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Large Blockholders, Shareholder Protection and Taxes: Their Impact on Firm Performance and Payout Policy

An Empirical Analysis of Listed European Firms

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Summary

Large, influential blockholders are an integral part of the ownership and control structure of many firms around the world, even in the U.S.. It is well known that these blockholders have both the power and incentive to extract private benefits from their investments. However, the extraction of private benefits is associated with considerable costs for minority shareholders. To mitigate the resulting agency conflict between blockholders and small shareholders, the regulatory authorities have designed legal mechanisms for the protection of minority shareholders.

In spite of extensive research on the causes of this agency conflict, its consequences, and the regulatory effect of shareholder protection, there are still some important unanswered questions. The purpose of this dissertation is to provide new empirical evidence on large blockholders, their impact on firm performance and payout policy, and the mitigating role of shareholder protection. For this purpose I use an extensive, novel panel data set covering more than 4,000 listed firms from 16 European countries. The empirical analysis consists of three major parts.

In the first part the relation between shareholder protection, ownership concentration, and firm performance is analyzed. The results reveal that shareholder protection is negatively correlated with overall ownership concentration. A differentiation between shareholder types shows that this effect is mainly driven by strategic investors (including families) and institutional ownership is actually positively correlated to the level of shareholder protection. The latter effect is mainly driven by independent institutional investors. Examining

the effect of blockholders on firm valuation shows that independent institutional investors fuel firm valuation while strategic investors jeopardize firm valuation. These findings support the view that blockholdings of strategic investors emerge (or survive) in case of limited minority protection at the expense of minority shareholders.

The second part focuses on payout decisions of listed firms to study the effect of minority shareholder protection on blockholders' power to promote corporate payout behavior at the expense of minority shareholders. Due to heterogeneous tax preferences conflicts of interests exist between a firm's blockholders and its minority shareholders concerning the optimal corporate payout policy. An analysis of payout decisions of listed firms reveals that payout behavior reflects tax preferences of a firm's largest shareholder. While generally tax preferences of minority shareholders also affect firms' payout policy, the extent of this effect is sensitive to the level of minority shareholder protection. In countries with strong (weak) regulation, tax preferences of minority shareholders play a substantial role (limited role) in corporate payout decisions. This suggests that legal minority shareholder protection effectively restricts the power of blockholders to promote a payout policy that comes at the expense of minority shareholders.

In the third part the diverging tax preferences of distinct blockholder types are used to identify which blockholders affect the firms' payout policy in the end. The results reveal a differential impact of distinct blockholder types on payout policy. The payout policy seems to be rather driven by large insiders in terms of managers than by external blockholders.

Overall, the main contribution of this dissertation to the literature is related to the incomplete contract perspective. However, both the second and the third part make also a significant contribution to the literature that explains payouts from a tax perspective. The findings of this dissertation are of importance both for practitioners, such as regulatory authorities or equity investors, and academics.

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List of Abbreviations

i	company
t	year
2SLS	two-stage least squares
3SLS	three-stage least squares
AktG	Aktiengesetz, Stock Corporations Act
AMEX	American Stock Exchange
ASD	anti-self-dealing index
Bafin	Bundesanstalt für Finanzdienstleistungsaufsicht
CAPM	capital asset pricing model
CDAX	Composite DAX
cf.	confer
DAX	Deutscher Aktienindex
EBIT	earnings before interest and taxes
EBITDA	earnings before interest, taxes, depreciation, and amortization
EStG	Einkommensteuergesetz
et al.	et alii
e.g.	exempli gratia
FE	fixed effects
GAAP	Generally Accepted Accounting Principles
GDP	gross domestic product
GTRA	German Tax Reduction Act

HF	hedge fund
HGB	Handelsgesetzbuch
IA	investment advisor
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
incl.	including
IPO	initial public offering
i.e.	id est
JGTRRA	Jobs and Growth Tax Relief Reconciliation Act
KontraG	Gesetz zur Kontrolle und Transparenz im Unternehmensbereich
ln	natural logarithmn
max	maximum
min	minimum
N	number of observations
NASDAQ	National Association of Securities Dealers Automated Quotations
No.	number
NYSE	New York Stock Exchange
OECD	Organisation for Economic Co-operation and Development
OLS	ordinary least squares
p25	25th percentile
p5	5th percentile
p50	50th percentile
p75	75th percentile
p95	95th percentile
R&D	research and development
RADRI	revised anti-director rights index
S&P	Standard & Poor's
Sd	standard deviation

SE	standard errors
SIC	Standard Industrial Classification
TOB	Thomson One Banker
TRA	Tax Reform Act
U.S.	United States
UK	United Kingdom
VIF	variance inflation factor
vs.	versus
WpHG	Wertpapierhandelsgesetz

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1 Introduction

In their seminal work on the separation of ownership and control in modern corporations, *Berle and Means (1932)* document that the stock ownership of U.S. firms is quite dispersed among a large number of small shareholders. Due to the marginal share size, a single shareholder has neither the power nor the incentive to exert effective control on the firm's management. As a consequence the management enjoys considerable discretionary power to pursue its own interests. This leads to agency conflicts between owners and managers. The corporate governance literature refers to this conflict also as *agency conflict I*.

As we know today, the classical *Berle and Means* view has to be at least partly revised since in the meantime large, powerful blockholders have become an integral part of the ownership and control structure of many firms around the world, even in the U.S.. This is underlined by *Bebchuk and Weisbach (2010)* who state that...

> "[...] as the work on comparative corporate governance has shown, [...] companies with a controlling shareholder are the dominant form among publicly traded firms in most countries. [...] controlling shareholders are more common even in the United States than is usually assumed."[1]

In the literature the impact of these large blockholders on firm performance and

[1] *Bebchuk and Weisbach (2010, p. 948)*

thus also on the wealth of minority shareholders is quite disputed. On the one side it is argued that the value-enhancing *monitoring effect* of large blockholders leads to shared benefits of control. On the other side, large blockholders may be rather interested in the extraction of private benefits of control which leads to a value-destroying *expropriation effect*.

Against the background of the private benefits perspective of large blockholders a second type of agency conflict emerges: the conflict between large blockholders and small shareholders which is also referred to as *agency conflict II*. This conflict has become more and more important over the past years. *Bebchuk and Weisbach (2010)* confirm this view:

> "The nature of governance problems differs greatly between public companies with and without a controlling shareholder. [...] With a controlling shareholder, the fundamental governance problem is not opportunism by executives and directors at the expense of public shareholders at large but rather opportunism by the controlling shareholder at the expense of the minority shareholders."[2]

Like the agency conflict I, this type of agency conflict is associated with considerable costs for minority shareholders. To minimize these agency costs, corporate governance literature has explored a number of mechanisms over the decades. While early research has focused on firm-specific governance mechanisms (e.g. board composition, executive compensation), a new generation of corporate governance research highlights the role of country-specific mechanisms. Thereby, special attention is paid to the role of the legal environment in general and the legal protection of minority shareholders in particular. The corresponding literature is often referred to under the term *"law and finance"*.

This literature made considerable efforts in analyzing the impact of minority shareholder protection laws on the agency conflict between large and small

[2] *Bebchuk and Weisbach (2010, p. 948)*

shareholders, in particular with regard to the question whether the legal protection can effectively handle the agency conflicts arising from large blockholders. However, in spite of extensive research there are still some important unanswered questions relating to the causes and consequences of large blockholders and the regulatory effects of shareholder protection. This is the point where this work starts off.

The purpose of this dissertation is to provide new empirical evidence on large blockholders, shareholder protection and taxes and their impact on firm performance and payout policy. For this purpose I use an extensive novel panel data set covering more than 4,000 listed firms from 16 European countries. The empirical analysis follows a three step process:

Shareholder protection, ownership concentration and firm performance

The **first** step aims to provide new insights on the relation between shareholder protection, ownership concentration and firm performance. For this purpose it is initially examined whether investor protection *really* has a negative impact on ownership concentration. This is motivated by recent research which criticizes the standard methods of the law and finance literature such as the use of country averages as well as the initial legal indices of the first generation. In sum, this criticism casts serious doubts on the seemingly well-established negative correlation between shareholder protection and ownership concentration.

Next, the implications of large blockholders and shareholder protection laws for the performance of a firm are analyzed. This serves to identify whether large blockholders are beneficial for minority shareholders or whether they rather come at their expense.

Overall, this analysis contributes to a better understanding of the causes and

consequences of large blockholders: Do large blockholders emerge as a *substitute* for strong legal protection? Or do they rather act as a *complement*; i.e. do they emerge just because weak protection makes it quite easy for them to realize private benefits of control?

Blockholder power, shareholder conflicts and legal protection: Evidence from tax preferences and payout decisions

Following the insights of the effect of blockholders on firm value, the **second** aim is to explore the interaction of regulation and ownership concentration and its effect on firm behavior. Since firm behavior involves a wide scope of decisions, this dissertation concentrates on a particular and integral part of firm behavior: the *corporate payout policy*. A central issue in that regard is the question, whether minority shareholder protection actually limits blockholders' power to promote a payout behavior that comes at the expense of minority shareholders. Thereby, the key challenge is to identify non-endogenous conflicts of interests between blockholders and minority shareholders.

Noting that investor taxes often differentiate between different types of equity investors, a *novel identification strategy* is proposed to examine the relation between agency conflicts and minority shareholder protection. Specifically, it is suggested that in many countries the tax authority differentiates between suppliers of equity capital according to their type and investment stake which produces conflicts of interest among a firm's blockholders and its minority shareholders concerning the optimal corporate payout policy. In the empirical analysis, I approximate these conflicts by using the diverging tax preferences between a firm's largest blockholder and the small shareholders.

Analyzing this conflict, it can be identified whether only the tax preferences of large blockholders affect a firm's payout policy or whether also interests of minority shareholders matter. In particular, it can be examined whether legal

minority shareholder protection effectively restricts the power of blockholders. With the consideration of tax preferences, the second part offers also new evidence in the context of the *tax explanation of payouts*. However, its main contribution to the literature is related to the *incomplete contract perspective*.

Blockholder power, tax preferences and payout decisions: Large insiders vs. external blockholders

The **third** step explores whether payout decisions are driven by powerful corporate insiders or by large external blockholders. For this purpose I rely again on the conflicting tax preferences of various blockholder types as identification strategy. In this context, the *German Tax Reform Act 2001* as an exogenous source of variation represents an interesting experiment.

In contrast to the 2003 dividend tax cut in the U.S. where all domestic taxable investors were affected in the same way, the picture is more differentiated in case of the German Tax Reform Act 2001. This act had a differential impact on the preferences of distinct blockholder types. Analyzing the payout policy around the German Tax Reform Act 2001 offers new evidence on the question whether shareholders influence payout policy and if so which type shareholders. Again, this final step offers new evidence in the context of the tax explanation of payouts; however, its main contribution to the literature is related to the incomplete contract perspective.

The evidence presented in this dissertation is based on a data set of listed firms in **Europe**. For various reasons Europe offers an ideal environment to explore the relationship between agency conflicts, payout behavior and shareholder protection. In particular, Europe offers the right mixture of homogeneity and heterogeneity with regards to the employed data. On the one side Europe represents a homogeneous economic and political area. On the other side, there is a con-

siderable heterogeneity of legal shareholder protection in Europe. In addition to that Europe is known for rather heterogeneous but – compared to the U.S. – more concentrated ownership structures where blockholders play an important role. Moreover, Europe offers a considerable variation regarding tax legislation since the tax rules vary both across countries and over the years. While the cross country variance results from the sovereign tax legislation of the sample countries, the variation across years is due to a large number of tax reforms during the sample period. Finally, the analysis of ownership data requires access to reliable data sources, which is ensured for European firms by uniform disclosure rules established by the European Union.

My results are of importance both for academics and practitioners. First of all, from an *academic* point of view the presented findings contribute to a better understanding of to the causes and consequences of large blockholders and the effects of shareholder regulation. In particular, new insights on the mechanisms between legal protection, ownership structures and firm performance are provided. For example it is demonstrated that blockholdings of strategic investors emerge (or survive) in case of limited minority protection at the expense of minority blockholders.

Additionally, new evidence on the interaction of regulation and ownership concentration and its effect on payout policy is presented. For instance it can be shown that the tax preferences of the largest shareholders have a significant impact on the payout policy of the firm. However, minority shareholder protection actually restricts blockholders' influence on a payout policy that comes at the expense of minority shareholders. It has to be remarked that in this dissertation the majority of the evidence on blockholders and payout behavior is based on an *agency perspective*, however, also new insights on the relevance of *taxes* for the payout policy of a firm are provided.

Second, the results are highly relevant for the *regulatory authorities* which define

the legal environment in which firms and investors operate. For regulatory authorities it is important to understand, how their decisions affect behavioral responses of firms and investors. This study contributes to this need in two ways. First of all, this work contributes to a better understanding of the impact of *tax regulation* on the payout behavior of firms. Second, it is shown how *shareholder regulation* affects investor decisions, payout behavior and firm performance.

Finally, the presented empirical evidence is highly relevant for *equity investors*. Since payout policy and firm performance are the main elements of the total shareholder return, these two topics are of fundamental interest for wealth-maximizing equity investors. Being aware of the implications of large shareholders on payout policy, the potential risk of being expropriated can be better assessed. Moreover the results strongly suggest to consider the degree of shareholder protection as an essential determinant of portfolio decisions. These implications refer in particular to those investors with minority shareholdings such as private or institutional investors since the small size of their shareholding exposes them in a particular way to expropriation by large blockholders.

1.1 Research questions

This section presents the research questions of my dissertation. The first set of questions addresses the mechanisms between shareholder protection, ownership concentration and firm performance. These questions are divided into two main parts.

The **first part** concerns the role of the regulation of shareholder rights for the shape of corporate ownership structures. For this purpose it is at first examined whether investor protection *really* has a negative impact on ownership concentration. Recent research criticizes the standard methods using country averages as well as the initial legal indices of the first generation and casts serious

doubts on the seemingly well-established negative correlation between shareholder protection and ownership concentration. In addition to that it is analyzed how shareholder protection affects the concentration of particular investor types.

The **second part** addresses the implications of the ownership concentration on firm performance. This serves to identify, whether large blockholdings come at the expense of minority shareholders. Additionally, it is explored whether the impact of ownership on firm value depends on the level of shareholder protection.

Question 1: How does the level of shareholder protection affect the firms' ownership structure?

Question 1a: How does the level of shareholder protection affect the firms' overall ownership concentration?

Question 1b: How does the level of shareholder protection affect the concentration of strategic investors?

Question 1c: How does the level of shareholder protection affect the concentration of institutional investors?

Question 2: Are the ownership structure of the firm and the level of shareholder protection systematically related to firm valuation?

Question 2a: How does the concentration of distinct shareholder types affect firm valuation?

Question 2b: Does the impact of the concentration of distinct shareholder types on firm valuation differ between high and low shareholder protection countries?

While question number 2 deals with the effect of blockholders on *firm value*, the next set of questions refers to the interaction of regulation and ownership con-

centration and its effect on a particular aspect of firm behavior, i.e. *payout policy*. Essentially, these questions address the effect of minority shareholder protection on blockholders' power to promote a corporate payout policy that is not in line with the interests of minority shareholders and thus comes at their expense. As a proxy for conflicting interests I focus on the tax-induced conflicts of interest between a firm's blockholders and its minority shareholders concerning the optimal corporate payout policy.

Question 3: Does minority shareholder protection have an influence on blockholders' power to promote a corporate payout policy at the expense of minority shareholders?

Question 3a: Do the tax preferences of the largest shareholder have an impact on the payout policy of the firm?

Question 3b: Does the payout policy just follow the tax preferences of the largest shareholder or does it also consider the payout preferences of minor shareholders?

Question 3c: Does the consideration of minor shareholders' preferences depend on their legal protection?

Questions *3a* and *3b* shed light on the differential impact of blockholders and minority shareholders on payout policy. In the final research question large blockholders are further subclassified to test whether payout policy is strongly driven by the interests of corporate insiders or rather by external blockholders. The characteristics of the German Tax Reform Act 2001 provide an interesting experiment to analyze the differential impact of distinct blockholder types.

Question 4: Does the impact of taxes on payout policy depend on the firm's shareholder structure?

Question 4a: Does the payout policy follow the preferences of large inside block-

holders, i.e. managerial blockholders?

Question 4b: Does the payout policy follow the preferences of external blockholders?

1.2 Structure

This section provides an overview of the structure of this dissertation including a brief summary of the content of the respective chapters.

First of all, this chapter (**Chapter 1**) presents the motivation of this dissertation, introduces the research questions and describes the structure of this work. The remainder of this work is structured as follows:

Chapter 2 introduces the theoretic framework of this dissertation. Thereby, the role of agency conflicts, shareholder protection, taxes and payout policy is addressed. The framework is divided into two sections.

The first section (Section 2.1) deals with the different types of agency conflicts and the regulatory role of the legal environment of the firm. Thereby, the origin and nature of the agency conflict between inside managers and outside minority shareholders is described. Next, the conflict between large, dominant blockholders and minority shareholders is addressed. After that, the fundamental role of corporate governance mechanisms as a remedy to the detrimental consequences of agency conflicts is described. Thereby, particular attention is paid to the legal system and the protection of minority shareholders. The second section (Section 2.2) presents the theoretical foundations of payout policy. It is explained why in imperfect capital markets the topic of payout policy is highly relevant for the value of a firm. Thereafter, a review of the signaling, agency, and tax explanation of why firms distribute profits to their shareholders is provided.

Chapter 3 summarizes the empirical literature that is relevant for this disserta-

tion. In Section 3.1 the literature on the relationship between the legal environment of a firm and its ownership structure is reviewed. Thereafter, Section 3.2 addresses the impact of ownership structure on firm performance. Next, Section 3.3 summarizes the literature on recent trends in payout policy around the world. Finally, Section 3.4 presents an overview of the literature on the impact of taxes on payout policy.

This dissertation uses diverging tax preferences concerning the optimal corporate payout policy as an identification strategy for agency conflicts between large and small shareholders. For a better understanding of the tax foundations of this work, **Chapter 4** provides an overview of the tax-related regulation in Europe with a particular focus on the prevailing corporate income tax systems. First, Section 4.1 characterizes the different types of tax systems that can be found in Europe. Second, Section 4.2 describes the German tax reform 2001 which can be characterized as a representative example for a major tax system change in Europe.

After the description of the tax regulation in Europe, **Chapter 5** describes in three steps the development of hypotheses and presents the theoretical predictions. First, Section 5.1 deals with the relation between shareholder protection, ownership structure and firm performance. Second, Section 5.2 addresses the topic of payout decisions in view of agency conflicts between large and small shareholders. Thereby, particular attention is paid to the moderating role of the legal environment. Third, Section 5.3 focuses on the differential role that large corporate insiders and external blockholders play in a firm's payout policy.

Chapter 6 analyzes the impact of shareholder protection on ownership concentration of European firms. Additionally, the implications of large blockholders on firm performance are tested in order to assess whether blockholders are beneficial to minority shareholders or rather come at their expense. For this purpose, Section 6.1 documents at first the generation and composition of a European

sample. Additionally, the data as well as the research design are presented. In the second step, Section 6.2 reports the central findings of the empirical analysis. Thereby, the descriptive statistics provide a detailed overview of the ownership structures of European firms from 1999 to 2008 and also of the heterogeneity of shareholder protection across European countries. In addition to that, the regression results provide empirical evidence on the relation between shareholder protection, ownership concentration and firm performance. Third, the results are subject to additional robustness tests in Section 6.3. Finally, Section 6.4 concludes.

Chapter 7 explores on the relationship between shareholder rights, taxes and payout policy in Europe. Thereby it is tested, whether minority shareholder protection does have an influence on blockholders' power to promote corporate payout behavior at the expense of minority shareholders. For this purpose, Section 7.1 documents in the first step the sample generation and composition. Additionally, the data as well as the research design are presented. In the second step, Section 7.2 reports the central findings of the empirical analysis. The descriptive statistics provide for example information on the payout policy and the investors' tax-induced payout preferences. Furthermore the regression results on the relation between shareholder rights, tax-preferences and payout policy are reported. Third, additional robustness checks are performed in Section 7.3 to test the validity of the results. In a fourth and final step, Section 7.4 concludes.

Chapter 8 sheds light on a particular tax reform, i.e. the German tax reform 2001, to investigate the differential impact of distinct blockholder types on payout policy changes. For this purpose, Section 8.1 describes in the first step the generation of a sample of German firms. Additionally, the data and the research design are documented. In the second step, Section 8.2 presents the main findings of the empirical analysis based on descriptive and regression results. Third, the results are subject to additional robustness tests in Section 8.3. Fourth, Chapter 8.4 concludes.

Finally, **Chapter 9** concludes with a summary of the core results in Section 9.1. Thereafter, Section 9.2 refers to the contribution as well as the implications of this work. In a final step, Section 9.3 discusses and avenues for future research.

2 Theoretical framework

2.1 Agency conflicts and legal shareholder protection

This section presents the theoretic framework on agency conflicts and the role of legal shareholder protection as external governance mechanism. In a first step the classical agency conflict between managers and small shareholders is addressed. Corporate governance research often refers to this conflict as *agency conflict I*. The second step deals with the agency conflict between small shareholders and large blockholders which is also referred to as *agency conflict II*. To minimize the costs arising from agency conflicts, the literature offers a number of governance mechanisms. The third step focuses on a particular governance mechanism, i.e. the law, and describes its relevance for the protection of minority shareholders' interests.

2.1.1 The agency conflict between managers and small shareholders

Agency conflicts are one of the central themes in the economic literature.[3] The first to develop a formal agency theory of the firm were *Ross (1973)* and *Jensen*

[3] For example *Eisenhardt (1989)* provides a comprehensive introduction to agency theory.

and Meckling (1976). In their pathbreaking paper *Jensen and Meckling (1976)* define an agency relationship as a...

> "...contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent."[4]

Agency conflicts have their origin in the well documented phenomenon of the separation of ownership and control the firm. Referring to the relevance of this phenomenon, *Berle and Means (1932)* note in their seminal work on the modern corporation:

> "[T]he separation of ownership from control has become effective – a large body of security holders has been created who exercise virtually no control over the wealth which they or their predecessors in interest have contributed to the enterprise."[5]

Although the findings of *Berle and Means* date back several decades, they have not lost their relevance. This is underlined by the conclusion of *Jensen and Meckling (1976)* that the nature of today's corporations which can be characterized by a division of ownership and control resulting in the emergence of two parties (i.e. shareholders and managers), matches perfectly the definition of a "pure agency relationship".[6]

An important driver for the emergence of agency conflicts is that the relationship between principals (i.e. the shareholders) and agents (i.e. the management) is characterized by diverging interests. Both management and owners try to maximize their utility, however they define their individual utility differently. Consequently, managers rather strive for fundamental values like remuneration,

[4] *Jensen and Meckling (1976, p.308)*
[5] *Berle and Means (1932, p. 6 and 7 in 1968 edition)*
[6] *Jensen and Meckling (1976, p.309)*

power and status while shareholders try to maximize their wealth. In this context *Berle and Means (1932)* remark:

> "The separation of ownership from control produces a condition where the interests of owner and of ultimate manager may, and often do, diverge, and where many of the checks which formerly operated to limit the use of power disappear."[7]

The recognition of potential problems arising from the separation of ownership and control already dates back into the late 18th century when Adam Smith made the following comment in his outstanding work on the wealth of nations:

> "The directors of such companies, however, being the managers rather of other people's money than of their own, it cannot well be expected that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own."[8]

Beside diverging interests, incomplete markets play an essential role in the emergence of agency conflicts. This includes that the relationship between principal and agent is affected by information asymmetries. These enable the management to behave opportunistically, which means that the managers (agents) select the strategies that serve best their interest and not the interest of the shareholders (principals). This leads to an inefficient allocation of corporate funds at the expense of shareholders. This refers in particular to situations when it comes to essential strategic and operative decisions which are subject to the discretion of the management such as the pay out of free cash flow or the determination of the optimal size of the firm.

The literature documents several examples for this phenomenon such as excessive salaries or empire building tendencies *(e.g. Shleifer and Vishny, 1997;*

[7] *Berle and Means (1932, p. 6 and 7 in 1968 edition)*
[8] *Smith (1976, p. 264-265)*

*La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000*b). *Demsetz (1983)* for example points to the extraction of non-pecuniary benefits by the management at the expense of small shareholders. *Jensen* addresses the costs that arise from the diversion of corporate resources for empire building and perk consumption *(cf. Jensen, 1986, 1989)*.

As shown by *Jensen and Meckling*, there are certain mechanisms such as bonding or monitoring that can serve as potential instruments to mitigate agency conflicts. However, it is well known that in widely held firms it is quite costly for the individual shareholder to coordinate and exercise monitoring and control Moreover it is not attractive due to the free-rider problem *(cf. Grossman and Hart, 1980; Demsetz and Lehn, 1985)*. Consequently, the management enjoys considerable discretionary power to pursue its own interests.

Jensen and Meckling state that agency conflicts are associated with costs for the principal. Overall, the agency costs are defined as the sum as the monitoring expenditures by the principal, the bonding expenditures by the agent and the residual loss which measures the reduction in welfare caused by remaining "divergence between the agent's decisions and those decisions that would maximize the welfare of the principal".[9]

2.1.2 The agency conflict between large blockholders and small shareholders

The agency conflict between managers and shareholders is grounded on the idea of widely held firms. Since the work of *Berle and Means (1932)* this constellation has been assumed to match the typical U.S. corporation. However, in the meantime it has been proven that widely held firms are not the norm. *Holderness (2003)* for example finds that the ownership structures in the U.S. are consid-

[9] *Jensen and Meckling (1976, p.308)*

erably more concentrated than often suggested and thus rejects the image of dispersed shareholder structures in the U.S.. In addition to that there is ample evidence that large blockholders play an important role in particular in certain countries and regions outside the U.S. such as Continental Europe *(e.g. La Porta, Lopez-de Silanes and Shleifer, 1999)*.

In spite of the large body of evidence on the existence of large blockholders, the literature is divided regarding the question whether large blockholders are rather beneficial or detrimental to the interests of minority shareholders.[10]

A well-established strand of the literature argues that blockholders might improve the situation of small shareholders since they have both the power and incentive to exert effective control on the management *(e.g. Shleifer and Vishny, 1986; Jensen, 1986; Holderness, 2003; Becker, Cronqvist and Fahlenbrach, 2011)*.[11] Their monitoring activities may help to reduce the extraction of private benefits by the management and thus improve performance of the firm. Since any increase of the firm value accrues to all shareholders on a pro rate base, large blockholders have the potential to generate considerable *shared benefits of control*. From this perspective they provide an effective remedy to the problems arising from the separation of ownership and control *(e.g. Demsetz and Lehn, 1985; Shleifer and Vishny, 1986; Easterbrook, 1984; Jensen, 1986; Stein, 1988, 1989)*.

However, *Shleifer and Vishny (1997)* for example argue that the interest of large shareholders must not necessarily coincide with the interests of minority shareholders. In this case, blockholders might misuse their power to extract *private benefits* at the expense of minority shareholders *(e.g. Barclay and Holderness, 1989; Shleifer and Vishny, 1997; Johnson, La Porta, Lopez-de Silanes and Shleifer, 2000; Becht and Boehmer, 2003; Cheung, Rau and Stouraitis, 2006)*.[12]

[10] For example *Becker, Cronqvist and Fahlenbrach (2011)* provide a detailed discussion of the costs and benefits of large blockholders.

[11] In the economic literature these strong blockholders are rather classified as *corporate insiders* than *outsiders (e.g. La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000*b*)*.

[12] *Shleifer and Vishny (1997)* provide a comprehensive overview on the literature analyzing the costs of large shareholders.

This perspective sheds light on the "dark side" of large blockholders. Due to the opportunistic behavior of large blockholders, considerable costs can arise for small shareholders *(e.g. Shleifer and Vishny, 1997; Burkart, Gromb and Panunzi, 1997)*.

The literature refers to this phenomenon as the agency conflict between large and small shareholders. In this context *Bebchuk and Weisbach (2010)* state that with the emergence of large, controlling shareholders...

> "...the fundamental governance problem is not opportunism by executives and directors at the expense of public shareholders at large but rather opportunism by the controlling shareholder at the expense of the minority shareholders."[13]

In sum, the case of large blockholders shows that – beside the classical agency conflict between managers and shareholders – a second agency conflict exists, namely the one between large and small shareholders. This conflict can come along with considerable costs for small shareholders.

2.1.3 The role of legal shareholder protection as external governance mechanism

As described above, agency conflicts come along with costs that reduce the value of an investment. Corporate governance research deals with the mechanisms that serve to minimize these costs. In the literature several definitions of corporate governance can be found. For example *Shleifer and Vishny (1997)* states that corporate governance...

> "...deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment."[14]

[13] *Bebchuk and Weisbach (2010, p. 948)*
[14] *Shleifer and Vishny (1997, p. 737)*

In a similar vein, *Denis and McConnell (2004)* define corporate governance as the...

> "...set of mechanisms – both institutional and market-based – that induce the self-interested controllers of a company (those that make decisions regarding how the company will be operated) to make decisions that maximize the value of the company to its owners (the suppliers of capital)."[15]

Over the past decades corporate governance research has extensively examined these mechanisms and their impact on firm performance and corporate decision making.

Denis and McConnell separate these mechanisms into two categories, depending whether they are internal and external to the firm. The internal governance mechanisms refer to the board of directors (e.g. board structure, executive compensation) or the ownership and control structure of a firm, while the takeover market and the legal system form the main elements of the set of external governance mechanisms. It is beyond the scope of this dissertation to summarize the whole corporate governance literature on the nature and the impact of these mechanisms. Therefore, I focus on the main governance literature referring to the role of the legal system for the protection of shareholders, since this aspect plays a major role in this study. [16]

Today, this literature is often referred to as law and finance literature – a tribute to the seminal paper of *La Porta, Lopez-De-Silanes, Shleifer and Vishny (1998)* which marks a fundamental milestone in the exploration of the impact of the law on corporate finance and corporate governance. The principal argument of this literature is that the legal environment affects the protection of minority shareholders against expropriation by corporate insiders. As such, legal protec-

[15] *Denis and McConnell (2004, p.2)*

[16] For a comprehensive overview of the corporate governance literature see *Shleifer and Vishny (1997); Denis and McConnell (2004); Bebchuk and Weisbach (2010).*

tion determines the severity of agency conflicts to which minority shareholders are exposed. A key finding of the law and finance literature is that the legal protection of investors varies across countries. In this context, *Shleifer and Vishny (1997)* notice that...

> "much of the difference in corporate governance systems around the world stems from the differences in the nature of legal obligations that managers have to the financiers, as well as in the differences in how courts interpret and enforce these obligations."[17]

One common approach to assess the quality of the legal protection in the respective countries is to use the legal origin of a particular country. The law literature differentiates four classic law families: the English common-law system and the civil law system, which is further classified into French, German, and Scandinavian origin *(cf. Reynolds and Flores, 1989)*. While shareholder protection tends to be strongest in common law countries, French civil law countries provide on average the weakest protection *(cf. La Porta, Lopez-De-Silanes, Shleifer and Vishny, 1998)*. Additionally studies have developed indices that allow a more granular differentiation of the quality of protection across countries. For example *La Porta et al. (1998)* develop an index of legal shareholder protection, the anti-director rights index.

Based on these measures several studies have proven that the variation of shareholder protection across countries is consistent with the evolution of corporate finance and corporate governance in the respective countries. For example *La Porta et al. (1998)* shed light on the link between investor protection and ownership concentration. Using a global sample of 49 countries, they document that the ownership concentration varies across countries. Moreover they prove that countries with a better shareholder protection have a lower ownership concentration. Consistent with the view that the law serves as a governance

[17] *Shleifer and Vishny (1997, p. 950)*

mechanism, their results suggest that ownership concentration may be regarded as a substitute for low shareholder protection. *Shleifer and Wolfenzon (2002)* confirm the results of *La Porta et al.*. Following a theoretical approach they show that a better protection of investors is associated with a lower ownership concentration. Additional evidence on the relevance of the law for the ownership structure of the firm is provided for example by *La Porta et al. (1999); Claessens, Djankov and Lang (2000); Djankov, La Porta, Lopez-de Silanes and Shleifer (2008)*.

After the pathbreaking work of *La Porta et al. (1998)* a growing body of comparative corporate governance studies emerged that established a link between the legal environment and other important financial topics such a investment policy *(e.g. Love, 2003)*, capital market development *(e.g. La Porta, Lopez-de Silanes, Shleifer and Vishny, 1997; Morck, Yeung and Yu, 2000; Wurgler, 2000)*, valuation *(e.g. La Porta, Lopez-de silanes, Shleifer and Vishny, 2002; Doidge, Karolyi and Stulz, 2004)* , cash holdings *(e.g. Dittmar, Mahrt-Smith and Servaes, 2003; Pinkowitz, Stulz and Williamson, 2006)*, expropriation *(e.g. Johnson, La Porta, Lopez-de Silanes and Shleifer, 2000)* and finally payout policies *(e.g. La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000*b*; Faccio, Lang and Young, 2001; Brockman and Unlu, 2009)*.

In sum, these studies confirm the notion that law matters. As such they underline the relevance of the legal environment for the severity of agency conflicts to which minority shareholders are exposed.

2.2 Payout policy

This section presents the theoretical foundations of corporate payout policy which plays a central role in this dissertation. First, the general importance of payout policy is substantiated by explaining its relevance for the value of a firm. Next,

three different explanations for a firm's payout behavior are provided. These explanations are based on the three major market imperfections: information asymmetries, incomplete contracting possibilities and finally taxes. Since dividends have been over decades the dominant form of payout, these explanations address primarily the topic of dividend payouts. Whenever appropriate also share repurchases are addressed. Particularly the arguments presented form the agency theoretic and the tax perspective are of high relevance for the remainder of this dissertation.

2.2.1 The (ir-)relevance of payout policy

Under the term *payout policy*, *Allen and Michaely (2003)* subsume recurring decisions on the form, size and timing of corporate payouts. In their seminal work *Modigliani and Miller (1961)* argue that under the assumption of perfect and complete capital markets dividend policy and thus the combination of retained and distributed earnings had no relevance for the value of a firm. This finding is today referred to as dividend irrelevance theorem. According to their argumentation the only determinant of firm value was investment policy. The irrelevance theorem implies that under ideal conditions the investor should be indifferent between the form and the timing of payout. Consequently, it makes no difference whether the payout occurs now or later and whether the profit is distributed in the form of dividend payments or share repurchases. Perfect and complete capital markets consist of the following elements:

- No taxes
- Symmetric information
- Complete contracting possibilities
- No transaction costs

- Complete markets

In a real world, however, these idealistic assumptions are usually not true due to the emergence of market imperfections such as taxes, information asymmetries, agency costs, transaction costs, flotation costs, and finally irrational investor behavior. Consequently, the topic of payout policy becomes highly relevant. As the literature reveals, these imperfections are not of equal importance. *Modigliani and Miller (1961)* for example identify taxes as...

> "...undoubtedly the major systematic imperfection in the market."[18]

Other scholars like for example *Lease, John, Kalay, Lowenstein and Sarig. (2000)* and *Baker, Powell and Veit (2002)* classify these imperfections into two categories: While the first three imperfections are labeled as the *big three imperfections*, the latter three are characterized as *little frictions*.

Over the past decades, considerable efforts have been made in analyzing the impact of each of these imperfections on corporate payout policy. As a result, the literature offers several competing theories that try to explain why companies pay dividends and why investors pay attention to dividends. Referring to the broad variety of explanatory approaches, *Black (1976)* uses the term *dividend puzzle* to underline that until now there is not a single universal theory that could explain all known payout phenomena. In this context *Black (1976)* states:

> "The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don't fit together."[19]

A few years later, also *Feldstein and Green (1983)* conclude:

> "The nearly universal policy of paying substantial dividends is the primary puzzle in the economics of corporate finance."[20]

[18] *Modigliani and Miller (1961, p.432)*
[19] *Black (1976, p. 8)*
[20] *Feldstein and Green (1983, p. 17)*

In the following I provide a brief overview of selected theories that serve to explain why firms pay dividends. Thereby, I concentrate on the three major imperfections. Since it is beyond the scope of this dissertation to summarize the whole literature on capital market imperfections and payout policy, emphasis is put on papers which are of importance for this work.[21]

2.2.2 Signaling explanation of payouts

The *signaling explanation* is based on the assumption that information asymmetries exist between corporate insiders and outside investors since corporate insiders are better informed about the future earnings prospects of the firm. Dividends can serve to transmit this private information and thus help to reduce existing information asymmetries. For example a dividend increase can convey a positive signal about the future profitability of the firm to the market.[22] The signaling explanation suggests that the provision of information is associated with capital market reactions. I is assumed that the market honors positive information, but punishes bad information, i.e. dividend increases (cuts) lead to positive (negative) stock price reactions. Following this view, managers are incentivized to provide private information when they are convinced that the firm's stock price is undervalued.[23]

Already *Modigliani and Miller (1961)* notice that there is a relationship between dividend decisions and market reactions in the sense that dividend increases lead to stock price increases and a dividend cuts are followed by a negative market reaction:

[21] See *Allen and Michaely (2003)*, *Baker et al. (2002)* and *Baker (2009)* for a comprehensive discussion of the impact of the various imperfections on the corporate payout policy.

[22] *Allen and Michaely (2003)* question this widespread view. They remark that dividends may also represent a negative signal as payouts could suggest that the company lacks positive net present value projects.

[23] For studies on the market reaction to dividend changes see for example *Pettit (1972); Charest (1978); Aharony and Swary (1980); Asquith and Mullins Jr. (1983); Healy and Palepu (1988); Michaely, Thaler and Womack (1995); Grullon, Michaely and Swaminathan (2002).* For studies on the market reaction to repurchases see for example *Ikenberry, Lakonishok and Vermaelen (1995).*

> "[...] in the real world a change in the dividend rate is often followed by a change in the market price (sometimes spectacularly so)."[24]

Following *Modigliani and Miller* several signaling models emerge that characterize dividend adjustments as an instrument to signal firm prospects *(e.g. Bhattacharya, 1979; John and Williams, 1985; Miller and Rock, 1985)*.[25] These three models share the postulation that signaling has to be costly in order to avoid misuse. Misuse could occur when the firm uses the signaling mechanism of positive earnings prospects to increase its value although these prospects do de facto not exist.[26] However, the three models differ in the differentiation of dividends and repurchases. *John and Williams (1985)* argue that the tax discrimination of dividends over capital gains makes dividends the adequate payout channel that transmits information to outside investors. By contrast *Bhattacharya (1979)* as well as *Miller and Rock (1985)* regard dividends and repurchases as perfect substitutes as both offer an identical signaling quality. In spite of their valuable contribution it can be criticized that the models of *Bhattacharya* and *Miller and Rock* do not provide a theory of choice among alternative payout channels.

This lack was compensated by the models developed by *Ofer and Thakor (1987)* and *Brennan and Thakor (1990)*. *Ofer and Thakor* argue that both dividends and repurchases are costly signaling instruments, however the cost structure differs between these two payout methods. As "neither dominates the other under all circumstances", *Ofer and Thakor* argue that the choice of the cash disbursement mechanism should depend on the size of the disparity between the intrinsic value and the market value of a firm.[27]

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[24] *Modigliani and Miller (1961, p. 430)*

[25] For further research on theories with multiple signals (e.g. investments, bonds) see for example *Ambarish, John and Williams (1987); Williams (1988); Constantinides and Grundy (1989); Bernheim and Wantz (1995); Kumar (1988).*

[26] It has to be remarked that although the three mentioned models refer to the cost aspect of signaling, the respective costs that are associated with payouts differ between the three models.

[27] *Ofer and Thakor (1987, p. 385)*

Brennan and Thakor regard the choice of the distribution channel from a different perspective. While for example *Ofer and Thakor* regard information asymmetries between inside managers and outside shareholders *Brennan and Thakor* focus on the prevailing information asymmetries between better and worse informed shareholders. In their model the choice of the payout channel is determined in dependence of the size of the payout.[28] The model of *Brennan and Thakor* suggests that the proportion between large and small shareholders and thus shareholder structure has an impact on the choice of the payout channel .[29]

Overall, these research papers argue that a modification of the payout can be instrumentalized as signal for a change of future profitability and cash flows. Form another perspective, *Grullon et al. (2002)* argue that the information content of dividends may not only refer to future cash flows but also to the discount rates associated with future cash flows. Their maturity hypothesis indicates that dividend changes provide information about subsequent changes in the systematic risk of a firm. Specifically a dividend increase indicates a decline in systematic risk which is followed by a positive market reaction. This hypothesis is based on the view that with a firm becoming mature, its investment opportunity set diminishes and the rate of reinvestment decreases. As a consequence the excess cash flow rises which enables the firm to payout larger dividends. However another consequence of the maturation process is that not only the growth and the profitability of the firm decline but also the systematic risk. *Grullon et al.* find that in spite of the declining profitability the market shows a positive reaction which is related to the decrease in risk.

[28] They assume that the information gathering process by investors to determine the true value of the firm is costly. Less informed investors who do not collect this information for cost reasons may suffer expropriation due to a share repurchase. Thus, repurchases bear the risk of wealth redistributions among better and worse informed shareholders.

[29] A fundamental driver for this causal relationship is that the costs for gathering information about the true value of the firm are fixed. Consequently large shareholders have a higher incentive to gather information.

2.2.3 Agency explanation of payouts

The *agency theoretic explanation* is based on the assumption that outside shareholders and corporate insiders have diverging interests and that managers behave opportunistically. According to the agency theory insiders may use profits for personal benefits or for non value-maximizing but empire building investments which are not in the shareholders' interest *(cf. Jensen and Meckling, 1976)*. Through activities that are intended to limit the divergence agency costs emerge. The principal's monitoring efforts are only one example for these activities.

Jensen (1986) argues that payouts to the shareholders lead to a reduction of resources that are under the managers' control and subject to their discretionary power. As a consequence payouts reduce cash "that would otherwise be invested in low-return projects or wasted."[30] Even though it has to be admitted that also the managers' promise of a long-term, permanent dividend increase can reduce the excessive cash flow in the long run, *Jensen* stresses that this promise is weak as it can be reneged at any time. Thus to be effective, any instrument that serves to reduce cash must have a binding character.[31]

Also *Easterbrook (1984)* argues that payouts lead to a reduction of agency costs – in particular with regards to the cost of control.[32] The reason behind this argument is that payouts cause cash outflows which force the management of the firm to raise new capital in competitive markets. For this purpose the management is willing to undergo the scrutiny and the monitoring activities of the potential contributors of new external capital. *Easterbrook (1984)* concludes that...

> "...[d]ividends exist because they influence the firms' financing poli-

[30] *Jensen (1986, p. 324)*

[31] In line with this view, *Jensen* also considers debt as an effective substitute for dividends as it has a binding effect on the promise to payout future profit.

[32] Although *Easterbrook* addresses primarily dividends and thus a particular form of payouts in his paper, he also mentions explicitly that dividends are not the only alternative: "There is a further problem because the explanations I have offered are not unique explanations of dividends. Nothing here suggests that repurchases of shares would not do as well as or better than dividends." (*Easterbrook (1984, p. 655)*)

> cies, because they dissipate cash and induce firms to float new securities."[33]

According to Easterbrook's view, managers have a natural incentive to minimize agency costs as they are directly and inversely related to the price that can be achieved for new investments. Altogether, these managers are expected to act more in the interest of the shareholders than managers that do not undergo this scrutiny.[34] Altogether the agency view suggests that shareholders have a preference for payouts.

Additional support for the agency view of dividend payouts comes from *La Porta et al. (2000*b*)* who argue that ...

> "...the agency approach is highly relevant to an understanding of corporate dividend policies around the world."[35]

They find that the shareholders' ability to extract payouts depends on the investor protection in the respective country. In countries with better minority shareholder protection shareholders are more able to influence managers to payout cash which results in higher dividends. *La Porta et al.* refer to this relation as the *outcome model* of dividend payments. [36]

Allen, Bernardo and Welch (2000) present another agency theoretic argument that explains why specific firms pay dividends and moreover prefer dividends over repurchases. Their model is based on the assumptions that the various

[33] *Easterbrook (1984, p. 652)*

[34] *Easterbrook (1984)* also sheds light on the role of dividends for the shareholder – bondholder conflict. When corporations experience a value increase due to successful investments, payouts help to avoid a significant change of the risk allocation between both parties and disable wealth transfers from shareholders to bondholders. *Jensen and Meckling (1976)* and *Kalay (1982*b*)* for example point out that in case of large, excessive payouts there is also a possibility of wealth transfer from bondholders to shareholders.

[35] *La Porta et al. (2000*b*, p. 27)*

[36] Previously, *La Porta et al. (1998)* find a significant difference between various countries concerning the legal protection of outside shareholders. *La Porta, Lopez-de Silanes, Shleifer and Vishny (2000*a*)* argue that the intensity of agency problems which minority shareholders face varies around the world.

shareholder groups such as individuals and institutions are taxed differently and that institutional investors experience a preferred tax treatment. Moreover institutional constraints such as the prudent man rule in the U.S. exist which favor the engagement of institutionals in dividend paying shares. Both the clientele effect and the institutional constraints lead to a certain preference of institutional investors for dividend paying shares. Thus firms that want to attract these investors, increase their dividends. The reason behind this attracting behavior is that the institutional investors' engagement ensures that the firm is well managed. Institutional investors do not only have a greater incentive to become informed about their investment. They are also known to have a relative advantage in monitoring firms and detecting the quality of the firm and its management. Moreover they have the expertise and the power to exert pressure on the management and to facilitate mechanisms against underperformance.[37] As a consequence, firms that attract relatively more institutionals perform better in the long run.[38]

There is a large body of evidence that corroborates the agency view of dividends. *Rozeff (1982)* for example show that payout ratios are larger in firms with more severe agency conflicts, while *Lang and Litzenberger (1989)* find a larger price impact of a dividend increase in overinvesting firms as compared to non-overinvesting firms. In addition, *Grullon and Michaely (2002)* show that large dividend increases are followed by declining returns and capital expenditures which is in line with the presumption that shareholders who anticipate declining investment opportunities force the management to increase payouts.

