international accounting standards versus German GAAP. For more details see Coenenberg et al. (2012, pp. 178-186).

[197] See chapter 6 for details on a dummy endogenous regression approach.

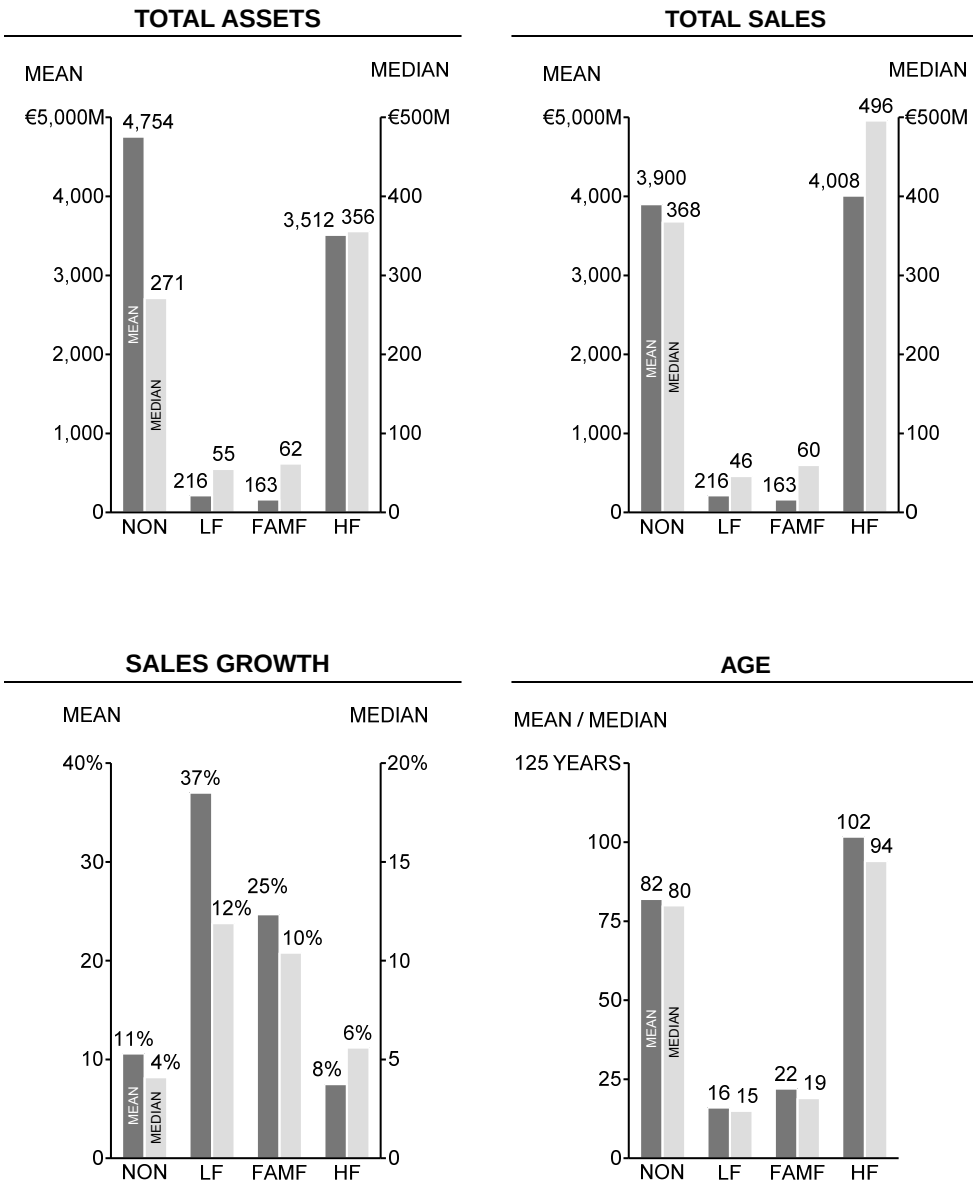
In addition, I control for decision-making depending on strong industry or low industry competition. The key rationale for this approach is the contrast and interplay of internal and external governance mechanisms. A consideration of product market competition offers this opportunity. From my point of view, this allows an additional perspective on owner identity characteristics. In general, founding-family firms are strong insider governance settings with substantial control. Yet, industry competition is an external (governance) mechanism that is hard to control. This makes it interesting for a firm policy analysis of founding-family firms.

7.2 Empirical Evidence

7.2.1 Firm, Ownership, and Institutional Characteristics

Before starting with the analysis of founding-family firm heterogeneity I briefly present an overview on general firm characteristics of the sample. The size of the sample firms such as TOTAL ASSETS and TOTAL SALES largely differ within their mean and median values across all firm types. Non-family firms and heir firms are the largest firms with €4,754 million (median: €271 million) and €3,512 million (€356 million) in TOTAL ASSETS, as well as €3,900 million (€368 million) and €4,008 million (€496 million) in TOTAL SALES, respectively. Clearly, lone founder firms and family founder firms which are younger firms (mean: 16 and 22 years) are comparatively smaller firms: lone founder firms have €216 million (median: €55 million) and family founder firms have €163 million (€62 million) in TOTAL ASSETS. These differences in firm size come with differences in SALES GROWTH: lone founders show highest sales growth rates with 37% year-on-year (median: 12%), followed by family founder firms with 25% (10%) growth, and heir firms with 8% (6%). Figure 7.1, Descriptive Sample Characteristics, summarizes and presents the descriptive data; further summary statistics can be found in table 7.4 and table A.4 shows the summary statistics for the total sample.

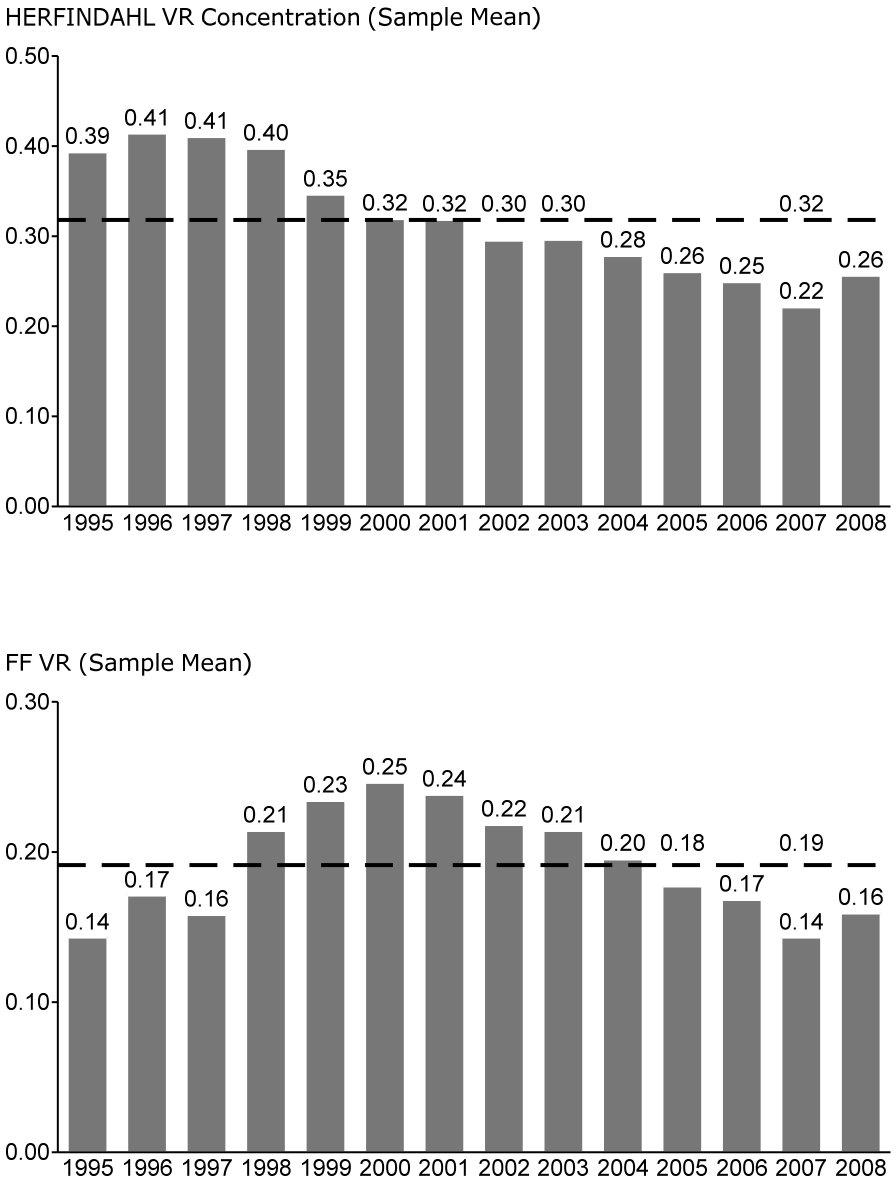
Figure 7.1: Descriptive Sample Characteristics



Note: This figure presents descriptive sample statistics for non-family firms (NON), lone founder (LF), family founder (FAMF), and heir firms (HF). TOTAL ASSETS and TOTAL SALES are both presented in million. The dark greyish bars show mean values, the light greyish bars show median values. Please consider the different ordinate scale for mean and median. The year-on-year SALES GROWTH is presented in percent. AGE is presented in years since firm inception. All variables are defined in table A.1, Variable Definitions—Firm Heterogeneity & Policy.

Source: Own work.

Figure 7.2: German Stock Market Developments



Note: This figure presents the development of stock market characteristics over the sample period. The upper figure presents the HERFINDAHL variable, that is the concentration of voting rights measure for the total sample. The figure below presents FF VR, the founding-family voting rights, again for the total sample which includes both family and non-family firms. All variables are defined in table A.1, Variable Definitions—Firm Heterogeneity & Policy. Further characteristics presents table 7.5, German Capital Market—Ownership Characteristics.

Source: Own work.

Concerning the institutional context, the German capital market experienced structural change, improvements in transparency requirements, investor protection, and an increase in activity by international investors during the sample period (e.g. Hackethal et al., 2003; Goergen et al., 2008b).[198] Consequently, we observe during the years 1995 to 2008 a reduction in mean ownership concentration—for instance amongst the two largest blockholders of a firm as well as for the *Herfindahl* concentration measure (see table 7.5). While the two largest shareholders' block (C1C2) amounted to approximately 61% in 1995, well above majority, the figures for 2008 showed a level of only 48%. There is a clear trend towards a reduction in the mean blockholder stake, specifically ownership concentration. In fact, ownership concentration in voting rights, calculated via the *Herfindahl* measure, dropped from 0.39 to 0.25 in the same time period and thus supports the first trend indication.

Potential capital market specific aspects that influence(d) ownership decisions have been proposed, i.e.: since 2002, the stock corporation act has allowed the squeeze-out practice in the context of acquisitions.The squeeze-out practice thus led to several delistings of acquired companies. In addition, the taxation policy altered. The newly applicable taxation incentivized the sale of corporate blockholdings across all industries, but particularly by banks and insurance companies. Both effects potentially reduced overall ownership concentration in the following years. Certainly, those aspects left a mark over the sample period, as they influenced corporate governance and induced structural changes in the following years.[199] While I estimate individual blockholder effects, I make sure to control for the mentioned aspects. However, although the mean values in table 7.5 might fluctuate over time, the overview confirms that founding-family blockholding and insider ownership in general, are prevailing characteristics of the German capital market (e.g. Edwards and Nibler, 2000; Hackethal et al., 2003). On average, a

[198] Goergen et al. (2008b) provide an excellent overview on the characteristics and developments of the German capital market. See also section 2.1.3, Changes in Legislation, Corporate Governance Initiatives, and Accounting.

[199] See section 2.1.3, Changes in Legislation, Corporate Governance Initiatives, and Accounting, for a more detailed overview.

Table 7.5: German Capital Market—Ownership Characteristics

YEAR	# BLOCKS	C1C2	C1C3	HERF	FF VR	IOC VR	OUTSIDER BLOCK VR
1995	1.769	0.614	0.641	0.393	0.143	0.185	0.516
1996	1.680	0.625	0.647	0.414	0.171	0.197	0.488
1997	1.564	0.617	0.637	0.410	0.158	0.190	0.488
1998	1.716	0.607	0.630	0.397	0.214	0.257	0.432
1999	1.995	0.574	0.607	0.346	0.234	0.277	0.395
2000	2.194	0.566	0.606	0.319	0.246	0.293	0.389
2001	2.062	0.563	0.602	0.318	0.238	0.287	0.385
2002	2.311	0.545	0.594	0.295	0.218	0.249	0.408
2003	2.237	0.545	0.587	0.296	0.214	0.250	0.403
2004	2.197	0.521	0.561	0.278	0.195	0.236	0.394
2005	2.273	0.499	0.538	0.260	0.177	0.222	0.392
2006	2.229	0.482	0.517	0.249	0.168	0.210	0.375
2007	2.415	0.450	0.488	0.221	0.143	0.187	0.383
2008	2.435	0.486	0.527	0.256	0.159	0.204	0.408
ALL	2.145	0.539	0.576	0.304	0.198	0.239	0.406

Note: This table presents mean values for several governance variables over the sample period 1995 to 2008. The number of blockholders (# BLOCKS), concentration of voting rights (C1C2, C1C3, and HERF), family shareholding (FF VR), insider shareholding (IOC VR), and blockholdings of outsiders (OUTSIDER BLOCK VR) describe the German capital market.

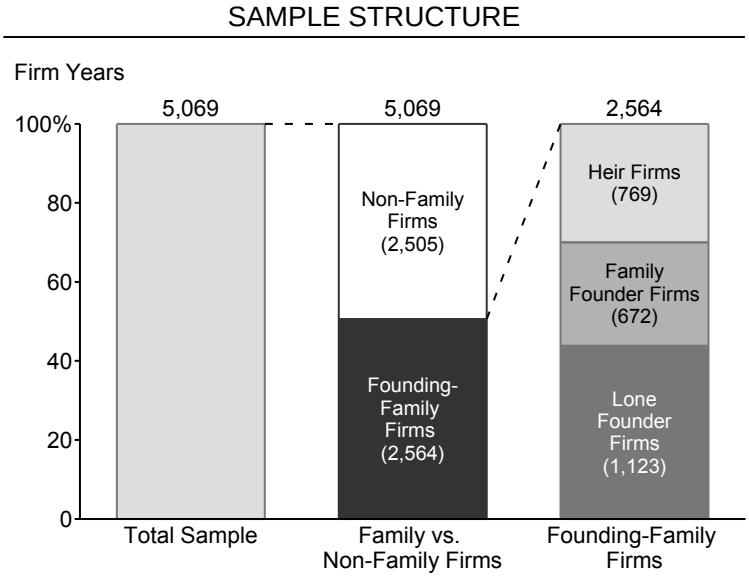
Source: Own work.

firm shows 14.3% founding-family voting rights (FF VR) in 1995, and 15.9% in 2008.

7.2.2 Firm Heterogeneity

Above, I presented the general relevance of blockholdings for the German capital market. The particular focus of this section is on founding-family defined firms; with founders and founding families as the predominant insiders in the German capital market. The obvious way to review their characteristics is to compare those founding-family defined firms, as *a single* group, with non-family firms as the benchmark group. But I propose to take this one step further. As documented in the hypotheses section on hetero-

Figure 7.3: Sample Structure



Note: This figure presents the sample structure highlighting the three founding-family defined firm types: (i) lone founder firms, (ii) family founder firms, and (iii) heir firms. The numbers show sample firm years. Founding-family firms are identified following the basic founding-family definition (see section 2.2.2, Founding-Family Definition). All variables are defined in table A.1, Variable Definitions—Firm Heterogeneity & Policy.

Source: Own work.

geneity,[200] I suggest a differentiation between lone founder, family founder, and heir firms.[201]

7.2.2.1 Heterogeneity and Founding-Family Definitions

As presented in figure 7.3, Sample Structure, the total sample sums up to 5,069 firm years. Half of these firm years stem from founding-family firms. Specifically the sample consists of 1,123 (22%) lone founder firm years, 672 (13%) family founder firm years, and 769 (15%) heir firm years: a total of 2,564 (50.6%) founding-family defined firm years.

[200] See section 5.1.1.

[201] Please refer to chapter 2 for definitions, to 4 for related evidence, and 5 for hypotheses and rationale of the proposed approach.

These figures are calculated without any specific threshold requirements beyond either blockholding of at least 5% or board membership of a founder or heir. Therefore, this figure represents a broad and relaxed definition of a founding-family firm.[202] An adjusted definition, the CEFS definition, sets stricter requirements on shareholding. Specifically, the CEFS definition requires 5% ownership and at least one board seat or at least 25% shareholding without the necessity of board membership.[203] That definition approach results in 16% lone founder firms, 12% family founder, and 13% heir firms; a total of 41% of founding-family defined firms following the CEFS definition. Table 7.6 provides details on these numbers and on further sample characteristics described in the following paragraphs.

Considering the broader definition, about 88% of all lone founder firm years have founders as board members—73% on the management board, about 27% on the supervisory board, and about 12% on both boards. This is even exceeded by family founder firms with general board membership in 94% of all family founder firm years, a similar management board frequency of 73%, a 46% frequency for supervisory board membership, and about 25% of all family founder firm years indicate family representation in both boards. In terms of heir firms, the general board membership is still surprisingly high, given the average firm age of about 100 years.[204] I observe a general board representation in about 83% of all heir firm defined firm years, a frequency of 41% for management representation, and about 60% of all firm years indicate supervisory board membership by heirs. About 18% of firm years account for heirs in both boards. Overall, this implies a considerably high influence of founding-family defined firms not only via blockholdings, but also via board membership in management and in supervision. Moreover, beyond this general fact of strong governance influence, *how* this influence is executed differs according to the owner identity type as table 7.6 indicates.

[202] This refers to the basic definition introduced in chapter 2.2.2.
[203] Please refer to chapter 2.2.2 for a detailed introduction.
[204] Please refer to the summary statistics in the present chapter or to the Appendix.

Table 7.6: Heterogeneity—Sample Overview

	GENERAL DEFINITION		CEFS DEFINITION	
	FIRM YEARS	**FREQUENCY**	**FIRM YEARS**	**FREQUENCY**
PANEL A.1				
SAMPLE	5,069	100.0%	5,069	100.0%
Founding Family defined Firms	2,564	50.6	2,072	41.0
(1) LONE FOUNDER FIRM	1,123	22.1	834	16.5
(2) FAMILY FOUNDER FIRM	672	13.3	591	11.7
(3) HEIR FIRM	769	15.2	647	12.8
PANEL A.2				
FOUNDER FIRMS (1)+(2)	1,795	35.4	1,425	28.2
FAMILY FIRMS (2)+(3)	1,441	28.5	1,238	24.5
PANEL B.1				
Founding Family defined Firms	2,564	100.0%	2,072	100.0%
(1) LONE FOUNDER FIRM	1,123	43.8	834	40.3
(2) FAMILY FOUNDER FIRM	672	26.2	591	28.5
(3) HEIR FIRM	769	30.0	647	31.2
PANEL B.2				
FOUNDER FIRMS (1)+(2)	1,795	70.0	1,425	68.8
FAMILY FIRMS (2)+(3)	1,441	56.2	1,238	59.8
PANEL C.1				
LONE FOUNDER FIRM	1,123	100.0%	834	100.0%
…Founders in Boards	991	88.3	787	94.5
…Founders in Management Board	823	73.3	677	81.1
…Founders in Supervisory Board	302	26.9	224	26.8
…Founders in both Boards	134	11.9	112	13.4
…Founders holding VR> 25%	611	54.4	611	73.3
…Founders holding VR> 50%	264	23.5	264	31.7
PANEL C.2				
FAMILY FOUNDER FIRM	672	100.0%	591	100.0%
…Founders/Founder-Family in Boards	634	94.4	579	98.0
…Founders/Founder-Family in Management Board	489	72.8	448	75.8
…Founders/Founder-Family in Supervisory Board	312	46.4	277	46.9
…Founders/Founder-Family in both Boards	167	24.8	146	24.7
…Founders/Founder-Family holding VR> 25%	468	69.6	468	79.2
…Founders/Founder-Family VR> 50%	244	36.3	244	41.3
PANEL C.3				
HEIR FIRM	769	100.0%	647	100.0%
…Heirs in Boards	642	83.5	568	87.8
…Heirs in Management Board	316	41.1	291	45.0
…Heirs in Supervisory Board	463	60.2	410	63.4
…Heirs in both Boards	137	17.8	133	20.6
…Heirs holding VR> 25%	585	76.1	585	90.4
…Heirs VR> 50%	425	55.3	425	65.7

Note: This table presents the frequency of lone founder, family founder, and heir firms that match the general founding-family definition or the more strict CEFS definition (Panel A to Panel B). Panel C presents the frequency of selected corporate governance variables in a respective lone founder, family founder, or heir firm.

Source: Own work.

7.2.2.2 Heterogeneity of Governance Statistics

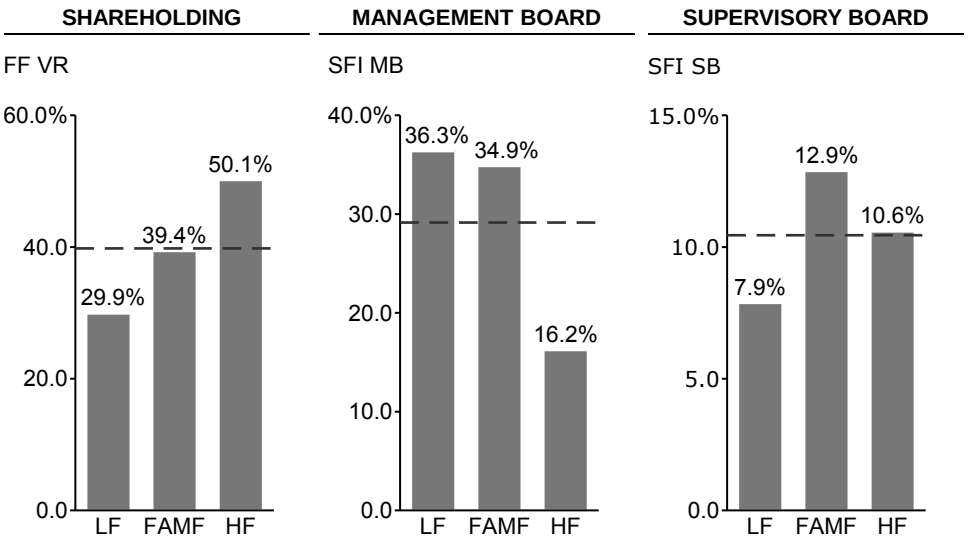
I continue contrasting lone founder, family founder, and heir firms with regard to distinct governance mechanisms. The analysis indicates considerable, and in statistical terms significant, differences in more dimensions

than previously expected. I observe heterogeneous characteristics in the following categories: (1) ownership, (2) board representation, (3) specific governance devices, and (4) controls. Figure 7.4, Key Elements of Family Governance, and tables 7.4 and A.6 present the following results.

Ad (1): Lone founders have the lowest accumulated founding-family defined voting rights (FF VR). When I distinguish mean (median) values between lone founder, family founder and heir firms, lone founder firms have 29.9% (27.8%), family founder 39.4% (40.5%), and heir firms 50.1% (54.0%) voting rights. A Wilcoxon rank-sum test indicates, that those values are statistically highly significant ($p<0.01$) amongst all three groups. Similarly, heir firms show in 47.2% of all firm years majority control (50% OWNER). Family founder firms show a substantially lower value of 25.7% whereas only 20.3% of lone founder firm years indicate majority control. Again, all values are statistically different between those three groups on a highly significant level ($p<0.01$). The number of blockholdings (NUMBER BLOCKHOLDERS) differs amongst all founding-family defined firms, as well as between them and non-founding family defined firms: Lone founders have a median of 2 blockholders, family founders 3 blockholders, and heir firms as well as non-family firms have a median of 1 blockholder each. Again all groups differ highly significantly from each others ownership structure ($p<0.01$) with exception of heir and non-founding family firms. With respect to ownership concentration all figures, like C1C2, C1C3, or HERFINDAHL show a different ownership concentration amongst all groups, with exception of founder firms that do differ on a 0.05 and a 0.10 level. Heir firms show the highest ownership concentration ratios, followed by non-founding family firms, followed by family founder firms and finally lone founder firms. To summarize, in all essential ownership related characteristics, the three groups of founding-family defined firms differ—in most cases highly statistically—from each other.

Ad (2): Board characteristics show similar evidence: the total board representation (FF BOARD REPRESENTATION) of founders respectively founding-family members strikes significantly different values ($p<0.01$) amongst the

Figure 7.4: Key Elements of Family Governance



Note: This figure presents the three key elements of family governance: (i) shareholdings of founders or founding-families, (ii) their influence through management board positions, and (iii) influence via supervisory board membership. Each graph shows the mean ratio over the sample period of the described governance elements for lone founder firms (LF), family founder firms (FAMF), and heir firms (HF), respectively. The dashed line shows the respective sample mean for all founding-family defined firms. Shareholdings are measured by voting rights (FF VR), management board influence by the management board membership ratio (SFI MB), and supervisory board influence by the supervisory board membership ratio (SFI SB). The three governance variables are the constituent elements of the SFI index. All variables are defined in table A.1, Variable Definitions—Firm Heterogeneity & Policy.

Source: Own work.

three groups. From high to low, family founder firms show total board representation defined as percentage of total board seats of 21.6% (20.0%), lone founder firms of 19.2% (16.7%), and heir firms of 12.8% (11.1%). In terms of specific board influence by management, lone founder and family founder firms are quite similar with a median of 33.3% for both. In terms of supervisory board influence family founder firms show comparable characteristics with heir firms, whereas lone founders have least supervisory board influence—mean of 7.9% and median of zero (figure 7.4 presents these Key Elements of Family Governance). As a result of the presented board characteristics, the BOTHBOARDS characteristic substantially differs ($p<0.01$)

again between all groups: family founder firms show in 24.9% of all firm years members of the founding family in management as well as in the supervisory board, followed by heir firms with 17.8% and lone founders with 11.9%. In terms of founder-CEO (FCEO) characteristics, lone founder as well as family founder firms show approximately in two thirds of the respective firm years founders as CEO. For the total sample, this means that about 23% of all firms are founder-led firms.[205] In heir firms, an heir is CEO in approximately 38% of all heir firm years. A founder chairman of the supervisory board (FCHM) exists in 11.7% of lone founder and in 20.2% of family founder firms. Heir firms have heir chairman (HCHM), in 19.1% of the firm years. Comparable to the ownership dimension of governance, the board characteristics show also substantial differences between our separated owner identity types. Hence, the descriptive statistics reveal an overall strong board influence, even in heir firms.

Ad (3): In terms of specific governance devices, heir firms apply most often a dual-class wedge. The wedge between voting rights and cash flow rights amounts to a substantial 9.6% for heir firms, 1.6% for family founder and 1.1% for lone founder firms. Non-founding-family firms show a wedge of 0.3%. Between heir firms, family founder firms, lone founder firms, and non-founding-family firms all median tests indicate a difference of a $p<0.01$ significance level.

Ad (4): Evidently those characteristics could be driven by firm characteristics like firm age or size. Indeed, firm age considerably and statistically ($p<0.01$) differs between all firm types. AGE indicates approximately 102 years for heir firms, 22 years for family founder firms and 16 years for lone founder firms. Non-founding family firms are on average 82 years old. Very similar, almost all potential size variables like TOTAL ASSETS (M), TOTAL SALES (M),

[205] For comparison, Fahlenbrach (2009) identifies around 11% of large US corporations that are run by their founders. He does not differentiate between lone founders and family founders, but implicitly, the non-differentiation means an inclusion of both groups in his sample. As my sample selection represents almost the whole German stock market, I evidently include a higher fraction of smaller firms that probably drives the two times higher percentage I receive for founder-led firms compared to his sample.

and EMPLOYEES differ on a highly significant (p<0.01) level. Exemplary, total sales in million amounts to €4,008M for heir firms, €216M for lone founder, and €163M for family founder firms. Non-founding family firms show a mean of €3,900M in total sales.

Thus, the presented evidence calls for a multivariate analysis. Yet, as an intermediate result, I like to note the substantial differences between all three owner identity types. Interestingly, depending on the type of governance device, the 'extreme-usage-ranking' is changing across owner identity type and governance mechanism—there is no fixed order. Those primary descriptive results strongly suggest a differentiation of those firm types.

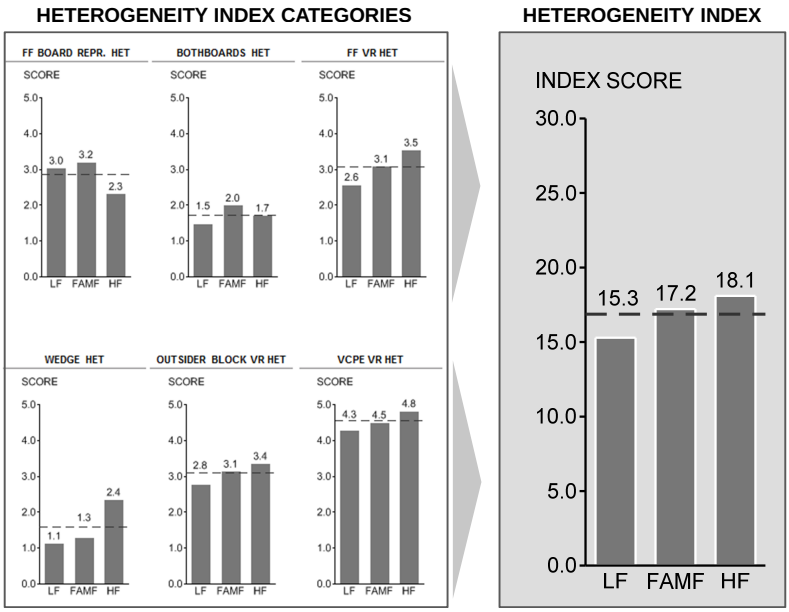
7.2.2.3 Heterogeneity Index Statistics

The *Heterogeneity Index* reflects the strength of the founding-family influence via its shareholdings, board membership, wedge characteristics as well as the strength of influence by outside blockholders and active venture capital and private equity investors. The higher the HETEROGENEITY INDEX, the stronger is the overall ambition to protect control. Figure 7.5, Heterogeneity Index, provides an illustration of the index categories, including their summary statistics, and the resulting index score. The scoring process applies a quintile ranking for each index category (e.g. FF BOARD REPRESENTATION HET) based on the underlying variable distribution (e.g. FF BOARD REPRESENTATION).[206]

Table 7.7 reveals the univariate evidence and the construction approach of the *Heterogeneity Index* that is reviewed in the multivariate regressions. I structure the table in three panels, one for each owner identity type separately. Each panel shows the HETEROGENEITY INDEX, its constituent index elements as well as the SFI and its constituent elements as robustness control. In order to identify the elements of the *Heterogeneity Index* and to differentiate them from the underlying variable, I append 'HET' at the end of

[206] Please compare section 7.1.2.2, Heterogeneity Index Variables, and section 7.1.3.1, Heterogeneity Index Analysis.

Figure 7.5: Heterogeneity Index



Note: This figure presents the six categories that form the heterogeneity index. The scores are differentiated for the three owner identity groups. Maximum score in each category is 5, and 30 in the overall index, reflecting the firms' control ambitions. The scoring process applies a quintile ranking for each category based on the underlying variable distribution. The dashed lines indicate the particular mean values. All variables are defined in table A.1, Variable Definitions—Firm Heterogeneity & Policy.

Source: Own work.

each variable name.[207] Remember that the index constituent elements are scores from 1 to 5 according to the respective quintiles for each underlying variable. As the SFI is applied as a robustness measure, its construction is purely based on the accumulation of voting rights, management board representation, and supervisory board representation.[208] Thus the SFI differs in terms of construction and depth/focus of considered governance influence compared to the *Heterogeneity Index*. I provide in table 7.7 an overview of the respective summary statistics and include a rank-sum test as indicated for the last six columns of each panel.

[207] The reader is kindly referred to the Summary Statistics that provide an overview of all underlying variables.

[208] The SFI is defined by Klein (2000); for more details see chapter 2.2.

Table 7.7: Heterogeneity Summary

PANEL A – LONE FOUNDER FIRM	N	MEAN	SD	MIN	MEDIAN	MAX	OTHER – LF z	OTHER – LF p	LF – FAMF z	LF – FAMF p	LF – HF z	LF – HF p
HETEROGENEITY INDEX	1,123	15.290	4.457	6.000	15.000	30.000	12.197	0.000	-9.017	0.000	-11.227	0.000
FF BOARD REPRESENTATION HET	1,123	3.037	1.283	1.000	3.000	5.000	-5.908	0.000	-2.605	0.009	11.788	0.000
BOTHBOARDS HET	1,123	1.477	1.297	1.000	1.000	5.000	6.116	0.000	-7.088	0.000	-3.587	0.000
FF VR HET	1,123	2.575	1.321	1.000	2.000	5.000	13.385	0.000	-7.992	0.000	-14.074	0.000
WEDGE HET	1,123	1.132	0.714	1.000	1.000	5.000	13.272	0.000	-3.590	0.000	-17.917	0.000
OUTSIDER BLOCK VR HET	1,123	2.778	1.405	1.000	3.000	5.000	8.176	0.000	-5.248	0.000	-8.251	0.000
VCPE VR HET	1,123	4.291	1.528	1.000	5.000	5.000	7.211	0.000	-2.936	0.003	-8.544	0.000
SFI	1,120	0.660	0.508	0.000	0.660	2.359	6.380	0.000	-7.144	0.000	-3.668	0.000
FF VR	1,123	0.299	0.243	0.000	0.278	1.000	13.619	0.000	-8.123	0.000	-14.321	0.000
SFI MB	1,122	0.363	0.303	0.000	0.333	1.000	-10.347	0.000	1.172	0.241	15.521	0.000
SFI SB	1,121	0.079	0.150	0.000	0.000	1.000	10.713	0.000	-8.018	0.000	-10.291	0.000

PANEL B – FAMILY FOUNDER FIRM	N	MEAN	SD	MIN	MEDIAN	MAX	OTHER – FAMF z	OTHER – FAMF p	FAMF – LF z	FAMF – LF p	FAMF – HF z	FAMF – HF p
HETEROGENEITY INDEX	672	17.208	4.518	6.000	17.000	30.000	-4.501	0.000	9.017	0.000	-2.740	0.006
FF BOARD REPRESENTATION HET	672	3.208	1.373	1.000	3.000	5.000	-7.437	0.000	2.605	0.009	12.039	0.000
BOTHBOARDS HET	672	1.994	1.730	1.000	1.000	5.000	-6.228	0.000	7.088	0.000	3.265	0.001
FF VR HET	672	3.085	1.273	1.000	3.000	5.000	-1.844	0.065	7.992	0.000	-6.919	0.000
WEDGE HET	672	1.280	1.021	1.000	1.000	5.000	5.685	0.000	3.590	0.000	-12.398	0.000
OUTSIDER BLOCK VR HET	672	3.141	1.404	1.000	3.000	5.000	-1.975	0.048	5.248	0.000	-2.956	0.003
VCPE VR HET	672	4.500	1.324	1.000	5.000	5.000	0.089	0.929	2.936	0.003	-5.467	0.000
SFI	671	0.832	0.469	0.000	0.833	2.707	-6.326	0.000	7.144	0.000	3.602	0.000
FF VR	672	0.394	0.237	0.000	0.405	1.000	-1.802	0.072	8.123	0.000	-7.172	0.000
SFI MB	671	0.349	0.300	0.000	0.333	1.000	-5.369	0.000	-1.172	0.241	13.064	0.000
SFI SB	672	0.129	0.163	0.000	0.000	1.000	-4.923	0.000	8.018	0.000	0.111	0.912

PANEL C – HEIR FIRM	N	MEAN	SD	MIN	MEDIAN	MAX	OTHER – HF z	OTHER – HF p	HF – LF z	HF – LF p	HF – FAMF z	HF – FAMF p
HETEROGENEITY INDEX	769	18.101	5.393	6.000	18.000	30.000	-8.886	0.000	11.227	0.000	2.740	0.006
FF BOARD REPRESENTATION HET	769	2.321	1.278	1.000	2.000	5.000	13.534	0.000	-11.788	0.000	-12.039	0.000
BOTHBOARDS HET	769	1.713	1.532	1.000	1.000	5.000	-0.645	0.519	3.587	0.000	-3.265	0.001
FF VR HET	769	3.541	1.462	1.000	4.000	5.000	-12.722	0.000	14.074	0.000	6.919	0.000
WEDGE HET	769	2.352	1.893	1.000	1.000	5.000	-19.827	0.000	17.917	0.000	12.398	0.000
OUTSIDER BLOCK VR HET	769	3.356	1.517	1.000	4.000	5.000	-6.957	0.000	8.251	0.000	2.956	0.003
VCPE VR HET	769	4.818	0.834	1.000	5.000	5.000	-7.893	0.000	8.544	0.000	5.467	0.000
SFI	768	0.741	0.480	0.000	0.739	2.167	-0.834	0.404	3.668	0.000	-3.602	0.000
FF VR	769	0.501	0.311	0.000	0.540	1.000	-13.017	0.000	14.321	0.000	7.172	0.000
SFI MB	768	0.162	0.235	0.000	0.000	1.000	16.357	0.000	-15.521	0.000	-13.064	0.000
SFI SB	768	0.106	0.123	0.000	0.083	0.667	-6.872	0.000	10.291	0.000	-0.111	0.912

PANEL D – ALL (Founding-Family defined Firms)	N	MEAN	SD	MIN	MEDIAN	MAX	WILCOXON Rank-sum Test
HETEROGENEITY INDEX	2,564	16.636	4.927	6.000	16.000	30.000	n/a
FF BOARD REPRESENTATION HET	2,564	2.867	1.355	1.000	3.000	5.000	n/a
BOTHBOARDS HET	2,564	1.683	1.506	1.000	1.000	5.000	n/a
FF VR HET	2,564	2.998	1.413	1.000	3.000	5.000	n/a
WEDGE HET	2,564	1.537	1.364	1.000	1.000	5.000	n/a
OUTSIDER BLOCK VR HET	2,564	3.047	1.460	1.000	3.000	5.000	n/a
VCPE VR HET	2,564	4.504	1.319	1.000	5.000	5.000	n/a
SFI	2,559	0.729	0.494	0.000	0.740	2.707	n/a
FF VR	2,564	0.384	0.277	0.000	0.385	1.000	n/a
SFI MB	2,561	0.299	0.297	0.000	0.250	1.000	n/a
SFI SB	2,561	0.100	0.147	0.000	0.000	1.000	n/a

Note: This table reports the HETEROGENEITY INDEX for a sample of founding-family defined firms. Panel A shows the descriptive statistics of the index for lone founder firms, the respective six index constituent elements (each a result of quintile based scoring of 1 to 5 of the underlying variable), the SFI and its three constituents. Panel B and C present evidence for family founder and heir firms, respectively. Panel D shows the summary statistics for all founding-family defined firms. The last six columns of Panel A to Panel C include a Wilcoxon rank-sum test. By definition, the Wilcoxon rank-sum test compares the owner identity types amongst each other. Therefore, the Wilcoxon rank-sum column for panel D, the aggregated summary of all owner identity types, is not applicable (n/a).

Source: Own work.

Those last six columns indicate the results, i.e. z-value and p-value, of the Wilcoxon rank-sum test for the difference of OTHER minus the respective owner identity type, as well as the difference between the respective combinations of two owner identity groups. For instance, LF–FAMF tests lone founder vs. family founder firms, excluding heir firms. OTHER–LF combines family founder and heir firms as one group (i.e. OTHER) and benchmarks with lone founder firms.[209]

Again, the results show substantial and statistically significant differences between the respective owner identity groups. The univariate analysis is now much broader as the included governance elements increase in comparison to the prior governance overview (Ad (1) to Ad (3)). The HETEROGENEITY INDEX is the highest for heir firms with mean of 18.1 points and median of 18, compared to 17.2 (17) for family founder firms and 15.3 (15) for lone founder firms. All differences between those groups are highly statistically significant ($p<0.01$). Thus, heir firms show the strongest control protection setting. As illustrated in table 7.7 and figure 7.5 heir firms primarily achieve this situation through higher accumulation of voting rights and through the application of dual-class wedges that form a shield against outside blockholders. Family founder firms have the highest influence on boards and also on both boards in parallel ($p<0.01$). With the exception of management board influence (and as a result overall board influence compared to heir firms), lone founder firms show the lowest scores across the respective dimensions and thus the lowest level of control protection tendency ($p<0.01$). Yet, I would not describe it as low influence, as lone founders hold average voting rights of almost 30% and management board influence well above 30%.

The important message to take from these first index results is the obvious difference between founding-family firms with family/kinship influence

[209] To prevent any misunderstanding, please remember that the sample for the Heterogeneity Index excludes non-family firms. Thus, OTHER can only consist of founding-family defined firms. The constituent owner identity firm types of OTHER change with respect to the owner identity type of interest; e.g. OTHER–HF as median test implies lone founder and family founder as the benchmark group, i.e. OTHER.

and lone founder firms. As hypothesized, all firms with a family component show stronger control preferences. But in addition to this family/kinship aspect, there is also a generational difference as heir firms significantly differ from family founder firms. The result is remarkable statistical evidence of three separate firm groups, which are usually assessed as one founding-family firm group. Thus, the proposed approach of combining control mechanisms in order to identify an underlying owner identity rationale, seems to be fruitful and important. The following multivariate analysis will shed more light on owner identity specifics.

7.2.2.4 Heterogeneity Index Evidence

Table 7.8 presents the multivariate evidence of the *Heterogeneity Index*. I show the multivariate regression results for all founding-family defined firms indicating their specific owner identity. Again, I organize the table into three panels, following the lone founder, family founder, and heir firm categorization. There are six specific models for each panel. Three pooled OLS models are followed by three random effects (RE) models to ensure adequate consideration of the panel characteristics of the sample. All models include the specific owner identity type as indicated and control for year effects and industry affiliation.[210] This specification describes exactly the first (OLS) and the fourth (RE) models. The second model (as well as the fifth) includes further controls: Ln AGE, Ln TOTAL ASSETS (M), ROA, DEBT/MVEQUITY, ANALYST FOLLOWING, and NEUER MARKT MEMBER. The third (as well as the sixth) model lags all right hand side variables except year and industry affiliation dummies to narrow the influence of potential contemporaneous effects. In addition, each panel has four further robustness models that have the right hand side specification according to the sixth model, yet review SFI, FF VR, SFI MB, and SFI SB as dependent variables (presented in the last four columns). As in the univariate statistics section, the four robustness models decompose the most obvious influence

[210] I apply heteroskedasticity robust standard errors, clustered on a firm level (cf. Petersen, 2009)

of governance: SFI as the overall influence measure as well as the respective decomposed SFI elements, the voting right level, the level of management board influence, and the level of supervisory board influence.

The multivariate evidence confirms the general lower level of protective governance characteristics in lone founder settings. The specifications HI.1a to HI.6a for lone founder firms reveal statistically significant coefficients of -1.77 to -0.94 respectively. Given the mean HETEROGENEITY INDEX of all founding-family defined firms of 16.6 this amounts to a range of approximately -10.6% and -5.7% lower index value for lone founder firms.

The robustness analysis confirms this statistical evidence. The (decomposing) analysis of the SFI indicates that lone founder firms show a -16.2% lower SFI compared to the mean SFI of 72.9%, i.e. a reduced SFI of about 11.8 percentage points. Similar, FF VR is about 12.6% below mean FF VR of 38.5% or 4.9 percentage points below that of peers.

The results flip the opposite way for family founder firms. Panel B shows that the models HI.1b and HI.6b indicate family founder firm coefficients with 1.29 to 1.18, or 7.8% and 7.1% higher HETEROGENEITY INDEX respectively. Again, the narrower SFI supports this overall tendency of family influence via protective governance mechanisms as indicated by the heterogeneity index measure. Family founder firms show a 15.8% higher SFI which equals on average an 11.5 percentage points higher SFI respectively. In terms of voting rights this means 11.2% or an equivalent of 4.3 percentage points above sample mean for family founder firms. The effects are statistically and economically significant even though those models control for all the variables introduced earlier as well as the two-way fixed effects by year and industry dummies. Thus the notable aspect of this study is connected with the family aspect in lone founder and family founder firms. The differentiating element between these owner identity types is essentially *family influence* as they are both first generation firms that only differ in the kinship relation amongst the involved founders.[211] The multivariate analysis thus

[211] Given the inclusion of various firm control variables.

supports the hypothesis that *family/kinship influence* in a first generation firm is correlated with distinct governance mechanisms to ensure protective influence.

In terms of control ambitions, heir firms take an average position between lone founder firms on the one hand and family founder firms on the other hand. In a multivariate regression scenario none of the coefficients is statistically significant. The coefficients of HI.1c and HI.6c for instance indicate a HETEROGENEITY INDEX range between 0.960 and -0.131, respectively 5.7% and -0.8%, but these effects are not statistically different from zero.[212] Similarly, taking account of the set of controls, the SFI regressions neither indicate significant statistical evidence (the negative coefficient indicates only -0.3% below SFI sample mean). The positive coefficient of FF VR transforms into a 3.9% higher voting rights level compared to the sample average, but this too is not statistically significant.

[212] Interestingly, without firm controls in the first model HI.1c, the heir firm dummy shows a positive sign. Controlling for several firm effects brings the coefficient closer to zero with negative sign, indicating that heir firms show average protection tendency.

Table 7.8: Heterogeneity Index

PANEL A

Model	**HI.1a**	**HI.2a**	**HI.3a**	**HI.4a**	**HI.5a**	**HI.6a**	**SFI.6a**	**VR.6a**	**SFIMB.6a**	**SFISB.6a**
Method	OLS (pooled)	OLS (pooled)	OLS (pooled)	RE	RE	RE	RE	RE	RE	RE
Dependent variable	HET_INDEX	HET_INDEX	HET_INDEX	HET_INDEX	HET_INDEX	HET_INDEX	SFI	FF VR	SFI MB	SFI SB
LONE FOUNDER FIRM	-1.770***	-1.289**	-0.987*	-1.844***	-1.827***	-0.943**	-0.118***	-0.049***	0.002	-0.024***
	(-3.851)	(-2.567)	(-1.935)	(-2.912)	(-2.772)	(-2.393)	(-3.419)	(-2.862)	(0.086)	(-2.650)
Controls	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Lagged Variables	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N (Observations)	2564	2529	2198	2564	2529	2198	2194	2198	2196	2195
N (Clusters)	413	412	381	413	412	381	381	381	381	381
R^2	0.122	0.137	0.146	0.112	0.114	0.122	0.067	0.192	0.174	0.041

PANEL B

Model	**HI.1b**	**HI.2b**	**HI.3b**	**HI.4b**	**HI.5b**	**HI.6b**	**SFI.6b**	**VR.6b**	**SFIMB.6b**	**SFISB.6b**
Method	OLS (pooled)	OLS (pooled)	OLS (pooled)	RE	RE	RE	RE	RE	RE	RE
Dependent variable	HET_INDEX	HET_INDEX	HET_INDEX	HET_INDEX	HET_INDEX	HET_INDEX	SFI	FF VR	SFI MB	SFI SB
FAMILY FOUNDER FIRM	1.294***	1.567***	1.382***	1.651***	1.698***	1.179***	0.115***	0.046**	0.008	0.028*
	(2.895)	(3.568)	(3.052)	(2.838)	(2.994)	(2.650)	(2.705)	(2.104)	(0.348)	(1.885)
Controls	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Lagged Variables	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N (Observations)	2564	2529	2198	2564	2529	2198	2194	2198	2195	2195
N (Clusters)	413	412	381	413	412	381	381	381	381	381
R^2	0.108	0.143	0.153	0.096	0.118	0.126	0.071	0.189	0.174	0.046

PANEL C										
Model	**HI.1c**	**HI.2c**	**HI.3c**	**HI.4c**	**HI.5c**	**HI.6c**	**SFI.6c**	**VR.6c**	**SFIMB.6c**	**SFISB.6c**
Method	OLS (pooled)	OLS (pooled)	OLS (pooled)	RE	RE	RE	RE	RE	RE	RE
Dependent variable	HET_INDEX	HET_INDEX	HET_INDEX	HET_INDEX	HET_INDEX	HET_INDEX	SFI	FF VR	SFI MB	SFI SB
HEIR FIRM	0.960	-0.915	-0.840	-0.040	-0.531	-0.131	-0.002	0.015	-0.011	-0.009
	(1.412)	(-1.083)	(-0.994)	(-0.075)	(-0.862)	(-0.265)	(-0.031)	(0.424)	(-0.411)	(-0.427)
Controls	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Lagged Variables	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N (Observations)	2564	2529	2197	2564	2529	2197	2193	2197	2195	2194
N (Clusters)	413	412	381	413	412	381	381	381	381	381
R^2	0.100	0.128	0.142	0.085	0.102	0.114	0.059	0.184	0.175	0.034

Note: The table reports pooled OLS regressions and random effects panel regressions. The dependent variable is the HETEROGENEITY INDEX calculated based on a quintile analysis of the following variables: (1) FF BOARD REPRESENTATION, (2) BOTHBOARDS, (3) FF VR, (4) WEDGE, (5) OUTSIDER BLOCK VR, and (6) VCPE VR. In a second step, I assign 1 to 5 points to the respective quintiles for each variable. The minimum points for the total index are therefore 5 and the maximum is 30 for a company that consistently scores the highest points. The highest score indicates a strongly influenced and shielded founding-family defined firm that protects its controlling position heavily. Therefore, (5) OUTSIDER BLOCK VR and the influence of venture capitalists or private equity investors, expressed by (6) VCPE VR, gets a reversed points assignment, i.e. low outsider influence (VCPE influence) gets a score of 5, highest outsider influence (VCPE influence) quintile a score of 1. The independent variables LONE FOUNDER FIRM, FAMILY FOUNDER FIRM, HEIR FIRM represent owner identity dummies. The unbalanced panel comprises CDAX index companies within the years 1995 to 2008 that the definition either recognizes as a LONE FOUNDER FIRM, a FAMILY FOUNDER FIRM, or an HEIR FIRM. Controls (Ln AGE, Ln TOTAL ASSETS (M), ROA, DEBT/MVEQUITY, ANALYST FOLLOWING, and NEUER MARKT MEMBER) and lagged variables are included as indicated. Year dummies as well as SIC code based industry dummies of 17 Fama French industry portfolios are included in every regression. Values in parentheses are heteroskedasticity robust t-statistics, respectively z-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

I would like to summarize the results and relate them to the initial hypotheses of this thesis. First, the analysis proved across numerous types of analysis the validity of differentiating founding-family defined firms into three specific groups—confirming the central working hypothesis (WH). Thus the theoretical distinction motivated by agency theory, stewardship theory, and social identity theory is backed by empirical evidence. This evidence even holds across varying multivariate regression scenarios, as I identify three distinct outcomes for three particular groups of founding-family defined firms. In line with the initial hypotheses, lone founder firms seem to have the overall governance system that emphasizes protective elements the least. An additional robustness test with Tobit regressions that take into account the lower limit of the HETEROGENEITY INDEX of 6 and the upper limit of 30, supports the prior evidence. As an example, I present the results of a Tobit robustness analysis for HI.1a (OLS) and HI.6a (RE). Both models for lone founder firms reveal statistically significant coefficients of -1.770 and -0.943, respectively. Both specifications as a Tobit regression model—everything else equal—reveal -1.753 with a t-value of -3.784 (HI.1a) and -0.965 with a t-value of -1.875 (HI.6a). These results are virtually identical with the previously estimated results.[213]

In contrast, family founder firms that are in the same generation, implement mechanisms to preserve maximum control. This finding seems to confirm the argument of the (social) identity theory that varying rationale (of blockholders) depends on roles and group membership—groups such as families. In the light of this evidence, an undifferentiated grouping of founder firms should be rethought, or at least challenged in robustness tests. The very different results for family founder and heir firms is also important evidence. The multivariate results suggest that family founder firms top heir firms with respect to control mechanisms applied. This differs from the summary statistics, yet is not a complete surprise. If one considers, for instance, stewardship or agency theoretical arguments, the bond between firm and family could reduce over time and generations, reducing the overall influence.

[213] For the results of this Tobit estimation, please refer to the Appendix, table A.7, Robustness of Heterogeneity Index—Tobit Regression.

Nevertheless, the results still show impressive evidence for founding-family influence in heir firms. It should be noted that mean and median firm age is well above 90 years since firm inception and the founding-family influence is still higher compared to lone founder firms with an average firm age of 16 years.

Thus, if governance or agency characteristics, as well as general firm behavior, are central to the argument, an adequate consideration of these three separate firm types should be preferred to 'family firm generalization'.

The next step in evaluating the relevance of differentiating owner identity types—given their documented distinctiveness in governance choice—is the potential effect of lone founder, family founder, and heir firm characteristics on corporate decisions and firm policy. Such analysis could provide evidence of whether or not separation of founding-family defined firms according to their owner identity should be preferred. Potentially, scholars could avoid the calculation of an average 'founding-family firm' effect. The evidence presented so far reveals more systematic differences in the family/kinship and generational dimensions between lone founder, family founder, and heir firms than most of the previous work considered.

If the evidence is robust against inclusion of varied governance characteristics, explicit consideration of owner identity types should not only have empirical meaning and implications for future research, but also a real impact on the evaluation of founding-family firms from a business and investor perspective. In other words, an undifferentiated founding-family definition application could be conceptually flawed, as would any interpretations based upon it.

I continue with presenting the analysis of owner identity characteristics and firm policy.

7.2.3 Firm Policy

Recent work by Cronqvist and Fahlenbrach (2009) and Becker et al. (2011) documents the pronounced influence of large blockholders on firm policy. The approach of Cronqvist and Fahlenbrach (2009) somewhat differs from mine.[214] Nevertheless, their results indicate that a larger block, a management position, or the involvement as director in the board, increases the influence on firm policy. The effects are even stronger, when they diverge from their original empirical approach and include founders and families.[215] According to Cronqvist and Fahlenbrach (2009) and in line with my own argumentation, the heterogeneity of varying blockholder types could have decisive effects; Cronqvist and Fahlenbrach (2009) state:

> "Consistent with a model in which large shareholders differ from each other along dimensions, such as their beliefs, skills, or preferences, we find evidence of significant heterogeneity across different blockholders. Investment, financial, and executive compensation policies are systematically related to the particular large shareholder present in a firm."[216]

Given this motivation, the theoretical foundation, and the hypotheses of this work, it seems entirely legitimate to question the influence of owner identity characteristics on firm policy.[217]

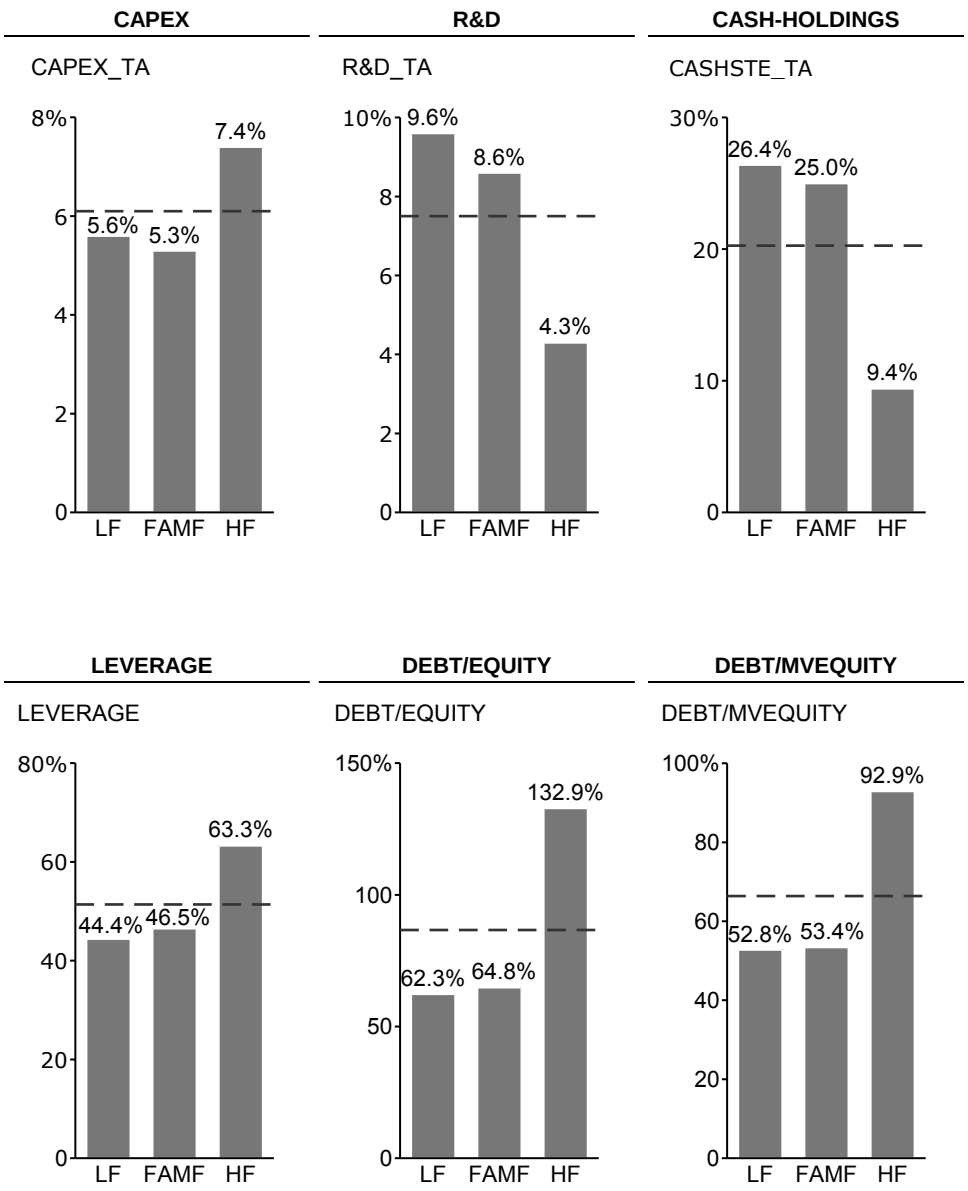
[214] Cronqvist and Fahlenbrach (2009) review the effects of large blockholders who have blocks in several listed companies. This approach virtually excludes founding-family defined blockholders, as they predominantly have a single blockholding in their respective founded or inherited firm.

[215] As the authors apply a firm fixed effects approach, they include founder and founding-family blockholdings that change the status, i.e. that are present in a sub-period of the firm panel record. See Cronqvist and Fahlenbrach (2009, p. 3945).

[216] Cronqvist and Fahlenbrach (2009, p. 3942).

[217] It is worth noting that founding-families are involved in their respective firm for approximately 1.5 decades in lone founder firms, almost 2 decades in family founder firms, and over 9 decades in heir firms. This should give reason to suspect that the respective founders or their families and heirs do have an influence on strategic decisions like firm policy. The median firm age is 15 for lone founder defined firms, 19 for family founder firms, and 94 for heir firms.

Figure 7.6: Firm Policy Characteristics



Note: This figure presents firm policy statistics for lone founder (LF), family founder (FAMF), and heir firms (HF). The dashed line indicates the mean of all founding-family firm years. All bars show mean values. All variables are defined in table A.1, Variable Definitions—Firm Heterogeneity & Policy.

Source: Own work.

Especially, as the empirical analysis of (governance) preferences of lone founder, family founder, and heir firms has already shown substantial and statistically significant differences.

The empirical investigation comprises various policy variables: I analyze (i) CAPEX investments, (ii) R&D investments, (iii) cash-holdings (CASH), and (iv) a LEVERAGE[218] ratio. Figure 7.6 summarizes the mean values for these variables differentiated for owner identity types. Preliminary insights from this descriptive data hint for comparably larger differences along the generational dimension. For instance, heir firms show the lowest R&D ratio (4.3%), lowest cash-holding (9.4%), and highest leverage (63.3%). Clearly, whether these characteristics, specifically the 'apparent similarities' of the founder generation firms, will hold in a multivariate regression setting is subject to empirical investigation in the following sections.

7.2.3.1 Investment Decision Evidence

Throughout this section on investment decisions (CAPEX, R&D), I apply a dummy endogenous variable model to consider potential endogeneity issues.[219] The first stage of this regression approach estimates the respective owner identity variable, applying a probit regression approach. As described in chapter 6, Relevant Concerns and Empirical Approach, the key feature of this approach is the inclusion of valid exogenous instruments that will proxy the respective owner identity type, i.e. a lone founder firm, a family founder firm, or an heir firm.[220] Table 7.9 shows fully specified first stage models, including exogenous instruments, governance, and control variables. The governance and control variables are lagged by one period to decrease potential contemporaneous effects. The columns indicate three CAPEX and three R&D first stage models, respectively. Model *a* indicates the full sample,

[218] I apply two alternative variables, DEBT/EQUITY and DEBT/MVEQUITY, the market value of equity as denominator.

[219] Please refer to chapter 6 for details on the Heckman (1978) dummy endogenous variable model.

[220] See also chapter 8 for a detailed technical discussion of the determination of valid exogenous instruments. This section highlights the policy features over technical details.

model *b* contains firm years with high industry competition (HIC). The concept of high industry or product market competition refers to a below median industry sales concentration measure.[221] Model *c* presents low industry competition (LIC) settings, respectively. The consideration of HIC and LIC scenarios increases robustness and explicitly controls for differences in investment behavior that might be influenced by external (governance) factors. Industry or product market competition represent such a potential external governance device. The assumption of this approach is trivial: firms with strong internal governance might be characterized by considerable leeway for policy decisions made by the founders or the founding-family. Yet, when it comes to competition, policy choice might be influenced by the strength of this external (governance) mechanism. The following estimations consider these governance constellations in the analysis of firm policy. All six first stage probit regressions offer a good explanation for the lone founder firm dummy. The independent variables, including the exogenous instruments, show significance and direction as expected.

The main stage (second stage) of the analysis applies the instrumented owner identity type dummy in the estimation of the CAPEX and R&D policy variables. The results for investment decisions in lone founder settings indicate that lone founder firms have a non-significant CAPEX ratio.[222] The coefficient, in fact the treatment effect, is not statistically significant at a meaningful level in any of the three models.[223] Hence, I reject H3.1.a. The lambda indicator at the bottom of the table is insignificant suggesting no bias in a potential straightforward OLS estimation. Thus, a selection effect should be of less concern.

[221] The industry sales concentration measure is based on a Herfindahl calculation. The differentiation of high versus low industry competition is based on the median Herfindahl estimate. For a similar approach compare Kim and Lu (2011).

[222] The results hold for the scaled CAPEX indicator, irrespective of whether the denominator is total assets or total sales.

[223] Only the high industry competition setting (HIC) shows a negative coefficient and a statistical significance on the p<0.10 level. As the statistical significance is small, I do not overemphasize the possibility that lone founder firms might show a more disciplined investment policy in HIC situations. At least this would be a logical interpretation of the external governance device, indicating that lone founder firms would be more careful with available resources in a competitive environment.

In terms of R&D spending, lone founder firms show a significant coefficient of 0.024 or a respective 39% increase in R&D ratio above sample mean. This confirms H3.2.a and supports the founder-CEO evidence by Fahlenbrach (2009) and the lone founder evidence by Block (2012). Fahlenbrach (2009) suggests a 32% higher R&D spend.[224] The coefficient in my sample is even higher in HIC situations and amounts to 0.033 or 53% above sample mean. In LIC situations, lone founders show no statistically significant R&D spend. This indicates that lone founder firms invest heavily in risky R&D projects if competition is fierce. They seem to not show a risk aversion behavior, resulting in low R&D spend. Lambda is in all cases non-significant, suggesting similar R&D estimates in a conventional OLS approach.

The astonishing result is that family founder firms behave differently from lone founder firms, although they share a couple of key features like generation, the likelihood of a founder-CEO, or general managerial insider influence. As presented in table 7.10, in family founder firms, investment policy is much more prudent.[225] In terms of CAPEX the coefficient is negative and highly significant (-0.017 or -29%) which rejects H3.1.b. In HIC scenarios the coefficient even decreases to -0.036 ($p<0.01$), testifying that family founder firms invest about -61% below sample mean, *ceteris paribus*. In LIC scenarios, the coefficient is economically and statistically not significant. The deviation of the founder firm types in terms of firm policy and decision behavior is confirmed by the R&D spend. Family founder firms do not show a significantly different coefficient from a sample mean in either situation (rejects H3.2.b).

To some extent, heir firms share their investment policy characteristics with family founder firms. For instance, R&D in heir firms shows average non-significant results just comparable to the family founder firm results (con-

[224] See section 4.2.2.1, Investment Policy.

[225] In order to conserve space, I only present the key features of each regression: Panel A contains the second stage information, while Panel B shows the results of the applied instruments in the first stage. Nevertheless, the regressions are fully specified and comparable across all owner identity firm types. Further details are provided in the note section of table 7.10.

firms H3.2.c). Thus family influenced firms seem to be more reluctant with respect to risky R&D projects compared to lone founder firms. Yet, heir firms and family founder firms behave differently in terms of CAPEX investments. Heir firms show the highest coefficient in HIC situations, 0.052 ($p<0.01$) or an equivalent 88% increase compared to the sample mean CAPEX ratio. This again gives rise to the argument that external governance, like industry competition, is an important force with potential influence on firm behavior. The coefficient of model *a* is not statistically significant, which confirms H3.1.c. The CAPEX results are reversed in LIC settings with lower outside control, as heir firms show substantially and significantly lower investment characteristics. The coefficient of -0.014 indicates a 24% decrease below sample mean in low competition scenarios. The lambda indicators in CAPEX and R&D estimations are of no concern. The same applies to the exogenous instruments in the respective first stage regressions: they are highly significant and have the assumed direction.

More importantly, these results confirm that owner identity characteristics have a marked influence on firm policy and lead to diverging investment behavior. Of special interest is the finding that HIC/LIC scenarios have a strong impact on family-influenced firms. In particular heir firms seem to change behavior depending on industry competition, suggesting that agency or stewardship driven behavior might be of minor relevance.

However, based on the results I cannot conclude on the efficiency or effectiveness of investment behavior. The available CAPEX and R&D measures are input parameters. This reflects the self-evident problem of input measures. Nevertheless, it would be hard to argue that family founder and heir firms would have superior skills resulting in more efficient and effective R&D investment policy, as opposed to lone founder firms. In fact, family founder firms are exactly those firms that combine founder and family influence, two characteristics that seem to result in different R&D efficiency and effectiveness. An unpublished working paper by Block et al. (2010) indicates higher efficiency and effectiveness of R&D investments in terms of patent generation and citation in founder firms, but a reversed effect in fam-

ily managed firms. In addition, Block (2012) suggests that only lone founder firms have an increased R&D spend. My findings support and extend this evidence: only lone founder firms have substantially and statistically higher investments in more risky R&D while both family firm types, family founder and heir firms, have average R&D spend. The effects should not be driven by different R&D accounting policy, as I control for the accounting standard applied. In addition various control variables are applied in different specification models including industry competition scenarios.

Table 7.9: Lone Founder Investment Policy (Treatment Effects)

	TE.1.CAP.a		**TE.1.CAP.b**		**TE.1.CAP.c**		**TE.1.R&D.a**		**TE.1.R&D.b**		**TE.1.R&D.c**	
Method	TE		TE/HIC		TE/LIC		TE		TE/HIC		TE/LIC	
Dep. variable (*first stage*)	LF		LF		LF		LF		LF		LF	
	coeff.	(z-stats)	coeff.	(z-stats)	coeff.	(z-stats)	coeff.	(z-stats)	coeff.	(z-stats)	coeff.	(z-stats)
LONE FOUNDER FIRM (*instr.*)												
INITIAL POOL	-0.916***	(-10.724)	-0.748***	(-7.843)	-1.610***	(-6.347)	-1.110***	(-7.396)	-1.033***	(-5.860)	-2.223***	(-4.851)
SINGLE FOUNDER	0.602***	(8.231)	0.561***	(6.465)	1.438***	(6.836)	0.931***	(7.045)	0.697***	(4.236)	2.508***	(5.697)
NUMBER FOUNDERS	0.099***	(3.426)	0.057*	(1.707)	0.641***	(5.763)	0.123***	(3.080)	0.028	(0.563)	1.076***	(4.038)
FF VR_{t-1}	0.656***	(3.699)	0.470**	(1.974)	0.590	(1.565)	0.430	(1.393)	0.060	(0.153)	1.722*	(1.899)
FF BOARD $REPRES_{t-1}$	2.426***	(8.245)	2.051***	(6.115)	4.613***	(5.499)	3.083***	(5.567)	2.402***	(3.558)	2.570	(1.423)
50% $OWNER_{t-1}$	-0.416***	(-4.857)	-0.306***	(-2.866)	-0.425**	(-2.145)	-0.052	(-0.341)	-0.060	(-0.312)	-0.119	(-0.283)
NUMBER $BLOCKHOLDERS_{t-1}$	-0.043*	(-1.732)	0.013	(0.463)	-0.224***	(-3.246)	0.014	(0.323)	0.085*	(1.673)	-0.435***	(-2.643)
OUTSIDER BLOCK VR_{t-1}	-0.462**	(-2.558)	-0.581**	(-2.538)	-1.015**	(-2.326)	-1.084***	(-3.114)	-1.520***	(-3.371)	-1.169	(-1.251)
$BETA_{t-1}$	0.043	(0.797)	0.051	(0.823)	0.122	(0.873)	0.132	(1.395)	0.308***	(2.658)	0.104	(0.403)
LN AGE_{t-1}	-0.554***	(-12.315)	-0.349***	(-6.305)	-1.394***	(-9.803)	-0.706***	(-8.961)	-0.619***	(-6.107)	-1.515***	(-5.754)
LN TOTAL ASSETS (M) $_{t-1}$	-0.201***	(-6.588)	-0.140***	(-3.975)	-0.661***	(-6.996)	-0.237***	(-4.401)	-0.184***	(-2.975)	-1.090***	(-5.195)
DEBT / $MVEQUITY_{t-1}$	0.022	(1.497)	0.015	(0.917)	0.073*	(1.835)	0.023	(0.639)	0.042	(0.882)	-0.077	(-0.387)
ROA_{t-1}	0.188	(1.504)	0.086	(0.631)	-0.139	(-0.297)	0.397*	(1.704)	0.228	(0.862)	0.754	(0.865)
INT $ACCOUNTING_{t-1}$	0.350***	(3.375)	0.334***	(2.643)	0.311	(1.257)	-0.040	(-0.168)	-0.067	(-0.210)	-0.308	(-0.531)
NEUER MARKT $MEMBER_{t-1}$	0.390***	(3.115)	0.397***	(2.586)	0.635**	(2.113)	0.451*	(1.948)	0.315	(1.044)	1.429**	(2.566)
ANALYST $FOLLOWING_{t-1}$	0.025***	(3.835)	0.040***	(4.620)	0.024	(1.538)	0.042***	(3.910)	0.053***	(3.763)	0.045	(1.576)
CONSTANT	0.901**	(2.567)	0.421	(1.426)	5.289***	(6.011)	-1.281	(-0.003)	1.546**	(2.548)	4.175	(0.009)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	3993		1992		2001		1613		814		799	

	TE.2.CAP.a		**TE.2.CAP.b**		**TE.2.CAP.c**		**TE.2.R&D.a**		**TE.2.R&D.b**		**TE.2.R&D.c**	
Method	TE		TE/HIC		TE/LIC		TE		TE/HIC		TE/LIC	
Dep. variable (*second stage*)	CAPEX		CAPEX		CAPEX		R&D		R&D		R&D	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (*instr.*)	**-0.001**	**(-0.239)**	**-0.019***	**(-1.907)**	**0.009**	**(1.501)**	**0.024****	**(2.313)**	**0.033****	**(2.016)**	**0.010**	**(1.196)**
FF VR_{t-1}	0.013***	(2.679)	0.012	(1.464)	0.012**	(1.962)	-0.006	(-0.710)	0.004	(0.280)	-0.019*	(-1.682)
FF BOARD $REPRES_{t-1}$	0.005	(0.448)	0.000	(0.013)	0.022	(1.323)	-0.044**	(-2.101)	-0.043	(-1.464)	-0.044*	(-1.669)
50% $OWNER_{t-1}$	0.003	(1.442)	0.004	(1.028)	0.005	(1.640)	0.012***	(2.689)	0.011	(1.632)	0.011**	(2.112)
NUMBER $BLOCKHOLDERS_{t-1}$	0.001	(0.796)	0.001	(1.323)	0.000	(0.130)	-0.000	(-0.168)	-0.001	(-0.472)	0.000	(0.012)
OUTSIDER BLOCK VR_{t-1}	0.000	(0.031)	-0.015**	(-1.971)	0.011**	(2.088)	-0.005	(-0.563)	-0.016	(-1.118)	-0.006	(-0.632)
$BETA_{t-1}$	0.006***	(3.273)	0.002	(0.775)	0.011***	(4.443)	0.009***	(2.744)	0.015***	(2.881)	-0.002	(-0.503)
LN AGE_{t-1}	0.003**	(2.263)	0.005***	(2.603)	0.001	(0.495)	0.001	(0.310)	0.005	(1.410)	-0.004**	(-2.139)
LN TOTAL ASSETS (M) $_{t-1}$	0.000	(0.161)	-0.001	(-0.859)	0.000	(0.408)	-0.014***	(-10.181)	-0.023***	(-10.797)	-0.004**	(-2.562)
DEBT / $MVEQUITY_{t-1}$	-0.000	(-0.560)	0.000	(0.419)	-0.001*	(-1.782)	-0.002*	(-1.778)	0.000	(0.079)	-0.005***	(-3.868)
ROA_{t-1}	0.026***	(5.888)	0.026***	(4.788)	0.028***	(3.119)	-0.083***	(-9.236)	-0.067***	(-5.535)	-0.117***	(-7.789)
INT $ACCOUNTING_{t-1}$	-0.007***	(-2.696)	-0.007*	(-1.646)	-0.007**	(-2.051)	0.001	(0.185)	-0.003	(-0.270)	0.001	(0.261)
NEUER MARKT $MEMBER_{t-1}$	0.005	(1.322)	0.012**	(2.139)	-0.011**	(-1.962)	0.001	(0.174)	0.002	(0.208)	0.012	(1.478)
ANALYST $FOLLOWING_{t-1}$	0.000	(1.322)	0.000	(1.391)	0.000	(1.251)	0.001***	(6.142)	0.003***	(7.793)	-0.000	(-0.045)
CONSTANT	0.041***	(4.857)	0.038***	(3.590)	0.044***	(4.405)	0.103***	(5.374)	0.153***	(6.966)	0.073***	(4.192)
Year Effects	Yes		Yes		Yes				Yes		Yes	
Industry Effects	Yes		Yes		Yes				Yes		Yes	
Firm Fixed Effects	No		No		No				No		No	
N (Observations)	3993		1992		2001		1613		814		799	
Chi^2	1297.094***		548.927***		643.837***		874.855***		529.647***		374.095***	
Lambda (Hazard)	**0.002**	**(0.406)**	**0.011***	**(1.879)**	**-0.006**	**(-1.319)**	**-0.008**	**(-1.229)**	**-0.015**	**(-1.508)**	**0.001**	**(0.098)**

Note: The table reports the first and second stage of a dummy endogenous variable model following Heckman (1978). The six models of the first stage estimate the instrumented owner identity variable LONE FOUNDER FIRM. The instrumented variable is applied in the second stage to estimate the firm policy effects, i.e. CAPEX ratio and R&D ratio. The second stage model *a* includes the total sample, while model *b* and *c* estimate policy effects of firms in high industry competition (HIC) scenarios, respectively in low industry competition (LIC) settings. Industry competition is estimated via a Herfindahl industry sales concentration measure. HIC and LIC group assignment of firm years are determined by the median industry competition as a reference. All variables that have a t-1 index are lagged by one period. The variables applied in the regressions are defined in the Appendix. The values in parentheses are robust z-, respectively t-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table 7.10: Family Founder Firm and Heir Firm Investment Policy (Treatment Effects)

	TE.2.CAP.a		**TE.2.CAP.b**		**TE.2.CAP.c**		**TE.2.R&D.a**		**TE.2.R&D.b**		**TE.2.R&D.c**	
Method	TE		TE/HIC		TE/LIC		TE		TE/HIC		TE/LIC	
Dep. variable (*second stage*)	CAPEX		CAPEX		CAPEX		R&D		R&D		R&D	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
Panel A: Second Stage Results												
FAMILY FOUND. FIRM (*instr.*)	**-0.017*** **	**(-2.599)**	**-0.036*** **	**(-3.636)**	**-0.001**	**(-0.154)**	**0.007**	**(0.702)**	**0.003**	**(0.214)**	**-0.007**	**(-0.650)**
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	3993		1992		2001		1613		814		799	
Chi^2	952.797***		505.223***		535.395***		748.766***		479.073***		347.025***	
Lambda (Hazard)	**0.007***	**(1.659)**	**0.016*** **	**(2.745)**	**-0.000**	**(-0.025)**	**-0.000**	**(-0.052)**	**0.004**	**(0.430)**	**0.005**	**(0.715)**
Panel B: First Stage Results												
FAMILY FOUND. FIRM (*instr.*)												
INITIAL POOL	0.780***	(9.458)	0.730***	(7.528)	1.025***	(5.907)	0.966***	(6.849)	1.047***	(6.123)	1.261***	(3.423)
EARLY INCEPTION	-2.000***	(-12.043)	-2.023***	(-8.614)	-2.084***	(-7.633)	-2.172***	(-6.925)	-1.707***	(-3.869)	-8.371	(-0.042)
Lagged Controls	Yes		Yes		Yes		Yes		Yes		Yes	

	TE.2.CAP.a		**TE.2.CAP.b**		**TE.2.CAP.c**		**TE.2.R&D.a**		**TE.2.R&D.b**		**TE.2.R&D.c**	
Method	TE		TE/HIC		TE/LIC		TE		TE/HIC		TE/LIC	
Dep. variable (*second stage*)	CAPEX		CAPEX		CAPEX		R&D		R&D		R&D	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
Panel A: Second Stage Results												
HEIR FIRM (*instr.*)	**0.008**	**(1.460)**	**0.052*** **	**(5.288)**	**-0.014** **	**(-2.205)**	**-0.009**	**(-0.909)**	**-0.001**	**(-0.046)**	**-0.001**	**(-0.118)**
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	3992		1991		2001		1613		814		799	
Chi^2	1271.578***		481.123***		885.867***		831.985***		493.093***		418.781***	
Lambda (Hazard)	**0.003**	**(0.923)**	**-0.007**	**(-1.238)**	**0.007**	**(1.640)**	**0.006**	**(0.941)**	**0.002**	**(0.174)**	**0.005**	**(0.749)**
Panel B: First Stage Results												
HEIR FIRM (*instr.*)												
FIRM FOUNDER NAME	0.614***	(7.757)	0.267**	(2.115)	0.908***	(8.044)	0.914***	(7.103)	0.686***	(3.810)	1.346***	(5.921)
EARLY INCEPTION	1.312***	(8.856)	1.523***	(6.759)	1.344***	(6.312)	0.925***	(4.011)	1.261***	(4.007)	0.737	(1.612)
Lagged Controls	Yes		Yes		Yes		Yes		Yes		Yes	

Note: The table reports the first and second stage of a dummy endogenous variable model. The table shows the key results for family founder firms in the upper and for heir firms in the bottom part. Each part contains two panels. Panel A documents the main stage results, i.e. the estimated treatment effect of the instrumented owner identity variable on the policy variable (bold). In addition, panel A shows the potential selection effect, indicated by lambda (bold). Panel B shows first stage results. All regressions are fully specified and identical to the lone founder firm regressions. The instrumented variable (FAMILY FOUNDER FIRM or HEIR FIRM) is applied in the second stage to estimate the firm policy effects, i.e. CAPEX ratio and R&D ratio. The second stage model *a* includes the total sample. Models *b* and *c* estimate policy effects in high industry competition (HIC) and in low industry competition (LIC) settings. Lagged controls are included in all regressions. The variables are defined in the Appendix. The values in parentheses are robust z- (first stage), respectively t-statistics (second stage). * indicates significance at 10%, ** at 5%, and *** at 1%.

Source: Own work.

7.2.3.2 Cash-Holding and Capital Structure Evidence

The analysis of cash-holdings and leverage also applies the instrumented variables approach. I expect that both characteristics, cash-holdings and capital structure, could signal owner identity specific preferences.

The first part of the analysis concerns cash-holdings and reveals differences between owner identity types. Lone founder firms confirm H4.1.a with highly significant coefficients of 0.092, or an equivalent 57% increase of sample mean cash-holdings. Similarly, the coefficients in HIC and LIC settings are significant and amount to 0.109 and 0.028, respectively. Thus, the excess cash-holding in LIC settings melts down to 17% above sample mean, all else being equal, when the competitive position is more favorable. Table 7.11 shows these results. The family founder firm estimation results are less clear. Family founder firms in general have a 50% smaller coefficient, 0.046, which is statistically significant ($p<0.05$; rejects H4.1.b). Yet the coefficients in HIC 0.051 and LIC -0.035 show only a small statistical significance. Again, the coefficients suggest for more prudence in settings with more intense industry rivalry as theory would predict. Heir Firms tend to accumulate even less cash, as the coefficient of -0.042 ($p<0.01$), specifically a -26% decrease compared to sample mean, indicates. Table 7.13 documents the results that confirm H4.1.c. In HIC situations the coefficient amounts to -0.088 ($p<0.01$), an estimated 55% cut of the sample mean, while in LIC the coefficient indicates no difference from sample characteristics.

How could the cash-holding evidence be interpreted? Lone founders seem to accumulate cash due to risk awareness and financial flexibility, which might derive from the entrepreneurial context of those firms (cf. Le Breton-Miller and Miller, 2008; Miller et al., 2011). Family founder firms seem to have a similar tendency, though much less pronounced. In the heir firm sample, prudence seems not to be a primary factor for determining the level of cash-holdings. Instead, external governance seems to constrain excessive cash-holdings. Along with the business evidence and insights, there is an empirical aspect to highlight at this point. The lambda indicator for poten-

tial selection effects in ordinary OLS estimations is significant in most lone founder and heir firm regressions on cash-holdings. Thus, the treatment effects presented in this analysis would be under- or over-estimated in OLS regressions.

Concerning capital structure analysis,[226] the leverage characteristics of lone founder firms are definitive. Both a leverage ratio or a debt-to-equity ratio confirm the highly statistically significant negative coefficient of lone founder firms (confirms H4.2.a). The leverage coefficient estimate amounts to -0.185 or an equivalent -38% lower leverage ratio compared to the total sample mean. In HIC scenarios this coefficient decreases to -0.238, while in LIC situations the negative coefficient is smaller with -0.116 or -20% (all coefficients $p<0.01$). The debt-to-equity coefficients confirm this picture. Lone founder firms either shy away leveraging the company due to risk aversion or creditor monitoring. Alternatively, they might have less access to debt at favorable terms or might prefer the overall features of equity capital. Tables 7.11 and 7.12 document the empirical evidence.

The leverage characteristics of family founder firms are different from lone founder firms (table 7.13). While they show leverage coefficients of 0.038 and in HIC scenarios -0.007, none of those coefficients is statistically significant which confirms H4.2.b. In LIC scenarios only, the coefficient 0.141 is statistically highly significant ($p<0.01$) and indicates a leverage ratio of 25% above sample mean. This reveals clear capital structure differences between family founder firms and lone founder firms. In terms of debt-to-equity ratio, there are no further significant estimation results.

In comparison to heir firms, both founder firm types seem to have a structurally induced lower access to long-term debt financing. This is most pronounced for lone founder firms in highly competitive industry settings.

[226] I apply LEVERAGE, DEBT/EQUITY, and DEBT/MVEQUITY as capital structure indicators.

Table 7.11: Lone Founder Firm Cash-Holdings and Leverage (Treatment Effects)

	TE.2.CAS.a		**TE.2.CAS.b**		**TE.2.CAS.c**		**TE.2.LEV.a**		**TE.2.LEV.b**		**TE.2.LEV.c**	
Method	TE		TE/HIC		TE/LIC		TE		TE/HIC		TE/LIC	
Dep. variable (*second stage*)	CASH		CASH		CASH		LEV		LEV		LEV	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
Panel A: Second Stage Results												
LONE FOUNDER FIRM (*instr.*)	**0.092*** **	**(5.362)**	**0.109*** **	**(3.645)**	**0.028** **	**(2.033)**	**-0.185*** **	**(-6.864)**	**-0.238*** **	**(-5.829)**	**-0.116*** **	**(-3.915)**
FF VR_{t-1}	-0.026*	(-1.907)	-0.010	(-0.403)	-0.012	(-0.888)	0.003	(0.139)	-0.028	(-0.798)	0.015	(0.641)
FF BOARD $REPRES_{t-1}$	0.056*	(1.906)	0.089**	(2.112)	-0.005	(-0.138)	-0.136***	(-3.196)	-0.172***	(-2.925)	-0.072	(-1.162)
50% $OWNER_{t-1}$	0.018***	(2.859)	0.017	(1.505)	0.010*	(1.691)	-0.036***	(-3.925)	-0.046***	(-2.943)	-0.020*	(-1.885)
NUMBER $BLOCKHOLDERS_{t-1}$	0.002	(0.799)	-0.000	(-0.061)	-0.001	(-0.343)	-0.003	(-1.078)	-0.002	(-0.351)	-0.002	(-0.636)
OUTSIDER $BLOCK\ VR_{t-1}$	-0.008	(-0.668)	-0.003	(-0.135)	0.001	(0.059)	-0.038**	(-2.076)	-0.059*	(-1.842)	-0.032	(-1.549)
$BETA_{t-1}$	0.016***	(3.338)	0.017**	(2.287)	0.015***	(2.840)	-0.012*	(-1.747)	-0.006	(-0.621)	-0.018*	(-1.942)
LN AGE_{t-1}	-0.015***	(-4.644)	-0.019***	(-3.592)	-0.019***	(-5.868)	-0.001	(-0.191)	0.010	(1.322)	-0.006	(-1.028)
LN TOTAL ASSETS (M) $_{t-1}$	-0.023***	(-10.782)	-0.034***	(-9.135)	-0.014***	(-6.238)	0.039***	(12.912)	0.042***	(8.682)	0.040***	(11.033)
DEBT / $MVEQUITY_{t-1}$	-0.010***	(-8.245)	-0.009***	(-5.014)	-0.009***	(-6.302)						
ROA_{t-1}	-0.044***	(-3.489)	-0.023	(-1.321)	-0.042**	(-2.126)	-0.275***	(-15.395)	-0.255***	(-10.831)	-0.405***	(-12.149)
INT $ACCOUNTING_{t-1}$	0.004	(0.475)	-0.002	(-0.148)	-0.002	(-0.258)	-0.050***	(-4.524)	-0.068***	(-3.619)	-0.033***	(-2.677)
NEUER $MARKT\ MEMBER_{t-1}$	0.009	(0.822)	0.025	(1.455)	-0.002	(-0.121)	-0.081***	(-5.166)	-0.058**	(-2.408)	-0.090***	(-4.111)
ANALYST $FOLLOWING_{t-1}$	0.003***	(7.920)	0.004***	(5.174)	0.002***	(5.476)	-0.005***	(-9.415)	-0.007***	(-5.973)	-0.005***	(-7.405)
CONSTANT	0.265***	(11.246)	0.361***	(11.096)	0.236***	(10.473)	0.546***	(15.868)	0.532***	(11.720)	0.522***	(13.726)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	4006		1986		2020		4042		2015		2027	
Chi^2	2196.513***		1012.923***		660.541***		2031.272***		846.444***		1034.497***	
Lambda (Hazard)	**-0.060*** **	**(-5.607)**	**-0.068*** **	**(-3.688)**	**-0.015**	**(-1.412)**	**0.102*** **	**(6.579)**	**0.126*** **	**(4.872)**	**0.065*** **	**(3.795)**
Panel B: First Stage Results												
LONE FOUNDER FIRM (*instr.*)												
INITIAL POOL	-0.922***	(-10.770)	-0.758***	(-7.913)	-1.616***	(-6.368)	-0.904***	(-10.667)	-0.744***	(-7.863)	-1.594***	(-6.303)
SINGLE FOUNDER	0.586***	(8.029)	0.539***	(6.233)	1.444***	(6.846)	0.591***	(8.168)	0.544***	(6.355)	1.410***	(6.780)
NUMBER FOUNDERS	0.095***	(3.277)	0.049	(1.469)	0.650***	(5.841)	0.097***	(3.403)	0.055*	(1.674)	0.627***	(5.738)
Lagged Controls	Yes		Yes		Yes		Yes		Yes		Yes	
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	

Note: The table reports the first and second stage of a dummy endogenous variable model. The table shows the key results for lone founder firms. Panel A documents the main stage results, i.e. the estimated treatment effect of the instrumented owner identity variable on the policy variable (bold). In addition, panel A shows the potential selection effect, indicated by lambda (bold). Panel B shows first stage results. The instrumented variable (LONE FOUNDER FIRM) is applied in the second stage to estimate the firm policy effects, i.e. CASH ratio and LEVERAGE ratio. The second stage model *a* includes the total sample. Models *b* and *c* estimate policy effects in high industry competition (HIC) and in low industry competition (LIC) settings. Lagged controls are included in all regressions. The variables are defined in the Appendix. The values in parentheses are robust z- (first stage), respectively t-statistics (second stage). * indicates significance at 10%, ** at 5%, and *** at 1%.

Source: Own work.

Table 7.12: Lone Founder Capital Structure (Treatment Effects)

	TE.2.D/E.a		**TE.2. D/E.b**		**TE.2. D/E.c**		**TE.2. D/M.a**		**TE.2. D/M.b**		**TE.2. D/M.c**	
Method	TE		TE/HIC		TE/LIC		TE		TE/HIC		TE/LIC	
Dep. variable (*second stage*)	D/E		D/E		D/E		D/MVE		D/MVE		D/MVE	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
Panel A: Second Stage Results												
LONE FOUNDER FIRM (*instr.*)	**-1.011****	**(-2.255)**	**-1.095***	**(-1.703)**	**-0.321**	**(-0.646)**	**-1.245*****	**(-4.953)**	**-1.714*****	**(-4.037)**	**-0.345**	**(-1.560)**
FF VR_{t-1}	-0.628*	(-1.781)	-0.670	(-1.263)	-0.700	(-1.407)	-0.355*	(-1.789)	-0.786**	(-2.236)	-0.030	(-0.137)
FF BOARD $REPRES_{t-1}$	-0.132	(-0.176)	-0.036	(-0.040)	-0.786	(-0.589)	-0.298	(-0.705)	-0.260	(-0.439)	-1.012*	(-1.709)
50% $OWNER_{t-1}$	-0.138	(-0.844)	0.565**	(2.369)	-0.641***	(-2.872)	-0.275***	(-2.992)	-0.305*	(-1.924)	-0.242**	(-2.440)
NUMBER $BLOCKHOLDERS_{t-1}$	0.001	(0.013)	0.087	(1.269)	-0.033	(-0.463)	0.028	(1.010)	0.033	(0.723)	0.033	(1.034)
OUTSIDER BLOCK VR_{t-1}	-1.102***	(-3.395)	-1.285***	(-2.627)	-1.139***	(-2.601)	-0.760***	(-4.153)	-1.178***	(-3.631)	-0.554***	(-2.845)
$BETA_{t-1}$	0.096	(0.789)	0.072	(0.458)	0.039	(0.201)	-0.029	(-0.428)	-0.001	(-0.011)	-0.066	(-0.765)
LN AGE_{t-1}	-0.255***	(-3.021)	-0.075	(-0.658)	-0.300**	(-2.509)	-0.297***	(-6.264)	-0.407***	(-5.346)	-0.083	(-1.555)
LN TOTAL ASSETS (M) $_{t-1}$	0.197***	(3.663)	0.085	(1.142)	0.306***	(3.875)	0.233***	(7.710)	0.391***	(7.933)	0.075**	(2.134)
DEBT / $MVEQUITY_{t-1}$												
ROA_{t-1}	0.010	(0.032)	0.175	(0.489)	-0.672	(-0.936)	-0.417**	(-2.349)	-0.152	(-0.643)	-1.983***	(-6.207)
INT $ACCOUNTING_{t-1}$	-0.189	(-0.974)	-0.482*	(-1.699)	0.117	(0.439)	-0.237**	(-2.172)	-0.404**	(-2.144)	-0.003	(-0.027)
NEUER MARKT $MEMBER_{t-1}$	-0.156	(-0.567)	0.025	(0.067)	-0.532	(-1.133)	-0.231	(-1.492)	0.217	(0.898)	-0.896***	(-4.295)
ANALYST $FOLLOWING_{t-1}$	-0.040***	(-3.868)	-0.006	(-0.345)	-0.065***	(-4.866)	-0.049***	(-8.454)	-0.062***	(-5.456)	-0.030***	(-4.999)
CONSTANT	3.236***	(5.340)	1.473**	(2.129)	3.039***	(3.715)	1.611***	(4.724)	1.941***	(4.232)	1.230***	(3.383)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	4024		2001		2023		4023		2000		2023	
Chi^2	876.248***		391.081***		341.533***		1100.195***		510.984***		524.866***	
Lambda (Hazard)	**0.653****	**(2.335)**	**0.816****	**(2.041)**	**-0.239**	**(-0.633)**	**0.826*****	**(5.304)**	**1.113*****	**(4.246)**	**0.277***	**(1.655)**
Panel B: First Stage Results												
LONE FOUNDER FIRM (*instr.*)												
INITIAL POOL	-0.903***	(-10.636)	-0.739***	(-7.799)	-1.600***	(-6.299)	-0.902***	(-10.623)	-0.738***	(-7.787)	-1.602***	(-6.312)
SINGLE FOUNDER	0.587***	(8.080)	0.543***	(6.315)	1.455***	(6.908)	0.584***	(8.038)	0.539***	(6.260)	1.434***	(6.852)
NUMBER FOUNDERS	0.096***	(3.367)	0.055*	(1.680)	0.639***	(5.768)	0.097***	(3.380)	0.056*	(1.689)	0.638***	(5.772)
Lagged Controls	Yes		Yes		Yes		Yes		Yes		Yes	
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	

Note: The table reports the first and second stage of a dummy endogenous variable model. The table shows the key results for lone founder firms. Panel A documents the main stage results, i.e. the estimated treatment effect of the instrumented owner identity variable on the policy variable (bold). In addition, panel A shows the potential selection effect, indicated by lambda (bold). Panel B shows first stage results. The instrumented variable (LONE FOUNDER FIRM) is applied in the second stage to estimate the firm policy effects, i.e. DEBT/EQUITY ratio and DEBT/MVEQUITY ratio. The second stage model *a* includes the total sample. Models *b* and *c* estimate policy effects in high industry competition (HIC) and in low industry competition (LIC) settings. Lagged controls are included in all regressions. The variables are defined in the Appendix. The values in parentheses are robust z- (first stage), respectively t-statistics (second stage). * indicates significance at 10%, ** at 5%, and *** at 1%.

Source: Own work.

Table 7.13: Family Founder Firm and Heir Firm Cash-Holdings and Leverage (Treatment Effects)

	TE.2.CAS.a		**TE.2.CAS.b**		**TE.2.CAS.c**		**TE.2.LEV.a**		**TE.2.LEV.b**		**TE.2.LEV.c**	
Method	TE		TE/HIC		TE/LIC		TE		TE/HIC		TE/LIC	
Dep. variable (*second stage*)	CASH		CASH		CASH		LEV		LEV		LEV	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
Panel A: Second Stage Results												
FAMILY FOUND. FIRM (*instr.*)	**0.046****	**(2.559)**	**0.051***	**(1.718)**	**-0.035***	**(-1.719)**	**0.038**	**(1.443)**	**-0.007**	**(-0.176)**	**0.141*****	**(4.179)**
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	4006		1986		2020		4042		2015		2027	
Chi^2	1877.885***		990.906***		547.455***		1684.381***		812.782***		917.327***	
Lambda (Hazard)	**-0.019***	**(-1.763)**	**-0.018**	**(-1.017)**	**0.016**	**(1.336)**	**-0.026**	**(-1.631)**	**-0.013**	**(-0.542)**	**-0.051****	**(-2.491)**
Panel B: First Stage Results												
FAMILY FOUND. FIRM (*instr.*)												
INITIAL POOL	0.768***	(9.319)	0.726***	(7.459)	0.982***	(5.736)	0.766***	(9.359)	0.726***	(7.532)	0.982***	(5.738)
EARLY INCEPTION	-2.014***	(-12.106)	-2.000***	(-8.515)	-2.143***	(-7.874)	-2.031***	(-12.295)	-2.056***	(-8.833)	-2.131***	(-7.941)
Lagged Controls	Yes		Yes		Yes		Yes		Yes		Yes	

	TE.2.CAS.a		**TE.2.CAS.b**		**TE.2.CAS.c**		**TE.2.LEV.a**		**TE.2.LEV.b**		**TE.2.LEV.c**	
Method	TE		TE/HIC		TE/LIC		TE		TE/HIC		TE/LIC	
Dep. variable (*second stage*)	CASH		CASH		CASH		LEV		LEV		LEV	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
Panel A: Second Stage Results												
HEIR FIRM (*instr.*)	**-0.042*****	**(-2.786)**	**-0.088*****	**(-2.954)**	**0.012**	**(0.873)**	**0.058*****	**(2.652)**	**0.143*****	**(3.492)**	**-0.032**	**(-1.319)**
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	4005		1985		2020		4041		2014		2027	
Chi^2	2215.187***		949.587***		899.862***		2021.746***		766.449***		1256.325***	
Lambda (Hazard)	**0.020****	**(2.212)**	**0.040****	**(2.301)**	**-0.001**	**(-0.104)**	**-0.040*****	**(-2.987)**	**-0.091*****	**(-3.859)**	**0.015**	**(1.008)**
Panel B: First Stage Results												
HEIR FIRM (*instr.*)												
FIRM FOUNDER NAME	0.616***	(7.765)	0.268**	(2.119)	0.912***	(8.082)	0.612***	(7.759)	0.270**	(2.148)	0.911***	(8.081)
EARLY INCEPTION	1.316***	(8.883)	1.528***	(6.788)	1.348***	(6.336)	1.303***	(8.846)	1.518***	(6.779)	1.340***	(6.331)
Lagged Controls	Yes		Yes		Yes		Yes		Yes		Yes	

Note: The table reports the first and second stage of a dummy endogenous variable model. The table shows the key results for family founder firms in the upper and for heir firms in the bottom part. Each part contains two panels. Panel A documents the main stage results, i.e. the estimated treatment effect of the instrumented owner identity variable on the policy variable (bold). In addition, panel A shows the potential selection effect, indicated by lambda (bold). Panel B shows first stage results. All regressions are fully specified and identically to the lone founder firm regressions. The instrumented variable (FAMILY FOUNDER FIRM or HEIR FIRM) is applied in the second stage to estimate the firm policy effects, i.e. CASH ratio and LEVERAGE ratio. The second stage model *a* includes the total sample. Models *b* and *c* estimate policy effects in high industry competition (HIC) and in low industry competition (LIC) settings. Lagged controls are included in all regressions. The variables are defined in the Appendix. The values in parentheses are robust z- (first stage), respectively t-statistics (second stage). * indicates significance at 10%, ** at 5%, and *** at 1%.

Source: Own work.

Table 7.14: Family Founder Firm and Heir Firm Capital Structure (Treatment Effects)

	TE.2.D/E.a		**TE.2. D/E.b**		**TE.2. D/E.c**		**TE.2. D/M.a**		**TE.2. D/M.b**		**TE.2. D/M.c**	
Method	TE		TE/HIC		TE/LIC		TE		TE/HIC		TE/LIC	
Dep. variable (*second stage*)	D/E		D/E		D/E		D/MVE		D/MVE		D/MVE	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
Panel A: Second Stage Results												
FAMILY FOUND. FIRM (*instr.*)	**-0.599**	**(-1.279)**	**-0.390**	**(-0.610)**	**-0.973**	**(-1.336)**	**-0.230**	**(-0.886)**	**-0.441**	**(-1.068)**	**0.274**	**(0.849)**
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	4024		2001		2023		4023		2000		2023	
Chi^2	510.424***		334.191***		230.982***		726.646***		452.541***		413.485***	
Lambda (Hazard)	**0.331**	**(1.151)**	**0.101**	**(0.258)**	**0.783***	**(1.752)**	**0.041**	**(0.255)**	**0.137**	**(0.541)**	**-0.117**	**(-0.591)**
Panel B: First Stage Results												
FAMILY FOUND. FIRM (*instr.*)												
INITIAL POOL	0.760***	(9.260)	0.719***	(7.443)	0.973***	(5.692)	0.760***	(9.263)	0.719***	(7.441)	0.980***	(5.728)
EARLY INCEPTION	-2.015***	(-12.192)	-2.050***	(-8.794)	-2.117***	(-7.888)	-2.026***	(-12.253)	-2.050***	(-8.796)	-2.137***	(-7.958)
Lagged Controls	Yes		Yes		Yes		Yes		Yes		Yes	

	TE.2.D/E.a		**TE.2. D/E.b**		**TE.2. D/E.c**		**TE.2. D/M.a**		**TE.2. D/M.b**		**TE.2. D/M.c**	
Method	TE		TE/HIC		TE/LIC		TE		TE/HIC		TE/LIC	
Dep. variable (*second stage*)	D/E		D/E		D/E		D/MVE		D/MVE		D/MVE	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
Panel A: Second Stage Results												
HEIR FIRM (*instr.*)	**1.358*** **	**(3.476)**	**1.629** **	**(2.535)**	**1.663*** **	**(3.212)**	**0.765*** **	**(3.526)**	**1.260*** **	**(3.036)**	**-0.030**	**(-0.133)**
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	4023		2000		2023		4022		1999		2023	
Chi^2	858.169***		294.883***		593.547***		1070.436***		411.592***		767.533***	
Lambda (Hazard)	**-0.772*** **	**(-3.225)**	**-0.829** **	**(-2.205)**	**-1.018*** **	**(-3.124)**	**-0.460*** **	**(-3.466)**	**-0.690*** **	**(-2.854)**	**-0.032**	**(-0.218)**
Panel B: First Stage Results												
HEIR FIRM (*instr.*)												
FIRM FOUNDER NAME	0.615***	(7.783)	0.274**	(2.175)	0.913***	(8.098)	0.615***	(7.782)	0.274**	(2.175)	0.913***	(8.098)
EARLY INCEPTION	1.309***	(8.881)	1.529***	(6.818)	1.345***	(6.348)	1.310***	(8.883)	1.529***	(6.817)	1.345***	(6.349)
Lagged Controls	Yes		Yes		Yes		Yes		Yes		Yes	

Note: The table reports the first and second stage of a dummy endogenous variable model. The table shows the key results for family founder firms in the upper and for heir firms in the bottom part. Each part contains two panels. Panel A documents the main stage results, i.e. the estimated treatment effect of the instrumented owner identity variable on the policy variable (bold). In addition, panel A shows the potential selection effect, indicated by lambda (bold). Panel B shows first stage results. All regressions are fully specified and identically to the lone founder firm regressions. The instrumented variable (FAMILY FOUNDER FIRM or HEIR FIRM) is applied in the second stage to estimate the firm policy effects, i.e. DEBT/EQUITY ratio and DEBT/MVEQUITY ratio. The second stage model *a* includes the total sample. Models *b* and *c* estimate policy effects in high industry competition (HIC) and in low industry competition (LIC) settings. Lagged controls are included in all regressions. The variables are defined in the Appendix. The values in parentheses are robust z- (first stage), respectively t-statistics (second stage). * indicates significance at 10%, ** at 5%, and *** at 1%.

Source: Own work.

Heir firms have a tendency to higher leverage, 0.058 (p<0.01). The leverage ratio tops sample mean by 28% in HIC scenarios, 0.143 (p<0.01; confirms H4.2.c). Similarly, the statistically significant debt-to-equity ratios confirm this heir firm finding: 1.358 and 1.629 in HIC, respectively. LIC scenarios show a more ambiguous picture in heir firm settings.

In terms of leverage and more specifically with regard to long-term debt characteristics, owner identity types differ from each other to a large extent. This again confirms the heterogeneous characteristics that go beyond governance features in founding-family defined firms. As these results indicate opposite behavior for lone founder (low leverage) and heir firms (high leverage), they seem to deliver explanations for the partly conflicting results of previous studies on capital structure decisions in family firms. To the best of my knowledge, previous studies did not consider owner identity types and competitive industry mechanisms to the degree of this work.[227]

7.3 Summary

Reviewing the empirical evidence on founding-family firm heterogeneity and firm policy, the results clearly confirm the underlying working hypothesis which recommends a differentiation of owner identity types. Lone founder, family founder, and heir firms have their common features, nevertheless, they also differ substantially in their overall governance implications and policy choices. The initial analysis of the applied corporate governance mechanisms focuses on the application of single governance devices, such as board representation, overall voting rights, wedges or external blockholders. The estimation results reveal a varying extent of applied governance mechanisms. The differences are confirmed in rank-sum tests as well as in a multivariate analysis.

The second part of the heterogeneity analysis is based on the development of a novel heterogeneity index. The index comprises essential corporate governance devices that characterize and govern a founding-family firm.

[227] Differences in HIC and LIC provide insights that previous studies largely neglected.

This approach enables an analysis of the combined application of corporate governance mechanisms, a realistic approach, as many governance mechanisms exist in parallel. As a result, the combined index reflects overall owner identity specific preferences to preserve and enforce control within the firm—a rationale that derives from the diverse agency and stewardship settings that lone founder, family founder, and heir firms reveal. The univariate as well as the multivariate regressions of the heterogeneity index prove the distinct logic of the proposed founding-family subtypes.

Lone founder firms show the lowest ambition of overall control protection, although they have substantial management board influence. Surprisingly, family founder firms, and not heir firms, expose strongest preferences in securing their control position; especially via overall and both-board representation as well as via wedge mechanisms. The fact that the extreme (opposite) positions of the heterogeneity index are occupied by lone founder firms and family founder firms, emphasizes the decisive impact of 'familiness', generated by family/kinship relations.

Both firm types belong to the same generation and show management participation in the context of founder-CEOs but reveal contrasting governance settings. The results of the heterogeneity index analysis have built a helpful foundation for follow-up studies. For convenience, table 7.15 summarizes the hypotheses on founding-family firm heterogeneity as well as the respective results.

The subsequent analysis of firm policy effects extends the empirical reasoning for founding-family firm type differentiation. With respect to investment and financing behavior, all three firm types come up with diverse results. While lone founder firms tend to have average CAPEX investments, family founder firms show substantially lower investment spend. The underinvestment characteristic is particularly pronounced in competitive industry environments, falling 61% below sample mean. Though I can not explicitly test for potential succession scenarios, the suggestions of Schulze et al. (2002b) might apply to this family founder evidence: they emphasize problems of

underinvestment, slowing growth, as well as administrative and resource constraints that potentially result in transition failure from first- to second-generation family firms.

In contrast, heir firms show the highest CAPEX ratios of the owner identity firm types in HIC scenarios, exceeding sample mean by 88%. However, heir firms (and to some extent also family founder firms) change their investment behavior depending on industry competition. This suggests a strong influence of external/market governance and a minor explanatory power of agency and stewardship arguments.

The findings on R&D investments corroborate the evidence that Block (2012) reports for a S&P 500 sample. He reveals a substantially higher R&D investment by lone founder firms and average R&D spend in family managed firms. While Block (2012) does not explicitly differentiate family founder and heir firms, I can confirm this finding for both types individually. Family founder and heir firms show average R&D spend, whereas lone founder firms top average R&D spend by 39%.

Further characteristics concern risk policy and financial policy. Lone founder firms hold substantially higher amounts of cash, about 57% over sample mean, as a liquidity buffer. Heir firms display the opposite characteristic. Family founder firms have somewhat higher cash-holdings, though they are below the level of lone founder firms.

Of similar interest are the significant and contrary outcomes from the capital structure analysis. Prior studies on leverage in founding-family firms have regularly generated ambiguous and conflicting results.

This analysis seems to partly explain diverging outcomes in previous work which lacked an explicit lone founder, family founder, and heir firm differentiation. While lone founder firms avoid high leverage, heir firms show high debt-to-equity ratios. Again, family founder firms take an in-between position. The hypotheses and results on firm policy are given in table 7.16.

Finally, it should be mentioned that all results are generated by new conceptual approaches, through the application of advanced empirical approaches, and accompanied by numerous control variables and robustness checks (e.g. SFI, LIC, HIC).