[37] For example institutionals can sell large shareholdings and thus facilitate takeovers.

[38] *Allen et al.* argue that the engagement of institutional investors can serve as a signal for firm quality. As such their model contributes not only to the agency explanation of dividends but also to the signaling explanation.

2.2.4 Tax explanation of payouts

Following the *tax explanation* investors should prefer the payout method that is optimal under tax aspects, i.e. they should opt for the payout method that is ceteris paribus associated with the lowest tax burden. Traditionally the tax literature has been divided into CAPM-based studies and ex-dividend day studies.[39]

CAPM-based studies

Motivated by the historical tax penalty on dividends relative to capital gains in the U.S., scholars examined whether high dividend payers are less valuable than low dividend payers.

In the model presented by *Farrar and Selwyn (1967)* investors are assumed to maximize the after-tax income. In a partial equilibrium framework, individual investors choose the amount of personal and corporate leverage and also decide on the profit allocation, i.e. whether they prefer to receive corporate income either in form of dividends or as capital gains. When taxes on capital gains are more favorable than taxes on dividend distribution, rational investors will prefer capital gains. Consequently, firms should pursue a zero dividend policy.

Based on the work of *Farrar and Selwyn*, *Brennan (1970)* present a general equilibrium framework. In their study they use a capital asset pricing model that considers the effects of the taxes dividend and capital gains taxes. The model states that risk-adjusted pre-tax returns should be positively associated with dividend yields in order to compensate investors for the tax penalty on dividends. Succeeding studies that empirically tested Brennan's model provide mixed evidence on the relation between dividends, taxes, and stock performance. On the one side *Black and Scholes (1974)* for example do not find evidence in favor

[39] *Allen and Michaely (2003)* offer an alternative classification that separates static and dynamic models.

of a relation of dividends and stock prices which casts doubt on the existence of a tax effect. On the other side, *Litzenberger and Ramaswamy (1979)* find a relationship between dividend yield and stock returns. However, *Kalay and Michaely (2000)* cast moderate doubt on the interpretation of the results presented by *Litzenberger and Ramaswamy* due to methodological concerns.[40]

Ex-dividend day studies

Ex-dividend day models represent also a valuable approach for the analysis of the impact of taxes on dividends. The studies following this approach examine the stock price drop around the ex-dividend date. As *Baker et al. (2002)* note, ...

> "...favorable capital gains tax treatment should cause the price drop to be less than the dividend payment and cause investors to prefer stocks that do not pay dividends."[41]

Overall, the evidence from the ex-dividend day studies supports the view that under consideration of taxes, dividends should be minimized *(e.g. Green and Rydqvist, 1999; Elton and Gruber, 1970; Michaely, 1991; Kato and Lowenstein, 1995; Lakonishok and Vermaelen, 1986; Michaely, Thaler and Womack, 1995; Michaely and Vila, 1996; Kalay, 1982a; Eades, Hess and Kim, 1984; Poterba and Summers, 1984)*. Interestingly, these studies also show that there is a high trading volume of around ex-dividend date which significantly differs from the average trading behavior. This can be interpreted as a sign that shares change hands from one investor to another *(cf. Allen and Michaely, 2003)*. Overall, the evidence from the ex-dividend day studies suggests that taxes affect investor and firm behavior and thus matter for payout policy.

[40] For additional evidence see for example *Blume (1980); Morgan (1982); Poterba and Summers (1984); Keim (1985); Rosenberg and Marathe (1979); Miller and Scholes (1982).*

[41] *Baker et al. (2002, p. 244)*

Serious doubt on the relevance of taxes is presented by scholars who argue that dividend taxes could be completely avoided. *Miller and Scholes (1978)* were the first to shed light on dynamic tax avoidance strategies. In their paper they argue that the employment of certain *tax avoidance strategies* could be used to reduce dividend taxation - or to eliminate it completely in perfect capital markets. In such a scenario the dividend policy would become irrelevant for the shareholder's wealth. Therefore they cast serious doubt on the relevance of taxes for payout policy.

However, this view is seriously challenged by several studies. *Feenberg (1981)* analyzes tax returns in 1977 and conclude that the number of recipients to whom dividend tax evasion is available is too small to play a decisive role in the corporate dividend policy. Additionally, results by *Peterson, Peterson and Ang (1985)* and later by *Chaplinsky and Seyhun (1990)* brought forward that even though individuals try to minimize the tax load on dividends they do not eliminate dividend taxation completely. Overall this suggests that individuals do not use potential mechanisms to avoid taxes effectively. A plausible explanation for this phenomenon might be the substantial transaction costs associated with tax avoidance strategies *(cf. Allen and Michaely, 2003)*).

In sum, the presented theoretical considerations as well as the corresponding empirical evidence suggest that taxes do have an impact on payout policy.

3 Literature review

This chapter summarizes the literature that is of importance for this dissertation. The review addresses four large topics. First, the impact of shareholder protection on ownership concentration. Second, the relation between a firm's ownership structure and its performance. Third, recent trends in international payout policy. Fourth, the relation between taxes, agency conflicts and payout policy.

3.1 Shareholder protection and ownership concentration

The first section serves to provide an overview of the literature that deals with the relation between the law and ownership structures. Thereby, the review follows four steps: First, the literature on the relationship between legal shareholder protection and overall ownership concentration is summarized. Second, a literature review of the legal impact on the concentration of institutional investors is provided since this topic has recently attracted considerable attention in research. Third, the potential reasons for the negative relationship between legal shareholder protection and ownership concentration are discussed. Fourth, the literature and the results presented in the first two steps are challenged against the background of their econometric methodology.

3.1.1 The impact of shareholder protection on the overall ownership concentration

There is a large body of evidence regarding the impact of shareholder protection on the *overall ownership concentration*.

The first study that examines systematically the relationship between the legal system and the ownership structure of the firm in an international data set is provided by *La Porta et al. (1998)*. In their pathbreaking paper, they use a sample of 49 countries around the world in 1993 to explore the impact of legal rules for the protection of corporate shareholders and creditors on the ownership structure of the firm.

From a methodological point of view it is important to note that their estimates are based on *cross sectional country data*. As a proxy for ownership concentration they use the average percentage of common shares owned by the three largest shareholders in the 10 largest non-financial privately owned domestic firms in a given country.

Their study reveals some interesting results. First of all, it is documented that investor protection laws and their enforcement differ around the world.[42] Second the implication of investor protection laws on ownership structures is addressed in two steps:

- Based on **mean comparison**s, it can be shown that ownership concentration varies by legal origin. However, the prediction that the legal origins with the highest shareholder protection have the lowest ownership

[42] The results reveal that investor protection laws considerably differ across the sample countries. One explanation for this observation is that the sample countries are influenced by different legal origins. Comparing the quality of investor protection across law origins, the authors note that common-law countries provide on average the highest protection and French-civil-law countries the weakest protection with German-civil-law and Scandinavian countries in between the other two.

concentration (and vice versa) only holds for French-civil-law countries.[43] The finding that French-civil-law countries, which have the weakest shareholder protection, have the highest ownership concentration is interpreted by the authors as weak evidence that "concentration of ownership is an adaptation to poor legal protection."[44]

- Besides mean comparison tests, the authors also employ **OLS regressions** to estimate the impact of investor protection on ownership concentration. First, the impact of dummy variables that indicate the legal origin on ownership concentration is estimated. This reveals that ownership concentration is higher in French-civil-law countries. However, the coefficient of the French-legal origin dummy is significant only at the 10 percent level. The impact of other legal origins is insignificant.

  In a second step the impact of a set of governance variables is analyzed. This set includes measures for legal origin, shareholder protection and creditor protection. While the original anti-director rights index serves as a proxy for shareholder protection, the creditor rights index serves as a proxy for creditor protection.[45] The estimates document that the impact of legal origin and creditor protection is insignificant, while the protection of shareholders has a negative impact on ownership concentration that is significant at the 5 percent level. This suggests that an increasing quality of investor protection results in a decreasing ownership concentration of the firms in the respective country. One potential explanation for this finding is that ownership concentration serves as a substitute mechanism for poor

[43] With an average ownership concentration of 54 percent, French-civil-law countries have the highest ownership concentration, followed by common-law countries with 43 percent and Scandinavian countries with 37 percent. With 34 percent German-civil-law countries have the lowest concentration. The authors note that the surprisingly low average concentration in German-civil-law countries is less due to Germany, Austria, or Switzerland. It is rather affected by the low concentration in East Asian countries, where company law has been considerably shaped by the United States.

[44] *La Porta et al. (1998, p. 1148)*

[45] Due to incomplete data on selected variables the first regression includes only 45 countries and the second regression 39 countries.

investor protection.

Overall, the results presented by *La Porta et al. (1998)* provide only moderate evidence that investor protection affects ownership structures.

Next *La Porta et al. (1999)* use a new database that incorporates ownership data of large and medium-sized companies from 27 countries around 1995. They distinguish widely held firms and firms with a controlling shareholder.[46] Using mean comparisons the authors show that widely held firms a significantly more common in high protection countries. Based on these results the authors conclude that

> "dispersion of ownership protection goes together with good shareholder protection."[47]

However, *La Porta et al.* do not test the results of the mean comparison in a regression setting.

Also *Stulz (2005)* sheds light on the impact of shareholder protection the ownership concentration of the firm.[48] Their sample consists of 35 countries. Like the studies cited above, also *Stulz* use country average data. Similar to *La Porta et al. (1998)* they point to the agency problem of corporate insider discretion and argue that concentrated ownership structures may serve as an efficient remedy when outside investors face a high expropriation risk by strong insiders or large blockholders. They find that the anti-director rights index has a significantly positive impact on the fraction of widely held firms in a given country. Furthermore they detect a negative but insignificant impact on the fraction of family-

[46] The authors define a controlling shareholder as a investor who directly or indirectly holds at least 20 percent of the voting rights of a firm. Alternatively the level of 10 percent is used. The separation of direct and indirect control results from the fact that the authors identify the ultimate owner for controlled firms.

[47] *La Porta et al. (1999, p. 496)*

[48] *Stulz* examines the impact of twin agency problems on the ownership concentration of the firm. With the term "twin agency" *Stulz* refers to problems that are associated with corporate insiders and state rulers.

controlled firms and a significant negative impact on the weighted average of inside ownership. Their findings support the view that ownership concentration is influenced by the intensity of the agency problems.

In another study, *La Porta, Lopez-De-Silanes and Shleifer (2006)* analyze a cross-section of 49 countries to explore the relation between the security laws and stock market development. One part of this study sheds light on the determinants of ownership concentration. Beside the main variable which refers to disclosure requirements also the anti-director rights index and additional control variables are included in the regressions.[49] The ownership variable is adopted from *La Porta et al. (1998)*.[50] As the findings show, the quality of shareholder protection as measured by the anti-director rights index is negatively associated with ownership concentration. This finding confirms the results from previous studies.

Even though the original anti-director rights index of *La Porta et al. (1998)* has been used in numerous studies it has been criticized later on by researchers due to coding problems and conceptual issues *(e.g. Pagano and Volpin, 2005; Spamann, 2010)*. Responding to both line of critique *Djankov et al. (2008)* present a revised version of the anti-director rights as well as a new index for shareholder protection, the anti-self-dealing index. Using a cross-section of 49 countries the authors estimate the impact of these new indices on the ownership concentration of the firm. Their ownership concentration data comes from *La Porta et al. (1998)* which means that the authors employ again country-average data. *Djankov et al.* find only limited evidence for a negative correlation between their new measures of shareholder protection and ownership concentration. The impact of the revised anti-director rights index is both negative and significant, even though only at the 5 percent level.[51] The impact of the anti-self-dealing

[49] With the term disclosure requirements *La Porta et al.* refer to particular security laws provisions that regulate initial public offerings in each country.

[50] It has to be remarked that ownership information is added for a few selected countries which leads to a marginal increase of the sample.

[51] The authors compare the coefficients of the revised and the original anti-director rights in-

index is also negative but insignificant.[52] In view of this result, the authors conclude that...

> "...the anti-self-dealing index is not reliably associated with ownership concentration."[53]

In sum, *Djankov et al.* find only moderate evidence for a negative correlation between their new measures of shareholder protection and ownership concentration.

In a recent paper, *La Porta, Lopez-De-Silanes and Shleifer (2008)* summarize the evidence on the impact of the legal origin and the shareholder protection.

Overall the summarized literature reveals moderate evidence for a negative impact of shareholder protection on ownership concentration. However, this finding has to be interpreted with care for two main reasons. First, the majority of the presented evidence is based on the fundament of indices that have been revised in the meantime. Second, the empirical evidence is based on country average data and not on individual firm-level regressions.

3.1.2 The impact of shareholder protection on the concentration of particular investor types: The case of institutional investors

Besides the impact of shareholder protection on overall ownership concentration, the literature also sheds light on the potential relation between investor protection and the concentration of particular investor types. This section sum-

dex. This reveals that the coefficient of the new index is smaller and in addition to that also less significant than the coefficient of the old index (significance at the 5 percent level compared to the 1 percent level).

[52] In this context it has to be remarked that the anti-self-dealing index is constructed as of May 2003 while the ownership structure dates back to 1995. Thus there exists a considerable time lag between explanatory and dependent variable.

[53] *Djankov et al. (2008, p. 452)*

maries the literature on the impact of shareholder protection on the *concentration of institutional investors*. Over a long time, the impact of shareholder protection laws on the investment decisions of institutional shareholders has been neglected. Usually the investment behavior of institutional investors has been rather explained by stock characteristics such as risk, price level, transaction costs, visibility and idiosyncratic volatility *(e.g. Falkenstein, 1996; Del Guercio, 1996)*). Also firm characteristics have contributed to a better understanding of institutional investment decisions *(e.g. Parrino, Sias and Starks, 2003)*. Recently, the role of the law has gained considerable attention.

Li, Moshirian, Pham and Zein (2006) analyze the determinants of institutional ownership decision using country average data from 49 countries around the world in 2002. A particular focus lies on the explanatory power of measures that relate to one of the following four categories: macro governance environment, regulatory barriers to acquiring large shareholdings, size and concentration of the institutional investment industry, and finally economic and stock market characteristics.

The results indicate that shareholder protection as measured by the traditional anti-director rights index has a positive and significant impact both on the country average of a firm's cumulated institutional blockholdings and on the percentage of firms in a country that have at least one institutional blockholder. Based on a more granular differentiation of institutional investors, *Li et al.* shed light on the determinants of the investment behavior of five distinct institutional subtypes: banks, insurance companies, fund managers, investment banks, and others.

The results show that institutional subtypes such as banks, insurances and other institutionals are not significantly affected by the degree of shareholder protection. According to *Li et al.* this finding...

> "...is consistent with the argument that, due to other business rela-

> tionships with firms, banks are not overly concerned about governance environments when making ownership decisions."[54]

However, there is moderate evidence that other institutionals such as fund managers and investment banks do care about shareholder protection. In sum, the authors conclude that large institutional investors have a high incentive to monitor their portfolio firms. Consequently, they have a stronger presence in high protection countries, since these countries provide them with the power that is necessary for successful monitoring.[55]

Similar to *Li et al. (2006)*, *Ferreira and Matos (2008)* analyze the determinants of institutional ownership in 27 countries. However, they use firm-specific data instead of country averages. Their sample is based on a sample of 11,224 non-U.S. firms over the period from 2000 to 2005. Their measure for shareholder protection equals the anti-director rights multiplied by the rule of law index *(cf. La Porta, Lopez-De-Silanes, Shleifer and Vishny, 1998)*. They report that the legal protection of shareholders has a positive impact on the aggregate institutional ownership of a firm. This is conform to previous findings of *Li et al. (2006)*.

Differentiating domestic and foreign institutional investors reveals non-uniform evidence. While foreign institutions are negatively affected, domestic institutionals are positively affected. The negative impact on foreign institutionals is quite surprising. According to the authors, one potential explanation is that investors from high protection environments value strong investment prospects or diversification benefits higher than legal protection considerations when investing in low protection countries.

Moreover the authors separate institutionals according to the two groups of in-

[54] *Li et al. (2006, p. 2999)*

[55] For additional evidence on the impact of shareholder protection on the investment behavior of mutual funds see for example *Aggarwal, Klapper and Wysocki (2005); Chan, Covrig and Ng (2005); Gelos and Wei (2005); Khorana, Servaes and Tufano (2005)*.

dependent and grey investors. While grey institutions are positively affected by legal protection, independent investors are positively affected.[56] In sum, *Ferreira and Matos* show that institutional investors have a strong preference for countries with strong legal protection.[57]

3.1.3 The causal connection between shareholder protection and ownership concentration

Although the negative relationship between legal shareholder protection and overall ownership concentration is widely accepted in the literature, the reason for this relationship remains unclear.

Do concentrated ownership structures as hypothesized by *La Porta et al. (1998)* emerge because large blockholders fulfill important monitoring functions and thus serve as a *substitute* for sufficient legal protection? Or do large blockholders and weak protection rather *complement* each other, i.e. do large blockholders emerge just because countries with weak protection make it quite easy for them to realize private benefits of control? Both lines of arguments support the empirically observed negative correlation between shareholder protection and ownership concentration.

Substitution view: The *substitution view* argues that limited shareholder protection increases the scope for moral hazard in firms and large blockholders are required to alleviate the problems *(e.g. La Porta, Lopez-De-Silanes, Shleifer and Vishny, 1998)*. Under this view, blockholders serve as a substitute for weak legal protection of minority shareholders *(cf. Demsetz and Lehn, 1985; Shleifer and Vishny, 1986; Easterbrook, 1984; Jensen, 1986; Stein, 1988, 1989)*.

[56] An explanation of independent and grey institutionals is provided in Section 6.1.3.

[57] It has to be remarked, that the authors use the role of the law rather as control element in their study and not as primary object of interest. Thus, also the robustness of the legal impact against alternative indices or regression specifications is not further tested.

The substitute view sheds light on the "bright side" of concentrated equity ownership: It is well known that in widely held firms monitoring of the management is rather costly for the individual shareholder and, even not attractive due to the free-rider problem *(e.g. Grossman and Hart, 1980; Demsetz and Lehn, 1985)*. Consequently, the management enjoys considerable discretionary power that may result in an inefficient allocation of corporate funds at the expense of shareholders. The literature documents several examples for this phenomenon such as excessive salaries or empire building tendencies *(e.g. Shleifer and Vishny, 1997; La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000*b*)*. Large blockholders may provide a remedy to this problem as they have the power and incentive to exert control and influence on the management. As the theory argues, this reduces the risk of expropriation, leads to wealth maximizing decisions and finally results in shared benefits of control for minority shareholders. Note that under this view, large shareholders are rather seen as *outsiders* whose interests are in line with the interests of small shareholders.

Complementary view: The *complementary view* argues that blockholders emerge since weak legal constraints make the appropriation of corporate resources quite easy for them. In this context, strong blockholders are rather considered to represent *corporate insiders (e.g. La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000*b*)*. As such, they serve as complements to the weak legal protection of minority shareholders. Thus blockholdings are fueled by limited legal protection of minority shareholders, since such legislation allows blockholders to enjoy excessive private benefits. This behavior, which is commonly observed, leads to the majority–minority shareholder conflict *(e.g. Johnson, La Porta, Lopez-de Silanes and Shleifer, 2000)*. Thus, the complement view rather sheds light on the dark side of equity ownership. *Shleifer and Vishny (1997)* provide a comprehensive overview on the literature analyzing the costs of large shareholders.

As *Holderness (2011)* notes these two views are...

> "...diametrically opposed views on the fundamental role of large shareholders in public corporations."[58]

Until today there is hardly any empirical evidence which answers the question, whether ownership patterns are ultimately driven by the substitute or complement view. Therefore it is still an unsolved puzzle which of the two mechanisms acts as the driving force behind the negative impact of shareholder protection on ownership concentration. Referring to this ambiguity *Denis and McConnell (2004)* guess that any answer to this question...

> "...depends upon the trade-off between the shared benefits of blockholder control and any private extraction of firm value by blockholders."[59]

3.1.4 Shortcomings of the literature on shareholder protection and ownership concentration

In a recent study, *Holderness (2011)* discusses problems related to the commonly applied method that regresses country-averages of ownership concentration on measures of shareholder protection as used by *La Porta et al. (1998, 1999); La Porta et al. (2006); Stulz (2005); Roe (2006); Li et al. (2006); La Porta et al. (2008); Djankov et al. (2008)* and others. From a conceptual perspective, the use of country averages comes along with the problem of omitted variables as well as aggregation biases *(cf. Robinson, 1950)*. Consequently, the use of country averages is not the adequate mean to draw conclusions about a general relationship between firm characteristics. And in fact, it turns out that the criticism of *Holderness* casts substantial doubt on the validity of the findings of previous studies.

Reestimating the relationship between legal protection and ownership concen-

[58] *Holderness (2011, p. 19)*
[59] *Denis and McConnell (2004, p. 3)*

tration on the country level, provides results that are consistent with previous studies. Thus *Holderness* states:

> "There is a negative and statistically significant relationship between country averages of ownership and each of these three measures. This seemingly confirms a basic tenet of the law and finance literature, namely that ownership concentration is inversely related to the legal rights of public market investors."[60]

However, when *Holderness* estimates firm-level regressions taking into account firm characteristics that are well-known for affecting ownership concentration, he claims that he is not able to detect any convincing negative correlation.[61] Referring to the impact of three different shareholder protection measures (legal origin, anti-director rights index anti-self-dealing index) on ownership concentration *Holderness* concludes:

> "[W]hen we use the same data on a firm basis and control for only two firm-level determinants of ownership concentration, the coefficient on each of the legal measures either changes sign or loses statistical significance."[62]

In sum, the literature review suggests that shareholder protection and ownership concentration are negatively associated with each other. However, there are two critical aspects to consider: First, this relationship is seriously challenged due to the emergence of new regulatory indices and methodological concerns that address the use of country level regressions. Second, assuming that the negative relationship holds true, the question on the mechanism between shareholder protection and ownership concentration remains unclear, i.e. it is still unanswered whether ownership patterns can be rather explained by the com-

[60] *Holderness (2011, p. 21)*

[61] *Holderness* demonstrates that the impact of shareholder protection on ownership concentration becomes insignificant (though still negative) or even changes signs, i.e. becomes positive.

[62] *Holderness (2011, p. 21)*

plementary view or the substitute view.

3.2 Ownership concentration and firm performance

While the previous part addressed a particular determinant of ownership concentration, this part deals with the impact of the ownership structure on firm performance. Concerning this topic a large body of empirical evidence exists which is divided into two branches. One branch analyzes the effect of overall ownership concentration on firm performance while the other branch focuses on the particular impact of executive ownership. Since the purpose of this dissertation is to analyze the consequences of ownership concentration, the literature review focuses on studies that can be attributed to the first branch.

In general the impact of ownership concentration on firm performance is intensively disputed in the literature.[63] As documented in the theoretical framework of this dissertation in Chapter 2, it is on the one side argued that large blockholders have the power and incentive to exert effective control in the management. This leads to an increased shareholder value. On the other side it is objected that large blockholders may use their power to enjoy private benefits of control which expropriates the wealth of minority shareholders. In line with this view, *Denis and McConnell (2004)* conclude that the impact of large blockholders on firm performance is a matter of trade-off between the shared benefits of blockholder control and the private benefits.

Consistent with the competing theoretical predictions on the impact of concentrated ownership, also the empirical literature provides mixed results with a slight bias towards the studies that provide supporting empirical evidence.

[63] *Thomsen, Pedersen and Kvist (2006)* for example provide a comprehensive overview of the relevant literature.

Comparing the overall literature on ownership and performance, certain characteristics can be identified. First of all, it can be stated that although the literature analyzes samples that originate from different countries, there is a clear focus on the Anglo-Saxon countries. Moreover, it can be observed that the studies differ with regards to their methodological approach for the analysis of the relationship between ownership and performance. In principal two major approaches can be found. One commonly observed approach are event studies which concentrate on the stock returns around specific event dates that involve for example block trades *(e.g. Agrawal and Mandelker, 1990; Barclay and Holderness, 1991, 1992; Bethel, Liebeskind and Opler, 1998; Holderness and Sheehan, 1985; Slovin and Sushka, 1993)*.

Another popular approach regresses measures of firm performance on ownership concentration variables. It has to be remarked that the studies that can be attributed to the latter approach, differ according to three fundamental methodological dimensions.

The **first** dimension addresses the *regression method* that serves to estimate the impact of ownership on performance. Initial studies use an ordinary least squares approach *(e.g. Demsetz and Lehn, 1985; Holderness and Sheehan, 1988; McConnell and Servaes, 1990; Pedersen and Thomsen, 1999; Edwards and Weichenrieder, 2004; Thomsen and Pedersen, 2000)*. However, *Demsetz (1983)* object that the ownership concentration of the firm is endogenously determined. This argument has an important implication for the interpretation of the ordinary least squares results since endogenous ownership variables result in OLS estimates that are biased and inconsistent *(cf. Kennedy, 2003; Judge, Hill, Griffiths, Lütkepohl and Lee, 1988)*. And in fact, when *Demsetz and Villalonga (2001)* for example control for endogeneity, they find no systematic effect of ownership concentration on firm performance.

A widespread approach in the literature to handle the issue of endogenous own-

ership variables is the use of instrumental variable methods such as two stage least squares regression *(e.g. Demsetz and Villalonga, 2001; Cronqvist and Nilsson, 2003)* or three stage least squares regression *(e.g. Ferreira and Matos, 2008)*. More recently, *Thomsen et al. (2006)* shed light on an additional approach by proposing the use of granger causality tests.

The **second** dimension refers to the adequate *measure of firm performance*. In principal, the literature relies on three common measures. The first measure is Tobin's Q which provides a market-based perspective on firm performance *(e.g. Holderness and Sheehan, 1988)*. Second and third, the two accounting-based measures return on assets *(e.g. Shapiro and Gedajlovic, 2002)* and return on equity *(e.g. Demsetz and Lehn, 1985)* are employed.

The **third** dimension refers to the *type of relationship* between ownership concentration and performance. While for example *Shapiro and Gedajlovic (2002)* assume that this relationship has a linear characteristic, *Anderson and Reeb (2003)* for example argue that the relationship follows a non-linear pattern.

3.3 Recent trends on payout policy

In this work the topic of payout policy plays an important role. Since it is beyond the scope of this work to provide a comprehensive and detailed summary of the large number of studies in the field of payout policy, I want to present the most recent insights on payout policy around the world. [64]

The first part of the review highlights the most recent trends in U.S. payout policy, since the majority of the corporate payout policy research deals with U.S. firms. The second part focuses on recent cross-national evidence on payout policy which is – compared to the large body of U.S. evidence – relatively scarce.

[64] For a comprehensive review of the literature, see for example *Allen and Michaely (2003)*, *DeAngelo, DeAngelo and Skinner (2009)* or *Baker (2009)*.

Finally, part three concentrates on the latest findings on the payout policy of German firms since payouts play a major role in Chapter 8.

3.3.1 Empirical evidence from the U.S.

Empirical evidence on the payout policy in the U.S. reveals five interesting findings:

First, *Fama and French (2001)* provide evidence of disappearing dividends. They show that the number of firms paying cash dividends has declined considerably from 66.5% in 1978 to 20.8% in 1999. The authors show that this development is driven by two factors: The first factor is the modified firm mix due to changing firm characteristics of listed firms. In fact, the number of listed firms in the U.S. has grown rapidly during the 1990s due to new lists. These firms are on average small, have a low profitability but a high growth rate. As the authors show, these characteristics rather correspond to firms that have never paid dividends. The second factor is that independent of the firm characteristics, the firms' propensity to pay dividends has declined over the years.

Second, *Bagwell and Shoven (1989)*, *Grullon and Michaely (2002)*, *Allen and Michaely (2003)*, and *Skinner (2008)* document a considerable rise of share repurchases in the U.S. from 1982 on. Both the number of share repurchases as well as the amounts used for share repurchases have significantly increased over the years. *Skinner (2008)* even report that the aggregate level of stock repurchases is at least equivalent to the aggregate amount of cash dividends and suggest that share repurchases have become the "dominant form of payout".[65]

Third, *Weston and Siu (2003)* shed light on another trend: In sum, firms tend to pay out an increasing part of their earnings. Exploring the development of the payout ratio that measures the cash dividends of the corporate sector as percent-

[65] *Skinner (2008, p. 608)*

age of corporate earnings, they document an increase from 40 percent in 1971 to 81 percent in 2001. Using an extended payout definition that includes both dividends and share repurchases, the payout ratio even reached 116 percent in 2001. This means that in 2001 firms decided to pay out more than they earned. Similarly, *Allen and Michaely (2003)* report that combined amount of dividends and repurchases represents a considerable part of corporate earnings.

Fourth, both dividends and share repurchases tend to be concentrated, i.e. a large part of the aggregate payout amount is paid by quite a few firms. *DeAngelo, DeAngelo and Skinner (2004)* for example report that...

> "...the 25 firms that paid the largest dividends in 2000 account for a majority of the aggregate dividends and earnings of industrial firms."[66]

Moreover they document an increase of real and nominal aggregate dividend payouts over the period from 1978 to2000. This seems at first counterintuitive to the findings reported above. However, a detailed analysis reveals that this finding can be brought in line with previous results. The authors explicitly back the finding of a decreasing number of dividend payers and show that this decrease is primarily due to firms that pay quite small dividends. The increase of the aggregate payments is almost entirely due to the handful of high payers. The authors comment this phenomenon as follows:

> "[T]he increase in real dividends paid by firms at the top of the dividend distribution swamps the dividend reduction associated with the loss of many small payers at the bottom."[67]

Fifth, *DeAngelo, DeAngelo and Stulz (2006)* present a life-cycle theory of dividends that sheds light on a previously neglected determinant of dividend policy. They argue that...

> "...the trade-off between retention and distribution evolves over time

[66] *DeAngelo et al. (2004, p. 425)*
[67] *DeAngelo et al. (2004, p. 426)*

> as profits accumulate and investment opportunities decline, so that paying dividends becomes increasingly desirable as firms mature."[68]

As a proxy for a firm's life cycle stage and thus for its maturity the authors employ the ratio of retained earnings and total equity.[69] According to the life-cycle theory of dividends, the ratio of retained earnings and total equity is positively associated with the probability that a firm pays dividends. As the authors show, the life cycle stage has an even greater quantitative impact on the fraction of publicly traded industrial firms that pay dividends than the other common control measures such as profitability and growth opportunities.

3.3.2 Empirical evidence from cross-national studies

Regarding the empirical evidence on international payout policy, four major studies are of importance in the context of this work:

First, the study of *La Porta et al. (1998)* marks the beginning of the stream of literature to which we refer today under the term *law and finance*. This literature has analyzed the impact of investor protection on many different aspects of corporate finance which include for example investment policy *(e.g. Love, 2003)*, capital market development *(e.g. La Porta, Lopez-de Silanes, Shleifer and Vishny, 1997; Morck, Yeung and Yu, 2000; Wurgler, 2000)*, ownership structure *(e.g. La Porta, Lopez-De-Silanes, Shleifer and Vishny, 1998; La Porta, Lopez-de Silanes and Shleifer, 1999; Claessens, Djankov and Lang, 2000; Djankov, La Porta, Lopez-de Silanes and Shleifer, 2008)*, valuation *(e.g. La Porta, Lopez-de silanes, Shleifer and Vishny, 2002; Doidge, Karolyi and Stulz, 2004)* , cash holdings *(e.g. Dittmar, Mahrt-Smith and Servaes, 2003; Pinkowitz, Stulz and Williamson, 2006)* and expropriation *(e.g. Johnson, La Porta, Lopez-de Silanes and Shleifer, 2000)*.

[68] *DeAngelo et al. (2006, p. 228)*

[69] Instead of total equity, the authors also use total assets for the standardization of retained earnings.

To explore the impact of shareholder protection on dividend payouts, *La Porta et al. (2000*b*)* discriminate two agency models of dividends against each other. Under the outcome model dividends are paid because minority shareholders can exert pressure on corporate insiders to distribute cash. According to this model, minority shareholder rights and dividend payouts should be positively associated with each other. Under the substitute model insiders distribute cash in order to build up a reputation for decent treatment of minority shareholders that allows them to obtain equity in the future at favorable conditions. According to this model, minority shareholder rights and dividend payouts should be negatively associated with each other. Using an international sample of more than 4,000 firms from 33 countries the authors find evidence that supports the outcome model.[70] Consequently, dividend payments are increasing with investor protection. In spite of the valuable contribution made by *La Porta et al.*, it has to be remarked that their study does not pay attention to the role of share repurchases.

Second, similar to *La Porta et al.*, also *Denis and Osobov (2008)* examine the likelihood to pay dividends based on an international data set between 1989 and 2002. However, they restrict their study to a set of six developed financial markets which include the U.S., Canada, UK, Germany, France and Japan. While their results back some of the previous U.S. related findings and prove the validity of these findings also for non-U.S. countries, the authors provide also some new insights. First of all, their results reveal that the likelihood of dividend payments is affected by the same driver across countries: these are firm size, profitability and growth opportunities. Additionally, their results back the life-cycle theory of *DeAngelo et al. (2006)* as also in the cross-country sample the fraction of retained earnings in the total equity has a positive impact on the propensity to pay dividends.

[70] The sample is based on the March 1996 edition of the Worldscope Database, however the accounting data is from 1994.

Second, the authors are rather skeptical with regards to a declining propensity to pay dividends as observed in the U.S. by *Fama and French (2001)*. Even though they find some hints on a declined propensity, these declines are rather are rather small and not for robust for each country. As far as declined propensities are observed, the authors attribute this to the "failure of new lists to initiate dividends when expected to do so".[71] Finally, the authors find no indication that dividend payments have declined outside the U.S. In fact, similar to the U.S. evidence the aggregate level of dividends is not declining and concentrated among the largest and most profitable firms in each country *(cf. DeAngelo, DeAngelo and Skinner, 2004)*.

Third, *von Eije and Megginson (2008)* examine the payout behavior of listed firms from 15 countries within the European Union between 1989 and 2005.[72] Analyzing both the likelihood to pay and the payout amount distributed via the two channels of dividends and share repurchases, they report some quite interesting results. First of all they observe a decline of the fraction of European firms that pay dividends. However, the aggregate real dividends amounts increase. Second, they document that share repurchases have become more popular over the years. Third, dividends tend to be rather concentrated among European firms. Fourth, firm characteristics like for example firm size, market-to-book or profitability seem to have high explanatory power for payout policy in Europe. Fifth, while the likelihood to pay dividends has declined, the likelihood of share repurchases has continuously increased.

So far their results correspond closely to the findings in the U.S. as reported above. As such, the results indicate that there are quite some common characteristics between the payout policy in the U.S. and Europe. However, *von Eije and Megginson* also shed light on the difference between Europe and the U.S. and additionally reveal some new insights. For example the rise of share

[71] *Fama and French (2001, p. 80)*

[72] The following countries are included: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and UK.

repurchases has begun much later in Europe than in the U.S., however share repurchases have grown even faster than in the U.S.. Furthermore the authors document that the financial reporting frequency, which has increased from an average of 1.2 to 2.4 per year within the EU from 1989 to 2005, positively affects dividends and share repurchase amounts. They also reveal the role of privatized firms as strong dividend payers. Even though these firms only account for 2 percent of the listed firms, they contribute almost one quarter of the cash dividends paid in Europe.

Interestingly, the authors also show that the probability of cash dividends is not significantly affected by the ratio of retained earnings and total equity but rather by the company age in years. This result challenges in a certain way the findings of *DeAngelo and DeAngelo (2006)* for the U.S. and *Denis and Osobov (2008)* for an international data set: While it confirms the relevance of maturity for payout policy, it casts serious doubt on the explanatory power of the fraction of retained earnings.

Fourth, *Brockman and Unlu (2009)* analyze the impact of creditor rights on dividend payout policy using an international sample of 16,525 firms from 52 countries from 1990 to 2006. They show that creditor rights have a significant positive impact both on the probability and on the amount of dividend payouts. The rationale behind this finding comes from the substitute hypothesis based on the agency costs of debt, where a restriction of the dividend policy serves as a substitute bonding mechanism when creditor rights are weak. Following *La Porta et al. (2000*b*)* the authors control for the impact of shareholder protection. Comparing the role of the agency costs of debt and equity for dividend policy, they show that both matter. However, it can be shown that the agency costs of debt have a larger impact on payout policy.

3.3.3 Empirical evidence from Germany

Finally, with regard to Germany, the following empirical results are important:

First, *Denis and Osobov (2008)* report a strong decline of the fraction of dividend payers from 85.8 percent of the sample firms in 1990 to 42.7 percent in 2002. At the same time, the aggregate real dividends have increased from 3.5 billion Euro in 1990 to 10.6 billion Euro in 2002. Moreover they report that the evidence concerning a decline in the propensity to pay dividends is not robust in Germany.

Second, *von Eije and Megginson (2008)* also document that the fraction of dividend payers has declined from 84 percent of all listed sample firms in 1991 to only 37 percent in 2004. As a potential explanation for this development they mention the large number of initial public offerings during Germany's boom phase at the high-tech segment Neuer Markt between 1998 and 2000. Even though they do not provide detailed share repurchase data, they report that share repurchases almost did not exist in Germany before 1998 and were used in a comparatively moderate way after 1998.

Third, *Goergen, Renneboog and Correia da Silva (2005)* examine the decision to change the dividend for a panel of 221 quoted German industrial and commercial firms from 1984 to 1994. As they show, temporary dividend cuts and omissions – especially after the occurrence of a loss – are a common phenomenon in Germany. Overall, their results suggest that dividend policy in Germany is more flexible than in the U.S. According to Lintner's famous behavioral model, managers of U.S. firms smooth dividends as they assume that a policy of stable or even steady increasing dividends is honored by the market *(cf. Lintner, 1956)*.[73]

[73] Consequently, *Lintner* argues that managers rather focus on the question whether the existing rate has to be modified than on the determination of an absolute rate. In line with this view managers try to avoid non sustainable increases which have to be reverted in the future. This results in the observation of gradual dividend increases and seldom dividend decreases, even in periods of economic downturn. Both *Fama and Babiak (1968)* and *Fama and French (2001)* use Lintner's model in their studies and attest the model a good explanatory performance. In a recent

The traditional view of dividend smoothing has been recently confirmed by *Leary and Michaely (2011)*.

Fourth, *Andres, Betzer, Goergen and Renneboog (2009)* also analyze the dividend policy of a sample of 220 industrial and commercial, listed German firms from 1984 to 2005. Consistent with *Goergen et al.* their findings show that the dividend policies of German firms are more flexible compared to their counterparts in the U.S. or in UK. Moreover the authors document that the payout policies of German firms are driven by cash flows rather than by published earnings.

Finally, *Gugler and Yurtoglu (2003)* analyze the payout ratios of 266 major listed German companies from 1992 to 1998. Their study sheds light on the importance of corporate governance for dividend policy in Germany. They document that the voting rights of the largest shareholder are negatively associated with the firms' dividend pay-out ratio. A potential explanation for this finding is that a powerful investor rather tends to prefer the consumption private benefits of control. However, the results also show that the second largest shareholder can fulfill an important monitoring function.

3.4 Taxes, agency conflicts and payout policy

As Section 2.2.4 suggests, taxes are relevant for the value of a firm. Based on this foundation, a large body of literature has emerged that deals with the impact of taxation on corporate payout policy. In this section I summarize the respective literature in four steps.

Over the decades several views emerged that describe how dividend taxation

survey of U.S. financial executives *Brav, Graham, Harvey and Michaely (2008)* corroborate the conclusions by Lintner as they identify long term stability of future cash flows and the historic level of dividends as important determinants of a firm's dividend policy.

influences the firms payout behavior. In a **first** step this section introduces these different views. As *Hanlon and Heitzman (2010)* note, these views "implicitly or explicitly assume that the individual level tax on dividends affects the price of corporate equity".[74] In spite of this joint characteristic, the views are based on different assumptions and thus provide competing predictions about how dividend taxation affects dividend policies through the firm's cost of capital. While some argue that taxes do affect dividends, others insist that dividend taxes do not affect payouts. This section does not aim to provide a comprehensive overview of all theories that emerged over the years. It rather serves to introduce those theories that are considered as leading and probably the most established in the economic literature: The old view, the new view and the agency view of dividend taxation.[75]

After presenting the different views of dividend taxation, I summarize the empirical evidence on the relation between taxes and dividend policy. The overwhelming part of this evidence is focused on single countries with a particular focus on the U.S.. Therefore, I present in the **second** step of this section the empirical evidence on the relation between taxes and payout policy in the U.S.. In the **third** step, the corresponding evidence for non-U.S. countries is reported. Beside these single country studies, there are a few studies that explore the relation between taxes and payout policy in a cross-national context. These studies are summarized in the **fourth** and final step.

3.4.1 Theoretical considerations

The *old, traditional view* of dividend taxation argues that taxes actually do affect dividend policy and investment decisions *(cf. Harberger, 1962, 1966; Feld-*

[74] *Hanlon and Heitzman (2010, p. 161)*

[75] As already noted, there are a number of alternative theories such as the life cycle theory of *Sinn (1991)*.

stein, 1970; Poterba and Summers, 1985).[76] This view assumes first of all that the marginal source of finance is new equity and dividends are paid from the return that a firm receives on its investments. Second, the old view implies that dividends are paid for non-tax motives such as the signaling of profitability *(e.g. Bhattacharya, 1979)* or the extraction of cash-flows to restrict the discretionary power of the management *(e.g. Jensen, 1986)*. This has the following implication in case of a dividend tax cut: Under the old view decreasing dividend taxes lead to an increasing net return on investment. This lowers the required rate of return of an investment project and as a consequence, also less profitable projects are realized. Overall this leads to an increase of investments, returns and dividend payouts in the long run. In this context *Chetty and Saez (2005)* describe the effect of taxes under the old view as follows:

> "[W]hen taxes on dividends are cut, individuals save more, spurring business investment, profits, and dividend distributions in the long run."[77]

Moreover, the old view argues that a dividend tax cut reduces the marginal cost of paying dividends for non-tax reasons which also results in increasing dividends.

Contrary to the old view, the *new view* states that taxes do not distort dividend and investment decisions *(cf. Auerbach, 1979; Bradford, 1981; King, 1977)*. The new view assumes that retained earnings are the marginal source of finance for new investments. Moreover it is implied that sooner or later the firm's profits will be distributed to the shareholders. As long as the tax rate remains at a constant level, the timing of any distribution does not matter and thus shareholders should be indifferent. Following these assumptions, dividend taxes should not have a influence on the investment decisions of firms and therefore, corporate

[76] *Hanlon and Heitzman (2010)* provide a comprehensive overview of the assumptions and the implications of the different views on dividend taxation.
[77] *Chetty and Saez (2005, p. 797)*

profits and dividend payouts should not change in the long run *(cf. Chetty and Saez, 2005)*. If, however the assumption of constant tax rates is violated, for example due to a temporary tax cut, the new view predicts the same outcome as the old view, i.e. rising dividends *(e.g. Auerbach and Hassett, 2003)*.

The old and the new view theories are often referred to as "the two leading theories of corporate taxation".[78] Over the past years a third theory emerged, i.e. the *agency view* of dividend taxation of *Chetty and Saez (2010)*. Although this theory is relatively "young" in comparison to the old and the new view, it has already gained considerable attention. It is in a certain way motivated by the insight that none of the traditional, neoclassical views serves as exhaustive and convincing theory for the firms' payout behavior *(e.g. Chetty and Saez, 2010; Gordon and Dietz, 2008)*.[79] This becomes evident regarding the payout behavior around the U.S. Jobs and Growth Tax Relief Reconciliation Act of 2003 which cannot be brought in line neither with the old nor with the new view of dividend taxation.[80]

As its name indicates, the agency view is based on an agency theory of the firm in which managers and shareholders have diverging interests *Jensen and Meckling (1976)*.[81] According to the *Chetty and Saez* model the impact of taxes on dividend policy depends on the extent of these agency conflicts.

As *Chetty and Saez* show, dividend taxation is associated with first-order efficiency costs since it "induces managers to undertake unproductive investments by retaining earnings".[82] In contrast, corporate taxes do not have any distortive

[78] *Chetty and Saez (2010, p. 2)*

[79] As *Chetty and Saez (2010, p. 27)* state, their agency model "can explain many aspects of the empirical evidence on firms' responses to taxation that pose problems for existing neoclassical models".

[80] The evidence on the U.S. Jobs and Growth Tax Relief Reconciliation Act of 2003 is presented in detail in Section 3.4.2

[81] It has to be remarked that with its focus on the agency conflict between these two groups, the *Chetty and Saez* model primarily suits the characteristics of U.S. firms with their widely held ownership structures.