Table 7.15: Summary of Firm Heterogeneity Hypotheses and Results

#	HYPOTHESES	EXPECTED SIGN	RESULT
	FIRM HETEROGENEITY		
WH	**Founding-family defined firms** differ in terms of their **owner identity characteristic**s.		CONFIRMED
	BOARD INFLUENCE		
H1.1.a	**Lone Founder** firms are positively associated with high (management) board representation.	+	+
H1.1.b	**Family Founder** firms are positively associated with high (management) board representation.	+	+
H1.1.c	**Heir** firms are not associated with high (management) board representation.	**o**	**o**
H1.2.a	**Lone Founder** firms are negatively associated with both-board representation.	–	**o**
H1.2.b	**Family Founder** firms are positively associated with both-board representation.	+	+
H1.2.c	**Heir** firms are positively associated with both-board representation.	+	+
	BLOCKHOLDING INFLUENCE		
H2.1.a	**Lone Founder** firms are negatively associated with the highest levels of blockholding.	–	–
H2.1.b	**Family Founder** firms are positively associated with the highest levels of blockholding.	+	+
H2.1.c	**Heir** firms are positively associated with the highest levels of blockholding.	+	+
	CONTROL–ENHANCING MECHANISM		
H2.2.a	**Lone Founder** firms are negatively associated with dual-class shares/wedges.	–	–
H2.2.b	**Family Founder** firms are positively associated with dual-class shares/wedges.	+	**o**
H2.2.c	**Heir** firms are positively associated with dual-class shares/wedges.	+	+
	OUTSIDE BLOCKHOLDING INFLUENCE		
H2.3.a	**Lone Founder** firms are positively associated with a high level of outsider blockholdings.	+	+
H2.3.b	**Family Founder** firms are negatively associated with a high level of outsider blockholdings.	–	–
H2.3.c	**Heir** firms are negatively associated with a high level of outsider blockholdings.	–	–
H2.4.a	**Lone Founder** firms are positively associated with venture capital/private equity blockholders.	+	+
H2.4.b	**Family Founder** firms are negatively associated with venture capital/private equity blockholders.	–	–
H2.4.c	**Heir** firms are negatively associated with venture capital/private equity blockholders.	–	–

Note: This table presents an overview of hypotheses and results on firm heterogeneity. The signs "+", "–" and "o" indicate a significant positive, a significant negative, and a neutral association.

Source: Own work.

Table 7.16: Summary of Firm Policy Hypotheses and Results

#	HYPOTHESES	EXPECTED SIGN	RESULT ALL	RESULT HIC	RESULT LIC
	INVESTMENT POLICY				
H3.1.a	**Lone Founder** firms are positively associated with high capital expenditures (CAPEX).	+	**o**	**o**	**o**
H3.1.b	**Family Founder** firms are positively associated with high capital expenditures (CAPEX).	+	–	–	**o**
H3.1.c	**Heir** firms are not associated with high capital expenditures (CAPEX).	**o**	**o**	+	–
H3.2.a	**Lone Founder** firms are positively associated with high research and development investments (R&D).	+	+	+	**o**
H3.2.b	**Family Founder** firms are positively associated with high research and development investments (R&D).	+	**o**	**o**	**o**
H3.2.c	**Heir** firms are not associated with high research and development investments (R&D).	**o**	**o**	**o**	**o**
	FINANCING & RISK POLICY				
H4.1.a	**Lone Founder** firms are positively associated with excess cash-holdings.	+	+	+	+
H4.1.b	**Family Founder** firms are not associated with excess cash-holdings.	**o**	+	**o**	**o**
H4.1.c	**Heir** firms are negatively associated with excess cash-holdings.	–	–	–	**o**
H4.2.a	**Lone Founder** firms are negatively associated with high leverage ratios.	–	–	–	–
H4.2.b	**Family Founder** firms are not associated with high leverage ratios.	**o**	**o**	**o**	+
H4.2.c	**Heir** firms are positively associated with high leverage ratios.	+	+	+	**o**

Note: This table presents an overview of hypotheses and results. The signs "+", "–" and "o" indicate a significant positive, a significant negative, and a neutral association. RESULT ALL summarizes the results including the sample of founding-family firms. RESULT HIC shows the results for founding-family firms in high industry competition settings while RESULT LIC shows founding-family firms in low industry competition settings. The HIC and LIC differentiation rests upon an industry sales concentration calculation (IND HERF). Industry competition serves as a proxy for external governance with high relevance for firm policy decisions.

Source: Own work.

8 Economics of Founding-Family Firms

As demonstrated in the previous chapter, even in organized capital markets the influence of entrepreneurs and entrepreneurial families is undisputed. However, there is much less consensus about what economic effects those individuals' influence entails. As presented in chapter 4, the Literature Review, existing evidence is somewhat mixed. As a result, this is still a fruitful and controversial subject as estimation and inference could be complicated by: simultaneity, unobserved moderating effects, selection effects or reverse causality. These potential complications are highly difficult to cope with and to assess appropriately. In spite of these problems, some characteristics of founding-family firms seem like an attractive way of addressing more general corporate governance problems. In contrast to investigations into managerial ownership, a founding-family ownership setting should be less questionable with respect to performance and remuneration-induced governance (e.g. Gugler and Weigand, 2003; Edwards and Weichenrieder, 2004; Kaserer and Moldenhauer, 2007; Andres, 2008b). This follows the logic that founding-family ownership is not primarily due to corporate performance but rather the result of entrepreneurial endeavor or inheritance. Nevertheless, the persistence of founding-family influence, i.e. the decision to remain a blockholder, is potentially subject to performance.[228] Another general problem is to identify and differentiate whether potential policy or performance effects are linked to family or firm characteristics (cf. Bennedsen et al., 2010).

[228] The drivers of ownership dynamics, and in particular of a complete exit of the founding-family, are discussed in chapter 9.

Thus, the challenges are not purely empirical or method-related. In fact, the general conceptual approach to assessing the heterogeneity of founder and founding-family firms—with respect to themselves and to firms that lack founder or family influence—is a major challenge. The individual organizational settings and contracting setups differ considerably in terms of agency costs as Villalonga and Amit (2006) demonstrate. For this reason, awareness of definitions and especially of deviations in definition work (across various studies) becomes a key aspect of interpreting empirical evidence. As Miller et al. (2007) demonstrate, inference of causes and effects requires an understanding of intertwined firm governance and familiness characteristics.

In this study, the aim is to understand costs and benefits of various governance and agency settings with respect to the owner identity of founding-family defined firms. I therefore differentiate the heterogeneous founder and founding-family firms into the three distinct groups already introduced: (i) lone founder firms, (ii) family founder firms and (iii) heir firms.[229]

Both prior scholarly work and the analysis in chapter 7, Heterogeneity and Firm Policy of Founding-Family Firms, reveal that founding-family defined firms encompass much heterogeneity in characteristics and effects, depending on generational and family characteristics. According to Fahlenbrach (2009), founder firms show substantial and even systematic differences with respect to non-founder firms. Similarly, Villalonga and Amit (2006) provide evidence that founder-led firms face a specific contracting model, i.e. the founder as owner and CEO, which is reflected in superior firm valuation.[230]

[229] Please refer to the previous chapters' explanations of this approach and the empirical insights of chapter 7, Heterogeneity and Firm Policy of Founding-Family Firms.

[230] Adams et al. (2009) document founder-CEO status as endogenous with respect to performance which understates this effect in OLS regressions. They suggest that a stronger positive treatment effect has the direction founder-CEO on performance. When interpreting family firm settings Bertrand et al. (2008) propose the consideration of essential family and individual specifics, like family ties and cultural aspects. Li and Srinivasan (2011) examine the governance characteristics of founder-director firms as opposed to firms without founder-directors (chairmen) on their boards. Founder-directors have a pronounced influence on firm policy, e.g. through compensation contracts and turnover of hired CEOs, suggesting an active role of founders (as chairman), that is not restricted to a CEO position. Becker et al. (2011) focus on governance and firm policy when large non-managerial blockholders are present in large listed US firms. They assess the causal

Clearly, the influence of founders and founding-families includes a large set of contracting mechanisms.[231] From a theoretical point of view, the various owner types as well as heterogeneous management and control scenarios should result in substantially divergent agency settings (cf. Villalonga and Amit, 2006).[232] I therefore argue that the moderating effect of owner identity characteristics—which simultaneously incorporate aspects of family influence and firm generation—is crucial to properly understanding and interpreting various governance settings. In fact, the interplay of owner identity with several governance mechanisms complicates the evaluation of these complex heterogeneous characteristics.

Agency theory predicts particular agency costs for various founding-family settings that in turn affect valuation (cf. Villalonga and Amit, 2006). The point that is not as fully explained, is the role of owner identity and the application of particular agency settings. Differences in agency settings installed could potentially explain systematic differences—should they exist—by owner identity types. Although it is plausible that owner identity specifics could reflect goals, values, or willingness to take risk (cf. Miller et al., 2011), empirical studies on founding-family firms rarely consider the differences in owner identity as moderating effects in their analysis.[233]

influence of large individual shareholders on corporate policy and operating performance with an instrumental variable approach. They confirm that on average, in the presence of a large non-managerial individual shareholder this shareholder's monitoring affects firm decisions like board composition, investment policy, and CEO compensation schemes. Further, their presence increases the payout ratio and stock illiquidity.

[231] Some of these mechanisms are unique to founder and founding-family settings, while similar mechanisms could be at work in high non-founding-family insider ownership settings, too.

[232] Evidently, stewardship settings could also vary. Nevertheless, the main focus in this analysis is the empirical quantification of associated (agency) costs and benefits of owner identity and governance settings.

[233] In fact, the majority of prior scientific work discusses the phenomenon of publicly listed individual blockholder firms as a group of firms that diverge from the stereotypical picture of a (widely held) non-family firm. As a result we have seen different outcomes and implication suggestions. Variation in applied definitions and in sample composition are prime examples of how results are complicated, as definition and sample design potentially influence overall results (cf. Bennedsen et al., 2010).

8.1 Sample, Data Set, Research Design

8.1.1 Sample Construction

The sample for the analysis of economics is identical to that of the previous chapter 7, *Heterogeneity and Firm Policy of Founding-Family Firms*. The description there includes the following aspects:

- Sample Construction

  This section presents the detailed approach of general sample construction along with the stock index composition of the German all share index *CDAX (Composite German Stock Index)* as the point of departure. The CDAX covers the years 1995 to 2008. In total, the sample includes 5,069 firm years from 676 unique CDAX firms.[234]

- Governance Data

  This section describes the hand-collected governance data, i.e. ownership and board structure information. The primary data source is *Hoppenstedt Aktienführer*. The ownership structure analysis results in a differentiation scheme of five distinct shareholder categories and 28 distinct shareholder types. The board structure analysis results in 16,579 hand-collected management board member entries and 38,332 supervisory board member entries over the respective sample firm years. [235]

- Founder & Owner Identity Identification

  The identification of a company's founder(s) is based on *Hoover's Company Profiles* from *Hoover's Online* database, *Commerzbank "Wer gehört zu wem?"*, and *Bureau van Dijk's Amadeus* database (along with further cross-checks). A subsequent identification approach clarifies the owner identity status, i.e. (i) whether this firm is still influ-

[234] See details in section 7.1.1, Sample Construction.
[235] See details in section 7.1.1.1, Governance Data.

enced by its founder(s) or is already influenced by an heir generation (generation dimension); and more specifically, (ii) whether a founder influenced firm is also characterized by kinship relations amongst founding-family shareholders and/or board members (family/kinship dimension). Thus, all shareholder, management board, and supervisory board entries are manually screened for these characteristics. This allows the classification of lone founder, family founder, and heir firms. Besides the databases mentioned above, I investigate owner identity status via IPO prospectuses, company reports, and further public information sources including *Factiva* and *LexisNexis*.[236]

A short sample characterization with descriptive statistics is provided in section 7.2.1, Firm, Ownership, and Institutional Characteristics, figure 7.1, Descriptive Sample Characteristics, and table 7.4, Summary Statistics.

8.1.2 Variables

All variables that relate to capital market data come from *Thomson Financial Datastream*. Accounting data, industry classification, and listing year stem from *Thomson One Banker/Worldscope*.

8.1.2.1 Firm Economics Variables

The primary dependent variable of the following analysis is Tobin's Q (TQ) measure, an approximation of the market value of shareholders' equity plus book value of interest and non-interest bearing liabilities divided by the book value of total shareholders' equity and the book value of total liabilities; i.e. a quasi market-to-book ratio.[237] I further calculate the natural log of TQ (LnTQ) and an industry-adjusted TQ (adjTQ). These valuation measures are the heart of the economics section. Adams et al. (2009) argue that, if

[236] See details in section 7.1.1.2, Founder Data.

[237] For an analysis of various Tobin's Q calculation approaches, see Chung and Pruitt (1994) or Perfect and Wiles (1994).

appropriately specified, TQ should be the right measure to identify market valuation:

> "We use our proxy for Tobin's Q as a measure of market valuation (scaled by the book value of assets), and not as a proxy for investment opportunities. Holding the book value of assets constant, maximizing Q is equivalent to maximizing the market value of the firm, which is considered the proper objective of the firm by most financial economists. Thus, in order for a Q regression to be properly interpreted as a valuation regression, we always include the book value of assets as a right-hand side variable."[238]

This thesis interprets Tobin's Q in exactly this fashion. In accordance with the suggestions of Hirsch and Seaks (1993), I apply predominantly the logarithm of Tobin's Q, as the more robust and thus preferable approach. Nevertheless, for comparability purposes and intuitive coefficient interpretation, I frequently calculate the non-logged version and an industry adjusted Tobin's Q too.[239]

8.1.2.2 Governance Variables

The focus on founding-family firm heterogeneity requires the explicit consideration of distinct governance settings. The following definitions of governance related variables can be broadly differentiated in three categories:

1. *Ownership structure* variables
2. *Board structure* variables
3. *Further internal* and *external governance mechanisms*

[238] Adams et al. (2009, p. 138).

[239] On a yearly basis, I calculate the median of Tobin's Q for the respective Fama and French (1997) industries as described in section 7.1.2.4, Control Variables. The industry adjusted Tobin's Q is the result of the adjustment of the respective firm's Tobin's Q by its industry median in a respective firm year.

Ownership structure variables include the accumulated voting rights held by founding-family defined individuals (FF VR) as well as the total accumulated insider ownership (IOC VR)[240] in sample firms. Both measures indicate the presence and relevance of individuals and (founding) families in listed German firms. For both measures, I additionally approximate the cash-flow rights, FF CFR and IOC CFR. Similarly, I differentiate the voting rights variables according to owner identity types, i.e. LF VR for accumulating FF VR for lone founder firms. The same measure is available for family founder firms and heir firms, too. In addition, there is a differentiation of shareholding that accounts for shareholders with presence on boards. I differentiate FFMB and FFSB, for a founding-family defined influence either via management or via supervisory board. The corresponding insider ownership variables are defined as IOCMB and IOCSB. While IOCMB and IOCSB include founding-family ownership, IOMB and IOSB exclude it. In addition, various types of blockholders are available as defined in table 7.2.

Board structure variables include FF BOARD REPRESENTATION, where the ratio scales the number of board seats occupied by the founders or the founding-family by the number of total board seats. In addition, I differentiate board representation for management and supervisory board (SFI MB and SFI SB). In the event that the founders or founding-family members are represented on the management as well as on the supervisory board I assign the BOTHBOARDS dummy. I further analyze distinct executive positions, including *CEO* and *Chairman (of the supervisory board)* characteristics. Indicators include FCEO for founder-CEO, HCEO for heir-CEO, FCHM for founder-chairman, and HCHM for heir-chairman. PCEO and PCHM indicate professional non-family executives.

In addition to insider blockholders, I apply OUTSIDER BLOCK VR, the accumulated voting rights of outside blockholders. The net effect, which I call DOMINANCE is calculated as FF VR minus OUTSIDER BLOCK VR. A

[240] IOC VR is a broad measure of insider ownership that includes founding-family insider ownership as well as non-founding family insider ownership.

high positive value indicates dominance of the founding-family defined firm while a negative value indicates a controlling outside monitor.

Further governance mechanisms of interest reflect control-enhancing ambitions of the founding-family firm. These mechanisms include dual share-class wedges, DUAL WEDGE and PYRAMID for pyramidal ownership structures.

8.1.2.3 Control Variables

I control for several firm characteristics in the course of this analysis to ensure the best possible consideration of firm characteristics such as age, size, or industry affiliation. Evidently, such fundamental characteristics could have a significant influence on the outcome of the analysis.

Specifically, I control for the firm age (years since firm inception) via AGE, specifically Ln AGE, the natural logarithm of age as it is common practice. Similarly, I take the log of the firm's size via its total assets, Ln TOTAL ASSETS (M), where the (M) indicates total assets in millions. Further, I control for BETA, as (systematic) risk measure. I calculate BETA for each firm year, based on the firm-specific correlation, calculated as the covariance of the weekly total return and CDAX index total return over the period of the previous 52 weeks divided by the variance of the CDAX index. In terms of the debt-to-equity ratio, I calculate the DEBT/EQUITY ratio as book ratio, as well as the DEBT/MVEQUITY ratio, the book value of debt scaled by the market value of equity. In addition, I use LEVERAGE as the leverage ratio, measured as book value of total liabilities divided by total assets.

Besides general firm characteristics, I integrate additional control variables with respect to capital market specifics. Certainly, some companies are subject to more transparency than other firms, thanks to easier and faster access to information. The transparency or the opaqueness of a firm is certainly crucial to understanding their strategy and rationale, their operating decisions and firm policy, as well as their performance (e.g. Anderson

et al., 2009). Although a proxy of information availability should be highly correlated with size—larger firms should generally attract more investors and public interest—I include the ANALYST FOLLOWING as additional variable. ANALYST FOLLOWING is the I/B/E/S based number of analysts that cover the respective firm, i.e. that made earnings forecasts nine months before fiscal year end.[241] I also control for a specific stock market segment membership, the NEUER MARKT MEMBER. The *Neuer Markt* was a specific platform attracting high growth technology, internet, and business services firms over the years 1997 to 2002.[242] I hand-collect the *Neuer Markt* index composition from the BÖRSENZEITUNG at year end and assign a dummy variable set to the value of 1 in the event that the respective firm is a *Neuer Markt* member in that year.[243] Given the importance and number of founder firms that fitted in the pattern of the *Neuer Markt,* this control dummy is essential, especially in terms of firm valuation and resulting robustness discussions.

Similarly important is the control of industry dummies, which are included in all regressions (with the exception of the per definition exclusion in firm fixed effects regressions) based on the Fama and French (1997) industry classification.

To control for time specific trends, I include year dummies in every regression. In terms of construction specifics, I winsorize variables calculated as ratios at the 1st and 99th percentile to increase the robustness with respect to outliers. I conduct the adjustment process for each panel year individually. Further, I apply lagged independent variables over the course of the analysis and the robustness sections to lower the influence of contemporaneous effects.

[241] I follow Anderson et al. (2009) in this approach.

[242] The official last day of trading was on 5 June, 2003, giving a transition period from 2002 to 2003 after the new segmentation of the FSE. Sell (2006) provides more details on the *Neuer Markt* as well as on the interesting subject of information transmission for such a specialized market segment.

[243] Unfortunately, there is no comprehensive survivor-bias free list of the *Neuer Markt* index members electronically available.

Table 7.4, table A.4 and table A.6 represent the overall summary statistics and a respective median rank-sum test of group differences.

8.1.3 Empirical Approach

The empirical analysis of this section breaks down into three major parts.

The *first part* is a conceptual analysis of agency theory related governance settings. This (agency) theoretical perspective determines settings that hypothetically have an impact—beneficial or less beneficial—on valuation. This approach is inspired by the work of Villalonga and Amit (2006). I extend their theoretical framework by matching owner identity characteristics with theoretical governance settings. This makes it possible to obtain an overview of which governance settings are most frequently applied in the respective owner identity group. This approach delivers a first sense of how theory, valuation data, and owner identity could be related.

The *second part* of this empirical investigation applies a rigorous battery of multivariate model specifications to identify not only correlations but also a notion of causality. Technically, I apply treatment effects (TE) regressions, firm fixed effects (FE) and random effects (RE) panel regressions, as well as a GMM, a generalized method of moments dynamic panel approach. Again, this analysis includes various agency and owner identity characteristics. Some models review the hypothesis that owner identity could be a considerable moderating variable in the governance performance evaluation. This part includes multiple robustness tests, incorporating various aspects of stock market segments related to transparency, as well as a variety of board and governance mechanisms.

Finally, the *third part* reviews the stock performance of owner identity differentiated groups. This stock performance analysis is not simply a further robustness test but extends the valuation analysis by some major perspectives: Firstly, the application of a Fama and French (1993) and Carhart (1997) four-factor benchmark model shows some of the key drivers of stock performance in a widely accepted standard asset pricing model. Secondly, there is

no such analysis for owner identity differentiated firms in prior work, and, thirdly, the factor loadings of such a model may indicate a potential portfolio characteristic of the respective owner identity group. This could hint for potential investment strategies an investor could pursue while investing in a group of lone founder, family founder, or heir firms.

8.2 Empirical Evidence

8.2.1 Owner Identity, Heterogeneity, and Valuation

In order to intuitively grasp a sense of the relationship between owner identity characteristics and firm performance I plot this relationship. I separate lone founder, family founder, heir firms, and all founding-family defined firms from each other. Individually for each group, I present the fitted values of the 'valuation' indicator logged Tobin's Q (LnTQ) against a 'founding-family influence' indicator. For the latter I apply the HETEROGENEITY INDEX developed in chapter 7, Heterogeneity and Firm Policy of Founding-Family Firms, and the SFI index presented alongside the HETEROGENEITY INDEX analysis in chapter 7.[244]

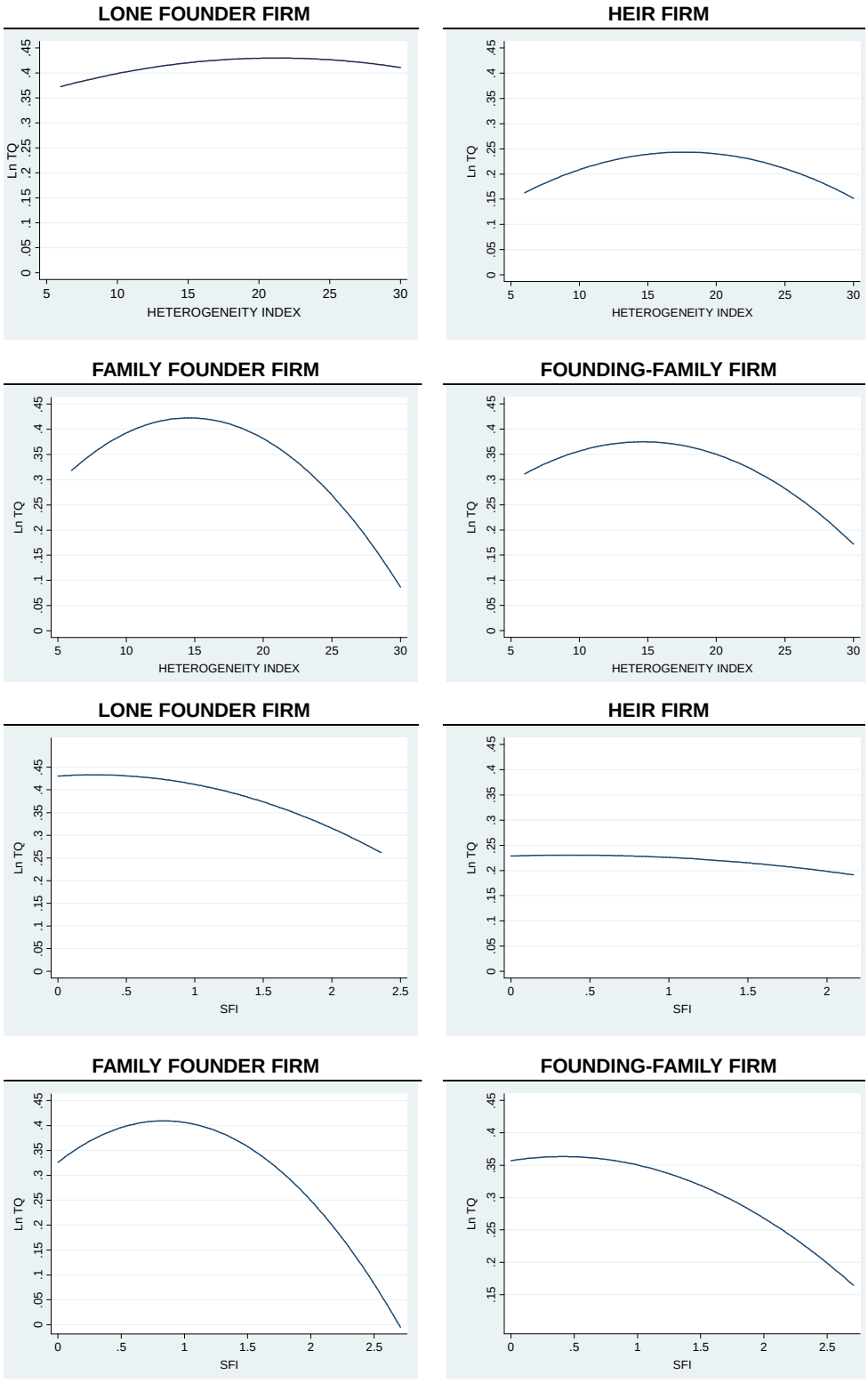
The graphical representation of the mentioned relationship shows figure 8.1, Owner Identity, Heterogeneity, and Valuation. Firstly, it is obvious that the level of LnTQ differs between owner identity groups as all LnTQ ordinates are equally scaled. Secondly, all charts indicate a hump-shaped, or inverted u-shape, relationship. Thirdly, this inverted u-shape relationship is most pronounced in family founder settings, irrespective of the HETEROGENEITY INDEX or SFI indicator. To sum up those preliminary findings: lone founder firms show the highest valuation level, family founder firms the highest sensitivity as stronger family founder influence has a large negative effect on valuation, and heir firms show in general a lower level of valuation. Obviously this can only hint to a governance-performance relationship as

[244] The estimated relationship follows a quadratic fitted regression curve to include linear and non-linear effects.

this analysis totally ignores controls like size, age, and further variables that proved to influence this relationship as documented by prior research.

However, it is again an indication for differences between owner identity settings. I will further analyze and compare those relationships in a multivariate approach. Specifically, I will elaborate on particular agency settings to properly understand reasons for potential effects. The foundation of this analysis starts with the next section.

Figure 8.1: Owner Identity, Heterogeneity, and Valuation



Note: This figure presents quadratic fitted relationships of LnTQ against HETEROGENEITY INDEX, and SFI, respectively, grouped by owner identity. **Source:** Own work.

8.2.2 Owner Identity and Agency Conflicts

Based on the fundamental agency theory, Villalonga and Amit (2006) differentiate distinct agency settings in a four-field matrix. One dimension represents the classic conflict between manager and shareholders, i.e. *Agency Problem I*. The second dimension, *Agency Problem II*, describes conflicts between large and minority shareholders. Hence, they identify four settings: one without conflicts, one with both conflicts, and two settings with one conflict, respectively.[245] They find evidence that agrees at an intuitive level with the theoretical predictions: the setting with least exposure to agency conflicts has the highest Tobin's Q valuation.

Working with a comparable differentiation, I show, that lone founder, family founder, and heir firms each display, individually, all four of the mentioned settings. While agency conflicts keep their general characteristic in different owner identity categories, the frequency of applied mechanisms, i.e. which characteristic dominates in an owner identity category, differs substantially.

Table 8.1 describes the four fields of agency conflicts in founding-family defined firms, presented in four panels (A–D).[246] Each panel indicates which kind of agency conflicts exist—(A) none, (B) the majority-minority-shareholder conflict, (C) both conflicts, or (D) the management–shareholder conflict. This overview makes two assumptions: *First*, the management board representation of founders or the founding-family is assumed to alleviate the conflict between management and shareholders, *Agency Problem I*. *Second*, *Agency Problem II*, the conflict between large shareholders, in this case the founder(s) or the founding-family and minority shareholders should be less pronounced if the family shareholder waives the installment of mechanisms that artificially deviate from *one-share-one-vote* policy.

[245] Villalonga and Amit (2006) place non-family firms in the field that have Agency Problem I but not Agency Problem II. I do not include non-family firms in this field, but separately identify the characteristics of non-family firms, as similar conflicts seem to exist in a non-family setting, too.

[246] Another fifth panel, panel (E), compares all panels in a rank-sum test.

While I share the general assumption by Villalonga and Amit (2006) with respect to the management-shareholder conflict, they focus specifically on the CEO characteristic. I do not restrict myself to the CEO characteristic and agree with Adams et al. (2009) who argue with respect to the founder-CEO characteristic:

> "In principle, one should not attach too much significance to the titles; what is important is whether the founder has any influence on managerial decisions. Thus, we view the founderCEO variable simply as a proxy for founder control."[247]

I avoid this restriction for three reasons. As Adams et al. (2009) indicate, it is quite difficult to distinguish whether a founder or a founding-family member has *only* managerial influence or the formal influence of a CEO. A second aspect concerns data coding with respect to CEO titles. My approach is very conservative in terms of assigning the CEO title. In some cases two managers lead the firm jointly, without having an officially assigned CEO position. Focusing on CEO titles in this context would underestimate the managerial influence of a founder or family, given both would belong to such category. The third point derives from a statistical perspective. There is no difference in either choosing the CEO or the management board participation ratio in terms of TQ.[248] However, this approach would allow for comparison with non-founding-family managerial insider ownership.[249] To sum up, I implement the management board participation (SFIMB) as a conclusive indicator that should reflect the managerial influence of the founder

[247] Adams et al. (2009, p. 143).

[248] The founder CEO definition mean is 1.985 and the median 1.334. Compared to my approach, there is no difference, as the mean of 1.987 and median of 1.338 show (see table 8.1); yet instead of 1,057 firm years from my approach, I could only include 783 firm years through a founder-CEO definition.

[249] I will discuss this aspect as well as the deviation from the approach of Villalonga and Amit (2006) and other scholars in the course of this section. My major point is, that the assumption of widely held firms as opposed to founding-family firms is hardly applicable in the German context. Insider blockholding is not restricted to founding-family blockholdings, albeit those shareholders indeed represent the main part of insider blockholding.

or founding-family and reduce the potential conflict between management and shareholders.

As introduced above, my approach relies on a *second* important assumption referring to *Agency Problem II*. This conflict should be less pronounced if the family shareholder waives the installment of mechanisms that artificially deviate from *one-share-one-vote* policy. As such, I conclude that this agency problem is reduced if founder and founding-family firms have no dual share-class structure and no substantial ownership pyramids installed.

8.2.2.1 Agency Conflicts: Univariate Evidence

The results from the four fields of agency conflicts combination in table 8.1, Agency Problems, confirm the theoretical predictions based on agency costs. Panel A, in which *Agency Problem I* and *Agency Problem II* are absent, has higher Tobin's Q valuation compared to all other panel settings, which have at least one agency conflict. A rank-sum test (and a t-test[250]) shows highest significance in all cases. Panels B to D show no distinction in a statistically significant sense, indicating clearly that the setting in panel A has the highest valuation advantage (see panel E for all combinations of rank-sum tests). Though this is an important indication it is uncontrolled for characteristics like size, age, or industry affiliation. I leave that aspect for later investigation in multivariate regression models.

Before multivariate testing, I extend the framework by matching owner identity groups with the four agency settings. Each panel shows the frequency of lone founder firms, family founder firms, and heir firms, that choose the respective agency setting. The key message here is that lone founder firms implement the *theoretically most advantageous* governance setting by far the most frequently. Lone founder firm years account for 66% of panel A, which has none of the two agency conflicts. In contrast, panel A shows only 22.3% family founder firm years and 11.6% heir firm years. Further, a rank-

[250] Available from the author. I decided to report only the Wilcoxon test.

sum test indicates that this comparable agency setting is even advantageous in a statistical manner, when I differentiate lone founder from heir firms (see panel A, LF-HF, table 8.1). While this difference between lone founder and heir firms applies similarly in all other panels, there is no difference between lone founder and family founder firms. This preliminary result seems to be in line with the conceptual differences between lone founder (founder generation/no kinship) and heir firms (second-plus generation/kinship) presented in chapter 2. However, I will not over-interpret these results without a proper multivariate analysis.

In order to conclude this univariate analysis, I finish with the applied mechanisms overview: family founder firms most frequently apply the mechanisms described in panel B, resulting in no *Agency Problem I*, but *Problem II* as a result of deviating from the *one-share-one-vote* principle. In panel B, about 45.3% of firm years are assigned to family founder firms. Heir firms are the dominant group in panel C (55.8% heir firm years), indicating *Problem I* and *Problem II*.

To summarize this evidence, I suggest that all kinds of mechanisms (that is, all agency problems) can exist in a distinct owner identity group. What differs is the frequency of mechanisms applied by owner identity. Somewhat weaker is the evidence that even within a panel group—indicating the same agency setting—owner identity characteristics can differ significantly. At this point in the analysis, the results suggest predominantly superior agency settings as well as valuation of lone founder firms.

Although results of non-founding family firms are not reported, I would like to briefly address the non-founding family group. The combined non-founding family mean TQ is 1.44 (median: 1.21); the equivalent mean, undifferentiated for agency problems, in founding-family defined settings is 1.75 (median: 1.26). A rank-sum test indicates a statistically significant difference on a $p<0.02$ level, while a t-test identifies a difference on a $p<0.001$ significance level.

Table 8.1: Agency Problems

PANEL A – API0_APII0

VARIABLES	**FIRM YEARS**	**MEAN**	**SD**	**MEDIAN**
TOBIN'S Q	1,057	**1.987**	2.085	**1.338**
TOBIN'S Q				
LONE FOUNDER FIRM	692	**2.110**	2.301	**1.387**
FAMILY FOUNDER FIRM	241	**1.914**	1.856	**1.323**
HEIR FIRM	124	**1.445**	0.681	**1.286**
FREQUENCY				
LONE FOUNDER FIRM	1,083	**0.660**	0.474	**1.000**
FAMILY FOUNDER FIRM	1,083	**0.223**	0.417	**0.000**
HEIR FIRM	1,083	**0.116**	0.321	**0.000**
RANK-SUM (in PANEL A)		**z**	**p**	
LF-FAMF		**1.182**	**0.237**	
LF-HF		**2.038**	**0.042**	
FAMF-HF		**0.942**	**0.346**	
AP I: Manager vs. Shareholder		No		
AP II: Large vs. Minority		No		

PANEL B – API0_APII1

VARIABLES	**FIRM YEARS**	**MEAN**	**SD**	**MEDIAN**
TOBIN'S Q	532	**1.716**	1.656	**1.188**
TOBIN'S Q				
LONE FOUNDER FIRM	107	**2.235**	2.483	**1.357**
FAMILY FOUNDER FIRM	238	**1.908**	1.703	**1.305**
HEIR FIRM	187	**1.174**	0.343	**1.077**
FREQUENCY				
LONE FOUNDER FIRM	545	**0.198**	0.399	**0.000**
FAMILY FOUNDER FIRM	545	**0.453**	0.498	**0.000**
HEIR FIRM	545	**0.349**	0.477	**0.000**
RANK-SUM (in PANEL B)		**z**	**p**	
LF-FAMF		**0.408**	**0.683**	
LF-HF		**3.889**	**0.000**	
FAMF-HF		**4.458**	**0.000**	
AP I: Manager vs. Shareholder		No		
AP II: Large vs. Minority*		Yes		
*PYRAMID or DUAL WEDGE				

PANEL C – API1_APII1

VARIABLES	**FIRM YEARS**	**MEAN**	**SD**	**MEDIAN**
TOBIN'S Q	336	**1.538**	1.233	**1.220**
TOBIN'S Q				
LONE FOUNDER FIRM	59	**1.771**	1.231	**1.288**
FAMILY FOUNDER FIRM	83	**1.912**	2.082	**1.276**
HEIR FIRM	194	**1.307**	0.461	**1.160**
FREQUENCY				
LONE FOUNDER FIRM	355	**0.172**	0.378	**0.000**
FAMILY FOUNDER FIRM	355	**0.270**	0.445	**0.000**
HEIR FIRM	355	**0.558**	0.497	**1.000**
RANK-SUM (in PANEL C)		**z**	**p**	
LF-FAMF		**0.118**	**0.906**	
LF-HF		**1.776**	**0.076**	
FAMF-HF		**1.758**	**0.079**	
AP I: Manager vs. Shareholder		Yes		
AP II: Large vs. Minority*		Yes		
*PYRAMID or DUAL WEDGE				

(continued)
PANEL D – API1_APII0

VARIABLES	FIRM YEARS	MEAN	SD	MEDIAN
TOBIN'S Q	560	**1.479**	0.961	1.216
TOBIN'S Q				
LONE FOUNDER FIRM	229	**1.525**	1.189	1.194
FAMILY FOUNDER FIRM	82	**1.547**	1.137	1.244
HEIR FIRM	249	**1.414**	0.592	1.243
FREQUENCY				
LONE FOUNDER FIRM	581	**0.411**	0.493	0.000
FAMILY FOUNDER FIRM	581	**0.150**	0.357	0.000
HEIR FIRM	581	**0.439**	0.497	0.000
RANK-SUM (in PANEL D)		**z**	**p**	
LF-FAMF		**-0.411**	**0.681**	
LF-HF		**-1.780**	**0.075**	
FAMF-HF		**-0.852**	**0.395**	
AP 1: Manager vs. Shareholder		Yes		
AP 2: Large vs. Minority*		No		
*PYRAMID or DUAL WEDGE				

PANEL E – RANK-SUM (PANEL vs. PANEL)

PANEL …	**A-B**		**A-C**		**A-D**	
	z	p	z	p	z	p
	4.048	0.000	3.196	0.000	4.463	0.000
PANEL …	**B-A**		**B-C**		**B-D**	
	z	p	z	p	z	p
	-4.048	0.000	-0.785	0.432	-0.108	0.914
PANEL …	**C-A**		**C-B**		**C-D**	
	z	p	z	p	z	p
	-3.196	0.000	0.785	0.432	0.573	0.567
PANEL …	**D-A**		**D-B**		**D-C**	
	z	p	z	p	z	p
	-4.463	0.000	0.108	0.914	-0.573	0.567

Note: This table reports four panels—A to D—that differentiate four distinct agency settings in founding-family defined firms. API0_APII0 indicates no agency problem, API0_APII1 indicates only agency problem II, API1_APII1 indicates both agency problems, and API1_APII0 indicates only agency problem I. Each panel shows for the specific agency setting the summary statistics for TQ valuation for all founding-family defined firms and for each owner identity type, respectively. FREQUENCY informs about the ratio of owner identity type firm years for a specific agency scenario. A rank-sum test compares owner identity types within the agency scenario. The bottom of each panel indicates the present agency problems. Panel E presents the rank-sum characteristics of the panel comparison.
Source: Own work.

These results remain robust if I compare lone founder firms (mean: 1.98; median: 1.31) vs. non-family firms, indicating a $p<0.001$ level in either a rank-sum or a t-test. Similarly, the comparison of family founder firms (mean: 1.86; median: 1.30) indicates a $p<0.001$ level in either a rank-sum or a t-test.

Heir firms considered alone perform worse, p<0.02 (rank-sum) and p<0.01 (t-test) in a TQ comparison. The heir firm mean TQ amounts to 1.33 (median: 1.19).

According to the comparisons above, lone founder firms should benefit from a lower agency cost setting compared to other founding-family defined firms, and compared to non-family firms, too. It is most likely that non-family firms will have agency problem I; while agency problem II might be more negligible. I therefore suggest category D for non-family firms and no major, or only slight, differences between lone founder, family founder, heir, and non-family firms in terms of valuation (cf. Villalonga and Amit, 2006). Assuming this categorization D, 2,404 non-founding family firm years show a mean Tobin's Q of 1.437 (median: 1.213). Non-family firms in this category have a statistically slightly better valuation (p<0.10) as opposed to lone founder firms; family founder, heir, and non-family firms do not differ statistically.[251]

Thus, lone founder valuation seems to be strongly related with the applied governance mechanisms, and especially with founder involvement in management. This 'ideal' agency setting—'ideal' from the perspective of the two analyzed problems—could have an even better overall agency setting, which I have not discussed so far. Chrisman et al. (2004) suggest two further agency problems, namely the conflict between shareholders and debt-holders and the conflict due to altruism.[252] As suggested, lone founder firm agency costs could even benefit from a lower level of shareholder-debt-holder conflicts. Chapter 7, Heterogeneity and Firm Policy of Founding-Family Firms, shows that lone founder firms apply very modest levels of debt. Additionally, lone founder firms may show lower level of altruism that is predominantly associated with family firm settings (cf. Chrisman et al., 2004).[253] However, in order to limit the scope of this work and due to operationalization problems,

[251] Not presented in table 8.1.
[252] Please refer to section 3.1 for more details on agency theory and agency problems.
[253] See Block (2012) for similar reasoning on lone founder firms' lower agency costs.

I can only suggest for less altruism resulting from the defining lone founder characteristics.

8.2.3 Owner Identity and Valuation

The univariate evaluation of agency conflicts and matching these with owner identity groups reveals differences in the frequency of applied mechanisms, agency conflicts, and valuation. Yet, given the heterogeneous characteristics suggested in chapter 5, Development of Hypotheses, and elaborated in chapter 7, Heterogeneity and Firm Policy of Founding-Family Firms, there should be more characteristics that influence overall valuation, beyond the general underlying agency characteristics, categorized into four groups. Outside blockholding is highest in lone founder firms suggesting the lowest dominance characteristics in those settings and the highest monitoring by external blockholders. In family founder settings, all key mechanisms of family influence are implemented: in many cases the family exerts influence via both boards, via substantial ownership, and finally via mechanisms that increase voting rights over cash flow rights. Besides substantial shareholdings, heir firms either exercise influence via both boards or via supervision of non-family management. The latter, a strong monitor of non-family management, should also benefit minority investors. But even in such a setting, the family could force management to act in the way the family prefers, e.g. in terms of investment and payout policy. Whether this would be beneficial to minority investors too, is an open empirical question.

Therefore, the valuation influence that either owner identity or various interacting governance mechanisms exerts, can only be worked out by comparing those firm types in a multivariate regression setting and applying various robustness tests. This is the goal of the following analysis.[254]

[254] The analysis follows the empirical approaches, i.e. treatment effects analysis, dynamic panel regressions, firm-fixed effects, and random effects regressions. Each empirical approach tests for the three owner identity specific settings.

8.2.3.1 Owner Identity and Valuation—Separating Treatment from Selection

Unfortunately, a multivariate scenario does not solve per-se all the problems involved in analyzing the ownership-performance relationship. As previously described in the literature section and in the empirical concerns chapter, the problem of endogeneity is inherent in this kind of research. Several studies present evidence showing that performance can also shape governance. Yet, as Adams et al. (2009) argue, in most cases the predominant direction of causality will be governance on performance. Nevertheless, a reverse causality problem cannot be ignored.

Thus, besides a control for various firm effects as proposed in the conceptual section on agency settings, the real challenge is to detect evidence that can be interpreted with a causal emphasis. In fact, the problem in OLS evidence is that the interpretation is predominantly restricted to potential correlation, but does not necessarily allow a causal link. Even so, the examination of such a relation is a substantial part of the present analysis. For that reason, the chosen estimation approach(es) should enable me to get as close as possible to a more causal interpretation of results.

The following approach aims to decompose a combined effect into (i) a treatment effect and (ii) a selection effect. The key question continues to be, whether owner identity is an important moderator and/or differentiator of firm valuation (controlled for other aspects).

I analyze the 'owner identity-valuation-relation' with a dummy endogenous model according to Heckman (1978). A major concern of this approach is the identification of appropriate exogenous instruments. They need to be a strong proxy for the specific owner identity type (which is subject to evaluation) while they will have no direct influence on valuation. As presented in chapter 6, Relevant Concerns and Empirical Approach, the estimation requires two equations. The first probit model regresses the owner identity type to instruments and to various governance and firm controls. The sec-

ond stage regresses the firm performance indicator on the instrumented owner identity variable and further governance and controls.

Owner Identity Instruments I analyze the identified potential exogenous instruments introduced in chapter 6 with respect to lone founder firms. Four of the potential seven exogenous variables appear as feasible and valid proxies for lone founder firms. INITIAL POOL, NR FOUNDERS, SINGLE FOUNDER, and AGE AT IPO fulfill the first requirement of the validity of an instrument. As can be seen in table 8.2, they are highly correlated with the lone founder dummy. The variable INITIAL POOL describes whether at a first level of ownership, shareholders pooled their shareholdings at the initial listing.[255] This is not necessarily a family characteristic, although I assume that a family is much more likely to apply such model. Following this intuition would suggest that INITIAL POOL is highly negatively correlated with lone founder firms. In terms of the second condition to fulfill, one might have concerns that the ownership construct at initial listing could partially influence firm performance. However, this should not be the case as I control for ownership rigorously via the ownership level and mechanisms like pyramidal ownership as well as all the control variables. Further, such characteristic at IPO would hardly have effects on future performance throughout the investigated horizon.

The partial influence via the instrumented variable cannot really be tested. Hence, I have decided to test the regression of performance on INITIAL POOL, FF VR, PYRAMID, LN AGE, and LN TOTAL ASSETS (M), year and industry dummies. This should be a very strong proof, if the test rejects a direct effect, that INITIAL POOL has no direct influence on valuation. In fact, the coefficient of INITIAL POOL is 0.020, the t-value 0.438 and the p-value 0.672, rejecting a direct effect.[256] I therefore assume that concerns about a partial effect are not likely.

[255] In the event that I cannot trace the ownership structure back as far as the IPO, I assume the first panel year as reference point.

[256] The regression controls for the mentioned variables, contains 671 clusters, 4,871 firm years and considers heteroskedasticity robust standard errors (Petersen, 2009). The re-

The second variable is NR FOUNDERS, a count variable indicating the number of founders. As before, there should be no concerns about a partial effect on performance, given the length of time elapsed since the founding event.[257] As assumed, the coefficient in the first regression is positive and significant (see the following tables). The SINGLE FOUNDER dummy indicates whether only one founder started the company. I assume this also to be positive in lone founder settings. A single founder is potentially also less likely to have kinship relations amongst the board and shareholder structure if he started the company on his own.[258] Finally, AGE AT IPO is a proxy to show whether the firm could still be a founder firm given the time elapsed since the firm founding event and the IPO. In general this should be lower for founder firms. After controlling for e.g. age, size, and industry effects included in the regression settings, a partial effect on valuation should be of less concern.

I apply various combinations of the presented four instruments with a maximum of three instruments in the first equation.[259] The remaining three out of the seven introduced instruments in chapter 6.2.2.3, REGISTERED SHARE, FIRM FOUNDER NAME, and EARLY INCEPTION turn out to be unfeasible instruments for the approximation of a lone founder firm. Both, REGISTERED SHARE and FIRM FOUNDER NAME are potentially good exogenous instruments. I reviewed all share type indicators in *Worldscope* to identify the respective share sub-type, i.e. REGISTERED SHARE of ordinary shares. The assumption is that *familiness* could lead to more interest in the shareholder base, requiring registered shares at IPO. In turn, I would assume that lone founders apply registered shares less frequently. The assumption is generally correct, yet, it turns out to be too weak to instrument lone founder

gression is tabulated—as an example—in the Appendix, table A.8. The highest VIF is 1.65 for Ln AGE, the VIF of INITIAL POOL is 1.34, rejecting concerns of multicollinearity.

[257] See Adams et al. (2009) for similar arguments; the authors also apply this instrument.

[258] Remember that this feature is by definition not required. A lone founder firm can be started by several founders or only one founder. The decisive element is the (missing) kinship relation amongst founder(s), board members, and shareholders.

[259] This will ensure that I address the instrumented firm type appropriately and possibly most extensively. Compare the internal versus external view, i.e. the inclusion of firms with treatment in the identified treatment group (e.g. Roberts and Whited, 2012).

firms. Similarly, EARLY INCEPTION fails as it almost perfectly identifies the lone founder firm type.

Evidence in Lone Founder Firm Settings This section analyzes in detail the treatment and selection effects in lone founder settings. The applied endogenous dummy treatment model requires a first stage probit regression that estimates via exogenous instruments the instrumented owner identity dummy variable. I apply the three instruments previously described—INITIAL POOL, NR FOUNDERS, and SINGLE FOUNDER—for this regression.

In order to ensure robustness, I specify the first regression model with only one exogenous instrument and few governance and control indicators. In subsequent models, I add instruments and further controls. Thus, *model 1.a* of table 8.2 applies only INITIAL POOL as an exogenous instrument to proxy for lone founder firms. The specification further includes PYRAMID and WEDGE as distinct governance indicators, next to further firm controls. I estimate the endogenous dummy treatment models with a two-step estimator and lagged right hand-side variables.

Table 8.2 and table 8.3 present the empirical results. First of all, I focus on the evidence of *model 1.a*, the base model with the least number of relevant independent variables. It turns out that the coefficient of the instrument INITIAL POOL is negative and highly significant. The instrumented lone founder dummy is used within the multivariate second stage regression that analyzes the valuation effect (the main regression). It turns out that the instrumented lone founder dummy is highly statistically significant with a coefficient of 0.186, or approximately 20.4% higher valuation compared to sample mean for lone founder firms. This effect is the ATT, the average treatment of the treated effect.[260] The model is well specified as indicated by the Chi^2 in table 8.3. Alongside this evidence of effect running from

[260] As Adams et al. (2009) state, it might be also an estimated effect in a continuum between ATT and ATE. See chapter 6, section 6.2.2, Treatment Effects Models and Self Selection, for more details.

the lone founder firm towards valuation, the important second aspect is what a straightforward OLS regression would indicate. The *inverse Mills ratio*, specifically the *lambda* indication (table 8.3, bottom row), can be interpreted as a selection effect that the OLS regression cannot separate from the treatment effect. In the case of model *2.a*, *lambda* indicates a highly significant -0.109 coefficient, suggesting that an OLS would substantially underestimate the effect of the lone founder characteristic. This emphasizes the importance of the chosen empirical approach. Ignoring for a moment the fact that this is the result of just one estimation, the question is how this result could be interpreted. The fact that the lone founder firm keeps its owner identity status must be correlated with an omitted characteristic that negatively influences firm valuation. For instance, one explanation could be that lone founders stay with the company in its transformation process towards an established listed company and generally are more likely to leave the firm when it is in good shape.[261]

I apply further robustness tests to those preliminary results. None of them indicates a substantially diverging result.[262] The minor differences are only connected with the magnitude of the valuation premium. This is demonstrated as follows. As documented in table 8.2, I add two further exogenous instruments and further governance variables. I take care with the inclusion of further variables to show the differences step by step. But this caution seems to be of minor importance. Across all models the three exogenous instruments are highly significant in the first stage and the results in the second stage are almost identical. Dependent on the specification, the logged TQ coefficients are with 0.102, a 0.121, a 0.160, and finally 0.201 all highly statistically significant and in a quite close range.[263] Similarly, the lambda estimations corroborate prior evidence of negative self-selection effects,

[261] Please refer to section 4.2.3.3, Founder Firm Evidence, and the hypotheses of Adams et al. (2009) on estimating founder-CEO effects.

[262] I also change instruments or add instruments as presented in the following tables. A further robustness test excludes the INITIAL POOL instrument from the estimation and applies AGE AT IPO, SINGLE FOUNDER, and NR FOUNDERS, and does not alter the findings. In fact, the effect is 0.181 and highly significant (see Appendix, table Alternative: Treatment Effects TQ LF (Second Stage).

[263] The list of coefficients is in ascending order.

suggesting an underestimation in OLS regressions. Amongst the presented models, are also specifications that include the lagged valuation as an instrument in the first stage (see tables 8.4 and 8.5). Villalonga and Amit (2006) argue that this approach should alleviate concerns of reverse-causality. As presented, my estimation results do not materially deviate from the previous evidence.[264]

I further estimate models that apply the dependent variable TQ without the logarithmic transformation and with an industry TQ adjustment.[265] Again the effects are confirmed. The valuation premium is slightly higher. At the lower end of this range, a coefficient of 0.363 ($p<0.01$) indicates an approximated valuation premium above sample average (1.598) of 22.7%.

Thus, lone founder firm settings are characterized by a substantial and statistically significant valuation premium that holds in various estimation models and with alteration of the dependent variable (confirms H5.1.a). Overall the results are in line with founder-CEO evidence from the US capital market. In the literature section, I presented the evidence of Fahlenbrach (2009) on founder firms: he estimates a valuation premium of 25.9%.

Moreover, this evidence on lone founder firms is very strong and robust. As indicated in the introduction, it is potentially one of the closest estimation approaches to draw causal inference from the results. Yet, besides tests of family founder firms and heir firms, I will further challenge those lone founder firm results in subsequent sections.

[264] In fact, the 0.160 and 0.121 are both estimated with lagged performance indicators; one lag and two lags respectively. Please see table 8.4 and 8.5, models *1.a/2.a* and *1.b/2.b*.
[265] See table 8.3 models *2.c/2.e* and and table 8.5 models *2.c/2.d*.

Table 8.2: Lone Founder Firm Treatment Effects (First Stage)

	Model 1.a		**Model 1.b**		**Model 1.c**		**Model 1.d**		**Model 1.e**	
Method	TE		TE		TE		TE		TE	
Dep. variable (*first stage*)	LF		LF		LF		LF		LF	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (*instr.*)										
INITIAL POOL	**-0.436*** **	**(-5.090)**	**-0.476*** **	**(-5.460)**	**-0.476*** **	**(-5.460)**	**-0.725*** **	**(-7.851)**	**-0.725*** **	**(-7.851)**
SINGLE FOUNDER			**0.572*** **	**(8.363)**	**0.572*** **	**(8.363)**	**0.563*** **	**(7.524)**	**0.563*** **	**(7.524)**
NUMBER FOUNDERS			**0.197*** **	**(7.865)**	**0.197*** **	**(7.865)**	**0.093*** **	**(3.173)**	**0.093*** **	**(3.173)**
FF GES VR $_{t-1}$							1.050***	(4.876)	1.050***	(4.876)
FF BOARD REPRES $_{t-1}$							2.282***	(7.545)	2.282***	(7.545)
PYRAMID $_{t-1}$	-0.343***	(-3.683)	-0.333***	(-3.512)	-0.333***	(-3.512)	-0.592***	(-5.774)	-0.592***	(-5.774)
WEDGE $_{t-1}$	2.091***	(5.302)	1.901***	(4.756)	1.901***	(4.756)	-1.046**	(-2.013)	-1.046**	(-2.013)
50% OWNER $_{t-1}$							-0.506***	(-5.572)	-0.506***	(-5.572)
NUMBER BLOCKHOLDERS $_{t-1}$							-0.026	(-0.967)	-0.026	(-0.967)
OUTSIDER BLOCK VR $_{t-1}$							-0.308	(-1.600)	-0.308	(-1.600)
BETA $_{t-1}$	0.113**	(2.190)	0.082	(1.553)	0.082	(1.553)	0.022	(0.387)	0.022	(0.387)
LN AGE $_{t-1}$	-0.529***	(-13.554)	-0.589***	(-14.247)	-0.589***	(-14.247)	-0.564***	(-12.327)	-0.564***	(-12.327)
LN TOTAL ASSETS (M) $_{t-1}$	-0.249***	(-8.613)	-0.246***	(-8.191)	-0.246***	(-8.191)	-0.179***	(-5.403)	-0.179***	(-5.403)
DEBT / MVEQUITY $_{t-1}$	0.023	(1.301)	0.026	(1.450)	0.026	(1.450)	0.038**	(2.012)	0.038**	(2.012)
ROA $_{t-1}$	0.174	(1.375)	0.203	(1.589)	0.203	(1.589)	0.123	(0.915)	0.123	(0.915)
INT ACCOUNTING $_{t-1}$	0.424***	(4.298)	0.438***	(4.352)	0.438***	(4.352)	0.319***	(2.946)	0.319***	(2.946)
NEUER MARKT MEMBER $_{t-1}$	0.521***	(4.339)	0.445***	(3.628)	0.445***	(3.628)	0.364***	(2.789)	0.364***	(2.789)
ANALYST FOLLOWING $_{t-1}$	0.021***	(3.336)	0.022***	(3.464)	0.022***	(3.464)	0.021***	(2.988)	0.021***	(2.988)
CONSTANT	1.511***	(4.817)	0.979***	(2.964)	0.979***	(2.964)	0.703*	(1.906)	0.703*	(1.906)
Year Effects	Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No	
N (Observations)	3876		3876		3876		3869		3869	

Note: The table reports the first stage of treatment effects regressions. The dependent variable of the first regression is LONE FOUNDER FIRM (endogenous owner identity dummy). The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All instruments as described in table A.2, Variable Definitions—Economics. Continuous right hand side variables are lagged by one period. INITIAL POOL describes a pooling construct at IPO, NUMBER FOUNDERS is a count variable for the number of founders, SINGLE FOUNDER is a dummy indicator for a single company founder. Values in parentheses are t-statistics, respectively z-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table 8.3: Lone Founder Firm Treatment Effects (Second Stage)

	Model 2.a		**Model 2.b**		**Model 2.c**		**Model 2.d**		**Model 2.e**	
Method	TE		TE		TE		TE		TE	
Dep. variable (*second stage*)	LN TQ		LN TQ		TQ		LN TQ		TQ	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (*instr.*)	**0.186*** **	**(2.828)**	**0.201*** **	**(3.831)**	**0.615*** **	**(5.035)**	**0.102** **	**(2.179)**	**0.363*** **	**(3.328)**
FF GES VR $_{t-1}$							0.104**	(2.295)	0.227**	(2.165)
FF BOARD REPRES $_{t-1}$							-0.307***	(-4.090)	-0.695***	(-3.985)
PYRAMID $_{t-1}$	-0.070***	(-3.343)	-0.068***	(-3.349)	-0.052	(-1.102)	-0.057***	(-2.596)	-0.044	(-0.853)
WEDGE $_{t-1}$	-0.217***	(-2.949)	-0.220***	(-3.002)	-0.251	(-1.467)	-0.210**	(-2.144)	-0.173	(-0.761)
50% OWNER $_{t-1}$							0.070***	(4.058)	0.158***	(3.936)
NUMBER BLOCKHOLDERS $_{t-1}$							0.000	(0.033)	0.010	(0.865)
OUTSIDER BLOCK VR $_{t-1}$							0.052	(1.533)	0.132*	(1.676)
BETA $_{t-1}$	0.060***	(4.730)	0.059***	(4.706)	0.147***	(5.009)	0.078***	(6.230)	0.191***	(6.587)
LN AGE $_{t-1}$	-0.028***	(-2.787)	-0.026***	(-2.855)	-0.042*	(-1.952)	-0.044***	(-5.176)	-0.085***	(-4.291)
LN TOTAL ASSETS (M) $_{t-1}$	-0.036***	(-6.136)	-0.036***	(-6.271)	-0.093***	(-7.017)	-0.051***	(-9.330)	-0.130***	(-10.184)
DEBT / MVEQUITY $_{t-1}$	-0.032***	(-7.720)	-0.032***	(-7.704)	-0.048***	(-4.980)	-0.029***	(-7.275)	-0.043***	(-4.582)
ROA $_{t-1}$	0.342***	(10.019)	0.343***	(10.010)	0.826***	(10.344)	0.334***	(9.912)	0.810***	(10.332)
INT ACCOUNTING $_{t-1}$	-0.005	(-0.231)	-0.006	(-0.289)	-0.059	(-1.256)	0.014	(0.702)	-0.013	(-0.293)
NEUER MARKT MEMBER $_{t-1}$	-0.122***	(-4.159)	-0.124***	(-4.300)	-0.103	(-1.532)	-0.107***	(-3.846)	-0.063	(-0.977)
ANALYST FOLLOWING $_{t-1}$	0.009***	(9.162)	0.009***	(9.175)	0.021***	(9.074)	0.011***	(10.839)	0.026***	(10.784)
CONSTANT	0.339***	(4.858)	0.328***	(5.124)	1.679***	(11.241)	0.423***	(6.941)	1.884***	(13.308)
Year Effects	Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No	
N (Observations)	3876		3876		3876		3869		3869	
Chi^2	1656.374***		1642.377***		1332.715***		1802.135***		1469.507***	
Lambda (Hazard)	**-0.109*** **	**(-2.734)**	**-0.123*** **	**(-3.823)**	**-0.344*** **	**(-4.598)**	**-0.042**	**(-1.453)**	**-0.148** **	**(-2.190)**

Note: The table reports the second stage of treatment effects regressions. The dependent variable is an approximated logged Tobin's Q and Tobin's Q, respectively. Where indicated through "(instr.)" the owner identity variable is instrumented via the indicated instruments as presented in the models 1.a, 1.b, etc. The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All variables as described in table A.2, Variable Definitions—Economics. Continuous right hand side variables are lagged by one period. Lambda indicates a potential selection effect in an OLS regression setting. Values in parentheses are t-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table 8.4: Lone Founder Firm Treatment Effects (First Stage, Robustness)

	Model 1.a		**Model 1.b**		**Model 1.c**		**Model 1.d**	
Method	TE		TE		TE		TE	
Dep. variable (*first stage*)	LF		LF		LF		LF	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (*instr.*)								
INITIAL POOL	**-0.721*** **	**(-7.705)**	**-0.757*** **	**(-7.917)**	**-0.720*** **	**(-7.693)**	**-0.720*** **	**(-7.689)**
SINGLE FOUNDER	**0.568*** **	**(7.497)**	**0.571*** **	**(7.379)**	**0.569*** **	**(7.519)**	**0.568*** **	**(7.512)**
NUMBER FOUNDERS	**0.093*** **	**(3.167)**	**0.098*** **	**(3.282)**	**0.093*** **	**(3.139)**	**0.092*** **	**(3.130)**
LN TQ $_{t-1}$	**0.048**	**(0.673)**	**-0.049**	**(-0.509)**				
LN TQ $_{t-2}$			**0.142**	**(1.553)**				
TQ $_{t-1}$					**0.024**	**(0.943)**		
Adj. TQ $_{t-1}$							**0.025**	**(1.013)**
FF GES VR $_{t-1}$	1.009***	(4.640)	1.031***	(4.637)	1.003***	(4.610)	1.003***	(4.613)
FF BOARD REPRES $_{t-1}$	2.278***	(7.444)	2.194***	(7.006)	2.280***	(7.451)	2.281***	(7.454)
PYRAMID $_{t-1}$	-0.588***	(-5.683)	-0.575***	(-5.478)	-0.590***	(-5.706)	-0.590***	(-5.707)
WEDGE $_{t-1}$	-0.949*	(-1.810)	-0.881*	(-1.657)	-0.954*	(-1.819)	-0.956*	(-1.823)
50% OWNER $_{t-1}$	-0.493***	(-5.399)	-0.462***	(-4.955)	-0.494***	(-5.410)	-0.495***	(-5.415)
NUMBER BLOCKHOLDERS $_{t-1}$	-0.024	(-0.903)	-0.018	(-0.671)	-0.024	(-0.905)	-0.024	(-0.907)
OUTSIDER BLOCK VR $_{t-1}$	-0.328*	(-1.685)	-0.372*	(-1.847)	-0.331*	(-1.700)	-0.331*	(-1.699)
BETA $_{t-1}$	0.005	(0.086)	0.018	(0.288)	0.002	(0.030)	0.001	(0.021)
LN AGE $_{t-1}$	-0.569***	(-12.265)	-0.580***	(-11.999)	-0.569***	(-12.263)	-0.569***	(-12.252)
LN TOTAL ASSETS (M) $_{t-1}$	-0.182***	(-5.138)	-0.196***	(-5.387)	-0.180***	(-5.088)	-0.179***	(-5.061)
DEBT / MVEQUITY $_{t-1}$	0.047**	(2.189)	0.054**	(2.442)	0.046**	(2.138)	0.046**	(2.136)
ROA $_{t-1}$	0.074	(0.495)	0.179	(1.156)	0.070	(0.476)	0.068	(0.463)
INT ACCOUNTING $_{t-1}$	0.316***	(2.867)	0.353***	(3.104)	0.315***	(2.865)	0.316***	(2.867)
NEUER MARKT MEMBER $_{t-1}$	0.358***	(2.716)	0.319**	(2.324)	0.352***	(2.667)	0.352***	(2.667)
ANALYST FOLLOWING $_{t-1}$	0.021***	(2.704)	0.020**	(2.448)	0.020***	(2.652)	0.020***	(2.628)
CONSTANT	0.722*	(1.888)	0.748*	(1.901)	0.695*	(1.808)	0.720*	(1.900)
Year Effects	Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No	
N (Observations)	3820		3730		3820		3820	

Note: The table reports the first stage of treatment effects regressions. The lagged dependent variable of the second stage is included in the first stage as instrument to control for reverse-causality (cf. Villalonga and Amit, 2006). The dependent variables of first regression is LONE FOUNDER FIRM (endogenous owner identity dummy). The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All instruments as described in table A.2, Variable Definitions—Economics. Continuous right hand side variables are lagged by one period. INITIAL POOL describes a pooling construct at IPO, NUMBER FOUNDERS is a count variable for the number of founders, SINGLE FOUNDER is a dummy indicator for a single company founder. Values in parentheses are t-statistics, respectively z-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table 8.5: Lone Founder Firm Treatment Effects (Second Stage, Robustness)

	Model 2.a		**Model 2.b**		**Model 2.c**		**Model 2.d**	
Method	TE		TE		TE		TE	
Dep. variable (*second stage*)	LN TQ		LN TQ		TQ		Adj. TQ	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (*instr.*)	**0.160*** **	**(3.420)**	**0.121*** **	**(2.602)**	**0.566*** **	**(5.176)**	**0.600*** **	**(5.500)**
FF GES VR $_{t-1}$	0.098**	(2.171)	0.108**	(2.384)	0.200*	(1.897)	0.187*	(1.778)
FF BOARD REPRES $_{t-1}$	-0.316***	(-4.207)	-0.278***	(-3.675)	-0.765***	(-4.357)	-0.775***	(-4.416)
PYRAMID $_{t-1}$	-0.046**	(-2.073)	-0.052**	(-2.336)	-0.000	(-0.001)	0.007	(0.142)
WEDGE $_{t-1}$	-0.182*	(-1.865)	-0.199**	(-2.029)	-0.090	(-0.392)	-0.038	(-0.164)
50% OWNER $_{t-1}$	0.075***	(4.349)	0.069***	(3.980)	0.176***	(4.361)	0.182***	(4.524)
NUMBER BLOCKHOLDERS $_{t-1}$	0.000	(0.028)	-0.000	(-0.054)	0.010	(0.827)	0.013	(1.076)
OUTSIDER BLOCK VR $_{t-1}$	0.062*	(1.844)	0.070**	(2.057)	0.152*	(1.916)	0.157**	(1.982)
BETA $_{t-1}$	0.084***	(6.651)	0.090***	(6.904)	0.201***	(6.778)	0.204***	(6.888)
LN AGE $_{t-1}$	-0.041***	(-4.777)	-0.044***	(-5.044)	-0.072***	(-3.600)	-0.073***	(-3.640)
LN TOTAL ASSETS (M) $_{t-1}$	-0.046***	(-8.379)	-0.046***	(-8.207)	-0.118***	(-9.133)	-0.123***	(-9.546)
DEBT / MVEQUITY $_{t-1}$	-0.043***	(-8.740)	-0.044***	(-8.609)	-0.064***	(-5.587)	-0.065***	(-5.604)
ROA $_{t-1}$	0.411***	(11.501)	0.425***	(11.634)	0.968***	(11.558)	0.941***	(11.250)
INT ACCOUNTING $_{t-1}$	0.010	(0.521)	0.014	(0.703)	-0.027	(-0.581)	-0.017	(-0.366)
NEUER MARKT MEMBER $_{t-1}$	-0.114***	(-4.070)	-0.110***	(-3.862)	-0.080	(-1.226)	-0.060	(-0.923)
ANALYST FOLLOWING $_{t-1}$	0.011***	(10.231)	0.010***	(10.049)	0.024***	(10.141)	0.025***	(10.356)
CONSTANT	0.369***	(6.049)	0.376***	(6.105)	1.733***	(12.122)	0.739***	(5.175)
Year Effects	Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No	
N (Observations)	3820		3730		3820		3820	
Chi^2	1843.658***		1784.922***		1475.524***		1265.241***	
Lambda (Hazard)	**-0.082*** **	**(-2.846)**	**-0.058** **	**(-2.012)**	**-0.286*** **	**(-4.252)**	**-0.307*** **	**(-4.580)**

Note: The table reports the second stage of treatment effects regressions. The dependent variable is an approximated logged Tobin's Q, Tobin's Q, and Industry adjusted TQ. Where indicated through "(instr.)" the owner identity variable is instrumented via the indicated instruments as presented in the models 1.a, 1.b, etc. The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All variables as described in table A.2, Variable Definitions—Economics. Continuous right hand side variables are lagged by one period. Lambda indicates a potential selection effect in an OLS regression setting. Values in parentheses are t-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Evidence in Family Founder Firm Settings I approach the family founder firm estimation as thoroughly as the previous estimation of lone founder firms. Specifically, the first evidence is based on the same single instrument, INITIAL POOL. The approach is therefore totally comparable to the lone founder analysis.

In the first probit regression, table 8.6 model *1.a*, the instrument is positive and statistically highly significant. The further specification is also identical to the lone founder approach. The independent variables include, along with firm controls, year and industry dummies, PYRAMID and WEDGE as governance controls—both are positive and highly significant. The main regression presented in table 8.7 shows a statistically highly significant and negative coefficient, -0.260, for family founder firms.[266] This refers to a valuation discount of approximately -22.9%, *ceteris paribus*. The lambda indicates a strong 0.150 highly significant positive selection effect, suggesting upward biased OLS results.

Again, I methodically add one further instrument and several governance variables. AGE AT IPO now proxies for a greater likelihood of a founder firm. In line with theory—a longer span would increase the likelihood that founders are dead and the firm cannot be a founder firm anymore—it has a negative sign and is highly significant, rejecting a potential weak instrument bias. In the second, the LN TQ, regression, family founder firms again show significant negative treatment effects. Dependent on the model *2.b* and *2.c* of table 8.7, the treatment effect is about -0.230 to -0.161, indicating a valuation discount of about -20.5% to -14.9%, with everything else held fixed. Again the effects remain fairly robust and the lambda suggests a positively biased OLS estimation. This argues for a consideration of endogenous effects in OLS regression settings that estimate a family founder effect. Unobserved factors that drive decisions in family founder firms that result in the family staying with the company are positively correlated with firm value (cf. Villalonga and Amit, 2006). Obviously, one of the 'candidates' for such an effect could be prior performance. Thus, the alternative model specifica-

[266] Again, the estimation model is well specified.

tion, instruments further with the respective lagged performance measure to review a reverse-causality effect; *2.d* with the first lag of logged TQ and *2.e* with the first lag of TQ. The instrumented family founder firm remains its negative coefficient, yet it is only -0.054 and not statistically significant. The selection effect, indicated by lambda, remains positive, yet not statistically significant either. The lower magnitude of the instrumented variable is difficult to interpret: at least the inclusion of the lagged variable as instrument for the family founder variable alters the result from significant and negative to non-significant and negative. In the first stage, the coefficient of the lagged performance variable is positive but non-significant. Thus, one explanation could be that the instrumented dummy is flawed by this lagged variable, as the lagged valuation might be non-exogenous.[267] In turn, this might upwardly bias the results in the second stage. However, attention in this setting of family founder firms has to be directed towards the sensitivity of past performance to contemporaneous founding-family status. In general, the treatment effect of family founder status on valuation is more likely to be negative, as the previous estimation results show (rejects H5.1.b). Further analysis is required to corroborate or discard this prior evidence.

[267] In fact endogeneity of the governance-valuation-relationship is completely central to this analysis. This shows the general complications that arise from including the lagged dependent variable of the main regression in the first equation.

Table 8.6: Family Founder Firm Treatment Effects (First Stage)

	Model 1.a		**Model 1.b**		**Model 1.c**		**Model 1.d**		**Model 1.e**	
Method	TE		TE		TE		TE		TE	
Dep. variable (*first stage*)	FamF		FamF		FamF		FamF		FamF	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
FAMILY FOUNDER FIRM (*instr.*)										
INITIAL POOL	**0.641*** **	**(8.019)**	**0.635*** **	**(7.889)**	**0.519*** **	**(5.901)**	**0.521*** **	**(5.891)**	**0.520*** **	**(5.874)**
AGE AT IPO			**-0.013*** **	**(-5.871)**	**-0.017*** **	**(-6.452)**	**-0.017*** **	**(-6.343)**	**-0.017*** **	**(-6.329)**
LN TQ $_{t-1}$							**0.074**	**(1.006)**		
TQ $_{t-1}$									**0.011**	**(0.440)**
FF GES VR $_{t-1}$					0.976***	(4.246)	0.962***	(4.167)	0.969***	(4.193)
FF BOARD REPRES $_{t-1}$					1.969***	(6.802)	1.967***	(6.749)	1.950***	(6.704)
PYRAMID $_{t-1}$	0.644***	(7.856)	0.647***	(7.822)	0.469***	(4.898)	0.478***	(4.961)	0.472***	(4.917)
WEDGE $_{t-1}$	2.070***	(5.312)	2.334***	(5.585)	-0.373	(-0.731)	-0.349	(-0.679)	-0.380	(-0.739)
50% OWNER $_{t-1}$					0.048	(0.505)	0.042	(0.445)	0.044	(0.465)
NUMBER BLOCKHOLDERS $_{t-1}$					0.078***	(2.725)	0.076***	(2.655)	0.077***	(2.674)
OUTSIDER BLOCK VR $_{t-1}$					-0.811***	(-3.593)	-0.806***	(-3.555)	-0.804***	(-3.546)
BETA $_{t-1}$	0.120**	(2.091)	0.134**	(2.318)	0.076	(1.206)	0.059	(0.907)	0.066	(1.008)
LN AGE $_{t-1}$	-0.378***	(-9.531)	-0.040	(-0.596)	0.058	(0.734)	0.061	(0.765)	0.057	(0.715)
LN TOTAL ASSETS (M) $_{t-1}$	-0.074***	(-2.626)	-0.057**	(-1.992)	0.027	(0.796)	0.028	(0.822)	0.027	(0.782)
DEBT / MVEQUITY $_{t-1}$	-0.078**	(-2.335)	-0.066**	(-2.038)	-0.062*	(-1.700)	-0.054	(-1.385)	-0.060	(-1.542)
ROA $_{t-1}$	0.511***	(3.543)	0.429***	(2.963)	0.205	(1.344)	0.148	(0.905)	0.174	(1.065)
INT ACCOUNTING $_{t-1}$	0.145	(1.439)	0.125	(1.212)	0.074	(0.641)	0.095	(0.817)	0.096	(0.821)
NEUER MARKT MEMBER $_{t-1}$	-0.080	(-0.626)	-0.051	(-0.392)	-0.296**	(-2.074)	-0.316**	(-2.195)	-0.322**	(-2.233)
ANALYST FOLLOWING $_{t-1}$	-0.018***	(-2.880)	-0.020***	(-3.144)	-0.019**	(-2.546)	-0.020***	(-2.620)	-0.019**	(-2.529)
CONSTANT	-4.937	(-0.032)	-5.767	(-0.039)	-7.368	(-0.056)	-7.447	(-0.050)	-7.437	(-0.050)
Year Effects	Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No	
N (Observations)	3880		3874		3866		3817		3817	

Note: The table reports the first stage of treatment effects regressions. The dependent variable of the first regression is FAMILY FOUNDER FIRM (endogenous owner identity dummy). The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All instruments as described in table A.2, Variable Definitions—Economics. Continuous right hand side variables are lagged by one period. INITIAL POOL describes a pooling construct at IPO, AGE AT IPO indicates firm age at the IPO. Models 1.d and 1.e further include lagged valuation indicators to control for reverse-causality (cf. Villalonga and Amit, 2006). Values in parentheses are t-statistics, respectively z-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table 8.7: Family Founder Firm Treatment Effects (Second Stage)

	Model 2.a		**Model 2.b**		**Model 2.c**		**Model 2.d**		**Model 2.e**	
Method	TE		TE		TE		TE		TE	
Dep. variable (*second stage*)	LN TQ		LN TQ		LN TQ		Ln TQ		TQ	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
Panel A: Second Stage Results										
FAMILY FOUND. FIRM (*instr.*)	**-0.260*** **	**(-3.538)**	**-0.230*** **	**(-3.425)**	**-0.161*** **	**(-2.767)**	**-0.054**	**(-0.923)**	**-0.177**	**(-1.307)**
FF VR_{t-1}					0.143***	(3.173)	0.135***	(3.019)	0.326***	(3.133)
FF BOARD $REPRES_{t-1}$					-0.134*	(-1.763)	-0.166**	(-2.210)	-0.242	(-1.381)
$PYRAMID_{t-1}$	-0.039	(-1.560)	-0.045*	(-1.887)	-0.052**	(-2.358)	-0.069***	(-3.140)	-0.085	(-1.645)
$WEDGE_{t-1}$	-0.126*	(-1.695)	-0.132*	(-1.786)	-0.306***	(-3.099)	-0.266***	(-2.733)	-0.377*	(-1.659)
50% $OWNER_{t-1}$					0.064***	(3.779)	0.061***	(3.682)	0.127***	(3.269)
NUMBER $BLOCKHOLDERS_{t-1}$					0.002	(0.295)	0.000	(0.090)	0.011	(0.907)
OUTSIDER BLOCK VR_{t-1}					0.046	(1.328)	0.066*	(1.952)	0.164**	(2.083)
$BETA_{t-1}$	0.072***	(5.701)	0.072***	(5.666)	0.081***	(6.438)	0.086***	(6.826)	0.208***	(7.071)
LN AGE_{t-1}	-0.059***	(-6.753)	-0.057***	(-6.714)	-0.058***	(-7.134)	-0.055***	(-6.910)	-0.122***	(-6.556)
LN TOTAL ASSETS (M) $_{t-1}$	-0.048***	(-8.924)	-0.047***	(-8.886)	-0.053***	(-9.724)	-0.049***	(-9.117)	-0.129***	(-10.238)
DEBT / $MVEQUITY_{t-1}$	-0.033***	(-8.052)	-0.033***	(-8.037)	-0.030***	(-7.424)	-0.044***	(-8.823)	-0.066***	(-5.735)
ROA_{t-1}	0.359***	(10.300)	0.357***	(10.285)	0.338***	(9.926)	0.406***	(11.375)	0.951***	(11.431)
INT $ACCOUNTING_{t-1}$	0.017	(0.877)	0.016	(0.832)	0.022	(1.127)	0.020	(1.049)	0.008	(0.182)
NEUER MARKT $MEMBER_{t-1}$	-0.092***	(-3.271)	-0.092***	(-3.299)	-0.101***	(-3.657)	-0.100***	(-3.626)	-0.031	(-0.484)
ANALYST $FOLLOWING_{t-1}$	0.009***	(9.519)	0.009***	(9.585)	0.011***	(10.788)	0.011***	(10.585)	0.026***	(10.711)
CONSTANT	0.530***	(9.550)	0.524***	(9.534)	0.482***	(8.452)	0.452***	(7.999)	2.022***	(15.367)
Year Effects	Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No	
N (Observations)	3880		3874		3866		3817		3817	
Chi^2	1303.154***		1183.477***		1469.768***		1527.806***		1158.804***	
Lambda (Hazard)	**0.150*** **	**(3.626)**	**0.135*** **	**(3.531)**	**0.108*** **	**(3.167)**	**0.042**	**(1.236)**	**0.113**	**(1.421)**
Panel B: First Stage Results										
FAMILY FOUND. FIRM (*instr.*)										
INITIAL POOL	**0.641*** **	**(8.019)**	**0.635*** **	**(7.889)**	**0.519*** **	**(5.901)**	**0.521*** **	**(5.891)**	**0.520*** **	**(5.874)**
AGE AT IPO			**-0.013*** **	**(-5.871)**	**-0.017*** **	**(-6.452)**	**-0.017*** **	**(-6.343)**	**-0.017*** **	**(-6.329)**
LN TQ_{t-1}							**0.074**	**(1.006)**		
TQ_{t-1}									**0.011**	**(0.440)**
Lagged Controls	Yes		Yes		Yes		Yes		Yes	

Note: The table reports the second stage of treatment effects regressions. The dependent variable is an approximated logged Tobin's Q, Tobin's Q, and Industry adjusted TQ respectively. Where indicated through "(instr.)" the owner identity variable is instrumented via the indicated instruments as presented in the models 1.a, 1.b, etc. The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All variables as described in table A.2, Variable Definitions—Economics. Continuous right hand side variables are lagged by one period. Lambda indicates a potential selection effect in an OLS regression setting. The key results of the first stage regression are presented in Panel B. The first stage regression results are included in the Appendix. Values in parentheses are t-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Evidence in Heir Firm Settings The analysis of heir firms requires different instruments compared to the two previous owner identity types. Again, I thoroughly review the instruments' relevance. I can proxy heir firms with FIRM FOUNDER NAME, an association between firm name and founder name, with EARLY INCEPTION which I assume to be positive, indicating roughly a 'dead founder' generation, and finally with the REGISTERED SHARE dummy, an application of registered shares at IPO. Just as in the previous analyses of lone founder and family founder settings, at the first model, *1.a*, I apply only one exogenous instrument and subsequently add further instruments and governance variables. The FIRM FOUNDER NAME instrument in model *1.a*, table 8.8, shows a positive and highly significant coefficient in the first stage, indicating no weak instruments problem. Given the appearance of heir firms with a firm name that is or is close to the family name, a very large fraction of heir firms is addressed with this instrument, i.e. amongst the treated firms. Additionally, PYRAMID and WEDGE are included in the first stage. Thus the regression specification is, apart from the applied instruments, exactly the same as in the lone founder and in the family founder firm analysis. In the main regression, the second stage, the instrumented heir firm dummy, 0.078, is positive and would result in a *ceteris paribus* 8.1% valuation premium, but a p-value of 0.165 fails to carry any significance. The same applies for lambda. The coefficient is -0.039, yet not significant either. This suggests both non-significant treatment and non-significant selection effects. Although the regression specifications change, the evidence does not change at all. For instance, I include EARLY INCEPTION and REGISTERED SHARE as further exogenous instruments—both are assumed to be positive and highly significant. The second stage instrumented heir firm variable suggests a 0.053, a 0.061, a 0.063 and 0.072 coefficient, which is closely in line with the evidence of the more minimalistic first regression on heir firms.[268]

Although this result fails to be statistically significant it is nevertheless an important finding (rejects H.5.1.b). Previous evidence of heir firms in the

[268] The list of coefficients is in ascending order.

US capital market setting documented a more negative view of heir firm settings. While those estimations primarily emphasized negative valuation effects caused by heir management (e.g. Villalonga and Amit, 2006), I cannot corroborate those findings. My results suggest more neutral effects of the owner identity influence by heirs and thus are in line with those of Anderson and Reeb (2003).

Table 8.8: Heir Firm Treatment Effects (First Stage)

	Model 1.a		**Model 1.b**		**Model 1.c**		**Model 1.d**		**Model 1.e**	
Method	TE		TE		TE		TE		TE	
Dep. variable (*first stage*)	HF		HF		HF		HF		HF	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
HEIR FIRM (*instr.*)										
FIRM FOUNDER NAME	**0.867*** **	**(13.193)**	**0.826*** **	**(12.362)**	**0.619*** **	**(7.601)**	**0.634*** **	**(7.758)**	**0.622*** **	**(7.588)**
EARLY INCEPTION			**0.651*** **	**(5.033)**	**1.292*** **	**(8.487)**	**1.266*** **	**(8.291)**	**1.276*** **	**(8.355)**
REGISTERED SHARE			**0.505*** **	**(4.381)**	**0.474*** **	**(3.454)**			**0.479*** **	**(3.482)**
LN TQ $_{t-1}$							**0.020**	**(0.185)**	**0.024**	**(0.223)**
FF GES VR $_{t-1}$					1.977***	(7.853)	1.958***	(7.766)	1.966***	(7.791)
FF BOARD REPRES $_{t-1}$					0.768*	(1.895)	0.807**	(1.988)	0.741*	(1.816)
PYRAMID $_{t-1}$	0.510***	(5.630)	0.509***	(5.522)	-0.121	(-0.976)	-0.108	(-0.866)	-0.109	(-0.876)
WEDGE $_{t-1}$	4.039***	(13.581)	4.187***	(13.919)	-0.790*	(-1.672)	-0.838*	(-1.765)	-0.711	(-1.493)
50% OWNER $_{t-1}$					0.317***	(3.405)	0.307***	(3.288)	0.323***	(3.456)
NUMBER BLOCKHOLDERS $_{t-1}$					0.203***	(6.603)	0.196***	(6.357)	0.198***	(6.433)
OUTSIDER BLOCK VR $_{t-1}$					-1.793***	(-8.182)	-1.788***	(-8.134)	-1.790***	(-8.140)
BETA $_{t-1}$	0.168**	(2.497)	0.162**	(2.384)	0.055	(0.667)	0.062	(0.745)	0.064	(0.767)
LN AGE $_{t-1}$	0.366***	(7.577)	0.126*	(1.858)	0.192**	(2.346)	0.194**	(2.355)	0.192**	(2.321)
LN TOTAL ASSETS (M) $_{t-1}$	0.049*	(1.829)	0.016	(0.562)	0.113***	(3.200)	0.127***	(3.589)	0.112***	(3.144)
DEBT / MVEQUITY $_{t-1}$	-0.003	(-0.121)	-0.005	(-0.231)	-0.012	(-0.454)	-0.010	(-0.293)	-0.004	(-0.117)
ROA $_{t-1}$	0.066	(0.276)	0.109	(0.451)	-0.220	(-0.870)	-0.311	(-1.129)	-0.306	(-1.107)
INT ACCOUNTING $_{t-1}$	-0.078	(-0.828)	-0.060	(-0.634)	-0.057	(-0.508)	-0.043	(-0.383)	-0.065	(-0.571)
NEUER MARKT MEMBER $_{t-1}$	-0.183	(-1.033)	-0.144	(-0.802)	-0.338*	(-1.766)	-0.352*	(-1.824)	-0.346*	(-1.799)
ANALYST FOLLOWING $_{t-1}$	-0.016***	(-3.467)	-0.013***	(-2.792)	-0.025***	(-4.045)	-0.026***	(-4.115)	-0.025***	(-4.003)
CONSTANT	-2.892***	(-10.616)	-2.203***	(-7.236)	-3.350***	(-8.114)	-3.323***	(-7.929)	-3.325***	(-7.935)
Year Effects	Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No	
N (Observations)	3880		3880		3872		3823		3823	

Note: The table reports the first stage of treatment effects regressions. The dependent variable of the first regression is HEIR FIRM (endogenous owner identity dummy). The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All instruments as described in table A.2, Variable Definitions—Economics. Continuous right hand side variables are lagged by one period. FIRM FOUNDER NAME describes the founder(s) name, an acronym of the family name, or the initials in the firm name at IPO. EARLY INCEPTION indicates that the firm is founded before 1960 and thus more likely to be owned or managed by at least the second generation. REGISTERED SHARE indicates that ordinary shares offered at the IPO had the registration requirement. Models 1.d and 1.e further include lagged valuation indicators to control for reverse-causality (cf. Villalonga and Amit, 2006). Model 1.d. shows that the application of two instruments does not materially change the estimation results. Values in parentheses are t-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table 8.9: Heir Firm Treatment Effects (Second Stage)

	Model 2.a		**Model 2.b**		**Model 2.c**		**Model 2.d**		**Model 2.e**	
Method	TE		TE		TE		TE		TE	
Dep. variable (*second stage*)	LN TQ		LN TQ		LN TQ		LN TQ		LN TQ	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
Panel A: Second Stage Results										
HEIR FIRM (*instr.*)	**0.078**	**(1.387)**	**0.072**	**(1.396)**	**0.053**	**(1.352)**	**0.063**	**(1.579)**	**0.061**	**(1.568)**
FF VR_{t-1}					0.097**	(2.024)	0.097**	(2.014)	0.097**	(2.031)
FF BOARD $REPRES_{t-1}$					-0.224***	(-3.353)	-0.189***	(-2.837)	-0.189***	(-2.840)
$PYRAMID_{t-1}$	-0.101***	(-5.197)	-0.100***	(-5.199)	-0.078***	(-3.879)	-0.078***	(-3.895)	-0.078***	(-3.895)
$WEDGE_{t-1}$	-0.293***	(-2.690)	-0.284***	(-2.738)	-0.269***	(-2.782)	-0.267***	(-2.770)	-0.266***	(-2.767)
50% $OWNER_{t-1}$					0.057***	(3.354)	0.056***	(3.309)	0.056***	(3.315)
NUMBER $BLOCKHOLDERS_{t-1}$					-0.001	(-0.267)	-0.002	(-0.323)	-0.002	(-0.318)
OUTSIDER $BLOCK\ VR_{t-1}$					0.069**	(1.987)	0.084**	(2.424)	0.084**	(2.418)
$BETA_{t-1}$	0.063***	(5.140)	0.063***	(5.154)	0.079***	(6.318)	0.085***	(6.781)	0.085***	(6.782)
LN AGE_{t-1}	-0.051***	(-5.848)	-0.051***	(-5.909)	-0.056***	(-6.728)	-0.058***	(-6.987)	-0.058***	(-6.988)
LN TOTAL ASSETS (M) $_{t-1}$	-0.045***	(-8.627)	-0.045***	(-8.625)	-0.055***	(-9.988)	-0.051***	(-9.320)	-0.051***	(-9.318)
DEBT / $MVEQUITY_{t-1}$	-0.032***	(-7.848)	-0.032***	(-7.847)	-0.030***	(-7.309)	-0.043***	(-8.847)	-0.043***	(-8.846)
ROA_{t-1}	0.339***	(10.028)	0.339***	(10.031)	0.333***	(9.881)	0.408***	(11.452)	0.408***	(11.451)
INT $ACCOUNTING_{t-1}$	0.012	(0.639)	0.012	(0.628)	0.022	(1.154)	0.023	(1.167)	0.023	(1.164)
NEUER MARKT $MEMBER_{t-1}$	-0.096***	(-3.508)	-0.096***	(-3.506)	-0.094***	(-3.428)	-0.095***	(-3.455)	-0.095***	(-3.457)
ANALYST $FOLLOWING_{t-1}$	0.010***	(10.213)	0.010***	(10.223)	0.012***	(11.258)	0.011***	(10.859)	0.011***	(10.858)
CONSTANT	0.478***	(9.161)	0.478***	(9.161)	0.484***	(8.500)	0.461***	(8.128)	0.461***	(8.126)
Year Effects	Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No	
N (Observations)	3880		3880		3872		3823		3823	
Chi^2	1476.850***		1338.684***		1792.544***		1842.832***		1844.672***	
Lambda (Hazard)	**-0.039**	**(-1.193)**	**-0.036**	**(-1.191)**	**-0.030**	**(-1.258)**	**-0.035**	**(-1.462)**	**-0.035**	**(-1.452)**
Panel B: First Stage Results										
HEIR FIRM (*instr.*)										
FIRM FOUNDER NAME	**0.867*** **	**(13.193)**	**0.826*** **	**(12.362)**	**0.619*** **	**(7.601)**	**0.634*** **	**(7.758)**	**0.622*** **	**(7.588)**
EARLY INCEPTION			**0.651*** **	**(5.033)**	**1.292*** **	**(8.487)**	**1.266*** **	**(8.291)**	**1.276*** **	**(8.355)**
REGISTERED SHARE			**0.505*** **	**(4.381)**	**0.474*** **	**(3.454)**			**0.479*** **	**(3.482)**
LN TQ_{t-1}							**0.020**	**(0.185)**	**0.024**	**(0.223)**
Lagged Controls	Yes		Yes		Yes		Yes		Yes	

Note: The table reports the second stage of treatment effects regressions. The dependent variable is an approximated logged Tobin's Q. Where indicated through '(instr.)' the owner identity variable is instrumented via the indicated instruments as presented in the models 1.a, 1.b, etc. The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All variables as described in table A.2, Variable Definitions—Economics. Continuous right hand side variables are lagged by one period. Lambda indicates a potential selection effect in an OLS regression setting. The key results of the first stage regression are presented in Panel B. The first stage regression results are included in the Appendix. Values in parentheses are t-statistics, respectively z-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

In drawing conclusions on the Heckman (1978) treatment and selection results, it seems worthwhile to emphasize two points again:

- First, owner identity appears to be decisive for understanding valuation in founding-family defined firms. Owner identity types show not only different valuation levels, but a partly contradictory influence. Lone founder firm settings show substantial and statistically significant valuation premiums, while family founder firms are characterized by valuation discounts. Heir firm settings have a neutral impact on valuation.

- The second aspect, I would like to point out is the problem of endogeneity. An endogenous relationship between the owner identity type and valuation should not be ruled out a priori. In the case of lone founder and heir firm settings, an OLS regression would rather underestimate or more or less appropriately estimate the effect. In the case of family founder firms, the endogenous relationship would result in upwardly biased OLS estimates.

As previously described, I do not base any judgment on a single estimation approach, specification model, etc. Therefore, the following section presents additional evidence, estimated via a dynamic panel regression approach, actively exploiting the panel characteristics of this sample.

8.2.3.2 Owner Identity and Valuation—Dynamic Panel Regressions

As for instance Wintoki et al. (2012) point out the dynamic relationship between performance measures and corporate governance variables is often neglected in empirical research, while scholars primarily address concerns of unobserved variables and simultaneity. The specific focus of their criticism is the unsatisfying consideration of lagged performance influence on contemporaneous governance.[269]

[269] Please refer to section 6.1.3, Simultaneity Bias and Dynamic time-lag Bias, for further details.

The panel feature of my sample allows the application of an Arellano and Bond (1991) dynamic panel regression: a *GMM (General Method of Moments) estimation* approach. The approach explicitly tests for potential dynamic influence of past performance on my owner identity variables through 1^{st} *differencing* and inclusion of lagged variables of the dependent variable. Hence, the approach directly addresses the criticism made by Wintoki et al. (2012). At the same time, the Arellano and Bond (1991) regression makes it possible to test explicitly for reverse causality, an empirical problem that I identified in the previous treatment effects regression on family founder firms.

The Arellano and Bond (1991) approach that I apply, uses the first and second lag of the LN TQ, the dependent valuation variable. Further, I include an endogenously treated and instrumented owner identity dummy[270], further governance variables (depending on the model, also treated as endogenous), and control variables including year dummies. Because of the 1^{st} differencing approach, industry dummies are not explicitly included as they would be dropped during the estimation process. Industry effects are captured as a firm fixed effect via 1^{st} differencing. I apply robust standard errors, and the efficient GMM two-step estimator for this analysis (e.g. Cameron and Trivedi, 2009).

Table 8.10, Arellano-Bond Dynamic Panel-Data Estimation, presents the results of my dynamic panel regression. Model *1* and *2* show the evidence for a *lone founder setting* that explicitly controls for past firm valuation. As indicated the coefficient of 0.311 and respectively 0.268 are positive and highly significant. They strongly confirm the results of the treatment effects models with exogenous instruments (confirms H5.1.a).[271] The results suggest, that the dynamic influence of past performance does not drive the owner iden-

[270] One advantage of this approach is that the endogenous variables are instrumented with their own history, i.e. an owner identity dummy is instrumented with its own lags. Thus, the time-consuming and potentially unsuccessful effort to identify external instruments is no longer required (e.g. Cameron and Trivedi, 2009; Wintoki et al., 2012). It is the strength of this study to apply both approaches.

[271] That is the endogenous dummy regression approach of Heckman (1978).

tity effect of a lone founder setting. This is further corroborated by two post estimation tests. The first test addresses autocorrelation in first-differenced errors with a null hypothesis of zero-autocorrelation. The results at the bottom of table 8.10 show that for one lag this hypothesis is rejected, but with higher levels of lags included, the hypothesis holds. The second test, a Sargan test, addresses overidentification through included instruments. This test assumes as null hypothesis that overidentifying restrictions are valid. This robustness holds too, the hypothesis is not rejected.

Further, the negative coefficients of -0.438 and -0.442 for *family founder firms* are statistically significant, too. Thus, the initial results of the exogenous instrumental variables approach hold in the Arellano and Bond (1991) dynamic panel approach (rejects H5.1.b). All post estimation robustness tests are fulfilled, just as in the lone founder post-estimation.

Comparable to prior evidence, heir firms show an average or neutral evidence with non-significant 0.068 and 0.071 coefficient estimates (models *5* and *6*, rejects H5.1.c). In fact the coefficients are almost identical to the range of 0.053 to 0.078 for heir firm treatment effects.[272] As in the lone founder and family founder firm settings, all post-estimation tests hold.

To draw a conclusion from these compelling results, the dynamic panel regressions document additional strong evidence of founding-family firm heterogeneity. Evidence confirms that owner identity characteristics are essential to revealing firm valuation effects. The owner identity approach offers insights, whereas an undifferentiated founding-family approach fails inference. Moreover, the results remain valid across very advanced empirical methods including specific panel approaches like the Arellano and Bond (1991) model. My estimation approaches reduce the influence of endogeneity bias on results to a minimum. Compared to existing evidence on family firm research, this enables the generation of novel and robust insights on lone founder, family founder, and heir firms.

[272] See table 8.9.

Table 8.10: Arellano-Bond Dynamic Panel-Data Estimation

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**		**Model (5)**		**Model (6)**	
Method	TE		TE		TE		TE		TE		TE	
Dep. variable	LN TQ		LN TQ		LN TQ		LN TQ		LN TQ		LN TQ	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LN TQ $_{t-1}$	0.434***	(9.309)	0.422***	(9.996)	0.445***	(9.440)	0.420***	(9.706)	0.455***	(10.553)	0.450***	(11.169)
LN TQ $_{t-2}$	-0.060***	(-2.713)	-0.071***	(-3.307)	-0.060***	(-2.889)	-0.070***	(-3.484)	-0.057***	(-2.780)	-0.066***	(-3.229)
LONE FOUNDER FIRM	**0.311*** **	**(2.582)**	**0.268** **	**(2.304)**								
FAMILY FOUNDER FIRM					**-0.438** **	**(-2.263)**	**-0.442** **	**(-2.564)**				
HEIR FIRM									**0.068**	**(0.639)**	**0.071**	**(0.794)**
FF VR			-0.292	(-1.535)			-0.178	(-0.985)			-0.297	(-1.511)
FF BOARD REPRES			0.774***	(2.810)			0.707**	(2.417)			0.790***	(2.756)
PYRAMID	0.032	(0.921)	0.040	(1.236)	0.025	(0.764)	0.036	(1.144)	0.007	(0.208)	0.017	(0.544)
WEDGE	-0.209	(-0.878)	0.146	(0.422)	-0.217	(-0.874)	-0.027	(-0.082)	-0.215	(-0.840)	0.086	(0.244)
50% OWNER	0.098*	(1.827)	0.104**	(1.992)	0.097*	(1.839)	0.110**	(2.065)	0.112**	(2.462)	0.111**	(2.440)
NUMBER BLOCKHOLDERS	0.015	(0.848)	0.016	(0.936)	0.024	(1.433)	0.019	(1.258)	0.025*	(1.708)	0.021	(1.378)
OUTSIDER BLOCK VR	-0.158	(-1.379)	-0.242*	(-1.810)	-0.160	(-1.442)	-0.198	(-1.588)	-0.153	(-1.373)	-0.258*	(-1.775)
BETA	-0.014	(-0.900)	-0.015	(-0.966)	-0.013	(-0.852)	-0.015	(-0.952)	-0.017	(-1.219)	-0.020	(-1.280)
LN AGE	0.063	(0.914)	0.055	(0.767)	0.011	(0.147)	0.023	(0.334)	0.043	(0.641)	0.045	(0.664)
LN TOTAL ASSETS (M)	-0.189***	(-7.905)	-0.190***	(-8.429)	-0.189***	(-7.680)	-0.189***	(-8.171)	-0.182***	(-7.725)	-0.183***	(-8.145)
DEBT / MVEQUITY	-0.002	(-0.598)	-0.003	(-0.681)	-0.002	(-0.345)	-0.001	(-0.265)	-0.001	(-0.339)	-0.001	(-0.167)
ROA	0.074	(1.041)	0.056	(0.788)	0.066	(0.971)	0.039	(0.591)	0.078	(1.200)	0.091	(1.489)
INT ACCOUNTING	-0.027	(-1.462)	-0.019	(-0.997)	-0.025	(-1.316)	-0.020	(-1.030)	-0.035**	(-1.963)	-0.023	(-1.242)
NEUER MARKT MEMBER	-0.185***	(-4.218)	-0.182***	(-4.375)	-0.158***	(-3.690)	-0.163***	(-3.992)	-0.189***	(-4.456)	-0.170***	(-4.058)
ANALYST FOLLOWING	-0.003**	(-2.201)	-0.004**	(-2.273)	-0.004***	(-2.583)	-0.004**	(-2.335)	-0.004**	(-2.528)	-0.004**	(-2.290)
CONSTANT	0.904***	(3.153)	0.988***	(3.176)	1.197***	(3.951)	1.176***	(4.046)	0.960***	(3.529)	1.007***	(3.444)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
N (Observations)	3349		3339		3349		3339		3349		3339	
Chi^2	1066.403***		1121.019***		1046.722***		1088.993***		1177.669***		1218.331***	
A Post-estimation	z-value	(p-value)	z-value	(p-value)	z-value	(p-value)	z-value	(p-value)	z-value	(p-value)	z-value	(p-value)
AR(1) test	-7.124	(0.000)	-7.328	(0.000)	-7.179	(0.000)	-7.186	(0.000)	-7.526	(0.000)	-7.766	(0.000)
AR(2) test	0.895	(0.371)	1.033	(0.302)	0.710	(0.478)	0.864	(0.387)	0.753	(0.452)	0.911	(0.363)
AR(3) test	1.141	(0.254)	1.187	(0.235)	1.235	(0.217)	1.150	(0.250)	1.429	(0.153)	1.405	(0.160)
B Post-estimation	Chi^2	(p-value)	Chi^2	(p-value)	Chi^2	(p-value)	Chi^2	(p-value)	Chi^2	(p-value)	Chi^2	(p-value)
Sargan over-identification	251.322	(0.149)	294.586	(0.177)	255.485	(0.094)	291.804	(0.184)	236.177	(0.358)	282.017	(0.341)

Note: The table reports Arellano and Bond (1991) dynamic panel data regressions, applying a GMM two-step estimation with robust standard errors. The dependent variable of all six models is LN TQ. Two lags of the dependent variable are included in every regression. Governance indicators, including the owner identity types are treated as endogenous and instrumented via the respective lags of the variable. Model 1 and 2 describe lone founder firm effects, 3 and 4 family founder firm effects, and 5 and 6 heir firm effects. Post-estimation effects are included at the bottom. The first test verifies or rejects the zero-autocorrelation in first-differenced errors hypothesis, while the second test, a Sargan test controls validitiy of overidentifying reststrictions. Values in parentheses are t-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

8.2.3.3 Owner Identity and Valuation—Moderating Variables Interaction

I continue with the discussion of agency conflicts to potentially further clarify the results from the Heckman (1978) and Arellano and Bond (1991) estimation. The conceptual approach introduced in section 8.2.2.1, Agency Conflicts: Univariate Evidence distinguishes theoretically more and less beneficial agency cost settings. The most beneficial setting should have neither *Agency Problem I* nor *Agency Problem II*.[273]

Consequently I now test the moderating effect of owner identity in this preferred agency setting. As I have a panel sample, I apply panel regression approaches. As discussed previously, firm fixed effects panel regressions may improve the empirical robustness by controlling for unobserved time-invariant heterogeneity. The drawback is that the governance characteristics that are at question are slow-moving (e.g. Zhou, 2001). Thus potential effects might not be identified even though they may exist. The effects could be more pronounced in a cross-sectional instead of a within estimation. Because of this possibility, I add random effects regressions as an additional panel regression approach. In both estimation approaches, I apply heteroskedasticity robust clustered standard errors (Petersen, 2009). I apply the full panel and calculate the interaction terms of an owner identity dummy with the most beneficial agency effect API0_APII0, in order to challenge prior results. The approach requires that both variables, i.e. the owner identity dummy and the agency conflict indicator, enter the equation next to the interaction term of both variables. The fact that both variables have a dichotomous characteristic is an advantage, as there is no need to mean-center for more intuitive regression result interpretation. In general the regression results can be interpreted as follows: the interacted term, i.e. the product of both variables, shows the effect when both variables are true, i.e. 1. For instance, in the present analysis this could identify a lone founder setting with the API0_APII0 agency characteristic. The lone founder dummy

[273] The abbreviation of this setting is API0_APII0, as documented in table 8.1.

indicates the effect if the API0_APII0 is 0. The pure API0_APII0 dummy indicates the effect if the lone founder dummy is 0. Thus, this regression setting slightly alters the meaning a dummy has now, compared to a non-interaction model. I explain this aspect immediately below in describing the following result.

Table 8.11 shows the results for the lone founder firm analysis. *Model 1* is a firm fixed effect model that estimates within effects. Next to the LONE FOUNDER FIRM dummy, the model includes API0_APII0, and the interacted term LONE FOUNDER FIRM x API0_APII0.[274] Further governance and control variables are included as documented in the table. The results suggest a non-significant LONE FOUNDER FIRM dummy in the absence of the API0_APII0 effect; i.e. when API0_APII0 is 0, the LONE FOUNDER FIRM would have no valuation premium compared to all other sample firms. Similarly, if LONE FOUNDER FIRM is 0, the API0_APII0 effect is non-significant, too. This means that other firms that have this specific governance characteristic applied, namely family founders or heirs in the management board and no artificial control-enhancing mechanisms installed, probably cannot capitalize on this setting, at least valuation wise.[275] Instead, when both variables are interacted, i.e. lone founder firms show no major agency problems, at least according to the conceptual dimensions considered, the coefficient of 0.243 shows a statistically significant and economically substantial valuation premium of approximately 27.5%.

Model 2, the random effects model, corroborates this evidence. The interacted coefficient takes the value of 0.177, a suggested valuation premium of 19.4%. *Models 3* and *4* add further governance characteristics. The specification is now comparable to the previous estimation approaches.[276] With respect to the evidence of *models 1* and *2* those specification changes do not alter the result. Only the interaction term remains significant. *Models 5*

[274] In table 8.11, I abbreviate LONE FOUNDER FIRM with LF to conserve space.
[275] The same obviously also applies to minority investors.
[276] Those variables are applied in the treatment effects regressions as well as in the dynamic panel regressions.

and *6* provide the same evidence when I alter the dependent variable to the non-logged TQ.

In table 8.12, I address the same question to a family founder setting, i.e. the interaction term is now FAMILY FOUNDER FIRM x API0_APII0. Naturally, the FAMILY FOUNDER FIRM dummy and the API0_APII0 dummy are included as well. The results of *model 1* indicate a non-significant FAMILY FOUNDER FIRM dummy, a significant and positive API0_APII0 coefficient, and a highly significant and negative interaction term. The results are very interesting, for several reasons. *First*, in the absence of the theoretically most beneficial agency setting, i.e. API0_APII0 is 0, the FAMILY FOUNDER FIRM shows no statistically significant coefficient, neither a premium nor a discount compared to all other firms. In turn, if the FAMILY FOUNDER FIRM dummy is 0 and API0_APII0 is 1, this agency setting is associated with a highly significant and substantial 0.155 coefficient which equals a valuation premium of about 16.8%. In contrast, the moderating effect of the FAMILY FOUNDER FIRM dummy, i.e. the owner identity characteristic, proves to be substantially negative. The interaction term coefficient shows -0.241 or a valuation discount of about -21.4%, all else being equal. The further models in table 8.12 confirm this evidence in random effects and further specified models. From a business perspective, this means that in spite of the theoretically most advantageous agency setting—which the indicator of API0_APII0 points out—family founder firms cannot capitalize on these characteristics. Instead, their owner identity characteristic, technically the moderating effect, is associated with a substantial valuation discount. There are a number of potential explanations for this finding. For instance, the influence of family founders in management could result in problems with balancing firm and family decisions. Issues with succession could be a prime example for a potential trade-off reflected in the valuation. A related problem could be the aspiration to keep a close circle of family management, resulting in a more limited talent pool.[277] Finally, family founder firms might have a different, more long-term time horizon or strategy that diverges from otherwise

[277] Compare Schulze et al. (2002a) for a similar argument on altruism-related succession problems.

comparable founder firms. From an analyst and investor perspective, those characteristics might have a more ambiguous appeal.

However, the finding is a further strong evidence that owner identity matters. Given the fact that from a definition point of view the difference between lone founder firms and family founder firms is 'just' *familiness,* the results are very important. Obviously, the combined characteristic of owner identity and governance choice has a substantial influence on valuation.

Finally, table 8.13 contains the evidence for the heir firm setting. Again, the approach is completely comparable to the previous two estimation approaches in lone founder and family founder firm settings. The interaction term HEIR FIRM x API0_APII0 is not statistically different from zero, as documented in all regression models. The same applies for the HEIR FIRM and the API0_APII0 dummy. A slight exception is *model 2*, the random effects model, where the HEIR FIRM dummy coefficient (0.046) is positive but only significant on a p<0.10 level and API0_APII0 (0.077) is significant on a p<0.05 level.

To conclude on this third type of advanced empirical approach, aiming at a thorough analysis of owner identity effects on valuation, all previous results are universally confirmed and important further insight is generated. While we have seen the consistent evidence that lone founder firms achieve a valuation premium (confirms H5.1.a), heir firms have neutral to average performance lacking statistical significance (rejects H5.1.c). Family founder firms show astonishing results: although they belong to the general type of founder influenced firms, they do not achieve valuation premiums (rejects H5.1.b). Instead, family founder firms are subject to valuation discounts that most probably derive from familiness, as various firm and governance characteristics are controlled for.[278]

[278] For completeness, I present the theoretically less beneficial agency settings in table A.13, Overview Interaction Effects, in the Appendix. Neither the lone founder firm and heir firm dummies nor the interaction terms show statistically noticeable effects in those regressions. Family founder firm dummies show substantial negative effects, yet interaction terms are statistically positive for agency settings where the family is not involved in management.