[82] *Chetty and Saez (2010, p. 27)*. In this context *Chetty and Saez* also hypothesize "that the main source of inefficiency from increasing the dividend tax rate is the misallocation of capital by

effects on the managerial payout decision and thus may only lead to second-order efficiency costs. Against this background, *Chetty and Saez* conclude:

> Corporate income taxation may therefore be a more efficient way to generate revenue than dividend taxation, challenging existing intuitions based on neoclassical models."[83]

Chetty and Saez demonstrate that their model serves quite well to explain the payout behavior around the U.S. Jobs and Growth Tax Relief Reconciliation Act of 2003.

Similar to *Chetty and Saez (2010)* also *(e.g. Gordon and Dietz, 2008)* shed light on the explanatory power of different theories that explain why firms pay dividends. They compare the new view, a signaling model, and finally an agency cost explanation. Also similar to *Chetty and Saez (2010)*, the latter model fits best the empirical evidence around the U.S. Jobs and Growth Tax Relief Reconciliation Act of 2003. It has to be noted that in spite of certain similarities, both studies have different assumptions concerning the question which agent defines the firm's dividend policy in the end. In the *Chetty and Saez* model the management decides on the dividend payouts while in the *Gordon and Dietz* model the shareholders decide on the dividend payout. As *Chetty and Saez* note, "this leads to different results in both the positive and efficiency analysis".[84]

3.4.2 Empirical evidence from the U.S.

The empirical evidence on the relation between taxes on payout policy is restricted to a small set of countries. It is apparent that these studies have strong bias towards Anglo-Saxon countries, in particular towards the U.S.. Although they focus on different countries, these studies share some common characteris-

managers because of reduced monitoring"

[83] *Chetty and Saez (2010, p. 1)*

[84] *Chetty and Saez (2010, p. 3)*

tics since many of them analyze the payout behavior around major tax reforms. The reason for this approach is that tax reforms represent significant structural breaks in the regulatory environment of a firm and thus work as ideal natural experiments to analyze the effect of dividend taxes on dividend policy.

The high density of empirical coverage for the U.S. is mainly driven by two large tax reforms. These are the U.S. Tax Reform Act (TRA) of 1986 and the Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) of 2003. The U.S. Tax Reform Act of 1986 led to an alignment of the statutory tax rates on dividends and capital gains and thus abolished the preferential tax treatment of long-term capital gains.

Survey evidence around the TRA presented by *Abrutyn and Turner (1990)* suggests that taxes play a subordinate role in the managerial payout decisions. Asking 163 chief executive officers of the largest 1000 companies of the U.S. only 18 percent mentioned the shareholders' tax rates as a motive for their payout ratio. 58 percent of the respondents did not even know their shareholders' tax status. Beside the survey evidence, empirical evidence on the effect of the TRA on firms payout policy comes for example from *Bolster and Janjigian (1991)*, *Papaioannou and Savarese (1994)*, *Wu (1996)* and *Casey, Anderson, Mesak and Dickens (1999)*. Using data from 1984 to 1999 *Bolster and Janjigian (1991)* analyze a sample of 883 non-financial U.S. firms that are listed at the New York Stock Exchange and the American Stock Exchange. Their findings indicate that payout ratios remain almost unchanged after the TRA.

Papaioannou and Savarese (1994) refer to a sample of 244 Fortune 500 and 40 Fortune Utility 50 firms for the period from 1983 to 1991 to analyze the impact of the tax reform on the dividend payout ratios. Comparing mean payout ratios of the aggregate sample before and after the TRA, they do not find significant evidence in favor of a change. Building subsamples based on the dividend payout ratio quintile, they obtain non-uniform results. Firms in the low-to-medium

ratio quintiles on average increase their payout ratio in the post-TRA period. However, the payout ratios of firms in the highest-ratio quintile decline.[85]

Wu (1996) uses two separate samples of S&P 500 and S&P400 firms over the period 1965 to 1991 and finds that aggregate corporate dividend payouts and dividend payout ratios increase after the reform. Finally, *Casey et al. (1999)* analyze the impact of the TRA on dividend policy based on a sample of 164 firms. Relying on a modified version of the model presented by *Rozeff (1982)* they do not detect a significant effect of the reform.

In sum, empirical evidence regarding the TRA provides mixed results. While results by *Bolster and Janjigian* and *Casey et al. (1999)* do not support the view that dividend payout increased as a consequence of the reform, *Wu* and to some degree also *Papaioannou and Savarese* find evidence in favor of a tax effect.

Also the JGTRRA experienced considerable attention in the empirical research. The JGTRRA led to a significant reduction of personal dividend income taxes. The individual dividend tax rate was reduced from 38.6% to 15%. At the same time, the capital gains tax rate from 20% to 15%. In the end this led to an alignment of individual taxes on dividends and capital gains *(e.g. Chetty and Saez, 2005)*. Thus, the tax advantage of capital gains was eliminated and dividends became much more attractive.

Similarly to the TRA the effects of the JGTRRA are not undisputed. Survey evidence concerning the impact of the JGTRRA on payout policy reveals that tax considerations are only of second order importance *(cf. Brav, Graham, Harvey and Michaely, 2005, 2008)*. This corresponds closely to the survey evidence around the TRA. The authors provide an interesting explanation for the low importance:

[85] It has to be remarked that although the positive tax impact identified by *Papaioannou and Savarese* refers only to firms with low and medium payout ratios, these firms still represent the majority of the total sample.

> "It seems plausible that the tax effect was second order because the May 2003 tax cut reduced tax rates for retail investors but not for taxable institutions, and retail investors are generally not thought to be of first-order importance."[86]

Similarly, *Brav et al. (2005)* report:

> "In the interviews, a few managers indicate that retail investors sometimes communicate with companies in hopes of obtaining a higher dividend payout, but that the companies' decisions are not influenced unless the retail investor owns a large block of stock or is part of the founding family."[87]

Also similar to the TRA, the studies that explore the firms' payout policies around the JGTRRA reveal non-uniform results. Referring to the finding of disappearing dividends *(cf. Fama and French, 2001)*, both *Julio and Ikenberry (2004)* and *Chetty and Saez (2005)* document reappearing dividends at the beginning of the new millennium. Using a sample of non-financial and non-utility firms listed at the NYSE, AMEX, and NASDAQ over the period from 1980 to 2004, *Chetty and Saez (2005)* show that the observed increase of dividend initiations as well as the rise of dividend payments is due to the impact of the JGTRRA. However, *Julio and Ikenberry (2004)* seriously question whether the positive reaction of dividend payments can be explained by the tax reform since the observed dividend increase already started in late 2000 and thus significantly before the tax cut.

Chetty and Saez (2006) object this view and note that the results presented by *Julio and Ikenberry (2004)* are affected by issues that result from the sample construction. Instead they extend the sample of their 2005 study and include firms for the period 1981 - 2005. Based on this sample they are able to prove that the increase of dividend payments started immediately before the reform.

[86] *Brav et al. (2008, p. 611)*
[87] *Brav et al. (2005, p. 509)*

Consequently, they show that it was indeed the tax cut that induced the increase in dividend activity. Along with the support for a general impact of taxes *Chetty and Saez (2005)* present an additional, quite interesting finding:

> "Firms with high levels of nontaxable institutional ownership did not change payout policies, supporting the causality of the tax cut in increasing aggregate dividend payments. The response to the tax cut was strongest in firms with strong principals whose tax incentives changed (those with large taxable institutional owners or independent directors with large share holdings), and in firms where agents had stronger incentives to respond (high share ownership and low options ownership among top executives). Hence, principal-agent issues appear to play an important role in corporate responses to taxation."[88]

This finding is at the first look a little bit counterintuitive since the tax cut increased the attractiveness of dividend payments for all individual investors. This includes also the group of small individual investors, where each investor holds marginal shares in the portfolio firms. If firms defined their dividend policy in accordance with the payout preferences of these small shareholders, then a higher propensity to pay dividends as well as higher payout ratios across all firms with small investors should be expected. This effect should be in particular pronounced in firms where small shareholders hold large shareholdings in total. However, the findings of *Chetty and Saez* suggest that U.S. firms rather define a payout policy that corresponds to their major shareholders' interests.

This result casts some doubt on the implicit presumption of previous tax motivated studies that dividend decisions are driven by pure tax considerations. It seems that these decisions are rather overlapped by conflicting interests between principals and agents, giving way to the view that dividend decisions are

[88] *Chetty and Saez (2005, p. 791)*

the outcome of an agency problem, i.e. a private benefit consideration, rather than a corporate governance mechanism as argued by *Easterbrook (1984)* and *Jensen (1986)*.

Similar to *Chetty and Saez* also *Brown, Liang and Weisbenner (2007)* and *Blouin, Raedy and Shackelford (2011)* support the finding that a firm's reaction to the tax cut depends on its ownership structure. Both studies observe a significant change of dividend payments. However, both studies hold different investor types responsible for the dividend change. *Blouin et al. (2011)* observe that the percentage of the firm's payouts that are dividends, increases in particular in firms with strong insiders, non-executive individuals, and mutual funds.

Results presented by *Brown et al. (2007)* show that the response to the dividend tax cut strongly depends on the tax incentives of executive directors. Following the tax cut, firms with large executive stock ownership initiated or increased dividends. However, this effect cannot be found for firms with large executive stock options holdings. This finding can be explained by the differential tax treatment of stock ownership and stock options. Considering their shareholdings, executives may prefer dividends over share repurchases (or at least be indifferent) after the dividend tax cut in 2003. However, taking into account their often substantial amount of - usually not dividend protected - stock options, they have a strong preference for share repurchases.

While *Brown et al.* highlight the role of executive preferences, *Desai and Jin (2011)* concentrate in a recent study on the impact of the tax induced preferences of another investor type, i.e. institutional investors. For this purpose they use a sample from 1980 to 1997 to analyze the impact of heterogeneous tax characteristics of institutionals on payout policy. The results indicate that when the tax costs of institutional investors shift, then dividend payout policy is adjusted to the modified preferences.

In the context of the tax preferences of particular investor types, *Blouin et al.*

and *Desai and Jin* shed light on a topic that has been relatively neglected in the empirical literature before: the role of *simultaneity* between the firms' payout decisions and the investors' portfolio decisions.[89] Both *Blouin et al.* and *Desai and Jin* cast some doubt on the view that tax preferences have an unidirectional impact on payout policy. Instead they argue that this effect could at the same time be the other way around. The reason is that in the wake of new tax rules not only firms have the option to react and adjust their payout policy. Also shareholders may rebalance their portfolios in order to maximize after-tax returns. And in fact, following a simultaneous equation approach *Blouin et al.* and *Desai and Jin* are able to show that on the one side firms adjust their payout policies and on the other side shareholders adjust their portfolios. This underlines the importance of a joint evaluation of shareholder and firm responses in light of modified tax laws.

While the aforementioned studies try to explain the amounts paid out, there is also a large number of studies that examine the impact of taxes on the *payout channel choice*, i.e. the decision between dividends and share repurchases. *Moser (2007)* analyzes the payout channel choice of U.S. firms from 1986 to 2004. Their results suggest that personal taxation affects the payout channel choice, i.e. when the tax penalty on dividends increases firms are more likely to use share repurchases instead of dividends. This effect is particularly pronounced when institutional owners and senior managers own large stakes of the company.

Sarig (2004) uses a sample of 157 U.S. firms over the period 1950 to 1997. Based on a vector autoregressive correlation model they analyze a time-series data set of corporate payout policies and find that an increase in the relative taxation of capital gains compared to dividends leads to a shift of corporate payout away from share repurchase and towards dividends. *Lie and Lie (1999)* analyze the payout behavior of U.S. firms between 1980 and 1994. They document that be-

[89] *Blouin et al. (2011, p.888)* claim that to the best of their knowledge, their study is "*the first study* to jointly estimate investor and firm responses to changes in shareholder taxes."

fore the TRA firms were more likely to opt for share repurchases. Moreover they show that managers are more sensitive to the shareholders' tax preferences when institutional investors own large stakes.

3.4.3 Empirical evidence from non-U.S. countries

Besides the large number of U.S. studies, there are also several studies that analyze the impact of taxes on payout policy in selected countries outside the U.S..

Using a sample of UK firms from 1953 to 1964, *Feldstein (1970)* for example shows that tax rate changes lead to an adjustment of dividend payments. Additionally, they note that the dividend reaction follows a partial adjustment process, i.e. a major part of the dividend increase can be detected in the first year, while the remaining part is postponed. *Poterba and Summers (1983)*, analyze the payout behavior of a sample of 16 UK firms. Their sample period from 1955 to 1981 covers several major dividend tax reforms such as the introduction of capital gains tax in 1965 or the system change to the imputation system in 1973 for example. They also find evidence in favor of a tax effect.

Pattenden and Twite (2008) analyze a sample of firms from the Australian Stock Exchange over the period from 1982 to 1997. The sample period includes the introduction of an imputation tax system in 1987 that increased the attractiveness of dividends. The results indicate that dividend initiations and the size of dividends increase after the reform.

Korkeamaki, Liljeblom and Pasternack (2010) use a sample of 148 listed firms from 2003 to 2006 to analyze the effect of the system change from a full imputation system to a system of partial double taxation of corporate income in 2004. This change has made dividend payments less attractive. *Korkeamaki et al.* report that dividend payouts decline after the reform while share repurchases increase significantly. In addition to that they document a considerable divi-

dend increase in the year before the system change when dividends were still tax exempt on the investor level. This pre-reform increase is particularly pronounced for those firms where shareholders that are negatively affected by the reform hold large shareholdings. Consistent with *Blouin et al. (2011)* and *Desai and Jin (2011)*, they find weak evidence that after the reform also the investors rebalanced their portfolios. Based on a sample of listed and non-listed Finnish firms in 1999-2004, also *Kari, Karikallio, and Pirttilä (2008)* provide supporting evidence in favor of an anticipation of the dividend tax.

Schanz and Thesseling (2011) explore a sample of German CDAX firms from 1993 until 2009 that covers two major tax reforms, i.e. the transition from an imputation system to a half income system in 2002 and the transition to a flat tax system in 2009. Their findings suggest that German firms adjust their taxes according to the payout preference of their investors.

Additional evidence that supports the impact of taxation on the firms' payout channel choices is provided for UK and Taiwan. Examining 264 substantial share repurchase announcements in UK from 1985 to 1998, *Rau and Vermaelen (2002)* show that exogenous changes of the tax environment serve quite well to explain the share repurchase behavior. Interestingly they observe that the repurchase pattern is driven by the tax preferences of influential investors and not by small investors.

Finally, *Lee, Liu, Roll and Subrahmanyam (2006)* analyzes the share repurchase behavior of a sample of Taiwanese listed firms after legalization of repurchases in 2000. They show that firms with large shareholdings by investors in high dividend tax brackets were more likely to initiate share repurchases.

3.4.4 Empirical evidence from cross-national studies

Beside the large number of single country studies there is also international, cross-country evidence on the impact of taxes on payout policy. However, this evidence is limited to a few studies.

*La Porta et al. (2000*b*)* use a cross section of companies from 33 countries in the year 1994 in order to explain the impact of corporate governance on dividend payouts. In their analysis *La Porta et al.* control for the impact of the shareholders' tax preferences. To calculate tax preferences they use the tax rates of local residents that hold minority stakes in the firms they invest in. Additionally, they assume that shareholders hold their investments long enough to qualify for long-term capital gains tax rates. The resulting country-specific tax variables are included as control variables into their regressions. The term country-specific means that the variables have a uniform tax preference value for all firms in the respective country, independent of the composition of the firms' shareholder base. As *La Porta et al.* report, they find "no conclusive evidence on the effect of taxes on dividend policies".[90] Since the variable of interest measures shareholder protection, it can be stated that *La Porta et al.* treat the impact of taxation as rather peripheral. Moreover it has to be remarked that they do not analyze share repurchases and thus ignore the role of an important payout channel.

Recently, *von Eije and Megginson (2008)* provide profound descriptive statistics of the payout policy in 15 European countries over the period 1989–2005. In addition to that they analyze the impact of firm characteristics on the channel choice and the amounts paid out. Similar to *La Porta et al. (2000*b*)* the role of taxes plays only a subordinate role in their study, as a country-specific tax variable is rather included for robustness test purposes, i.e. in order to demonstrate the validity of their main results.[91] Nevertheless they claim to be...

[90] *La Porta et al. (2000*b*, p. 27)*

[91] For the calculation of tax preferences *von Eije and Megginson* follow *La Porta et al. (2000*b*).*

> "the first multi-year, multi-national test of the impact of dividend taxation on the likelihood to pay dividends and repurchase shares, and on the amounts paid and repurchased."[92]

They find quite inconsistent results. While a growing preference for dividends increases the propensity to pay cash dividends it has a negative impact on the amount of dividends.

In a recent working paper *Jacob and Jacob (2011)* analyze the impact of taxes on payout policy using a global sample of 25 countries from 1990 to 2008.[93] Similar to *von Eije and Megginson (2008)* they analyze both dividends and share repurchases. Like the previous cross-country studies they lack a detailed picture of the firms' ownership structure and thus use country-specific tax preference indicators instead of firm-specific ones. They show that the tax preference for dividends has a positive and significant impact on the propensity to pay dividends and the dividend yield. Moreover they report a negative effect on the propensity to repurchase shares. However, the impact of the repurchase yield is insignificant.

In sum, the international evidence on the impact of taxes on payout policy provides rather mixed results. In spite of extensive research, the impact of taxes on payout policy is rather disputed in the empirical literature.[94] *Chetty and Saez (2005)* state that a major reason for this dispute is the lack of compelling tax variations and fully convincing research designs. They attribute this phenomenon mainly to the "lack of compelling tax variations, and therefore of a fully convincing research design."[95]

Essentially, this is driven by two factors: **First**, by the limited geographic scope

[92] *von Eije and Megginson (2008, p. 369)*

[93] With a share of 62 percent their sample is dominated by firms from the U.S. and Japan. European firms account only for less than one fourth of the sample.

[94] *Chetty and Saez (2005)* argue that although there has been extensive research in the past, "the effects of dividend taxation on dividend policies and corporate behavior more generally remain disputed" (*Chetty and Saez (2005, p. 792)*).

[95] *Chetty and Saez (2005, p. 792)*

of the samples. This aspect refers only to the single country studies. Probably the example of a single tax reform in one particular country at one specific point of time might not be the adequate instrument for drawing conclusions about the relationship between taxes and payout policy in general. As *Jacob and Jacob (2011)* note cross country studies try to overcome this lack through the inclusion of several countries.

The **second** factor refers primarily to cross country studies: The choice of country and year specific tax preference variables in the few international studies sheds light on another, rather methodological driver for the lack of tax variation. From a methodological point of view the concept of country-specific tax preference variables implies that tax variables vary across countries but not between the firms within the specific countries. This is rather unrealistic since the tax laws around the world teach us, that the tax preference varies between different investor types. Consequently, the shareholder structure should be taken into account which results in firm-specific tax preferences. The concept of firm-specific tax variables would offer variation along both dimensions, i.e. between countries and firms, and consequently lead to more variation.

However, as the literature review shows as well as to the best of my knowledge there is no cross-national study with firm-specific tax preferences that would be able to overcome the often criticized shortcomings of previous studies.

4 Taxation of corporate income in Europe

4.1 Corporate income tax systems in Europe

In this dissertation, the taxation of corporate income and payouts in Europe plays a central role. In general, corporate income taxation can be characterized along four principle dimensions *(cf. Kellersmann and Treisch, 2002)*:

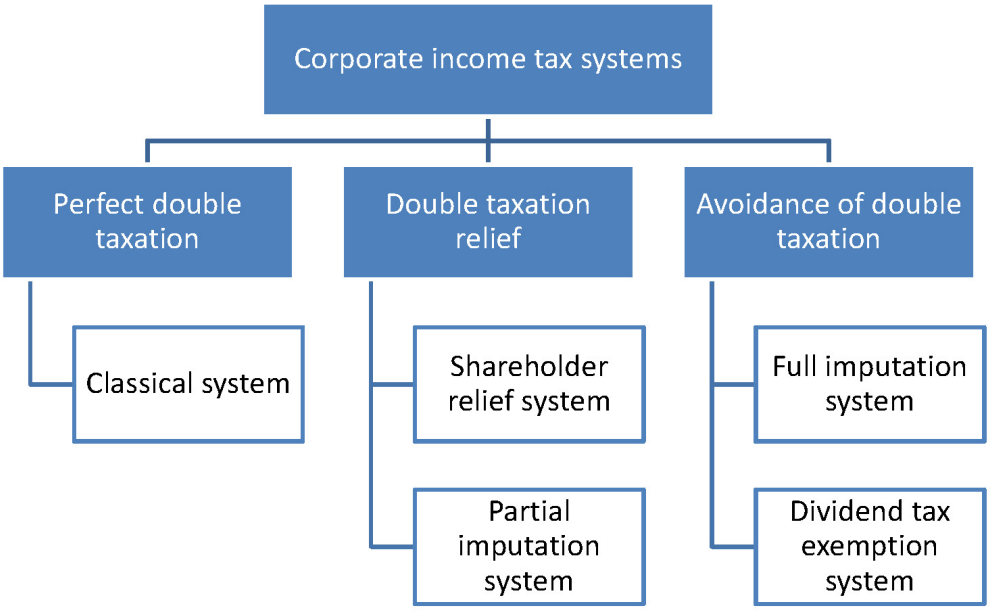
- the tax type (e.g. corporate income tax, personal income tax)
- the technical tax system which regulates the relation between taxation on the corporate level and investor level
- the taxable base
- the tax rates

Note that an exhaustive comparison of corporate income taxation across selected countries requires a careful consideration of all four dimensions. Since, this is not the purpose of this dissertation, I concentrate in this section on one specific dimension and provide an overview of the **corporate income tax systems** of European countries from 1996 to 2006.[96]

[96] In this dissertation the term "European countries" refers to those 16 countries that serve as base for the subsequent empirical analysis. This includes: Austria, Belgium, Denmark, Finland,

As Figure 4.1 shows, three major groups of tax systems can be found in Europe.

Figure 4.1 Corporate income tax systems in Europe



Notes: This figure provides an overview of the different corporate income tax systems in Europe. Source: *Kellersmann and Treisch (2002, p. 99)*

The first group are **systems with unrelieved double taxation**. This group primarily consists of the so called *classical system* where corporate income is subject to perfect double taxation. This means that the taxation on the corporate level is not taken into account for the determination of the tax burden on the investor level. Consequently, income is at first taxed on the corporate level. In case of dividends, the distributed amount is additionally taxed on the investor level.

The second group includes all **systems with relieved double taxation**. It consists of the shareholder relief system and the partial imputation system. These systems attempt to reduce the tax burden that arises from the clas-

France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

sical systems of double taxation. Under the *shareholder relief system* for example income is at first taxed on the corporate level. On the individual investor level the tax burden that would usually arise under a double taxation system is reduced through several mechanisms. For example one option is to reduce the tax rates that the individual investor has to pay on dividend payments. Alternatively the taxable base may be reduced so that only a certain percentage of the dividend payouts is subject to taxation on the individual investor level. Under the *partial imputation system* corporations pay regular income tax on their profits. A certain part of taxes paid on the corporate level is then considered as prepayment for the personal tax burden on the level of the individual investor. In the end this means that a part of the corporate income tax burden can be credited against the individual investor's tax burden.

The third and final group includes **systems that avoid double taxation**. These are the full imputation system and the dividend tax exemption system. The *full imputation system* is quite similar to the partial imputation system. However, the full tax paid on the corporate level can be credited against the personal tax burden of the investor. Under the *dividend tax exemption system* dividends are not taxed at all.[97]

Table 4.1 provides an overview of the prevailing tax systems in Europe from 1999 to 2008. As the table reveals, there is a considerable heterogeneity of tax systems across Europe. The cross country variance results from the sovereign tax legislation of the sample countries. Additionally it can be observed that there is a certain variation of tax systems across time since a few countries such as Germany for example reform their tax system and thus switch form one system to another.

[97] None of the sample countries operates a dividend tax exemption system. However, Greece is an example for a European country that has such a system.

Table 4.1 Overview of tax systems in Europe, 1999 – 2008

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief
Belgium	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief
Denmark	Classical	Classical	Classical	Classical	Classical	Classical	ShRelief	ShRelief	ShRelief	ShRelief
Finland	FullImp	FullImp	FullImp	FullImp	FullImp	FullImp	ShRelief	ShRelief	ShRelief	ShRelief
France	FullImp	FullImp	FullImp	FullImp	FullImp	FullImp	ShRelief	ShRelief	ShRelief	ShRelief
Germany	FullImp1	FullImp1	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief
Ireland	PartImp	Classical	Classical	Classical	Classical	Classical	Classical	Classical	Classical	Classical
Italy	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief
Luxembourg	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief
Netherlands	Classical	Classical	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief
Norway	FullImp	FullImp	PartImp	FullImp	FullImp	FullImp	FullImp	ShRelief	ShRelief	ShRelief
Portugal	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief
Spain	PartImp	PartImp	PartImp	PartImp	PartImp	PartImp	PartImp	PartImp	ShRelief	ShRelief
Sweden	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief	ShRelief
Switzerland	Classical	Classical	Classical	Classical	Classical	Classical	Classical	Classical	ShRelief	ShRelief
United Kingdom	PartImp	PartImp	PartImp	PartImp	PartImp	PartImp	PartImp	PartImp	PartImp	PartImp

Notes: This table provides an overview of the prevailing corporate income tax systems in 16 European countries from 1999 to 2008. *Classical* stands for classical system, *ShRelief* stands for shareholder relief system and *PartImp* stands for partial imputation system. *FullImp* stands for full imputation system.

4.2 Major tax system changes in Europe: The case of the German tax reform 2001

As argued above, taxation in Europe is subject to considerable variation over time. This includes minor changes resulting from an increase or decrease of tax rates as well as large changes which are triggered by modifications of the tax system in the respective countries.

As an example for a major tax system change in Europe the German Tax Reduction Act (GTRA) 2001 is presented in this section. The GTRA had a considerable impact on the overall taxation of corporate payouts and retentions. It consists of a considerable number of reform elements. The purpose of this section is not to provide a detailed and comprehensive overview of all elements.[98] In my description I rather focus on the norms and reform elements that are most relevant for my analysis.[99] These include especially those provisions that deal with the income taxation of corporations and the taxation of profits that are distributed to their shareholders.

4.2.1 The origin of the German tax reform 2001

The 1990's saw an intense discussion of the tax system in Germany. The debate centered around four key issues:

- First, commentators criticized the overall complexity of the tax system.
- Second, there were calls to reduce the overall tax burden on business activities.

[98] For a more detailed description of the GTRA see for example *Keen (2003); Homburg (2000); Erle and Sauter (2000)*

[99] The changes in the course of Tax Reduction Act affect both corporations and partnerships. The focus of this paper is on the changes of the tax rules for corporations, not for partnerships.

- Third, there were initiatives that aimed at aligning the tax treatment of different legal entities.
- Finally, there was political pressure to harmonize the provisions of the German tax law with European norms.

As a result, the German government enacted two tax laws which had a large impact on personal and business taxation: the German Tax Relief Act 1999/2000/2002 (*Steuerentlastungsgesetz 1999/2000/2002*) and, more importantly, the German Tax Reduction Act 2001 (*Steuersenkungsgesetz*, GTRA).

While the Tax Relief Act led to a significant reduction of corporate and personal income tax rates, the GTRA went far beyond a simple modification of tax rates and effected a fundamental change in the system of business taxation in Germany. Concretely it replaced the tax credit system with full imputation (*Anrechnungsverfahren*) which has been in place since 1977 by the half-income system (*Halbeinkünfteverfahren*). The half income system became effective in 2002. Table 4.2 reports the prevailing tax system and the development of the according tax rates for the period from 1996 to 2006.

In the following I describe the prevailing tax rules under the imputation system. After that I explain the changes that occurred due to the GTRA and present the new rules under the half income system. Both systems are separately described in four steps. In the first step, I explain the rules affecting the taxation of corporate income on the level of the distributing entity. In the second step, I describe the taxation of profits on the level of the receiving entity with regards to dividend payments. In the third step, I also describe the taxation of profits on the level of the receiving entity, however with regards to capital gains. Based on the prevailing tax regulation I derive in the fourth and final step preferred payout policies.[100]

[100] Corporate profits are subject to three different types of taxes: corporate and individual income tax, rates, the German solidarity surcharge ("Solidaritätszuschlag"), and the German local

Table 4.2 Development of the tax system and the individual and corporate income tax rates in Germany, 1996 – 2006

		Corporate income tax rate		Individual income tax bracket		
Year	Tax regime	Retained profits	Distributed profits	Minimum	Maximum	Solidarity surcharge
1996	Full imputation	45.0%	30.0%	25.9%	53.0%	7.5%
1997	Full imputation	45.0%	30.0%	25.9%	53.0%	7.5%
1998	Full imputation	45.0%	30.0%	25.9%	53.0%	5.5%
1999	Full imputation	40.0%	30.0%	23.9%	53.0%	5.5%
2000	Full imputation	40.0%	30.0%	22.9%	51.0%	5.5%
2001	Full imputation	25.0%	25.0%	19.9%	48.5%	5.5%
2002	Half income	25.0%	25.0%	19.9%	48.5%	5.5%
2003	Half income	26.5%	26.5%	19.9%	48.5%	5.5%
2004	Half income	25.0%	25.0%	16.0%	45.0%	5.5%
2005	Half income	25.0%	25.0%	15.0%	42.0%	5.5%
2006	Half income	25.0%	25.0%	15.0%	42.0%	5.5%

Notes: This table reports the development of selected individual tax rates from 1996 to 2006. In addition to that the prevailing tax system is indicated.

4.2.2 The imputation system of the pre-reform era

Taxation on the level of the distributing entity

Under the imputation system the income on the corporate level was subject to two different corporate income tax rates. The adequate tax rate was a question of income allocation. While retained profits were taxed at a rate of 40 percent, distributed profits were subject to a lower rate of 30 percent.

Taxation on the level of the receiving entity: The case of dividends

On the level of the receiving entity, dividends were subject to personal income tax if the recipient was an individual or corporate tax if the recipient was a corporation. However, the recipient was granted a tax credit equal to the corporate tax paid by the distributing corporation. This means that the corporate tax worked as a prepayment for the investor's tax liability

trading tax ("Gewerbesteuer"). For reasons of simplicity the explanation of the changes in tax law neglects the German solidarity surcharge and the German local trading tax. Also the church tax that is imposed depending on of the religious affiliation is ignored.

on distributed earnings. In sum, the imputation system avoided any double taxation of corporate profits at the domestic level since profits were effectively taxed only once.

Taxation on the level of the receiving entity: The case of capital gains

Contrary to dividends, capital gains did not qualify for a tax credit. Also contrary to dividend payments, the tax treatment of capital gains was not uniform for all investors but rather depended on the type of investor. In general the German tax system differentiates between *corporate* and *individual investors*. With regards to individual investors the tax system additionally differentiates between *material* and *non-material individuals*. The latter differentiation results from the materiality limit that is defined by tax laws. The materiality limit acts as a threshold that serves to define substantial shareholdings by tax law.

Under the imputation system individuals were classified as non-material investors if the size of their shareholding had been permanently below the level of ten percent (25 percent until 01.01.1999) within the five years preceding the sale. Capital gains realized by *non-material individuals* were usually tax free after the shares had been held longer than the speculation period of six months. Otherwise capital gains were subject to personal income taxation. Capital gains realized by *material individuals* were subject to personal income tax - irrespective of the holding period. Capital gains realized by *corporations* were treated as regular business income that was subject the corporate income tax rate. Since the tax credit was not granted for capital gains, capital gains realized by corporations and material individuals were effectively taxed twice. As *Schanz and Thesseling (2011)* note, the German tax law offered various options to alleviate the resulting high tax burden. However, they argue that "all these options were either marginal or entailed strict requirements or limitations, technically result-

ing in only minor reductions of the tax burden."[101]

Preferred payout policies under the full imputation system

It should be noted that under the full imputation system, share repurchases were not an instrument to effectively reduce the overall tax burden on corporate profits. As profits were taxed at the corporate level in the first place, a tax credit could only be granted once a dividend payment out of these profits was made. Moreover, because of dividend stripping activities even for shareholders in the highest tax bracket, dividend payments were regularly preferred.[102]

To sum up, it can be said cum grano salis that under the full imputation system, most of the shareholders strongly preferred dividend payments while share repurchases were relatively unattractive.[103] This is even more true as the legal hurdle for share repurchases was high before the year 1998.

4.2.3 The half income system of the post-reform era

Taxation on the level of the distributing entity

Under the half income system the retained and distributed earnings were both taxed at a uniform rate of 25 percent instead of a dual rate. Compared to the previous system this led first of all to a uniform taxation of profits on the corporate level – irrespective of the allocation of profits. Second, the level of 25 percent was considerably lower compared to the pre-

[101] *Schanz and Thesseling (2011, p. 9)*

[102] In fact, the implicit dividend taxation deduced from stock price changes around ex-dividend days was estimated to be 33 percent in the period 1978 to 1993 *(cf. Kaserer and Wenger, 2005)*. It may be, however, that this implicit tax rate increased during the nineties as some tax rules were introduced in order to prevent investors from dividend stripping activities.

[103] The fact that share repurchases lacked attractiveness became less pronounced over the 1990s as the corporate tax on retained profits had been significantly lowered. Under the imputation system the last reduction from 45 percent to 40 percent was made in 1999. However, the rate of 40 percent was still above the implicit dividend rate *(cf. Kaserer and Wenger, 2005)*.

vious rates of 30 and 40 percent. Moreover, corporate profits were definitively taxed on the corporate level independently of their distribution to the shareholders at a later point of time. Thus no tax credit was granted to the shareholder anymore.

Taxation on the level of the receiving entity: The case of dividends

On the level of the receiving entity the dividend was additionally subject to personal income tax. In the end this means that on distribution corporate income is de facto taxed twice. However, to avoid a system of perfect double taxation of corporate profits the lawmaker granted a shareholder relief to individual investors so that only half of the dividends were taxed with the shareholder's marginal tax rate. In case the shareholder was a corporation, 95 percent of the dividend payment was tax exempted.[104]

Taxation on the level of the receiving entity: The case of capital gains

Also under the new system, the taxation of capital gains depended on the investor type. Capital gains realized by *non-material individuals* were usually tax exempted after the shares had been held longer than the speculation period. It is important to remark that the reform increased the speculation period from six to twelve months. Otherwise half of the capital gains were subject to personal income taxation. In case of *material individuals* half of the capital gains were subject to personal income tax - irrespective of the holding period. Note that under the half income system the threshold for a qualified shareholding was reduced to one percent of outstanding shares from 01.01.2002 on. For *corporations* 95 percent of capital gains were tax exempted, while before 2004, capital gains were even completely tax exempt.

Preferred payout policies under the half income system

[104] Before 2004 dividend payments within the domestic corporate sector were fully tax exempted. At first sight, the abolishment of the full tax exemption from 2004 on seems to be a disadvantage for corporations. However it is de facto not. The reason is that under the full tax exemption, receiving corporations were not allowed to deduct any costs associated with an investment. From 2004 on, however, corporations were allowed deduct 100 percent of their costs.

The change to the half income system created a strong preference for share repurchases among individual non-qualified shareholders. Hence, from a pure tax perspective most of the qualified institutional or corporate shareholders were more or less indifferent between the two distribution channels. In practice, though, they preferred dividend payments for several reasons. First, in less liquid stocks, share repurchases might go along with liquidity risks. Second, mimicking the dividend payment by selling a fraction of shareholdings creates what might be called an *ownership risk*, as it is not known how other (qualified) shareholders react to a share repurchase. Third, corporate insiders may be subject to contractual restrictions when selling shares of their company. Finally, these shareholders have to disclose such transactions generating potentially unintended signals to the market in this way *(cf. Brown, Liang and Weisbenner, 2007; Dickgiesser and Kaserer, 2010)*.

5 Development of hypotheses and theoretical predictions

Based on the content of the previous chapters, this chapter develops the hypotheses on large blockholders, shareholder protection and taxation and their impact on firm performance and payout policy. In addition to that theoretical predictions are presented.

5.1 Shareholder protection, ownership concentration and firm performance: An analysis of European listed firms

A central theme in the law and finance literature is the quest to understand the cross-country determinants of ownership structure in listed equity. Listed equity is an essential source of external financing to large firms. Simultaneously it is an important determinant of the investment universe of private households. Thus, it is central to understand its costs and benefits. While there are several commonly known benefits like the separation of management and risk-taking *(e.g. Fama, 1980)*, it is also well-known that listed equity comes for the cost of separation of ownership and control *(e.g. Fama and Jensen, 1983)*. The latter

may create inefficiencies due to agency problems between the management and (small) shareholders *(e.g. Berle and Means, 1932; Jensen and Meckling, 1976)*.[105]

A well-established strand of the literature now argues that blockholders might improve the situation by carefully monitoring the management. These activities produce shared benefits of control improving the situation of small shareholders, whenever blockholders own less than 100 percent of cash flow rights in the firm *(e.g. Shleifer and Vishny, 1986; Jensen, 1986; Holderness, 2003; Becker, Cronqvist and Fahlenbrach, 2011)*.

However, small shareholders may also face costs in case of large blockholdings. Blockholders might misuse their power to enjoy private benefits at the expense of minority shareholders *(e.g. Barclay and Holderness, 1989; Shleifer and Vishny, 1997; Johnson, La Porta, Lopez-de Silanes and Shleifer, 2000; Becht and Boehmer, 2003)*. Although rather antithetic from their conceptual underpinning, both the value-enhancing *monitoring effect* as well as the value-destroying *expropriation effect* of blockholders rest on the same ground: the limited power (and incentives) of small shareholders to express and enforce their interests. Thus, from a cross-country perspective the relevance of both effects is arguably a matter of legal (minority) shareholder protection and it is likely that the true nature of block ownership will only turn out in an environment where minority shareholders is weak.

The importance of regulatory rules for investors is documented by *La Porta et al. (1997)*, *Shleifer and Vishny (1997)*, *La Porta et al. (1998)* and the subsequent law and finance literature. Building on arguments well-known from the law literature the authors then argue in several studies that the institutional environment is affected by a country's legal origin and fosters, among others, a country's capital market development *(e.g. La Porta, Lopez-De-Silanes and Shleifer, 2008)*.[106]

[105] There are also other benefits of listed equity. For instance, *Zingales (1995)* argues that listed equity is a mechanism to maximize proceeds for the entrepreneur when selling its firm. Recently, *Ferreira and Matos (2010)* propose information processing as another benefit of listed equity.

[106] For a review of the literature on the impact of investor protection on many different aspects of

Moreover, *La Porta et al. (1998)* and *La Porta et al. (1999)* document that ownership structures reflect the institutional environment in a way that shareholder concentration correlates negatively with the small outside shareholders' level of legal protection. This finding was subsequently confirmed by a series of empirical studies *(e.g. Stulz, 2005; Roe, 2006; Li, Moshirian, Pham and Zein, 2006)*.

Reviewing this evidence, *Denis and McConnell (2004)* for example conclude that...

> "...[i]n countries with weak protection [...] it appears that only ownership concentration can overcome the lack of protection."[107]

Similarly, also *Perotti, Thadden et al. (2006)* note that...

> "...concentrated ownership will emerge naturally when investor protection is weak."[108]

Two lines of arguments support the empirically observed negative correlation between shareholder protection and ownership concentration. On the one hand, there is the *substitution view* arguing that limited shareholder protection increases the scope for moral hazard in firms and large blockholders are required to alleviate the problems *(e.g. La Porta, Lopez-De-Silanes, Shleifer and Vishny, 1998)*. Under this view, blockholders serve as a substitute for weak legal protection of minority shareholders. On the other hand, there is the *complementary view* arguing that under weak legal constraints blockholders might be in collusion with the management in order to appropriate corporate resources. Under that view, blockholdings are fueled by limited legal protection of minority shareholders, since such legislation allows blockholders to enjoy excessive benefits. As *Holderness (2011)* notes these are fundamentally different views on the role of large shareholders in listed firms.

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corporate finance such as ownership structure, valuation, cash holdings, expropriation or payout policies see Section 2.1.3.

[107] *Denis and McConnell (2004, p. 30)*

[108] *Perotti et al. (2006, p. 158)*

However, recent research casts doubt on this seemingly well-established negative correlation between shareholder protection and ownership concentration. First, *Pagano and Volpin (2005)*, *Spamann (2010)* and others criticize the way *La Porta et al. (1998)* code the national commercial law to measure minority shareholder protection. Effectively, these authors criticize the construction of the now seminal *anti-director rights index*. Moreover, several researchers criticize the ad hoc nature of the measure *(cf. Djankov, La Porta, Lopez-de Silanes and Shleifer, 2008)*. Responding to both line of critique *Djankov et al. (2008)* develop two new measures of minority shareholder protection: the *revised anti-director rights index* and the newly invented *anti-self-dealing index*.

Second, *Holderness (2011)* discusses problems related to the commonly applied method that regresses country-averages of ownership concentration on measures of shareholder protection as used by *La Porta et al. (1998, 1999); La Porta et al. (2006); Stulz (2005); Roe (2006); Li et al. (2006); La Porta et al. (2008); Djankov et al. (2008)* and others. From a conceptual perspective, the use of country averages comes along with the problem of omitted variables as well as aggregation biases *(cf. Robinson, 1950)*.

And in fact, it turns out that both criticisms cast substantial doubt on the initial claim. First, using the country-average regression method *Djankov et al. (2008)* find only limited evidence for a negative correlation between their new measures of shareholder protection and ownership concentration. Second, *Holderness (2011)* even claims that he is not able to detect any convincing negative correlation, when he estimates firm-level regressions taking into account firm characteristics that are well-known for affecting ownership concentration. Moreover, note that *Cronqvist and Fahlenbrach (2009)* provide convincing evidence that there is substantial blockholder heterogeneity. Thus, it seems unheeding simply to look at ownership concentration and to completely neglect the type of shareholder invested in the firms.

In Chapter 6 I address the criticism and the open questions related to the topic of shareholder protection and ownership concentration. I proceed in four steps.

In a **first** step, I use firm-level data to examine the impact of shareholder protection on overall ownership concentration. My analysis accounts for a broad set of firm- and country-characteristics and use the revised versions of legal indices measuring shareholder protection as developed by *Djankov et al. (2008)*. In particular I test, whether the significance of this relationship is sensitive to the measure of shareholder protection and the econometric methodology.

In the **second** step I estimate the impact of shareholder regulation on the concentration of particular shareholder types. Since *Giannetti and Simonov (20006)* point out that it is important to differentiate between investors interested in private benefits (incl. private information) and investors interested in security benefits only, I replace the overall concentration by a more granular differentiation of shareholders.[109] Thereby, I differentiate between two major shareholder types, i.e. *strategic* and *institutional investors*.[110] Strategic investors are often supposed to invest for financial reasons as well as for purposes beyond financial benefits, i.e. strategic reasons *(e.g. Gedajlovic, Yoshikawa and Hashimoto, 20005; Giannetti and Simonov, 20006)*. Institutional investors, like investment advisors, mutual funds, banks, insurance firms and other financial institutions have discretionary power over assets under management and make buy and sell decisions mostly based on financial considerations.

Recent evidence, however, suggests that monitoring incentives and abilities vary even among institutional shareholders *(e.g. Brickley, Lease and Smith, 1988; Payne, Millar and Glezen, 1996; Almazan, Hartzell and Starks, 2005; Chen, Harford and Li, 2007; Cornett, Marcus, Saunders and Tehranian, 2007; Ferreira and Matos, 2008; Elyasiani and Jia, 2010)*. Thus, in a **third** step I follow *Ferreira and*

[109] *Giannetti and Simonov (20006)* distinguish between security benefits that are enjoyed by all shareholders on a pro rata base and private benefits that accrue to a subset of investors, i.e. managers and large blockholders.

[110] In this dissertation the definition of strategic investors comprises families and individuals.

Matos (2008) and others and further differentiate two groups of institutional investors: *independent institutions*, like investment advisors and mutual funds, and *grey institutions*, like banks, insurance firms and other institutions. While the former are generally interested in security returns only, the latter are often also interested in ongoing (and potential) business relationships. In order not to put these relationships at risk grey institutional investors tend to be more devoted to the management of the company. Based on this differentiation I analyze the impact of shareholder protection on the shareholdings of independent institutional investors and grey institutions.

Finally, in a **fourth** step, I try to shed light on the reason for the above empirical findings. Thus, I examine whether ownership stakes of different shareholder groups are systematically related to firm valuation. I also test whether strategic and institutional shareholdings vary concerning their effect on firm valuation. In particular, this allows me to make a statement whether any shareholder type comes at the expense of the marginal investor. Furthermore I analyze whether the relation between these owner categories and firm valuation depends on the protection of shareholders.

Overall, the answers to these questions serve to contribute to a better understanding of the relation between shareholder rights, ownership structures and value of the firm. In particular, these results help to assess whether investments can be rather explained by the complementary view or the substitute view.

5.2 Blockholder power, shareholder conflicts and legal protection: An analysis of the tax preferences and payout decisions of European listed firms

While there has been extensive research on the relation between blockholders and firm performance, less is known about the interaction of regulation and ownership concentration and its effect on firm behavior. A central issue in that regard is the question, whether minority shareholder protection actually limits blockholders' power to promote corporate behavior that comes at the expense of minority shareholders. Thereby, the key challenge is to identify non-endogenous conflicts of interests between blockholders and minority shareholders.

Noting that investor taxes often differentiate between different types of equity investors, I propose a novel identification strategy to examine the relation between ownership conflicts and minority shareholder protection. Specifically, I suggest that in many countries the tax authority differentiates between suppliers of equity capital according to their investment stake and thus produces conflicts of interest among a firm's blockholders and its minority shareholders concerning firms' optimal payout policy.

In the empirical analysis, I approximate these conflicts by the diverging tax preferences between a firm's largest blockholder and its small shareholders. To derive tax preferences, I compare the attractiveness of dividends in relation to capital gains and measure the relative tax advantage of dividend payments as suggested by *Poterba (2004)*.[111]

[111] Addressing the costs arising from large shareholders, *Becker et al. (2011, p. 908)* mention explicitly the scenario where large blockholders "influence firm policies in some way that is not in the interest of small shareholders (e.g., favoring tax-inefficient forms of cash distribution)."

Although of central interest, economists are still puzzled by the relation between taxes and corporate payout policy. In fact, in spite of extensive research *Chetty and Saez (2005)* claim that "*the effects of dividend taxation on dividend policies and corporate behavior more generally remain disputed.*"[112] This specifically applies to the two leading but competing paradigms on the effect of dividend taxation: the *dividend tax-irrelevance perspective* or *old view (e.g. Harberger, 1962, 1966; Feldstein, 1970; Poterba and Summers, 1985)* and the *dividend taxes matter perspective* or *new view (e.g. Auerbach, 1979; Bradford, 1981; King, 1977)*. Neither of these views is unambiguously supported by empirical evidence.[113]

Inspired by recent research on the U.S. Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) of 2003, which significantly increased the after tax value of dividends[114], *Chetty and Saez (2010)* and *Gordon and Dietz (2008)* put forward a third view. While researchers have documented a quick and significant increase of dividends after the reform *(e.g. Julio and Ikenberry, 2004; Chetty and Saez, 2005; Blouin, Raedy and Shackelford, 2004; Brav, Graham, Harvey and Michaely, 2008; Moser and Puckett, 2009; Moser, 2007)*, this effect was particularly pronounced for firms with significant executive ownership *(e.g. Brown, Liang and Weisbenner, 2007; Blouin, Raedy and Shackelford, 2011)*. These findings are neither consistent with the old view nor with the new view of dividend taxation.[115] Instead the dividend payout behavior may be rather explained by alternative models that are based on the foundations of the agency theory of the

[112] *Chetty and Saez (2005, p. 792)*

[113] As Section 3.4.2 shows, this becomes evident regarding the U.S. Tax Reform Act in 1986. For example results by *Bolster and Janjigian (1991)* do not support the view that dividend payout increased as a consequence of the reform. Contrary *Wu (1996)* finds evidence for increasing aggregate corporate dividend payouts and *Papaioannou and Savarese (1994)* find increasing corporate dividend payout ratios. Survey evidence around the TRA presented by *Abrutyn and Turner (1990)* suggests that taxes play a subordinate role in the managerial payout decisions.

[114] As Section 3.4.2 documents, the JGTRRA led to an alignment of individual taxes on dividends and capital gains. The individual dividend tax rate was reduced from 38.6% to 15% and the capital gains tax rate from 20% to 15%. Thus for individual investors the JGTRRA led to a considerable increase in the after-tax value of dividends. Since also the relative taxation of dividends compared to capital gains improved, dividends became more attractive after the reform.

[115] *Chetty and Saez* also argue that the findings cannot be brought completely in line with the life cycle model as proposed by *Sinn (1991)*.

firm as presented by *Jensen and Meckling (1976) (e.g. Chetty and Saez, 2010; Gordon and Dietz, 2008)*.

As *Dyck and Zingales (2004)* note, especially the conflict between large and minor shareholders is quite difficult to observe. In Chapter 7, I use heterogeneity in tax preferences and identify conflicts of interests between a firm's blockholders and its minority shareholders. Based on this finding, payout decisions of listed firms are examined to study the effect of minority shareholder protection on blockholders' power to promote corporate behavior at the expense of minority shareholders. This analysis follows a three step process:

First of all, it is tested whether the tax preferences of the largest shareholder have an impact on the payout policy of the firm. If strong blockholders use their power to enforce their interest, a strong impact of their preferences on payout policy should be observed. With this focus I differentiate the investors primarily by the amount of power in their hands. Previous studies rather contrast the impact of selected investor clienteles and thus differentiate the shareholder base primarily by type *(e.g. Moser, 2007; Brown, Liang and Weisbenner, 2007; Blouin, Raedy and Shackelford, 2011; Desai and Jin, 2011)*. While this approach explains payouts from a tax perspective, I address in the next step the conflict of large versus small shareholders.

Second, it is explored whether the payout policy just follows the tax preferences of the largest shareholder or whether it also considers the payout preferences of minor shareholders. This question becomes relevant when the tax preferences of the largest blockholder and those of minor shareholder differ.

Finally, it is examined if the consideration of minor shareholders' preferences depends on their legal protection. The quality of shareholder rights has already demonstrated that it has the power to limit the expropriation of minority shareholders through large blockholders. If the consideration of minority shareholders' preferences is actually influenced by agency conflicts, then shareholder

rights should play a moderating role. Therefore I also expect that shareholder rights have a positive impact on the consideration of minor shareholders' preferences.

In sum, this analysis serves to contribute to a better understanding of the mechanisms between taxation, agency conflicts and payout policy. As such, they also shed light on the relevance of the agency view of dividend taxation.

5.3 Payout Policy, Taxes, and the differential impact of corporate insiders and external blockholders: An analysis of the German Tax Reduction Act 2001

The previous section sheds light on the relationship between shareholder rights, taxes and payout policy in Europe. Thereby, one elementary question is whether corporate payout decisions follow the tax preferences of large blockholders. Chapter 8 sheds light on the differential impact of distinct blockholder types on payout policy.

According to the free cash flow theory of Jensen (1986), shareholders of firms with limited valuable investment opportunities should reduce the scope for overinvestment by forcing the management to pay dividends. And in fact, there is substantial empirical evidence corroborating this view. However, taking a closer look at the free cash flow theory reveals several new and to some extent yet unanswered questions. Most importantly, who are the shareholders that actually force the management to increase dividend payments in order to prevent them from realizing negative net present value projects? Or more generally, which shareholders have the incentive to put effort into exercising control over

the management?

Allen et al. (2000) argue that monitoring most likely is done by large, external shareholders. If this is the case, the presence of such shareholders will add value to the company, thus creating an incentive for dispersed shareholders to pay a price for attracting blockholders. As these large shareholders are tax-exempted in many cases, the price paid by small shareholders is reflected in a payout policy, which is non-optimal from their tax perspective. *Allen et al. (2000)* argue that this might explain why so many US firms continuously pay dividends even though from the perspective of an individual shareholder share repurchases are more attractive. Moreover, an important prediction of their model is that dividend decisions are driven by the wedge between institutions' and individual shareholders' tax rates, and not by the absolute level of tax payment.

An interesting experiment for gathering evidence with respect to this theory is the 2003 dividend tax cut in the US.[116] As *Chetty and Saez* report, "the response to the tax cut was strongest in firms with strong principals whose tax incentives changed (those with large taxable institutional owners or independent directors with large share holdings)" while payout policies did not change in firms with large nontaxable institutional owners.[117] This result does not directly contradict the model of *Allen et al. (2000)* whereas results presented by *Brown et al. (2007)* do. In fact, the latter show that the response to the dividend tax cut strongly depends on the tax incentives of executive directors. Considering their shareholdings, executives may prefer dividends over share repurchases (or at least be indifferent) after the dividend tax cut in 2003. However, taking into account their often substantial amount of - usually not dividend protected - stock options, they have a strong preference for share repurchases.

[116] The Jobs and Growth Tax Relief Reconciliation Act 2003 significantly reduced taxation of dividends *(e.g. Chetty and Saez, 2005)*. Thus, the tax advantage of capital gains was eliminated and dividends became much more attractive.

[117] *Chetty and Saez (2005, p. 791)*. Similarly *Perez-Gonzalez (2002)* and *Korkeamaki et al. (2010)* find that after tax reforms the dividend policy is adjusted to the tax induced preferences of the largest shareholders.

This result casts some doubt on the presumption that dividend decisions are driven by controlling activities exerted by large external shareholders. It seems that these decisions are rather driven by agents and thus by insiders. This gives way to the view that dividend decisions are the outcome of an agency problem, i.e. a private benefit consideration, rather than a corporate governance mechanism.

In Chapter 8, I address these doubts by analyzing the relation between taxes, payout policy and the differential impact of insiders and large external blockholders. Thereby, I am not interested in the overall payout level of the German corporate sector, but in the change in the payout channels induced by the change in the tax system.[118] I proceed in two steps.

First, I examine the GTRA in order to shed light on the question whether taxes are an important determinant of the corporate payout policy. For this purpose I test whether firms consider the tax environment when deciding on their payout ratio and payout channel. **Second** and even more important, I analyze to what extent the payout decision is influenced by the firm's shareholder structure. Although I focus especially on the role of inside owners I explicitly control for the impact of other shareholder groups like individuals, non-taxable institutions or corporations.

The GTRA represents an interesting experiment in this context. In contrast to the 2003 dividend tax cut in the US where all domestic taxable investors were affected in the same way, the picture is more differentiated in case of the GTRA 2001.[119]

From the perspective of small, dispersed shareholders the GTRA created a strong

[118] For a discussion of the impact of the tax burden on the payout ratio cf. *Poterba (2004)*.

[119] Two recent working papers by *Jacob and Jacob (2011)* and *Schanz and Thesseling (2011)* also deal with the question of how taxes affect payout policy. While *Jacob and Jacob* use an international sample including Germany, *Schanz and Thesseling* consider only Germany. In comparison to this dissertation both studies lack a detailed picture of the corporate ownership structure and consequently do not consider how payout policy is affected by the different preferences of the various shareholder types such as corporations, individual investors and institutionals.

incentive to shift payouts from dividends to share repurchases (see Section 4.2). Hence, the first expectation is that the GTRA 2001 leads to a declining (increasing) propensity to pay cash dividends (make share repurchases) as well as to lower dividend payout ratios (higher share repurchase ratios). For most of the other shareholders, there is no material difference between dividend payments and share repurchases from a pure tax perspective. There are, however, other reasons why at least some of them prefer dividend payments.[120] This creates an interesting experimental environment as the GTRA has created a well-defined exogenous shift in the tax preferences of dispersed shareholders relative to qualified shareholders. Therefore, the observed shift in the payout behavior can be used as an experimental outcome to test various theories.

I basically use this experiment to test the prediction that the payout behavior is driven by (influential) principals against the prediction that it is driven by influential agents, i.e. corporate insiders. Following the analysis of *Brown et al. (2007)* and *Chetty and Saez (2005)*, I first investigate whether the change in the payout behavior depends on the tax preference of corporate insiders, i.e. members of the management board. In case that these individuals hold qualified stakes in the company, they are most likely to have preferences for dividend payments. If these influential agents maximize the after tax value of payouts, it can be argued that firms where such influential agents are present do not decrease their dividend payments after the enactment of the GTRA. Consequently, my second expectation is that the GTRA 2001 leads to an increasing (declining) propensity to pay cash dividends (make share repurchases) in those firms where members of the management board hold qualified stakes relative to those firms where they do not.

According to the model of *Allen et al. (2000)*, the mechanism why the GTRA influences the payout behavior of firms is different. The authors argue that

[120] As discussed in Section 4.2.3 these reasons are mostly related to risks induced by the fact that share repurchases in any case involve market transactions.

dispersed shareholders elicit institutional (tax exempted) shareholders to take significant stakes in the company by implementing a payout behavior which creates an *excess tax burden* from their perspective. This tax burden is the price dispersed shareholders are willing to pay in order to benefit from the monitoring presumably exerted by these large shareholders. This price is determined by the payout behavior and depends on the tax treatment of institutional shareholders relative to dispersed shareholders. Therefore, in the cross-section, I expect dividend payments to be higher for those firms where such institutional owners are important as only in this case dispersed shareholders are willing to bear an excess tax burden.

Considering the time-series perspective, a similar argument can be put forward. Even though it is not so easy to determine the effective tax burden on dividend payments under both systems, the effective tax burden has most likely been reduced in the aftermath of the GTRA. Taking into consideration that institutional owners have been tax exempted under both systems, holding the dividend payout ratio constant would decrease the price dispersed shareholders have to pay for eliciting the institutional investments in their company. Even though it is a priori unclear what is the impact of the tax reform on the corresponding equilibrium price, it seems reasonable to assume that firms will increase their dividend payout to balance the trade-off of small dispersed shareholders. Hence, from a time-series as well as cross-section perspective, the model of *Allen et al. (2000)* predicts that dividend payouts should increase in firms with significant institutional shareholdings. Thus the third expectation is that the GTRA 2001 leads to an increasing (declining) propensity to pay cash dividends (make share repurchases) in those firms where significant institutional shareholdings are present relative to those firms were they are not.

As such, the questions presented in the last step serve to provide new evidence in the context of the tax perspective mentioned above. However, their main contribution to the literature is related to the incomplete contract perspective.

6 Shareholder protection, ownership concentration and firm performance: Evidence from European listed firms

This chapter provides new insights on the relation between shareholder protection, ownership concentration and firm performance. First, the sample, the data and the research design are presented. Second, the empirical analysis is carried out. For this purpose I examine initially the impact of investor protection on ownership concentration. Next, the implications of large blockholders and shareholder protection laws for the performance of a firm are analyzed. This serves to identify whether large blockholders are beneficial for minority shareholders or whether they rather come at their expense. To ensure the validity of the reported results, a broad variety of robustness tests is presented. Finally, the results of this chapter are summarized.[121]

6.1 Sample, data and research design

This section presents in the first step the sources of the collected data. Second, a detailed documentation of the sample selection process and the composition of the final sample is provided. Third, the variables used in the subsequent anal-

[121] Please note that the content of this chapter is partly based on *Rapp and Trinchera (2012)*.

ysis are introduced. Specifically, the measures of ownership concentration are described as well as the measures of the country-specific regulatory environment, and the firm-specific variables. Finally, this section describes the methods on which my estimations are based.

6.1.1 Data sources

The data used in this chapter comes from various sources. In the following the sources of the ownership data are reported, followed by the sources of the regulatory data. Finally the sources of the numerous firm- and country-specific control variables are presented.

Ownership data

Since the collection of ownership data is a process that involves several steps, the according procedure is described in detail. The raw ownership data comes from the Thomson One Banker (TOB) ownership database. TOB reports ownership information from 1997 onwards. To ensure high data quality I extract annual data from 1999 onwards. TOB reports publicly available direct shareholdings including information from fund holdings. The ownership data is collected each year as of December 31st. The information I gather includes: The identity of the shareholder, the size of his shareholding and the classification of the shareholder. To provide an example of the collected data, Table 6.1 presents the ownership structure of three selected firms.

Table 6.1 Ownership structures of selected European firms

Rank by size	Shareholder identity	Size [%]	Shareholder type	Country of origin
	Panel A: BMW AG			
1	Quandt (Stefan)	17.40	Indiv	Germany
2	Quandt (Johanna)	16.70	Indiv	Germany
3	Klatten (Susanne)	12.50	Indiv	Germany
4	Templeton Investment Counsel, LLC	2.53	Inst	U.S.
5	Orbis Investment Management	1.52	Inst	Bermuda
6	Harris Associates L.P.	1.07	Inst	U.S.
7	Dodge & Cox	1.05	Inst	U.S.
8	Allianz Global Investors	0.98	Inst	Germany
9	Bestinver Gestion S.G.I.I.C.S.A.	0.80	Inst	Spain
10	Deka Investment GmbH	0.79	Inst	Germany
11	Oppenheimer Funds, Inc.	0.72	Inst	U.S.
12	SEB Investment GmbH	0.57	Inst	Germany
13	Fidelity Management & Research	0.51	Inst	U.S.
14	Barclays Global Investors (Deutschland)	0.51	Inst	Germany
	Panel B: Peugeot S.A.			
1	Peugeot Family	30.30	Indiv	France
2	Natixis Asset Management	2.66	Inst	France
3	Barclays Global Investors, N.A.	2.38	Inst	U.S.
4	Caisse des Depots et Consignations	2.14	Inst	France
5	BNP Paribas Asset Management S.A.S.	1.13	Inst	France
6	Sparinvest Fondsmæglerselskab A/S	1.12	Inst	Denmark
7	Norges Bank	0.94	Inst	Norway
8	Skagen AS	0.68	Inst	Norway
9	Societe Generale Asset Management (France)	0.55	Inst	France
10	Black Rock Investment Management (UK) Ltd.	0.52	Inst	UK
	Panel C: Telecom Italia SpA			
1	Telco Spa	23.60	Strat	Italy
2	Findim Group SA	5.01	Strat	Luxembourg
3	Brandes Investment Partners, LP	4.02	Inst	U.S.
4	The Royal Bank of Scotland	3.75	Inst	UK
5	Hopa SpA	3.47	Strat	Italy
6	Morgan Stanley Investment Management Ltd. (UK)	2.61	Inst	UK
7	Credit Suisse Asset Management	2.48	Inst	Switzerland
8	Barclays Global Investors, N.A.	2.31	Inst	U.S.
9	Alliance Bernstein L.P.	2.07	Inst	U.S.
10	JP Morgan Asset Management U.K. Limited	2.05	Inst	UK
11	Mediobanca Securities	1.54	Inst	Italy
12	Norges Bank	1.54	Inst	Norway
13	Olimpia SpA	1.36	Strat	Italy
14	Capital World Investors	0.93	Inst	U.S.
15	Pictet Asset Management Ltd.	0.66	Inst	UK
16	Intesa Sanpaolo S.p.A.	0.50	Inst	Italy

Notes: This table presents the ownership structures of three selected European firms. The ownership data is collected as of 31.12.2008. Column 1 shows the rank of the shareholder according to the direct ownership size of voting rights that is reported in column 3. In column 2 the identity, i.e. the name of the shareholder is presented. Column 4 indicates the shareholder type. Three shareholder types are differentiated: *Indiv* stands for individual, *Inst* stands for institutional and *Strat* stands for strategic. Finally, column 5 contains the country of origin of the respective investor.

Source: Own work based on *Rapp and Trinchera (2012).*

Having collected the raw data, I carefully revise and adjust the data in a four-step process. First, to ensure the data quality I only consider ownership stakes at a minimum of 5 percent, i.e. I only consider blockholders in the sense of previous studies such as *McConnell and Servaes (1990)*, *Faccio and Lang (2002)*, *Becht and Boehmer (2003)* and *Li et al. (2006)*. [122] Second, I manually cross-check the data by looking at the sum of all shareholdings and correct the data for firm years with cumulated shareholdings larger than 100 percent reported.[123] Third, I compare the shareholdings in year t with the shareholdings in year $t-1$ and $t+1$. This allows me to identify actual (but temporary) block sales, i.e. cases where a shareholder was owning a certain stake in year t, selling it in year t and buying it back in $t+2$, and to separate these cases from *omitted entries*, i.e. cases where TOB omitted the ownership stake in year t. I carefully cross-checked these cases manually corrected them if necessary. Fourth, I cross-check the shareholdings in year t and year $t+1$ to identify decreases that exceed -85 percent or increases larger than 850 percent. I do so in order to identify *typos* with regard to the decimal separator, i.e. situations where a shareholder holds $x.yz$ percent in year t and $0.xyz$ or $xy.z$ percent in year $t+1$. I judiciously cross-check these cases and correct them otherwise.

Data on the regulatory environment

The proxies for shareholder protection – the *anti-self-dealing index* and the *revised anti-director rights index* – come from *Djankov et al. (2008)*. The classification

[122] I choose a uniform threshold for all countries as I want to ensure comparability of ownership structures across sample countries. During the period under observation the disclosure thresholds in the sample countries vary both across time and countries. For example in UK the minimum disclosure threshold is 3 percent and in Italy 2 percent. The minimum disclosure threshold in Germany is 5 percent before 2007 and 3 percent afterwards. In order to harmonize the disclosure rules across its member states, the European Union has taken several initiatives. The most prominent ones are the Transparency Directives 88/627/EEC of 1988 and 2004/109/EG of 2004. The latter prescribes a uniform disclosure threshold of 5 percent.

[123] I use various sources to verify structural breaks in the data, e.g. Bureau van Dijk's Amadeus database, data from the national financial service authorities, corporate annual reports and finally web research.

of countries according to their legal origin follows *La Porta et al. (1998)*. Furthermore I obtain additional governance indices from *Kaufmann, Kraay and Mastruzzi (2009)*. These measure alternative governance dimensions such as government effectiveness, rule of law, control of corruption, regulatory quality, political stability and finally voice and accountability. Moreover, the index of law enforcement (LAWENFORCEMENT) is provided by Djankov et al. (2008). Data on the protection of debt holders as measured by the creditor rights index (CRI) comes from *La Porta et al. (1998)*.

Data on firm- and country-specific data

Accounting data including payout information is retrieved from Worldscope. Also the information on the accounting standard of a firm is obtained from Worldscope. Capital market data comes from Datastream. Data on the financial development of the sample countries is collected from the Worldbank. Furthermore I obtain tax data from the following sources: The European Tax Handbook provided by the International Bureau of Fiscal Documentation, Ernst and Young's Worldwide Corporate Tax Guide & Directory as well as the Worldwide Personal Tax Guide and the Global Executive, Price Waterhouse Coopers' Worldwide Corporate and Individual Tax Summaries, KPMG's Corporate Tax Rate Survey and Individual Income Tax Rate Survey, and last but not least the OECD tax database. Finally, country data on institutional investors' financial assets is provided by the OECD.

6.1.2 Sample selection and composition

Having presented the data sources this section describes the criteria that the companies have to fulfill in order to enter the final sample. After that a detailed description of the sample composition is provided.

Sample selection

My initial sample consists of all (active and inactive) firms that have been

- listed between 1999 and 2008 and
- located in one of the following European countries:
  - Austria
  - Belgium
  - Denmark
  - Finland
  - France
  - Germany
  - Ireland
  - Italy
  - Luxembourg
  - the Netherlands
  - Norway
  - Portugal
  - Spain
  - Sweden
  - Switzerland
  - United Kingdom

The geographic distribution of the sample countries is illustrated in Figure 6.1. Relying on the December 2008 edition of Thomson One Banker Analytics this yields an initial sample of 8,553 firms.

I clean the data in several steps. First, I exclude firms with primary securities other than common shares or firms with missing information on the type of the primary security. Second, I remove firms that are located in offshore domiciles such as Guernsey or the British Virgin Islands. Third, I follow the com-

mon practice and exclude both financial firms (standard industrial classification (SIC) codes 6000-6999) and utilities (SIC codes 4900-4949). Fourth, I drop firms for which no capital market data is available. Similarly I drop firms that do not provide information on fundamental accounting figures in at least one year.[124] Last, I restrict the sample to firms for which ownership information is available in at least one year. Altogether this selection process results in a final sample of 4,073 companies. Table 6.2 summarizes the sample selection process.

Table 6.2 Sample generation process

Description	Number of firms
Thomson One Banker sample (1999 - 2008)	8,553
Firms with non-common share classes	-159
Firms that are located in offshore domiciles	-125
Financial and utility firms	-1,537
Firms without fundamental accounting figures (total assets, sales, total common equity, earnings before interest and taxes) and capital market data	-1,263
Firms without ownership information	-1,396
Basic sample	**4,073**

Notes: This table documents the sample generation process. The final sample covers 4,073 publicly listed firms in 16 European countries. Thomson One Banker is the primary source for the identification of the sample companies. The exclusion of financial firms and utilities is based on the standard industrial classification (SIC). The range of SIC codes for financial firms is 6000-6999 and 4900-4949 for utility firms. Accounting and ownership data is collected annually. The ownership data is collected each year as of 31st December.
Source: Own work based on *Rapp and Trinchera (2012)*.

Sample composition

Table 6.3 reports the sample composition along three dimensions. Panel A addresses the geographic distribution of the sample firms by country and law family and present the country-specific values of the anti-director rights and the anti-self-dealing index as reported by *Djankov et al. (2008)*. As can be seen, the

[124] The required accounting figures include: total assets, common equity, sales, income before extraordinary items, total debt and cash flow.

sample combines countries from the four law families. Among the 16 sample countries, there are two with common law origin, eight with French, three with German and four with Scandinavian law origin. The number of sample firms is relatively balanced across the law families. Overall 43 percent of the sample firms have a common law origin. The largest number of sample firms is contributed by UK (1,236), followed by France (778) and Germany (474). Regarding the values of the anti-director rights index and the anti-self-dealing index, it can be observed that the shareholder protection varies across countries and law families. Consistent with *La Porta et al. (1998)*, shareholder protection is highest in common law sample countries.

Panel B reports the distribution of firms by year. From 1999 on the number of sample firms increases significantly to the level of 2,549 firms in 2001 and then declines in the following two years. A possible explanation for this development is the large number of new listings during the internet boom and the succeeding economic downturn. From 2004 on the number of firms increases again and reaches a peak of 3,197 firms in 2007. A possible explanation for this trend can be found in the economic recovery and the improved prospects for new listings.

Panel C presents the distribution of sample firms by industry. As can be seen, an industry portfolio is used that differentiates ten industries. This portfolio is a less granular version of the portfolio presented in *Fama and French (1997)*. The sample offers a broad industry coverage. All industries include at least 100 firms. The three largest industries in the sample are business equipment (805), manufacturing (607) and wholesale (536).

Figure 6.1 Sample countries

Notes: This figure illustrates the geographic distribution of the sample countries. The sample is based on firms from the following 16 European countries: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.
Source: Own work based on *Rapp and Trinchera (2012)*.

Table 6.3 Sample composition

Panel A: Geographic distribution

Country	Number of firms	ASD	RADRI
Ireland	54	0.789	5
UK	1,236	0.950	5
English law origin	**1,290**	**0.869**	**5**
COMMON LAW	**1,290**	**0.869**	**5**
Belgium	120	0.544	3
France	778	0.379	3.5
Italy	255	0.421	2
Luxembourg	25	0.283	2
Netherlands	122	0.203	2.5
Portugal	64	0.444	2.5
Spain	97	0.374	5
French law origin	**1,461**	**0.379**	**2.5**
Austria	65	0.213	2.5
Germany	474	0.282	3.5
Switzerland	154	0.267	3
German law origin	**693**	**0.267**	**3**
Denmark	104	0.463	4
Finland	118	0.457	3.5
Norway	135	0.421	3.5
Sweden	272	0.333	3.5
Scandinavian law origin	**629**	**0.439**	**3.5**
CIVIL LAW	**2,783**	**0.376**	**3.25**

Panel B: Temporal distribution

Year	Legal origin				Total
	English	French	German	Scandinavian	
1999	559	789	382	317	2,047
2000	616	900	484	382	2,382
2001	651	993	513	392	2,549
2002	646	972	495	426	2,539
2003	664	925	483	412	2,484
2004	662	934	494	430	2,520
2005	820	960	532	459	2,771
2006	936	1,036	563	502	3,037
2007	1,009	1,068	575	545	3,197
2008	994	1,012	564	550	3,120
Total	**7,557**	**9,589**	**5,085**	**4,415**	**26,646**

Panel C: Distribution by industry

Industry code	Industry	Legal origin				Total
		English	French	German	Scandinavian	
1	Consumer non durables	100	168	46	51	365
2	Consumer durables	30	49	25	18	122
3	Manufacturing	121	218	148	120	607
4	Energy	65	18	2	23	108
5	Chemicals and allied products	32	47	27	10	116
6	Business equipment	225	275	170	135	805
7	Telecommunications	43	60	23	16	142
9	Wholesale, retail	176	219	79	62	536
10	Healthcare, medical equipment and drugs	81	73	49	44	247
12	Other	417	334	124	150	1,025
	Total	**1,290**	**1,461**	**693**	**629**	**4,073**

Notes: This table presents the sample composition from three perspectives. The sample covers 4,073 publicly listed firms from 16 European countries. Data is collected for the period 1999 – 2008. Panel A presents the number of firms by country and countries are clustered by legal origin. The country-specific values of ASD and RADRI are de facto values as reported in *Djankov et al. (2008)*. However, values of ASD and RADRI for the superordinate legal systems are mean values. Panel B reports the number of firms by year and legal origin. Panel C provides the number of firms by industry and legal origin. ASD and RADRI are defined in detail in Table Appendix T.1.
Source: Own work based on *Rapp and Trinchera (2012)*.

6.1.3 Variables

The employed variables are presented along three dimensions. In the first step the dependent variables that capture the firms' ownership structure are introduced. Second, the variables of interest are defined, i.e. measures of regulation and shareholder protection. Third, the firm characteristics as well as further control variables are described.[125] Moreover, the appendix provides the detailed definitions of all variables employed.[126]

Measures of ownership concentration

Having carefully cross-checked and corrected the original ownership data, I use the cleaned data to measure ownership concentration on firm-level. Note that there are various measures of ownership concentration used in the literature. *Shleifer and Vishny (1986)* for instance simply considers the fractional ownership of the largest shareholder. *Demsetz and Lehn (1985)* and *La Porta et al. (1998)* consider the n largest shareholders. Others measure the aggregate ownership stake of all *blockholders*, where blockholders are defined as shareholders with a minimum fractional ownership equal to a certain threshold *(e.g. Baysinger, Kosnik and Turk, 1991; Hill and Snell, 1988)*.

These measures of ownership concentration are linear in nature and do not provide much information about the distribution of ownership stakes, which may however be relevant when interested in issues of control *(cf. Cubbin and Leech, 1983)*. The Herfindahl index of ownership concentration captures the distribution of ownership stakes and aims to eliminate the weaknesses of the previous measures *(cf. Hay and Morris, 1979; Baysinger, Kosnik and Turk, 1991)*.

[125] The inflation rates in the sample vary by countries and years. To avoid that the results are affected by inflation effects I transform all nominal values to real values for the year 2000 using the country-specific consumer price indices as provided by the Organization for Economic Co-operation and Development (OECD).
[126] See Table Appendix T.1.

In a first step, I calculate four firm-specific measures of overall ownership concentration. First, I define L1BLOCK as the share of the largest blockholder (and zero, in the case that there is no blockholder). Second, L3BLOCK measures the cumulated share of the three largest blockholders. Moreover, I also aggregate all blockholdings and define FREEFLOAT as 100 percent less the cumulated share of all blockholders. Finally I calculate the Herfindahl index, which I denote by HERFIND, by summing the squared percentage of equity stakes controlled by each blockholder *(cf. Demsetz and Lehn, 1985)*.

In a second step, I differentiate between institutional and strategic investors. A large body of literature documents that institutional investors can provide valuable active monitoring *(e.g. Black, 1992*a,b*; Kochhar and David, 1996; Gillan and Starks, 2000, 2003; Cremers and Nair, 2005)*. Thus, I define INSTITUTIONAL measuring the cumulated share of institutional blockholders. Following *Gompers and Metrick (2001)*, *Ferreira and Matos (2008)* and others, institutional investors represent institutions that have discretionary power over assets under management and make buy/sell decisions. Specifically, the group comprises investment managers, mutual funds, banks, insurances, endowments and other institutional entities.

All other shareholders are classified as strategic investors and STRATEGIC stands for the cumulated shareholding held by these investors. Strategic investors thus comprise entities such as corporations, holding companies and families and individuals. These investors often invest not solely for security returns, but also for strategic objectives. Note that beside their role as shareholder, individuals may also fulfill a role as officer or director.

In a third step, I follow *Brickley et al. (1988); Almazan et al. (2005); Chen et al. (2007); Ferreira and Matos (2008)* and others and classify institutional investors as *independent institutions* and *grey institutions*. Investment advisors and mutual funds are considered to be interested in security returns only. Thus, cumulated

shareholdings of these institutions are coded INDEPENDENT. In contrast, banks, insurance firms and other institutions are considered to be also interested in ongoing (and potential) business relationships *(e.g. Ferreira and Matos, 2008)*. Thus, cumulated shareholdings of these institutions are coded GREY.

Table 6.4 provides a detailed overview of the shareholder classification scheme.[127]

Table 6.4 Shareholder classification scheme

Share-holding size	Blockholders (Investors equal to or above the 5% threshold)		Non-blockholders (Investors below the 5% threshold)
Investor types	**Institutional investors**	**Strategic investors**	**Freefloat investors**
	Grey investors	Corporation Holding company	
	Bank and trust Insurance company	Individual investor	
	Independent investors		
Investor subtypes	Investment advisor (IA) Hedge fund (HF) IA/HF Foundation Endowment fund Pension fund Mutual fund Private equity Venture capital		

Notes: This table presents the scheme for the classification of shareholders of listed firms. At the first stage, shareholders are classified by their shareholding size into the two categories *blockholder* and *non-blockholder*. The shareholdings of the latter represent the freefloat. Blockholders are then further classified according to two major categories, i.e. *institutional* and *strategic* investors. Each of the two categories consists of a number of shareholder subtypes. Institutional investors are further subclassified into *independent* and *grey* investors.
Source: Own work.

[127] For a detailed definition of the single shareholder types and subtypes see Table Appendix T.2.

Measures of regulation and shareholder protection

I aim to understand the cross-country determinants of ownership structure in listed equity. Thereby, I am particularly interested in the effect of the legal environment. Accordingly, I consult various sources to collect information for the different countries, including measures coding the institutional environment. I use this data to classify countries along various dimensions.

In the first step, I aim to classify countries according to their level of shareholder protection. Therefore, I use two well-established proxies for shareholder protection. The first proxy is the *anti-self-dealing index* (ASD) as also presented by *Djankov et al. (2008)*. This index codes the regulation and control of self-dealing transactions by corporate insiders. More precisely, it is derived as follows: Based on a fictitious self-dealing transaction the anti-self-dealing index measures the strength of minority shareholder protection against self-dealing by the controlling shareholder. The more difficult it is for a controlling shareholder to benefit from the transaction, the higher the anti-self-dealing index.

The anti-self-dealing index is based on two subindices that measure the regulation before and after the transaction (ex-ante and ex-post component). While the index of ex ante private control of self-dealing considers approval requirements as well as immediate disclosure requirements, the index of ex post private control of self-dealing depends on the ex post disclosure requirements and the ease of proving wrongdoing. The aggregate index ranges from zero to one.

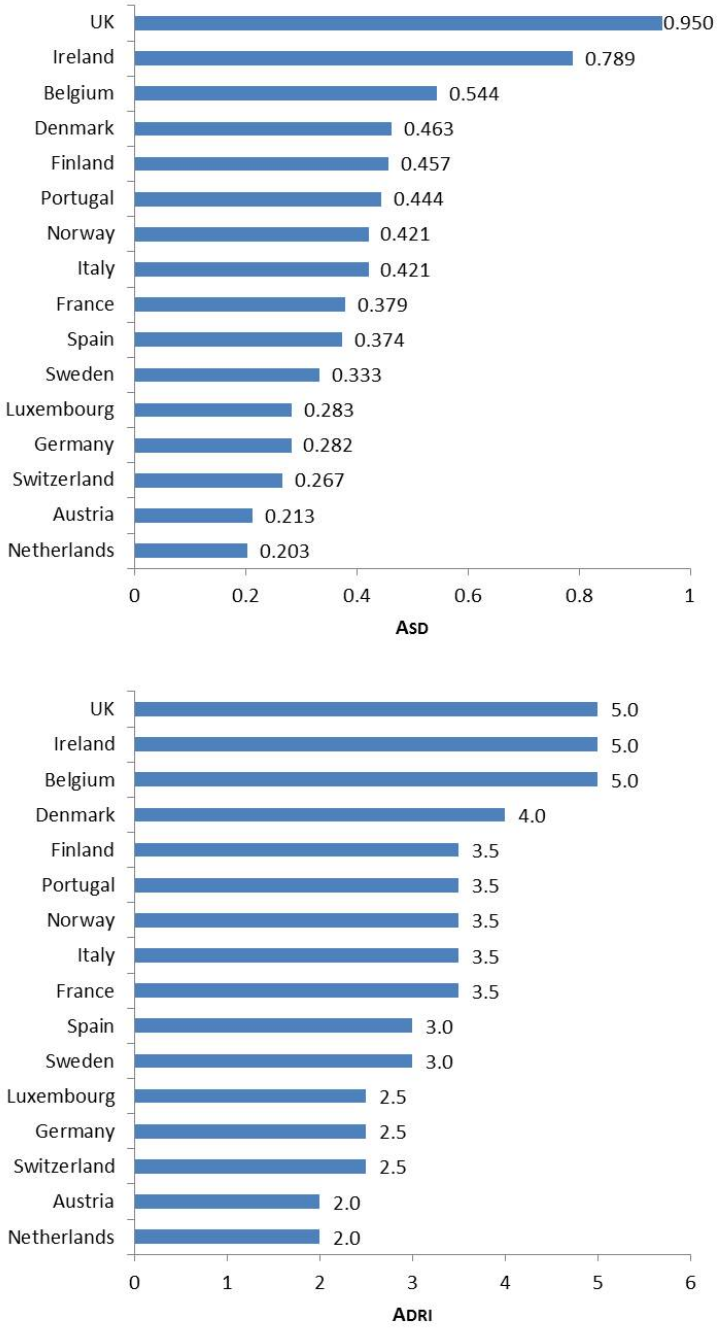
The second proxy is the *revised anti-director rights index* (RADRI) by *Djankov et al. (2008)*. The index measures the level of legal protection of minority shareholders against the interests of corporate insiders. The index aggregates six subindices which evaluate selected determinants of minority shareholder protection such as the possibility to mail proxy votes, the minimum percentage of votes needed to call an extraordinary shareholder meeting, or the existence of an oppressed

minority mechanism. Each subindex counts either 0 or 1 and thus the RADRI index also ranges from zero to six. The revised index succeeds the original anti-director rights index of *La Porta et al. (1998)*. Even though the initial index has been used in numerous studies it has been criticized later on by researchers due to coding problems and conceptual issues *(e.g. Pagano and Volpin, 2005; Spamann, 2010)*.

Comparing the anti-director rights index and the anti-self-dealing index, *Djankov et al. (2008)* state that the latter is more theoretically grounded and addresses the widespread problem of corporate self-dealing respectively tunneling more directly. This rationalizes why I opt for the anti-self-dealing index as the primary measure of shareholder protection.

Figure 6.2 illustrates the country-specific values of ASD and RADRI in descending order. As can be seen, the index values are quite heterogeneous across the sample countries. This underlines the fact that although Europe is a rather homogeneous region under economic terms, the shareholder protection varies considerably across Europe. Furthermore the figure shows that the ASD allows an even more granular differentiation of the sample countries.

Figure 6.2 Shareholder protection in Europe



Notes: This figure illustrates the quality of shareholder protection in the 16 European sample countries. The quality of shareholder protection is approximated by the country-specific values of two selected measures for shareholder protection: The upper part of the figure shows the values of anti-self-dealing index ASD while the lower part reports the values of the anti-director rights index RADRI. The countries are sorted in descending order by the value of the respective index. Higher index values indicate better protection.
Source: Own work.

In the second step, I follow *Reynolds and Flores (1989)* and *La Porta et al. (1998)* and classify countries according to their legal origin. It is well known that although legal systems of countries are quite heterogeneous, there are some common characteristics that allow to categorize national legal systems into major law families. Today, we distinguish two broad legal families (common law and civil law regimes), where the latter is often further divided into systems with French, German and Scandinavian origin.

La Porta et al. (1998) argue that the shareholder protection varies systematically across legal families. They provide evidence that shareholder protection is strongest in common law countries and weakest in French civil law countries, with German law countries situated in the middle. While *La Porta et al. (1998)* also argue that civil law countries with Scandinavian law origin are located in the middle, recent research indicates that shareholder protection in Scandinavian civil law countries is not significantly different from common law countries *(e.g. Djankov, La Porta, Lopez-de Silanes and Shleifer, 2008)*.

In the course of robustness tests, I also extend the horizon of regulation towards other dimensions. For instance, I consider the *rule of law index* (ROL) as reported by *Kaufmann et al. (2009)*. ROL serves as a proxy for the perceived quality of law enforcement. Furthermore, I control for additional governance indicators indices that also go back to *Kaufmann et al. (2009)* such as government effectiveness (GOVEFF), control of corruption (CORRCONTR), regulatory quality (REGQUAL), political stability (POLITSTAB) and voice and accountability (VOICEACC).

In addition to that I also consider an index of law enforcement (LAWENFORCEMENT) as presented in Djankov et al. (2008) that measures the number of days of a judicial procedure to collect on a bounced check. Finally, I also take into account the protection of debt holders by including the *creditor rights index* (CRI) as reported by *La Porta et al. (1998)*. This is motivated last but not least by recent

evidence that shows that the creditor rights index might explain some phenomena that previously have been attributed to the level of shareholder protection *(e.g. Brockman and Unlu, 2009)*.[128]

Firm characteristics and further control variables

Demsetz and Lehn (1985), *Demsetz and Villalonga (2001)* and others provide convincing evidence that a firm's ownership structure correlates with firm characteristics such as firm size or risk. I measure firm characteristics along four dimensions. First, SIZE is defined as the natural logarithm of the firms' total assets at the end of the fiscal year. Second, RISK is measured as the standard deviation of monthly stock returns over a two year period. Third, GROWTH equals annual sales growth. Fourth, LEVERAGE is measured as the book value-ratio of total debt of total assets.[129]

For robustness tests, I include a broad spectrum of additional variables. For instance, *Helwege, Pirinsky and Stulz (2007)* find that well performing and highly valued firms become widely held. Thus, I define DSTOCKPRICE as the average monthly stock price appreciation over the past twelve months and LNMTB as natural logarithm of the ratio of market value of equity and book value of equity. Relatedly, ROA measures firms operating performance in terms of return on assets. I define DIVYIELD as the ratio of cash dividends paid in year t and the market capitalization of the firm at the end of year t-1.

Additionally I measure LIFECYCLE as the ratio of retained earnings and total common equity. Furthermore, I define CASH as cash plus short-term investments normalized by total assets. Finally, INTACC is a dummy variable that

[128] *Brockman and Unlu (2009)* shed light on the relevance of creditor rights protection for a firm's dividend policy.

[129] Firm characteristics are measured annually. In cases where the fiscal year of a firm and the corresponding calendar year overlap by less than six months, I make an adjustment, i.e. I select data from the fiscal year which has more than six months in common with the respective calendar year.

equals one if a company follows international accounting standards such as U.S.-GAAP or IFRS and zero otherwise. To minimize the problems due to outliers I winsorize all variables that are defined as ratios on a yearly basis at the 1 percent level on both tails of the distribution.[130]

In the econometric analysis I also control for the stage of financial development in the respective country. Following *Demirguc-Kunt and Levine (1996)* and *Brockman and Unlu (2009)* I use MCAPLISTED, defined as the market capitalization of listed domestic companies deflated by the gross domestic product in the respective year, as well as STOCKTRADED, defined as the total value of shares traded again deflated by the gross domestic product. *Demirguc-Kunt and Levine (1996)*, for instance, argue that stock market development is highly correlated with the development of financial institutions.

Again, I conduct various robustness tests, where I account for additional country-specific characteristics. For instance, TAX measures the tax preference of an investor based on the relative taxation of dividends in relation to capital gains *(e.g. Poterba and Summers, 1984; Poterba, 2004)*. For the calculation of TAX I assume an individual investor who holds a substantial share in the firm and is located in the top income tax bracket.[131] The tax preference is calculated by dividing the after tax value of one Euro of corporate profits before taxes that is distributed as dividend by the after tax value of one Euro of corporate profits before taxes that is retained and realized in the form of capital gains.

Finally, I define INSTASSETS as the ratio of institutional investors' financial assets and market capitalization of listed domestic companies.

[130] In unreported tests I reestimate the results presented in this chapter using various winsorized samples at the 2.5 percent and the 5 percent level. The results prove to be insensitive to the winsorizing-level.

[131] In some countries such as Germany or the Netherlands the tax laws differentiate substantial and non-substantial shareholders. Both groups are subject to different dividend and/or capital gains tax rates. The decisive criterion that separates both groups is the size of an investor's shareholding. The relevant threshold is also referred to as materiality limit.

6.1.4 Estimation method

To investigate the relationship between shareholder protection and ownership structures, I estimate various specifications of the following empirical model:

$$\begin{aligned} OS_{i,t} = \alpha_i + \beta_1 ShProt_i + \beta_2 \vec{X}_{i,t-1} + YearDummies \\ + IndustryDummies + \epsilon_{i,t} \end{aligned} \tag{6.1}$$

where $OS_{i,t}$ denotes the ownership structure proxy for firm i in year t, $ShProt_i$ denotes the measure of shareholder protection relevant for firm i, and $\vec{X}_{i,t-1}$ is a vector of firm and country-specific control variables. Furthermore I include year dummies to account for macroeconomic trends and industry dummies for industry-fixed effects. All (time-dependent) right hand side variables are lagged one period.

In the analysis I use various proxies of measuring the ownership structure of firms. Interested in the effect on ownership concentration I use the share of the largest (L1BLOCK) and the three largest shareholders (L3BLOCK), freefloat (FREEFLOAT), the Herfindahl index (HERFIND). Interested in the effect for various types of investors, I use the cumulated ownership stake of all investors classified as the relevant group. Also, I use various measures of shareholder protection. First, I use the anti-self-dealing index (ASD). Second, I use the revised anti-director rights index (RADRI). Third, I use dummy variables indicating the origin of law. More precisely, I include three civil law dummies (LAWFR, LAWGER and LAWSCAND) and omit the common law dummy (LAWUK) as the base case. While I start with standard pooled-OLS regression analysis, I challenge these results in various robustness tests altering the regression method as well as the standard error estimation methods.

6.2 Empirical analysis

This section documents the results of the empirical analysis. First of all, descriptive statistics are reported on the ownership measures, the measures of the country-specific regulatory environment and on the firm-specific variables. In the second step the regression results on the impact of shareholder protection on the ownership structure of the firm are presented.