One of these controlling firm characteristics is ROA, return on assets, which I always include as control indicator for operating performance. ROA could have some explanatory power to firm valuation. Yet, separate regression tests focusing on ROA itself as a dependent variable including the application of various empirical methods and specifications, do not hint for substantial differences in lone founder, family founder, and heir firm settings. In fact almost all models fail to indicate any statistical significance for owner identity or related governance variables.[279] Operating performance seems to be better explained by firm age, size, and also by the NEUER MARKT dummy. I analyzed also ROS, return on sales, but the results remain unchanged (see table A.14, Operating Performance, in the Appendix).

[279] While the multivariate results show almost no statistical significance, the Wilcoxon rank-sum tests of various operating measures are significantly negative for founder firms, especially lone founder firms. See table A.6, Rank-sum Test—Owner Identity, in the Appendix.

Table 8.11: Lone Founder Firm Interaction Effects

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**		**Model (5)**		**Model (6)**	
Method	FE		RE		FE		RE		FE		RE	
Dep. variable	LN TQ		LN TQ		LN TQ		LN TQ		TQ		TQ	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM	**-0.036**	**(-0.670)**	**-0.037**	**(-0.891)**	**-0.050**	**(-0.880)**	**-0.042**	**(-0.978)**	**-0.235**	**(-1.384)**	**-0.153**	**(-1.196)**
API0_APII0	**-0.046**	**(-0.800)**	**-0.015**	**(-0.361)**	**-0.071**	**(-1.175)**	**-0.036**	**(-0.793)**	**-0.131**	**(-1.044)**	**-0.066**	**(-0.795)**
LF x API0_APII0	**0.243*** **	**(2.662)**	**0.177** **	**(2.500)**	**0.224** **	**(2.411)**	**0.174** **	**(2.452)**	**0.647** **	**(2.001)**	**0.485** **	**(2.152)**
FF VR					-0.153	(-1.466)	-0.061	(-0.812)	-0.299	(-1.176)	0.011	(0.060)
FF BOARD REPRES					0.497***	(2.594)	0.211	(1.471)	1.220**	(2.303)	0.297	(0.823)
PYRAMID					-0.014	(-0.499)	-0.019	(-0.763)	0.005	(0.064)	-0.005	(-0.071)
WEDGE					0.359	(1.345)	0.115	(0.653)	1.581	(1.446)	0.540	(0.843)
50% OWNER	0.048	(1.601)	0.053**	(2.101)	0.053*	(1.693)	0.056**	(2.116)	0.124	(1.077)	0.131	(1.386)
NUMBER BLOCKHOLDERS	0.007	(0.981)	0.003	(0.587)	0.009	(1.126)	0.005	(0.742)	0.023	(0.994)	0.010	(0.535)
OUTSIDER BLOCK VR	0.194***	(3.622)	0.167***	(4.262)	0.177***	(2.984)	0.159***	(3.304)	0.454***	(2.613)	0.401***	(3.379)
BETA	0.056***	(3.917)	0.067***	(4.936)	0.053***	(3.769)	0.066***	(4.858)	0.153***	(3.893)	0.206***	(5.081)
LN AGE	-0.065	(-0.790)	-0.058***	(-3.586)	-0.055	(-0.663)	-0.056***	(-3.429)	-0.349	(-1.434)	-0.133***	(-3.870)
LN TOTAL ASSETS (M)	-0.069***	(-2.792)	-0.033***	(-2.966)	-0.067***	(-2.719)	-0.032***	(-2.765)	-0.253**	(-2.200)	-0.106**	(-2.036)
DEBT / MVEQUITY	-0.008	(-1.349)	-0.015**	(-2.079)	-0.009	(-1.435)	-0.015**	(-2.106)	0.009	(0.704)	-0.009	(-0.576)
ROA	0.414***	(6.553)	0.418***	(6.988)	0.414***	(6.497)	0.419***	(6.971)	1.016***	(5.337)	1.043***	(4.862)
INT ACCOUNTING	0.021	(0.887)	0.022	(1.000)	0.024	(0.978)	0.024	(1.052)	0.080	(1.080)	0.069	(0.957)
NEUER MARKT MEMBER	0.011	(0.266)	0.013	(0.316)	0.014	(0.320)	0.014	(0.358)	0.392***	(2.764)	0.393***	(2.664)
ANALYST FOLLOWING	-0.004**	(-2.416)	0.001	(0.458)	-0.005**	(-2.580)	0.001	(0.458)	-0.015	(-1.570)	0.006	(0.615)
CONSTANT	0.550	(1.510)	0.320***	(3.277)	0.493	(1.338)	0.307***	(2.993)	3.425***	(2.630)	1.726***	(5.429)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	No		Yes		No		Yes		No		Yes	
Firm Fixed Effects	Yes		No		Yes		No		Yes		No	
Random Effects	No		Yes		No		Yes		No		Yes	
N (Observations)	4460		4460		4448		4448		4448		4448	
N (Clusters)	651		651		649		649		649		649	
Adj. R^2	0.261		0.191		0.265		0.187		0.176		0.152	
F-statistic	27.229				23.866				11.936			
Chi^2			788.865***				806.054***				413.852***	

Note: The table reports firm fixed effects and random effects panel regressions as indicated via FE or RE. The dependent variable is logged Tobin's Q in models 1 to 4 and Tobin's Q for models 5 and 6. The independent variable LONE FOUNDER FIRM represents an owner identity dummy. API0_APII0 is the dummy variable for agency settings characterized by the absence of Agency Problem I and Agency Problem II. LF x API0_APII0 is the interaction term of LONE FOUNDER FIRM and API0_APII0. The abbreviation LF is equivalent to LONE FOUNDER FIRM; it is introduced to conserve space. The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All variables as described in table A.2, Variable Definitions—Economics. Values in parentheses are heteroskedasticity robust t-statistics, clustered on a firm level (Petersen, 2009). * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table 8.12: Family Founder Firm Interaction Effects

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**		**Model (5)**		**Model (6)**	
Method	FE		RE		FE		RE		FE		RE	
Dep. variable	LN TQ		LN TQ		LN TQ		LN TQ		TQ		TQ	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
FAMILY FOUNDER FIRM	**-0.074**	**(-0.950)**	**-0.005**	**(-0.097)**	**-0.083**	**(-1.064)**	**-0.008**	**(-0.160)**	**-0.049**	**(-0.265)**	**0.063**	**(0.585)**
API0_APII0	**0.155*** **	**(2.846)**	**0.126*** **	**(3.062)**	**0.110***	**(1.866)**	**0.102** **	**(2.242)**	**0.363**	**(1.479)**	**0.295***	**(1.818)**
FamF x API0_APII0	**-0.241*** **	**(-2.912)**	**-0.172** **	**(-2.509)**	**-0.228*** **	**(-2.653)**	**-0.172** **	**(-2.426)**	**-0.584** **	**(-2.393)**	**-0.421** **	**(-2.405)**
FF VR					-0.147	(-1.503)	-0.071	(-0.964)	-0.327	(-1.360)	-0.039	(-0.216)
FF BOARD REPRES					0.522***	(2.836)	0.225	(1.564)	1.234**	(2.359)	0.285	(0.782)
PYRAMID					-0.013	(-0.454)	-0.020	(-0.794)	0.006	(0.078)	-0.010	(-0.162)
WEDGE					0.340	(1.318)	0.130	(0.751)	1.608	(1.461)	0.630	(1.000)
50% OWNER	0.045	(1.514)	0.050**	(2.016)	0.050	(1.582)	0.055**	(2.086)	0.118	(1.016)	0.130	(1.398)
NUMBER BLOCKHOLDERS	0.007	(1.029)	0.003	(0.539)	0.009	(1.091)	0.005	(0.734)	0.022	(0.959)	0.009	(0.514)
OUTSIDER BLOCK VR	0.193***	(3.779)	0.173***	(4.453)	0.180***	(3.031)	0.162***	(3.359)	0.470***	(2.640)	0.415***	(3.378)
BETA	0.055***	(3.859)	0.067***	(4.921)	0.053***	(3.701)	0.066***	(4.834)	0.152***	(3.848)	0.205***	(5.045)
LN AGE	-0.072	(-0.867)	-0.059***	(-3.620)	-0.059	(-0.710)	-0.057***	(-3.441)	-0.351	(-1.444)	-0.129***	(-3.613)
LN TOTAL ASSETS (M)	-0.069***	(-2.803)	-0.033***	(-2.957)	-0.067***	(-2.716)	-0.031***	(-2.731)	-0.254**	(-2.210)	-0.103**	(-1.987)
DEBT / MVEQUITY	-0.008	(-1.364)	-0.015**	(-2.099)	-0.009	(-1.462)	-0.015**	(-2.132)	0.009	(0.717)	-0.009	(-0.585)
ROA	0.417***	(6.586)	0.420***	(7.015)	0.416***	(6.507)	0.421***	(6.984)	1.031***	(5.322)	1.054***	(4.870)
INT ACCOUNTING	0.019	(0.818)	0.021	(0.947)	0.022	(0.921)	0.023	(1.004)	0.076	(1.032)	0.065	(0.905)
NEUER MARKT MEMBER	0.016	(0.381)	0.015	(0.370)	0.017	(0.388)	0.017	(0.409)	0.395***	(2.776)	0.398***	(2.665)
ANALYST FOLLOWING	-0.004**	(-2.306)	0.001	(0.541)	-0.004**	(-2.454)	0.001	(0.517)	-0.014	(-1.515)	0.006	(0.642)
CONSTANT	0.579	(1.587)	0.307***	(3.135)	0.508	(1.373)	0.291***	(2.843)	3.413***	(2.630)	1.658***	(5.064)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	No		Yes		No		Yes		No		Yes	
Firm Fixed Effects	Yes		No		Yes		No		Yes		No	
Random Effects	No		Yes		No		Yes		No		Yes	
N (Observations)	4460		4460		4448		4448		4448		4448	
N (Clusters)	651		651		649		649		649		649	
Adj. R^2	0.263		0.190		0.268		0.187		0.175		0.154	
F-statistic	27.285				24.069				12.537			
Chi^2			779.832***				798.002***				420.458***	

Note: The table reports firm fixed effects and random effects panel regressions as indicated via FE or RE. The dependent variable is logged Tobin's Q in models 1 to 4 and Tobin's Q for models 5 and 6. The independent variable FAMILY FOUNDER FIRM represents an owner identity dummy. API0_APII0 is the dummy variable for agency settings characterized by the absence of Agency Problem I and Agency Problem II. FamF x API0_APII0 is the interaction term of FAMILY FOUNDER FIRM and API0_APII0. The abbreviation FamF is equivalent to FAMILY FOUNDER FIRM; it is introduced to conserve space. The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All variables as described in table A.2, Variable Definitions—Economics. Values in parentheses are heteroskedasticity robust t-statistics, clustered on a firm level (Petersen, 2009). * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table 8.13: Heir Firm Interaction Effects

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**		**Model (5)**		**Model (6)**	
Method	FE		RE		FE		RE		FE		RE	
Dep. variable	LN TQ		LN TQ		LN TQ		LN TQ		TQ		TQ	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
HEIR FIRM	**0.049**	**(1.419)**	**0.046***	**(1.878)**	**0.028**	**(0.794)**	**0.043**	**(1.575)**	**-0.045**	**(-0.481)**	**0.036**	**(0.471)**
API0_APII0	**0.077**	**(1.516)**	**0.077****	**(1.982)**	**0.036**	**(0.629)**	**0.056**	**(1.273)**	**0.181**	**(0.841)**	**0.201**	**(1.357)**
HF x API0_APII0	**0.023**	**(0.302)**	**-0.016**	**(-0.279)**	**0.065**	**(0.825)**	**-0.000**	**(-0.007)**	**0.058**	**(0.264)**	**-0.121**	**(-0.776)**
FF VR					-0.173	(-1.593)	-0.086	(-1.097)	-0.341	(-1.303)	-0.036	(-0.189)
FF BOARD REPRES					0.549***	(2.911)	0.217	(1.504)	1.332**	(2.519)	0.279	(0.761)
PYRAMID					-0.006	(-0.189)	-0.013	(-0.499)	0.029	(0.333)	0.013	(0.185)
WEDGE					0.359	(1.317)	0.114	(0.640)	1.644	(1.449)	0.578	(0.874)
50% OWNER	0.044	(1.426)	0.047*	(1.839)	0.051	(1.621)	0.055**	(2.060)	0.121	(1.043)	0.130	(1.391)
NUMBER BLOCKHOLDERS	0.007	(0.982)	0.003	(0.456)	0.009	(1.100)	0.005	(0.674)	0.023	(1.001)	0.009	(0.497)
OUTSIDER BLOCK VR	0.200***	(3.586)	0.183***	(4.266)	0.178***	(2.970)	0.163***	(3.345)	0.457**	(2.583)	0.408***	(3.335)
BETA	0.055***	(3.828)	0.067***	(4.880)	0.053***	(3.693)	0.066***	(4.790)	0.153***	(3.859)	0.205***	(5.033)
LN AGE	-0.072	(-0.878)	-0.063***	(-3.804)	-0.061	(-0.730)	-0.060***	(-3.594)	-0.352	(-1.447)	-0.131***	(-3.750)
LN TOTAL ASSETS (M)	-0.072***	(-2.884)	-0.034***	(-3.037)	-0.069***	(-2.787)	-0.032***	(-2.791)	-0.258**	(-2.239)	-0.106**	(-2.029)
DEBT / MVEQUITY	-0.008	(-1.353)	-0.015**	(-2.114)	-0.008	(-1.450)	-0.015**	(-2.144)	0.009	(0.726)	-0.010	(-0.595)
ROA	0.421***	(6.610)	0.422***	(7.029)	0.423***	(6.585)	0.424***	(7.026)	1.042***	(5.399)	1.057***	(4.865)
INT ACCOUNTING	0.022	(0.912)	0.024	(1.055)	0.023	(0.963)	0.024	(1.080)	0.078	(1.055)	0.069	(0.954)
NEUER MARKT MEMBER	0.023	(0.536)	0.020	(0.479)	0.023	(0.543)	0.022	(0.530)	0.411***	(2.835)	0.407***	(2.701)
ANALYST FOLLOWING	-0.004**	(-2.406)	0.001	(0.555)	-0.004**	(-2.534)	0.001	(0.521)	-0.015	(-1.552)	0.006	(0.637)
CONSTANT	0.582	(1.601)	0.321***	(3.304)	0.517	(1.401)	0.308***	(2.972)	3.435***	(2.649)	1.699***	(5.238)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	No		Yes		No		Yes		No		Yes	
Firm Fixed Effects	Yes		No		Yes		No		Yes		No	
Random Effects	No		Yes		No		Yes		No		Yes	
N (Observations)	4460		4460		4448		4448		4448		4448	
N (Clusters)	651		651		649		649		649		649	
Adj. R^2	0.256		0.193		0.261		0.189		0.170		0.154	
F-statistic	26.943				23.844				12.367			
Chi^2			779.250***				799.761***				423.417***	

Note: The table reports firm fixed effects and random effects panel regressions as indicated via FE or RE. The dependent variable is logged Tobin's Q in models 1 to 4 and Tobin's Q for models 5 and 6. The independent variable HEIR FIRM represents an owner identity dummy. API0_APII0 is the dummy variable for agency settings characterized by the absence of Agency Problem I and Agency Problem II. HF x API0_APII0 is the interaction term of HEIR FIRM and API0_APII0. The abbreviation HF is equivalent to HEIR FIRM; it is introduced to conserve space. The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All variables as described in table A.2, Variable Definitions—Economics. Values in parentheses are heteroskedasticity robust t-statistics, clustered on a firm level (Petersen, 2009). * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

8.3 Owner Identity and Stock Performance

Across several empirical approaches and specification models, the previous sections proved that founding-family heterogeneity is associated with firm valuation. In order to slightly change the angle on the previous results, the last empirical analysis switches from a firm valuation perspective towards a stock performance analysis. Initially, there is no reason to assume a general distinct relationship between governance and stock returns, or more specifically a relationship between owner identity and stock returns. In fact, Gompers et al. (2010) document well explained stock returns, suggesting incorporated governance effects with respect to dual share-class settings.[280] Corstjens et al. (2006) argue in a similar fashion, as they document no abnormal returns in family firm portfolios that include the US capital market, France, Germany, and the UK. Still, a relation between governance and stock returns should not be ruled out, as previous governance research by Gompers et al. (2003), Drobetz et al. (2004), Cremers and Nair (2005), Bebchuk et al. (2009), or Fahlenbrach (2009) documented exactly such a relationship. However, it is important to note that the previous results of e.g. Gompers et al. (2003) are questioned in subsequent work, e.g. by Core et al. (2006). Core et al. (2006) also suggest that an unusual stock market period could have partly influenced the results, as Gompers et al. (2003) reviewed the period from 1990 to 1999 for the US capital market.

Nevertheless, in the tradition of this prior work, foremost that of Gompers et al. (2003), Corstjens et al. (2006), and Fahlenbrach (2009), I address the field of owner identity specifics of founding-family governance with respect to equity pricing.[281] In this process, two aspects emerge for my work: *first*,

[280] The analysis of Gompers et al. (2010) indicates that firms characterized by the application of a dual share-class wedge show no abnormal stock returns, given the application of a four-factor benchmark model. I describe the specifics of such a Fama and French (1993) and Carhart (1997) model below.

[281] While Gompers et al. (2003) develop a governance index as governance indicator, Cremers and Nair (2005), Bebchuk et al. (2009), and Gompers et al. (2010) either apply this governance index, alter it, or review a distinct governance setting. With respect to my work, the even more closely related studies are those of Corstjens et al. (2006) (family governance) and Fahlenbrach (2009) (founder-CEO governance). Drobetz et al. (2004)

whether results are potentially time-specific or not can be tested with more confidence in my sample, as the period of 1995 to 2008 includes bull as well as bear markets. *Second*, previous evidence is primarily US capital market focused. Thus, a priori, there is no indication that those findings should be transferable to my sample. In fact, the regional context, the sample period, and firm size is different to the Fahlenbrach (2009) analysis. Compared to Corstjens et al. (2006), my sample includes more firms, smaller firms, has a different sample period, and the family firm definition approach is different.[282] Accordingly, prior empirical evidence allows no clear hypothesis, leaving this question open to a new estimation.

In selecting an estimation approach, the Fama and French (1993) three-factor model and the four-factor model including the Carhart (1997) momentum factor, emerged as a primary approach to evaluate stock performance and attribute performance with respect to distinct benchmark factors. In this respect, the four-factor model is considered to be superior to the CAPM, the Capital Asset Pricing Model, which traces back to the work of Sharpe (1964) and Lintner (1965).[283] As a single-factor model, the CAPM explains stock returns with the beta factor, i.e. as a function of general stock market performance.

Besides a market factor, the Fama and French (1993) approach includes size, and book-to-market effects.[284] Thus, the approach includes the following four effects:

estimate a three-factor model for the years 1998 to 2002, reviewing governance characteristics of 91 listed German firms that answered a detailed governance questionnaire.

[282] Fahlenbrach (2009) analyzes US founder-CEO firms between 1993 and 2002. See the Literature Review, section 4.2.3.3 for further details. Corstjens et al. (2006) present evidence for French, German, and UK firms between 1994 and 2002, respectively 1994 to 1999 for US firms. The evidence for Germany is based on 83 family and 131 non-family firms, i.e. 214 unique firms and 1,806 firm years. Initially, Corstjens et al. (2006) started with the 250 largest firms in Germany according to their market capitalization. They require an ultimate ownership stake of a family of 10%.

[283] Fama and French (1993) show superiority of the three-factor model as an explanation over the CAPM for US stocks; Hanauer et al. (2012) demonstrate this characteristic for the German stock market.

[284] In fact, due to the addition of both factors, the market factor of the CAPM and the market factor of the Fama and French (1993) model are not identical.

- RMRF, the market return minus the risk free rate, a market effect,
- SMB, small minus big, a market capitalization effect,
- HML, high book-to-market minus low book-to-market, and
- MOMENTUM, an effect that controls for past performance.

I am very appreciative of the calculation of these four factors for the German market by Hanauer et al. (2012). The authors provide open access to this data.[285]

In order to test my owner identity hypotheses, I apply the following four-factor regression model:

$$R_{it} - R_{ft} = \alpha_i + \beta_i * RMRF_t + s_i * SMB_t + h_i * HML_t + m_i * MOMENTUM_t + \varepsilon_{it} \tag{8.1}$$

$R_{it} - R_{ft}$ is the excess return of portfolio i at month t over the risk free rate.[286] In this analysis a portfolio consists of firms of a distinct owner identity, e.g. an heir firm portfolio, representing value-weighted returns. α_i represents a potential abnormal return not explained by the four factors. The four factors $RMRF_t$, SMB_t, HML_t, and $MOMENTUM_t$ are defined as above and calculated for each month t. The coefficients β_i, s_i, h_i, and m_i represent the respective estimated exposure of an owner identity portfolio i to the respective factor characteristic. The summary statistics for this analysis are shown in table 8.14.[287] The monthly mean returns are: 0.91% for a lone founder portfolio, -0.145% for a family founder portfolio, and 0.021% for an

[285] Hanauer et al. (2012) provide the Fama and French (1993) factors as well as the Carhart (1997) factor for free download on the website of the Department of Financial Management and Capital Markets (2012) of Technische Universität München (TUM).

[286] Hanauer et al. (2012, p. 9) apply the Frankfurt Interbank Offered Rate (FIBOR) until 1998, and the European Interbank Offered Rate (EURIBOR) since 1999 as the risk free rate.

[287] The summary statistics include the monthly owner identity portfolio returns as well as the monthly returns of the four factors. For instance, the mean monthly RMRF, excess return of the market portfolio over the risk-free rate, is 0.504%, or 504bps.

Table 8.14: Fama French Stock Performance—Summary Statistics

VARIABLES	N	MEAN	SD	MIN	MAX
$R_{\text{LONE FOUNDER FIRM}}$	150	0.910	8.392	-24.149	24.944
$R_{\text{FAMILY FOUNDER FIRM}}$	150	-0.145	13.074	-36.642	66.863
$R_{\text{HEIR FIRM}}$	150	0.021	5.900	-20.847	17.637
R_m	150	0.774	5.800	-15.221	14.037
R_f	150	0.270***	0.069	0.167	0.414
RMRF	150	0.504	5.818	-15.495	13.825
SMB	150	-0.886***	4.033	-14.298	10.362
HML	150	0.624**	3.559	-10.358	11.914
MOMENTUM	150	1.357**	7.230	-40.710	19.986

Note: The table reports the summary statistics for the four-factor benchmark model following Fama and French (1993) and Carhart (1997). All return measures are value-weighted monthly returns. The indicators $R_{LONE\,FOUNDER\,FIRM}$, $R_{FAMILY\,FOUNDER\,FIRM}$, and $R_{HEIR\,FIRM}$ represent owner identity portfolio returns. R_m is the market return, R_f the risk-free rate, R_{RMRF} the excess market return over the risk-free rate, SMB the small-minus-big factor, HML the high book value minus low book value factor, and $MOMENTUM$ the past stock performance factor. The statistics include 150 months from July 1996 to December 2008. A one-sample t-test estimates difference from zero. Hanauer et al. (2012) provide Fama and French (1993) and Carhart (1997) factors for download on the website of the Department of Financial Management and Capital Markets (2012) of Technische Universität München (TUM). * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

heir firm portfolio. The monthly market return minus the risk-free rate is 0.504%.

The analysis of almost one and a half decades of German stock market history presented in table 8.15 shows that lone founder settings are characterized by an abnormal return (alpha) of 106 basis points per month, or an annualized benchmark-adjusted return of 12.7%.[288] This premium is high, yet comparable to the founder-CEO evidence that Fahlenbrach (2009) reported.[289] In contrast, family founder firms and heir firms show statistically insignificant monthly alpha coefficients of 0.093 and -0.210, respectively.

[288] The compounded annual return is 13.5%.

[289] Fahlenbrach (2009) estimates a 10.7% abnormal return with a value-weighted four-factor approach, but he includes all founder-CEO firms, irrespective of the owner identity distinctions that I apply.

Table 8.15: Fama French Stock Performance

	ALPHA	RMRF	SMB	HML	MOMENTUM	R^2
	Coeff. (t-stats)	Coeff. (t-stats)	Coeff. (t-stats)	Coeff. (t-stats)	Coeff. (t-stats)	
LONE FOUNDER FIRM	1.057**	1.072***	0.625***	-0.084	-0.060	0.451
	(1.982)	(10.862)	(3.989)	(-0.518)	(-0.927)	
FAMILY FOUNDER FIRM	0.093	1.371***	0.067	-0.530**	-0.398*	0.512
	(0.113)	(8.522)	(0.298)	(-2.125)	(-1.741)	
HEIR FIRM	-0.210	0.800***	0.346***	0.337***	-0.056	0.547
	(-0.591)	(9.809)	(3.566)	(2.750)	(-0.715)	

Note: The table reports a four-factor benchmark model following Fama and French (1993) and Carhart (1997). The indicators LONE FOUNDER FIRM, FAMILY FOUNDER FIRM, and HEIR FIRM represent different owner identity portfolios. ALPHA indicates the abnormal return coefficient, RMRF the excess market return over the risk-free rate, SMB the small-minus-big coefficient, HML the high book value minus low book value coefficient, and MOMENTUM a factor controlling for past stock performance. The regressions include 150 months from July 1996 to December 2008. Hanauer et al. (2012) provide Fama and French (1993) and Carhart (1997) factors for download on the website of the Department of Financial Management and Capital Markets (2012) of Technische Universität München (TUM). Values in parantheses are t statistics. Newey and West (1987) heteroskedasticity and autocorrelation robust p-values are applied, adjusting for three lags (cf. Liew and Vassalou, 2000; Hanauer et al., 2012). * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

This result provides further evidence that owner identity seems to matter, even in a stock return analysis.

The stock performance analysis rejects H5.2.a of no abnormal returns (alpha) in lone founder settings. For family founder and heir firm settings, the hypotheses H5.2.b and H5.2.c, which suggest no statistically significant alpha, are confirmed.

Beyond this key finding, there are further interesting aspects concerning the factor loadings for the three distinct owner identity portfolios. Next to the market coefficient that is statistically significant at a 0.01 level in every portfolio, yet highest with respect to family founder firms, there are 'style' differences in the portfolios that are captured in the SMB and HML factors.

Lone founder firms show a positive significant SMB coefficient (0.625) that indicates a gearing towards small cap firms. The HML coefficient is negative as well as the MOMENTUM coefficient, but neither is significant.

The analysis of family founder firms shows a positive but insignificant SMB coefficient. However, the HML coefficient is significant and negative (-0.530), indicating a portfolio that gears towards growth stocks with relatively lower book to market ratios. The MOMENTUM is weakly significant (-0.398), yet substantial compared to the other owner identity portfolios. In fact the MOMENTUM factor is about 6.6x to 7.1x as high as in lone founder and heir firm settings. In the light of the previous endogeneity discussion of family founder settings, this aspect gets further support: as demonstrated the MOMENTUM factor correction is massively higher in family founder settings suggesting higher correction of past performance.

Finally, the heir firm portfolio shows a significant SMB coefficient (0.346) which argues for a portfolio that gears towards small capitalization companies. Although the coefficient is smaller compared to that of the lone founder portfolio this might be somewhat surprising. Yet, the group of heir firms has a median market capitalization below €175 million (75th percentile of €514 million), suggesting an inclusion of numerous small- to mid-cap firms. In addition, the heir firm portfolio indicates a positive and significant HML coefficient (0.337) suggesting value style characteristics.

The varying SMB, HML, and MOMENTUM factor coefficients of the respective owner identity portfolios underline once again the fact that founding-family defined firms are a group of rather heterogeneous firms. Investments in owner identity portfolios have different exposure to the factors, indicating that lone founder, family founder, and heir firm portfolios have diverging characteristics.[290] Investors could therefore follow different investment styles, or conversely, investors might address different subgroups of founding-family defined firms with different investment styles.

[290] Overall, the Fama and French (1993) four-factor regressions show high R^2 around 0.50, suggesting well-explained relationships.

8.4 Summary

This chapter assessed the intertwined specifics of firm governance, owner identity, and firm valuation. The compelling results show that the owner identity characteristic is a decisive moderating variable in this context. Owner identity systematically influences differences in governance choice and employed mechanisms. In addition to this influence, owner identity characteristics seem to have a strong influence on the specific outcome of applied governance mechanisms. As a result, I document systematic differences in firm valuation and stock performance for lone founder, family founder, and heir firms.

The conceptual approach at the beginning of this chapter has already emphasized the potential agency conflicts that arise from implemented governance mechanisms. Lone founder firms predominantly show the theoretically most beneficial mechanisms, i.e. the absence of the manager-shareholder and of the majority-minority shareholder conflict.[291]

The treatment regressions use exogenous instruments to proxy the owner identity dummies and account for potential endogeneity. This approach allows for a more causal interpretation of the respective firm types' influence on firm valuation. The valuation, measured in Tobin's Q, is about 10.7% to 22.3% higher in lone founder firm settings, *ceteris paribus*.[292] In contrast, family founder firm settings are associated with a valuation discount of approximately -14.9% to -22.9%, *ceteris paribus*, while heir firm settings are not associated with statistically noticeable deviation.[293]

[291] The absence of the first agency conflict is assumed if one or more members of the founding-family are represented in the management board. The absence of the second conflict is assumed if artificial control-enhancing mechanisms, like ownership pyramids or dual share-class wedges, are not installed. The absence of both conflicts should be the most beneficial setting in terms of firm valuation.

[292] The range reflects the regression specification. For estimation results, please see tables 8.3 and 8.5.

[293] In heir firm settings, the coefficients indicate 5.4% to 8.1% higher valuation, yet lacking statistical significance.

This evidence is corroborated in dynamic panel regressions, following Arellano and Bond (1991). Those regressions apply a first differencing GMM estimation and thus remove fixed effects. In addition, the lagged dependent variable as well as the owner identity variable as endogenous regressor is included to cope with endogeneity problems. The valuation premiums, respectively discounts, have a slightly higher magnitude, yet they strongly confirm prior evidence and thus the hypothesis that owner identity matters in analyzing founding-family firm specifics. Lone founder settings show a 30.7% valuation premium, family founder settings a -35.7% discount, and heir firm settings a non significant 7.4% premium.

The panel regression analysis of owner identity as a moderating effect concludes that the theoretically most beneficial agency setting in lone founder firms is associated with the highest valuation. While neither family firm type can capitalize on this agency setting, family founder firms show even discounts in valuation. In a firm fixed effects regression, the discount is about -20.4%. Heir firms show again a neutral characteristic, while lone founder firms show a valuation premium of about 25.1%. Those effects are corroborated by an altered regression approach, a random effects regression that includes cross-sectional effects.[294]

In terms of quantifying the results of a stock return analysis, I find that a lone founder setting results in an abnormal return of 106 basis points per month, or an annualized benchmark-adjusted abnormal return of 12.7%. Family founder and heir firm portfolios are well explained with a four-factor benchmark model.

[294] The interaction results for random effects estimation are statistically significant 19.0% for lone founder settings and -15.8% for family founder firms. See tables 8.11 and 8.12. Heir firms show no statistically significant interaction effects (see table 8.13).

Table 8.16: Summary of Firm Economics Hypotheses and Results

#	HYPOTHESES	EXPECTED SIGN	RESULT
	VALUATION		
H5.1.a	**Lone Founder** firms are positively associated with superior firm valuation (Tobin's Q).	+	+
H5.1.b	**Family Founder** firms are positively associated with superior firm valuation (Tobin's Q).	+	–
H5.1.c	**Heir** firms are not associated with superior firm valuation (Tobin's Q).	o	o
	STOCK PERFORMANCE		
H5.2.a	**Lone Founder** firms are not associated with abnormal stock market performance (alpha).	o	+
H5.2.b	**Family Founder** firms are not associated with abnormal stock market performance (alpha).	o	o
H5.2.c	**Heir** firms are not associated with abnormal stock market performance (alpha).	o	o
H5.3.a	A **Lone Founder firm portfolio** is positively associated with SMB and negatively with HML characteristics.	+/–	+/ o
H5.3.b	A **Family Founder firm portfolio** is positively associated with SMB and negatively with HML characteristics.	+/–	o/–
H5.3.c	An **Heir firm portfolio** is negatively associated with SMB and positively with HML characteristics.	–/+	+/+

Note: This table presents an overview of hypotheses on firm economics. The signs "+", "–" and "o" indicate a *positive*, a *negative*, and a *neutral* association. The result for H5.3.c SMB indicates a significant finding that hints for higher market capitalization than the founding-family peers, although the coefficient has still a positive sign.

Source: Own work.

Thus, over a broad spectrum of estimation approaches and model specifications, including very advanced regression approaches, the notable results remain very robust. This evidence delivers further arguments in favor of a broader investigation of governance characteristics instead of focusing on single governance indicators. The interplay of mechanisms and owner identity appears to be quite complex, yet meaningful from a statistical and business perspective. I find compelling evidence that owner identity is a moderating variable that provides further explanation of the otherwise difficult-to-understand costs and benefits of various founding-family contracting scenarios. As such, owner identity carries important characteristics, associated with firm decisions and behavior that mirror in firm actions and ultimately in firm performance.

The results generate novel insights about this economically meaningful topic. I have identified that the three owner identity settings are not only associated with different magnitudes of performance influence, but with opposite directions. In line with existing evidence on founder-CEO firms, my results reveal a highly robust and substantial valuation premium for lone founder firms. By contrast, family founder firm settings show valuation discounts despite also being founder-influenced firms. Possible explanations might include the family's dominant role in management, altruism, or general succession issues. Heir firm settings show a more neutral impact on firm valuation, contradicting existing evidence that partly documents detrimental effects in descendant firms.

Therefore, the results imply that the valuation implications are not solely a family, or a generational, effect. The following chapter on ownership dynamics further analyzes differences of owner identity settings. The focus is on family and generational characteristics that potentially influence a firm's long-term orientation.

9 Ownership Dynamics in Founding-Family Firms

Ownership is an essential governance mechanism that most founders, heirs, and respective families employ wisely to protect their interests (cf. Anderson and Reeb, 2003; Andres, 2008b; Villalonga and Amit, 2009).[295] In this way, owners try to accomplish their objectives and balance control as well as risk considerations. Yet, this construct of family influence might vary fundamentally due to the heterogeneous character of listed founding-family firms (cf. Villalonga and Amit, 2006, 2009). Moreover, the question arises how dynamic this influence is.[296]

In order to grasp a better understanding of the persistence of owner influence in public founding-family firms, I diligently address their heterogeneous characteristics. Specifically, I examine potential patterns and identify likely reasons of ownership dynamics. *First*, this marks a rich, almost untapped field in family firm research. Insights into the dynamics of family influence should improve the understanding on longevity and family-firm heterogeneity in general. *Second*, ownership characteristics are at the heart of definitions and ultimately influence the way we consider the strength of family influence. *Third*, prior research of listed founding-family firms focuses extensively on non-family and family firm comparison (cf. Wright

[295] See also chapter 7, Heterogeneity and Firm Policy of Founding-Family Firms.

[296] This chapter is based on the peer-reviewed and published standalone paper '*The dynamics of voting ownership in lone-founder, family-founder, and heir firms*' by Achleitner et al. (2012), previously presented at the 2011 IFERA (*International Family Enterprise Research Academy*) annual conference in Palermo/Italy.

and Kellermanns, 2011). I exploit this uncharted space for new research and address the heterogeneous peculiarities of listed founding-family firms.

As pointed out in the Literature Review, in section 4.2.4, I detect a surprisingly low coverage of ownership dynamics in existing research given the significant impact that this topic has to offer for a deeper understanding of family firms. Nevertheless, scholars such as Klasa (2007), Franks et al. (2009), Benson and Davidson III (2009), Fahlenbrach and Stulz (2009), Helwege et al. (2007) have presented related work on ownership dynamics in public firms. Yet, the in-depth consideration of owner identity characteristics remains unexplored in this context. This is striking, as owner identity characteristics prove to be important determining factors of firm behavior, i.e. policy decisions, as demonstrated in chapter 7.[297]

Therefore, this chapter focuses exactly upon this research gap and addresses the following three questions to increase the understanding of ownership dynamics in founding-family firms:

1. What are the *frequency*, *direction*, and *level* of ownership changes?

2. Do *owner identity types* contribute to the explanation of changes? Which further *determinants* contribute to the explanation of dynamics?

3. How *persistent* is the influence of founding-family blockholder influence?

Answers to these questions are beneficial not only to a largely underresearched scholarly field, but to family firms, regulators, politicians, and outside investors alike. The key contribution stems from the in-depth analysis of those dynamics for the three types of founding-family-firms: (i) *lone founder firms*, (ii) *family founder firms*, and (iii) *heir firms*. As a result, this approach explicitly takes into account family firms' heterogeneity as documented in chapter 7. A more thorough individual distinction reflects their

[297] See also Le Breton-Miller and Miller (2008) and Miller et al. (2011) for similar argument.

potential differences, varying motives and goal structures that might explain varying ownership dynamics.[298]

Throughout this chapter, I interpret the results in the light of *(social) identity theory*, *agency theory*, *stewardship theory*, and *financial theory*. These theories constitute the cornerstones of the hypotheses presented in section 5.3 and guarantee a more complete discussion of potential determinants within the emerging field of ownership dynamics.

9.1 Sample, Data Set, Research Design

9.1.1 Sample Construction

The empirical analysis investigates again listed *CDAX (the Composite German Stock Index)* companies during the years 1996 to 2008.[299] The general approach of the sample construction is identical to that explained in the previous chapters 7, *Heterogeneity and Firm Policy of Founding-Family Firms*, and 8, Economics of Founding-Family Firms.

The ownership dynamics analysis requires unambiguous information of shareholders and changes in the shareholdings. In case of any doubts, I specifically review official publications, company news sections and public information sources, like *Factiva* or *LexisNexis,* to evaluate the particular firm specific event. This rigorous process results in a final sample containing 2,529 firm years which fulfill the ownership requirements. Further data stemming from *Thomson One Banker*, which represents the primary source for all accounting related information, is matched with this ownership sample.

[298] See Schraml (2010) for an extensive analysis on family motives and goal structures of German (privately-held) family firms.

[299] As the ownership dynamics approach depends on calculating year-on-year changes in ownership, I loose one year of the panel compared to the prior empirical analyses.

9.1.2 Variables

9.1.2.1 Ownership Dynamics Variables

The hypotheses presented in section 5.3 aim at testing the likelihood of a substantial change in founding-family ownership. Thus, the most important dependent variables of the analysis are dummy variables that indicate significant ownership change. They differ with respect to a positive or a negative direction, as well as in different magnitudes. A *Large Drop* represents a year-on-year negative change of at least 2.5%, i.e. half the size of a block trade. In my robustness tests, I also apply a 5% threshold for a *Large Drop* that represents a negative change of a magnitude of at least 5%, i.e. a block trade. I add also a negative change of at least 1% to the sensitivity analysis. The same thresholds apply to positive changes in individual blockholder voting rights. I call this variable a *Large Increase*. While both a *Large Drop* and a *Large Increase* scenario represent a year-on-year variation of ownership influence, they both imply that the individual blockholder influence remains with the company. Therefore, I additionally address the likelihood of a complete exit of the individual blockholder as a further aspect of interest. I capture this *'vanished influence'* angle in a dummy variable called *Complete Exit*.[300]

9.1.2.2 Theory Perspective Variables

There are four particular theory perspectives that collectively represent the foundation of this section's analysis: (i) (social) identity theory, (ii) agency theory, (iii) stewardship theory, and (iv) and financial theory. Due to the very limited prior work on ownership dynamics, particularly in the field of founding-family firms, all four theory perspectives are tested in the multivariate regressions.

[300] Table A.3, Variable Definitions—Ownership Dynamics, provides an overview on all variables.

The specific variables for the (social) identity perspective are the owner identity variables lone founder, family founder, and heir firm. I alter those owner identity variables by the more strict (adjusted) founding-family definition as described in chapter 2, Context and Definition of Founding-Family Firms and by piecewise ownership thresholds for owner identity groups.[301]

In addition to this I question the effect of agency characteristics in founding-family settings. I specifically model this with variables suggesting active board representation (FF BOARD REPRESENTATION) that potentially lowers management-shareholder conflicts and in particular with high private benefits of control. As such private benefits of control variables I apply PYRAMID and WEDGE. While PYRAMID indicates pyramidal ownership chains of the controlling founding-family, the WEDGE quantifies a potential difference between voting rights and cash-flow rights due to dual-share class structures. Both variables represent a deviation of the *one-share-one-vote* policy by the founding-family and proxy for *Agency Problem II*, the majority-minority shareholder conflict.[302] Similarly, external governance forces, conducted via OUTSIDER BLOCK VR, blockholdings by outsiders, should alleviate agency problems.

A stewardship indicator that I apply in this empirical section is SFI MB to emphasize active board involvement. Being a management board member and owner at the same time should promote potential stewardship behavior. The same applies to potentially higher identification and reputation concerns in the event of a firm's name is related to the founder or founding-family name (FIRM FOUNDER NAME). Whereas these prior indicators potentially positively influence stewardship characteristics a more negative

[301] In the event that I apply the adjusted founding-family definition associated with an individual blockholder type I append a 'D'—for dummy—in parentheses to the owner identity variable. For example: FAMILY FOUNDER FIRM (D). An example for an owner identity dummy with ownership thresholds adjusted is as follows: HEIR FF*2550VR suggests an heir firm where the founding-family controls between 25% and 50% of all voting rights.

[302] Family firm researchers generally consider *Agency Problem II* as the more severe problem in most listed family firms as family members are often on corporate boards. For more details see chapter 3, Theoretical Framework.

variable could be NUMBER BLOCKHOLDERS, the total number of blockholders.

Tobin's Q (LnTQ) serves as financial theory variable to control for potential market-timing or exploitation of superior information as hypothetical reasons for ownership changes.

9.1.2.3 Control Variables

The control variables which I apply throughout the empirical analysis are similar to those applied in the prior empirical chapters. I control for majority blockholding (50% OWNER), BETA as systematic risk indicator, AGE, size via TOTAL ASSETS (M), capital structure (DEBT/MVEQUITY), PAYOUT and investments (CAPEX). Further, I factor in operating performance (ROA),[303] accounting standards applied (INT ACCOUNTING), *Neuer Markt* listing (NEUER MARKT MEMBER), and ANALYST FOLLOWING, besides year and Fama and French (1997) industry effects.

9.1.3 Empirical Approach

In the following analysis, I apply pooled probit regressions. The probit regressions for *Large Drop* and *Large Increase* include in their base model (indicated as *Model #.a*)[304] general ownership and firm specific characteristics to control for size, age, leverage, performance and so forth, and year dummies, as well as industry dummies. I then extend this model with distinct (family) governance variables (*Model #.b* and *Model #.c*) that capture board influence as well as ownership protection mechanisms, and with stewardship indicators. Finally, I include owner identity characteristics (*Model #.d, Model #.e, Model #.f*). Specifically, lone founder firm, family founder firm, and heir firm dummies enter the regressions. In the more detailed regressions settings, I alter definition rigor and include owner identity types with

[303] Heiss and Köke (2004) and Denis and Sarin (1999) reported that poor operating performance largely influences ownership dynamics.
[304] The hash sign ‚#' indicates the respective model number.

piecewise ownership ranges that reflect important thresholds. I present two models per owner identity type—a fully specified model (*Model #.a, Model #.c, Model #.e*) and one without a stewardship indicator and control-enhancing mechanisms (*Model #.b, Model #.d, Model #.f*).

I lag the right hand side (independent) variables by one period in order to have a conditional characteristic of interpretation. Therewith, I avoid contemporaneous specifications, as the independent variables are timely ahead of the change events. Thus, I take advantage of the panel approach and interpret the overall regression results as determinants that influence the likelihood of ownership dynamics. I further control for macroeconomic influences with year fixed effects. Similarly, I cover industry fixed effects by *two-digit SIC* code-based *Fama French* industry portfolios that I obtain from Kenneth French's website.[305] Throughout the analysis, I correct standard errors for clustering at the firm level (cf. Petersen, 2009).

I analyze scenarios of ownership drops as well as ownership increases in the multivariate regressions. Finally, I extend the analysis in three dimensions: I apply a further dependent variable of complete individual blockholder exit and I replicate the probit regressions with logit regressions as well as with firm fixed effects regressions to improve the robustness of the results. Whereas I do not report the logit regressions that qualitatively do not deviate from the probit results, I report the firm fixed effects regressions to test the robustness against unobserved (time-invariant) variables.

9.2 Empirical Evidence

This section addresses ownership dynamics from a multivariate regression perspective. In particular, I aim to identify potential determinants of ownership dynamics, to clarify their distinct influence and to compare those results with the initial hypotheses.

[305] Please refer to http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html for more details.

9.2.1 Ownership Dynamics

The descriptive analysis provides evidence of changes in ownership structures and gives an overview of further governance and firm specific variables that I apply in the multivariate regression scenarios. Table 9.1 shows the development of average ownership of a lone founder, family founder, and heir firm from 1996 to 2008. The respective firm years are pooled and presented in a per year fashion in panel A. The average ownership level across all individual blockholder firm types decreases from 56.7% in 1996 towards a minimum of 28.2% in 2007. The 2008 mean value is slightly up again with 31.0%. Overall, the pooled mean amounts to 38.3%.

I continue with a differentiation of *Large Drops* and *Large Increases* in ownership. The sample shows an average negative year-on-year change of -3.1%. An amount that is somewhat higher than comparable results of Fahlenbrach and Stulz (2009) who find a mean negative change of -2.3%. Still, I have to recall that they review a managerial ownership sample with lower baseline values in the respective blockholding. Positive changes that represent an ownership increase are smaller.

My analysis indicates a mean of 0.6% year-on-year change whereas Fahlenbrach and Stulz (2009) detect a 1.4% increase, more than twice the value of my result. Yet, the median ownership change in my sample is 0.0%. First, this highlights the stickiness of ownership in general as argued by Zhou (2001) and second, this finding is almost identical with Fahlenbrach and Stulz (2009) who discover a median negative change of -0.1% and a median positive change of 0.0%. In panel A, I further identify the share of companies that experience a *Large Drop*.[306] In 2002 and 2004, I observe the highest values: on average 28.3% and 28.6% respectively. The pooled mean is 20.5%. For sensitivity purposes, I test the overall effect if the required *Large Drop* threshold increases to 5.0%. This definition leads to a pooled mean of 13.7% of firms that experience such a *Large Drop* on average. I apply the altered threshold as a robustness check in the multivariate analysis in the course

[306] This scenario defines a negative change of -2.5% and more as a *Large Drop*.

Table 9.1: Ownership-Dynamics – Summary Statistics

PANEL A						
YEAR	FIRM YEARS	OWNERSHIP LEVEL	NEGATIVE CHANGE	POSITIVE CHANGE	LARGE DROP	LARGE INCREASE
		MEAN	MEAN	MEAN	% (OF FIRMS)	% (OF FIRMS)
1996	51	56.7%	-2.3%	0.4%	15.7%	7.8%
1997	52	53.3%	-2.8%	0.4%	21.2%	3.8%
1998	119	53.1%	-1.7%	0.4%	11.8%	4.2%
1999	183	47.0%	-1.8%	0.4%	11.4%	3.8%
2000	290	41.8%	-3.3%	0.6%	17.5%	4.8%
2001	284	40.3%	-2.9%	0.5%	20.1%	6.3%
2002	255	38.5%	-4.9%	1.1%	28.3%	7.0%
2003	236	38.7%	-2.4%	0.6%	16.4%	7.1%
2004	226	35.6%	-4.1%	0.5%	28.6%	4.0%
2005	218	33.1%	-4.0%	0.3%	25.7%	3.7%
2006	221	30.4%	-3.9%	0.4%	24.6%	4.5%
2007	200	28.2%	-2.3%	0.6%	19.4%	6.0%
2008	194	31.0%	-1.6%	0.8%	16.4%	5.1%
ALL	2529	38.3%	-3.1%	0.6%	20.5%	5.3%
PANEL B						
LONE FOUNDER	1125	29.8%	-3.4%	0.5%	23.1%	4.9%
FAMILY FOUNDER	668	39.3%	-2.9%	0.6%	21.8%	4.9%
HEIR FIRM	736	50.2%	-2.9%	0.6%	15.3%	6.1%

Note: This table presents ownership characteristics of lone founder, family founder, and heir firms. The individual blockholder sample comprises 2,529 firm years. Panel A includes changes in ownership variables per year. *Negative* and *Positive Change* represent a mean change in ownership. *Large Drop* and *Large Increase* represent an ownership change that is below -2.5% and above 2.5%, respectively. Panel B differentiates for lone founder, family founder, and heir firms.

Source: Own work, based on Achleitner et al. (2012).

of this study. Still, I recognize the descriptive aspect that 13.7% of the *Large Drop* affected firms have in fact an ownership change that qualifies this change as a block transfer.[307] As opposed to this, *Large Increases* are less frequent. I document a mean of 5.3% of firms per year that experience a positive ownership change of at least 2.5%.

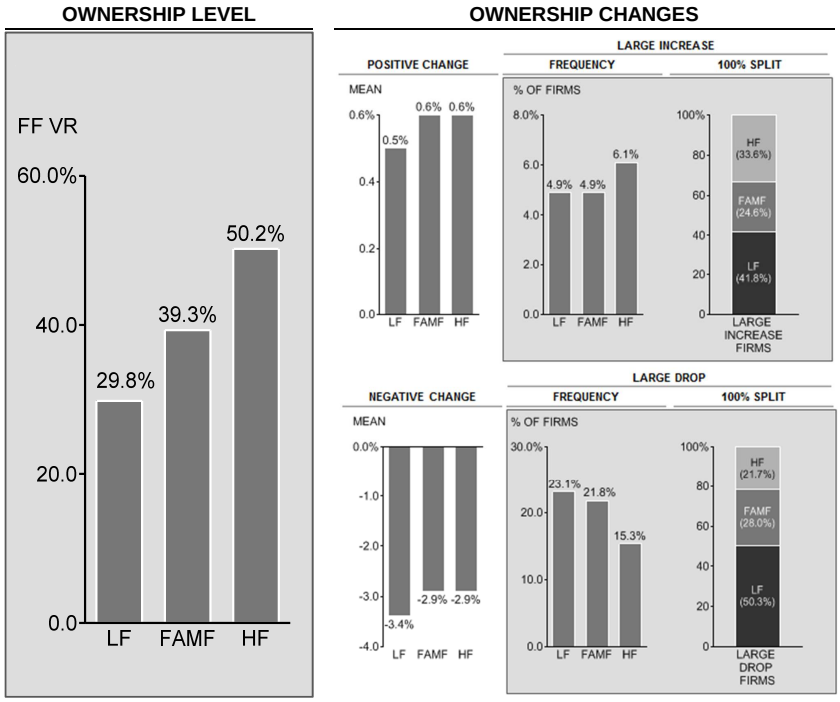
Panel B pools firm years over the sample period and differentiates according to owner identity characteristics. Essential descriptive details on the ownership dynamics of lone founder, family founder, and heir firms are also illustrated in figure 9.1, Ownership Structure and Ownership Changes. Although the pooled mean over the sample period (see table 9.1) is slightly in line for all founding-family firm types, about 6.1% of heir firms undergo a *Large Increase*. The reference value for lone founder firms and family founder

[307] I assume that a block represents at least 5.0%, which is in line with the initial definition and German law.

firms is 4.9%, for both of them. The reverse result applies for *Large Drop*: Whereas only 15.3% of all heir firms experience a *Large Drop* (equal or exceeding -2.5%), the figure for lone founder firms is 23.1% and 21.8% for family founder firms, respectively. Thus, the ownership base of heir firms seems to be more robust against downward changes compared to the two founder firm types. This is in line with the insights from the 100% split of large drop firms: out of all firms with a large drop only 21.7% are heir firms. They reveal stronger ownership dynamics in the event of large increases: heir firms account for 33.6% of all large increase firm years. In contrast, lone founder firms take the largest share in large drop events (50.3%) and in large increase events (41.8%)—suggesting a more dynamic character of ownership in lone founder firms.

With respect to the mean ownership level, I identify substantial differences between the three firm types: lone founder firms (29.8%) and family founder firms (39.3%) hit the 25% ownership threshold, the blocking minority, on average. In contrast, heir firms show a mean ownership level of 50.2%, which ensures majority ownership. The respective median values differ only marginally from the mean values for each of the three distinct firm categories and confirm the obvious relevance that founding-family owners ascribe to the adherence to distinct ownership thresholds. In addition, the differences between lone founder, family founder, and heir firms highlight once again the heterogeneity of founding-family firms.

Figure 9.1: Ownership Structure and Ownership Changes



Note: This figure presents the mean ownership level (FF VR) of lone founder (LF), family founder (FAMF), and heir firms (HF) on the very left. Ownership changes are differentiated into positive (upper part of figure) and negative changes (lower part of figure). On the very right hand side of the figure descriptive statistics on a large increase (at least year-on-year change of 2.5%), respectively on a large drop (at least year-on-year change of -2.5%), are presented. Therein, the left figure shows the frequency of founding-family firm types experiencing large increase/drop in ownership. The right figure presents the split of large increase/drop firm years adding up to 100%. All variables are defined in table A.3, Variable Definitions—Ownership Dynamics.

Source: Own work.

A detailed comparison between the identified *No Change*, *Large Drop*, and *Large Increase* groups is presented in table 9.2. This includes mean and median values of the respective governance, stewardship, and firm specific control variables. A Wilcoxon rank-sum test provides evidence of statistically significant differences between the compared groups. Table 9.2 also contains the summary statistics for the complete founding-family firm sample.

Table 9.2: Summary Statistics

	ALL							NO CHANGE		LARGE DROP		LARGE INCREASE		WILCOXON (p-values)	
	MEAN	MEDIAN	SD	p25	p75	MIN	MAX	MEAN	MEDIAN	MEAN	MEDIAN	MEAN	MEDIAN	(NC)-(LD)	(NC)-(LI)
LONE FOUNDER FIRM (D)	0.330	0.000	0.470	0.000	1.000	0.000	1.000	0.299	0.000	0.357	0.000	0.410	0.000	0.014**	0.007***
LONE FOUNDER FIRM	0.446	0.000	0.497	0.000	1.000	0.000	1.000	0.436	0.000	0.503	1.000	0.418	0.000	0.008***	0.685
LONE FF*0510VR	0.037	0.000	0.188	0.000	0.000	0.000	1.000	0.029	0.000	0.056	0.000	0.000	0.000	0.005***	0.044**
LONE FF*1025VR	0.074	0.000	0.262	0.000	0.000	0.000	1.000	0.063	0.000	0.109	0.000	0.037	0.000	0.001***	0.227
LONE FF*2550VR	0.138	0.000	0.345	0.000	0.000	0.000	1.000	0.115	0.000	0.169	0.000	0.216	0.000	0.001***	0.001***
LONE FF*5075VR	0.091	0.000	0.288	0.000	0.000	0.000	1.000	0.093	0.000	0.064	0.000	0.157	0.000	0.042**	0.017**
FAMILY FOUNDER FIRM (D)	0.232	0.000	0.422	0.000	0.000	0.000	1.000	0.220	0.000	0.226	0.000	0.239	0.000	0.766	0.620
FAMILY FOUNDER FIRM	0.264	0.000	0.441	0.000	1.000	0.000	1.000	0.253	0.000	0.280	0.000	0.246	0.000	0.225	0.857
FAMILY FF*0510VR	0.009	0.000	0.095	0.000	0.000	0.000	1.000	0.007	0.000	0.019	0.000	0.000	0.000	0.015**	0.330
FAMILY FF*1025VR	0.045	0.000	0.208	0.000	0.000	0.000	1.000	0.038	0.000	0.068	0.000	0.037	0.000	0.004***	0.978
FAMILY FF*2550VR	0.085	0.000	0.279	0.000	0.000	0.000	1.000	0.069	0.000	0.101	0.000	0.067	0.000	0.017**	0.952
FAMILY FF*5075VR	0.086	0.000	0.280	0.000	0.000	0.000	1.000	0.093	0.000	0.060	0.000	0.112	0.000	0.020**	0.469
HEIR FIRM (D)	0.244	0.000	0.430	0.000	0.000	0.000	1.000	0.251	0.000	0.184	0.000	0.328	0.000	0.002***	0.051*
HEIR FIRM	0.290	0.000	0.454	0.000	1.000	0.000	1.000	0.311	0.000	0.217	0.000	0.336	0.000	0.000***	0.546
HEIR FF*0510VR	0.017	0.000	0.131	0.000	0.000	0.000	1.000	0.020	0.000	0.019	0.000	0.000	0.000	0.946	0.100
HEIR FF*1025VR	0.017	0.000	0.129	0.000	0.000	0.000	1.000	0.015	0.000	0.016	0.000	0.007	0.000	0.984	0.466
HEIR FF*2550VR	0.060	0.000	0.237	0.000	0.000	0.000	1.000	0.047	0.000	0.078	0.000	0.097	0.000	0.008***	0.011**
HEIR FF*5075VR	0.101	0.000	0.301	0.000	0.000	0.000	1.000	0.104	0.000	0.062	0.000	0.179	0.000	0.004***	0.008***
FF VR	0.383	0.383	0.276	0.136	0.574	0.000	1.000	0.393	0.401	0.296	0.283	0.504	0.508	0.000***	0.000***
FF BOARD REPRES.	0.180	0.167	0.131	0.100	0.250	0.000	1.000	0.180	0.167	0.177	0.167	0.182	0.167	0.429	0.981
SFI MB	0.302	0.250	0.298	0.000	0.500	0.000	1.000	0.299	0.333	0.293	0.250	0.321	0.250	0.491	0.610
SFI SB	0.100	0.000	0.148	0.000	0.167	0.000	1.000	0.102	0.000	0.096	0.000	0.092	0.000	0.283	0.206
FIRM FOUNDER NAME	0.364	0.000	0.481	0.000	1.000	0.000	1.000	0.380	0.000	0.321	0.000	0.351	0.000	0.015**	0.502
PYRAMID	0.187	0.000	0.390	0.000	0.000	0.000	1.000	0.184	0.000	0.175	0.000	0.261	0.000	0.621	0.030**
WEDGE	0.036	0.000	0.105	0.000	0.000	0.000	0.500	0.047	0.000	0.018	0.000	0.036	0.000	0.000***	0.917
50% OWNER	0.292	0.000	0.455	0.000	1.000	0.000	1.000	0.316	0.000	0.200	0.000	0.373	0.000	0.000***	0.176
NUMBER BLOCKHOLDERS	2.421	2.000	1.532	1.000	3.000	0.000	10.000	2.326	2.000	2.620	2.000	2.515	2.000	0.000***	0.170
OUTSIDER BLOCK VR	0.207	0.130	0.231	0.000	0.327	0.000	1.000	0.214	0.131	0.245	0.190	0.118	0.059	0.001***	0.000***
BETA	0.671	0.576	0.693	0.226	1.037	-7.427	4.342	0.637	0.520	0.721	0.634	0.657	0.611	0.006***	0.225
AGE	42.475	22.000	48.887	12.000	52.000	1.000	340.000	45.289	22.000	33.983	19.000	43.224	25.000	0.010**	0.138
TOTAL ASSETS (M)	1,155.589	83.878	6.637.512	35.440	270.156	0.557	93.366.000	1,314.663	83.359	470.053	73.164	1,152.092	99.623	0.010**	0.476
DEBT / MVEQUITY	0.650	0.168	1.695	0.012	0.632	0.000	41.725	0.646	0.148	0.644	0.189	0.621	0.293	0.077*	0.032**
PAYOUT	0.029	0.000	0.062	0.000	0.041	0.000	0.885	0.029	0.000	0.023	0.000	0.035	0.000	0.001***	0.299
CAPEX	0.060	0.039	0.073	0.017	0.072	0.000	0.756	0.063	0.041	0.052	0.033	0.063	0.039	0.000***	0.544
ROA	-0.021	0.049	0.255	-0.053	0.100	-1.699	1.090	-0.012	0.049	-0.065	0.040	0.003	0.058	0.012**	0.402
TQ	1.760	1.257	1.712	0.988	1.832	0.397	21.074	1.848	1.282	1.628	1.249	1.739	1.155	0.072*	0.010**
Ln TQ	0.351	0.229	0.575	-0.012	0.605	-0.924	3.048	0.386	0.248	0.310	0.223	0.273	0.144	0.072*	0.010**
INT ACCOUNTING	0.723	1.000	0.447	0.000	1.000	0.000	1.000	0.688	1.000	0.800	1.000	0.709	1.000	0.000***	0.615
NEUER MARKT MEMBER	0.243	0.000	0.429	0.000	0.000	0.000	1.000	0.257	0.000	0.238	0.000	0.216	0.000	0.399	0.306
ANALYST FOLLOWING	4.541	2.000	7.212	0.000	5.000	0.000	45.000	4.194	1.000	4.534	2.000	6.211	3.000	0.000***	0.000***

Note: This table presents the summary statistics of the total sample indicated by *All* and differentiated by subgroups according to ownership change characteristics. Each column pools the firm years that belong to the respective events *No Change*, *Large Drop*, and *Large Increase*. A Wilcoxon rank-sum test shows differences between the *No Change* group and the groups with substantial ownership change.

Source: Own work, based on Achleitner et al. (2012).

9.2.2 Likelihood of Ownership Dynamics

I structure the following multivariate analysis according to direction and amplitude of ownership change. I start with the *Large Drop* (-2.5% and more) probit analysis (*Model 3.a*) in table 9.3. This base model already indicates three important and significant characteristics that do not alter when I further specify the model.

First, the number of blockholders increases the likelihood of a *Large Drop*, secondly, accumulated outsider blockholding decreases the likelihood of a *Large Drop*, and thirdly, prior valuation, measured by LnTQ increases the propensity of individual blockholders' ownership dynamics (0.01% significance level each). While a higher number of involved blockholders seems to spur owner dynamics, outsiders with block ownership seem to force insiders to keep their ownership position robust, in order to retain influence. In addition, the valuation aspect is of importance, as the result adds to the continuous discussion of endogeneity in the related literature.[308] *Models 3.b* and *3.c* demonstrate that the stewardship and agency indicators FF BOARD REPRESENTATION (overall board influence) and SFI MB (management board influence) decrease significantly the likelihood of a *Large Drop* in voting rights (0.01%, confirms H7.1.a and H8.1.a). Private benefits of control indicators (control-enhancing mechanisms) are statistically significant, too. As assumed they hamper ownership changes but less significantly (confirms H7.1b). The dual wedge is even stronger than the pyramid indicator. The fully specified *Model 3.d* reveals the astonishing influence of owner identity, namely LONE FOUNDER FIRM (D), on ownership dynamics (0.01%). This applies only for lone founder firms, as *Model 3.e* and *Model 3.f* demonstrate. Hence, I confirm hypothesis H6.1.a to be correct. Further, I accept the financial theory hypothesis, specifically with the hypothesized valuation effects (H9.1.a), and confirm that agency and stewardship interpretations add collectively explanation power to ownership dynamics.

[308] See the extensive review of endogeneity in chapters 6, Relevant Concerns and Empirical Approach, and 8, Economics of Founding-Family Firms.

I proceed with the more detailed analysis of *Large Drops* that I present in table 9.4. I test hypotheses H6.1.a, H6.1.b, and H6.1.c in more depth as I apply the interacted owner identity variables, i.e. the respective piecewise ownership thresholds. It turns out that *Model 4.a* and *Model 4.b* do not change any of the prior results but confirm the lone founder finding again. Lone founder firms experience substantial ownership drops over a large bandwidth of voting right categories. In contrast, family founder firms as well as heir firms show neutral, statistically insignificant coefficients over all empirical models (*Models 4.c, 4.d, 4.e, 4.f*), rejecting H6.1.b and H6.1.c.

Table 9.3: Probit Regressions – Large Drop (-2.5% VR)

	Model 3.a		**Model 3.b**		**Model 3.c**		**Model 3.d**		**Model 3.e**		**Model 3.f**	
Method	P		P		P		P		P		P	
Dependent variable	LD		LD		LD		LD		LD		LD	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (D)							0.282***	(2.718)				
FAMILY FOUNDER FIRM (D)									0.062	(0.593)		
HEIR FIRM (D)											-0.058	(-0.430)
FF VR			1.145***	(4.482)	1.206***	(4.635)	1.071***	(4.037)	1.195***	(4.581)	1.209***	(4.634)
FF BOARD REPRES.			-0.986***	(-3.138)								
SFI MB					-0.577***	(-4.244)	-0.609***	(-4.331)	-0.581***	(-4.307)	-0.579***	(-4.263)
SFI SB					-0.184	(-0.651)	-0.165	(-0.594)	-0.199	(-0.681)	-0.193	(-0.679)
FIRM FOUNDER NAME			-0.036	(-0.326)	-0.029	(-0.259)	-0.026	(-0.228)	-0.027	(-0.241)	-0.025	(-0.228)
PYRAMID			-0.229*	(-1.953)	-0.257**	(-2.247)	-0.161	(-1.358)	-0.277**	(-2.270)	-0.260**	(-2.270)
WEDGE			-1.125**	(-2.135)	-1.194**	(-2.220)	-1.061**	(-1.963)	-1.190**	(-2.212)	-1.192**	(-2.213)
50% OWNER	0.099	(1.124)	-0.091	(-0.970)	-0.107	(-1.128)	-0.071	(-0.736)	-0.110	(-1.147)	-0.105	(-1.105)
NUMBER BLOCKHOLDERS	0.221***	(8.454)	0.228***	(7.966)	0.221***	(7.846)	0.217***	(7.747)	0.221***	(7.823)	0.223***	(7.884)
OUTSIDER BLOCK VR	-1.154***	(-5.820)	-0.672**	(-2.525)	-0.629**	(-2.370)	-0.621**	(-2.334)	-0.620**	(-2.341)	-0.640**	(-2.378)
BETA	-0.080	(-1.476)	-0.058	(-1.045)	-0.055	(-0.984)	-0.055	(-0.991)	-0.055	(-0.983)	-0.055	(-0.986)
LOG AGE	-0.042	(-0.779)	-0.091	(-1.469)	-0.120*	(-1.893)	-0.078	(-1.178)	-0.115*	(-1.796)	-0.105	(-1.495)
LOG TOTAL ASSETS (M)	-0.056	(-1.642)	-0.077**	(-2.165)	-0.084**	(-2.331)	-0.074**	(-2.014)	-0.083**	(-2.330)	-0.081**	(-2.208)
DEBT / MVEQUITY	0.017	(0.634)	0.025	(0.931)	0.020	(0.714)	0.014	(0.462)	0.020	(0.739)	0.019	(0.674)
PAYOUT	-1.149	(-1.422)	-1.130	(-1.340)	-1.208	(-1.419)	-1.195	(-1.422)	-1.226	(-1.430)	-1.205	(-1.409)
CAPEX	-0.001	(-1.095)	-0.004	(-1.165)	-0.003	(-0.779)	-0.003	(-0.791)	-0.002	(-0.707)	-0.002	(-0.726)
ROA	-0.116	(-0.718)	-0.103	(-0.645)	-0.101	(-0.617)	-0.140	(-0.851)	-0.103	(-0.628)	-0.112	(-0.683)
Ln TQ	0.228***	(3.153)	0.209***	(2.819)	0.201***	(2.611)	0.193**	(2.514)	0.203***	(2.613)	0.200***	(2.585)
INT ACCOUNTING	0.084	(0.752)	0.105	(0.945)	0.081	(0.723)	0.058	(0.513)	0.078	(0.698)	0.075	(0.670)
NEUER MARKT MEMBER	-0.016	(-0.111)	-0.053	(-0.377)	-0.051	(-0.358)	-0.074	(-0.527)	-0.045	(-0.316)	-0.051	(-0.356)
ANALYST FOLLOWING	0.002	(0.292)	0.004	(0.522)	0.004	(0.540)	0.002	(0.270)	0.004	(0.536)	0.004	(0.507)
CONSTANT	-1.441***	(-4.236)	-1.499***	(-4.090)	-1.268***	(-3.402)	-1.451***	(-3.834)	-1.273***	(-3.412)	-1.295***	(-3.464)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	1890		1887		1887		1887		1887		1887	
N (Clusters)	355		355		355		355		355		355	
Pseudo R^2	0.084		0.101		0.104		0.109		0.104		0.104	
Wald Chi^2	390.240		266.212		312.307		327.971		320.837		316.998	

Note: This table reports probit regressions. The dependent variable is *Large Drop*, a negative change of -2.5% VR of the individual blockholder.
* indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work, based on Achleitner et al. (2012).

Table 9.4: Probit Regressions – Large Drop (-2.5%, VR Details)

	Model 4.a		**Model 4.b**		**Model 4.c**		**Model 4.d**		**Model 4.e**		**Model 4.f**	
Method	P		P		P		P		P		P	
Dependent variable	LD		LD		LD		LD		LD		LD	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM												
LONE FF*0510VR	0.405**	(2.045)	0.424**	(2.157)								
LONE FF*1025VR	0.380***	(3.105)	0.397***	(3.317)								
LONE FF*2550VR	0.384***	(3.300)	0.401***	(3.498)								
FAMILY FOUNDER FIRM												
FAMILY FF*0510VR					0.336	(1.125)	0.326	(1.134)				
FAMILY FF*1025VR					0.270	(1.643)	0.242	(1.439)				
FAMILY FF*2550VR					-0.002	(-0.014)	-0.032	(-0.225)				
HEIR FIRM												
HEIR FF*0510VR									-0.215	(-0.811)	-0.188	(-0.753)
HEIR FF*1025VR									0.299	(0.819)	0.284	(0.777)
HEIR FF*2550VR									-0.024	(-0.178)	-0.013	(-0.096)
FF BOARD REPRES.												
SFI MB	-0.413***	(-3.173)	-0.402***	(-3.096)	-0.450***	(-3.608)	-0.435***	(-3.460)	-0.454***	(-3.574)	-0.438***	(-3.436)
SFI SB	-0.041	(-0.151)	-0.048	(-0.183)	-0.178	(-0.641)	-0.218	(-0.809)	-0.165	(-0.602)	-0.201	(-0.749)
FIRM FOUNDER NAME	-0.004	(-0.034)			0.001	(0.011)			-0.009	(-0.084)		
PYRAMID	-0.080	(-0.743)			-0.200*	(-1.807)			-0.193*	(-1.769)		
WEDGE	0.063	(0.137)			-0.059	(-0.129)			-0.058	(-0.123)		
50% OWNER	0.188**	(2.041)	0.193**	(2.079)	0.094	(1.055)	0.097	(1.081)	0.082	(0.878)	0.091	(0.974)
NUMBER BLOCKHOLDERS	0.233***	(8.226)	0.224***	(8.612)	0.240***	(8.258)	0.221***	(8.250)	0.240***	(8.244)	0.221***	(8.271)
OUTSIDER BLOCK VR	-1.390***	(-6.445)	-1.363***	(-6.520)	-1.417***	(-6.382)	-1.341***	(-6.250)	-1.392***	(-6.531)	-1.318***	(-6.452)
BETA	-0.085	(-1.549)	-0.086	(-1.563)	-0.076	(-1.381)	-0.075	(-1.370)	-0.078	(-1.406)	-0.077	(-1.395)
LOG AGE	-0.065	(-1.049)	-0.064	(-1.140)	-0.081	(-1.326)	-0.085	(-1.512)	-0.088	(-1.387)	-0.095	(-1.643)
LOG TOTAL ASSETS (M)	-0.055	(-1.510)	-0.054	(-1.494)	-0.068*	(-1.949)	-0.070**	(-2.013)	-0.068*	(-1.905)	-0.070**	(-1.991)
DEBT / MVEQUITY	0.012	(0.380)	0.013	(0.414)	0.014	(0.465)	0.016	(0.551)	0.013	(0.432)	0.015	(0.516)
PAYOUT	-1.040	(-1.261)	-1.098	(-1.343)	-1.130	(-1.386)	-1.236	(-1.520)	-1.086	(-1.324)	-1.201	(-1.471)
CAPEX	-0.001	(-0.559)	-0.001	(-0.578)	-0.001	(-1.512)	-0.001	(-1.489)	-0.001	(-1.312)	-0.001	(-1.359)
ROA	-0.100	(-0.632)	-0.097	(-0.614)	-0.066	(-0.407)	-0.056	(-0.345)	-0.083	(-0.512)	-0.073	(-0.451)
Ln TQ	0.205***	(2.891)	0.206***	(2.902)	0.213***	(2.841)	0.217***	(2.887)	0.206***	(2.783)	0.211***	(2.845)
INT ACCOUNTING	0.064	(0.553)	0.064	(0.553)	0.056	(0.490)	0.059	(0.517)	0.051	(0.441)	0.053	(0.461)
NEUER MARKT MEMBER	-0.010	(-0.073)	-0.016	(-0.112)	0.013	(0.091)	0.004	(0.026)	-0.001	(-0.010)	-0.007	(-0.052)
ANALYST FOLLOWING	-0.003	(-0.437)	-0.002	(-0.344)	-0.002	(-0.240)	0.000	(0.003)	-0.001	(-0.132)	0.001	(0.114)
CONSTANT	-1.218***	(-3.252)	-1.239***	(-3.382)	-0.996***	(-2.755)	-1.001***	(-2.821)	-0.954***	(-2.640)	-0.951***	(-2.690)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	1887		1887		1887		1887		1887		1887	
N (Clusters)	355		355		355		355		355		355	
Pseudo R^2	0.100		0.099		0.093		0.091		0.092		0.090	
Wald Chi^2	386.067		384.389		723.495		631.232		574.707		563.341	

Note: This table reports probit regressions. The dependent variable is *Large Drop*, a negative change of -2.5% VR of the individual blockholder.
* indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work, based on Achleitner et al. (2012).

Table 9.5: Probit Regressions – Large Increase (+2.5% VR)

	Model 5.a		**Model 5.b**		**Model 5.c**		**Model 5.d**		**Model 5.e**		**Model 5.f**	
Method	P		P		P		P		P		P	
Dependent variable	LI		LI		LI		LI		LI		LI	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (D)							0.289**	(1.982)				
FAMILY FOUNDER FIRM (D)									-0.019	(-0.141)		
HEIR FIRM (D)											0.192	(0.955)
FF VR			-0.155	(-0.480)	-0.197	(-0.598)	-0.344	(-1.016)	-0.195	(-0.590)	-0.219	(-0.654)
FF BOARD REPRES.			0.380	(0.976)								
SFI MB					0.360**	(1.980)	0.339*	(1.829)	0.362**	(1.997)	0.374**	(2.042)
SFI SB					-0.431	(-1.106)	-0.394	(-1.045)	-0.426	(-1.103)	-0.398	(-1.006)
FIRM FOUNDER NAME			-0.091	(-0.612)	-0.103	(-0.696)	-0.098	(-0.675)	-0.103	(-0.697)	-0.116	(-0.774)
PYRAMID			0.166	(1.239)	0.190	(1.401)	0.285**	(2.003)	0.195	(1.406)	0.196	(1.447)
WEDGE			-0.848	(-1.250)	-0.756	(-1.125)	-0.582	(-0.867)	-0.758	(-1.128)	-0.799	(-1.198)
50% OWNER	-0.203	(-1.317)	-0.182	(-1.065)	-0.167	(-0.985)	-0.119	(-0.711)	-0.166	(-0.981)	-0.181	(-1.090)
NUMBER BLOCKHOLDERS	0.091**	(2.153)	0.060	(1.320)	0.071	(1.624)	0.072	(1.614)	0.072	(1.637)	0.064	(1.475)
OUTSIDER BLOCK VR	-0.792***	(-3.033)	-0.794**	(-2.311)	-0.858**	(-2.489)	-0.876**	(-2.510)	-0.861**	(-2.484)	-0.807**	(-2.263)
BETA	-0.017	(-0.216)	-0.029	(-0.372)	-0.035	(-0.443)	-0.034	(-0.434)	-0.035	(-0.446)	-0.036	(-0.460)
LOG AGE	0.115	(1.474)	0.167**	(2.052)	0.200**	(2.421)	0.243***	(2.851)	0.199**	(2.374)	0.154*	(1.745)
LOG TOTAL ASSETS (M)	-0.002	(-0.034)	0.026	(0.471)	0.029	(0.536)	0.040	(0.710)	0.029	(0.537)	0.022	(0.389)
DEBT / MVEQUITY	-0.036	(-0.773)	-0.030	(-0.706)	-0.022	(-0.519)	-0.034	(-0.787)	-0.022	(-0.537)	-0.019	(-0.467)
PAYOUT	0.769	(0.822)	0.649	(0.710)	0.719	(0.794)	0.667	(0.728)	0.718	(0.791)	0.684	(0.742)
CAPEX	-0.009	(-1.356)	-0.008	(-1.207)	-0.009	(-1.099)	-0.009	(-1.232)	-0.009	(-1.098)	-0.010	(-1.059)
ROA	-0.278	(-1.277)	-0.287	(-1.305)	-0.300	(-1.394)	-0.324	(-1.494)	-0.299	(-1.392)	-0.267	(-1.271)
Ln TQ	-0.259**	(-2.171)	-0.261**	(-2.186)	-0.247**	(-2.105)	-0.256**	(-2.093)	-0.247**	(-2.099)	-0.241**	(-2.049)
INT ACCOUNTING	-0.054	(-0.289)	-0.081	(-0.440)	-0.051	(-0.285)	-0.086	(-0.474)	-0.051	(-0.282)	-0.030	(-0.168)
NEUER MARKT MEMBER	0.177	(0.851)	0.170	(0.824)	0.163	(0.794)	0.131	(0.638)	0.160	(0.792)	0.164	(0.794)
ANALYST FOLLOWING	0.010	(1.061)	0.010	(1.025)	0.011	(1.062)	0.009	(0.889)	0.011	(1.063)	0.011	(1.097)
CONSTANT	-1.748***	(-3.923)	-2.053***	(-4.464)	-2.339***	(-4.978)	-2.539***	(-5.236)	-2.338***	(-4.977)	-2.273***	(-4.821)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	1874		1871		1871		1871		1871		1871	
N (Clusters)	352		352		352		352		352		352	
Pseudo R^2	0.059		0.067		0.072		0.078		0.072		0.074	
Wald Chi^2	73.456		95.429		97.008		101.650		97.747		103.283	

Note: This table reports probit regressions. The dependent variable is *Large Increase*, a positive change of at least +2.5% VR of the individual blockholder.
* indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work, based on Achleitner et al. (2012).

In the analysis of a large ownership change in the opposite direction, a *Large Increase* of ownership again delivers important insights, nevertheless the overall effects are less pronounced (table 9.5). The base *Model 5.a* shows significant negative coefficients with respect to outsider blockholding and valuation. Both effects remain stable over the more advanced models. With respect to market valuation, I accept hypothesis H9.1.b as lower valuation positively affects the propensity of a *Large Increase* of voting rights. In *Models 5.c* to *5.f*, I find weaker positive significant management board influence (SFI MB) coefficients, but still, they approve hypotheses H7.2.a and H8.2.a. This could be an act of insiders' signaling to the market. Striking again is the application of the fully specified owner identity models. I reject hypothesis H6.2.a in *Model 5.d*, as only the lone founder type shows a statistically significant (0.05%) and positive coefficient on the likelihood of a large voting rights increase.

Consequently, *Large Increase* scenarios also illustrate the important role of owner identity characteristics. Nevertheless, I challenge these results again in the robustness section.

9.2.3 Persistence of Founding-Family Influence

The initial research questions lean towards an indication of persistence or longevity regarding founding-family blockholders' influence on their firms. I therefore analyze the extreme case of negative individual ownership dynamics—the *Complete Exit* (table 9.6). The base and full models include the identical independent variables as those presented for a *Large Drop* and *Large Increase*. It turns out that neither risk nor prior valuation characteristics exert influence on the likelihood of a *Complete Exit*. I thus reject hypothesis H9.1.a. Instead, stewardship indicators play a viable role: management as well as supervisory board participation significantly reduces the likelihood of a *Complete Exit* (confirms H8.1.a). The same applies for the FIRM FOUNDER NAME characteristic, a further stewardship indicator (confirms H8.1.b). Similarly, pyramidal ownership, a private benefit of control indicator, is throughout the *Models 6.b* to *6.f* negative and significant, as expected

in H7.1.b. In addition, individual blockholder identity succeeds in explaining a *Complete Exit*. The coefficient of the lone founder dummy is positive and significant at a 0.05% confidence level. Neither family founder nor heir firms show a significant coefficient. This again proves hypothesis H6.1.a, as owner identity is a substantial differentiator and important indicator of founding-family heterogeneity.

There are differences in the dynamics and ultimately in the persistence of owner influence. This variation traces back to owners' motives, strategy, and behavior. Hence, ignoring owner identity may lead to an incomplete results interpretation that misses a significant part of family firm heterogeneity. This heterogeneity is not (fully) captured in governance, stewardship, or control characteristics.

Table 9.6: Probit Regressions – Complete Exit

	Model 6.a		Model 6.b		Model 6.c		Model 6.d		Model 6.e		Model 6.f	
Method	P		P		P		P		P		P	
Dependent variable	CompExit		CompExit		CompExit		CompExit		CompExit		CompExit	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (D)							0.326**	(2.417)				
FAMILY FOUNDER FIRM (D)									0.007	(0.047)		
HEIR FIRM (D)											0.047	(0.233)
FF VR			-0.139	(-0.386)	-0.058	(-0.160)	-0.238	(-0.615)	-0.060	(-0.161)	-0.062	(-0.170)
FF BOARD REPRES.			-2.081***	(-4.290)								
SFI MB					-0.990***	(-4.595)	-1.051***	(-4.613)	-0.991***	(-4.633)	-0.987***	(-4.562)
SFI SB					-0.724**	(-2.116)	-0.728**	(-2.105)	-0.726**	(-2.079)	-0.717**	(-2.059)
FIRM FOUNDER NAME			-0.297**	(-2.188)	-0.293**	(-2.171)	-0.292**	(-2.193)	-0.293**	(-2.175)	-0.296**	(-2.172)
PYRAMID			-0.339**	(-2.224)	-0.373**	(-2.442)	-0.254	(-1.605)	-0.375**	(-2.395)	-0.371**	(-2.427)
WEDGE			-0.466	(-0.567)	-0.664	(-0.821)	-0.428	(-0.516)	-0.663	(-0.818)	-0.674	(-0.836)
50% OWNER	-0.010	(-0.082)	0.011	(0.079)	-0.029	(-0.205)	0.017	(0.119)	-0.029	(-0.206)	-0.032	(-0.225)
NUMBER BLOCKHOLDERS	0.132***	(3.723)	0.177***	(4.366)	0.167***	(4.144)	0.161***	(3.965)	0.167***	(4.142)	0.166***	(4.044)
OUTSIDER BLOCK VR	0.192	(0.825)	-0.370	(-1.029)	-0.307	(-0.853)	-0.298	(-0.826)	-0.306	(-0.854)	-0.294	(-0.793)
BETA	-0.092	(-1.212)	-0.094	(-1.225)	-0.096	(-1.231)	-0.102	(-1.325)	-0.096	(-1.231)	-0.095	(-1.231)
LOG AGE	-0.133*	(-1.930)	-0.123	(-1.611)	-0.148*	(-1.948)	-0.112	(-1.406)	-0.147*	(-1.947)	-0.156*	(-1.917)
LOG TOTAL ASSETS (M)	-0.085*	(-1.733)	-0.088*	(-1.719)	-0.088*	(-1.703)	-0.081	(-1.533)	-0.088*	(-1.696)	-0.091*	(-1.693)
DEBT / MVEQUITY	-0.017	(-0.565)	-0.017	(-0.554)	-0.030	(-0.880)	-0.039	(-1.093)	-0.029	(-0.873)	-0.028	(-0.835)
PAYOUT	-0.399	(-0.385)	-0.280	(-0.263)	-0.386	(-0.371)	-0.415	(-0.402)	-0.387	(-0.371)	-0.390	(-0.375)
CAPEX	-3.002***	(-2.813)	-3.121***	(-2.811)	-3.056***	(-2.687)	-2.971***	(-2.606)	-3.057***	(-2.690)	-3.061***	(-2.687)
ROA	-0.187	(-0.827)	-0.110	(-0.474)	-0.125	(-0.528)	-0.161	(-0.689)	-0.125	(-0.528)	-0.117	(-0.500)
Ln TQ	0.134	(1.383)	0.095	(0.971)	0.074	(0.745)	0.069	(0.687)	0.074	(0.747)	0.076	(0.752)
INT ACCOUNTING	0.044	(0.259)	0.007	(0.042)	-0.030	(-0.168)	-0.032	(-0.178)	-0.031	(-0.172)	-0.027	(-0.151)
NEUER MARKT MEMBER	-0.046	(-0.229)	-0.038	(-0.184)	-0.040	(-0.195)	-0.075	(-0.363)	-0.040	(-0.192)	-0.039	(-0.191)
ANALYST FOLLOWING	-0.003	(-0.238)	-0.012	(-1.006)	-0.012	(-1.024)	-0.013	(-1.164)	-0.012	(-1.022)	-0.012	(-1.008)
CONSTANT	-1.375***	(-2.762)	-0.907	(-1.551)	-0.711	(-1.236)	-0.903	(-1.583)	-0.711	(-1.235)	-0.695	(-1.238)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	1743		1741		1741		1741		1741		1741	
N (Clusters)	334		334		334		334		334		334	
Pseudo R^2	0.099		0.137		0.140		0.148		0.140		0.140	
Wald Chi^2	98.794		129.035		135.626		137.750		136.363		137.300	

Note: This table reports probit regressions. The dependent variable is *Complete Exit* of the individual blockholder.
* indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work, based on Achleitner et al. (2012).

9.2.4 Ownership Dynamics Sensitivity

9.2.4.1 Definition Sensitivity

In several ways, I cope with the concerns that definition sensitivity could drive owner identity, governance and agency, as well as stewardship effects. In order to tackle those concerns, I apply a battery of different right hand side indicators (independent variables)—ranging from more relaxed to stronger definitions—for the owner identity firm types as well as for the overall governance indicators. As reflected in the regression tables 9.7 and 9.8, the effects do not change materially, irrespective of altered specification designs and altered empirical methods. On the contrary, the introduction of different individual blockholder types clearly reveals individual blockholders' heterogeneous characteristics. In terms of defining the dependent variables, I apply the magnitudes of 2.5% (and above) and in addition a lower and upper boundary: 1% (and above) as well as 5.0% (and above). I choose these alternative thresholds for two purposes: to falsify severe sensitivity problems and to ensure the consideration of meaningful changes from an economic perspective. In particular, I have to remind the reader of the fact that a 5.0% block transfer is of substantial value as the following firm size metrics demonstrate. For example, the size proxy *Total Assets* amounts to a sample median of 84 million and a mean of 1,156 million. In spite of those dimensions, 13.7% of firms experience such a *Large Drop*. When I analyze the three thresholds (1%, 2.5%, and 5%), I find similar effects, though somewhat weaker when I only consider block transfers, as implied with the 5.0% threshold. Thus, arbitrary thresholds within the range of 1% and 5.0% do not materially change overall results, still an increasing threshold, decreases the significance of the effects. See Helwege et al. (2007) and Fahlenbrach and Stulz (2009) for a comparable discussion on arbitrary thresholds and table 9.7 for a sensitivity analysis considering the three *Large Drop* definitions.

Table 9.7: Probit Regressions – Sensitivity (-1%, -2.5%, -5%)

	Method Dependent variable	P LD -1%	P LD -1%	P LD -2.5%	P LD -2.5%	P LD -5%	P LD -5%
PANEL A	LONE FOUNDER FIRM (D)	0.306***		0.282***		0.181*	
		(3.094)	.	(2.718)		(1.846)	.
	LONE FF*0510VR		0.492**		0.405**		0.462**
			(2.564)		(2.045)		(2.259)
	LONE FF*1025VR		0.433***		0.380***		0.278**
			(3.528)		(3.105)		(2.015)
	LONE FF*2550VR		0.397***		0.384***		0.176
			(3.452)		(3.300)		(1.495)
PANEL B	FAMILY FOUNDER FIRM (D)	0.100		0.062		0.078	
		(1.039)		(0.593)		(0.766)	
	FAMILY FF*0510VR		0.259		0.336		0.563*
			(0.876)		(1.125)		(1.710)
	FAMILY FF*1025VR		0.277**		0.270		0.313*
			(2.129)		(1.643)		(1.894)
	FAMILY FF*2550VR		0.098		-0.002		-0.033
			(0.796)		(-0.014)		(-0.220)
PANEL C	HEIR FIRM (D)	-0.093		-0.058		-0.093	
		(-0.705)		(-0.430)		(-0.684)	
	HEIR FF*0510VR		-0.327		-0.215		-0.136
			(-1.175)		(-0.811)		(-0.461)
	HEIR FF*1025VR		0.186		0.299		-0.025
			(0.502)		(0.819)		(-0.090)
	HEIR FF*2550VR		-0.094		-0.024		-0.060
			(-0.687)		(-0.178)		(-0.388)

Note: This table reports the owner identity effects of 18 fully specified probit regressions. The focus is on the owner identity effects to conserve space. The dependent variable is *Large Drop* at a 1%, 2.5%, and 5% level. Panel A shows lone founder effects, Panel B presents family founder effects, and Panel C heir effects.
* indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work, based on Achleitner et al. (2012).

Table 9.8: Firm Fixed Effects Regressions – Large Drop (-2.5% VR)

	Model 7.a		**Model 7.b**		**Model 7.c**		**Model 7.d**		**Model 7.e**		**Model 7.f**	
Method	FE		FE		FE		FE		FE		FE	
Dependent variable	LD		LD		LD		LD		LD		LD	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (D)	0.105*	(1.668)										
LONE FF*0510VR							0.076	(0.835)				
LONE FF*1025VR							0.103	(1.507)				
LONE FF*2550VR							0.196***	(3.131)				
FAMILY FOUNDER FIRM (D)			0.136**	(2.053)								
FAMILY FF*0510VR									0.152	(1.115)		
FAMILY FF*1025VR									0.258**	(2.321)		
FAMILY FF*2550VR									0.015	(0.206)		
HEIR FIRM (D)					-0.145**	(-2.055)						
HEIR FF*0510VR											-0.219*	(-1.786)
HEIR FF*1025VR											-0.010	(-0.110)
HEIR FF*2550VR											-0.060	(-0.878)
FF VR	1.157***	(7.091)	1.175***	(7.169)	1.235***	(7.381)						
FF BOARD REPRES.												
SFI MB	-0.206**	(-2.443)	-0.200**	(-2.439)	-0.194**	(-2.324)	-0.133*	(-1.680)	-0.100	(-1.341)	-0.122	(-1.551)
SFI SB	-0.177	(-1.060)	-0.180	(-1.093)	-0.177	(-1.071)	-0.050	(-0.308)	-0.016	(-0.100)	-0.046	(-0.290)
PYRAMID	-0.009	(-0.184)	-0.032	(-0.630)	-0.026	(-0.526)	0.000	(0.010)	-0.008	(-0.158)	-0.016	(-0.326)
WEDGE	-0.656**	(-2.101)	-0.653**	(-2.009)	-0.703**	(-2.170)	0.407	(1.371)	0.324	(1.336)	0.282	(0.970)
50% OWNER	0.054	(1.171)	0.057	(1.226)	0.048	(1.047)	0.254***	(5.593)	0.224***	(5.537)	0.193***	(4.386)
NUMBER BLOCKHOLDERS	0.037***	(2.663)	0.044***	(3.130)	0.044***	(3.209)	0.084***	(6.805)	0.091***	(7.244)	0.090***	(7.171)
OUTSIDER BLOCK VR	0.086	(0.741)	0.079	(0.671)	0.038	(0.322)	-0.590***	(-6.985)	-0.618***	(-7.485)	-0.598***	(-7.003)
BETA	-0.018	(-0.918)	-0.014	(-0.750)	-0.016	(-0.855)	-0.020	(-0.979)	-0.014	(-0.700)	-0.017	(-0.840)
LOG AGE	0.127	(1.380)	0.124	(1.359)	0.128	(1.397)	0.061	(0.701)	0.051	(0.601)	0.049	(0.566)
LOG TOTAL ASSETS (M)	-0.050*	(-1.657)	-0.056*	(-1.818)	-0.050	(-1.622)	-0.036	(-1.230)	-0.040	(-1.346)	-0.043	(-1.435)
DEBT / MVEQUITY	-0.001	(-0.109)	0.001	(0.121)	0.001	(0.109)	-0.001	(-0.111)	-0.001	(-0.126)	-0.000	(-0.026)
PAYOUT	-0.137	(-0.580)	-0.119	(-0.496)	-0.109	(-0.450)	-0.088	(-0.356)	-0.055	(-0.205)	-0.077	(-0.294)
CAPEX	-0.000***	(-5.026)	-0.000***	(-5.084)	-0.000***	(-4.929)	-0.000***	(-4.755)	-0.000***	(-5.138)	-0.000***	(-5.060)
ROA	0.005	(0.078)	0.008	(0.125)	0.000	(0.002)	0.016	(0.233)	0.021	(0.313)	0.019	(0.275)
Ln TQ	0.107***	(3.648)	0.106***	(3.567)	0.106***	(3.554)	0.110***	(3.704)	0.102***	(3.405)	0.101***	(3.327)
INT ACCOUNTING	-0.024	(-0.587)	-0.019	(-0.470)	-0.020	(-0.487)	-0.017	(-0.398)	-0.011	(-0.264)	-0.013	(-0.323)
NEUER MARKT MEMBER	-0.044	(-0.847)	-0.043	(-0.824)	-0.044	(-0.835)	-0.032	(-0.609)	-0.044	(-0.855)	-0.041	(-0.778)
ANALYST FOLLOWING	0.004	(1.322)	0.003	(1.122)	0.004	(1.366)	0.001	(0.203)	-0.000	(-0.132)	0.000	(0.085)
CONSTANT	-0.426	(-1.100)	-0.409	(-1.059)	-0.400	(-1.033)	0.018	(0.050)	0.062	(0.177)	0.142	(0.393)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	No		No		No		No		No		No	
Firm Fixed Effects	Yes		Yes		Yes		Yes		Yes		Yes	
N (Observations)	1887		1887		1887		1887		1887		1887	
N (Clusters)	355		355		355		355		355		355	
R^2	0.130		0.130		0.129		0.088		0.086		0.082	
Adj. R^2	0.115		0.115		0.114		0.072		0.070		0.066	
F-statistic	1.4e+04		1.7e+04		1.5e+04		1.8e+04		1.8e+04		1.8e+04	

Note: This table reports firm-fixed-effect regressions. The dependent variable is *Large Drop*, a negative change of -2.5% VR.
* indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work, based on Achleitner et al. (2012).

9.2.4.2 Empirical Design Sensitivity

A further concern might include effects due to the choice of the empirical approach in general or to potential unobserved variables. In order to address those aspects, I replicate the probit regressions again. This time, I apply a panel firm fixed effects regression (table 9.8). As an example, I document the results on the *Large Drop* regressions. The effects I derived from the probit regressions remain qualitatively the same. For instance, the firm fixed effects results comprise the strong effects of valuation and the number of blockholders. Similarly, private benefits of control still hinder a reduction in voting rights. The differences in owner identity are evident too: lone founder firms and family founder firms are more likely to reduce their voting rights substantially, whereas heir firms show negative coefficients. In addition, I replicate the probit regressions with logit models. Again, the effects do not alter materially.

For the readers convenience I also estimate the marginal effects of key probit regressions. The results summarize tables 9.9 and 9.10. For instance, model 3.d suggests a 7.8% increased likelihood for lone founder settings in experiencing a large drop (table 9.9) and a 3.5% increased likelihood for a complete exit (9.10, model 6d).

Table 9.9: Marginal Effects of Ownership Dynamics (Large Drop/Increase)

	Model 3.d		**Model 3.e**		**Model 3.f**		**Model 5.d**		**Model 5.e**		**Model 5.f**	
Method	ME (P)		ME (P)		ME (P)		ME (P)		ME (P)		ME (P)	
Dependent variable	LD		LD		LD		LI		LI		LI	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (D)	0.078***	(2.742)					0.031*	(1.930)				
FAMILY FOUNDER FIRM (D)			0.017	(0.593)					-0.002	(-0.141)		
HEIR FIRM (D)					-0.016	(-0.430)					0.021	(0.964)
FF VR	0.296***	(4.045)	0.332***	(4.618)	0.336***	(4.672)	-0.037	(-1.008)	-0.021	(-0.589)	-0.024	(-0.653)
FF BOARD REPRES.												
SFI MB	-0.168***	(-4.371)	-0.161***	(-4.336)	-0.161***	(-4.294)	0.037*	(1.822)	0.039**	(1.988)	0.041**	(2.037)
SFI SB	-0.045	(-0.595)	-0.055	(-0.683)	-0.054	(-0.681)	-0.043	(-1.025)	-0.046	(-1.079)	-0.043	(-0.985)
FIRM FOUNDER NAME	-0.007	(-0.228)	-0.007	(-0.241)	-0.007	(-0.228)	-0.011	(-0.670)	-0.011	(-0.691)	-0.013	(-0.768)
PYRAMID	-0.044	(-1.362)	-0.077**	(-2.295)	-0.072**	(-2.295)	0.031**	(1.987)	0.021	(1.406)	0.021	(1.450)
WEDGE	-0.293**	(-1.960)	-0.331**	(-2.210)	-0.331**	(-2.211)	-0.063	(-0.866)	-0.083	(-1.121)	-0.087	(-1.191)
50% OWNER	-0.020	(-0.737)	-0.030	(-1.150)	-0.029	(-1.108)	-0.013	(-0.706)	-0.018	(-0.968)	-0.020	(-1.074)
NUMBER BLOCKHOLDERS	0.060***	(8.157)	0.061***	(8.285)	0.062***	(8.359)	0.008	(1.632)	0.008*	(1.667)	0.007	(1.499)
OUTSIDER BLOCK VR	-0.172**	(-2.342)	-0.172**	(-2.353)	-0.178**	(-2.391)	-0.095**	(-2.400)	-0.094**	(-2.368)	-0.088**	(-2.159)
BETA	-0.015	(-0.994)	-0.015	(-0.986)	-0.015	(-0.989)	-0.004	(-0.434)	-0.004	(-0.446)	-0.004	(-0.461)
LOG AGE	-0.021	(-1.175)	-0.032*	(-1.793)	-0.029	(-1.492)	0.026***	(2.722)	0.022**	(2.308)	0.017*	(1.698)
LOG TOTAL ASSETS (M)	-0.020**	(-2.019)	-0.023**	(-2.339)	-0.022**	(-2.215)	0.004	(0.704)	0.003	(0.533)	0.002	(0.386)
DEBT / MVEQUITY	0.004	(0.462)	0.006	(0.739)	0.005	(0.674)	-0.004	(-0.790)	-0.002	(-0.540)	-0.002	(-0.469)
PAYOUT	-0.330	(-1.420)	-0.341	(-1.428)	-0.335	(-1.407)	0.072	(0.727)	0.078	(0.789)	0.075	(0.740)
CAPEX	-0.001	(-0.789)	-0.001	(-0.706)	-0.001	(-0.724)	-0.001	(-1.216)	-0.001	(-1.083)	-0.001	(-1.047)
ROA	-0.039	(-0.852)	-0.029	(-0.629)	-0.031	(-0.684)	-0.035	(-1.480)	-0.033	(-1.385)	-0.029	(-1.264)
Ln TQ	0.053**	(2.519)	0.056***	(2.615)	0.056***	(2.588)	-0.028**	(-2.048)	-0.027**	(-2.047)	-0.026**	(-1.997)
INT ACCOUNTING	0.016	(0.513)	0.022	(0.699)	0.021	(0.670)	-0.009	(-0.472)	-0.006	(-0.282)	-0.003	(-0.168)
NEUER MARKT MEMBER	-0.020	(-0.527)	-0.012	(-0.316)	-0.014	(-0.356)	0.014	(0.636)	0.018	(0.789)	0.018	(0.791)
ANALYST FOLLOWING	0.001	(0.270)	0.001	(0.536)	0.001	(0.507)	0.001	(0.891)	0.001	(1.067)	0.001	(1.103)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	1887		1887		1887		1871		1871		1871	
N (Clusters)	355		355		355		352		352		352	
Pseudo R^2	0.109		0.104		0.104		0.078		0.072		0.074	
Wald Chi^2	327.971		320.837		316.998		101.650		97.747		103.283	

Note: This table reports marginal effects of the following probit models: 3.d, 3.e, and 3.f in table 9.3, Probit Regressions – Large Drop (-2.5% VR), as well as 5.d, 5.e, 5.f in table 9.5, Probit Regressions – Large Increase (+2.5% VR).

* indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table 9.10: Marginal Effects of Ownership Dynamics (Large Drop/Complete Exit)

	Model 4.a		**Model 4.c**		**Model 4.e**		**Model 6.d**		**Model 6.e**		**Model 6.f**	
Method	ME (P)		ME (P)		ME (P)		ME (P)		ME (P)		ME (P)	
Dependent variable	LD		LD		LD		CompExit		CompExit		CompExit	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (D)							0.035**	(2.439)				
LONE FF*0510VR	0.113**	(2.052)										
LONE FF*1025VR	0.106***	(3.138)										
LONE FF*2550VR	0.107***	(3.330)										
FAMILY FOUNDER FIRM (D)									0.001	(0.047)		
FAMILY FF*0510VR			0.095	(1.127)								
FAMILY FF*1025VR			0.076	(1.644)								
FAMILY FF*2550VR			-0.001	(-0.014)								
HEIR FIRM (D)											0.005	(0.233)
HEIR FF*0510VR					-0.061	(-0.810)						
HEIR FF*1025VR					0.084	(0.820)						
HEIR FF*2550VR					-0.007	(-0.178)						
FF VR							-0.026	(-0.616)	-0.007	(-0.161)	-0.007	(-0.170)
FF BOARD REPRES.												
SFI MB	-0.115***	(-3.185)	-0.127***	(-3.624)	-0.128***	(-3.589)	-0.113***	(-4.690)	-0.107***	(-4.646)	-0.107***	(-4.591)
SFI SB	-0.011	(-0.151)	-0.050	(-0.643)	-0.047	(-0.603)	-0.078**	(-2.096)	-0.078**	(-2.064)	-0.077**	(-2.049)
FIRM FOUNDER NAME	-0.001	(-0.034)	0.000	(0.011)	-0.003	(-0.084)	-0.031**	(-2.171)	-0.032**	(-2.161)	-0.032**	(-2.157)
PYRAMID	-0.022	(-0.744)	-0.056*	(-1.821)	-0.054*	(-1.783)	-0.027	(-1.603)	-0.041**	(-2.385)	-0.040**	(-2.432)
WEDGE	0.018	(0.137)	-0.017	(-0.129)	-0.016	(-0.123)	-0.046	(-0.514)	-0.072	(-0.815)	-0.073	(-0.832)
50% OWNER	0.052**	(2.039)	0.026	(1.053)	0.023	(0.877)	0.002	(0.119)	-0.003	(-0.206)	-0.003	(-0.225)
NUMBER BLOCKHOLDERS	0.065***	(8.803)	0.068***	(8.932)	0.068***	(8.879)	0.017***	(3.854)	0.018***	(4.019)	0.018***	(3.930)
OUTSIDER BLOCK VR	-0.388***	(-6.642)	-0.399***	(-6.635)	-0.393***	(-6.780)	-0.032	(-0.823)	-0.033	(-0.850)	-0.032	(-0.790)
BETA	-0.024	(-1.555)	-0.021	(-1.386)	-0.022	(-1.412)	-0.011	(-1.320)	-0.010	(-1.230)	-0.010	(-1.230)
LOG AGE	-0.018	(-1.048)	-0.023	(-1.325)	-0.025	(-1.386)	-0.012	(-1.402)	-0.016*	(-1.945)	-0.017*	(-1.909)
LOG TOTAL ASSETS (M)	-0.015	(-1.511)	-0.019*	(-1.957)	-0.019*	(-1.912)	-0.009	(-1.542)	-0.010*	(-1.708)	-0.010*	(-1.703)
DEBT / MVEQUITY	0.003	(0.380)	0.004	(0.465)	0.004	(0.432)	-0.004	(-1.082)	-0.003	(-0.866)	-0.003	(-0.828)
PAYOUT	-0.291	(-1.258)	-0.319	(-1.382)	-0.307	(-1.321)	-0.045	(-0.401)	-0.042	(-0.371)	-0.042	(-0.375)
CAPEX	-0.000	(-0.559)	-0.000	(-1.507)	-0.000	(-1.307)	-0.319**	(-2.573)	-0.330***	(-2.657)	-0.331***	(-2.655)
ROA	-0.028	(-0.633)	-0.019	(-0.407)	-0.023	(-0.512)	-0.017	(-0.689)	-0.013	(-0.528)	-0.013	(-0.500)
Ln TQ	0.057***	(2.898)	0.060***	(2.843)	0.058***	(2.785)	0.007	(0.686)	0.008	(0.746)	0.008	(0.751)
INT ACCOUNTING	0.018	(0.553)	0.016	(0.490)	0.014	(0.442)	-0.003	(-0.178)	-0.003	(-0.172)	-0.003	(-0.151)
NEUER MARKT MEMBER	-0.003	(-0.073)	0.004	(0.091)	-0.000	(-0.010)	-0.008	(-0.363)	-0.004	(-0.192)	-0.004	(-0.191)
ANALYST FOLLOWING	-0.001	(-0.437)	-0.000	(-0.240)	-0.000	(-0.132)	-0.001	(-1.170)	-0.001	(-1.025)	-0.001	(-1.011)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No		No	
N (Observations)	1887		1887		1887		1741		1741		1741	
N (Clusters)	355		355		355		334		334		334	
Pseudo R^2	0.100		0.093		0.092		0.148		0.140		0.140	
Wald Chi^2	386.067		723.495		574.707		137.750		136.363		137.300	

Note: This table reports marginal effects of the following probit models: 4.a, 4.c, and 4.e in table 9.4, Probit Regressions – Large Drop (-2.5%, VR Details), as well as 6.d, 6.e, and 6.f in table 9.6, Probit Regressions – Complete Exit.

* indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

9.3 Summary

This chapter shows that a broad theory framework combined with a deep empirical analysis collectively attribute to a more complete interpretation of ownership dynamics.

Specifically, the results of this study reveal substantial differences between lone founder, family founder, and heir firms. While lone founder firms have significant propensity to reduce as well as to increase their voting rights, heir firms show very robust ownership structures at a high voting rights level (mean above 50%). Family founder firms take a place in between lone founder and heir firms. They show somewhat intermingled but still distinct characteristics. Their ownership structures are more robust compared to those of lone founder firms, but show the propensity toward negative ownership changes as soon as the cumulated voting rights of the family shrink below the 25% blocking minority threshold. Overall, this challenges some conventional wisdom that argues as there would be just one homogeneous family firm. As demonstrated, it is not feasible to attribute a characteristic such as long-term orientation without deeper consideration of the distinct owner identity types. Another example is familiness itself. Lone founder firms lack this feature and probably have different motivation than keeping the business with the family. This is in line with the argumentation and empirical findings of Le Breton-Miller and Miller (2008) and Miller et al. (2011).

A third example that reveals similar differences amongst firm types is the field of control-enhancing mechanisms. The empirical results illustrate that thresholds and protection mechanisms prove to be important determinants of ownership dynamics. An agency theory approach that considers private benefits of control seems to explain their effects best. Yet, family founder and heir firms, particularly, apply protection mechanisms such as pyramidal ownership structures as well as dual share-class wedges. This implies the prominence that those firms attribute to the protection of their interests. They even accept the detrimental cost effects of these control-enhancing in-

struments.[309] Still, those artificial instruments are not the only manner with which to exercise control on the firm. Substantial *management board influence* is similarly an important determinant of ownership change: management board representation substantially decreases the likelihood of large negative changes and of a complete founding-family exit. In contrary, substantial *management board influence* increases the likelihood of large positive changes in ownership. Alongside this calls for the relevance of stewardship theory as a potential explanatory framework of ownership dynamics. Stewardship indicators like firms named after the founder(s) or strong board influence substantially and significantly reduce the likelihood of an exit by the founding-family.

The documented evidence confirms that all presented theory frameworks contribute to explain ownership dynamics and collectively support a more complete interpretation of results.

A further major contribution towards an increasing understanding of listed founding-family firms' characteristics stems from the evidence that owner identity characteristics explain to a substantial degree the heterogeneity in ownership dynamics. This is of distinct importance, as definitions as well as interpretations often do not or just rudimentary include owner identity specifics.