6.2.1 Descriptive statistics

Summary statistics

Table 6.5 presents the summary statistics for all variables along the following four dimensions: Panel A reports the summary statistics of the ownership variables. As the range and standard deviation and the ownership concentration measures show, the sample includes both firms that are widely held as well as highly concentrated firms. With regards to the cumulated shareholdings by particular investor types, it can be observed that strategic investors have higher mean and median values than institutional investors. Comparing the mean and median values of institutional subtypes, it is obvious that the shareholdings of independent investors are far larger than the shareholdings of grey investors.

Panel B reports statistics on the measures of regulation and shareholder protection. As already mentioned, a considerable heterogeneity of regulation and shareholder protection indices across Europe can be observed.

Panel C reports the statistics of the country characteristics. Again, it can be shown that the control variables vary considerably across Europe. For example the maximum value of INSTASSETS exceeds the minimum value by roughly 30 times. This high variation underlines the necessity to control for these factors

in order to ensure that the results are not erroneously driven by omitted country characteristics.

Finally, Panel D presents the firm characteristics. The results document a considerable heterogeneity of firm characteristics across the sample firms. This becomes evident regarding the statistics of SIZE, for example. Since I want to avoid a size bias in the results, I do not require sample firms to pass a certain minimum size threshold. Consequently, the sample includes not only large multi-billion Euro firms but also rather small firms. This is highlighted by the p25 quantile (37.7 million Euro) and the p75 quantile (610.3 milion Euro).

Table 6.5 Summary statistics

Variable	N	Mean	Sd	Median	p25	p75	Min	Max
Panel A: Ownership variables								
L1Block	26,646	0.303	0.231	0.241	0.117	0.475	0.000	1.000
L3Block	26,646	0.435	0.241	0.425	0.242	0.620	0.000	1.000
FreeFloat	26,646	0.540	0.257	0.516	0.343	0.742	0.000	1.000
HerfInd	26,646	0.164	0.191	0.089	0.027	0.250	0.000	1.000
Strategic	26,646	0.358	0.285	0.349	0.073	0.591	0.000	1.000
Institutional	26,646	0.101	0.145	0.051	0.000	0.155	0.000	0.995
Independent	26,646	0.096	0.142	0.050	0.000	0.147	0.000	0.995
Grey	26,646	0.004	0.027	0.000	0.000	0.000	0.000	0.654
Global Independent	26,496	0.055	0.065	0.000	0.000	0.111	0.000	0.682
Global Strategic	26,496	0.344	0.199	0.328	0.162	0.531	0.000	0.941
Panel B: Measures of regulation and shareholder protection								
Asd	26,646	0.524	0.273	0.379	0.333	0.950	0.203	0.950
rAdri	26,646	3.782	0.928	3.500	3.500	5.000	2.000	5.000
Cri	26,646	2.243	1.446	2.000	1.000	4.000	0.000	4.000
VoiceAcc	26,646	1.370	0.175	1.381	1.286	1.489	0.915	1.826
PolitStab	26,646	0.890	0.350	0.917	0.582	1.170	-0.033	1.676
GovEff	26,646	1.741	0.366	1.783	1.612	1.962	0.320	2.340
RegQual	26,646	1.484	0.307	1.544	1.184	1.737	0.812	2.011
RoL	26,646	1.579	0.324	1.683	1.384	1.753	0.337	2.043
CorrContr	26,646	1.761	0.460	1.869	1.433	2.080	0.129	2.579
LawEnforcement	26,489	5.220	0.759	5.215	4.419	5.663	3.871	7.237
Panel C: Country characteristics								
StockTraded	26,646	1.197	0.808	1.094	0.632	1.588	0.005	4.167
McapListed	26,646	1.006	0.553	0.877	0.572	1.341	0.129	3.333
Tax	26,646	1.028	0.179	1.000	0.933	1.250	0.576	1.408
InstAssets	21,061	1.629	0.907	1.478	1.206	1.867	0.340	10.058
Panel D: Firm characteristics								
Size	26,646	5.103	2.123	4.888	3.630	6.414	-1.593	12.601
Leverage	26,646	0.203	0.168	0.183	0.048	0.320	0.000	0.710
Growth	26,646	0.247	0.840	0.084	-0.013	0.235	-0.829	9.973
Risk	26,646	0.130	0.084	0.107	0.077	0.156	0.013	0.741
Roa	26,601	1.173	17.516	4.688	0.234	8.656	-99.300	42.548
LifeCycle	25,626	-0.359	2.719	0.168	-0.075	0.524	-31.595	1.226
lnMtb	26,531	0.620	0.876	0.571	0.045	1.127	-2.022	4.240
Cash	26,635	0.158	0.177	0.095	0.040	0.206	0.000	0.944
DivYield	24,727	0.020	0.033	0.013	0.000	0.030	0.000	1.109
IntAcc	26,646	0.500	0.500	0.000	0.000	1.000	0.000	1.000
lnTobQ	26,531	0.365	0.528	0.253	0.016	0.605	-0.988	3.226
Global TobQ	26,646	1.356	0.349	1.288	1.129	1.473	0.957	3.168

Notes: This table reports the summary statistics for the variables employed. The sample covers 4,073 publicly listed firms from 16 European countries. Data is collected for the period 1999-2008. Panel A reports the summary statistics of the ownership variables. Panel B reports statistics on the measures of regulation and shareholder protection. Panel C is includes variables that measure country characteristics. Finally, Panel D is focused on firm characteristics. *N* represents the number of observations. *Mean* stands for the mean value and *Median* refers to the median value. *Sd* is the standard deviation. *p25* and *p75* represent the 25th and 75th percentile. *Min* (*Max*) is the minimum (maximum) value. A detailed definition of all variables can be found in Table Appendix T.1. In order to avoid that the empirical results are driven by outliers, all firm-specific control variables that are defined as ratios are winsorized on a yearly base at the 1 percent level on both tails of the distribution.

Source: Own work based on *Rapp and Trinchera (2012).*

Ownership structures of European listed firms

This section provides a descriptive analysis of the ownership structure of European listed firms. I report country-level data clustered along the legal origin. The results illustrate the heterogeneity of ownership structures across countries that belong to different legal families.

Ownership structure by country and law origin: Table 6.6 presents the ownership concentration and the presence of different investor types by country. Countries are clustered by origin of law. Ownership concentration measured by the mean share of the largest shareholder L1BLOCK varies systematically across law regimes. The concentration is lowest in common law countries (19.1 percent) and highest in French (39.8 percent) and German civil law origin countries (36.2 percent). The mean concentration in Scandinavian law origin countries is with 21.9 percent quite close to the average value of common law countries.

Similar results can be found for the other concentration measures such as the cumulated share of the largest three shareholders L3BLOCK or the Herfindahl index HERFIND. Regarding the freefloat I observe the opposite pattern, i.e. common law countries have on average the highest values and French and German civil law countries the lowest. Interestingly, Scandinavian civil law countries on average have a higher freefloat than common law countries. Even though the difference is not significant, this underlines the similarity of ownership structures in common law and Scandinavian civil law regimes.

Next, I examine the presence of various investor types. According to Table 6.6 the cumulated shares held by different investor types also vary across law regimes. In common law countries the average share of strategic blockholders is 21.8 percent. This is significantly lower than in French (47.8 percent) and German (42.5 percent) civil law countries. Scandinavian civil law countries are with an average share of 26.2 percent quite close to the common law average.

The mean institutional share is highest in common law countries (16.2 percent), followed by Scandinavian (11.4 percent), German (6.7 percent) and finally French law origin countries (6.5 percent). A qualitatively similar order can be observed for the subgroup of independent institutional investors. Comparing institutionals and strategic investors across all law regimes reveals first of all that the average share of institutional investors is smaller than the average share held by strategic investors. Second, institutional investors show strong presence in regimes where strategic investors have on average lower shareholdings.

Grey institutional investors have on average the lowest values in common (0.2 percent) and French law origin countries (0.3 percent). German law (0.7 percent) and Scandinavian law (0.8 percent) legal origin firms have on average the highest share of grey institutionals. Comparing the average shareholdings across institutional subgroups it becomes evident that grey institutional investors own on average considerably lower shareholdings than their independent counterpart.

Table 6.6 Ownership concentration in Europe by country and legal origin

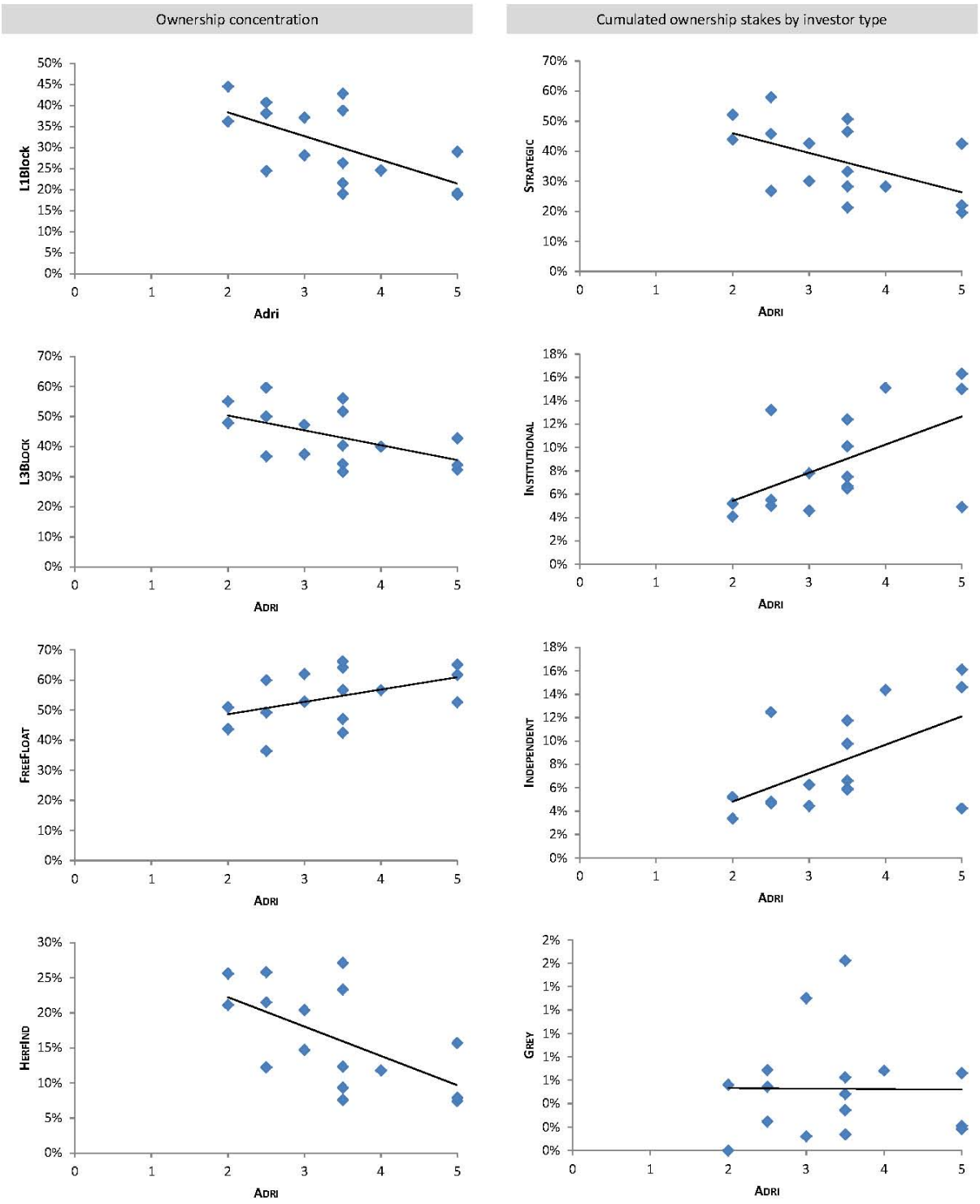
Country	N	Overall ownership concentration				Cumulated ownership stakes by investor type			
		L1Block	L3Block	FreeFloat	HerfInd	Strategic	Institutional	Independent	Grey
Panel A: Country statistics									
Ireland	334	18.8%	32.3%	65.1%	7.4%	19.6%	15.0%	14.6%	0.2%
UK	7,223	19.1%	33.9%	61.7%	7.9%	21.9%	16.3%	16.1%	0.2%
English law origin	**7,557**	**19.1%**	**33.8%**	**61.9%**	**7.9%**	**21.8%**	**16.2%**	**16.1%**	**0.2%**
COMMON LAW	**7,557**	**19.1%**	**33.8%**	**61.9%**	**7.9%**	**21.8%**	**16.2%**	**16.1%**	**0.2%**
Belgium	763	37.2%	47.3%	52.8%	20.4%	42.6%	4.6%	4.4%	0.1%
France	5,033	42.8%	56.1%	42.5%	27.1%	50.7%	6.7%	6.6%	0.1%
Italy	1,616	44.5%	55.0%	43.8%	25.6%	52.1%	4.1%	3.4%	0.6%
Luxembourg	157	36.2%	47.9%	51.0%	21.1%	43.8%	5.2%	5.2%	0.0%
Netherlands	843	24.5%	36.8%	60.0%	12.2%	26.8%	13.2%	12.5%	0.5%
Portugal	422	40.7%	59.7%	36.5%	25.8%	58.0%	5.5%	4.8%	0.7%
Spain	755	29.0%	42.8%	52.7%	15.7%	42.4%	4.9%	4.2%	0.7%
French law origin	**9,589**	**39.8%**	**52.5%**	**45.8%**	**23.9%**	**47.8%**	**6.5%**	**6.1%**	**0.3%**
Austria	435	38.1%	50.0%	49.3%	21.5%	45.7%	5.0%	4.7%	0.2%
Germany	3,433	38.9%	51.7%	47.1%	23.3%	46.5%	6.5%	5.9%	0.5%
Switzerland	1,217	28.2%	37.6%	62.1%	14.7%	30.1%	7.8%	6.3%	1.3%
German law origin	**5,085**	**36.2%**	**48.1%**	**50.8%**	**21.1%**	**42.5%**	**6.7%**	**5.9%**	**0.7%**
Denmark	816	24.6%	40.0%	56.7%	11.8%	28.2%	15.1%	14.4%	0.7%
Finland	941	21.5%	34.2%	64.2%	9.3%	28.3%	7.5%	5.8%	1.6%
Norway	796	26.3%	40.4%	56.7%	12.3%	33.2%	10.1%	9.8%	0.3%
Sweden	1,862	19.1%	31.7%	66.2%	7.6%	21.3%	12.4%	11.7%	0.6%
Scandinavian law origin	**4,415**	**21.9%**	**35.3%**	**62.3%**	**9.6%**	**26.2%**	**11.4%**	**10.6%**	**0.8%**
CIVIL LAW	**19,089**	**34.7%**	**47.4%**	**50.9%**	**19.9%**	**41.4%**	**7.7%**	**7.1%**	**0.5%**
Panel B: Test of means between different legal origins									
Common vs. Civil law		52.22***	42.68***	-31.93***	48.09***	53.15***	-45.31***	-48.47***	9.18***
English vs. French law origin		-64.34***	-54.41***	43.16***	-59.34***	-64.98***	44.61***	45.98***	-3.49***
English vs. German law origin		-48.64***	-37.03***	25.48***	-45.4***	-44.9***	36.28***	39.15***	-10.66***
English vs. Scandinavian law origin		-9.45***	-4.07***	-1.01	-8.26***	-9.92***	16.85***	19.29***	-15.42***
French vs. German law origin		8.22***	10.10***	-11.43***	7.54***	10.87***	-0.89	1.05	-6.74***
French vs. Scandinavian law origin		43.49***	39.73***	-36.15***	41.32***	44.31***	-20.9***	-19.44***	-9.64***
German vs. Scandinavian law origin		32.26***	26.85***	-22.23***	31.23***	30.01***	-17.91***	-18.45***	-2.12**

Notes: This table provides information on the mean ownership concentration in the European sample countries. Additionally countries are clustered by legal origin. The sample covers 4,073 publicly listed firms from 16 European countries. Data is collected for the period 1999 – 2008. Panel A reports the number of firm year observations *N* and the mean values for selected ownership concentration measures. A detailed definition of all variables can be found in Table Appendix T.1. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.
Source: Own work based on *Rapp and Trinchera (2012)*.

As these descriptive results show, ownership characteristics differ across law origins. However, under the law origin perspective several countries are aggregated in into four distinct clusters. Consequently, the law origin represents rather a rough measure of shareholder protection. In comparison to that, shareholder protection measures such as the anti-director rights index and the anti-self-dealing index are more granular measures for shareholder protection.

Figure 6.3 illustrates univariate evidence on the relation between shareholder protection and ownership structure of European firms. The figure is based on the country-specific data presented in Table 6.6. In sum, this figure backs prior descriptive results. For example it shows that countries with better protection tend to be less concentrated. Furthermore it provides additional evidence that for example countries with better protection tend to have higher cumulated shares held by independent institutional investors and lower cumulated shares held by strategic investors.

Figure 6.3 Shareholder protection and ownership structures: Univariate evidence



Notes: This figure illustrates the country-level data on the relation between shareholder protection and selected ownership variables. In this figure the anti-director rights index RADRI is used to measure the quality of shareholder protection. The values of a specific ownership variable are generated by calculating the mean value of the respective variable in each of the 16 countries for the period from 1999 to 2008. The left half of the figure illustrates the relation between RADRI and the following, overall ownership concentration measures: L1BLOCK, L3BLOCK, FREEFLOAT and HERFIND. The right half presents the impact of RADRI on the following ownership variables that measure the cumulated shareholdings held by different investor types: STRATEGIC,INSTITUTIONAL, INDEPENDENT and GREY. A detailed definition of all variables can be found in Table Appendix T.1.

Source: Own work.

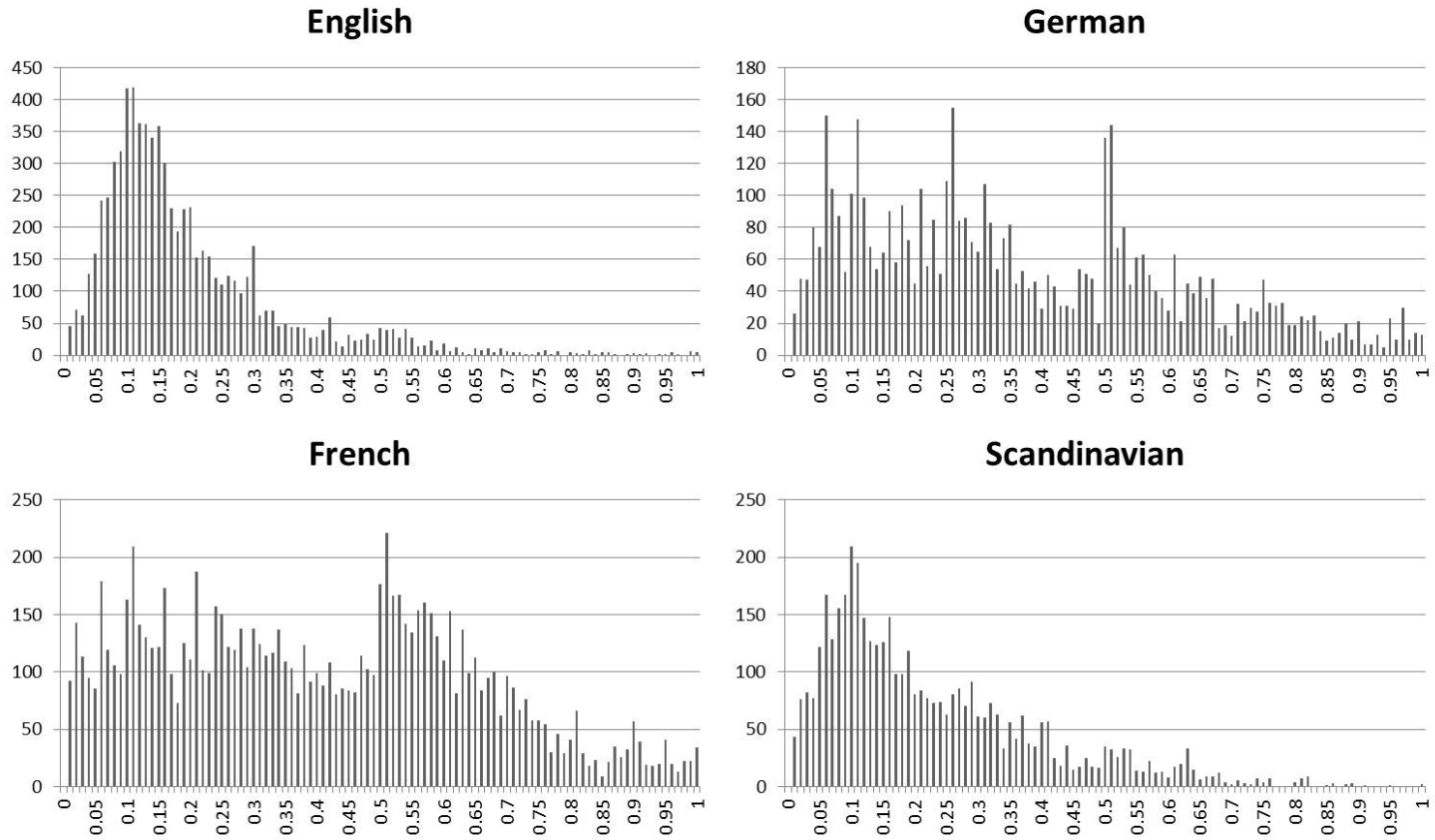
The differences in the ownership concentration across Europe are also illustrated in Figure 6.4. Figure 6.4 shows how the distribution of the size of the largest shareholder block varies by legal origin. The distribution of the largest shareholding in common law countries shows many small shareholdings. This indicates a rather widely held ownership structure. The distribution of the largest shareholding in Scandinavian law origin countries is comparable to that in common law countries.

However, the distribution in English and Scandinavian law origin countries stands in a clear contrast to that in French and German law origin countries. For these two law families a distribution with many large shareholdings can be observed which suggests a rather concentrated structure. It is remarkable that a large number of shareholdings is arranged around particular voting right thresholds such as 10, 20, 25, and 50 percent. This underlines the importance of these thresholds for the investors.

Usually, the high relevance of these thresholds can be derived from the law. Regarding for example German law origin countries, it can be seen that many large shareholdings are situated around the threshold of 25 and 50 percent. According to the German company law considerable shareholder rights are associated with these thresholds.[132]

[132] For example investors with a share higher than 25 percent can block important resolutions of the shareholders' meeting that would require a qualified majority. Therefore the 25 percent plus one vote level is often referred to as blocking minority.

Figure 6.4 Legal origin and the largest blockholder's ownership stake



Notes: This figure shows the distribution of the shareholding size of the largest investor of European firms over the period 1999 – 2008 by legal origin. The x axis is divided into 100 size intervals with a uniform length of 1 percent. Each bar represents the number of shareholdings in the respective size interval.
Source: Own work based on *Rapp and Trinchera (2012)*.

Allocation of control by legal origin: The literature provides evidence that apart from the largest shareholder there may exist a second large shareholder that can fulfill important monitoring functions *(cf. Maury and Pajuste, 2005; Laeven and Levine, 2008; Ruiz-Mallorquí and Santana-Martín, 2010; Edmans and Manso, 2011)*. For example *Faccio et al. (2001)* show that the existence of multiple blockholders affects the expropriation by the controlling shareholder. Motivated by this literature, Figure 6.5 illustrates the allocation of control between multiple large investors in 1999 and 2008 by law regime.

In Figure 6.5 majority control firms and minority control firms are differentiated. Minority control firms do not have any shareholder above the 20 percent threshold.[133] In contrast, majority control firms do have a dominant shareholder above the threshold of 20 percent. Depending whether there exists a second largest shareholder above the 5 percent threshold, the majority control firms are additionally divided into those that do not have a second blockholder and those that do have.

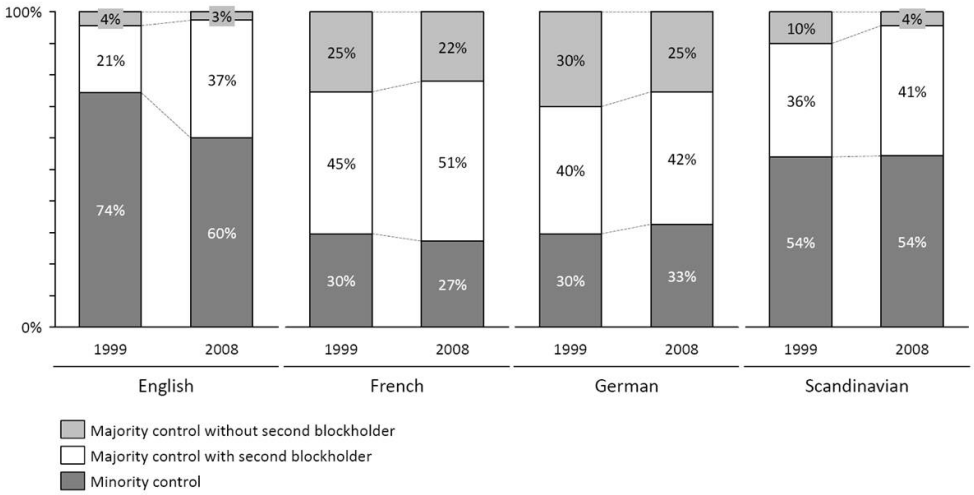
Figure 6.5 shows that the share of minority control firms is highest in common law countries, while the share of majority control forms without second blockholder is lowest. Interestingly, the share of minority control firms has decreased by 14 percentage points from 1999 to 2008, while the fraction of majority control firms with a second blockholder has increased by 16 percentage points. This suggests a growing concentration. German (2008: 33 percent) and French law origin (2008: 27 percent) countries have the lowest fraction of minority control firms but the highest fraction of majority control firms. With a fraction of minority control firms of 54 percent, Scandinavian law origin countries are close to common law firms.

Overall, this figure underlines the variation of ownership structures across le-

[133] The choice of the 20 percent threshold is motivated by *La Porta et al. (1999)* and *Faccio et al. (2001)* who argue that a share of 20 percent is enough to gain effective control of a company.

gal origins. It furthermore shows that the ownership patterns in common law countries and Scandinavian civil law countries are quite similar. The differences of the ownership patterns are consistent with the notion that concentration and shareholder protection are negatively associated.

Figure 6.5 Legal origin and the allocation of control



Notes: This figure shows the allocation of control in European firms in 1999 and 2008 by legal origin. The columns show the percentage value of sample firms that can be attributed to one of three distinct control categories in the respective year. The three categories are defined as follows: In the first step firms under minority control and under majority control are differentiated. Minority control firms do not have any shareholder above the 20 percent threshold. By contrast majority control firms do have a dominant shareholder above the threshold of 20 percent. In a second step the group of majority control firms is further subclassified, depending on the existence of a second largest shareholder above the 5 percent threshold. Thus the majority control firms are divided into one group with and another group without a second largest blockholder.
Source: Own work.

Development of ownership structures: While the previous descriptive statistics rather shed light on the cross-national differences of ownership structures, it has not been answered yet, how the ownership structures developed over the years. For this purpose, Table 6.7 presents the ownership concentration and the presence of different investor types by year and law origin. In their well-known

study on the ownership of Western-European countries, *Faccio and Lang (2002)* hypothesize that ownership structures in Europe are generally rather stable.

As Table 6.7 shows, the development of the overall ownership concentration measures does not follow a uniform pattern across law families. In common law countries, a considerable increase of concentration over the years can be observed. Comparing the mean values of L3BLOCK in 1999 and 2008 for example, the difference turns out to be significant. Aside from a slightly increasing overall concentration in French law origin countries, the concentration measures of other civil law families do not significantly differ between 1999 and 2008.

The impression of an non-uniform development across law regimes persists when I focus on the shareholdings held by the different investor types. Most notably I perceive a considerable increase of the cumulated shareholdings held by strategic and institutional investors in common law countries over the years.

Overall Table 6.7 reveals that it cannot be stated that ownership structures per se are in any case constant or variable. The development is not uniform across law families. It rather seems that ownership structures in common law countries have been subject to a significant change over the past years, while ownership structures in civil law countries have been relatively stable. So far these findings revise at least partly the assumption made by *Faccio and Lang (2002)*.

Table 6.7 Ownership concentration in Europe by year and legal origin

Panel A: Overall ownership concentration

Variable	Law origin	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	All years	t-statistics
L1BLOCK	English	15.4%	17.4%	18.9%	18.8%	18.7%	18.7%	19.5%	20.0%	20.1%	21.0%	19.1%	−7.38***
	French	37.3%	37.2%	40.4%	41.5%	40.5%	41.2%	40.4%	40.1%	39.3%	39.1%	39.8%	−1.57
	German	37.0%	36.3%	37.4%	37.5%	36.7%	36.2%	35.1%	35.1%	35.0%	36.7%	36.2%	0.20
	Scandinavian	23.0%	21.8%	22.0%	23.1%	22.8%	22.4%	20.3%	21.3%	21.4%	21.9%	21.9%	0.87
	Total	**29.0%**	**29.4%**	**31.5%**	**31.9%**	**31.0%**	**31.1%**	**29.9%**	**29.9%**	**29.4%**	**29.9%**	**30.3%**	−1.27
L3BLOCK	English	27.3%	30.3%	33.4%	33.2%	33.2%	32.8%	34.6%	35.5%	35.6%	37.6%	33.8%	−10.63***
	French	49.4%	49.8%	53.2%	54.1%	52.9%	54.0%	53.8%	53.3%	51.7%	51.9%	52.5%	−2.11**
	German	48.7%	48.8%	49.8%	50.1%	48.5%	48.1%	47.0%	46.8%	46.2%	48.1%	48.1%	0.36
	Scandinavian	36.1%	35.1%	35.3%	36.6%	36.6%	35.8%	33.3%	34.6%	34.7%	36.0%	35.3%	0.09
	Total	**41.2%**	**42.2%**	**44.7%**	**45.0%**	**44.1%**	**44.2%**	**43.4%**	**43.5%**	**42.7%**	**43.9%**	**43.5%**	−3.91***
FREEFLOAT	English	71.1%	67.5%	62.9%	63.0%	62.5%	62.8%	60.6%	59.5%	59.7%	56.3%	61.9%	12.92***
	French	49.2%	48.6%	45.6%	44.6%	45.6%	44.2%	44.1%	44.4%	46.4%	45.8%	45.8%	2.76***
	German	50.5%	49.9%	49.1%	48.6%	50.5%	51.2%	52.0%	52.1%	52.9%	51.1%	50.8%	−0.33
	Scandinavian	61.6%	63.0%	62.9%	61.2%	61.3%	62.2%	64.0%	62.9%	63.0%	60.9%	62.3%	0.44
	Total	**57.3%**	**56.1%**	**53.4%**	**52.9%**	**53.7%**	**53.5%**	**53.8%**	**53.5%**	**54.6%**	**52.7%**	**54.0%**	6.27***
HERFIND	English	5.9%	6.9%	7.9%	7.8%	7.7%	7.6%	8.0%	8.3%	8.3%	8.8%	7.9%	−5.03***
	French	21.8%	21.9%	24.8%	25.4%	24.7%	25.0%	24.3%	23.9%	23.4%	23.5%	23.9%	−1.64
	German	21.8%	20.9%	21.4%	21.9%	21.3%	21.0%	20.3%	20.2%	20.4%	22.0%	21.1%	−0.15
	Scandinavian	10.1%	9.6%	9.7%	10.7%	10.1%	9.7%	8.5%	9.3%	9.1%	9.6%	9.6%	0.67
	Total	**15.7%**	**15.8%**	**17.5%**	**17.8%**	**17.1%**	**17.0%**	**16.1%**	**16.0%**	**15.7%**	**16.1%**	**16.4%**	−0.81

Continued on next page

Table 6.7 (continued)

Panel B: Cumulated ownership stakes by investor type													
Variable	Law origin	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	All years	t-statistics
STRATEGIC	English	16.0%	19.2%	22.7%	21.7%	21.3%	20.6%	21.9%	23.3%	23.1%	24.6%	21.8%	−7.39***
	French	40.8%	43.5%	48.9%	50.9%	50.0%	51.0%	49.8%	48.5%	46.3%	46.5%	47.8%	2.99***
	German	42.8%	43.8%	45.2%	45.1%	44.3%	42.9%	40.6%	40.1%	39.5%	41.4%	42.5%	−0.91
	Scandinavian	24.8%	25.2%	26.7%	28.2%	27.6%	27.4%	25.5%	26.5%	24.9%	25.7%	26.2%	0.23
	Total	**31.9%**	**34.3%**	**38.1%**	**38.5%**	**37.5%**	**37.4%**	**35.8%**	**35.6%**	**34.1%**	**34.9%**	**35.8%**	−3.55***
INSTITUTIONAL	English	12.9%	13.2%	14.2%	15.3%	16.2%	16.4%	17.3%	17.1%	17.3%	19.1%	16.2%	−7.15***
	French	10.0%	7.8%	5.5%	4.4%	4.4%	4.8%	6.1%	7.0%	7.3%	7.8%	6.5%	−4.16***
	German	6.7%	6.3%	5.7%	6.2%	5.2%	5.9%	7.4%	7.8%	7.5%	7.5%	6.7%	0.73
	Scandinavian	13.6%	11.8%	10.4%	10.5%	11.1%	10.4%	10.6%	10.6%	12.1%	13.4%	11.4%	−0.59
	Total	**10.7%**	**9.5%**	**8.5%**	**8.5%**	**8.8%**	**9.0%**	**10.4%**	**10.9%**	**11.3%**	**12.3%**	**10.1%**	−3.73***
INDEPENDENT	English	12.5%	13.0%	13.9%	15.1%	16.0%	16.2%	17.2%	17.0%	17.2%	18.9%	16.1%	−7.57***
	French	9.6%	7.4%	5.2%	4.1%	4.1%	4.5%	5.7%	6.7%	7.0%	7.4%	6.1%	3.04***
	German	5.7%	5.6%	4.8%	5.2%	4.6%	5.1%	6.6%	7.1%	6.8%	6.9%	5.9%	−1.40
	Scandinavian	12.5%	10.8%	9.4%	9.7%	10.6%	9.8%	9.8%	9.8%	11.2%	12.4%	10.6%	0.13
	Total	**10.1%**	**9.0%**	**8.0%**	**8.1%**	**8.4%**	**8.6%**	**10.0%**	**10.5%**	**10.9%**	**11.9%**	**9.6%**	−3.90***
GREY	English	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.2%	0.2%	0.57
	French	0.4%	0.4%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%	0.3%	0.30
	German	0.8%	0.6%	0.8%	0.9%	0.6%	0.6%	0.7%	0.6%	0.6%	0.5%	0.7%	1.48
	Scandinavian	1.1%	1.0%	0.9%	0.8%	0.5%	0.5%	0.7%	0.8%	0.8%	0.9%	0.8%	0.74
	Total	**0.6%**	**0.5%**	**0.5%**	**0.5%**	**0.4%**	**0.4%**	**0.4%**	**0.4%**	**0.4%**	**0.4%**	**0.4%**	1.45

Notes: This table reports the mean values of selected ownership concentration variables of European firms by law origin and years over the period 1999 – 2008. The last column presents the t-statistics resulting from a test of means between the years 1999 and 2008. Panel A presents statistics concerning the overall ownership concentration. Panel B presents statistics on the concentration of selected investor types. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. A detailed definition of all variables can be found in Table Appendix T.1.

Source: Own work.

6.2.2 Regression results

This section investigates the relation between shareholder protection and ownership structures of European firms using standard regression methods based on firm-level observations. The analysis follows a three step procedure. First, the impact of shareholder protection on different measures of ownership concentration is examined. Second, it is tested how shareholder protection affects the presence strategic and institutional investors. Finally, the relation between shareholder protection and the presence of independent and grey institutional investors is analyzed.

Shareholder protection and ownership concentration

Table 6.8 presents the regression results concerning the impact of the shareholder protection on the ownership concentration of European firms. In Model 1–3 I estimate the impact of shareholder protection on the share of the largest shareholder.

The coefficient of the anti-self-dealing index in Model 1 is negative and highly significant. This implies that the ownership concentration decreases with growing shareholder protection. Using the anti-director rights index in Model 2 provides a similar finding. Again the coefficient is significantly negative. The economic effects of shareholder protection in Model 1 and 2 are substantial. A one-standard deviation increase in shareholder protection as measured by the anti-self-dealing index (revised anti-director rights index) is associated with a 18.4 (19.9) percent decrease of the average share of the largest shareholder.

In Model 3 I use the legal origin as an indicator for shareholder protection. The coefficients of the indicators for German, French and Scandinavian law are all positive and highly significant. This suggests that the ownership concentration in these law regimes is higher than in common law countries. The coefficients

of the French law dummy equals 0.168 and of the German law dummy 0.150. This indicates that ceteris paribus being a French (German) law origin company instead of a common law company increases the share of the largest shareholder by approximately 16.8 (15.0) percentage points. These values correspond roughly to the reported mean values in Table 6.6 that show a difference between common law and French (German) law of 20.7 (17.1) percentage points.

Interestingly, the coefficient of the Scandinavian law dummy is 0.014 and thus considerably smaller than the coefficients of French and German law regimes. Moreover it is significant only at the 10 percent level. This puts some doubt on any difference between common law and Scandinavian law origin countries.

With regards to the additional firm-specific control variables the regression results are consistent with the previous literature. Size, growth and risk are negatively associated with ownership concentration, i.e. large firms with high risk and high growth prospects tend to be less concentrated. Also the coefficients of the country-specific control variables reveal that firms in more developed capital markets are less concentrated.

Altogether the regression results in Model 1–3 document a negative relationship between shareholder protection and ownership concentration, i.e. the better the shareholder protection, the lower is the ownership concentration. As such, the results confirm the initial impression from the comparison of the concentration means across countries and law regimes in Table 6.6.

In Model 4–6 I vary the dependent variable and use L3BLOCK, the cumulated share of the three largest shareholders. In Model 7–9 I use the freefloat FREEFLOAT as dependent variable and finally in Model 10–12 the Herfindahl index HERFIND. Using these alternative dependent variables confirms the results from Model 1–3. The better the protection of shareholders, the lower is the degree of ownership concentration. Interestingly in Model 6, 9 and 12 the Scandinavian law dummy is not significantly different from zero. Again this suggests that the concen-

tration measures in Scandinavian law countries do not significantly differ from those in common law countries.

Overall the findings reported in Table 6.8 document that shareholder protection and ownership concentration are negatively associated with each other. This effect is independent of the specification of the independent variables and the proxy for the degree of shareholder protection. As such, the results confirm earlier empirical evidence, which analyzed the relationship using country averages of ownership concentration *(e.g. La Porta, Lopez-De-Silanes, Shleifer and Vishny, 1998; La Porta, Lopez-de Silanes and Shleifer, 1999; Stulz, 2005; Roe, 2006)*. However the results stand in a clear to the findings of *Holderness (2011)*. According to his findings, the use of firm-specific data leads to omitted-variable and aggregation biases which in the end cause the impact of shareholder protection to turn out insignificant or even positive.

Table 6.8 The impact of shareholder protection on the overall ownership concentration

Model No.	1	2	3	4	5	6	7	8	9	10	11	12
Method	Pooled OLS			Pooled OLS			Pooled OLS			Pooled OLS		
SE	Clustered by firm			Clustered by firm			Clustered by firm			Clustered by firm		
Dependent Variable	L1BLOCK			L3BLOCK			FREEFLOAT			HERFIND		
ASD	-0.181***			-0.158***			0.130***			-0.142***		
	[-16.10]			[-13.45]			[10.38]			[-15.97]		
RADRI		-0.057***			-0.048***			0.040***			-0.042***	
		[-16.55]			[-13.89]			[11.03]			[-15.33]	
LAWFR			0.168***			0.153***			-0.136***			0.133***
			[20.67]			[18.52]			[-15.69]			[19.53]
LAWGER			0.150***			0.132***			-0.108***			0.116***
			[16.58]			[14.50]			[-11.22]			[15.32]
LAWSCAND			0.014*			0.005			0.008			0.007
			[1.87]			[0.62]			[0.86]			[1.38]
RISK	-0.110***	-0.093***	-0.100***	-0.161***	-0.146***	-0.151***	0.202***	0.190***	0.193***	-0.078***	-0.065**	-0.070***
	[-3.58]	[-3.02]	[-3.43]	[-5.14]	[-4.67]	[-5.06]	[6.16]	[5.79]	[6.11]	[-2.76]	[-2.30]	[-2.58]
SIZE	-0.012***	-0.012***	-0.014***	-0.020***	-0.020***	-0.022***	0.025***	0.025***	0.027***	-0.009***	-0.009***	-0.011***
	[-7.59]	[-7.53]	[-9.20]	[-12.61]	[-12.50]	[-14.37]	[15.03]	[14.92]	[16.78]	[-7.22]	[-7.02]	[-8.71]
LEVERAGE	-0.014	-0.019	-0.008	0.004	0.000	0.010	-0.013	-0.009	-0.018	-0.027*	-0.030**	-0.022
	[-0.79]	[-1.12]	[-0.46]	[0.26]	[0.01]	[0.62]	[-0.73]	[-0.52]	[-1.07]	[-1.77]	[-1.99]	[-1.50]
GROWTH	-0.006***	-0.007***	-0.005***	-0.007***	-0.007***	-0.005***	0.006***	0.007***	0.005**	-0.005***	-0.006***	-0.004***
	[-3.79]	[-4.23]	[-2.97]	[-3.66]	[-4.04]	[-2.94]	[3.02]	[3.31]	[2.40]	[-3.52]	[-3.92]	[-2.77]
STOCKTRADED	-0.014***	-0.006	-0.002	-0.008*	-0.002	0.003	0.000	-0.005	-0.010**	-0.014***	-0.009***	-0.004
	[-3.30]	[-1.44]	[-0.44]	[-1.80]	[-0.47]	[0.72]	[0.06]	[-1.08]	[-2.16]	[-3.88]	[-2.75]	[-1.21]
MCAPLISTED	-0.061***	-0.069***	-0.052***	-0.074***	-0.081***	-0.066***	0.082***	0.087***	0.073***	-0.044***	-0.050***	-0.036***
	[-8.23]	[-9.51]	[-7.08]	[-10.01]	[-11.15]	[-8.90]	[10.67]	[11.61]	[9.59]	[-7.13]	[-8.22]	[-5.90]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646
Firms	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073
Adjusted R^2	0.267	0.271	0.316	0.356	0.357	0.392	0.346	0.347	0.376	0.178	0.177	0.228

Notes: This table reports the pooled linear regression estimates for the impact of shareholder protection on ownership concentration. As a proxy for ownership concentration different dependent variables are used: the share of the largest shareholder (L1BLOCK) in Model 1-3, the cumulated share of the three largest shareholders (L3BLOCK) in Model 4-6, the freefloat (FREEFLOAT) in Model 7-9 and finally the sum of squared blockholdings (HERFIND) in Model 10-12. To estimate the impact of shareholder protection, three alternative measures are used. Besides the anti-self-dealing index and the anti-director rights index also the legal origin is employed. A detailed definition of all variables can be found in Table Appendix T.1. All models control for industry and year fixed effects using industry and year indicator variables. Standard errors are clustered by firm. The t-statistics are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Rapp and Trinchera (2012)*.

Differentiating strategic and institutional investors

Table 6.9 reports the pooled OLS regression results on the impact of shareholder protection on the ownership stakes held by institutional and strategic investors. I refer to the same econometric model as specified in equation 6.1. However, instead of explaining overall shareholder concentration, I use the cumulated share of all strategic blockholders (STRATEGIC) and of all institutional blockholders (INSTITUTIONAL) as the dependent variable.

Model 1–3 explains the cumulated share of strategic blockholders. In Model 1 the coefficient of the anti-self-dealing index has a negative sign and is highly significant. This suggests that the cumulated share of strategic blockholders decreases with growing shareholder protection. Employing the anti-director index in Model 2 provides similar results. Again, the economic effect is substantial. A one standard deviation increase of the anti-self-dealing index (revised anti-director rights index) results in a decrease of the cumulated strategic shareholdings by 20.5 (20.5) percent. In Model 3 I use the legal origin as a measure of shareholder protection and find that the cumulated share of strategic investors is significantly lower in common law countries than in civil law countries.

In Model 4–6 I alter the dependent variable and focus on cumulated institutional ownership. The coefficient of the anti-self-dealing index in Model 4 is significantly positive. This means that a higher degree of shareholder protection and larger cumulated shareholdings held by institutional investors go hand in hand. I find corresponding results when I use the anti-director rights index in Model 5. Again, the economic effect is considerable. A one standard deviation surge of the anti-self-dealing index (revised anti-director-rights index) results in an increase of the cumulated institutional shareholdings by 33.0 (31.5) percent. Similarly, I find that common law regimes have a higher cumulated share of institutional blockholders. Based on the results presented in Model 4–6 it can be concluded that the cumulated share of institutional blockholders increases with

shareholder protection.

Overall, the results presented in Table 6.9 show that shareholder protection has a negative impact on the cumulated shareholdings held by strategic investors. This corresponds to the impact on the overall concentration. However, I find a positive and thus contrary impact on the cumulated share of institutional investors. The latter finding is consistent with similar evidence provided by *Li et al. (2006)* and *Ferreira and Matos (2008)*.[134] Arguing that institutional investors are more interested in security returns and less able to enjoy private benefits, this provides some first evidence in favor of the complementary view of ownership concentration.

[134] Based on firm-level data from the U.S., also recent evidence by *Chung and Zhang (2011)* reveals that institutional investors are attracted by stocks of firms with a good governance structure. They suggest that this finding can be explained by the fiduciary responsibility of institutional investors as well as the strive to minimize monitoring and exit costs.

Table 6.9 The impact of shareholder protection on the concentration of different investor types

Model No.	1	2	3	4	5	6
Method	Pooled OLS			Pooled OLS		
SE	Clustered by firm			Clustered by firm		
Dependent Variable	STRATEGIC			INSTITUTIONAL		
ASD	-0.237***			0.107***		
	[-16.78]			[14.38]		
RADRI		-0.070***			0.030***	
		[-16.47]			[13.52]	
LAWFR			0.222***			-0.085***
			[22.94]			[-16.89]
LAWGER			0.192***			-0.084***
			[18.06]			[-15.80]
LAWSCAND			0.034***			-0.041***
			[3.27]			[-7.23]
RISK	-0.149***	-0.128***	-0.133***	-0.055***	-0.064***	-0.061***
	[-4.30]	[-3.70]	[-4.05]	[-3.49]	[-4.09]	[-3.87]
SIZE	-0.027***	-0.027***	-0.029***	0.001*	0.001	0.002***
	[-14.74]	[-14.40]	[-16.86]	[1.90]	[1.59]	[2.70]
LEVERAGE	0.014	0.009	0.019	-0.001	0.001	-0.001
	[0.70]	[0.43]	[1.00]	[-0.11]	[0.09]	[-0.06]
GROWTH	-0.004*	-0.005**	-0.002	-0.002**	-0.002	-0.003**
	[-1.77]	[-2.31]	[-0.88]	[-2.00]	[-1.57]	[-2.43]
STOCKTRADED	-0.013**	-0.006	0.004	0.013***	0.011***	0.007***
	[-2.52]	[-1.16]	[0.69]	[5.69]	[4.50]	[3.10]
MCAPLISTED	-0.088***	-0.098***	-0.076***	0.006*	0.010***	0.003
	[-10.24]	[-11.59]	[-8.98]	[1.74]	[2.93]	[0.87]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	26,646	26,646	26,646	26,646	26,646	26,646
Firms	4,073	4,073	4,073	4,073	4,073	4,073
Adjusted R^2	0.291	0.290	0.343	0.127	0.123	0.144

Notes: This table reports the pooled linear regression estimates for the impact of shareholder protection on the cumulated ownership stakes held by different owner types. Two types of investors are differentiated: Model 1-3 use STRATEGIC which stands for the cumulated share of all blockholders that are classified as strategic investors. Model 4-6 employ INSTITUTIONAL defined as the cumulated share of all blockholders that can be classified as institutional investors. To estimate the impact of shareholder protection, three alternative measures are used. Besides the anti-self-dealing index and the anti-director rights index also the legal origin is employed. A detailed definition of all variables can be found in Table Appendix T.1. All models control for industry and year fixed effects using industry and year indicator variables. Standard errors are clustered by firm. The t-statistics are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Rapp and Trinchera (2012)*.

Differentiating independent and grey institutional investors

Next, I examine the impact of shareholder protection on the presence of two particular types of institutional investors, i.e. independent and grey institutional investors. Again, the two types of investors are supposed to differ with respect to their investment interests *(e.g. Ferreira and Matos, 2008)*. Specifically, while grey institutions might be interested in ongoing (or potential) business relationships, independent institutions are supposed to be interested in security returns only. Thus, I expect to find a differential impact of shareholder protection on the presence of the two types of institutional investors.

Table 6.10 presents the pooled OLS regression results concerning the impact of shareholder protection on the ownership concentration of independent and grey institutional investors. Again I refer to the econometric model specified in equation 6.1. However I use the following dependent variables for $OS_{i,t}$: the cumulated share of all independent institutional blockholders (INDEPENDENT) and the cumulated share of all grey institutional blockholders (GREY).

I start in Model 1–3 with the cumulated share of independent institutional blockholders as dependent variable. The coefficient of the anti-self-dealing index in Model 1 is positive and significant. This suggests that the cumulated share of independent institutionals increases with growing shareholder protection. Again I obtain similar results when using the revised anti-director index in Model 2. The economic effects are substantial. An increase of the anti-self-dealing index (revised anti-director rights index) by a one standard deviation results in an increase of the cumulated shareholdings owned by independent institutionals by 37.8 (35.7) percent. The results in Model 3, which employ the legal origin as a measure of shareholder protection, show that the cumulated shareholdings of independent institutional investors are lower in civil law countries.

In Model 4–6 I alter the dependent variable and focus on ownership by grey in-

stitutional investors. I find that the coefficients of both shareholder protection indices in Model 4 and 5 are significantly negative. Consistent with these results the share of grey institutional blockholders is lower in common law regimes. Altogether the cumulated share of grey institutional blockholders decreases with shareholder protection. As observed for the group of independent institutionals the economic effect is quite considerable: A one-standard deviation surge of the anti-self-dealing index (revised anti-director rights index) results in a decrease of the cumulated shareholdings held by grey institutionals by 18.4 (19.9) percent.

Overall, the results presented in Table 6.10, document a differential impact of shareholder protection on the concentration of institutional investor subtypes. Similar to the case of all institutional investors, the impact on independent institutional investors is positive. By contrast, there is a negative impact on grey institutional investors. This sheds light on the similarity between grey institutionals and strategic investors as the concentration of both groups is negatively affected by the degree of shareholder protection.

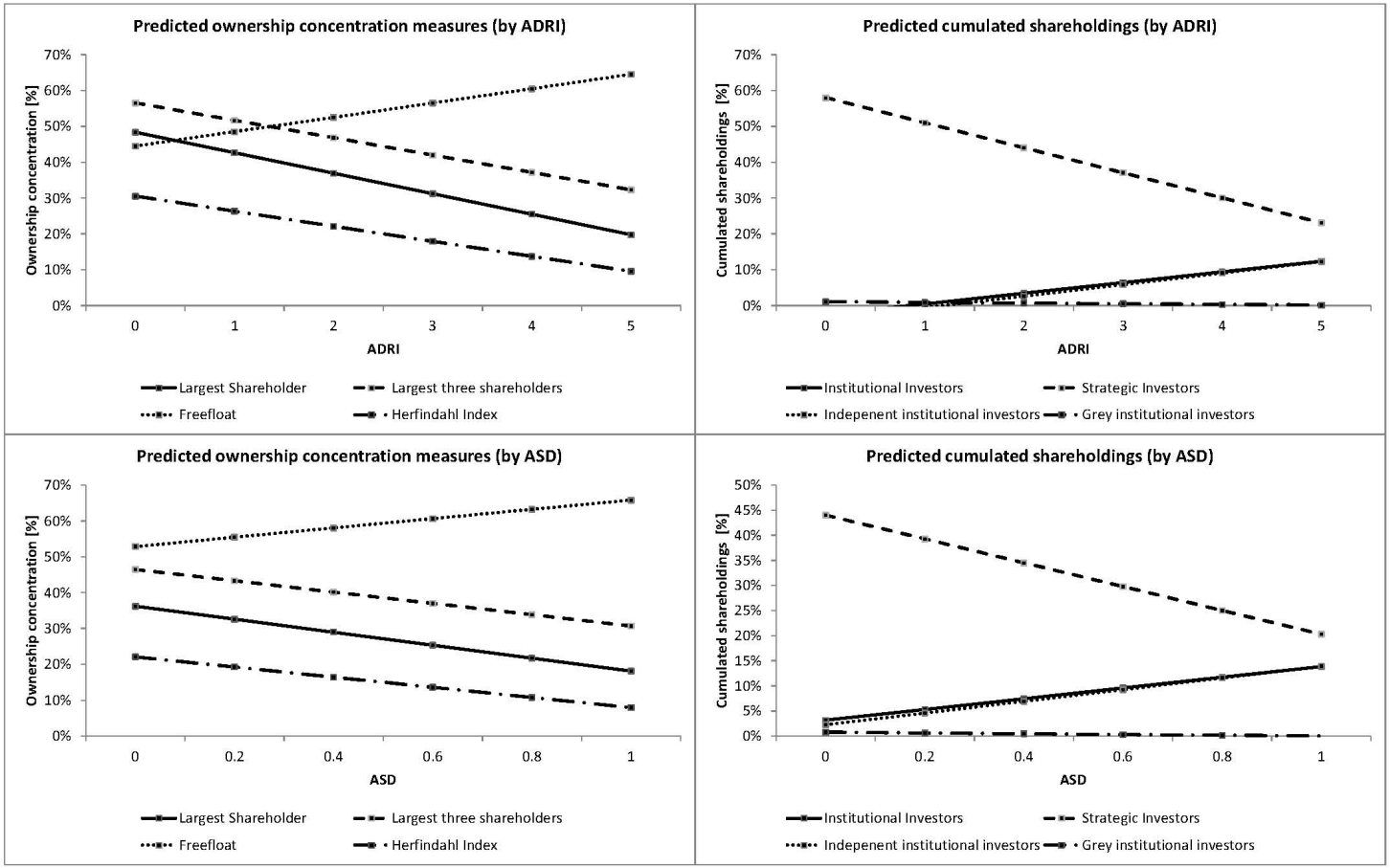
Table 6.10 The impact of shareholder protection on the ownership concentration of different institutional investor types

Model No.	1	2	3	4	5	6
Method	Pooled OLS			Pooled OLS		
SE	Clustered by firm			Clustered by firm		
Dependent Variable	INDEPENDENT			GREY		
ASD	0.116***			-0.008***		
	[16.06]			[-5.47]		
RADRI		0.032***			-0.002***	
		[15.35]			[-2.98]	
LAWFR			-0.089***			0.003***
			[-18.13]			[3.41]
LAWGER			-0.091***			0.006***
			[-18.13]			[4.64]
LAWSCAND			-0.049***			0.007***
			[-8.64]			[6.91]
RISK	-0.047***	-0.057***	-0.053***	-0.008*	-0.007*	-0.008*
	[-3.14]	[-3.80]	[-3.54]	[-1.91]	[-1.80]	[-1.93]
SIZE	0.002**	0.002**	0.002***	-0.000***	-0.000***	-0.000***
	[2.37]	[2.02]	[3.15]	[-3.02]	[-2.66]	[-2.67]
LEVERAGE	-0.001	0.001	-0.001	0.000	0.000	-0.001
	[-0.15]	[0.07]	[-0.07]	[-0.10]	[-0.12]	[-0.23]
GROWTH	-0.002*	-0.002	-0.003**	0.000	0.000	0.000
	[-1.92]	[-1.45]	[-2.34]	[-1.22]	[-1.51]	[-1.39]
STOCKTRADED	0.012***	0.009***	0.006**	0.001***	0.001**	0.001***
	[5.17]	[3.96]	[2.51]	[3.25]	[2.47]	[3.20]
MCAPLISTED	0.003	0.008**	0.000	0.002*	0.002*	0.002*
	[1.08]	[2.48]	[0.16]	[1.94]	[1.72]	[1.82]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	26,646	26,646	26,646	26,646	26,646	26,646
Firms	4,073	4,073	4,073	4,073	4,073	4,073
Adjusted R^2	0.131	0.126	0.148	0.014	0.012	0.017

Notes: This table reports the pooled linear regression estimates for the impact of shareholder protection on the cumulated ownership stakes held by different types of institutional investors. Two subtypes of institutional investors are differentiated: Model 1-3 use INDEPENDENT which is defined as the cumulated shareholdings of institutions that are characterized as pressure-resistant. These include investment managers and mutual funds. Model 4-6 employ GREY which represents the cumulated shareholdings of institutions that are characterized as pressure-sensitive. To estimate the impact of shareholder protection, three alternative measures are used. Besides the anti-self-dealing index and the anti-director rights index also the legal origin is employed. A detailed definition of all variables can be found in Table Appendix T.1. All models control for industry and year fixed effects using industry and year indicator variables. Standard errors are clustered by firm. The t-statistics are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.
Source: Own work based on *Rapp and Trinchera (2012)*.

In line with the presentation of the empirical results I also report the *relative* economic effects of a one standard deviation of the shareholder protection measures on the ownership structure of a firm. Figure 6.6 provides additional information and illustrates the *absolute* impact of a one unit change of the revised anti-director rights index on selected ownership concentration measures of a mean European firm. The figure reports analogue results for the impact of the anti-self-dealing index. In sum, this illustration represents additional evidence for the economic impact of shareholder protection rules.

Figure 6.6 The impact of shareholder protection: Predicted values of selected ownership concentration variables



Notes: The figure illustrates the economic significance of the effect of shareholder protection on the ownership structure of a mean European firm. Each of the four graphs shows the predicted values of selected ownership variables for alternative values of shareholder protection. All other variables are held constant at the sample mean. In the upper two graphs the anti-director rights index serves as a measure of shareholder protection. The lower two graphs employ the anti-self-dealing index. The two graphs on the left side report the predicted values for different ownership concentration measures. The predicted values are based on the results presented in Table 6.8. The two graphs on the right hand side illustrate the predicted values of the cumulated ownership stakes held by different types of investors. The predicted values are based on the regression results as reported in Table 6.9 and Table 6.10.

Source: Own work based on *Rapp and Trinchera (2012).*

The impact of ownership on firm performance

If the ownership structures in Europe are, as suggested by the results above, ultimately driven by the complementary view, I should also be able to detect consistent effects of different owner types on corporate performance. For this purpose I estimate the impact of strategic and independent institutional investors on firm value. I use LNTOBQ, the logarithmic transformation of Tobin's Q, as a proxy for firm value. In the literature Tobin's Q serves as a common measure for firm value *(e.g. Agrawal and Knoeber, 1996; Cho, 1998; Demsetz and Villalonga, 2001; Loderer and Martin, 1997; Himmelberg, Hubbard and Palia, 1999; Doidge, Karolyi and Stulz, 2004; Ferreira and Matos, 2008; Morck, Shleifer and Vishny, 1988)*. It is defined as market value of total assets divided by the book value of total assets, where the nominator is calculated as the book value of total assets less the book value of equity plus the market value of equity. I opt for the logarithmic transformation of Tobin's Q in order to account for well-founded concerns about using standard Tobin's Q as a proxy for firm value *(e.g. Gompers, Ishii and Metrick, 2010)*.[135]

Following the previous literature I regress LNTOBQ on a number of firm- and country-specific control variables that include for example size (SIZE), growth opportunities (GROWTH) and leverage (LEVERAGE) *(e.g. Agrawal and Knoeber, 1996; Cho, 1998; Demsetz and Lehn, 1985; Demsetz and Villalonga, 2001; Edwards and Weichenrieder, 2004; Gugler, Mueller and Yurtoglu, 2008; Loderer and Martin, 1997; Himmelberg, Hubbard and Palia, 1999; Doidge, Karolyi and Stulz, 2004; Ferreira and Matos, 2008; McConnell and Servaes, 1990; Morck, Shleifer and Vishny, 1988; Pedersen and Thomsen, 2003)*. In line with *Doidge et al. (2004)* and *Ferreira and Matos (2008)* I also include GLOBAL TOBQ measuring the industry-median Tobin's Q. I concentrate on the effect of two investor

[135] As *Gompers et al. (2010)* point out the non-logarithmic version of Tobin's Q is an imperfect proxy for firm value since it is associated with measurement errors. For a more detailed discussion of the pros and cons of various approaches to measure firm value see *Gompers et al. (2010)*.

types on valuation. These are strategic investors and independent institutionals. I use independent institutionals and not all institutionals since the latter include grey institutionals that are evidently affected by conflicts of interest.

I apply two regression methods to investigate the impact of ownership on value. First, I perform an OLS regression. Second, I use a simultaneous equation approach. I do so in order to account for endogeneity concerns that are often discussed in the literature *(e.g. Demsetz, 1983; Demsetz and Villalonga, 2001; Himmelberg, Hubbard and Palia, 1999; Loderer and Martin, 1997)*.[136] To estimate a system of simultaneous equations, the literature offers different methods such as two-stage least squares (2SLS) or three-stage least squares (3SLS) for example.

In this dissertation, I opt for the 3SLS method to analyze the relation between ownership and firm value. Compared to the 2SLS method, 3SLS estimates fully exploit the correlation between the equations' disturbances. This leads to consistent estimates which are also asymptotically more efficient *(e.g. Judge, Hill, Griffiths, Lütkepohl and Lee, 1988; Kennedy, 2003)*.[137]

[136] Since the literature raises well founded concerns that ownership variables act as strictly exogenous explanatory variables for firm value, several approaches have been proposed to overcome this problem. *Himmelberg et al. (1999)* for example use a panel data regression with firm fixed effects. However, this approach is criticized by *Zhou (2001)* who argues that rarely changing ownership variables make it difficult to find a potential effect of ownership on performance.

[137] When ownership variables are endogenous, then OLS estimates are biased and inconsistent. To handle the problem arising from endogeneity, the economic literature has proposed the use of simultaneous equation approaches such as two stage least squares regression, which is a particular case of the instrumental variable regression. For this purpose a system of equations is built. In the first equation firm value is explained as a function of the endogenous ownership variable and other exogenous variables. In the second equation the endogenous ownership variable is estimated as a function of exogenous variables and an additional instrument variable which explains ownership patterns but not the firm value. To estimate such systems of structural equations the 2SLS approach proceeds in two steps *(e.g. Kennedy, 2003; Wooldridge, 2002)*: In the first stage, each endogenous variable that serves as explanatory variable is estimated as a function of *all* exogenous variables of the systems of equations. Then the estimated value of the endogenous variables is derived. In the second stage these estimated values serve as instruments for the endogenous variables.

An interesting alternative approach to 2SLS regressions are three-stage least squares regressions that go back to *Zellner and Theil (1962)*. The two approaches are quite familiar with each other. However, the 2SLS estimates do not exploit the correlation between the equations' disturbances. Contrary, the 3SLS regression additionally takes into account that the disturbance terms of the system equations might be contemporaneously correlated with each other. This results in consistent estimates which are also asymptotically more efficient *(e.g. Judge, Hill, Griffiths, Lütkepohl and Lee, 1988; Kennedy, 2003)*. The 3SLS regression method proceeds as follows *(cf. Kennedy, 2003)*:

Of course, the correctness of the instrument variable approach depends on the identification of an adequate instrument that is correlated with the ownership variable and but uncorrelated with the error term. In this study I use two instruments for the cumulated shareholdings held by independent institutionals and strategic investors. First of all, I follow *Himmelberg et al. (1999)* and use stock price volatility as an instrument for both types of investors. Second, I employ the lagged value of the country- and industry-specific median ownership stake held by strategic (GLOBAL STRATEGIC) and independent institutional investors (GLOBAL INDEPENDENT). I argue that this median value is a reasonable indicator for the ownership structure of a firm, while it is unlikely to have a direct impact on the value of the respective firm. I do not only run regressions for the total sample, but also for subsamples that separate high from low protection countries.[138]

Panel A of Table 6.11 presents the results 3SLS regression. They show that cumulated strategic blockholdings have a significant negative impact on value. Making a distinction between high and low protection countries, the impact turns out to be significantly negative only in weak protection countries. In high protection countries the impact becomes insignificant. Quite contrary to strategic investors, the impact of institutional blockholders is positive for the whole sample. Again, the significant and positive relationship holds only for the subsample of low protection countries, but not for high protection countries. These findings are backed by the results of the OLS regression in Panel B of Table 6.11.

In the first step the 2SLS estimates of the identified equations are calculated. Based on the 2SLS estimates the errors of the structural equations are estimated in the second step. These estimates serve to estimate the contemporaneous variance-covariance matrix of the structural equations' errors. Finally, in the third step all equations are estimated simultaneously using a generalized least squares-estimator that considers the covariance structure of the error terms.

[138] The country median of the revised anti-director rights index serves a critical threshold for the classification of high and low protection countries. High protection countries have values larger than the median whereas low protection countries have values lower than or equal to the median *(cf. La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000*b*).*

Table 6.11 The impact of different investor types on firm performance

Panel A: Pooled OLS regression						
Model No.	1	2	3	4	5	6
Sample countries	All	Low Protection	High Protection	All	Low Protection	High Protection
Dependent variable	lnTobQ			lnTobQ		
Strategic	-0.086***	-0.103***	-0.013			
	[-3.94]	[-4.27]	[-0.27]			
Independent				0.049	0.117**	-0.045
				[1.29]	[2.34]	[-0.78]
Size	0.010***	0.001	0.029***	0.013***	0.003	0.029***
	[3.05]	[0.14]	[4.49]	[3.94]	[0.83]	[4.77]
Leverage	-0.188***	-0.242***	-0.132*	-0.190***	-0.244***	-0.134*
	[-5.06]	[-5.57]	[-1.92]	[-5.11]	[-5.62]	[-1.96]
Growth	0.022***	0.036***	0.009	0.023***	0.038***	0.009
	[3.81]	[4.15]	[1.19]	[3.92]	[4.36]	[1.17]
Cash	0.619***	0.555***	0.695***	0.623***	0.566***	0.695***
	[13.12]	[8.94]	[9.75]	[13.19]	[9.11]	[9.76]
Roa	0.003***	0.004***	0.001*	0.003***	0.003***	0.001*
	[5.13]	[5.07]	[1.77]	[4.88]	[4.76]	[1.76]
LifeCycle	-0.029***	-0.021***	-0.039***	-0.029***	-0.021***	-0.039***
	[-9.04]	[-5.85]	[-7.74]	[-9.13]	[-5.92]	[-7.74]
dStockprice	0.023***	0.022***	0.023***	0.023***	0.022***	0.023***
	[23.12]	[18.26]	[13.99]	[23.09]	[18.15]	[13.98]
DivYield	-0.601***	-0.381***	-1.094***	-0.593***	-0.385***	-1.078***
	[-4.92]	[-2.68]	[-4.52]	[-4.86]	[-2.71]	[-4.47]
IntAcc	-0.022	-0.020	0.035	-0.020	-0.017	0.036
	[-1.63]	[-1.22]	[1.36]	[-1.48]	[-1.05]	[1.43]
Global TobQ	0.254***	0.258***	0.225***	0.259***	0.264***	0.225***
	[10.68]	[9.43]	[5.13]	[10.94]	[9.74]	[5.17]
StockTraded	0.004	0.055***	-0.013	0.006	0.061***	-0.011
	[0.45]	[3.17]	[-0.70]	[0.61]	[3.55]	[-0.62]
McapListed	0.041***	-0.001	0.064	0.049***	0.002	0.069*
	[2.90]	[-0.06]	[1.61]	[3.42]	[0.13]	[1.71]
rAdri	-0.001	0.006	-0.059	0.003	0.008	-0.062
	[-0.16]	[0.42]	[-1.08]	[0.44]	[0.55]	[-1.15]
Industry effects	No	No	No	No	No	No
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	21,897	14,202	7,695	21,897	14,202	7,695
Firms	3,635	2,290	1,345	3,635	2,290	1,345
Adjusted R^2	0.259	0.269	0.269	0.257	0.266	0.269

Continued on next page

Table 6.11 (continued)

Panel B: 3 SLS regression												
Model No.	7	8	9	10	11	12	13	14	15	16	17	18
Sample countries	All		Low Protection		High Protection		All		Low Protection		High Protection	
Dependent variable	lnTobQ	Strategic	lnTobQ	Strategic	lnTobQ	Strategic	lnTobQ	Independent	lnTobQ	Independent	lnTobQ	Independent
Strategic	-0.332***		-0.513***		0.121							
	[-9.19]		[-11.30]		[1.38]							
Independent							0.517***		1.423***		-0.153	
							[4.48]		[5.78]		[-0.85]	
lnTobQ		-0.091***		-0.082***		-0.116***		0.006		0.003		0.009
		[-5.37]		[-3.55]		[-4.28]		[0.65]		[0.33]		[0.47]
Size	0.004*	-0.033***	-0.010***	-0.029***	0.036***	-0.041***	0.014***	0.001	0.003*	0.000	0.031***	0.003**
	[1.84]	[-33.70]	[-4.32]	[-24.01]	[7.85]	[-24.14]	[8.67]	[1.30]	[1.68]	[0.62]	[10.85]	[2.33]
Leverage	-0.209***	-0.009	-0.268***	-0.040**	-0.172***	0.059***	-0.221***	0.012*	-0.307***	0.031***	-0.166***	-0.023*
	[-10.43]	[-0.69]	[-10.99]	[-2.40]	[-4.62]	[3.11]	[-10.98]	[1.68]	[-11.54]	[3.96]	[-4.51]	[-1.74]
Growth	0.059***	0.003	0.073***	-0.002	0.040***	0.004	0.062***	-0.003*	0.080***	-0.001	0.039***	-0.004
	[13.24]	[1.10]	[11.17]	[-0.39]	[6.35]	[1.08]	[13.92]	[-1.67]	[11.84]	[-0.30]	[6.20]	[-1.61]
Cash	0.565***	-0.014	0.448***	-0.078***	0.683***	0.088***	0.580***	0.016*	0.481***	0.023**	0.687***	0.012
	[28.56]	[-0.87]	[17.54]	[-3.91]	[20.76]	[3.30]	[29.40]	[1.82]	[18.07]	[2.45]	[20.80]	[0.67]
Roa	0.004***	0.001***	0.005***	0.002***	0.002***	0.001***	0.003***	0.000	0.004***	0.000	0.002***	0.000
	[17.00]	[10.05]	[17.37]	[7.61]	[5.64]	[7.56]	[15.38]	[-0.35]	[14.49]	[0.04]	[6.26]	[0.04]
LifeCycle	-0.027***	0.000	-0.019***	-0.001	-0.040***	0.001	-0.028***	0.001	-0.021***	0.001**	-0.039***	0.000
	[-21.58]	[-0.50]	[-11.28]	[-0.68]	[-19.46]	[0.51]	[-22.43]	[1.60]	[-11.98]	[2.11]	[-19.76]	[0.11]
Risk		-0.119***		-0.199***		-0.013		-0.014		0.014		-0.008
		[-4.83]		[-6.24]		[-0.31]		[-1.02]		[0.94]		[-0.29]
StockTraded	0.031***	0.005***	0.029***	0.005***	0.033***	0.006***	0.031***	-0.001*	0.028***	0.000	0.033***	-0.002**
	[41.80]	[6.91]	[30.46]	[5.19]	[26.71]	[4.95]	[41.35]	[-1.89]	[28.41]	[-0.21]	[26.31]	[-2.37]
DivYield	-0.894***	-0.095*	-0.573***	0.139*	-1.289***	-0.533***	-0.893***	0.052*	-0.569***	-0.055	-1.304***	0.220***
	[-9.90]	[-1.67]	[-5.20]	[1.94]	[-7.76]	[-5.61]	[-9.83]	[1.68]	[-4.94]	[-1.61]	[-7.78]	[3.34]
IntAcc	-0.026***	-0.026***	-0.022**	-0.022***	0.016	-0.031***	-0.018**	0.004	-0.003	-0.002	0.016	0.025***
	[-3.07]	[-5.09]	[-2.27]	[-3.62]	[0.79]	[-3.05]	[-2.12]	[1.38]	[-0.30]	[-0.65]	[0.79]	[3.61]
Global Strategic		0.513***		0.476***		0.559***						
		[43.70]		[30.02]		[22.81]						
Global Independent								0.508***		0.369***		0.574***
								[26.89]		[13.91]		[15.95]
Global TobQ	0.370***		0.354***		0.362***		0.388***		0.385***		0.357***	
	[33.03]		[25.82]		[17.99]		[35.15]		[27.67]		[17.99]	

Continued on next page

Table 6.11 (continued)

Model No.	7	8	9	10	11	12	13	14	15	16	17	18
Sample countries	All		Low Protection		High Protection		All		Low Protection		High Protection	
Dependent variable	lnTobQ	Strategic	lnTobQ	Strategic	lnTobQ	Strategic	lnTobQ	Independent	lnTobQ	Independent	lnTobQ	Independent
StockTraded	-0.008	-0.011***	0.015	-0.037***	-0.036***	-0.031***	-0.008	0.009***	0.025*	0.023***	-0.036**	0.016***
	[-1.14]	[-3.00]	[1.25]	[-5.15]	[-2.63]	[-4.60]	[-1.11]	[4.27]	[1.79]	[6.74]	[-2.56]	[3.36]
McapListed	0.032***	-0.012**	-0.006	0.004	0.152***	-0.029**	0.061***	-0.003	0.025*	-0.016***	0.140***	0.036***
	[3.66]	[-2.36]	[-0.48]	[0.48]	[5.34]	[-2.06]	[7.37]	[-0.95]	[1.91]	[-4.56]	[5.32]	[3.86]
rADRI	-0.019***	-0.033***	-0.013*	-0.034***	-0.066**	0.054***	-0.011*	0.019***	-0.017**	0.017***	-0.063**	-0.031***
	[-3.97]	[-13.87]	[-1.77]	[-7.57]	[-2.42]	[4.08]	[-1.95]	[14.33]	[-1.97]	[7.89]	[-2.26]	[-3.40]
Industry effects	No	No	No	No	No	No	No	No	No	No	No	No
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	22,160	22,160	14,350	14,350	7,810	7,810	22,160	22,160	14,350	14,350	7,810	7,810
Adjusted R^2	0.302	0.254	0.266	0.182	0.335	0.162	0.299	0.120	0.203	0.042	0.338	0.058

Notes: This table reports the regression results for the impact of the cumulated shareholdings held by different investor types on firm performance. The results in Model 1-6 are based on a pooled OLS approach while the results in Model 7-18 are based on a simultaneous equation approach. lnTobQ is used as a proxy for firm performance. Regressions are estimated both for the whole sample as well as for two disjoint subsamples. The first subsample includes all firms in low protection countries and the second those firms that are located in high protection countries. The country median of the revised anti-director rights index serves a critical threshold for the classification of high and low protection countries. High protection countries have values larger than the median whereas low protection countries have values lower than or equal to the median (*(cf. La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000b)*). A detailed definition of all variables can be found in Table Appendix T.1. All models control for year fixed effects using year indicator variables. Standard errors in the pooled OLS model are clustered by firm. The t-statistics are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Rapp and Trinchera (2012)*.

Altogether, the results show that ownership stakes of different shareholder groups are systematically related to firm valuation. While strategic shareholdings affect firm valuation negatively, ownership by independent institutionals has positive effects for firm valuation. Moreover, these effects are particularly pronounced in countries with weak shareholder protection.

This suggests that outside shareholders pay less when protection is low and strategic blockholders own large stakes. A potential reason is that the combination of weak protection and the strong presence of strategic shareholders with their propensity to benefit from private benefits of control increases the risk of being expropriated tremendously. As such, the results are consistent with *La Porta et al. (2002)* who report that the risk of being expropriated as measured by the weakness of shareholder protection has a negative impact on valuation. The impact of strategic investors is also consistent with the *complementary* view of large owners. According to this view, large blockholders emerge in weak protection environments since it is quite easy for them to enjoy private benefits of control.

Since institutional blockholders have a positive impact on value, this shows that investors are willing to pay more when an institutional blockholder exists – in particular in weak protection countries. The results also confirm the view that investors who are interested only in security benefits are less willing to invest in firms where the extraction of private benefits plays a role *(cf. Giannetti and Simonov, 20006)*. It also supports the thesis that institutional investors are far from being engaged in expropriation. Furthermore, the results are consistent with findings presented by *Ferreira and Matos (2008)* who show a positive impact of independent institutional ownership on firm value.[139]

The fact that neither investor type has a significant impact on value in high protection countries is also quite interesting. This suggests that shareholders are not

[139] However, *Ferreira and Matos (2008)* do not differentiate between the effect in high and low protection countries.

willing to pay more or less when any dominant blockholder emerges since the law provides them with rights that are sufficient to defend themselves against expropriation.

6.3 Robustness tests

This section performs a variety of additional tests in order to show that the results are robust against empirical mis-specifications.[140]

6.3.1 Geographical and temporal subsamples

Specification of sample countries: The sample consists of 16 European countries. These countries vary by the amount of firms that they contribute to the sample. The largest number of firms is contributed by UK. UK firms constitute approximately 30 percent of the total number of firms. In the first robustness test I check whether the results are driven by this large number of UK firms. For this purpose I exclude all UK firms from the sample and reestimate the regressions. As Table 6.12 shows, this leads to a considerable reduction of the number of sample firms. Nevertheless, the signs and significance of the variables of interest do not change. Thus I conclude that the results are robust to this exclusion and thus not driven by the large number of firms provided by a single country.

[140] Note that I perform the robustness tests for all regressions estimated in Table 6.8, Table 6.9, Table 6.10. For reasons of brevity, however, I present the robustness checks not for all dependent ownership variables, but restrict the presentation to two concentration measures (L1BLOCK and HERFIND) and the cumulated shareholdings held by strategic (STRATEGIC) and independent institutional investors (INDEPENDENT).

Table 6.12 Robustness Test: Geographical subsample with exclusion of UK

Model No.	1	2	3	4	5	6	7	8	9	10	11	12
Method	Pooled OLS			Pooled OLS			Pooled OLS			Pooled OLS		
SE	Clustered by firm			Clustered by firm			Clustered by firm			Clustered by firm		
Dependent Variable	L1BLOCK			HERFIND			STRATEGIC			INDEPENDENT		
ASD	-0.221***			-0.192***			-0.237***			0.043**		
	[-5.90]			[-6.26]			[-5.02]			[2.06]		
RADRI		-0.039***			-0.026***			-0.038***			0.013***	
		[-7.02]			[-5.65]			[-5.85]			[4.91]	
LAWFR			0.218***			0.174***			0.290***			-0.089***
			[13.40]			[15.20]			[12.15]			[-6.37]
LAWGER			0.204***			0.161***			0.265***			-0.091***
			[11.61]			[12.39]			[10.59]			[-6.34]
LAWSCAND			0.070***			0.053***			0.109***			-0.049***
			[4.13]			[4.61]			[4.39]			[-3.42]
RISK	-0.151***	-0.123***	-0.135***	-0.104***	-0.082**	-0.089**	-0.187***	-0.158***	-0.167***	-0.039**	-0.045***	-0.040**
	[-3.80]	[-3.10]	[-3.58]	[-2.81]	[-2.20]	[-2.52]	[-4.32]	[-3.66]	[-4.10]	[-2.28]	[-2.67]	[-2.33]
SIZE	-0.009***	-0.009***	-0.012***	-0.008***	-0.008***	-0.010***	-0.020***	-0.020***	-0.024***	0.000	0.000	0.001
	[-4.28]	[-4.43]	[-5.86]	[-4.53]	[-4.58]	[-6.02]	[-8.40]	[-8.47]	[-10.36]	[-0.26]	[-0.07]	[0.81]
LEVERAGE	-0.032	-0.043**	-0.024	-0.044**	-0.053***	-0.038**	0.008	-0.003	0.018	0.012	0.014	0.008
	[-1.50]	[-2.00]	[-1.16]	[-2.32]	[-2.76]	[-2.09]	[0.34]	[-0.13]	[0.78]	[1.15]	[1.40]	[0.82]
GROWTH	-0.011***	-0.012***	-0.008***	-0.009***	-0.010***	-0.007***	-0.008***	-0.009***	-0.005	-0.002	-0.002	-0.003**
	[-4.24]	[-4.33]	[-3.15]	[-3.86]	[-3.91]	[-2.87]	[-2.69]	[-2.78]	[-1.52]	[-1.36]	[-1.31]	[-2.05]
STOCKTRADED	-0.065***	-0.036***	-0.042***	-0.053***	-0.030***	-0.033***	-0.065***	-0.034***	-0.040***	0.014***	0.006	0.011***
	[-7.77]	[-4.43]	[-5.00]	[-7.25]	[-4.35]	[-4.58]	[-6.49]	[-3.44]	[-4.01]	[3.93]	[1.61]	[3.05]
MCAPLISTED	-0.011	-0.030***	-0.014	-0.006	-0.020**	-0.009	-0.034***	-0.054***	-0.036***	-0.005	0.001	-0.005
	[-1.07]	[-2.98]	[-1.35]	[-0.68]	[-2.37]	[-1.01]	[-2.93]	[-4.56]	[-3.02]	[-1.18]	[0.15]	[-1.35]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	19,423	19,423	19,423	19,423	19,423	19,423	19,423	19,423	19,423	19,423	19,423	19,423
Firms	2,837	2,837	2,837	2,837	2,837	2,837	2,837	2,837	2,837	2,837	2,837	2,837
Adjusted R^2	0.227	0.230	0.282	0.138	0.138	0.192	0.250	0.252	0.313	0.047	0.052	0.073

Notes: This table reports the pooled linear regression estimates for the impact of shareholder protection on selected ownership concentration variables. To test the robustness of previous results, the estimates are based on a restricted sample that omits firms from the United Kingdom. A detailed definition of all variables can be found in Table Appendix T.1. All models control for industry and year fixed effects using industry and year indicator variables. Standard errors are clustered by firm. The t-statistics are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Rapp and Trinchera (2012)*.

Specification of the sample period: As an additional robustness check I restrict the analysis to a subsample of years. The ownership data presented in the sample ranges from 1999 until 2008. However the revised anti-director rights index and the anti-self-dealing index are static measures based on legal rules in force in 2003. It might be argued that these indices could have different values in the years before and after their measurement in 2003. In this case the index values used in this paper would be imperfect proxies for the real shareholder protection in years other than 2003. Of course, it has to be admitted that there is a certain change of laws around the world. However, I am convinced that changes of the law are subject to a long and time-consuming process and thus the legal framework should not radically change from day to day.

Consequently, I do not expect significant changes of the values of the shareholder protection indices within the sample. Nevertheless I take this objection seriously and therefore I reestimate the regressions for two subperiods which are both close to the year that served as base for the measurement of the indices. The first subperiod equals the year 2003. The corresponding results are presented in Panel A of Table 6.13. As the sign and the significance of the variables of interest reveal, the main regression results are not affected by the sample restriction. Panel B reports the regression results of a subsample that includes the subperiod from 2002 until 2004. This period includes one additional year both before and after the indices were measured. Overall, the results confirm that the findings of the main regression are robust to the variation of the sample period.

Table 6.13 Robustness Test: Temporal subsample

Panel A: Estimations for the year 2003												
Model No.	1	2	3	4	5	6	7	8	9	10	11	12
Method	OLS			OLS			OLS			OLS		
SE	Clustered by firm			Clustered by firm			Clustered by firm			Clustered by firm		
Dependent Variable	L1BLOCK			HERFIND			STRATEGIC			INDEPENDENT		
ASD	-0.221***			-0.165***			-0.307***			0.138***		
	[-12.65]			[-11.88]			[-14.50]			[12.23]		
RADRI		-0.066***			-0.047***			-0.085***			0.040***	
		[-12.12]			[-11.08]			[-12.75]			[12.07]	
LAWFR			0.203***			0.156***			0.283***			-0.108***
			[15.98]			[14.71]			[19.09]			[-13.81]
LAWGER			0.179***			0.133***			0.241***			-0.106***
			[13.03]			[11.73]			[15.42]			[-13.13]
LAWSCAND			0.019			0.005			0.046***			-0.054***
			[1.63]			[0.58]			[2.94]			[-6.12]
RISK	-0.189***	-0.159**	-0.176***	-0.148**	-0.126**	-0.138**	-0.336***	-0.296***	-0.311***	-0.015	-0.034	-0.025
	[-3.08]	[-2.56]	[-3.03]	[-2.56]	[-2.16]	[-2.49]	[-4.68]	[-4.12]	[-4.73]	[-0.54]	[-1.23]	[-0.93]
SIZE	-0.017***	-0.017***	-0.020***	-0.013***	-0.013***	-0.015***	-0.036***	-0.035***	-0.039***	0.001	0.001	0.001
	[-7.59]	[-7.63]	[-8.92]	[-7.17]	[-7.15]	[-8.43]	[-13.02]	[-12.89]	[-14.88]	[0.57]	[0.53]	[1.14]
LEVERAGE	-0.024	-0.029	-0.021	-0.043*	-0.046*	-0.040*	0.043	0.039	0.044	-0.007	-0.004	-0.006
	[-0.85]	[-1.04]	[-0.78]	[-1.79]	[-1.92]	[-1.74]	[1.28]	[1.14]	[1.37]	[-0.44]	[-0.27]	[-0.37]
GROWTH	-0.001	-0.004	0.000	-0.004	-0.006	-0.003	-0.001	-0.005	0.001	-0.003	-0.001	-0.003
	[-0.13]	[-0.63]	[0.08]	[-0.79]	[-1.28]	[-0.60]	[-0.07]	[-0.62]	[0.11]	[-0.44]	[-0.14]	[-0.50]
STOCKTRADED	-0.159***	-0.082**	-0.117***	-0.125***	-0.071**	-0.093***	-0.166***	-0.071*	-0.105***	0.023**	-0.023*	0.001
	[-4.98]	[-2.48]	[-3.61]	[-4.57]	[-2.54]	[-3.36]	[-4.55]	[-1.81]	[-2.87]	[2.06]	[-1.70]	[0.08]
MCAPLISTED	0.041	-0.025	0.032	0.038	-0.010	0.031	0.015	-0.072**	0.003	-0.006	0.035***	0.001
	[1.40]	[-0.87]	[1.10]	[1.53]	[-0.42]	[1.26]	[0.47]	[-2.14]	[0.10]	[-0.58]	[3.15]	[0.07]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	No	No	No	No	No	No	No	No	No	No	No	No
Firm Years	2,484	2,484	2,484	2,484	2,484	2,484	2,484	2,484	2,484	2,484	2,484	2,484
Firms	2,484	2,484	2,484	2,484	2,484	2,484	2,484	2,484	2,484	2,484	2,484	2,484
Adjusted R^2	0.169	0.168	0.242	0.138	0.134	0.207	0.233	0.223	0.317	0.095	0.091	0.122

Continued on next page

Table 6.13 (continued)

Panel B: Estimations for the period from 2002 to 2004												
Model No.	1	2	3	4	5	6	7	8	9	10	11	12
Method	Pooled OLS			Pooled OLS			Pooled OLS			Pooled OLS		
SE	Clustered by firm			Clustered by firm			Clustered by firm			Clustered by firm		
Dependent Variable	L1BLOCK			HERFIND			STRATEGIC			INDEPENDENT		
ASD	-0.203***			-0.159***			-0.280***			0.149***		
	[-12.80]			[-12.54]			[-14.39]			[15.07]		
RADRI		-0.062***			-0.045***			-0.080***			0.042***	
		[-12.88]			[-11.90]			[-13.66]			[14.45]	
LAWFR			0.188***			0.149***			0.262***			-0.115***
			[16.46]			[15.59]			[19.49]			[-17.05]
LAWGER			0.169***			0.130***			0.226***			-0.112***
			[13.58]			[12.52]			[15.70]			[-16.30]
LAWSCAND			0.011			0.003			0.036**			-0.062***
			[0.99]			[0.41]			[2.55]			[-7.88]
RISK	-0.210***	-0.184***	-0.201***	-0.167***	-0.147***	-0.158***	-0.329***	-0.294***	-0.309***	-0.013	-0.032	-0.024
	[-4.22]	[-3.68]	[-4.26]	[-3.62]	[-3.16]	[-3.59]	[-5.67]	[-5.09]	[-5.79]	[-0.59]	[-1.43]	[-1.10]
SIZE	-0.015***	-0.015***	-0.018***	-0.012***	-0.012***	-0.014***	-0.035***	-0.034***	-0.038***	0.002	0.001	0.002**
	[-7.39]	[-7.39]	[-8.79]	[-7.15]	[-7.04]	[-8.48]	[-13.96]	[-13.78]	[-15.87]	[1.60]	[1.43]	[2.24]
LEVERAGE	-0.028	-0.033	-0.024	-0.041*	-0.044**	-0.037*	0.030	0.025	0.032	-0.012	-0.009	-0.010
	[-1.11]	[-1.35]	[-0.99]	[-1.87]	[-2.02]	[-1.78]	[1.04]	[0.85]	[1.17]	[-0.87]	[-0.66]	[-0.73]
GROWTH	-0.003	-0.004	0.000	-0.003	-0.004	-0.001	-0.002	-0.004	0.001	-0.002	-0.001	-0.003
	[-0.80]	[-1.23]	[-0.14]	[-1.04]	[-1.48]	[-0.46]	[-0.36]	[-0.89]	[0.30]	[-0.74]	[-0.29]	[-1.00]
STOCKTRADED	-0.094***	-0.048***	-0.060***	-0.073***	-0.041***	-0.046***	-0.102***	-0.045**	-0.053***	0.021***	-0.008	0.004
	[-5.98]	[-3.00]	[-3.75]	[-5.43]	[-3.03]	[-3.37]	[-5.51]	[-2.33]	[-2.85]	[3.38]	[-1.10]	[0.67]
MCAPLISTED	-0.003	-0.050***	-0.012	0.002	-0.034**	-0.006	-0.029	-0.092***	-0.041*	-0.009	0.024***	-0.005
	[-0.14]	[-2.68]	[-0.62]	[0.10]	[-2.12]	[-0.38]	[-1.32]	[-4.21]	[-1.93]	[-1.39]	[3.26]	[-0.75]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	7,543	7,543	7,543	7,543	7,543	7,543	7,543	7,543	7,543	7,543	7,543	7,543
Firms	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846
Adjusted R^2	0.150	0.152	0.220	0.129	0.126	0.195	0.206	0.202	0.284	0.107	0.100	0.134

Notes: This table reports the pooled linear regression estimates for the impact of shareholder protection on selected ownership concentration variables. To test the robustness of previous results, the estimates are based on restricted samples. In Panel A the sample is restricted to the year 2003 and in Panel B to the period from 2002 to 2004. A detailed definition of all variables can be found in Table Appendix T.1. All models control for industry fixed effects using industry indicator variables. Panel B additionally includes year fixed effects. Standard errors are clustered by firm. The t-statistics are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Rapp and Trinchera (2012)*.