A third contribution arises from the awareness of ownership dynamics and more general of family firm heterogeneity. I demonstrate ownership effects on a large set of German founding-family defined firms over almost one and a half decades. While I can confirm the general sticky character of ownership, there are still observable upward and downward shifts. It is evident that stock market demands and family owners' preferences for control, strategy, and goal prioritization might not perfectly fit. Strong family influence should pronounce this aspect even more. In order to keep in the 'driver's seat' a number of listed family firms establish certain control(-enhancement) mechanisms, which are mostly unwelcome by outside in-

[309] For a US perspective on this topic confer Villalonga and Amit (2009).

vestors. In the end, a family has to weigh whether they are strategically and emotionally ready and willing to 'pay the price' of public equity financing, or to further bear the costs of relatively illiquid undiversified wealth.

Table 9.11: Summary of Ownership Dynamics Hypotheses and Results

#	HYPOTHESES		EXPECTED SIGN	RESULT
	OWNER IDENTITY PERSPECTIVE			
H6.1.a	The likelihood of a *negative* ownership change	is positively associated with **Lone Founder** firms.	+	+/+
H6.1.b	…	is negatively associated with **Family Founder** firms.	–	**o/o**
H6.1.c	…	is negatively associated with **Heir** firms.	–	**o/o**
H6.2.a	The likelihood of a *positive* ownership change	is not associated with **Lone Founder** firms.	**o**	+
H6.2.b	…	is not associated with **Family Founder** firms.	**o**	**o**
H6.2.c	…	is not associated with **Heir** firms.	**o**	**o**
	AGENCY PERSPECTIVE			
H7.1.a	The likelihood of a *negative* ownership change	is negatively associated with **board representation**	–	–/–
H7.1.b	…	is negatively associated with **high private benefits of control**	–	–/–**o**
H7.1.c	…	is negatively associated with **strong external governance**	–	–/**o**
H7.2.a	The likelihood of a *positive* ownership change	is positively associated with **board representation**	+	+
H7.2.b	…	is negatively associated with **high private benefits of control**	–	**o**
H7.2.c	…	is negatively associated with **strong external governance**	–	–
	STEWARDSHIP PERSPECTIVE			
H8.1.a	The likelihood of a *negative* ownership change	is negatively associated with **high management board representation**	–	–/–
H8.1.b	…	is negatively associated with a **strong linkage between firm and family**	–	**o**/–
H8.1.c	…	is positively associated with **the number of different (individual) blockholders**	+	+/+
H8.2.a	The likelihood of a *positive* ownership change	is positively associated with **high management board representation**	+	+
H8.2.b	…	is positively associated with a **strong linkage between firm and family**	+	**o**
H8.2.c	…	is negatively associated with **the number of different (individual) blockholders**	–	**o**
	FINANCIAL PERSPECTIVE			
H9.1.a	The likelihood of a *negative* ownership change	is positively associated with **high stock valuation**	+	+/**o**
H9.1.b	The likelihood of a *positive* ownership change	is positively associated with **low stock valuation**	+	+

Note: This table presents an overview of hypotheses associated with negative and positive ownership changes. The signs "+", "–" and "o" indicate a *positive*, a *negative*, and a *neutral* association. The results column indicates for negative change scenarios the additional robustness test of a *Complete Exit* as extreme scenario (the result for H7.1.b and the *Complete Exit* is twofold as the two variables for private benefits of control, PYRAMID and WEDGE, show varying results).

Source: Own work, based on Achleitner et al. (2012).

10 Conclusion

10.1 Summary of Key Results

Family firms are the prevailing firm type worldwide. For a long time, despite this relevance, they received limited consideration in financial economics literature. However, recent research on corporate governance altered this to some extent, primarily because founding-family firms offer attractive and relatively clean governance scenarios for empirical analysis (cf. Bennedsen et al., 2010).

Despite this growing attention from financial economics scholars, so far only a limited number of publications has explicitly focused on the heterogeneous character of the group commonly summarized as founding-family firms. As a consequence, prior empirical work often presented conflicting and ambiguous results.[310] This complicates analysis and interpretation of governance specific research questions, firm policy and decisions in founding-family firms, as well as their performance characteristics. Hence, the essential goal of this work is to shed more light on the dimensions that cause family firm heterogeneity and to take them explicitly into account. I overcome the problem of lacking data on family firm heterogeneity and resulting pragmatism of former empirical work by collecting a large panel with detailed owner identity data. In fact, the panel is representative for the German stock market and includes the period 1995 to 2008. Owner identity characteristics emerge as a major influential factor. Owner iden-

[310] This might, in part, relate to a lack of interdisciplinary exchange and critical analysis of advances in related research areas. See the arguments of Zahra and Sharma (2004) and Stewart (2008).

tity types vary due to their family/kinship relation and generation features. The concept of lone founder firms, lacking kinship characteristics amongst founders, largely originated in the work by Miller et al. (2007) and subsequent publications by Le Breton-Miller and Miller (2008) and Miller et al. (2011).

However, the distinctiveness of lone founder and family firms is just one aspect of founding-family heterogeneity. In fact, the differentiation between lone founder, family founder, and heir firms is an advance in the analysis of owner identity specifics provided by this work. Building on this particular approach, this dissertation offers novel insights to the following research questions:

1. How do owner identity types influence governance heterogeneity?
2. How do owner identity types impact on firm policy decisions, such as investment or financing and risk policy?
3. What are the economic effects of owner identity influence with respect to firm valuation and stock performance?
4. How do owner identity types influence ownership dynamics?

In order to clarify these topics with rigor, my work starts with the definition and characterization of founding-family firm subtypes. The essential feature that lone founder and family founder firms share is the first generation, i.e. founder, characteristic. Family founder and heir firms share the family/kinship relation characteristic. Based on my initial working hypothesis, I argue that the underlying rationale and logic of these firms might be influenced by familiness and generational aspects and is likely to differ. On a scale from entrepreneurial, market, and growth oriented on the one hand side and conservative, family, and harvesting oriented on the other hand, lone founders are supposed to take a very entrepreneurial, family founder an in-between, and heir firms a harvesting position.

Based on this conceptual introduction of owner identity types, my work continues with a theoretical framework that builds on agency, stewardship, and (social) identity theory. In the light of the extensive theoretical framework and the founding-family specifics, I develop conclusive arguments that recommend a closer look at the heterogeneous character of founding-family firms as well as the resulting implications for firm policy, economics, and ownership dynamics. My argument is supported by an extensive review of existing literature and the development of hypotheses on these topics. In addition to differentiating owner identity aspects, this work describes concerns, requirements, and approaches to ensure relatively unbiased empirical insights. The key concern and challenge is the consideration of a potential endogeneity bias, specifically the question of (reverse) causality in, e.g. the relationship between ownership and performance. As well as the general empirical challenges, my thesis faces the endogeneity concern by applying advanced empirical methods, including instrumental variables approaches and (dynamic) panel regression models. Moreover, all investigations are subject to substantial control inclusion, model variation, and a large set of robustness tests.

I explore an extensive novel data set that covers 5,069 firm years of the broad market index CDAX throughout the years 1995 to 2008. The sample includes bluechip DAX companies as well as mid and small cap firms.[311] The panel rests on extensive hand-collected variables, advancing evidence for Germany that was not available previously. Amongst those hand-collected variables are ownership and board structures, company history including founder(s) and founding year, owner identity types, and an explicit and proper consideration of *Neuer Markt* index members.

The institutional setting, that is the German capital market, experiences some changes in its governance features, predominantly in law and governance initiatives. Yet, initial descriptive results with respect to ownership

[311] The sample initially comprises 8,644 firm years. The necessary requirements and subsequent adjustments for the final sample composition are presented in table 7.1, Sample Composition.

concentration indicate that the German capital market largely maintains its general characteristics. While the high ownership concentration level shows only a moderate reduction over the years, the relevance of founders and families as blockholders remains high.

With respect to the research questions, the fundamental empirical result across all empirical studies in my work is very robust: founding-family firms differ in their corporate governance, firm policy, performance, and in ownership dynamics. This diversity is definitely influenced by the owner identity as an important moderator. In particular my findings reveal differences along the generational dimension (founder vs. heir firms) but also between family founder and lone founder firms. In some aspect my work identifies even an opposite behavior (e.g. in terms of control ambitions, investment behavior, and leverage) which is supposed to stem from the differentiator 'familiness'.

Further key results derive from a novel heterogeneity index that I calculate based on various internal as well as external governance mechanisms. The index construction is based on a quintile ranking and scoring approach that includes equal weighting of the mechanisms. The index reveals that lone founder firms show least ambition to set up protectionist corporate governance settings. By contrast, heir firms, and especially family founder firms implement control-enhancing mechanisms, such as wedges and both-board representation, in order to shield their control position against external parties. In line with this evidence, the ownership structure in lone founder firms shows statistically higher external blockholdings, and specifically blocks held by venture capitalists, compared to family founder and heir firms.

The subsequent analysis of firm policy also reveals differences between those firm types with respect to investment and financial decision making. The results proclaim substantially diverging behavior of lone founder and family founder firms, as well as heir firms. Interestingly the CAPEX investment behavior of heir firms seems to be strongly driven by external

(governance) factors, such as industry competition. In other words, external (governance) mechanisms should not be disregarded as a potential counterbalance to strong internal governance settings.

While family founder firms were supposed to take a rather in-between position with respect to lone founder and heir firms, they take an even more divergent position with respect to lone founder settings than previously hypothesized. For instance, family founder firms have a significant negative influence on CAPEX investments while lone founder firms show neutral influence on CAPEX but high R&D investments. The potential problem of underinvestment in family founder settings—they invest about -61% below sample mean—may be a result of negative altruism (cf. Ward, 1987; Schulze et al., 2002a).[312] Thus, familiness seems to play an even stronger role in founder settings than expected. This insight is in line with the general characterization of the firm subtypes at the beginning of my thesis as well as with the argumentation in the seminal work by Miller et al. (2011).

Details of my analysis show significant influence from lone founder firms on every firm policy category. Thereby, the lone founder's type of influence proves to be in complete contrast to heir firms, when it comes to financing and cash-holdings decisions. In terms of leverage, this finding might be of particular interest, as a multitude of previous studies dealt with this topic and regularly came up with ambiguous results. Bearing my heterogeneity results in mind, a warning against misinterpretation seems necessary.

In terms of the firm economics analysis, I found compelling evidence although, or potentially because, the empirical challenge of endogeneity and reverse causality was diligently taken. Across all empirical methods applied I detect superior valuation in lone founder settings. Heir firms show no statistically noticeable valuation characteristics, while family founder firms have a statistically and economically significantly worse valuation. The conceptual and empirical models are aligned with this finding as lone founder firms show the most beneficial agency settings while family founder firms

[312] See arguments in section 3.1.3, Agency Conflict III: Altruism.

apply control enhancing mechanisms more often. Various empirical estimation models, e.g. an instrumental variables approach or dynamic panel regressions, control for endogeneity and deliver robust results, confirming the findings. With respect to these robust results, I have to mention that my regression estimates exhibit that straightforward OLS models would have failed to identify reverse-causality biases which happened to exist in several empirical scenarios (e.g. self-selection induced by performance). In addition, a Fama and French (1993) analysis shows a superior alpha, i.e. stock performance, for a portfolio of lone founder firms.

At the best of my knowledge, it is the first time that owner identity portfolios have been analyzed with a four-factor benchmark model. The results for the SMB, HML, and MOMENTUM factors are similarly striking: the deviating factor loadings suggest particular characteristics of the owner identity investment portfolios and thus the practical possibility of different investment styles.[313]

The results on ownership dynamics document that lone founder firms reveal rather dynamic ownership. They are more willing to accept a dilution or to completely exit a firm as a shareholder compared to family founder and heir firms. In addition, the general level of ownership is lower compared to that of family founder and heir firms. Family founder and heir firms—firms that have family influence—are less likely to change ownership status (complete exit) or to decrease their ownership stake. Stewardship indicators like management board representation as well as indicators related to personal identification and reputation (e.g. in the event of a firm's name is related to the founder or founding-family name) similarly decrease the likelihood of a complete exit.

To sum up, all aspects under examination in this thesis prove family firm heterogeneity and show diverging results that are in very strong accordance with the rationale of the respective owner identity type. The majority of the

[313] On the other hand this implies that an investment in a group of founding-family defined firms can represent a mix of different investment styles.

findings is highly statistically significant while applying broad sample data, advanced empirical methods, and multiple robustness specifications. For those reasons, approaches that take the heterogeneity of founding-family firms explicitly into account should definitely be favored in future research. Irrespective of whether research goals are more inclined towards corporate governance aspects, towards family firm specifics, or both, the incorporation of owner identity characteristics seems not only fruitful, but necessary in order to allow proper understanding and inference.

In spite of the numerous research questions, hypotheses, and empirical analyses covering a broad spectrum of firm policy, economics, and ownership decisions this work has still its limitations. There is less insight into intra-family policy, potential conflicts, and resulting decisions. Yet this would seem to be an essential driver in firm decisions and performance, at least that is what the approximation of the owner identity types proposes. To some extent, this is due to the large sample and a resulting non-availability of such detailed data.

Another important aspect that I can only touch upon this study is succession. Evidently this applies to all firm types, but probably even more, in the sense of family succession, to family founder firms and heir firms. The effects stemming from emotional, economic, legal, and taxation aspects are probably of major importance for understanding certain firm decisions as well as performance characteristics.

In terms of agency aspects, I have no access to data on a further specific contracting mechanism: remuneration. Yet, Achleitner et al. (2010) show for a smaller German sample that family firms (undifferentiated with respect to owner identity) have lower stock-based remuneration schemes.[314] Palia et al. (2008) report similar evidence for a US sample.

[314] The empirical evidence is in line with the arguments by Edwards and Nibler (2000), Kaserer and Moldenhauer (2007), and Andres (2008b) that stock-based remuneration is not the driving force of managerial ownership in Germany. Thus, the authors argue that endogeneity should be less severe in a study analyzing managerial shareholdings and performance of German stock corporations.

Another aspect that I am not able to observe is related to investment policy in anorganic growth initiatives. What we know from prior research, i.e. by Fahlenbrach (2009), is that investment policy with respect to M&A activity is somewhat distinct in founder-CEO firms. While the general deal characteristics (cash vs. share deal) and size are not statistically different, founder-CEO firms tend to engage relatively more in non-diversifying M&A activities. They keep focused on their expertise and their core activities. It would be interesting to see the differences in M&A behavior with respect to owner identity characteristics, especially given some high sales growth rates suggesting potential anorganic growth in founding-family defined firms—especially in lone founder firms.

10.2 Contribution and Implications

Prior academic analysis of family firms resulted in mixed evidence. Potentially, this was result of the combination of heterogeneous family firm entities into one group of firms. Following this initial hypothesis, my research approach includes a decomposition of family firms, which are commonly identified as one group, as well as their respective family firm heterogeneity.

Heterogeneity in governance, policy, and economics, and further firm-related decisions are ultimately influenced by the rationale of a company. This rationale is largely shaped by the founder(s) and the founding-family as well as close groups of people and their respective mindsets as proposed by (social) identity theory.[315] This work benefits from decomposing family firms into distinct groups according to their owner identity type. As a result, this dissertation emphasizes an interdisciplinary approach. The results include different points of view and a broad spectrum in terms of theoretical as well as empirical analysis. Calls for interdisciplinary research have its traditions and are highly important, in order to achieve both better research results in the field of family firm research and in sister disciplines, as well as spreading the results and ideas (cf. Zahra and Sharma, 2004; Stew-

[315] See chapter 3.3, (Social) Identity Theory, for an introduction to (social) identity theory and the link to group and role behavior, thinking, and attitudes.

art, 2008). From this point of view, the decomposition of the heterogeneous characteristics also makes possible a new arrangement of those puzzle pieces to achieve an advance in empirical governance work. Thus, the key to addressing and recognizing governance effects is to some degree the substantial consideration of heterogeneity characteristics. In addition to the deep consideration of heterogeneous characteristics of founding-family defined firms from a very broad empirical base, this work offers a large data-set and many hand picked variables that were previously not available for empirical research. With this large sample of German listed firms, it is the first time that owner identity characteristics are considered in such detail for an (European) capital market setting. In addition, this work is one of the rare studies that include more than one business cycle with bull and bear markets in the analysis.

My analyses include firm governance, policy, performance, and ownership dynamics. Taken as a whole, this very broad set of examined characteristics is backed by strong theoretical argumentation, conceptual work, and rigor in empirical analysis. The results show the importance of differentiating those founding-family defined firms. They have distinctive features that are important to consider from an empirical point of view as well as from a business point of view. In prior work, heterogeneity in family firm settings was to some extent insufficiently acknowledged, at least in financial economics literature. In fact, the approach I take in this work supports the identification of distinct mechanisms—with influence on many firm decisions—that are highly relevant to financial economics problems. For this reason, family firm settings are an interesting arena for corporate governance research (cf. Bennedsen et al., 2010). Yet, in order to derive more general governance implications from such settings, academics have to be very sensitive with definition work and the consideration of a multitude of heterogeneous characteristics of founding-family defined firms.

Likewise, practitioners can benefit from the results of this work. It is important to be aware of the results as policy, regulation, or law for instance, targets not one group of firms, but a very heterogeneous bundle of firms,

that have on a very high level similar (family) governance characteristics. Accordingly, those firms might have different problems, e.g. with respect to agency contracts, altruism, and modes of conduct (e.g. protectionism). The role of owner identity related influence of the founder(s) and the founding-family should not be underestimated. From a very similar angle one could also assume that firm culture partly mirrors owner identity characteristics.

Law and regulation on corporate governance, for instance, have to take the differences between founding-family defined firms seriously. It is of major importance to understand the preferred governance mechanisms and the reason for their implementation.[316] Yet the relevance of those specifics do not stop with corporate governance related aspects: owner identity characteristics might influence firm policy, e.g. investment behavior, investment in innovation, risk policy, and capital structure decisions. Accordingly, this understanding supports the identification of implications for innovation and growth.

Investors might be not primarily focused on differences in ownership structures. Yet, the heterogeneous characteristics of those firms are not at all without meaning for investors, as founding-family firms are anything but a homogeneous environment. As the results of this work show, the differences include firm behavior, policy, valuation, long-term orientation, and ownership persistence. While one could assume that general characteristics are quite similar in family firms, there are particular situations that are probably not at all similar in their specifics. For instance, questions of succession might be different within generations of family firms, i.e. first time succession, second time, etc. And although with respect to the same generation a family firm might diligently take care to preserve control thresholds, firm policy would be made with this in mind and options might, therefore, be more limited than in comparable non-family firms (e.g. in terms of a capital increase). On the other hand, families are considered to be more

[316] For instance, it is important in terms of a change from CEO to chairman of the supervisory board that 25% of capital present in the general meeting approve this direct switch. Otherwise, there is at least a two year cooling off period required. This particular example was introduced post 2008, the end of my sample period.

long-term oriented as long as the firm does moderately well—thus a family might be a vital monitor of firm management. Nevertheless, the results indicate that the interplay of several mechanisms tells us more about founders or founding-families engagement in protective governance practices than a single mechanism. Altogether, this kind of signaling can be meaningful for investors, too. For instance, an overall characteristic certainly depends on how much external governance pressure affects a firm (external monitoring, product market competition), as well as internal governance characteristics. Hence, investors should benefit from a better understanding of firm types and behavior while evaluating their 'trick-or-treat' features.

And indeed, the results can be interesting for founder and family firms themselves. The results offered in this work show a long investigation period and a rich variety of relevant questions. Hence, the results and implications offer plenty of opportunity to reflect on own settings, strategy, and governance characteristics. The owner identity approach with the differentiation of lone founder, family founder, and heir firms should improve the identification of the relevant benchmark group. This allows for a better understanding of how comparable firms have behaved in terms of control versus corporate policy considerations or about innovation policy and investments. Of course, it should also be relevant to understanding the perception of investors with respect to distinct settings. How much of a closed shop is acceptable and what do investors expect? These questions could also be relevant for private companies, and particularly founders or founding-families reflecting on a capital market scenario.

Finally, the results could be interesting for the public with respect to questions of political economy. Firstly, the extensive elaboration of heterogeneous family firm types from different angles should improve understanding of the relevance and characteristics—advantageous and disadvantageous—of founder and family firms. Yet, most of all, it should support the understanding and recognition of the distinctiveness of those heterogeneous firms. As demonstrated with this sample of listed firms, this

is not only a matter of privately held or very small firms but covers a large spectrum of firms from small cap to the largest blue chip firms.

10.3 Avenues for Future Research

Future research could incorporate the proposed owner identity approach to generate further valuable insights on the heterogeneous character of founding-family defined firms. In this regard the presented work could be considered as a guideline for future analysis of family firm specifics. Ignoring the identity of owners seems to be quite a case of mixing 'apples with oranges'; results are potentially flawed with outcomes strongly dependent on sample selection.

From a multidisciplinary perspective, 'familiness' in a micro context could serve as a fruitful field of future research (cf. Bertrand et al., 2008). As understanding of founding-family firm behavior is still at an early stage, intra-family characteristics look like a promising subject for deeper analysis. The approach could fuse quantitative analysis with further qualitative features of individual, family, and firm characteristics. As this work has demonstrated, consideration of this level of detail can improve the overall understanding of a topic while supporting the application of stronger empirical methods. This work has benefited from this approach, e.g. in terms of developing exogenous instruments or including owner identity characteristics. For instance, in a similar way, Bennedsen et al. (2007) took advantage of very detailed data on family characteristics in the context of Danish family firm succession—they developed an exogenous instrument indicating the gender of the first-born child to predict intra-family succession. More studies of this kind could bring great benefits in terms of understanding behavior and decision-making in family firms. Aspects like family leadership, family governance, and the ratio of active/passive family members would be of great interest for developing a better understanding of potential sources of (competitive) advantage or disadvantage.

Clearly, empirical governance research can highlight specific challenges family firms have to face, and decisions they have to make: for instance, understanding potential causes and implications of underinvestment, and the interplay between family, concentrated wealth and (risky) corporate decisions, are topics with significance for economic welfare. In conjunction with this, the topic of succession including such perspectives as incentives, performance, taxation, and innovation remains a fruitful research area.

Alongside such detailed single-country studies, further comparable international evidence would be highly desirable. To a large extent the comparability of international work will depend on the future of definition work. This dissertation provides a thorough base for making comparison with (future) international evidence including generational and family effects, but also for comparison with privately-held family firm evidence—irrespective of geography. The precise evidence of this work, differentiating three basic founding-family firm types, should generally allow more feasible comparison with future research.

Moreover, the robust findings of this work across several topics should strengthen researchers' ambitions to devote more attention to the logic of involved individuals, their context, and their behavior within the field of family firm research.

Appendix

Table A.1: Variable Definitions—Firm Heterogeneity & Policy

VARIABLE	DEFINITION
	OWNER IDENTITYVARIABLES
LONE FOUNDER FIRM	Founder-led or founder-owned firms that do not involve the family of the founder(s)–neither management nor ownership wise. The *founding-family* definition has to be applied: Influence of individuals or a group of individuals that qualify as founder(s) via block ownership (controlling at least 5% of voting rights), or board membership (management and/or supervisory board).
LONE FOUNDER FIRM (D)	Founder-led or founder-owned firms that do not involve the family of the founder(s)–neither management nor ownership wise. The *adjusted founding-family* definition has to be applied: The founder influence has to be substantial, i.e. she (they) has (have) to be a blockholder holding at least five percent in voting stock if this blockholder is board member. If the blockholder is no board member the blockholding has to exceed 25% of voting stock.
FAMILY FOUNDER FIRM	Founder-led or founder-owned firms that do involve the family of the founder(s)–either management or ownership wise. The *founding-family* definition has to be applied: Influence of individuals or a group of individuals that qualify as founder(s) and founding-family via block ownership (controlling at least 5% of voting rights), or board membership (management and/or supervisory board).
FAMILY FOUNDER FIRM (D)	Founder-led or founder-owned firms that do involve the family of the founder(s)–either management or ownership wise. The *adjusted founding-family* definition has to be applied: The founder and founding-family influence have to be substantial, i.e. they have to be a blockholder holding at least five percent in voting stock if this founding-family is represented in the management and/or supervisory board. If the founding-family blockholder is no board member the blockholding has to exceed 25% of voting stock.
HEIR FIRM	Members of the founding family (families) are involved in the company–either management or ownership wise–but no founder is involved anymore. By definition those firms had at least one succession and are at least in second generation. The *founding-family* definition has to be applied: Influence of (an) individual(s) belonging to the second or later generation that qualify as heir(s) via block ownership (controlling at least 5% of voting rights), or board membership (management and/or supervisory board).
HEIR FIRM (D)	Members of the founding family (families) are involved in the company–either management or ownership wise–but no founder is involved. By definition those firms had at least one succession and are at least in second generation. The *adjusted founding-family* definition has to be applied: The founding-family's influence has to be substantial, i.e. (an) heir(s) has (have) to be a blockholder holding at least five percent in voting stock if this founding-family is represented in the management and/or supervisory board. If the founding-family blockholder is no board member the blockholding has to exceed 25% of voting stock.

(continued)

VARIABLE	DEFINITION
	INSTRUMENTS
NUMBER FOUNDERS	Count variable that equals the total number of founders.
SINGLE FOUNDER	Dummy variable indicating a single founder person.
INITIAL POOLING	Dummy variable indicating the usage of a pooling structure/vehicle of a group of shareholders at the time of the IPO.
AGE AT IPO	Variable that equals the firm age at the IPO.
FIRM FOUNDER NAME	Dummy variable indicating that the firm name stems from the founder(s) name(s), an abbreviation, or an acronym thereof.
EARLY INCEPTION	Dummy variable, indicating that the founding year of the company dates back prior to 1960.
REGISTERED SHARE	Dummy variable, indicating that the firm issued registered shares at the time of the IPO.
	GOVERNANCE VARIABLES
FF VR	Accumulated voting rights (block ownership) of founding-family firms, i.e. lone founder, family founder, and heir firms.
IOC VR	Accumulated insider voting rights (block ownership), not necessarily fulfilling a founding-family definition.
FF BOARD REPRESENTATION	Ratio of board seats (management and supervisory board) held by the founder(s) or the founding family to total board seats.
SFI MB	Share of substantial management board influence by the founder(s) or the founding family. Measured as the ratio of management board seats held by the founder(s) or the founding family to total management board seats.
SFI SB	Share of substantial supervisory board influence by the founder(s) or the founding family. Measured as the ratio of supervisory board seats held by the founder(s) or the founding family to total supervisory board seats.
SFI	Variable that quantifies the substantial family influence. The SFI measure cumulates the voting rights (FF VR) as well as the ratio of management (SFI MB) and supervisory board (SFI SB) membership. For instance, 35% voting rights, two out of four management board members, and no supervisory board member amounts to a SFI of 0.85 (0.35+0.50+0.00=0.85).
BOTHBOARDS	Dummy variable indicating that in a respective firm year founders or founding-family members are represented in the management as well as in the supervisory board.
LONE FF BOARD	Variable indicating FF BOARD REPRESENTATION when a firm fulfills the LONE FOUNDER FIRM definition; otherwise zero.
FAMILY FF BOARD	Variable indicating FF BOARD REPRESENTATION when a firm fulfills the FAMILY FOUNDER FIRM definition; otherwise zero.
HEIR FF BOARD	Variable indicating FF BOARD REPRESENTATION when a firm fulfills the HEIR FIRM definition; otherwise zero.

(continued)

VARIABLE	DEFINITION
FCEO	Dummy variable indicating that a founder is CEO.
HCEO	Dummy variable indicating that an heir, i.e. a founding-family member, yet not a founder, is CEO of the firm.
FCHM	Dummy variable indicating that a founder is chairman of the supervisory board.
HCHM	Dummy variable, indicating that an heir, i.e. a founding-family member, yet not a founder, is chairman of the supervisory board.
CF VOTING COMB	Dummy variable, indicating a deviation of cashflow over voting rights, caused by pyramidal ownership and/or by the application of dual-share classes.
PYRAMID	Dummy variable, indicating a pyramidal ownership structure that a major blockholder applies.
DUAL WEDGE	Dummy variable, indicating that a listed firm has a dual-share class characteristic.
WEDGE	Percentage value indicating the difference between voting-rights and cash-flow rights due to the application of dual-share classes.
50% OWNER	Dummy variable, indicating the presence of a majority blockholder.
NUMBER BLOCKHOLDERS	Variable that counts the number of different blockholders, whereas a block is defined as equal or exceeding 5% voting rights.
C1C2	Variable that accumulates the voting rights of the two largest blockholders.
C1C3	Variable that accumulates the voting rights of the three largest blockholders.
HERFINDAHL	Variable that measures the concentration of the voting rights. Calculated as the sum of the squared blockholdings per firm for each respective firm year and including all blockholders. The range of the HERFINDAHL measure is 0 to 1.
OUTSIDER BLOCK VR	Accumulated voting rights (blockholdings) that outsiders control.
VCPE VR	Voting rights (blockholding) that venture capital and/or private equity investors control.
IND HERF	A variable that indicates the Herfindahl sales concentration ratio in different industries (based on the Fama/French Industry Classification) per firm year.
ANALYST FOLLOWING	A count variable that indicates the number of I/B/E/S analysts that follow the respective company on average in a respective fiscal year.
NEUER MARKT MEMBER	Dummy variable, indicating that the respective firm in the respective year is a member of the *Neuer Markt* segment at Frankfurt stock exchange (FSE).

(continued)

VARIABLE	DEFINITION
PRIME STANDARD	Dummy variable that takes the value of one if the respective firm in the respective year is member of the *Prime Standard* at FSE. The *Prime Standard* is the listing segment that requires the highest transparency and aims to attract international investors.
AMTLICHER HANDEL	Dummy variable that takes the value of one if the respective firm in the respective year is member of the *Amtlicher Handel* at FSE. Prior to the new stock market segmentation in 2003, the *Amtlicher Handel* was the highest trading segment.
	HETEROGENEITY INDEX
HETEROGENEITY INDEX	Composite index based on the score of six governance characteristics. The index score is based on all six governance characteristics. Each of the six governance variables is ranked on a quintile basis. Scores between 1 and 5 are assigned according to the respective quintile range. The total index score is therefore between 6 and 30. The higher the heterogeneity index score the more governance mechanisms work for a protection of the founding family.
FF BOARD REPRESENTATION HET	Score between one and five, dependent on the respective quintile range of the FF BOARD REPRESENTATION variable. The lowest quintile range indicates a score of 1, the highest quintile range a score of 5.
BOTHBOARDS HET	Score of one or five, dependent on the respective quintile range of the BOTHBOARDS variable. The lowest quintile range indicates a score of 1, the highest quintile range a score of 5.
FF VR HET	Score between one and five, dependent on the respective quintile range of the FF VR variable. The lowest quintile range indicates a score of 1, the highest quintile range a score of 5.
WEDGE HET	Score between one and five, dependent on the respective quintile range of the WEDGE variable. The lowest quintile range indicates a score of 1, the highest quintile range a score of 5.
OUTSIDER BLOCK VR HET	Score between one and five, dependent on the respective quintile range of the OUTSIDER BLOCK variable. The lowest quintile range indicates a score of 5, the highest quintile range a score of 1.
VCPE VR HET	Score between one and five, dependent on the respective quintile range of the OUTSIDER BLOCK variable. The lowest quintile range indicates a score of 5, the highest quintile range a score of 1.
	FIRM POLICY VARIABLES
CAPEX / CAPEX_TA	Ratio of capital expenditures scaled by total assets.
R&D / R&D_TA	Ratio of research and development expenditures scaled by total assets.
CASHSTE / CASHSTE_TA	Ratio of cash-holdings and short-term cash equivalents scaled by total assets.
DEBT/MVEQUITY	Ratio of total debt divided by the market value of equity.

(continued)

VARIABLE	DEFINITION
DEBT/EQUITY	Ratio of total debt divided by the book value of equity.
LEVERAGE	Ratio of total liabilities scaled by total assets.
	FIRM CHARACTERISTICS & CONTROL VARIABLES
TOTAL ASSETS (M)	Total assets in million.
Ln TOTAL ASSETS (M)	Logarithm of TOTAL ASSETS (M).
TOTAL SALES (M)	Total sales in million.
GROWTH	Variable, indicating the sales growth from previous period to current period.
EMPLOYEES	Count variables indicating the number of employees.
EMPLOYEE GROWTH	Variable, indicating growth of the number of employees from previous period to current period.
AGE	Firm age since firm inception.
Ln AGE	Logarithm of AGE.
PAYOUT	Dividend payout ratio of dividends paid scaled by total equity.
DIVERSIFICATION	Count variable indicating the number of segments in which the company has operating activities.
INT ACCOUNTING	Dummy variable, indicating that the respective firm follows international accounting standards. International accounting standards include IAS, IFRS, and US-GAAP.
BETA	An indicator for systematic risk. BETA is calculated as the firm specific correlation with the CDAX, calculated as the covariance of the weekly total return and CDAX index total return over the period of the previous 52 weeks, divided by the variance of the CDAX index.
AVG BID ASK	The average bid ask spread calculated as an average over 52 weeks.
TQ	The market value of shareholders' equity plus book value of interest and non-interest bearing liabilities divided by the book value of total shareholders' equity and the book value of total liabilities.
LnTQ	The logarithm of TQ.
IND TQ	The market value of shareholders' equity plus book value of interest and non-interest bearing liabilities divided by the book value of total shareholders' equity and the book value of total liabilities. The TQ measure is then adjusted for the median industry TQ.
ROA	Earnings before interest and tax scaled by total assets.
ROE	Earnings before interest and tax scaled by book value of equity.
ROS	Earnings before interest and tax scaled by total sales.
MARGIN	Earnings before interest, tax, depreciation and amortization scaled by total sales.

(continued)

VARIABLE	DEFINITION
NI	Net income scaled by total assets.
CF	Cash-flow from operating activities scaled by total assets.
COGS	Cost of goods sold scaled by total sales.
SG&A	Selling, general, and administrative expenses scaled by total sales.

Note: This table reports the definitions of (i) owner identity variables, (ii) instruments, (iii) governance variables, (iv) heterogeneity index variables, (v) firm policy variables, and (vi) various firm characteristics respectively control variables. All variables are either presented in the descriptive and/or multivariate analysis of chapter 7, Heterogeneity and Firm Policy of Founding-Family Firms.
Source: Own work. Primary data sources are Hoppenstedt Aktienführer, Hoover's Company Profiles from Hoover's Online database, Commerzbank "Wer gehört zu wem?", Bureau van Dijk's Amadeus databases, Thomson Financial Datastream, and Thomson One Banker/Worldscope.

Table A.2: Variable Definitions—Economics

VARIABLE	DEFINITION
	OWNER IDENTITYVARIABLES
LONE FOUNDER FIRM	Founder-led or founder-owned firms that do not involve the family of the founder(s)–neither management nor ownership wise. The *founding-family* definition has to be applied: Influence of individuals or a group of individuals that qualify as founder(s) via block ownership (controlling at least 5% of voting rights), or board membership (management and/or supervisory board).
LONE FOUNDER FIRM (D)	Founder-led or founder-owned firms that do not involve the family of the founder(s)–neither management nor ownership wise. The *adjusted founding-family* definition has to be applied: The founder influence has to be substantial, i.e. she (they) has (have) to be a blockholder holding at least five percent in voting stock if this blockholder is board member. If the blockholder is no board member the blockholding has to exceed 25% of voting stock.
FAMILY FOUNDER FIRM	Founder-led or founder-owned firms that do involve the family of the founder(s)–either management or ownership wise. The *founding-family* definition has to be applied: Influence of individuals or a group of individuals that qualify as founder(s) and founding-family via block ownership (controlling at least 5% of voting rights), or board membership (management and/or supervisory board).
FAMILY FOUNDER FIRM (D)	Founder-led or founder-owned firms that do involve the family of the founder(s)–either management or ownership wise. The *adjusted founding-family* definition has to be applied: The founder and founding-family influence have to be substantial, i.e. they have to be a blockholder holding at least five percent in voting stock if this founding-family is represented in the management and/or supervisory board. If the founding-family blockholder is no board member the blockholding has to exceed 25% of voting stock.
HEIR FIRM	Members of the founding family (families) are involved in the company–either management or ownership wise–but no founder is involved anymore. By definition those firms had at least one succession and are at least in second generation. The *founding-family* definition has to be applied: Influence of (an) individual(s) belonging to the second or later generation that qualify as heir(s) via block ownership (controlling at least 5% of voting rights), or board membership (management and/or supervisory board).
HEIR FIRM (D)	Members of the founding family (families) are involved in the company–either management or ownership wise–but no founder is involved. By definition those firms had at least one succession and are at least in second generation. The *adjusted founding-family* definition has to be applied: The founding-family's influence has to be substantial, i.e. (an) heir(s) has (have) to be a blockholder holding at least five percent in voting stock if this founding-family is represented in the management and/or supervisory board. If the founding-family blockholder is no board member the blockholding has to exceed 25% of voting stock.

(continued)

VARIABLE	DEFINITION
	INSTRUMENTS
NUMBER FOUNDERS	Count variable that equals the total number of founders.
SINGLE FOUNDER	Dummy variable indicating a single founder person.
INITIAL POOLING	Dummy variable indicating the usage of a pooling structure/vehicle of a group of shareholders at the time of the IPO.
AGE AT IPO	Variable that equals the firm age at the IPO.
FIRM FOUNDER NAME	Dummy variable indicating that the firm name stems from the founder(s) name(s), an abbreviation, or an acronym thereof.
EARLY INCEPTION	Dummy variable, indicating that the founding year of the company dates back prior to 1960.
REGISTERED SHARE	Dummy variable, indicating that the firm issued registered shares at the time of the IPO.
	GOVERNANCE VARIABLES
FF VR	Accumulated voting rights (block ownership) of founding-family firms, i.e. lone founder, family founder, and heir firms.
FF CFR	Accumulated cash-flow rights (block ownership) of founding-family firms, i.e. lone founder, family founder, and heir firms.
IOC VR	Accumulated insider voting rights (block ownership), not necessarily fulfilling a founding-family definition.
IOMB VR	Accumulated insider voting rights of management board members (block ownership), not necessarily fulfilling a founding-family definition.
FF BOARD REPRESENTATION	Ratio of board seats (management and supervisory board) held by the founder(s) or the founding family to total board seats.
SFI MB	Share of substantial management board influence by the founder(s) or the founding family. Measured as the ratio of management board seats held by the founder(s) or the founding family to total management board seats.
SFI SB	Share of substantial supervisory board influence by the founder(s) or the founding family. Measured as the ratio of supervisory board seats held by the founder(s) or the founding family to total supervisory board seats.
SFI	Variable that quantifies the substantial family influence. The SFI measure cumulates the voting rights (FF VR) as well as the ratio of management (SFI MB) and supervisory board (SFI SB) membership. For instance, 35% voting rights, two out of four management board members, and no supervisory board member amounts to a SFI of 0.85 (0.35+0.50+0.00=0.85).
BOTHBOARDS	Dummy variable indicating that in a respective firm year founders or founding-family members are represented in the management as well as in the supervisory board.
LONE FF BOARD	Variable indicating FF BOARD REPRESENTATION when a firm fulfills the LONE FOUNDER FIRM definition; otherwise zero.

(continued)

VARIABLE	DEFINITION
FAMILY FF BOARD	Variable indicating FF BOARD REPRESENTATION when a firm fulfills the FAMILY FOUNDER FIRM definition; otherwise zero.
HEIR FF BOARD	Variable indicating FF BOARD REPRESENTATION when a firm fulfills the HEIR FIRM definition; otherwise zero.
FCEO	Dummy variable indicating that a founder is CEO.
HCEO	Dummy variable indicating that an heir, i.e. a founding-family member, yet not a founder, is CEO of the firm.
FCHM	Dummy variable indicating that a founder is chairman of the supervisory board.
HCHM	Dummy variable, indicating that an heir, i.e. a founding-family member, yet not a founder, is chairman of the supervisory board.
CF VOTING COMB	Dummy variable, indicating a deviation of cashflow over voting rights, caused by pyramidal ownership and/or by the application of dual-share classes.
PYRAMID	Dummy variable, indicating a pyramidal ownership structure that a major blockholder applies.
DUAL WEDGE	Dummy variable, indicating that a listed firm has a dual-share class characteristic.
WEDGE	Percentage value indicating the difference between voting-rights and cash-flow rights due to the application of dual-share classes.
50% OWNER	Dummy variable, indicating the presence of a majority blockholder.
NUMBER BLOCKHOLDERS	Variable that counts the number of different blockholders, whereas a block is defined as equal or exceeding 5% voting rights.
C1C2	Variable that accumulates the voting rights of the two largest blockholders.
C1C3	Variable that accumulates the voting rights of the three largest blockholders.
HERFINDAHL	Variable that measures the concentration of the voting rights. Calculated as the sum of the squared blockholdings per firm for each respective firm year and including all blockholders. The range of the HERFINDAHL measure is 0 to 1.
OUTSIDER BLOCK VR	Accumulated voting rights (blockholdings) that outsiders control.
VCPE VR	Voting rights (blockholding) that venture capital and/or private equity investors control.
IND HERF	A variable that indicates the Herfindahl sales concentration ratio in different industries (based on the Fama/French Industry Classification) per firm year.

(continued)

VARIABLE	DEFINITION
ANALYST FOLLOWING	A count variable that indicates the number of I/B/E/S analysts that follow the respective company on average in a respective fiscal year.
NEUER MARKT MEMBER	Dummy variable, indicating that the respective firm in the respective year is a member of the *Neuer Markt* segment at Frankfurt stock exchange (FSE).
PRIME STANDARD	Dummy variable that takes the value of one if the respective firm in the respective year is member of the *Prime Standard* at FSE. The *Prime Standard* is the listing segment that requires the highest transparency and aims to attract international investors.
AMTLICHER HANDEL	Dummy variable that takes the value of one if the respective firm in the respective year is member of the *Amtlicher Handel* at FSE. Prior to the new stock market segmentation in 2003, the *Amtlicher Handel* was the highest trading segment.
	FIRM ECONOMICS VARIABLES
TQ	The market value of shareholders' equity plus book value of interest and non-interest bearing liabilities divided by the book value of total shareholders' equity and the book value of total liabilities.
Ln TQ	The logarithm of TQ.
IND TQ	The market value of shareholders' equity plus book value of interest and non-interest bearing liabilities divided by the book value of total shareholders' equity and the book value of total liabilities. The TQ measure is then adjusted for the median industry TQ.
ALPHA	The abnormal return coefficient, based on a four-factor benchmark model of monthly stock returns. The model controls for RMRF, SMB, HML, and MOMENTUM.
RMRF	The excess market return over the risk-free rate.
SMB	The small-minus-big (with respect to the market capitalization) coefficient in a four-factor benchmark model of monthly stock returns.
HML	The high-minus-low (with respect to high book value minus low book value) coefficient in a four-factor benchmark model of monthly stock returns.
MOMENTUM	Factor controlling for past stock performance, as outperforming in the previous period might affect current performance.
	FIRM CHARACTERISTICS, FIRM POLICY & CONTROL VARIABLES
CAPEX / CAPEX_TA	Ratio of capital expenditures scaled by total assets.
R&D / R&D_TA	Ratio of research and development expenditures scaled by total assets.
CASHSTE / CASHSTE_TA	Ratio of cash-holdings and short-term cash equivalents scaled by total assets.
DEBT/MVEQUITY	Ratio of total debt divided by the market value of equity.

(continued)

VARIABLE	DEFINITION
DEBT/EQUITY	Ratio of total debt divided by the book value of equity.
LEVERAGE	Ratio of total liabilities scaled by total assets.
TOTAL ASSETS (M)	Total assets in million.
Ln TOTAL ASSETS (M)	Logarithm of TOTAL ASSETS (M).
TOTAL SALES (M)	Total sales in million.
GROWTH	Variable, indicating the sales growth from previous period to current period.
EMPLOYEES	Count variables indicating the number of employees.
EMPLOYEE GROWTH	Variable, indicating growth of the number of employees from previous period to current period.
AGE	Firm age since firm inception.
Ln AGE	Logarithm of AGE.
PAYOUT	Dividend payout ratio of dividends paid scaled by total equity.
DIVERSIFICATION	Count variable indicating the number of segments in which the company has operating activities.
INT ACCOUNTING	Dummy variable, indicating that the respective firm follows international accounting standards. International accounting standards include IAS, IFRS, and US-GAAP.
BETA	An indicator for systematic risk. BETA is calculated as the firm specific correlation with the CDAX, calculated as the covariance of the weekly total return and CDAX index total return over the period of the previous 52 weeks, divided by the variance of the CDAX index.
AVG BID ASK	The average bid ask spread calculated as an average over 52 weeks.
ROA	Earnings before interest and tax scaled by total assets.
ROE	Earnings before interest and tax scaled by book value of equity.
ROS	Earnings before interest and tax scaled by total sales.
MARGIN	Earnings before interest, tax, depreciation and amortization scaled by total sales.
NI	Net income scaled by total assets.
CF	Cash-flow from operating activities scaled by total assets.
COGS	Cost of goods sold scaled by total sales.
SG&A	Selling, general, and administrative expenses scaled by total sales.

Note: This table reports the definitions of (i) owner identity variables, (ii) instruments, (iii) governance variables, (iv) economics variables, as well as (v) various firm characteristics, firm policy and control variables. All variables are either presented in the descriptive and/or multivariate analysis of chapter 8, Economics of Founding-Family Firms.
Source: Own work. Primary data sources are Hoppenstedt Aktienführer, Hoover's Company Profiles from Hoover's Online database, Commerzbank "Wer gehört zu wem?", Bureau van Dijk's Amadeus databases, Thomson Financial Datastream, and Thomson One Banker/Worldscope.

Table A.3: Variable Definitions—Ownership Dynamics

VARIABLE	DEFINITION
	OWNER IDENTITYVARIABLES
LONE FOUNDER FIRM	Founder-led or founder-owned firms that do not involve the family of the founder(s)–neither management nor ownership wise. The *founding-family* definition has to be applied: Influence of individuals or a group of individuals that qualify as founder(s) via block ownership (controlling at least 5% of voting rights), or board membership (management and/or supervisory board).
LONE FOUNDER FIRM (D)	Founder-led or founder-owned firms that do not involve the family of the founder(s)–neither management nor ownership wise. The *adjusted founding-family* definition has to be applied: The founder influence has to be substantial, i.e. she (they) has (have) to be a blockholder holding at least five percent in voting stock if this blockholder is board member. If the blockholder is no board member the blockholding has to exceed 25% of voting stock.
FAMILY FOUNDER FIRM	Founder-led or founder-owned firms that do involve the family of the founder(s)–either management or ownership wise. The *founding-family* definition has to be applied: Influence of individuals or a group of individuals that qualify as founder(s) and founding-family via block ownership (controlling at least 5% of voting rights), or board membership (management and/or supervisory board).
FAMILY FOUNDER FIRM (D)	Founder-led or founder-owned firms that do involve the family of the founder(s)–either management or ownership wise. The *adjusted founding-family* definition has to be applied: The founder and founding-family influence have to be substantial, i.e. they have to be a blockholder holding at least five percent in voting stock if this founding-family is represented in the management and/or supervisory board. If the founding-family blockholder is no board member the blockholding has to exceed 25% of voting stock.
HEIR FIRM	Members of the founding family (families) are involved in the company–either management or ownership wise–but no founder is involved anymore. By definition those firms had at least one succession and are at least in second generation. The *founding-family* definition has to be applied: Influence of (an) individual(s) belonging to the second or later generation that qualify as heir(s) via block ownership (controlling at least 5% of voting rights), or board membership (management and/or supervisory board).
HEIR FIRM (D)	Members of the founding family (families) are involved in the company–either management or ownership wise–but no founder is involved. By definition those firms had at least one succession and are at least in second generation. The *adjusted founding-family* definition has to be applied: The founding-family's influence has to be substantial, i.e. (an) heir(s) has (have) to be a blockholder holding at least five percent in voting stock if this founding-family is represented in the management and/or supervisory board. If the founding-family blockholder is no board member the blockholding has to exceed 25% of voting stock.

(continued)

VARIABLE	DEFINITION
LONE FF*0510VR	LONE FOUNDER FIRM where the blockholding exceeds the five percent threshold and does not exceed the ten percent voting rights threshold.
LONE FF*1025VR	LONE FOUNDER FIRM where the blockholding exceeds the ten percent threshold and does not exceed the twenty-five percent voting rights threshold.
LONE FF*2550VR	LONE FOUNDER FIRM where the blockholding exceeds the twenty-five percent threshold and does not exceed the fifty percent (majority) voting rights threshold.
LONE FF*5075VR	LONE FOUNDER FIRM where the blockholding exceeds the fifty percent (majority) threshold and does not exceed the seventy-five percent (super-majority) voting rights threshold.
FAMILY FF*0510VR	FAMILY FOUNDER FIRM where the blockholding exceeds the five percent threshold and does not exceed the ten percent voting rights threshold.
FAMILY FF*1025VR	FAMILY FOUNDER FIRM where the blockholding exceeds the ten percent threshold and does not exceed the twenty-five percent voting rights threshold.
FAMILY FF*2550VR	FAMILY FOUNDER FIRM where the blockholding exceeds the twenty-five percent threshold and does not exceed the fifty percent (majority) voting rights threshold.
FAMILY FF*5075VR	FAMILY FOUNDER FIRM where the blockholding exceeds the fifty percent (majority) threshold and does not exceed the seventy-five percent (super-majority) voting rights threshold.
HEIR FF*0510VR	HEIR FIRM where the blockholding exceeds the five percent threshold and does not exceed the ten percent voting rights threshold.
HEIR FF*1025VR	HEIR FIRM where the blockholding exceeds the ten percent threshold and does not exceed the twenty-five percent voting rights threshold.
HEIR FF*2550VR	HEIR FIRM where the blockholding exceeds the twenty-five percent threshold and does not exceed the fifty percent (majority) voting rights threshold.
HEIR FF*5075VR	HEIR FIRM where the blockholding exceeds the fifty percent (majority) threshold and does not exceed the seventy-five percent (super-majority) voting rights threshold.
	DEPENDENT GOVERNANCE VARIABLES
LARGE DROP	Dummy variable indicating a year-on-year negative change of voting rights (FF VR) of at least 2.5%.
COMPLETE EXIT	Dummy variable indicating a complete exit from blockholdings by the founder(s) or the founding-family.
LARGE INCREASE	Dummy variable indicating a year-on-year positive change of voting rights (FF VR) of at least 2.5%.

(continued)

VARIABLE	DEFINITION
	GOVERNANCE & STEWARDSHIP VARIABLES
FF VR	Accumulated voting rights (block ownership) of founding-family firms, i.e. lone founder, family founder, and heir firms.
FF BOARD REPRESENTATION	Ratio of board seats (management and supervisory board) held by the founder(s) or the founding family to total board seats.
SFI MB	Share of substantial management board influence by the founder(s) or the founding family. Measured as the ratio of management board seats held by the founder(s) or the founding family to total management board seats.
SFI SB	Share of substantial supervisory board influence by the founder(s) or the founding family. Measured as the ratio of supervisory board seats held by the founder(s) or the founding family to total supervisory board seats.
SFI	Variable that quantifies the substantial family influence. The SFI measure cumulates the voting rights (FF VR) as well as the ratio of management (SFI MB) and supervisory board (SFI SB) membership. For instance, 35% voting rights, two out of four management board members, and no supervisory board member amounts to a SFI of 0.85 (0.35+0.50+0.00=0.85).
BOTHBOARDS	Dummy variable indicating that in a respective firm year founders or founding-family members are represented in the management as well as in the supervisory board.
LONE FF BOARD	Variable indicating FF BOARD REPRESENTATION when a firm fulfills the LONE FOUNDER FIRM definition; otherwise zero.
FAMILY FF BOARD	Variable indicating FF BOARD REPRESENTATION when a firm fulfills the FAMILY FOUNDER FIRM definition; otherwise zero.
HEIR FF BOARD	Variable indicating FF BOARD REPRESENTATION when a firm fulfills the HEIR FIRM definition; otherwise zero.
FCEO	Dummy variable indicating that a founder is CEO.
HCEO	Dummy variable indicating that an heir, i.e. a founding-family member, yet not a founder, is CEO of the firm.
FCHM	Dummy variable indicating that a founder is chairman of the supervisory board.
HCHM	Dummy variable, indicating that an heir, i.e. a founding-family member, yet not a founder, is chairman of the supervisory board.

(continued)

VARIABLE	DEFINITION
FIRM FOUNDER NAME	Dummy variable indicating that the firm name stems from the founder(s) name(s), an abbreviation, or an acronym thereof.
PYRAMID	Dummy variable, indicating a pyramidal ownership structure that a major blockholder applies.
DUAL WEDGE	Dummy variable, indicating that a listed firm has a dual-share class characteristic.
WEDGE	Percentage value indicating the difference between voting-rights and cash-flow rights due to the application of dual-share classes.
50% OWNER	Dummy variable, indicating the presence of a majority blockholder.
NUMBER BLOCKHOLDERS	Variable that counts the number of different blockholders, whereas a block is defined as equal or exceeding 5% voting rights.
C1C2	Variable that accumulates the voting rights of the two largest blockholders.
C1C3	Variable that accumulates the voting rights of the three largest blockholders.
HERFINDAHL	Variable that measures the concentration of the voting rights. Calculated as the sum of the squared blockholdings per firm for each respective firm year and including all blockholders. The range of the HERFINDAHL measure is 0 to 1.
OUTSIDER BLOCK VR	Accumulated voting rights (blockholdings) that outsiders control.
VCPE VR	Voting rights (blockholding) that venture capital and/or private equity investors control.
ANALYST FOLLOWING	A count variable that indicates the number of I/B/E/S analysts that follow the respective company on average in a respective fiscal year.
NEUER MARKT MEMBER	Dummy variable, indicating that the respective firm in the respective year is a member of the *Neuer Markt* segment at Frankfurt stock exchange (FSE).
PRIME STANDARD	Dummy variable that takes the value of one if the respective firm in the respective year is member of the *Prime Standard* at FSE. The *Prime Standard* is the listing segment that requires the highest transparency and aims to attract international investors.
AMTLICHER HANDEL	Dummy variable that takes the value of one if the respective firm in the respective year is member of the *Amtlicher Handel* at FSE. Prior to the new stock market segmentation in 2003, the *Amtlicher Handel* was the highest trading segment.