6.3.2 Estimating censored variables: Alternative regression methods

The next robustness check addresses the topic of the adequate regression method for the estimation of ownership variables. The main regressions of this chapter are based on a pooled OLS approach. However, regarding the range and the distribution of the dependent ownership variables a non-negligible number of values can be found that equal zero. To account for the impact of this natural boundary on the regression results, I use a *tobit regression model*.

Tobit models serve to estimate linear relationships between variables when the dependent variable is limited *(cf. Wooldridge, 2002)*. According to *Wooldridge (2002, p. 540)*, tobit models are in particular the appropriate choice when the dependent variable is "roughly continuous over strictly positive values but is zero for a nontrivial fraction of the population."[141] Using a linear regression model for the estimation of such limited variables can lead to negative fitted values and thus to negative predictions for the dependent variable. Tobit models, that can be characterized as latent variable models, help to overcome this problem.[142] As the tobit regression results in Table 6.14 show, the sign and significance of the variables of interest are consistent with the results of the main regressions. Thus

[141] Tobit models are also an option when the dependent variable is incompletely observed. This could be for example due to censoring or truncating. Alternatively, tobit models are recommended when the dependent variable is completely observed but the sample selection does not adequately represent the population. In both cases, an OLS approach would result in inconsistent parameter estimates.

[142] As an example for the case of limited dependent variables and the corresponding benefits of tobit models, *Wooldridge (2002, p. 529)* refer to *corner solution problems*: "Other kinds of limited dependent variables arise in econometric analysis, especially when the behavior of individuals, families, or firms is being modeled. Optimizing behavior often leads to corner solutions for some nontrivial fraction of the population; that is, it is optimal to choose a zero quantity or dollar value. For example, during any given year, a significant number of families will make zero charitable contributions. Therefore, annual family charitable contributions has a population distribution that is spread out over a large range of positive values, but with a pileup at the value zero. While it could be that a linear model is appropriate for capturing the expected value of charitable contributions, a linear model will likely lead to negative predictions for some families. Taking the natural log is not possible because many observations are zero. The Tobit model [...] is explicitly designed to model corner solution dependent variables."

it can be stated that the results are robust against an alternative specification of the regression method.

Table 6.14 Robustness Test: Tobit regression

Model No.	1	2	3	4	5	6	7	8	9	10	11	12
Method	Tobit			Tobit			Tobit			Tobit		
SE	Clustered by firm			Clustered by firm			Clustered by firm			Clustered by firm		
Dependent Variable	L1BLOCK			HERFIND			STRATEGIC			INDEPENDENT		
ASD	-0.205***			-0.162***			-0.342***			0.239***		
	[-15.50]			[-15.45]			[-16.11]			[17.46]		
RADRI		-0.064***			-0.047***			-0.096***			0.075***	
		[-15.92]			[-14.81]			[-15.63]			[17.27]	
LAWFR			0.190***			0.151***			0.307***			-0.191***
			[20.26]			[19.28]			[22.11]			[-19.52]
LAWGER			0.172***			0.134***			0.272***			-0.194***
			[16.04]			[15.00]			[17.65]			[-18.57]
LAWSCAND			0.012			0.005			0.063***			-0.080***
			[1.30]			[0.70]			[3.99]			[-7.62]
RISK	-0.137***	-0.114***	-0.128***	-0.101***	-0.083***	-0.093***	-0.214***	-0.178***	-0.193***	-0.119***	-0.142***	-0.127***
	[-3.93]	[-3.27]	[-3.85]	[-3.16]	[-2.60]	[-3.05]	[-4.82]	[-4.03]	[-4.58]	[-3.49]	[-4.15]	[-3.71]
SIZE	-0.014***	-0.014***	-0.017***	-0.012***	-0.011***	-0.013***	-0.042***	-0.041***	-0.045***	0.006***	0.006***	0.008***
	[-7.53]	[-7.47]	[-8.99]	[-7.35]	[-7.16]	[-8.75]	[-15.03]	[-14.58]	[-16.79]	[3.41]	[3.24]	[4.31]
LEVERAGE	-0.015	-0.021	-0.009	-0.030*	-0.034*	-0.025	0.032	0.025	0.035	-0.002	0.004	-0.002
	[-0.72]	[-1.04]	[-0.46]	[-1.67]	[-1.89]	[-1.46]	[1.13]	[0.87]	[1.30]	[-0.09]	[0.20]	[-0.12]
GROWTH	-0.008***	-0.009***	-0.006***	-0.006***	-0.007***	-0.005***	-0.002	-0.004	0.000	-0.005**	-0.004*	-0.006**
	[-3.81]	[-4.24]	[-3.14]	[-3.58]	[-3.98]	[-2.96]	[-0.84]	[-1.44]	[-0.09]	[-1.98]	[-1.66]	[-2.35]
STOCKTRADED	-0.030***	-0.020***	-0.016***	-0.026***	-0.020***	-0.015***	-0.038***	-0.026***	-0.014**	0.034***	0.025***	0.022***
	[-6.02]	[-4.17]	[-3.29]	[-6.24]	[-5.00]	[-3.67]	[-5.20]	[-3.67]	[-2.01]	[6.88]	[4.78]	[4.55]
MCAPLISTED	-0.053***	-0.063***	-0.041***	-0.038***	-0.046***	-0.029***	-0.090***	-0.107***	-0.071***	0.006	0.018**	-0.002
	[-6.41]	[-7.80]	[-5.01]	[-5.64]	[-6.89]	[-4.20]	[-8.04]	[-9.62]	[-6.55]	[0.79]	[2.55]	[-0.34]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646
Firms	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073

Notes: This table reports the pooled tobit regression estimates for the impact of shareholder protection on selected ownership concentration variables. A detailed definition of all variables can be found in Table Appendix T.1. All models control for industry and year fixed effects using industry and year indicator variables. Standard errors are clustered by firm. The t-statistics are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Rapp and Trinchera (2012)*.

6.3.3 Standard error estimation in panel data sets: Alternative methods

The estimation of standard errors is of essential importance in econometrics. Thereby, particular attention has to be paid to the topic of *clustering*. As for instance *Petersen (2009)* note, clustered standard errors serve to correct the correlation of the residuals within a cluster.

As recommended by *Petersen (2009)*, the main regressions in this chapter are based on standard errors that are clustered by firm in combination with year fixed effects. This way both time-series and cross sectional correlation can be taken into account. Table 6.15 reports the regression results for alternative standard error estimation methods.

In Panel A of Table 6.15 the estimates are based on standard errors clustered by country instead of firm-level. This way it can be ensured that the results are robust against a less granular specification of the cluster.[143] Again, the results remain robust against this change in specification and are still not in line with the results reported by *Holderness (2011)* who uses also country clusters.

Panel B presents estimations with a two dimensional clustering of standard errors. As noted above, I include year dummies in the regressions and thus implicitly assume year fixed effects. However the time effects are not necessarily fixed. Under this condition the complete removal of the time-series dependence fails which results in biased standard errors – even when I use standard errors clustered by firm *(cf. Petersen, 2009)*. As a remedy to this problem *Petersen (2009)*, *Cameron, Gelbach and Miller (2006)*, and *Thompson (2010)* propose standard errors clustered by two dimensions. A critical impact factor for multi-dimensional clustering is the number of clusters along each dimension. In this context *Petersen (2009)* states:

[143] In addition to that the results are also better comparable with the results presented by *Holderness (2011)* who relies on the same clustering method.

> "When there are a sufficient number of clusters in each dimension, standard errors clustered on multiple dimensions are unbiased and produce correctly sized confidence intervals whether the firm effect is permanent or temporary."[144]

Consequently, I use standard errors clustered by time and firm. This approach accounts for correlation between firms in a given year and additionally across years for a given firm.

Similarly, I cluster on the two dimensions of country and time in Panel C. This way, the two dimensional clustering approach is based on a less granular entity dimension.

Finally, I run Fama-MacBeth regressions in Panel D. This procedure estimates a separate cross sectional regression for each of the ten sample years and reports the average of the resulting coefficients. The use of Fama-MacBeth regressions is an option in regressions that do not contain a firm effect, because otherwise the standard errors are biased. Even though I am convinced that the results are affected by a certain firm effect, I use Fama-MacBeth regressions as an additional test.

As the results in Table 6.15 show, the main regression results remain robust in spite of different variations of the standard error estimation method. Interestingly, the results of the robustness tests have higher standard errors and thus lower t-statistics compared to those in the main regression results. This suggests that the dependencies addressed in these robustness checks matter. For example the t-statistics in Model 1 of Panel B are considerably lower than the t-statistics in Model 1 of Table 6.8. This indicates that the data is probably affected by a firm and a time effect.

[144] *Petersen (2009, p. 475 f.)*

Table 6.15 Robustness Test: Alternative standard error estimation methods

Panel A: Standard errors clustered by country												
Model No.	1	2	3	4	5	6	7	8	9	10	11	12
Method	Pooled OLS			Pooled OLS			Pooled OLS			Pooled OLS		
SE	Clustered by country			Clustered by country			Clustered by country			Clustered by country		
Dependent Variable	L1BLOCK			HERFIND			STRATEGIC			INDEPENDENT		
ASD	-0.181***			-0.142***			-0.237***			0.116***		
	[-3.26]			[-3.27]			[-3.36]			[5.40]		
RADRI		-0.057***			-0.042***			-0.070***			0.032***	
		[-3.90]			[-3.65]			[-3.22]			[3.40]	
LAWFR			0.168***			0.133***			0.222***			-0.089***
			[6.29]			[5.87]			[7.87]			[-9.21]
LAWGER			0.150***			0.116***			0.192***			-0.091***
			[15.02]			[17.49]			[15.52]			[-17.89]
LAWSCAND			0.014			0.007			0.034			-0.049***
			[1.06]			[0.78]			[1.34]			[-3.57]
RISK	-0.110**	-0.093*	-0.100**	-0.078**	-0.065**	-0.070**	-0.149**	-0.128**	-0.133***	-0.047**	-0.057**	-0.053**
	[-2.24]	[-2.13]	[-2.52]	[-2.37]	[-2.32]	[-2.71]	[-2.77]	[-2.45]	[-3.13]	[-2.24]	[-2.94]	[-2.71]
SIZE	-0.012***	-0.012***	-0.014***	-0.009***	-0.009***	-0.011***	-0.027***	-0.027***	-0.029***	0.002	0.002	0.002
	[-3.10]	[-3.28]	[-5.42]	[-3.19]	[-3.29]	[-5.44]	[-4.67]	[-4.61]	[-6.74]	[1.08]	[0.88]	[1.61]
LEVERAGE	-0.014	-0.019	-0.008	-0.027	-0.030	-0.022	0.014	0.009	0.019	-0.001	0.001	-0.001
	[-0.62]	[-0.84]	[-0.37]	[-1.28]	[-1.37]	[-1.11]	[0.60]	[0.37]	[0.83]	[-0.11]	[0.04]	[-0.05]
GROWTH	-0.006*	-0.007*	-0.005**	-0.005*	-0.006*	-0.004*	-0.004	-0.005	-0.002	-0.002***	-0.002	-0.003***
	[-1.94]	[-2.01]	[-2.26]	[-1.79]	[-1.85]	[-2.02]	[-1.04]	[-1.28]	[-0.82]	[-2.96]	[-1.67]	[-3.81]
STOCKTRADED	-0.014	-0.006	-0.002	-0.014	-0.009	-0.004	-0.013	-0.006	0.004	0.012	0.009	0.006
	[-0.65]	[-0.28]	[-0.10]	[-0.83]	[-0.57]	[-0.31]	[-0.52]	[-0.24]	[0.17]	[1.47]	[1.27]	[1.07]
MCAPLISTED	-0.061**	-0.069**	-0.052***	-0.044**	-0.050**	-0.036**	-0.088**	-0.098***	-0.076***	0.003	0.008	0.000
	[-2.17]	[-2.67]	[-2.95]	[-2.24]	[-2.52]	[-2.93]	[-2.83]	[-3.07]	[-3.97]	[0.32]	[0.62]	[0.08]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646
Firms	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073
Adjusted R^2	0.267	0.271	0.316	0.178	0.177	0.228	0.291	0.290	0.343	0.131	0.126	0.148

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Table 6.15 (continued)

Panel B: Standard errors clustered by firm and year												
Model No.	1	2	3	4	5	6	7	8	9	10	11	12
Method	Pooled OLS			Pooled OLS			Pooled OLS			Pooled OLS		
SE	Clustered by firm and year			Clustered by firm and year			Clustered by firm and year			Clustered by firm and year		
Dependent Variable	L1BLOCK			HERFIND			STRATEGIC			INDEPENDENT		
ASD	-0.181***			-0.142***			-0.237***			0.116***		
	[-7.95]			[-7.77]			[-8.30]			[6.98]		
RADRI		-0.057***			-0.042***			-0.070***			0.032***	
		[-8.78]			[-8.45]			[-8.83]			[7.46]	
LAWFR			0.168***			0.133***			0.222***			-0.089***
			[8.20]			[7.96]			[8.33]			[-7.26]
LAWGER			0.150***			0.116***			0.192***			-0.091***
			[8.19]			[7.90]			[8.64]			[-7.46]
LAWSCAND			0.014**			0.007			0.034***			-0.049***
			[1.97]			[1.44]			[3.24]			[-5.49]
RISK	-0.110***	-0.093**	-0.100**	-0.078**	-0.065*	-0.070**	-0.149***	-0.128**	-0.133**	-0.047***	-0.057***	-0.053***
	[-2.70]	[-2.40]	[-2.49]	[-2.18]	[-1.91]	[-1.99]	[-2.63]	[-2.47]	[-2.42]	[-3.37]	[-4.11]	[-3.90]
SIZE	-0.012***	-0.012***	-0.014***	-0.009***	-0.009***	-0.011***	-0.027***	-0.027***	-0.029***	0.002**	0.002*	0.002***
	[-5.45]	[-5.33]	[-6.14]	[-5.43]	[-5.27]	[-6.13]	[-6.63]	[-6.53]	[-7.00]	[2.14]	[1.92]	[2.80]
LEVERAGE	-0.014	-0.019	-0.008	-0.027*	-0.030**	-0.022	0.014	0.009	0.019	-0.001	0.001	-0.001
	[-0.82]	[-1.15]	[-0.46]	[-1.79]	[-2.02]	[-1.46]	[0.70]	[0.43]	[1.00]	[-0.16]	[0.07]	[-0.08]
GROWTH	-0.006***	-0.007***	-0.005**	-0.005***	-0.006***	-0.004**	-0.004	-0.005	-0.002	-0.002*	-0.002	-0.003**
	[-2.73]	[-3.03]	[-2.25]	[-2.86]	[-3.13]	[-2.30]	[-0.97]	[-1.24]	[-0.53]	[-1.74]	[-1.40]	[-2.16]
STOCKTRADED	-0.014	-0.006	-0.002	-0.014	-0.009	-0.004	-0.013	-0.006	0.004	0.012	0.009	0.006
	[-0.80]	[-0.36]	[-0.12]	[-0.99]	[-0.70]	[-0.34]	[-0.62]	[-0.31]	[0.19]	[1.14]	[0.80]	[0.55]
MCAPLISTED	-0.061***	-0.069***	-0.052***	-0.044***	-0.050***	-0.036**	-0.088***	-0.098***	-0.076***	0.003	0.008	0.000
	[-3.77]	[-4.17]	[-2.93]	[-3.39]	[-3.75]	[-2.53]	[-4.66]	[-4.99]	[-3.57]	[0.31]	[0.69]	[0.04]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	No	No	No	No	No	No	No	No	No	No	No	No
Firm Years	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646
Firms	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073
Adjusted R^2	0.268	0.272	0.317	0.178	0.178	0.228	0.292	0.291	0.343	0.132	0.127	0.149

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Table 6.15 (continued)

Panel C: Standard errors clustered by country and year												
Model No.	1	2	3	4	5	6	7	8	9	10	11	12
Method	Pooled OLS			Pooled OLS			Pooled OLS			Pooled OLS		
SE	Clustered by country and year			Clustered by country and year			Clustered by country and year			Clustered by country and year		
Dependent Variable	L1BLOCK			HERFIND			STRATEGIC			INDEPENDENT		
ASD	-0.181***			-0.142***			-0.237***			0.116***		
	[-3.37]			[-3.36]			[-3.48]			[5.01]		
RADRI		-0.057***			-0.042***			-0.070***			0.032***	
		[-3.79]			[-3.55]			[-3.23]			[3.36]	
LAWFR			0.168***			0.133***			0.222***			-0.089***
			[5.74]			[5.42]			[6.70]			[-6.88]
LAWGER			0.150***			0.116***			0.192***			-0.091***
			[8.98]			[9.17]			[9.67]			[-8.73]
LAWSCAND			0.014*			0.007			0.034*			-0.049***
			[1.71]			[1.23]			[1.67]			[-3.66]
RISK	-0.110**	-0.093**	-0.100**	-0.078**	-0.065**	-0.070**	-0.149**	-0.128**	-0.133**	-0.047**	-0.057***	-0.053***
	[-2.11]	[-2.00]	[-2.23]	[-2.14]	[-2.04]	[-2.23]	[-2.25]	[-2.08]	[-2.28]	[-2.31]	[-3.12]	[-2.85]
SIZE	-0.012***	-0.012***	-0.014***	-0.009***	-0.009***	-0.011***	-0.027***	-0.027***	-0.029***	0.002	0.002	0.002
	[-2.98]	[-3.10]	[-4.53]	[-3.09]	[-3.11]	[-4.61]	[-3.93]	[-4.04]	[-5.03]	[1.01]	[0.86]	[1.49]
LEVERAGE	-0.014	-0.019	-0.008	-0.027	-0.03	-0.022	0.014	0.009	0.019	-0.001	0.001	-0.001
	[-0.63]	[-0.86]	[-0.38]	[-1.28]	[-1.39]	[-1.10]	[0.59]	[0.37]	[0.84]	[-0.11]	[0.05]	[-0.06]
GROWTH	-0.006	-0.007	-0.005*	-0.005	-0.006	-0.004	-0.004	-0.005	-0.002	-0.002**	-0.002	-0.003**
	[-1.59]	[-1.62]	[-1.65]	[-1.61]	[-1.61]	[-1.58]	[-0.76]	[-0.94]	[-0.49]	[-2.14]	[-1.32]	[-2.42]
STOCKTRADED	-0.014	-0.006	-0.002	-0.014	-0.009	-0.004	-0.013	-0.006	0.004	0.012	0.009	0.006
	[-0.52]	[-0.23]	[-0.08]	[-0.66]	[-0.46]	[-0.25]	[-0.42]	[-0.20]	[0.14]	[0.97]	[0.78]	[0.53]
MCAPLISTED	-0.061*	-0.069**	-0.052**	-0.044**	-0.050**	-0.036**	-0.088**	-0.098***	-0.076***	0.003	0.008	0.000
	[-1.96]	[-2.30]	[-2.38]	[-1.98]	[-2.16]	[-2.22]	[-2.56]	[-2.71]	[-3.05]	[0.24]	[0.51]	[0.04]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	No	No	No	No	No	No	No	No	No	No	No	No
Firm Years	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646
Firms	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073
Adjusted R^2	0.268	0.272	0.317	0.178	0.178	0.228	0.292	0.291	0.343	0.132	0.127	0.149

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Table 6.15 (continued)

Panel D: Fama-MacBeth regression												
Model No.	1	2	3	4	5	6	7	8	9	10	11	12
Method	Fama-MacBeth			Fama-MacBeth			Fama-MacBeth			Fama-MacBeth		
Dependent Variable	L1BLOCK			HERFIND			STRATEGIC			INDEPENDENT		
ASD	-0.180***			-0.142***			-0.232***			0.115***		
	[-6.93]			[-7.28]			[-7.49]			[8.11]		
RADRI		-0.052***			-0.038***			-0.062***			0.030***	
		[-7.85]			[-7.67]			[-7.64]			[7.94]	
LAWFR			0.167***			0.133***			0.221***			-0.091***
			[8.52]			[8.63]			[8.62]			[-8.29]
LAWGER			0.152***			0.118***			0.194***			-0.093***
			[8.25]			[8.54]			[8.51]			[-8.76]
LAWSCAND			0.014*			0.008			0.034***			-0.050***
			[2.19]			[1.78]			[5.20]			[-7.06]
RISK	-0.112***	-0.093**	-0.105**	-0.078**	-0.064**	-0.071**	-0.181***	-0.159***	-0.168***	-0.039***	-0.050***	-0.045***
	[-3.39]	[-2.96]	[-3.13]	[-2.76]	[-2.36]	[-2.51]	[-4.13]	[-3.91]	[-3.90]	[-4.47]	[-5.52]	[-5.23]
SIZE	-0.012***	-0.012***	-0.014***	-0.009***	-0.009***	-0.011***	-0.028***	-0.028***	-0.030***	0.002***	0.002***	0.002***
	[-7.81]	[-7.74]	[-8.03]	[-7.89]	[-7.81]	[-8.08]	[-8.53]	[-8.55]	[-8.56]	[3.43]	[3.64]	[4.21]
LEVERAGE	-0.021**	-0.023**	-0.014	-0.032***	-0.034***	-0.027**	0.008	0.005	0.014	-0.002	0.000	-0.001
	[-2.51]	[-3.13]	[-1.48]	[-4.26]	[-4.80]	[-3.21]	[0.73]	[0.55]	[1.30]	[-0.43]	[-0.11]	[-0.44]
GROWTH	-0.007***	-0.007***	-0.005**	-0.005***	-0.006***	-0.004**	-0.004	-0.005	-0.002	-0.003*	-0.002	-0.003*
	[-3.38]	[-3.78]	[-2.73]	[-3.89]	[-4.22]	[-3.02]	[-1.20]	[-1.58]	[-0.70]	[-1.84]	[-1.52]	[-2.14]
STOCKTRADED	-0.096***	-0.055***	-0.067***	-0.074***	-0.045***	-0.051***	-0.104***	-0.058**	-0.064***	0.025***	0.004	0.011**
	[-5.70]	[-3.80]	[-5.11]	[-5.79]	[-3.91]	[-4.91]	[-5.60]	[-2.95]	[-4.38]	[5.01]	[0.39]	[2.51]
MCAPLISTED	0.013	-0.025	0.006	0.011	-0.017	0.005	-0.007	-0.052*	-0.018**	-0.010**	0.011	-0.006
	[1.23]	[-1.69]	[1.05]	[1.42]	[-1.43]	[1.07]	[-0.54]	[-2.22]	[-2.60]	[-2.85]	[0.93]	[-1.70]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	No	No	No	No	No	No	No	No	No	No	No	No
Firm Years	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646
Average R^2	0.155	0.216	0.156	0.135	0.192	0.132	0.197	0.260	0.192	0.094	0.115	0.089

Notes: This table reports the pooled linear regression estimates for the impact of shareholder protection on selected ownership concentration variables. To test the robustness of previous results, alternative standard error estimation methods are used. In Panel A standard errors that are clustered by country. In Panel B standard errors are clustered along the two dimensions of firm and year and in Panel C along country and year. Panel D reports Fama-MacBeth estimates. *Industry (year) effects* indicates the use of industry (year) fixed effects using industry (year) indicator variables. A detailed definition of all variables can be found in Table Appendix T.1. The t-statistics are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Rapp and Trinchera (2012).*

6.3.4 Alternative shareholder protection measures

In a next robustness test I control whether the results are influenced by the definition of the variables of interest. For this purpose I replace the two standard measures of shareholder protection – ASD and RADRI – by new indices. Thereby, I follow *Durnev and Kim (2005)* and multiply the variables of interest ASD and RADRI with the rule of law index as reported by *Kaufmann et al. (2009)*. The rule of law index (ROL) measures the quality of law enforcement. The motivation for this new index is that the shareholder protection indices are characterized as measures for the degree of shareholder protection by law, while the rule of law index measures the perceived quality of enforcement of these laws. A joint index combines both aspects in one variable.[145]

As Table 6.16 shows the signs and significance of the coefficients of the new indices correspond to the results of the original indices. Since the results do not change significantly, I conclude that they are robust against an alternative specification of the variable of interest.

[145] Since ASD and RADRI are time-invariant, but the rule of law index is time-variant, also the resulting multiplied index varies over the years. This helps to overcome potential criticism relating to the lack of temporal variation of ASD and RADRI.

Table 6.16 Robustness Test: Alternative shareholder protection measures

Model No.	1	2	4	5	7	8	10	11
Method	Pooled OLS		Pooled OLS		Pooled OLS		Pooled OLS	
SE	Clustered by firm		Clustered by firm		Clustered by firm		Clustered by firm	
Dependent Variable	L1BLOCK		HERFIND		STRATEGIC		INDEPENDENT	
ASD *ROL	-0.128***		-0.099***		-0.167***		0.074***	
	[-20.10]		[-19.58]		[-21.16]		[18.33]	
RADRI *ROL		-0.035***		-0.026***		-0.044***		0.017***
		[-20.98]		[-19.23]		[-22.81]		[17.75]
RISK	-0.100***	-0.078***	-0.070**	-0.054*	-0.136***	-0.109***	-0.053***	-0.063***
	[-3.30]	[-2.58]	[-2.51]	[-1.92]	[-3.98]	[-3.21]	[-3.54]	[-4.18]
SIZE	-0.013***	-0.013***	-0.010***	-0.010***	-0.028***	-0.028***	0.002***	0.002**
	[-8.32]	[-8.30]	[-7.84]	[-7.72]	[-15.63]	[-15.54]	[2.92]	[2.42]
LEVERAGE	-0.018	-0.021	-0.030**	-0.032**	0.009	0.005	0.000	0.000
	[-1.06]	[-1.25]	[-2.00]	[-2.15]	[0.45]	[0.27]	[0.03]	[0.02]
GROWTH	-0.006***	-0.007***	-0.005***	-0.005***	-0.003	-0.004*	-0.002**	-0.002
	[-3.48]	[-3.91]	[-3.25]	[-3.63]	[-1.45]	[-1.95]	[-2.09]	[-1.60]
STOCKTRADED	-0.007	-0.004	-0.008**	-0.007**	-0.004	-0.003	0.009***	0.011***
	[-1.64]	[-1.14]	[-2.39]	[-2.23]	[-0.85]	[-0.53]	[4.16]	[5.13]
MCAPLISTED	-0.049***	-0.046***	-0.034***	-0.032***	-0.072***	-0.069***	-0.004	-0.003
	[-6.53]	[-6.09]	[-5.52]	[-5.15]	[-8.33]	[-7.88]	[-1.15]	[-0.97]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	26,646	26,646	26,646	26,646	26,646	26,646	26,646	26,646
Firms	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073
Adjusted R^2	0.283	0.291	0.192	0.197	0.309	0.315	0.140	0.132

Notes: This table reports the pooled linear regression estimates for the impact of shareholder protection on selected ownership concentration variables. To test the robustness of previous results, two alternative shareholder protection measures are employed. The first one is the product of the anti-self-dealing index and the rule of law index and the second one is the product of the anti-director rights index and the rule of law index. A detailed definition of all variables can be found in Table Appendix T.1. All models control for industry and year fixed effects using industry and year indicator variables. Standard errors are clustered by firm. The t-statistics are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.
Source: Own work based on *Rapp and Trinchera (2012)*.

6.3.5 The impact of other firm and country-specific control variables

Next, I control whether the results are affected by omitted variables. This test serves to exclude that the nature of the identified effect is just spurious and that the ownership structure is driven by other regulatory or firm characteristics. For this purpose I add several firm-specific characteristics to the regression.[146]

First of all, I include return on assets (ROA) as a proxy for profitability. Second, I include the life cycle stage of a firm (LIFECYCLE) as a proxy for maturity. Third, I include the natural logarithm of the market to book ratio (LNMTB) as an indicator for the valuation of the firm. Fourth, I also control for the stock market performance by including the average monthly stock gains over the past year (DSTOCKPRICE) and the dividend yield of the firm (DIVYIELD). Fifth, I include a measure for the liquidity of the firm (CASH). Finally, I use a dummy variable (INTACC) that indicates whether the firm follows international accounting principles such as IFRS or U.S.-GAAP.

With TAX I also add a further country-specific characteristic. This way, I account to which extent the ownership structure is affected by the relative taxation of dividends compared to capital gains. Moreover I employ an alternative measure for capital market development and replace MCAPLISTED by INSTASSETS. This way I want to control for the impact of the aggregate amount of institutional assets in the respective countries. With INSTASSETS it can be controlled whether the ownership structure in general and the presence of institutional investors in particular are rather driven by unobserved factors that have an immediate impact on the aggregate institutional assets within a country. An example for such a factor could be the retirement provision system in the respective country.[147]

[146] For a motivation of these variables and relating empirical evidence see Section 6.1.3.

[147] In unreported tests I also estimate the results using INSTASSETS in addition to MCAPLISTED. Even though this setting does not change the results, the strong correlation between INSTASSETS and MCAPLISTED leads to very high variance inflation factors beyond an acceptable level.

Finally, I include a list of additional regulatory indices. First, I include a measure of law enforcement (LAWENFORCEMENT). Second, I include the rule of law index as presented by *Kaufmann et al. (2009)*. The third one is the creditor rights index (CRI). Recent findings show that the creditor rights index is able to explain some phenomena that have been previously explained solely by the degree of shareholder protection *(e.g. Brockman and Unlu, 2009)*. From a theoretic point of view it might be argued that creditor rights also determine ownership concentration patterns. However it is not ex ante clear whether the impact is positive or negative. On the one hand, it can be argued that shareholders in countries with high creditor rights feel discouraged by the strong position of creditors and thus, invest less. On the other hand, strong creditor rights might encourage shareholders to acquire larger stakes as a kind of counterbalance.

Table 6.17 presents the estimation results under consideration of additional control variables. It can be stated that the inclusion of additional firm, regulatory, and country characteristics does not change the results. Hardly surprising, I notice that compared to the main regression models presented above, the values of the adjusted R^2 increase considerably.

Similar to the variables of interest, ROL and to some extent also LAWENFORCEMENT turn out to have a negative and significant impact on ownership concentration. Also TAX has a negative impact. This suggests that concentrated ownership structures rather emerge in countries that favor the taxation of dividends over capital gains. A potential explanation could be that the realization of capital gains through the sale of shares conflicts with the emergence of large blocks.

I also find that the coefficient of the creditor rights variable is negative, although not significant in all models. Thus, firms tend to be less concentrated in countries with high creditor rights protection. This is consistent with the argument that equity investors are discouraged by strong creditor rights.

In separate, unreported regressions I replace the rule of law index by other governance indices as presented in *Kaufmann et al. (2009)*. These indices measure the degree of freedom within a country (VOICEACC), the political stability (POLITSTAB), the governmental effectiveness (GOVEFF) and finally the regulation quality (REGQUAL). Nevertheless, the main regression results remain unchanged. I include each of these indices in separate regressions as the simultaneous inclusion of all indices would lead to unacceptable variation inflation factors beyond 20.[148]

[148] Scholars often define a value of 10 as the upper boundary of acceptable VIF values *(e.g. Neter, Wasserman, Kutner and Li, 1996)*.

Table 6.17 Robustness Test: The impact of other firm and country-specific control variables

Model No.	1	2	3	4	5	6	7	8	9	10	11	12
Method	Pooled OLS			Pooled OLS			Pooled OLS			Pooled OLS		
SE	Clustered by firm			Clustered by firm			Clustered by firm			Clustered by firm		
Dependent Variable	L1Block			HerfInd			Strategic			Independent		
Asd	-0.215***			-0.169***			-0.284***			0.113***		
	[-9.70]			[-8.73]			[-11.22]			[10.20]		
rAdri		-0.046***			-0.035***			-0.042***			0.014***	
		[-6.69]			[-6.14]			[-5.19]			[3.93]	
LawFr			0.085***			0.063***			0.150***			-0.082***
			[3.47]			[3.15]			[5.07]			[-6.34]
LawGer			0.196***			0.154***			0.255***			-0.102***
			[12.69]			[11.21]			[14.63]			[-13.25]
LawScand			0.014			0.001			0.045**			-0.039***
			[0.92]			[0.07]			[2.48]			[-4.19]
Risk	-0.051	-0.040	-0.074*	-0.039	-0.030	-0.058	-0.074*	-0.058	-0.096**	-0.049**	-0.056***	-0.044**
	[-1.33]	[-1.03]	[-1.96]	[-1.08]	[-0.83]	[-1.64]	[-1.77]	[-1.37]	[-2.35]	[-2.32]	[-2.63]	[-2.10]
Size	-0.016***	-0.016***	-0.016***	-0.012***	-0.012***	-0.012***	-0.033***	-0.032***	-0.033***	0.001	0.001	0.001
	[-7.76]	[-7.44]	[-7.96]	[-6.84]	[-6.56]	[-7.03]	[-13.72]	[-13.31]	[-14.07]	[0.95]	[0.71]	[1.05]
Leverage	-0.062**	-0.063**	-0.043*	-0.078***	-0.079***	-0.062***	-0.019	-0.019	0.001	0.014	0.013	0.009
	[-2.56]	[-2.56]	[-1.87]	[-3.49]	[-3.47]	[-2.87]	[-0.72]	[-0.69]	[0.04]	[1.11]	[1.06]	[0.72]
Growth	-0.003	-0.004	-0.002	-0.003	-0.003	-0.002	0.000	0.000	0.001	-0.003	-0.002	-0.003*
	[-1.17]	[-1.29]	[-0.82]	[-0.98]	[-1.08]	[-0.66]	[0.05]	[-0.07]	[0.40]	[-1.46]	[-1.38]	[-1.65]
Roa	0.098***	0.098***	0.085***	0.061***	0.061***	0.050***	0.130***	0.132***	0.115***	0.002	0.001	0.007
	[5.96]	[6.00]	[5.31]	[4.33]	[4.36]	[3.62]	[6.62]	[6.81]	[6.06]	[0.21]	[0.12]	[0.78]
LifeCycle	-0.001	-0.001	0.000	-0.001	-0.001	0.001	-0.001	-0.001	0.001	0.001	0.001	0.000
	[-0.88]	[-0.85]	[0.31]	[-0.60]	[-0.58]	[0.61]	[-0.53]	[-0.52]	[0.73]	[1.12]	[1.10]	[0.59]
lnMtb	-0.001	-0.002	0.003	0.001	0.001	0.005	-0.013***	-0.014***	-0.008	0.002	0.003	0.001
	[-0.24]	[-0.39]	[0.80]	[0.40]	[0.25]	[1.40]	[-2.65]	[-2.84]	[-1.61]	[0.89]	[1.10]	[0.24]
Cash	-0.048**	-0.046**	-0.044**	-0.054***	-0.053***	-0.050***	-0.056**	-0.054**	-0.050**	0.021*	0.020*	0.019*
	[-2.31]	[-2.21]	[-2.14]	[-2.94]	[-2.86]	[-2.77]	[-2.39]	[-2.28]	[-2.17]	[1.87]	[1.76]	[1.71]
DivYield	0.067	0.038	0.091	0.051	0.028	0.071	0.081	0.040	0.108	-0.013	0.004	-0.021
	[0.91]	[0.52]	[1.29]	[0.75]	[0.41]	[1.09]	[0.99]	[0.48]	[1.38]	[-0.34]	[0.09]	[-0.56]
dStockprice	0.000	0.000	0.001	0.000	0.000	0.001*	0.001	0.001	0.001**	0.000	0.000	-0.000*
	[0.66]	[0.46]	[1.33]	[1.26]	[1.06]	[1.92]	[1.63]	[1.23]	[2.30]	[-1.56]	[-1.20]	[-1.96]
IntAcc	-0.006	0.004	-0.029***	-0.015*	-0.007	-0.035***	-0.005	0.018*	-0.034***	-0.002	-0.014***	0.008*
	[-0.66]	[0.46]	[-3.25]	[-1.95]	[-0.88]	[-4.29]	[-0.55]	[1.89]	[-3.44]	[-0.53]	[-3.15]	[1.85]

Continued on next page

Table 6.17 (continued)

Model No.	1	2	3	4	5	6	7	8	9	10	11	12
StockTraded	-0.055***	-0.059***	-0.061***	-0.042***	-0.046***	-0.049***	-0.075***	-0.094***	-0.076***	0.022***	0.032***	0.018***
	[-6.25]	[-6.32]	[-6.69]	[-5.91]	[-6.11]	[-6.57]	[-7.35]	[-8.62]	[-7.38]	[5.23]	[6.73]	[4.13]
Cri	-0.004	-0.005	-0.028***	-0.003	-0.004	-0.023***	-0.004	-0.012**	-0.028***	0.010***	0.014***	0.014***
	[-0.90]	[-1.15]	[-5.33]	[-0.70]	[-1.08]	[-5.44]	[-0.79]	[-2.23]	[-4.52]	[4.42]	[5.76]	[5.17]
Rol	-0.180***	-0.155***	-0.145***	-0.143***	-0.122***	-0.110***	-0.227***	-0.185***	-0.160***	0.019**	0.001	-0.014
	[-11.54]	[-10.58]	[-5.28]	[-11.36]	[-10.53]	[-4.81]	[-12.47]	[-10.46]	[-5.02]	[2.54]	[0.07]	[-1.06]
LawEnforcement	-0.021***	-0.039***	-0.012	-0.022***	-0.036***	-0.014*	-0.021**	-0.035***	-0.006	-0.019***	-0.016***	-0.026***
	[-2.89]	[-4.84]	[-1.34]	[-3.85]	[-5.59]	[-1.90]	[-2.56]	[-3.61]	[-0.62]	[-5.28]	[-3.62]	[-6.00]
Tax	0.028	-0.014	0.113***	0.022	-0.012	0.093***	0.028	-0.051	0.127***	0.012	0.047***	-0.021*
	[1.02]	[-0.51]	[4.23]	[1.03]	[-0.57]	[4.41]	[0.91]	[-1.62]	[4.11]	[1.07]	[4.05]	[-1.74]
InstAssets	0.004	0.003	-0.005	0.003	0.002	-0.006*	-0.005	-0.009*	-0.011**	0.007***	0.009***	0.006***
	[0.94]	[0.71]	[-1.36]	[0.94]	[0.63]	[-1.85]	[-1.02]	[-1.79]	[-2.37]	[3.44]	[4.27]	[2.75]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	18,376	18,376	18,376	18,376	18,376	18,376	18,376	18,376	18,376	18,376	18,376	18,376
ClusterNo	3,364	3,364	3,364	3,364	3,364	3,364	3,364	3,364	3,364	3,364	3,364	3,364
Adjusted R^2	0.205	0.196	0.236	0.177	0.168	0.208	0.251	0.234	0.279	0.103	0.089	0.116

Notes: This table reports the pooled linear regression estimates for the impact of shareholder protection on selected ownership concentration variables. To test the robustness of previous results, additional control variables are employed. A detailed definition of all variables can be found in Table Appendix T.1. All models control for industry and year fixed effects using industry and year indicator variables. Standard errors are clustered by firm. The t-statistics are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.
Source: Own work based on *Rapp and Trinchera (2012)*.

6.3.6 The impact of ownership on firm performance: Alternative regression methods

Finally, I subject the findings on the impact of ownership on firm performance to additional robustness checks. First of all, I follow *Gompers et al. (2010)* and *Ferreira and Matos (2008)* and estimate the relationship between ownership and value using a median regression approach.

The median regression is a particular case of the category of quantile regression models. While OLS regression estimates the mean of a dependent variable conditional on the values of the independent variables, the median regression approach estimates the median of a dependent variable. Thereby the median regression minimizes the sum of the absolute residuals while the OLS approach tries to minimize the sum of least squares. The benefit of median regression is that its has robustness characteristics that are superior to the OLS regression *(e.g. Huber, 1981)*.

Additionally I employ a Fama-MacBeth regression. The potential benefits of the Fama-MacBeth regression have already been explained in Section 6.3.3.

The results of these two alternative regression methods are presented in Table 6.18. Overall, this robustness test yields results that are consistent with the findings of the main regression.[149]

[149] In unreported tests I vary the dependent variable and use similar to *Gompers et al. (2010)* $-1/Q$ as a proxy for value. It is defined as -1/Tobin's Q. I then reestimate the regressions presented in Table 6.11 and Table 6.18. The results are again in line with the results reported in this chapter.

Table 6.18 Robustness Test: Alternative methods to test the impact of different investor types on firm performance

Model No.	1	2	3	4	5	6	7	8	9	10	11	12
Dependent variable	LNTOBQ			LNTOBQ			LNTOBQ			LNTOBQ		
Method	Median Regression			Median Regression			Fama-MacBeth Regression			Fama-MacBeth Regression		
Sample countries	All	Low Protection	High Protection	All	Low Protection	High Protection	All	Low Protection	High Protection	All	Low Protection	High Protection
STRATEGIC	-0.075***	-0.092***	-0.018				-0.078***	-0.091***	-0.029			
	[-7.70]	[-8.05]	[-0.80]				[-3.89]	[-4.18]	[-1.72]			
INDEPENDENT				0.038**	0.106***	-0.060*				0.049*	0.114**	-0.014
				[1.97]	[4.12]	[-1.72]				[2.00]	[2.79]	[-0.48]
SIZE	-0.002	-0.010***	0.018***	0.000	-0.007***	0.018***	0.009***	0.001	0.026***	0.011***	0.003	0.028***
	[-1.55]	[-6.02]	[6.14]	[0.01]	[-4.39]	[6.32]	[4.31]	[0.16]	[8.93]	[6.49]	[0.98]	[8.59]
LEVERAGE	-0.330***	-0.359***	-0.287***	-0.338***	-0.367***	-0.284***	-0.195***	-0.245***	-0.135**	-0.196***	-0.249***	-0.135**
	[-20.06]	[-18.20]	[-8.32]	[-19.88]	[-18.10]	[-7.75]	[-4.72]	[-6.02]	[-2.57]	[-4.74]	[-6.18]	[-2.54]
GROWTH	0.030***	0.038***	0.017***	0.029***	0.037***	0.014***	0.031*	0.038**	0.017	0.031*	0.040**	0.017
	[9.55]	[8.42]	[3.37]	[9.00]	[8.05]	[2.61]	[2.18]	[2.68]	[1.16]	[2.20]	[2.72]	[1.14]
ROA	0.003***	0.004***	0.000	0.003***	0.004***	0.000	0.003***	0.004***	0.002***	0.003***	0.004***	0.002**
	[18.53]	[19.04]	[1.35]	[17.45]	[18.29]	[0.85]	[4.85]	[4.48]	[3.29]	[4.71]	[4.35]	[3.21]
GLOBAL TOBQ	0.343***	0.313***	0.436***	0.345***	0.324***	0.439***	0.404***	0.386***	0.420***	0.410***	0.394***	0.422***
	[38.98]	[29.81]	[23.44]	[38.05]	[30.09]	[22.19]	[6.53]	[7.10]	[5.00]	[6.59]	[7.12]	[5.06]
STOCKTRADED	0.007	0.041***	-0.025*	0.009	0.044***	-0.020	0.039**	0.104***	0.037	0.045**	0.117***	0.019
	[1.17]	[4.39]	[-1.83]	[1.46]	[4.59]	[-1.38]	[2.47]	[4.17]	[0.93]	[2.73]	[4.34]	[0.57]
MCAPLISTED	0.026***	-0.008	0.026	0.032***	0.002	0.030	0.025	-0.034	0.054	0.027	-0.037	0.085
	[3.66]	[-0.76]	[1.09]	[4.28]	[0.18]	[1.19]	[1.51]	[-1.57]	[0.44]	[1.68]	[-1.70]	[0.79]
RADRI	0.003	0.002	0.040	0.008**	0.004	0.027	0.000	0.006	-0.044	0.004	0.006	-0.043
	[1.07]	[0.40]	[1.58]	[2.49]	[0.59]	[1.01]	[0.08]	[0.48]	[-1.65]	[0.67]	[0.50]	[-1.69]
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Firm Years	24,471	16,236	8,235	24,471	16,236	8,235	21,897	14,202	7,695	21,897	14,202	7,695
Adjusted R^2							0.225	0.242	0.238	0.223	0.239	0.238

Continued on next page

Table 6.18 (continued)

Notes: This table reports the regression results for the impact of the cumulated shareholdings held by different investor types on firm performance. To test the robustness of previous results, the estimates in Model 1-6 are based on a median regression approach while the results in Model 7-18 are based on a Fama-MacBeth regression approach. LNTOBQ is used as a proxy for firm performance. Regressions are estimated both for the whole sample as well as for two disjoint subsamples. The first subsample includes all firms in low protection countries and the second those firms that are located in high protection countries. The country median of the revised anti-director rights index serves a critical threshold for the classification of high and low protection countries. High protection countries have values larger than the median whereas low protection countries have values lower than or equal to the median (see *La Porta et al. (2000*b*)*). A detailed definition of all variables can be found in Table Appendix T.1. All models control for year fixed effects using year indicator variables. The t-statistics are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.
Source: Own work based on *Rapp and Trinchera (2012).*

Altogether, the broad variety of robustness tests presented in this section is consistent with the main regression results. First of all, the robustness checks support the finding that shareholder protection and ownership concentration are negatively correlated. Moreover, they back the finding that the cumulated shareholdings of institutionals are positively related with shareholder protection while the shareholdings of strategic investors are negatively related. Also the value implications of different shareholder types are corroborated. Consequently, the robustness tests confirm the view that the behavior and the impact of strategic blockholders is rather consistent with the complement model.