(continued)

VARIABLE	DEFINITION
	FIRM CHARACTERISTICS, FIRM POLICY & CONTROL VARIABLES
TQ	The market value of shareholders' equity plus book value of interest and non-interest bearing liabilities divided by the book value of total shareholders' equity and the book value of total liabilities.
Ln TQ	The logarithm of TQ.
CAPEX / CAPEX_TA	Ratio of capital expenditures scaled by total assets.
R&D / R&D_TA	Ratio of research and development expenditures scaled by total assets.
CASHSTE / CASHSTE_TA	Ratio of cash-holdings and short-term cash equivalents scaled by total assets.
DEBT/MVEQUITY	Ratio of total debt divided by the market value of equity.
DEBT/EQUITY	Ratio of total debt divided by the book value of equity.
LEVERAGE	Ratio of total liabilities scaled by total assets.
TOTAL ASSETS (M)	Total assets in million.
Ln TOTAL ASSETS (M)	Logarithm of TOTAL ASSETS (M).
TOTAL SALES (M)	Total sales in million.
GROWTH	Variable, indicating the sales growth from previous period to current period.
EMPLOYEES	Count variables indicating the number of employees.
EMPLOYEE GROWTH	Variable, indicating growth of the number of employees from previous period to current period.
AGE	Firm age since firm inception.
Ln AGE	Logarithm of AGE.
PAYOUT	Dividend payout ratio of dividends paid scaled by total equity.
DIVERSIFICATION	Count variable indicating the number of segments in which the company has operating activities.
INT ACCOUNTING	Dummy variable, indicating that the respective firm follows international accounting standards. International accounting standards include IAS, IFRS, and US-GAAP.
BETA	An indicator for systematic risk. BETA is calculated as the firm specific correlation with the CDAX, calculated as the covariance of the weekly total return and CDAX index total return over the period of the previous 52 weeks, divided by the variance of the CDAX index.
ROA	Earnings before interest and tax scaled by total assets.

Note: This table reports the definitions of (i) owner identity variables, (ii) governance and stewardship variables, as well as (iii) various firm characteristics, firm policy and control variables. All variables are either presented in the descriptive and/or multivariate analysis of chapter 9, Ownership Dynamics in Founding-Family Firms. **Source:** Own work. Primary data sources are Hoppenstedt Aktienführer, Hoover's Company Profiles from Hoover's Online database, Commerzbank "Wer gehört zu wem?", Bureau van Dijk's Amadeus databases, Thomson Financial Datastream, and Thomson One Banker/Worldscope.

Table A.4: Summary Statistics

	ALL							
	N	MEAN	MEDIAN	SD	p25	p75	MIN	MAX
Panel A: Firm Characteristics								
TOTAL ASSETS (M)	5,069	2,951.718	148.048	14,782.590	49.009	665.383	0.557	262,215.000
TOTAL SALES (M)	5,069	2,604.816	179.753	10,685.670	46.425	840.884	0.000	162,384.000
GROWTH	5,026	0.178	0.060	0.722	-0.036	0.192	-0.939	11.137
EMPLOYEES	5,011	11,755.960	1,049.000	44,370.120	265.000	4,729.000	0.000	536,350.000
EMPLOYEE_GROWTH	4,928	0.216	0.024	3.573	-0.048	0.132	-1.000	237.000
AGE	5,058	62.513	38.000	59.175	15.000	104.000	1.000	439.000
Ln AGE	5,058	3.612	3.638	1.123	2.708	4.644	0.000	6.084
CAPEX_TA	5,005	0.059	0.042	0.065	0.020	0.074	0.000	0.756
RND_TA	1,920	0.062	0.040	0.083	0.015	0.079	0.000	1.704
CASHSTE_TA	5,019	0.161	0.087	0.185	0.033	0.219	0.000	0.888
DEBT/MVEQUITY	5,025	0.746	0.236	1.997	0.031	0.712	0.000	53.473
LEVERAGE	5,069	0.572	0.598	0.250	0.405	0.736	-0.063	2.647
PAYOUT	4,886	0.034	0.002	0.065	0.000	0.047	0.000	0.835
DIVERSIFICATION	5,069	3.198	3.000	1.897	2.000	4.000	0.000	10.000
INT ACCOUNTING	5,034	0.617	1.000	0.486	0.000	1.000	0.000	1.000
BETA	4,681	0.586	0.491	0.642	0.155	0.941	-7.427	6.278
AVG_BID_ASK	3,920	0.052	0.020	0.135	0.010	0.039	-0.788	1.707
TQ	4,889	1.598	1.230	1.353	1.019	1.652	0.397	21.074
Ln TQ	4,889	0.312	0.207	0.489	0.018	0.502	-0.924	3.048
IND TQ	4,889	0.313	0.000	1.279	-0.190	0.367	-1.703	19.442
ROA	5,046	0.010	0.055	0.218	-0.004	0.100	-1.699	1.090
ROE	5,067	0.080	0.165	1.016	0.004	0.299	-10.546	10.542
ROS	5,067	-0.064	0.044	0.655	-0.004	0.091	-12.706	3.421
MARGIN	5,026	0.015	0.089	0.569	0.033	0.148	-12.706	4.027
NI_TA	4,968	-0.016	0.024	0.170	-0.029	0.058	-1.181	0.424
CF_TA	4,758	0.031	0.064	0.266	-0.005	0.124	-4.903	1.494
INITIAL POOLING	5,069	0.142	0.000	0.349	0.000	0.000	0.000	1.000
NUMBER FOUNDERS	5,069	1.542	1.000	1.231	1.000	2.000	0.000	11.000
SINGLE FOUNDER	5,069	0.483	0.000	0.500	0.000	1.000	0.000	1.000
EARLY INCEPTION	5,069	0.480	0.000	0.500	0.000	1.000	0.000	1.000
AGE AT IPO	5,054	46.503	27.000	49.209	10.000	69.000	0.000	354.000
FIRM FOUNDER NAME	5,069	0.330	0.000	0.470	0.000	1.000	0.000	1.000
REGISTERED SHARE	5,069	0.057	0.000	0.232	0.000	0.000	0.000	1.000

(*continued*)

	ALL							
	N	MEAN	MEDIAN	SD	p25	p75	MIN	MAX
Panel B: Gov. & Owner Identity								
FF VR	5,069	0.198	0.000	0.278	0.000	0.400	0.000	1.000
FF BOARD REPRES.	5,055	0.091	0.000	0.129	0.000	0.167	0.000	1.000
SFI MB	5,058	0.152	0.000	0.259	0.000	0.333	0.000	1.000
SFI SB	5,058	0.051	0.000	0.116	0.000	0.000	0.000	1.000
BOTHBOARDS	5,069	0.086	0.000	0.281	0.000	0.000	0.000	1.000
LONE FF BOARD	5,055	0.042	0.000	0.101	0.000	0.000	0.000	0.857
FAMILY FF BOARD	5,055	0.029	0.000	0.090	0.000	0.000	0.000	1.000
HEIR FF BOARD	5,055	0.019	0.000	0.060	0.000	0.000	0.000	0.500
FCEO	4,721	0.234	0.000	0.423	0.000	0.000	0.000	1.000
HCEO	4,721	0.062	0.000	0.242	0.000	0.000	0.000	1.000
FCHM	4,963	0.053	0.000	0.223	0.000	0.000	0.000	1.000
HCHM	4,963	0.029	0.000	0.169	0.000	0.000	0.000	1.000
CF_VOTING_COMB	5,069	0.195	0.000	0.396	0.000	0.000	0.000	1.000
PYRAMID	5,069	0.136	0.000	0.343	0.000	0.000	0.000	1.000
DUAL WEDGE	5,069	0.161	0.000	0.368	0.000	0.000	0.000	1.000
WEDGE	5,069	0.020	0.000	0.082	0.000	0.000	0.000	0.500
50% OWNER	5,069	0.386	0.000	0.487	0.000	1.000	0.000	1.000
NUMBER BLOCKHOLDERS	5,069	2.145	2.000	1.460	1.000	3.000	0.000	10.000
C1C2	5,069	0.539	0.529	0.264	0.341	0.747	0.000	1.000
C1C3	5,069	0.576	0.588	0.257	0.400	0.763	0.000	1.000
HERFINDAHL	5,069	0.304	0.208	0.284	0.083	0.446	0.000	1.000
OUTSIDER BLOCK VR	4,968	-0.016	0.024	0.170	-0.029	0.058	-1.181	0.424
IND_HERF	5,064	0.232	0.160	0.143	0.147	0.310	0.070	0.987
ANALYST FOLLOWING	5,042	6.443	2.000	9.705	0.000	8.000	0.000	49.000
NEUER MARKT MEMBER	5,069	0.144	0.000	0.351	0.000	0.000	0.000	1.000
PRIME STANDARD	5,069	0.371	0.000	0.483	0.000	1.000	0.000	1.000
AMTLICHER HANDEL	5,069	0.305	0.000	0.460	0.000	1.000	0.000	1.000
LONE FOUNDER FIRM (D)	5,069	0.165	0.000	0.371	0.000	0.000	0.000	1.000
LONE FOUNDER FIRM	5,069	0.222	0.000	0.415	0.000	0.000	0.000	1.000
FAMILY FOUNDER FIRM (D)	5,069	0.117	0.000	0.321	0.000	0.000	0.000	1.000
FAMILY FOUNDER FIRM	5,069	0.133	0.000	0.339	0.000	0.000	0.000	1.000
HEIR FIRM (D)	5,068	0.128	0.000	0.334	0.000	0.000	0.000	1.000
HEIR FIRM	5,068	0.152	0.000	0.359	0.000	0.000	0.000	1.000

Note: This table reports the summary statistics for the complete sample (ALL). The tables consists of two panels: Panel A includes general firm characteristics while panel B shows governance and owner identity related characteristics. This Appendix includes all variables and definitions.

Source: Own work.

Table A.5: Summary Statistics—Owner Identity

	NON		LONE FOUNDER FIRM		FAM FOUNDER FIRM		HEIR FIRM	
	MEAN	MEDIAN	MEAN	MEDIAN	MEAN	MEDIAN	MEAN	MEDIAN
Panel A: Firm Characteristics								
TOTAL ASSETS (M)	4,754.133	271.138	216.366	54.912	163.424	61.743	3,511.517	355.742
TOTAL SALES (M)	3,899.843	368.093	216.268	46.266	162.707	60.355	4,008.450	495.908
GROWTH	0.106	0.041	0.370	0.119	0.247	0.104	0.075	0.056
EMPLOYEES	16,945.200	2,242.000	1,305.856	266.000	1,270.498	341.000	19,217.320	2,858.000
EMPLOYEE_GROWTH	0.104	0.009	0.327	0.072	0.280	0.063	0.366	0.021
AGE	82.087	80.000	16.271	15.000	22.198	19.000	101.702	94.000
Ln AGE	3.991	4.382	2.632	2.708	2.855	2.944	4.472	4.543
CAPEX_TA	0.058	0.045	0.056	0.029	0.053	0.037	0.074	0.052
RND_TA	0.049	0.031	0.096	0.070	0.086	0.065	0.043	0.033
CASHSTE_TA	0.112	0.064	0.264	0.203	0.250	0.165	0.094	0.059
DEBT/MVEQUITY	0.844	0.300	0.528	0.078	0.534	0.108	0.929	0.432
LEVERAGE	0.640	0.659	0.444	0.435	0.465	0.426	0.633	0.640
PAYOUT	0.039	0.021	0.019	0.000	0.025	0.000	0.045	0.035
DIVERSIFICATION	3.493	3.000	2.710	3.000	2.851	3.000	3.257	3.000
INT ACCOUNTING	0.523	1.000	0.860	1.000	0.784	1.000	0.433	0.000
BETA	0.502	0.405	0.784	0.696	0.716	0.620	0.481	0.370
AVG_BID_ASK	0.062	0.018	0.042	0.021	0.044	0.022	0.049	0.023
TQ	1.437	1.213	1.981	1.311	1.865	1.301	1.332	1.186
Ln TQ	0.272	0.193	0.417	0.271	0.384	0.263	0.226	0.170
IND TQ	0.158	-0.004	0.683	0.076	0.547	0.042	0.075	-0.010
ROA	0.038	0.059	-0.066	0.029	-0.033	0.043	0.064	0.069
ROE	0.148	0.196	-0.126	0.063	-0.034	0.086	0.261	0.233
ROS	0.013	0.045	-0.261	0.026	-0.160	0.042	0.056	0.052
MARGIN	0.076	0.092	-0.128	0.065	-0.065	0.091	0.098	0.099
NI_TA	0.008	0.027	-0.079	0.006	-0.050	0.018	0.025	0.029
CF_TA	0.067	0.075	-0.053	0.021	-0.017	0.036	0.082	0.078
INITIAL POOLING	0.084	0.000	0.133	0.000	0.414	0.000	0.108	0.000
NUMBER FOUNDERS	1.285	1.000	1.882	1.000	1.932	2.000	1.540	1.000
SINGLE FOUNDER	0.406	0.000	0.550	1.000	0.488	0.000	0.632	1.000
EARLY INCEPTION	0.679	1.000	0.000	0.000	0.058	0.000	0.905	1.000
AGE AT IPO	57.962	53.000	11.957	11.000	17.439	14.000	85.244	74.000
FIRM FOUNDER NAME	0.288	0.000	0.180	0.000	0.241	0.000	0.762	1.000
REGISTERED SHARE	0.058	0.000	0.039	0.000	0.054	0.000	0.085	0.000

(*continued*)	NON		LONE FOUNDER FIRM		FAM FOUNDER FIRM		HEIR FIRM	
	MEAN	MEDIAN	MEAN	MEDIAN	MEAN	MEDIAN	MEAN	MEDIAN
Panel B: Gov. & Owner Identity								
FF VR	0.006	0.000	0.299	0.278	0.394	0.405	0.501	0.540
FF BOARD REPRES.	0.000	0.000	0.192	0.167	0.216	0.200	0.128	0.111
SFI MB	0.000	0.000	0.363	0.333	0.349	0.333	0.162	0.000
SFI SB	0.000	0.000	0.079	0.000	0.129	0.000	0.106	0.083
BOTHBOARDS	0.000	0.000	0.119	0.000	0.249	0.000	0.178	0.000
LONE FF BOARD	0.000	0.000	0.192	0.167	0.000	0.000	0.000	0.000
FAMILY FF BOARD	0.000	0.000	0.000	0.000	0.216	0.200	0.000	0.000
HEIR FF BOARD	0.000	0.000	0.000	0.000	0.000	0.000	0.128	0.111
FCEO	0.000	0.000	0.673	1.000	0.650	1.000	0.000	0.000
HCEO	0.000	0.000	0.003	0.000	0.027	0.000	0.384	0.000
FCHM	0.000	0.000	0.117	0.000	0.202	0.000	0.003	0.000
HCHM	0.000	0.000	0.000	0.000	0.002	0.000	0.191	0.000
CF_VOTING_COMB	0.229	0.000	0.089	0.000	0.141	0.000	0.283	0.000
PYRAMID	0.087	0.000	0.100	0.000	0.394	0.000	0.126	0.000
DUAL WEDGE	0.156	0.000	0.051	0.000	0.116	0.000	0.378	0.000
WEDGE	0.003	0.000	0.011	0.000	0.016	0.000	0.096	0.000
50% OWNER	0.477	0.000	0.203	0.000	0.257	0.000	0.472	0.000
NUMBER BLOCKHOLDERS	1.872	1.000	2.498	2.000	2.829	3.000	1.923	1.000
C1C2	0.567	0.578	0.459	0.456	0.476	0.490	0.621	0.618
C1C3	0.596	0.621	0.507	0.515	0.530	0.541	0.654	0.675
HERFINDAHL	0.357	0.260	0.192	0.139	0.199	0.159	0.384	0.314
OUTSIDER BLOCK VR	0.609	0.651	0.240	0.188	0.179	0.115	0.183	0.056
IND_HERF	0.256	0.187	0.196	0.156	0.179	0.156	0.254	0.201
ANALYST FOLLOWING	8.176	2.000	3.679	2.000	3.261	2.000	7.638	3.000
NEUER MARKT MEMBER	0.048	0.000	0.347	0.000	0.308	0.000	0.020	0.000
PRIME STANDARD	0.295	0.000	0.508	1.000	0.461	0.000	0.339	0.000
AMTLICHER HANDEL	0.420	0.000	0.053	0.000	0.112	0.000	0.464	0.000
LONE FOUNDER FIRM (D)	0.000	0.000	0.743	1.000	0.000	0.000	0.000	0.000
LONE FOUNDER FIRM	0.000	0.000	1.000	1.000	0.000	0.000	0.000	0.000
FAMILY FOUNDER FIRM (D)	0.000	0.000	0.000	0.000	0.879	1.000	0.000	0.000
FAMILY FOUNDER FIRM	0.000	0.000	0.000	0.000	1.000	1.000	0.000	0.000
HEIR FIRM (D)	0.000	0.000	0.000	0.000	0.000	0.000	0.841	1.000
HEIR FIRM	0.000	0.000	0.000	0.000	0.000	0.000	1.000	1.000

Note: This table reports the summary statistics for non founding-family defined firms (NON), for lone founder firms, family founder firms, and heir firms. The table consists of two panels: Panel A includes general firm characteristics while panel B shows governance and owner identity related characteristics.

Source: Own work.

Table A.6: Rank-sum Test—Owner Identity

	NON vs LONE		NON vs. FAMF		NON vs HEIR		LONE vs FAMF		LONE vs HEIR		FAMF vs HEIR	
	z	p	z	p	z	p	z	p	z	p	z	p
Panel A												
TOTAL ASSETS (M)	25.936	0.000	19.463	0.000	-2.508	0.012	-2.267	0.023	-24.691	0.000	-20.055	0.000
TOTAL SALES (M)	28.475	0.000	21.169	0.000	-2.694	0.007	-3.234	0.001	-26.666	0.000	-21.821	0.000
GROWTH	-9.401	0.000	-7.293	0.000	-1.561	0.119	1.108	0.268	7.011	0.000	5.690	0.000
EMPLOYEES	28.583	0.000	19.950	0.000	-1.854	0.064	-4.971	0.000	-26.046	0.000	-19.927	0.000
EMPLOYEE_GROWTH	-8.878	0.000	-8.017	0.000	-1.542	0.123	0.227	0.821	6.587	0.000	6.396	0.000
AGE	32.896	0.000	24.176	0.000	-8.620	0.000	-7.255	0.000	-35.630	0.000	-30.205	0.000
Ln AGE	32.896	0.000	24.176	0.000	-8.620	0.000	-7.255	0.000	-35.630	0.000	-30.205	0.000
CAPEX_TA	8.331	0.000	4.542	0.000	-5.603	0.000	-2.253	0.024	-11.129	0.000	-8.032	0.000
RND_TA	-9.143	0.000	-6.603	0.000	-0.498	0.618	0.379	0.704	7.519	0.000	5.527	0.000
CASHSTE_TA	-21.767	0.000	-16.189	0.000	0.374	0.709	1.788	0.074	18.221	0.000	14.583	0.000
DEBT/MVEQUITY	13.088	0.000	8.787	0.000	-4.896	0.000	-1.900	0.057	-14.124	0.000	-10.871	0.000
LEVERAGE	22.005	0.000	17.136	0.000	1.436	0.151	-1.204	0.229	-17.430	0.000	-14.642	0.000
PAYOUT	15.907	0.000	9.672	0.000	-7.939	0.000	-3.101	0.002	-19.938	0.000	-14.142	0.000
DIVERSIFICATION	10.791	0.000	6.539	0.000	2.782	0.005	-1.818	0.069	-6.048	0.000	-3.063	0.002
INT ACCOUNTING	-19.274	0.000	-12.095	0.000	4.328	0.000	4.114	0.000	19.518	0.000	13.458	0.000
BETA	-11.691	0.000	-7.962	0.000	0.672	0.501	2.032	0.042	10.234	0.000	7.645	0.000
AVG_BID_ASK	-4.288	0.000	-4.626	0.000	-3.092	0.002	-1.361	0.174	-0.401	0.688	0.696	0.486
TQ	-4.456	0.000	-2.598	0.009	2.438	0.015	0.881	0.378	5.129	0.000	3.652	0.000
Ln TQ	-4.456	0.000	-2.598	0.009	2.438	0.015	0.881	0.378	5.129	0.000	3.652	0.000
IND TQ	-6.098	0.000	-2.727	0.006	1.163	0.245	1.841	0.066	5.687	0.000	3.091	0.002
ROA	10.549	0.000	5.209	0.000	-4.268	0.000	-2.684	0.007	-11.048	0.000	-6.882	0.000
ROE	15.675	0.000	8.546	0.000	-5.063	0.000	-3.135	0.002	-16.540	0.000	-10.732	0.000
ROS	8.619	0.000	2.835	0.005	-4.063	0.000	-2.962	0.003	-9.189	0.000	-4.457	0.000
MARGIN	7.150	0.000	2.438	0.015	-2.871	0.004	-2.229	0.026	-7.404	0.000	-3.497	0.000
NI_TA	9.364	0.000	4.296	0.000	-2.407	0.016	-2.646	0.008	-8.930	0.000	-4.908	0.000
CF_TA	12.258	0.000	7.451	0.000	-2.059	0.039	-2.460	0.014	-11.077	0.000	-7.682	0.000
INITIAL POOLING	-4.551	0.000	-21.049	0.000	-2.044	0.041	-13.529	0.000	1.612	0.107	13.358	0.000
NUMBER FOUNDERS	-13.962	0.000	-12.944	0.000	-8.682	0.000	-1.627	0.104	4.159	0.000	5.302	0.000
SINGLE FOUNDER	-8.066	0.000	-3.817	0.000	-10.991	0.000	2.554	0.011	-3.539	0.000	-5.494	0.000
EARLY INCEPTION	37.856	0.000	28.688	0.000	-12.401	0.000	-8.160	0.000	-40.088	0.000	-32.076	0.000
AGE AT IPO	29.638	0.000	21.348	0.000	-14.797	0.000	-7.565	0.000	-35.541	0.000	-30.065	0.000
FIRM FOUNDER NAME	6.907	0.000	2.408	0.016	-23.476	0.000	-3.120	0.002	-25.223	0.000	-19.738	0.000
REGISTERED SHARE	2.346	0.019	0.430	0.667	-2.634	0.008	-1.430	0.153	-4.157	0.000	-2.295	0.022

(*continued*)

	NON vs LONE		NON vs. FAMF		NON vs HEIR		LONE vs FAMF		LONE vs HEIR		FAMF vs HEIR	
	z	p	z	p	z	p	z	p	z	p	z	p
Panel B												
FF VR	-49.471	0.000	-51.137	0.000	-51.119	0.000	-8.123	0.000	-14.321	0.000	-7.172	0.000
FF BOARD REPRES.	-54.089	0.000	-53.746	0.000	-50.445	0.000	-3.115	0.002	11.837	0.000	12.903	0.000
SFI MB	-48.101	0.000	-46.058	0.000	-33.528	0.000	1.172	0.241	15.521	0.000	13.064	0.000
SFI SB	-27.059	0.000	-35.800	0.000	-41.720	0.000	-8.018	0.000	-10.291	0.000	0.111	0.912
BOTHBOARDS	-17.611	0.000	-25.624	0.000	-21.574	0.000	-7.088	0.000	-3.587	0.000	3.265	0.001
LONE FF BOARD	-54.128	0.000	n/a	n/a	n/a	n/a	32.845	0.000	34.567	0.000	n/a	n/a
FAMILY FF BOARD	n/a	n/a	-53.796	0.000	n/a	n/a	-39.179	0.000	n/a	n/a	34.057	0.000
HEIR FF BOARD	n/a	n/a	n/a	n/a	-50.506	0.000	n/a	n/a	-36.566	0.000	-30.033	0.000
FCEO	-44.575	0.000	-42.046	0.000	n/a	n/a	0.991	0.322	28.230	0.000	25.826	0.000
HCEO	n/a	n/a	-7.951	0.000	-31.457	0.000	-4.341	0.000	-21.397	0.000	-15.907	0.000
FCHM	-17.235	0.000	-22.780	0.000	-2.543	0.011	-4.864	0.000	9.466	0.000	12.766	0.000
HCHM	n/a	n/a	-1.941	0.052	-22.147	0.000	-1.292	0.196	-15.007	0.000	-11.640	0.000
CF_VOTING_COMB	10.034	0.000	4.959	0.000	-3.072	0.002	-3.447	0.001	-11.106	0.000	-6.524	0.000
PYRAMID	-1.267	0.205	-19.736	0.000	-3.251	0.001	-14.826	0.000	-1.799	0.072	11.707	0.000
DUAL WEDGE	8.918	0.000	2.600	0.009	-13.272	0.000	-5.077	0.000	-18.064	0.000	-11.379	0.000
WEDGE	-5.996	0.000	-10.302	0.000	-28.755	0.000	-3.482	0.000	-17.681	0.000	-12.583	0.000
50% OWNER	15.635	0.000	10.215	0.000	0.252	0.801	-2.678	0.007	-12.398	0.000	-8.405	0.000
NUMBER BLOCKS	-14.082	0.000	-15.564	0.000	-0.389	0.697	-4.282	0.000	9.694	0.000	11.673	0.000
C1C2	11.161	0.000	8.119	0.000	-4.398	0.000	-1.980	0.048	-14.509	0.000	-11.996	0.000
C1C3	10.491	0.000	7.247	0.000	-4.392	0.000	-2.280	0.023	-14.246	0.000	-11.196	0.000
HERFINDAHL	12.269	0.000	8.920	0.000	-4.439	0.000	-1.894	0.058	-15.931	0.000	-13.230	0.000
OUTSIDER BLOCK VR	31.837	0.000	29.739	0.000	29.968	0.000	5.578	0.000	8.228	0.000	2.815	0.005
IND_HERF	12.975	0.000	13.670	0.000	-1.858	0.063	2.373	0.018	-11.964	0.000	-13.113	0.000
ANALYST FOLLOWING	5.489	0.000	5.027	0.000	-1.364	0.173	0.317	0.751	-6.348	0.000	-6.023	0.000
NEUER MARKT MEMBER	-24.027	0.000	-19.755	0.000	3.429	0.001	1.708	0.088	17.069	0.000	15.130	0.000
PRIME STANDARD	-12.339	0.000	-8.110	0.000	-2.309	0.021	1.933	0.053	7.275	0.000	4.718	0.000
AMTLICHER HANDEL	22.220	0.000	14.856	0.000	-2.141	0.032	-4.607	0.000	-21.232	0.000	-14.570	0.000

Note: This table reports the rank-sum statistics for the differences between owner identity groups and between non-founding-family defined firms. The tables consists of two panels: Panel A includes general firm characteristics while panel B shows governance and owner identity related characteristics. This Appendix includes all variables and definitions.

Source: Own work.

Table A.7: Robustness of Heterogeneity Index—Tobit Regression

PANEL A - ROBUSTNESS				
Model	**HI.1a**	**HI.1a**	**HI.6a**	**HI.6a**
Method	OLS	TOBIT	RE	TOBIT
Dependent variable	HET_INDEX	HET_INDEX	HET_INDEX	HET_INDEX
LONE FOUNDER FIRM	**-1.770*** **	**-1.754*** **	**-0.943** **	**-0.966***
	(-3.851)	**(-3.784)**	**(-2.393)**	**(-1.875)**
ROA			0.157	1.285**
			(0.393)	(2.030)
LOG AGE			0.036	0.600*
			(0.128)	(1.900)
LOG TOTAL ASSETS (M)			0.263	-0.038
			(1.475)	(-0.217)
DEBT / MVEQUITY			-0.127	-0.246**
			(-1.345)	(-2.258)
ANALYST FOLLOWING			0.016	0.014
			(0.720)	(0.400)
NEUER MARKT MEMBER			-0.560	-0.658
			(-1.416)	(-1.215)
CONSTANT	18.341***	16.884***	13.329***	13.980***
	(10.376)	(10.152)	(6.752)	(6.520)
Controls	No	No	Yes	Yes
Lagged Variables	No	No	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes
N (Observations)	2564	2564	2198	2198
N (Clusters)	413	413	381	381
R^2	0.122	-	0.122	-

Note: This table reports in the first column an OLS example regression of HET_INDEX (H1.1a) and in the second column the same model as a Tobit regression with the boundaries 6 and 30, specifically the minimum and maximum of HET_INDEX. The third and the fourth column show a Random Effects (H1.6a) and again a Tobit model with the boundaries 6 and 30. Standard errors are clustered and heteroskedasticity robust (Petersen, 2009). Values in parentheses are robust t-statistics.
* indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table A.8: Robustness of INITIAL POOL—Example Regression

	Model (1)		**Model (2)**		
Method	OLS		OLS		
Dep. variable	LN TQ		TQ		VIF
	coeff.	(t-stats)	coeff.	(t-stats)	
INITIAL POOL	**0.020**	**(0.438)**	**0.028**	**(0.268)**	**1.34**
FF VR	0.020	(0.424)	0.166	(1.411)	1.08
PYRAMID	-0.050	(-1.597)	-0.072	(-0.964)	1.31
LN AGE	-0.092***	(-6.870)	-0.266***	(-7.021)	1.65
LN TOTAL ASSETS (M)	0.004	(0.434)	-0.007	(-0.287)	1.51
CONSTANT	0.652***	(7.823)	2.535***	(11.596)	
Year Effects	Yes		Yes		
Industry Effects	Yes		Yes		
N (Observations)	4879		4879		
N (Clusters)	671		671		
Adj. R^2	0.170		0.134		
F-statistic	23.776		12.452		

Note: This table reports an OLS example regression of LN TQ on INITIAL POOL and control variables. The regression shows no direct effect of the instrument on valuation. VIFs are included in column five. Standard errors are clustered and heteroskedasticity robust (Petersen, 2009).

* indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table A.9: Alternative: Treatment Effects TQ LF (First Stage)

	Model 1.a		**Model 1.b**		**Model 1.c**		**Model 1.d**		**Model 1.e**	
Method	TE		TE/HIC		TE/LIC		TE		TE	
Dep. variable (*first stage*)	LF		LF		LF		LF		LF	
	coeff.	(z-stats)	coeff.	(z-stats)	coeff.	(z-stats)	coeff.	(z-stats)	coeff.	(z-stats)
LONE FOUNDER FIRM (*instr.*)										
LN AGE AT IPO	**1.401*** **	**(5.128)**	**1.602*** **	**(4.186)**	**1.495** **	**(2.300)**	**1.401*** **	**(5.128)**	**1.401*** **	**(5.128)**
SINGLE FOUNDER	**0.437*** **	**(2.910)**	**0.486*** **	**(2.631)**	**0.191**	**(0.507)**	**0.437*** **	**(2.910)**	**0.437*** **	**(2.910)**
NUMBER FOUNDERS	**0.308*** **	**(4.744)**	**0.290*** **	**(3.728)**	**0.743*** **	**(4.030)**	**0.308*** **	**(4.744)**	**0.308*** **	**(4.744)**
IO VR	0.528*	(1.654)	-0.080	(-0.191)	2.636***	(3.307)	0.528*	(1.654)	0.528*	(1.654)
FF BOARD REPRES	37.130***	(11.609)	35.757***	(9.693)	234.041	(0.020)	37.130***	(11.609)	37.130***	(11.609)
PYRAMID	-0.853***	(-3.067)	-0.889***	(-2.761)	-1.526**	(-2.123)	-0.853***	(-3.067)	-0.853***	(-3.067)
DUAL WEDGE	0.499	(1.515)	-0.266	(-0.519)	1.043	(1.254)	0.499	(1.515)	0.499	(1.515)
50% OWNER	-0.039	(-0.172)	0.138	(0.515)	-0.476	(-0.858)	-0.039	(-0.172)	-0.039	(-0.172)
NUMBER BLOCKHOLDERS	0.295***	(5.169)	0.352***	(4.851)	0.199	(1.453)	0.295***	(5.169)	0.295***	(5.169)
OUTSIDER BLOCK VR	-2.385***	(-6.547)	-3.081***	(-6.499)	-1.497*	(-1.661)	-2.385***	(-6.547)	-2.385***	(-6.547)
BETA	0.087	(0.762)	-0.181	(-1.186)	0.451*	(1.675)	0.087	(0.762)	0.087	(0.762)
LN AGE	-2.540***	(-6.788)	-2.805***	(-5.348)	-3.315***	(-3.535)	-2.540***	(-6.788)	-2.540***	(-6.788)
LN TOTAL ASSETS (M)	0.016	(0.252)	-0.015	(-0.191)	0.088	(0.495)	0.016	(0.252)	0.016	(0.252)
DEBT / MVEQUITY	-0.081	(-1.620)	-0.078	(-1.604)	-0.111	(-1.003)	-0.081	(-1.620)	-0.081	(-1.620)
ROA	-0.160	(-0.590)	0.068	(0.205)	0.416	(0.618)	-0.160	(-0.590)	-0.160	(-0.590)
INT ACCOUNTING	-0.568**	(-2.575)	-0.529*	(-1.713)	0.058	(0.125)	-0.568**	(-2.575)	-0.568**	(-2.575)
NEUER MARKT MEMBER	0.070	(0.236)	0.063	(0.166)	-0.153	(-0.179)	0.070	(0.236)	0.070	(0.236)
ANALYST FOLLOWING	0.018	(1.229)	0.051**	(2.574)	-0.039	(-1.004)	0.018	(1.229)	0.018	(1.229)
CONSTANT	2.518**	(2.098)	-1.839	(-0.003)	-1.252	(-0.003)	2.518**	(2.098)	2.518**	(2.098)
Year Effects	Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No	
N (Observations)	3126		1413		1713		3126		3126	

Note: The table reports the first stage of treatment effects regressions. The dependent variable of the first regression is LONE FOUNDER FIRM (endogenous owner identity dummy). The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All instruments as described in table A.2, Variable Definitions—Economics. Continuous right hand side variables are lagged by one period. LN AGE AT IPO equals logarithm of firm age at IPO, SINGLE FOUNDER is a dummy indicator for a single company founder, NUMBER FOUNDERS is a count variable for the number of founders. HIC indicates high industry competition, LIC low industry competition, respectively. The sample contains non-family firms and lone founder firms. Values in parentheses are z-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table A.10: Alternative: Treatment Effects TQ LF (Second Stage)

	Model 2.a		**Model 2.b**		**Model 2.c**		**Model 2.d**		**Model 2.e**	
Method	TE		TE/HIC		TE/LIC		TE		TE	
Dep. variable (*second stage*)	LN TQ		LN TQ		LN TQ		TQ		Adj. TQ	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (*instr.*)	**0.181*** **	**(5.189)**	**0.169*** **	**(3.302)**	**0.173*** **	**(3.791)**	**0.431*** **	**(4.514)**	**0.451*** **	**(4.779)**
IO VR	-0.046	(-1.414)	-0.011	(-0.204)	-0.037	(-0.991)	-0.083	(-0.931)	-0.098	(-1.120)
FF BOARD REPRES	-0.406***	(-3.682)	-0.262*	(-1.767)	-0.590***	(-3.569)	-0.856***	(-2.841)	-0.916***	(-3.079)
PYRAMID	-0.048*	(-1.806)	-0.061	(-1.435)	-0.055*	(-1.707)	-0.097	(-1.330)	-0.100	(-1.396)
DUAL WEDGE	-0.028	(-1.187)	-0.019	(-0.388)	-0.023	(-0.947)	0.071	(1.100)	0.055	(0.862)
50% OWNER	0.059***	(2.851)	0.089**	(2.543)	0.020	(0.837)	0.160***	(2.832)	0.169***	(3.017)
NUMBER BLOCKHOLDERS	-0.013**	(-2.127)	-0.019*	(-1.820)	-0.002	(-0.265)	-0.018	(-1.035)	-0.016	(-0.979)
OUTSIDER BLOCK VR	0.184***	(5.053)	0.258***	(4.113)	0.112***	(2.729)	0.377***	(3.786)	0.372***	(3.784)
BETA	0.118***	(8.320)	0.147***	(6.395)	0.079***	(4.617)	0.336***	(8.670)	0.322***	(8.412)
LN AGE	-0.054***	(-5.786)	-0.039**	(-2.493)	-0.065***	(-5.934)	-0.117***	(-4.553)	-0.119***	(-4.701)
LN TOTAL ASSETS (M)	-0.058***	(-9.435)	-0.084***	(-7.970)	-0.041***	(-5.791)	-0.168***	(-10.028)	-0.176***	(-10.678)
DEBT / MVEQUITY	-0.026***	(-6.523)	-0.012**	(-2.290)	-0.068***	(-9.085)	-0.025**	(-2.279)	-0.023**	(-2.076)
ROA	0.458***	(11.645)	0.370***	(6.829)	0.578***	(9.253)	1.187***	(11.050)	1.149***	(10.838)
INT ACCOUNTING	0.021	(0.888)	-0.052	(-1.223)	0.052**	(2.077)	0.020	(0.317)	0.038	(0.596)
NEUER MARKT MEMBER	0.057*	(1.715)	0.072	(1.363)	0.082*	(1.812)	0.452***	(4.973)	0.412***	(4.591)
ANALYST FOLLOWING	0.014***	(11.955)	0.022***	(9.498)	0.009***	(7.628)	0.035***	(10.953)	0.036***	(11.559)
CONSTANT	0.453***	(6.688)	0.623***	(2.769)	0.495***	(6.595)	2.029***	(10.951)	1.073***	(5.862)
Year Effects	Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No	
N (Observations)	3126		1413		1713		3126		3126	
Chi^2	1339.882***		673.536***		836.580***		1066.671***		871.331***	
Lambda (Hazard)	**-0.162*** **	**(-5.379)**	**-0.125*** **	**(-2.804)**	**-0.243*** **	**(-5.720)**	**-0.327*** **	**(-3.886)**	**-0.348*** **	**(-4.205)**

Note: The table reports the second stage of treatment effects regressions. The dependent variable is an approximated logged Tobin's Q, Tobin's Q, and industry adjusted TQ respectively. Where indicated through '(instr.)' the owner identity variable is instrumented via the indicated instruments as presented in the models 1.a, 1.b, etc. The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All variables as described in table A.2, Variable Definitions—Economics. HIC indicates high industry competition, LIC low industry competition, respectively. The sample contains non-family firms and lone founder firms. Continuous right hand side variables are lagged by one period. Lambda indicates a potential selection effect in an OLS regression setting. Values in parentheses are t-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table A.11: Alternative II: Treatment Effects TQ LF (First Stage)

	Model 1.a		**Model 1.b**		**Model 1.c**		**Model 1.d**		**Model 1.e**	
Method	TE		TE		TE		TE		TE	
Dep. variable (*first stage*)	LF		LF		LF		LF		LF	
	coeff.	(z-stats)	coeff.	(z-stats)	coeff.	(z-stats)	coeff.	(z-stats)	coeff.	(z-stats)
LONE FOUNDER FIRM (*instr.*)										
LN AGE AT IPO	**0.804*** **	**(7.585)**	**1.161*** **	**(8.295)**	**0.804*** **	**(7.585)**	**1.161*** **	**(8.295)**	**0.804*** **	**(7.585)**
SINGLE FOUNDER	**0.477*** **	**(7.268)**	**0.573*** **	**(6.441)**	**0.477*** **	**(7.268)**	**0.573*** **	**(6.441)**	**0.477*** **	**(7.268)**
NUMBER FOUNDERS	**0.157*** **	**(6.474)**	**0.386*** **	**(10.847)**	**0.157*** **	**(6.474)**	**0.386*** **	**(10.847)**	**0.157*** **	**(6.474)**
IOMB VR	0.583***	(4.328)	1.518***	(6.905)	0.583***	(4.328)	1.518***	(6.905)	0.583***	(4.328)
FF BOARD REPRES										
PYRAMID	-0.833***	(-9.491)	-0.126	(-0.903)	-0.833***	(-9.491)	-0.126	(-0.903)	-0.833***	(-9.491)
DUAL WEDGE	-0.027	(-0.213)	0.760***	(4.332)	-0.027	(-0.213)	0.760***	(4.332)	-0.027	(-0.213)
50% OWNER	-0.303***	(-3.955)	0.453***	(3.466)	-0.303***	(-3.955)	0.453***	(3.466)	-0.303***	(-3.955)
NUMBER BLOCKHOLDERS	0.017	(0.753)	0.227***	(6.868)	0.017	(0.753)	0.227***	(6.868)	0.017	(0.753)
OUTSIDER BLOCK VR	-0.956***	(-7.526)	-3.260***	(-15.383)	-0.956***	(-7.526)	-3.260***	(-15.383)	-0.956***	(-7.526)
BETA	0.002	(0.034)	0.053	(0.752)	0.002	(0.034)	0.053	(0.752)	0.002	(0.034)
LN AGE	-1.675***	(-11.865)	-2.223***	(-11.763)	-1.675***	(-11.865)	-2.223***	(-11.763)	-1.675***	(-11.865)
LN TOTAL ASSETS (M)	-0.131***	(-4.509)	-0.045	(-1.174)	-0.131***	(-4.509)	-0.045	(-1.174)	-0.131***	(-4.509)
DEBT / MVEQUITY	0.015	(1.020)	-0.011	(-0.598)	0.015	(1.020)	-0.011	(-0.598)	0.015	(1.020)
ROA	0.243**	(1.988)	0.072	(0.396)	0.243**	(1.988)	0.072	(0.396)	0.243**	(1.988)
INT ACCOUNTING	0.188*	(1.834)	0.052	(0.365)	0.188*	(1.834)	0.052	(0.365)	0.188*	(1.834)
NEUER MARKT MEMBER	0.155	(1.238)	0.415**	(2.264)	0.155	(1.238)	0.415**	(2.264)	0.155	(1.238)
ANALYST FOLLOWING	0.015**	(2.361)	-0.005	(-0.619)	0.015**	(2.361)	-0.005	(-0.619)	0.015**	(2.361)
CONSTANT	2.616***	(6.811)	3.827***	(7.457)	2.616***	(6.811)	3.827***	(7.457)	2.616***	(6.811)
Year Effects	Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No	
N (Observations)	4407		3135		4407		3135		4407	

Note: The table reports the first stage of treatment effects regressions. The dependent variable of the first regression is LONE FOUNDER FIRM (endogenous owner identity dummy). The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All instruments as described in table A.2, Variable Definitions—Economics. Continuous right hand side variables are lagged by one period. LN AGE AT IPO equals logarithm of firm age at IPO, SINGLE FOUNDER is a dummy indicator for a single company founder, NUMBER FOUNDERS is a count variable for the number of founders. HIC indicates high industry competition, LIC low industry competition, respectively. The sample contains non-family firms and lone founder firms in model b and d. Values in parentheses are z-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table A.12: Alternative II: Treatment Effects TQ LF (Second Stage)

	Model 2.a		**Model 2.b**		**Model 2.c**		**Model 2.d**		**Model 2.e**	
Method	TE		TE		TE		TE		TE	
Dep. variable (*second stage*)	LN TQ		LN TQ		TQ		TQ		Adj. TQ	
	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM (*instr.*)	**0.097****	**(2.078)**	**0.120*****	**(2.891)**	**0.400*****	**(3.212)**	**0.468*****	**(4.123)**	**0.399*****	**(3.236)**
IO VR	-0.038	(-1.326)	-0.077*	(-1.752)	-0.040	(-0.520)	-0.163	(-1.349)	-0.046	(-0.606)
FF BOARD REPRES										
PYRAMID	-0.038*	(-1.757)	-0.047*	(-1.767)	0.019	(0.324)	-0.090	(-1.231)	0.014	(0.241)
DUAL WEDGE	-0.037**	(-2.054)	-0.034	(-1.458)	0.013	(0.267)	0.047	(0.732)	0.009	(0.187)
50% OWNER	0.079***	(5.224)	0.058***	(2.751)	0.181***	(4.503)	0.138**	(2.397)	0.191***	(4.807)
NUMBER BLOCKHOLDERS	-0.004	(-0.797)	-0.016**	(-2.507)	-0.009	(-0.657)	-0.031*	(-1.800)	-0.008	(-0.573)
OUTSIDER BLOCK VR	0.079***	(3.295)	0.197***	(4.821)	0.216***	(3.358)	0.513***	(4.575)	0.208***	(3.272)
BETA	0.109***	(8.975)	0.119***	(8.372)	0.307***	(9.523)	0.334***	(8.595)	0.294***	(9.215)
LN AGE	-0.052***	(-5.490)	-0.054***	(-5.404)	-0.091***	(-3.606)	-0.097***	(-3.544)	-0.094***	(-3.796)
LN TOTAL ASSETS (M)	-0.044***	(-8.194)	-0.056***	(-9.180)	-0.131***	(-9.156)	-0.161***	(-9.652)	-0.140***	(-9.907)
DEBT / MVEQUITY	-0.034***	(-9.027)	-0.026***	(-6.514)	-0.040***	(-3.993)	-0.023**	(-2.072)	-0.038***	(-3.854)
ROA	0.501***	(15.400)	0.445***	(11.404)	1.200***	(13.862)	1.170***	(10.926)	1.168***	(13.637)
INT ACCOUNTING	0.008	(0.422)	0.018	(0.758)	0.003	(0.052)	0.010	(0.150)	0.012	(0.230)
NEUER MARKT MEMBER	0.018	(0.637)	0.055*	(1.646)	0.361***	(4.792)	0.425***	(4.633)	0.337***	(4.523)
ANALYST FOLLOWING	0.011***	(10.903)	0.014***	(11.996)	0.027***	(10.160)	0.036***	(11.169)	0.029***	(10.924)
CONSTANT	0.395***	(6.049)	0.439***	(6.028)	1.752***	(10.064)	1.843***	(9.237)	0.810***	(4.704)
Year Effects	Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes		Yes	
Firm Fixed Effects	No		No		No		No		No	
N (Observations)	4407		3135		4407		3135		4407	
Chi^2	2011.950***		1706.804***		1589.749***		1442.682***		1330.095***	
Lambda (Hazard)	**-0.044**	**(-1.516)**	**-0.062****	**(-2.257)**	**-0.190****	**(-2.441)**	**-0.263*****	**(-3.500)**	**-0.192****	**(-2.494)**

Note: The table reports the second stage of treatment effects regressions. The dependent variable is an approximated logged Tobin's Q, Tobin's Q, and industry adjusted TQ respectively. Where indicated through '(instr.)' the owner identity variable is instrumented via the indicated instruments as presented in the models 1.a, 1.b, etc. The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All variables as described in table A.2, Variable Definitions—Economics. The sample contains non-family firms and lone founder firms. Continuous right hand side variables are lagged by one period. Lambda indicates a potential selection effect in an OLS regression setting. The sample contains non-family firms and lone founder firms in model b and d. Values in parentheses are t-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table A.13: Overview Interaction Effects

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**		**Model (5)**		**Model (6)**	
Method	FE		RE		FE		RE		FE		RE	
Dep. variable	LN TQ		LN TQ		LN TQ		LN TQ		LN TQ		LN TQ	
	coeff.	(t-stats)	coeff.	(z-stats)	coeff.	(t-stats)	coeff.	(z-stats)	coeff.	(t-stats)	coeff.	(z-stats)
Panel A												
LONE FOUNDER FIRM	-0.050	(-0.880)	-0.042	(-0.978)								
API0_APII0	-0.071	(-1.175)	-0.036	(-0.793)								
LF x API0_APII0	0.224**	(2.411)	0.174**	(2.452)								
FAMILY FOUNDER FIRM					-0.083	(-1.064)	-0.008	(-0.160)				
API0_APII0					0.110*	(1.866)	0.102**	(2.242)				
FamF x API0_APII0					-0.228***	(-2.653)	-0.172**	(-2.426)				
HEIR FIRM									0.028	(0.794)	0.043	(1.575)
API0_APII0									0.036	(0.629)	0.056	(1.273)
HF x API0_APII0									0.065	(0.825)	-0.000	(-0.007)
Panel B												
LONE FOUNDER FIRM	0.032	(0.610)	0.041	(1.148)								
API0_APII1	0.042	(0.797)	0.015	(0.335)								
LF x API0_APII1	-0.160*	(-1.810)	-0.101	(-1.188)								
FAMILY FOUNDER FIRM					-0.209**	(-2.261)	-0.107**	(-1.997)				
API0_APII1					-0.083	(-1.451)	-0.062	(-1.270)				
FamF x API0_APII1					0.178**	(2.058)	0.118	(1.540)				
HEIR FIRM									0.034	(0.888)	0.045	(1.612)
API0_APII1									-0.013	(-0.237)	-0.012	(-0.229)
HF x API0_APII1									0.042	(0.555)	-0.014	(-0.221)
Panel C												
LONE FOUNDER FIRM	0.013	(0.247)	0.033	(0.903)								
API1_APII1	0.064*	(1.685)	0.074**	(2.285)								
LF x API1_APII1	-0.092	(-1.177)	-0.109	(-1.642)								
FAMILY FOUNDER FIRM					-0.175**	(-1.989)	-0.096*	(-1.950)				
API1_APII1					-0.011	(-0.313)	0.007	(0.237)				
FamF x API1_APII1					0.176**	(2.250)	0.153**	(2.186)				
HEIR FIRM									0.042	(0.940)	0.041	(1.329)
API1_APII1									0.054	(1.023)	0.058	(1.252)
HF x API1_APII1									-0.056	(-0.899)	-0.044	(-0.856)

(continued)

Panel D												
LONE FOUNDER FIRM	0.046	(0.752)	0.058	(1.346)								
API1_APII0	-0.094**	(-2.236)	-0.048	(-1.470)								
LF x API1_APII0	0.004	(0.040)	-0.051	(-0.719)								
FAMILY FOUNDER FIRM					-0.126	(-1.372)	-0.060	(-1.148)				
API1_APII0					-0.062	(-1.314)	-0.047	(-1.292)				
FamF x API1_APII0					-0.052	(-0.529)	-0.057	(-0.703)				
HEIR FIRM									0.059	(1.476)	0.049	(1.591)
API1_APII0									-0.096*	(-1.833)	-0.089**	(-2.112)
HF x API1_APII0									0.027	(0.424)	0.063	(1.287)

Note: The table reports four panels with firm fixed effects and random effects panel regressions as indicated via FE or RE. The dependent variable is logged Tobin's Q in all models. The independent variables LONE FOUNDER FIRM, FAMILY FOUNDER FIRM, and HEIR FIRM represent owner identity dummies. API0_APII0, API0_APII1, API1_APII1, and API1_APII0, are dummy variables for agency settings. The agency settings are characterized by: (Panel A) the absence of Agency Problem I and Agency Problem II, (Panel B) the absence of Agency Problem I and presence of Agency Problem II, (Panel C) the presence of Agency Problem I and Agency Problem II, and (Panel D) the presence of Agency Problem I and absence of Agency Problem II. Each panel consists of six regressions. Each regression shows the owner identity variable, the agency setting variable, and the interaction term of both variables (e.g. LF x API0_APII0 is the interaction term of LONE FOUNDER FIRM and API0_APII0; the abbreviation LF is equivalent to LONE FOUNDER FIRM). To conserve space, I present those three variables of each regression. Nevertheless, all regressions follow the specifications of models 3 (FE) and models 4 (RE) as presented in tables 8.11, 8.12, and 8.13. The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All variables as described in table A.2, Variable Definitions—Economics. Values in parentheses are heteroskedasticity robust t-statistics, clustered on a firm level (Petersen, 2009). * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

Table A.14: Operating Performance

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**		**Model (5)**		**Model (6)**	
Method	RE		FE		RE		FE		RE		FE	
Dep. variable	ROA		ROA		ROA		ROA		ROA		ROA	
	coeff.	(z-stats)	coeff.	(t-stats)	coeff.	(z-stats)	coeff.	(t-stats)	coeff.	(z-stats)	coeff.	(t-stats)
LONE FOUNDER FIRM	**-0.036**	**(-1.597)**	**-0.062***	**(-1.713)**								
FAM FOUNDER FIRM					**-0.013**	**(-0.531)**	**0.003**	**(0.072)**				
HEIR FIRM									**-0.004**	**(-0.272)**	**0.002**	**(0.117)**
FF VR	0.036	(1.397)	0.033	(0.815)	0.037	(1.426)	0.028	(0.709)	0.036	(1.317)	0.028	(0.701)
FF BOARD REPRES	-0.081	(-1.252)	-0.022	(-0.244)	-0.099	(-1.535)	-0.064	(-0.694)	-0.104	(-1.622)	-0.064	(-0.688)
NUMBER BLOCKHOLDERS	-0.000	(-0.058)	0.004	(1.115)	0.000	(0.006)	0.004	(1.148)	-0.000	(-0.036)	0.004	(1.144)
OUTSIDER BLOCK VR	0.011	(0.573)	0.001	(0.047)	0.012	(0.636)	0.003	(0.135)	0.013	(0.668)	0.003	(0.135)
DIVERSIFICATION	-0.003	(-1.044)	-0.001	(-0.352)	-0.003	(-1.019)	-0.001	(-0.350)	-0.003	(-1.016)	-0.001	(-0.351)
CAPEX_TA	0.096	(1.110)	-0.008	(-0.093)	0.089	(1.031)	-0.015	(-0.176)	0.092	(1.060)	-0.016	(-0.186)
LN AGE	0.043***	(5.017)	0.070**	(2.269)	0.046***	(5.417)	0.074**	(2.326)	0.047***	(5.463)	0.074**	(2.331)
LN TOTAL ASSETS (M)	-0.011**	(-2.001)	-0.100***	(-6.510)	-0.010*	(-1.899)	-0.100***	(-6.494)	-0.010*	(-1.872)	-0.100***	(-6.533)
DEBT / EQUITY	-0.001	(-1.028)	-0.002	(-1.581)	-0.001	(-1.024)	-0.002	(-1.574)	-0.001	(-1.005)	-0.002	(-1.576)
INT ACCOUNTING	-0.004	(-0.329)	-0.000	(-0.002)	-0.004	(-0.369)	0.000	(0.019)	-0.004	(-0.379)	0.000	(0.023)
NEUER MARKT MEMBER	-0.128***	(-6.834)	-0.093***	(-5.106)	-0.130***	(-6.843)	-0.096***	(-5.172)	-0.130***	(-6.851)	-0.096***	(-5.163)
PRIME STANDARD	-0.007	(-0.547)	-0.004	(-0.257)	-0.009	(-0.670)	-0.006	(-0.401)	-0.009	(-0.673)	-0.006	(-0.404)
CONSTANT	-0.111**	(-2.075)	0.288**	(2.157)	-0.131**	(-2.426)	0.264*	(1.943)	-0.133**	(-2.481)	0.264*	(1.943)
Year Effects	Yes		Yes		Yes		Yes		Yes		Yes	
Industry Effects	Yes		No		Yes		No		Yes		No	
Firm Fixed Effects	No		Yes		No		Yes		No		Yes	
Random Effects	Yes		No		Yes		No		Yes		No	
N (Observations)	4353		4353		4353		4353		4353		4353	
N (Clusters)	630		630		630		630		630		630	
Adj. R^2			0.146				0.144				0.144	
F-statistic			6.675***				6.777***				6.642***	

Note: The table reports random effects (RE) and firm fixed effects (FE) panel regressions. The dependent variable is the return on assets (ROA). The unbalanced panel comprises CDAX index companies within the years 1995 to 2008. All variables as described in table A.2, Variable Definitions—Economics. Right hand side variables are lagged by one period. Values in parentheses are z-statistics, respectively t-statistics. * indicates significance at 10%, ** indicates significance at 5%, *** indicates significance at 1%.

Source: Own work.

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