6.4 Summary

Chapter 6 explores an extensive novel panel data set covering more than 4,000 listed firms in 16 European countries to study the relationship between of shareholder protection, ownership concentration and firm performance. This results in the following findings:

Examining overall ownership concentration in a **first** step, I find supportive evidence for a negative effect of legal shareholder protection on ownership concentration, even in regression analyses based on firm-level data where I account for a broad set of firm- and country-characteristics and use the revised versions of legal indices measuring shareholder protection as developed by *Djankov et al. (2008)*. The results are robust against various measures of ownership concentration. Moreover, they are economically meaningful. For example, a one-standard deviation increase of shareholder protection as measured by the revised anti-director rights index is associated with a 19.9 (11.8) percent decrease of the average share of the largest shareholder (largest three shareholders).

In a **second** step, I differentiate between two shareholder types, namely *strategic* and *institutional investors*. I find that the negative effect of shareholder rights

is mainly driven by strategic investors and institutional ownership is actually positively correlated to the level of shareholder protection.

In a **third** step I further differentiate two groups of institutional investors: *independent institutions* and *grey institutions*. I find that the positive effect of shareholder rights on institutional ownership is solely driven by independent institutional investors and shareholdings of grey institutions are actually higher in countries with poor shareholder protection. This result is in line with the view that grey institutions basically are similar to strategic investors.

Finally, in a fourth step I try to shed light on the rational for the above empirical findings. Thus, I examine whether ownership stakes of different shareholder groups are systematically related to firm valuation. I find that while strategic shareholdings affect firm valuation negatively, ownership by independent institutionals has positive effects for firm valuation. Moreover, these effects are particularly pronounced in countries with weak shareholder protection.

In sum, the results suggest that strategic investors are attracted by weak shareholder protection and come at the expense of the marginal investor. As such, they are consistent with the complementary view of large owners. In contrast, institutional blockholdings go hand in hand with shareholder protection and have a significantly positive effect of firm value.

I challenge the results by a battery of robustness test. The results thus prove to be robust for various measures of ownership concentration and various firm-level controls. Moreover, while the primary focus is on the *anti-self-dealing index* of *Djankov et al. (2008)*, they also prove to be robust against using the revised *anti-director rights index* and the legal origin. Also, the results are robust against various clustering methods to estimate the standard errors of the regressions, e.g. firm-level clustering, country-level clustering, firm-year-level and country-year-level clustering. Finally, the valuation effect of different shareholder types turns out to be robust under various regression settings, including robust regres-

sion, Fama-McBeth regression and 3SLS.

7 Blockholder power, shareholder conflicts and legal protection: Evidence from tax preferences and payout decisions of European listed firms

This chapter explores the interaction of regulation and ownership concentration and its effect on firm behavior. Since firm behavior involves a wide scope of decisions, this chapter concentrates on a particular and integral part of firm behavior which is the corporate payout policy. First, the sample, the data and the research design are presented. Second, the empirical analysis is carried out. Thereby, I test if the tax preferences of the largest shareholder have an impact on the payout policy of the firm. Next I analyze whether payout policy just follows the tax preferences of the largest shareholder or whether it also considers the payout preferences of minor shareholders. After that I test if the consideration of minor shareholders' preferences depends on legal protection of these investors. To ensure the validity of the reported results, I present a large battery of robustness tests. Finally, the results of this chapter are summarized.[150]

[150] Please note that the content of this chapter is partly based on *Kaserer, Rapp and Trinchera (2012a)*.

7.1 Sample, data and research design

This section presents in a first step the sources of the data used in this chapter. Next, the sample selection process and the composition of the final sample are documented. Third, the variables used in the subsequent analysis are introduced. Specifically, the payout measures, the measures for the shareholders' tax preference and finally firm- and country-specific variables are described. Finally, the estimation methods are presented.

7.1.1 Data sources

The data used in this chapter comes from various sources. First, the sources of the dependent variables that measure the payout behavior of a firm are presented, followed by the sources of the variables of interest, i.e. the tax data. Third I the data sources concerning the regulatory environment are presented and finally, the sources on firm- and country-specific characteristics.

Payout data

The information on the cash dividend and share repurchase behavior of the firms comes from Worldscope.

Tax data

I obtain tax data from the following sources: The European Tax Handbook provided by the International Bureau of Fiscal Documentation, Ernst and Young's Worldwide Corporate Tax Guide & Directory as well as the Worldwide Personal Tax Guide and the Global Executive, Price Waterhouse Coopers' Worldwide Corporate and Individual Tax Summaries, KPMG's Corporate Tax Rate Survey

and Individual Income Tax Rate Survey, and finally the OECD tax database.

Data on the regulatory environment

The proxies for shareholder protection - the *anti-self-dealing index* and the *revised anti-director rights index* come from *Djankov et al. (2008)*. Data on the protection of debt holders as measured by the creditor rights index (CRI) comes from *La Porta et al. (1998)*.

Data on firm- and country-specific data

Accounting data is retrieved from Worldscope. Also information on the accounting standard and the year of initial public offering of a firm is obtained from Worldscope. Capital market data comes from Datastream. Ownership information is obtained from TOB.[151] Data on the financial development of a country is collected from the Worldbank.

7.1.2 Sample selection and composition

This section documents the sample selection process and provides a detailed description of the composition of the final sample.

Sample selection

Panel A of Table 7.1 summarizes the sample generation process. Similar to the previous chapter I use a data set of listed in Europe from 1999-2008 to investigate the relation between taxes and payout policy under consideration of agency conflicts. My initial sample follows the same criteria as the sample presented in

[151] For a detailed documentation of the methodology for the collection of ownership data please see Section 8.1.1.

Chapter 6, i.e. I include all (active and inactive) firms that have been listed between 1999 and 2008 in one of 16 European countries as defined in Section 6.1.2. Based on the December 2008 edition of Thomson One Banker Analytics this yields an initial sample of 8,553 firms. Consequently, the initial sample equals the sample presented in Section 6.1.2. However, in the succeeding sample selection process I define alternative selection criteria. In sum, this results in a slight difference between the final sample in this chapter and the final sample presented in the previous chapter. The partial modification of the sample selection criteria is in particular due to the fact that I require the availability of payout information which plays a central role in this chapter.

Starting from the initial sample, I exclude in a first step firms with primary securities other than common shares or firms with missing information on the type of the primary security. Second, I remove firms that are located in off shore domiciles such as Guernsey or the British Virgin Islands as the particular tax rules in these domiciles might bias the results. In a third step I follow the common practice and exclude both financial firms (SIC codes 6000-6999) and utilities (SIC codes 4900-4949). The country of origin is an important information as it serves to attribute firms to the tax rules of a specific country. Therefore I drop in a fourth step all firms for which Worldscope provides diverging information on the country of origin. Fifth, I exclude firms that do not provide information on the following fundamental accounting figures in at least one year: total assets, common equity, sales, income before extraordinary items, and cash flow. Similarly I restrict the sample to firms for which ownership information is available in at least one year. Finally, I remove firms with missing information on any payouts in form of either dividends or share repurchases. Altogether this selection process results in a final sample of 3,944 companies.

Table 7.1 Sample generation process

Description	Number of firms
Thomson One Banker Sample (1999 - 2008)	**8,553**
Firms with non-common share classes	-159
Firms that are located in off shore domiciles	-125
Financial and utility firms	-1,537
Companies with diverging information on country of origin	-17
Firms without fundamental accounting figures (total assets, sales, total common equity, earnings before interest and taxes) and capital market data	-2,569
Firms without ownership information	-146
Firms without any payout information, i.e. cash dividends and cash spent on share repurchases	-56
Basic sample	**3,944**

Notes: This table documents the sample generation process. The final sample covers 3,944 publicly listed firms in 16 European countries. Thomson One Banker is the primary source for the identification of the sample companies. The exclusion of financial firms and utilities is based on SIC codes. The range of SIC codes for financial firms is 6000-6999 and 4900-4949 for utility firms. Accounting and ownership data is collected annually. The ownership data is collected each year as of 31st December.
Source: Own work based on *Kaserer et al. (2012a)*.

Sample composition

Table 7.2 documents the composition of the sample. Panel A shows the number of firm observations by year and country. The number of firms grows in the first years under observation and reaches a first peak in 2002 but declines afterwards. This can be explained by the wave of new listings in the late 1990s and the succeeding economic downturn. In 2004 the firm number starts to rise again and reaches a second peak in 2007.

The country distribution reveals that UK is the country with the largest number of firm years, followed by France and Germany. Together these countries contribute more than 60 percent of the firms to the sample. This country mix is consistent with the composition of European samples in other cross country studies *(e.g. La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000b; von Eije and Megginson, 2008)*.

Finally, Panel C presents the distribution of sample firms by industry. As can be seen, an industry portfolio is used that differentiates ten industries. This portfolio is a less granular version of the portfolio presented in *Fama and French (1997)*. The sample offers a broad industry coverage. All industries include at least 100 firms. The three largest industries in the sample are business equipment (768), manufacturing (591) and wholesale (525).

Table 7.2 Sample composition

Panel A: Distribution by country and year

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	**Total firm years**	**Total firms**
Austria	30	33	36	38	41	44	46	52	55	54	**429**	**65**
Belgium	15	27	24	32	43	49	75	80	84	79	**508**	**109**
Denmark	55	58	59	75	77	78	86	80	86	82	**736**	**100**
Finland	71	90	91	96	90	87	94	99	101	102	**921**	**118**
France	391	457	518	498	462	460	480	505	509	477	**4,757**	**746**
Germany	252	321	357	338	326	315	343	356	362	348	**3,318**	**464**
Ireland	22	27	23	31	26	32	34	38	43	40	**316**	**53**
Italy	97	126	155	159	150	151	156	172	183	184	**1,533**	**246**
Luxembourg	6	12	14	13	15	16	17	18	19	15	**145**	**24**
Netherlands	15	25	30	44	53	63	79	85	83	77	**554**	**106**
Norway	16	25	25	33	32	45	60	71	87	100	**494**	**117**
Portugal	32	38	44	43	44	41	39	42	39	35	**397**	**62**
Spain	48	60	66	72	67	70	73	82	84	87	**709**	**95**
Sweden	122	158	167	177	172	174	185	212	217	220	**1,804**	**260**
Switzerland	85	92	105	108	114	124	131	135	138	142	**1,174**	**151**
UK	530	585	618	610	635	624	777	887	959	940	**7,165**	**1,228**
Total	**1,787**	**2,134**	**2,332**	**2,367**	**2,347**	**2,373**	**2,675**	**2,914**	**3,049**	2,982	**24,960**	**3,944**

Panel B: Distribution by industry

Industry code	Industry	Number of firms
1	Consumer Non Durables	355
2	Consumer Durables	117
3	Manufacturing	591
4	Energy	105
5	Chemicals and Allied Products	113
6	Business Equipment	768
7	Telecommunications	136
9	Wholesale, Retail	525
10	Healthcare, Medical Equipment and Drugs	238
12	Other	996
	Total	**3,944**

Notes: This table documents the composition of the final sample along two dimensions. The sample covers 3,944 publicly listed firms from 16 European countries. Data is collected for the period 1999-2008. Panel A reports the composition of the sample by country and year. Panel B describes the sample composition by industry.
Source: Own work based on *Kaserer et al. (2012*a*)*.

7.1.3 Variables

The employed variables are presented along three dimensions. In the first step the dependent variables that capture the firms' payout behavior are introduced. Second the variables of interest are defined, i.e. the variables that measure the investors' tax preference. Finally the firm- and country-specific control variables are explained. The appendix provides detailed definitions of all variables employed.[152]

Payout variables

In line with previous studies such as *Desai and Jin (2011)* and others I use the dividend yield of a firm as the main measure for the firms' payout policy.[153] DIVYIELD is defined as total cash dividend payout in year t+1 divided by the market value of the firm at the end of the year t. To avoid that the empirical results are driven by the effect of outliers I winsorize the payout measure at the one percent level on both tails of the distribution.

Beside dividend yield, the literature provides a number of alternatives for the measurement of payouts. Therefore, I present in the robustness section additional tests to validate the results under alternative payout measures. In the first step I use a different nominator for the standardization of dividends. The literature offers different options such as total assets, profits, cash flow or sales. Each of these nominators is associated with different pros and cons *(cf. La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000*b*; Faccio, Lang and Young, 2001; Grinstein and Michaely, 2005)*.

I follow *Grinstein and Michaely (2005)* and define DIVRATIO as total cash div-

[152] See Table Appendix T.1.

[153] The inflation rates in the sample vary by countries and years. To avoid that the results are affected by inflation effects I transform all nominal values to real values for the year 2000 using the country-specific consumer price indices as provided by the Organization for Economic Co-operation and Development (OECD).

idend payout in year t+1 standardized by net total assets in year t. This way I want to avoid that the results are driven by price changes. Similar to DIVYIELD, also this ratio is winsorized.

As a second alternative I define TOTALPAYOUTRATIO as the ratio of dividends divided by total payouts, i.e. the sum of dividends and share repurchases *(e.g. Blouin, Raedy and Shackelford, 2011)*. This way I want to address concerns raised in previous studies that pure dividend payout measures neglect the importance of share repurchases as an alternative payout channel.[154] Share repurchases are defined as total funds spent on the purchase of common and preferred stock.

Corresponding to DIVYIELD and DIVRATIO, I finally generate pure share repurchase variables. REPYIELD is defined as share repurchases in year t+1 divided by the market value of the firm at the end of the year t. REPRATIO, is measured as share repurchases in year t+1 standardized by net total assets in year t. Again, both measures are winsorized.

Tax preference variables

In this chapter, the tax-induced payout preferences of investors play a central role. Similar to *La Porta et al. (2000*b*)* I measure the *tax preference for dividends* that is based on the relative taxation of dividends in relation to capital gains.[155]

I focus on the tax-based preferences of two particular groups of investors: First of all I consider the preference of the *largest shareholder* of a firm. Second, I look at the tax preference of *minor shareholders*. The principal methodology for the de-

[154] Also this measure might be associated with a bias since it excludes firms that do neither payout dividends nor repurchase shares. For a comprehensive discussion of the pros and cons of this measure see *Desai and Jin (2011)*.

[155] Another approach is to measure the tax penalty on dividends as for example in *Poterba and Summers (1984)*. However, both approaches represent two faces of the same coin. All else being equal the value of the tax penalty on dividends equals one less the value of the tax preference for dividends.

termination of tax preferences of the two groups follows a three step procedure.

In the **first** step, I collect information on the prevailing tax rules in the respective countries and years. This includes both data on the type of the tax system and the size of relevant tax rates. It has to be remarked that I consider any tax that affects the stream of funds from the company to the investor independent whether it occurs in the form of cash dividends or capital gains. At first sight this criterion includes the personal and corporate income tax as well as the capital gains tax rate. However, on closer examination this refers also to unconventional taxes in the sense that they are not common across all sample countries such as the German solidarity surcharge, for example.[156]

In the **second** step I combine the collected tax data with information on the ownership structure of the firm. For this purpose I attribute the relevant dividend and capital gains tax rates to minor investors. I do the same for the largest investor even though it has to be remarked that this requires a more granular differentiation of the investor type and the size of his shareholding. Considering not only the taxes on the shareholder level but also on the corporate level I am able to determine the *total tax burden* that the largest and minor investors have to bear in case of dividend payments on the one side and capital gains on the other side. Based on the total tax burden I am also able to determine the after tax value of one Euro of profits before corporate income taxes that is either distributed to the shareholders in the form of cash dividends or realized in form of capital gains.

Knowing the after tax values of cash dividends and capital gains I calculate in the **third** and final step the tax-induced payout preferences of the largest and minor investors. For this purpose I follow previous studies and measure

[156] The surcharge was implemented to finance the reunification of Germany. It is imposed on income, withholding and corporation tax. Another example for country and year specific taxes that I consider is the increase of the corporate income tax by 1.5 percentage points in 2003 due to the German Flood Victims Solidarity Law, the "Flutopfersolidaritätsgesetz" of 19.9.2002. In a similar manner, also *La Porta et al. (2000*b*)* combines different tax rates such as for example federal and local taxes.

the relative tax advantage of dividend payouts compared to capital gains *(e.g. Poterba and Summers, 1984; Poterba, 2004; La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000*b*; Moser, 2007)*. In the following I explain in detail how I determine of tax preferences. Thereby, I refer first of all to minor investors and then to the largest investor.

Tax preference of minority shareholders: The minor shareholders' preferences are calculated as presented in equation 7.1:

$$TaxPrefMinor_{c,t} = \frac{1 - Tax_{DIV}}{1 - Tax_{CG}} = \frac{Value_{DIV}}{Value_{CG}} \tag{7.1}$$

$TaxPrefMinor_{c,t}$ equals the tax preference for dividends of a marginal, individual investor in country c and year t. Thereby the term "minor" refers to an investor whose share is small enough to qualify for the freefloat. Tax_{DIV} (Tax_{CG}) stands for the total tax on 1 Euro of net income before corporate taxes which is distributed to the investor in form of dividends (capital gains). $Value_{DIV}$ ($Value_{CG}$) equals the after tax value of 1 Euro of net income before corporate taxes which is realized by the investor in form of dividends (capital gains).[157]

The calculation of minor shareholders' tax preferences is inevitably based on a few assumptions:

- A critical question is how to treat freefloat investors under tax aspects, as the freefloat is an aggregation of various investors with different income tax rates. In this paper I treat freefloat investors like non-substantial, domestic individual investors. Considering the spectrum of income tax rates for individuals that range from the entry rate to the top rate it is a reasonable question which income tax should be attributed to non-substantial individual investors. I assume that these individual investors are high in-

[157] Table Appendix T.3 in the appendix provides a detailed example for the calculation of the tax preference of a minor individual shareholder.

come individuals and consequently subject them to the top marginal tax rate in the respective country.

- The taxation of capital gains often depends on the holding period. I assume that the investors' holding period is long enough to qualify for long-term capital gains tax rates.

Note that the taxation of freefloat investors is equal for all firms in one particular country and a given year and therefore, this variable does not show any variation across firms within any country-year cluster.

Tax preference of the largest shareholder: Equation 7.2 describes the calculation of the tax-induced payout preferences of the largest shareholder:

$$TaxPrefLargest_{i,t} = \frac{1 - Tax_{DIV,i,t,LargestSh}}{1 - Tax_{CG,i,t,LargestSh}} = \frac{Value_{DIV,i,t,LargestSh}}{Value_{CG,i,t,LargestSh}} \quad (7.2)$$

In equation 7.2 $TaxPrefLargest_{i,t}$ represents the tax preference of the largest shareholder in company i and in year t. The largest investor is identified based on the collected ownership information of the firm. $Value_{DIV,i,t,LargestSh}$ equals the after tax value of 1 Euro of net income before corporate taxes which is distributed to the largest investor in form of dividends. $Value_{CG,i,t,LargestSh}$ stands for the after tax value of 1 Euro of net income before corporate taxes which is realized by largest investor in the form of capital gains.

For the calculation of $TaxPrefLargest_{i,t}$ it is preliminary to identify whether a firm really has a largest shareholder. For this purpose I analyze the ownership structure of the firm. As explained in Section 6.1.1, I consider only blockholders, i.e. shareholders with ownership stakes above a uniform threshold of at least 5 percent. In case that a firm does not have any blockholder I am not able to determine a largest blockholder and thus set the tax preference of the largest investor $TaxPrefLargest_{i,t}$ equal to the minority shareholders' tax preference. Other-

wise the largest shareholder is defined as the investor with the largest block size. The data delivered by TOB provides me with information on the identity of this investor, the size of his shareholding and a classification of the investor type as presented in Table 6.4.

As the tax laws in Europe teach us, the taxation and thus also the preferences of a single shareholder such as the largest one depend on the *shareholder type* and the *size of his shareholding*. Therefore, I further characterize the largest shareholder according to these *two dimensions*.

First, I use the classification in TOB and attribute the largest blockholder to one of three main categories: individual, strategic and institutional investors. I opt for these three categories since the tax laws in certain countries show a differential treatment of these three groups. This means for example that the tax rates on realized capital gains are not equal for individual and corporate investors. I differentiate the tree investor types as follows:

- In line with *Gompers and Metrick (2001)*, *Ferreira and Matos (2008)* and others, institutional investors represent institutions that have discretionary power over assets under management and make buy/sell decisions. Specifically, the group comprises investment managers, mutual funds, banks, insurances, endowments and other institutional entities.
- The category of individual investors consists of families and individuals. Beside their role as shareholder, individuals may also fulfill a role as officer or director.
- All other shareholders are classified as strategic investors. Strategic investors thus comprise entities such as corporations and holding companies. These investors often invest not solely for security returns, but also for strategic objectives.

Second, I further differentiate largest shareholders that are classified as individ-

ual or strategic by the size of their shareholding. This is motivated by the materiality limits that exist in some countries. These limits define thresholds which separate shareholders into substantial and non substantial investors. Usually the taxation differs between substantial and non-substantial investors. Consequently, I check whether the share of the largest investor is above the materiality limit in the respective country. If this is the case, the investor is classified as substantial, otherwise as non-substantial.

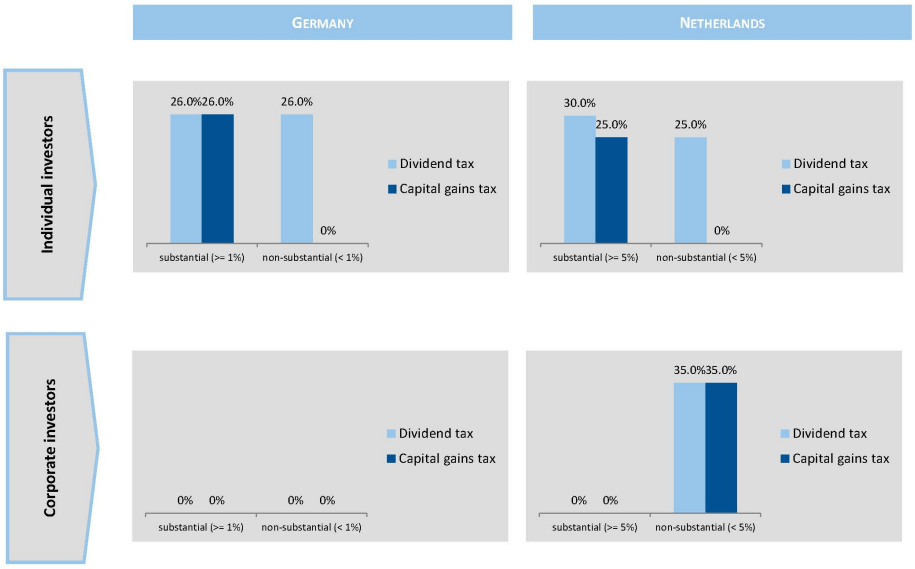
Altogether the classification results in five possible categories for the classification of the largest shareholder: substantial and non-substantial individuals, substantial and non-substantial strategic investors and finally institutionals.

An example for the relevance of shareholder type and shareholding size for the determination of the adequate tax rate is illustrated in Figure 7.1. This figure is based on the tax laws in force in Germany and the Netherlands in 2003. As can be seen from the upper left quadrant of the figure, non-substantial individual investors in Germany are under certain assumptions exempt from capital gains taxes while substantial individuals are not. This is a good example for the differential taxation of substantial and non-substantial investors. Comparing the information provided in the upper left quadrant and the lower left quadrant it becomes evident that substantial individual investors in Germany are subject to a dividend tax rate of 26 percent. However, substantial strategic investors are tax exempt. This supports the argument that the taxation of payouts is sensible to the type of investor. Finally the comparison of the left and the right side of the figure reveals that the materiality limit differs between Germany and the Netherlands. In combination with the diverging tax rates between the two countries this supports the argument that taxation differs across countries.

Note that also the determination of the tax preference of the largest investor is grounded on a few assumptions:

- First, I assume that all investors are subject to the tax rates for local resi-

Figure 7.1 Dividend and capital gains tax rates: Comparison of Germany and the Netherlands



Notes: This figure presents dividend and capital gains tax rates for two selected countries based on the law in force in 2003: The left part of the table provides information for Germany, the right part for the Netherlands. The tax rates are furthermore differentiated by the investor type they address: the upper part of the figure presents the tax rates for individual investors, the lower part for corporate investors. Within each quadrant, separate dividend and capital gains tax rates for substantial and non-substantial shareholders are reported.
Source: Own work.

dents. This implies that a foreign investor is all else being equal taxed at the same rate like a domestic investor. In other words, the local tax rates serve as a proxy for the de facto tax rate of a foreign investor. Of course, it might be objected that a foreign investor's profits are finally taxed in his country of origin. A consideration of this aspect however, would require to investigate a number of multi- and bilateral tax treaties between countries around the world. Furthermore, the ways on which each single investor transfers his profits back to his country of origin had to be traced back.[158]

[158] For example it is unclear in which country an investor is ultimately taxed since for tax minimization purposes some investors have their seat in low tax domiciles. In addition to that investors may hold their investments via investment vehicles that have their seat in so called tax havens.

Unfortunately, this data is not available.

- Another important assumption refers to institutional investors who administrate large pools of money that is provided by other investors. For the determination of institutional tax preferences the transparency principle plays an important role. It states that investment funds should act as tax neutral intermediaries between an investor and a company. This means that an indirect investment in a company via an investment fund should not lead ceteris paribus to a different tax burden for the investor compared to a direct investment in a company. In the end this means that returns are forwarded tax neutrally by the fund and taxed at the level of the investor. I assume that the institutional investors take the tax preferences of their investors into account. I furthermore assume that the preferences of institutional investors are equal to those of individual investors who are located in the top income tax bracket.

- Third, the taxation of capital gains often depends on the respective holding period. I assume that the investors' holding period is long enough to qualify for long-term capital gains tax rates.

Differences between tax preferences: Finally I compare the preferences of minority investors and those of the largest investor since I am interested whether any difference between both plays a role in payout policy. For this purpose DELTAPREF is defined as the standardized difference between TAXPREFMINOR and TAXPREFLARGEST.

$$DeltaPref = \frac{TaxPrefMinor_{i,t} - TaxPrefLargest_{i,t}}{TaxPrefLargest_{i,t}} \tag{7.3}$$

Country-specific and other firm-specific control variables

In my regressions I control for the impact of firm and country-specific characteristics. The choice of these variables is motivated by previous empirical findings.

As the literature shows, firm characteristics such as size and profitability are positively associated with corporate payouts *(e.g. Fama and French, 2001; Denis and Osobov, 2008; DeAngelo, DeAngelo and Stulz, 2006; von Eije and Megginson, 2008).* At the same time these studies find that growth has a negative impact on corporate payouts. I control for these characteristics and use return on assets (ROA) as a proxy for profitability and the natural logarithm of total assets (SIZE) as a proxy for the size of the company. GROWTH, defined as the annual growth rate of total sales, serves as a measure for a firm's growth opportunities.

Beside these determinants, leverage plays an important role. *Jensen (1986)* argues that leverage and dividends may serve as alternative monitoring devices that reduce the free cash flow which is at the discretionary power of the management. Under this view high leverage should result in lower payouts. Another argument in favor of a negative impact of leverage on payouts is that creditors have an incentive to avoid a transfer of wealth to the shareholders through payouts. I approximate the leverage of the firm (LEVERAGE) through the ratio of book value of total debt divided by book value of total assets.

Next, findings by *DeAngelo et al. (2006)* and *Denis and Osobov (2008)* document that mature firms are more likely to payout funds. In order to control for the impact of the life cycle stage of a company I include the earned/contributed capital mix (LIFECYCLE) defined as the ratio of retained earnings divided by total assets. Furthermore the influence of risk is considered through RISK, which is the standard deviation of monthly stock returns over the most recent two years including the current fiscal year. I expect that firms with higher risk are less likely to payout and also tend to smaller amounts.

To control for the impact of a firm's ownership concentration on the overall payout policy I include BLOCKHOLDER20 which is defined as dummy variable that equals one when a firm has a blockholder above the level of 20 percent and zero otherwise. The threshold of 20 percent is motivated by *La Porta et al. (1999)* who argues that a stake of 20 percent would usually be sufficient to gain effective control of a firm.[159]

In additional robustness tests, I extend the horizon of firm-specific variables. INTACC is a dummy variable that equals one if a company follows international accounting standards such as U.S.-GAAP or IFRS and zero otherwise. I also include the dividend reporting frequency (DIVREPFREQ), measured in times per year *(cf. Wood, 2001; von Eije and Megginson, 2008)*. Next, the market to book value (MTB) controls for the impact of stock undervaluation and is defined as market value of equity divided by book value of equity *(e.g. Ross, 1977; Bhattacharya, 1979; Miller and Rock, 1985; Allen, Bernardo and Welch, 2000)*.

Moreover I am interested in the impact of liquidity (CASH) defined as the ratio of cash and short-term investments divided by total assets (CASH) *(e.g. Dittmar, 2000; Moser, 2007; Skinner, 2008; Stephens and Weisbach, 1998)*. In addition to that, I follow *Lie and Lie (1999)* and *Moser (2007)* and measure the average monthly stock price appreciation over the past 2 years (DSTOCKPRICE). NEWLISTING equals 1 if the year of observation matches the year of the initial public offering and zero otherwise.

Moreover I capture the investment behavior of a firm through its capital and R&D expenditures. Capital expenditures are measured by CAPEX, the ratio of capital expenditures divided by total property, plant and equipment less accumulated reserves for depreciation, depletion and amortization. To measure the investment in R&D I follow *Himmelberg et al. (1999)* and calculate two variables. The dummy variable RNDDUMMY indicates whether a firm reports R&D

[159] The information whether a firm has a blockholder above the 20 percent threshold or not is extracted from the information on the corporate ownership structure as presented in Section 6.1.1

spending or not and RNDRATIO equals the ratio of R&D expenditures to sales.[160]

To ensure that my results are not driven by the effect of outliers I winsorize firm-specific control variables that are defined as ratios. The winsorizing occurs on a yearly base at the 1 percent level on both tails of the distribution.[161]

Since I want to avoid that the results are biased through the omission of country characteristics I also use country-specific control variables. Evidence by *La Porta et al. (2000*b*)* underlines that payout ratios tend to be higher in countries with better shareholder protection. Therefore I include the anti-self-dealing index, ASD, as presented by *Djankov et al. (2008)* as a measure for shareholder protection. This index codes the regulation and control of self-dealing transactions by corporate insiders. Based on the anti-self-dealing index I construct a less granular dummy variable (HIGHASD) that separates the sample countries in high and low protection countries. Moreover I include MCAPLISTED as a proxy for stock market development which equals the market capitalization of listed companies in percent of GDP.

Again, I enlarge the horizon of country-specific characteristics for robustness tests. I take the protection of debt holders into account by including the *creditor rights index* (CRI) as reported by *La Porta et al. (1998)*.

[160] While the R&D dummy enables me to check whether R&D reporting firms differ from those firms that do not report R&D spending, the R&D ratio allows me to control for the impact of the size of R&D expenditures on payout. A major problem regarding R&D variables is the selective disclosure of R&D expenditures in Europe. This refers to firms that follow national accounting standards that allow but do not oblige companies to disclose their R&D expenditures. Thus the disclosure is subject to the discretion of the management. The elimination of firm years with missing R&D information would lead to a significant decrease of the sample size and a biased view on those firms that actually invest in R&D. The procedure proposed by *Himmelberg et al. (1999)* provides a solution to this problem.

[161] In unreported results I reestimate the results using various winsorized samples at the 2.5% and 5% level. However comparing the original with the reestimated results I observe that the signs and significances of the variables are very similar so that I conclude that outliers have no significant impact on the results.

7.1.4 Estimation method

To estimate the impact of the shareholders' preferences on payout policy I rely on two regression models. The first one is a pooled OLS model, the second one is a fixed effects panel regression model. The two models are described briefly as follows:

The pooled OLS model

Equation 7.4 describes a pooled OLS model:

$$DivYield_{i,t+1} = \alpha_i + \beta_1 TaxPreference_{i,t+1} + \beta_2 \vec{X}_{i,t} + YearDummies + IndustryDummies + \epsilon_{i,t} \tag{7.4}$$

where $DivYield_{i,t+1}$ equals the main dependent variable, i.e.DIVYIELD.

$TaxPreference_{i,t+1}$ stands for the respective tax preference variable such as TAXPREFLARGEST, the preference of the largest shareholder. Alternatively TAXPREFMINOR is used. $\vec{X}_{i,t}$ is a vector of firm and country-specific control variables. Note that – compared to the dependent and the tax preference variable – the control variables are lagged by one period. Beside a number of firm and country-specific control variables I add year and industry dummies and thus control for year and industry fixed effects.

To estimate the pooled OLS model I follow the recommendation of *Petersen (2009)* and use standard errors that are clustered by firm.

The firm fixed effects panel regression

In a second step I take advantage of the panel structure of the sample and estimate the results with a panel regression that accounts for firm fixed effects. Us-

ing firm fixed effects allows considering unobservable firm heterogeneities that do not change over time (Baltagi,2008;Arellano,2003;Greene,2003). Equation 7.5 presents the regression model.

$$DivYield_{i,t+1} = \alpha_i + \beta_1 TaxPreference_{i,t+1} + \beta_2 \vec{X}_{i,t} + YearDummies + \gamma_i + \epsilon_{i,t} \tag{7.5}$$

where $DivYield_{i,t+1}$ equals the main dependent variable, i.e.DIVYIELD.

$TaxPreference_{i,t+1}$ stands for the respective tax preference variable such as TAXPREFLARGEST, the preference of the largest shareholder. Again, I include a number of firm and country-specific control variables in $\vec{X}_{i,t}$ as well as year dummies to control for year fixed effects. Since the firm fixed effects regression omits all time-invariant variables, the industry dummies do not enter the estimation. Again, the control variables are lagged by one period.

In the panel regression model I use heteroscedasticity-robust standard errors.

7.2 Empirical analysis

This section presents the results of the empirical analysis. First, descriptive statistics on the payout measures, the tax preference measures and the firm- and country-specific variables are provided. In the second step the regression results on the impact of the shareholders' tax preference on the corporate payout policy are reported.

7.2.1 Descriptive statistics

Summary statistics

Table 7.3 reports the summary statistics along five dimensions. As the payout characteristics show, the number of firm years with any information on share repurchases is considerably smaller than the number of firm years with dividend information. A probable explanation is related to the restrictions that European law imposed on share repurchases until the mid 90's. Also the propensity to use a payout channel and the resulting payout ratios differ between dividends and share repurchases. As the mean values show, positive dividend payouts can be observed in the majority of firm-years (60.8 percent). Share repurchases are registered only in 23.3 percent of the firm-years. Similarly, the mean dividend payout ratios are higher than the share repurchase ratios. Overall, these findings are consistent with the international and in particular European evidence that firms report and use dividends more frequently than share repurchases *(cf. von Eije and Megginson, 2008)*.

Interestingly, the tax preference variables show a considerable variation which is underlined by the standard deviations and the distance between the values of the 5th and 95th percentile. The statistics also show that on average there is a considerable gap between the preference of the largest shareholder and a minority shareholder since the mean difference is 9.6 percent. As the firm characteristics indicate, there is not sign of a sample bias. In particular, the sample encompasses firms of all size categories.

Table 7.3 Summary statistics

Variable	N	Mean	Median	Sd	p5	p25	p75	p95
Panel A: Payout characteristics								
DIVYIELD	23,741	0.022	0.014	0.035	0.000	0.000	0.032	0.069
DIVRATIO	23,741	0.018	0.009	0.033	0.000	0.000	0.024	0.069
REPYIELD	18,800	0.007	0.000	0.036	0.000	0.000	0.000	0.035
REPRATIO	18,800	0.007	0.000	0.032	0.000	0.000	0.000	0.034
TOTALPAYOUTRATIO	13,186	0.834	1.000	0.309	0.000	0.828	1.000	1.000
Panel B: Tax characteristics								
TAXPREFLARGEST	24,960	1.080	1.000	0.213	0.750	0.969	1.250	1.409
TAXPREFMINOR	24,960	0.987	0.996	0.203	0.675	0.850	1.250	1.250
DELTAPREF	24,960	-0.075	0.000	0.142	-0.339	-0.162	0.000	0.000
Panel C: Ownership characteristics								
BLOCKHOLDER20	24,960	0.562	1.000	0.496	0.000	0.000	1.000	1.000
Panel D: Other firm-specific characteristics								
SIZE	24,960	5.111	4.904	2.083	1.912	3.663	6.423	8.995
GROWTH	24,960	0.246	0.085	0.836	-0.245	-0.011	0.235	1.014
ROA	24,960	0.012	0.047	0.174	-0.318	0.003	0.087	0.182
LEVERAGE	24,960	0.201	0.181	0.167	0.000	0.047	0.318	0.510
MTB	24,960	2.895	1.773	4.138	0.485	1.045	3.084	8.624
LIFECYCLE	24,960	-0.351	0.171	2.717	-3.093	-0.069	0.529	0.893
RISK	24,960	0.130	0.107	0.084	0.048	0.076	0.155	0.288
CASH	24,960	0.159	0.095	0.178	0.007	0.040	0.207	0.556
DSTOCKPRICE	24,960	0.240	0.343	5.174	-8.129	-2.308	2.642	8.033
DIVREPFREQ	24,960	1.271	1.000	0.556	1.000	1.000	1.000	2.000
INTACC	24,960	0.514	1.000	0.500	0.000	0.000	1.000	1.000
RNDDUMMY	24,960	0.359	0.000	0.480	0.000	0.000	1.000	1.000
RNDRATIO	24,960	0.036	0.000	0.127	0.000	0.000	0.011	0.170
CAPEX	24,719	0.340	0.223	0.441	0.038	0.129	0.396	0.906
NEWLISTING	24,960	0.039	0.000	0.193	0.000	0.000	0.000	0.000
Panel E: Country characteristics								
MCAPLISTED	24,960	1.015	0.896	0.556	0.343	0.592	1.341	1.952
ASD	24,960	0.532	0.379	0.277	0.267	0.333	0.950	0.950
HIGHASD	24,960	0.484	0.000	0.500	0.000	0.000	1.000	1.000
RADRI	24,960	3.817	3.500	0.932	2.000	3.500	5.000	5.000
HIGHADRI	24,960	0.358	0.000	0.479	0.000	0.000	1.000	1.000
CRI	24,960	2.272	2.000	1.467	0.000	1.000	4.000	4.000

Notes: This table reports the summary statistics for the variables employed. The sample covers 3,944 publicly listed firms from 16 European countries. Data is collected for the period 1999-2008. Panel A reports the summary statistics of the variables that describe the corporate payout behavior. Panel B reports statistics on the tax preference measures. Panel C is includes variables that measure the ownership concentration of a firm. Panel D is focused on firm characteristics and Panel E on country characteristics. *N* represents the number of observations. *Mean* stands for the mean value while *Median* refers to the median value. *Sd* is the standard deviation. *p5*, *p25*, *p75* and *p95* represent the 5th, 25th, 75th and 95th percentile. A detailed definition of all variables can be found in Table Appendix T.1. In order to avoid that the empirical results are driven by outliers, all firm-specific control variables that are defined as ratios are winsorized on a yearly base at the 1 percent level on both tails of the distribution.
Source: Own work based on *Kaserer et al. (2012*a*)*.

Payout behavior

Table 7.3 describes the payout behavior of European firms. Since *von Eije and Megginson (2008)* provide a comprehensive overview of the payout behavior of European firms I want to concentrate on the most relevant aspects. As Panel A shows, the number of firms that reports information on *cash dividends* increases from 1999-2008. Along with this observation I notice an increase of the number of firms that pay cash dividends. However, also the number of firms that do not payout cash dividends increases. interestingly the growth rate of the non-payers is higher than the rate of the cash dividend payers. While in 1999 73.9 percent of the firms were dividend payers, this number declines to 61.8 percent in 2008. In line with the increasing number of cash dividend payers I also observe an increase of the total cash dividend payout volume. The aggregate dividend payout starts at a level of 67.5 billion Euro in 1999 and reaches a first peak in 2001. After that, it declines and start to recover again from 2004 on before it reaches a second peak of 170.2 billion Euro in 2008. A potential explanation for this development is the economic downturn after the internet bubble which was followed by an economic recovery.

Panel B provides information on the *share repurchase behavior* of the sample firms. Over the sample period a considerable increase of the number of firms that provide information on their share repurchase behavior can be observed. In particular, a considerable increase of the number of firms that actually repurchase shares can be detected. While in 1998 only 11.5 percent of the firms repurchased shares, in 2008 this number amounts to 38.5 percent. Along with the increasing number of share repurchasers a growing amount of share repurchases over the sample period can be observed. Similar to the cash dividend amount, the aggregate share repurchases increase until 2001 and then decline afterwards. From 2004 on the start to grow again an reach a second peak in´2007.

Panel C documents the *total payout behavior*, i.e. the aggregate payouts of firms

that report information on both cash dividends and share repurchases. Consistent with the results in Panel A and B it can be seen that the number of firms with available data on both payout types increases over the years. Interestingly, it can be shown that the percentage of firms that use just one payout channel declines over the years. At the same time the number of firms that use both payout channels in a given year increases from 10.5 percent in 1999 to 30.8 percent in 2008. The number of firms that do not use any payout channel increases too, however, with a lower growth rate from 18.4 percent in 1999 to 27.1 percent in 2008. Finally the results show that the aggregate payout amount follows a similar pattern as the aggregate cash dividends and share repurchases. In sum, the aggregate payouts increase considerably over the sample period and peak at a value of 264.9 billion Euro in 2007.

Table 7.4 Payout behavior of European firms

Panel A: Cash dividend payments

	Number of observations					
Year	Firms with available data on cash dividends	Firms that pay cash dividends	Firms that do not pay cash dividends	Firms that never paid cash dividends	Former dividend payers	Total cash dividend payouts
1999	1,781	1,317	464	355	109	67,555.2
2000	2,129	1,440	689	492	197	74,565.0
2001	2,330	1,433	897	591	306	87,764.2
2002	2,365	1,361	1,004	582	422	78,915.8
2003	2,342	1,337	1,005	546	459	77,586.2
2004	2,366	1,367	999	564	435	92,871.8
2005	2,671	1,568	1,103	644	459	129,465.3
2006	2,910	1,697	1,213	763	450	150,745.7
2007	3,039	1,778	1,261	811	450	163,716.7
2008	2,973	1,836	1,137	744	393	170,194.4
Total	**24,906**	**15,134**	**9,772**	**6,092**	**3,680**	**1,093,380.0**

Panel B: Share repurchases

	Number of observations					
Year	Firms with available data on share repurchases	Firms that repurchase shares	Firms that do not repurchase shares	Firms that never repurchased shares	Former share repurchasers	Total share repurchases
1999	1,230	141	1,089	1,009	81	11,279.8
2000	1,512	257	1,255	1,160	107	20,371.1
2001	1,683	271	1,412	1,223	201	36,048.7
2002	1,782	298	1,484	1,228	257	30,574.2
2003	1,832	283	1,549	1,194	362	21,854.6
2004	1,850	339	1,511	1,129	383	50,722.9
2005	2,146	534	1,612	1,175	446	76,259.7
2006	2,319	623	1,696	1,191	511	103,525.2
2007	2,476	818	1,658	1,138	520	105,337.9
2008	2,442	940	1,502	992	513	73,229.3
Total	**19,272**	**4,504**	**14,768**	**11,439**	**3,381**	**529,203.3**

Panel C: Total payouts

	Number of observations					
Year Year	Firms with available data on both dividends and share repurchases	Firms that pay both cash dividends and repurchase shares shares	Firms that do not pay cash dividends but repurchase shares	Firms that pay cash dividends but do not repurchase shares	Firms that neither pay cash dividends nor repurchase shares	Total payouts
1999	1,224	129	859	11	225	77,005.4
2000	1,507	222	872	33	380	90,375.2
2001	1,681	223	899	47	512	119,428.9
2002	1,780	229	874	69	608	105,276.2
2003	1,827	210	915	73	629	95,934.8
2004	1,843	271	868	68	636	140,256.3
2005	2,142	415	908	117	702	202,095.3
2006	2,315	498	937	124	756	246,880.6
2007	2,466	641	878	172	775	264,861.8
2008	2,433	750	837	185	661	238,494.4
Total	**19,218**	**3,588**	**8,847**	**899**	**5,884**	**1,580,609.0**

Notes: This table reports the payout behavior of European firms from 1998 to 2008. Panel A reports the dividend payout behavior. Panel B focuses on share repurchases. Finally Panel C gives a description of total payouts, i.e. the sum of dividends and share repurchases. Total payouts are only reported for those firms that provide data on both cash dividends and share repurchases in the respective year.

Source: Own work.

Country statistics

Table 7.5 presents the mean values of selected variables by country. Although Europe is usually described as a strong economic union with close interdependencies among its member countries, the country characteristics show a considerable heterogeneity.

In particular ownership structures, payout behavior and tax preferences vary significantly across sample countries. The country statistics suggest that firms in countries with higher tax induced preferences for dividends have also a higher affinity for dividends. This is documented by a higher propensity to make dividend payments and higher dividend ratios. Conversely, firms located in these countries have a lower propensity for share repurchases and also lower share repurchase ratios. This relationship is illustrated in Figure 7.2.

Apart from that, it can be shown that the protection of minority shareholders varies considerably across the sample countries. The sample includes both countries that are referred to as low protection countries such as Italy or Austria as well as high protection countries such as Spain and UK *(e.g. La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000*b*)*. Consistent with *La Porta et al. (1998)* the country statistics suggest that countries with better shareholder concentration are more concentrated and vice versa.[162]

[162] For a detailed analysis of the relation between shareholder protection and ownership structure see Chapter 6

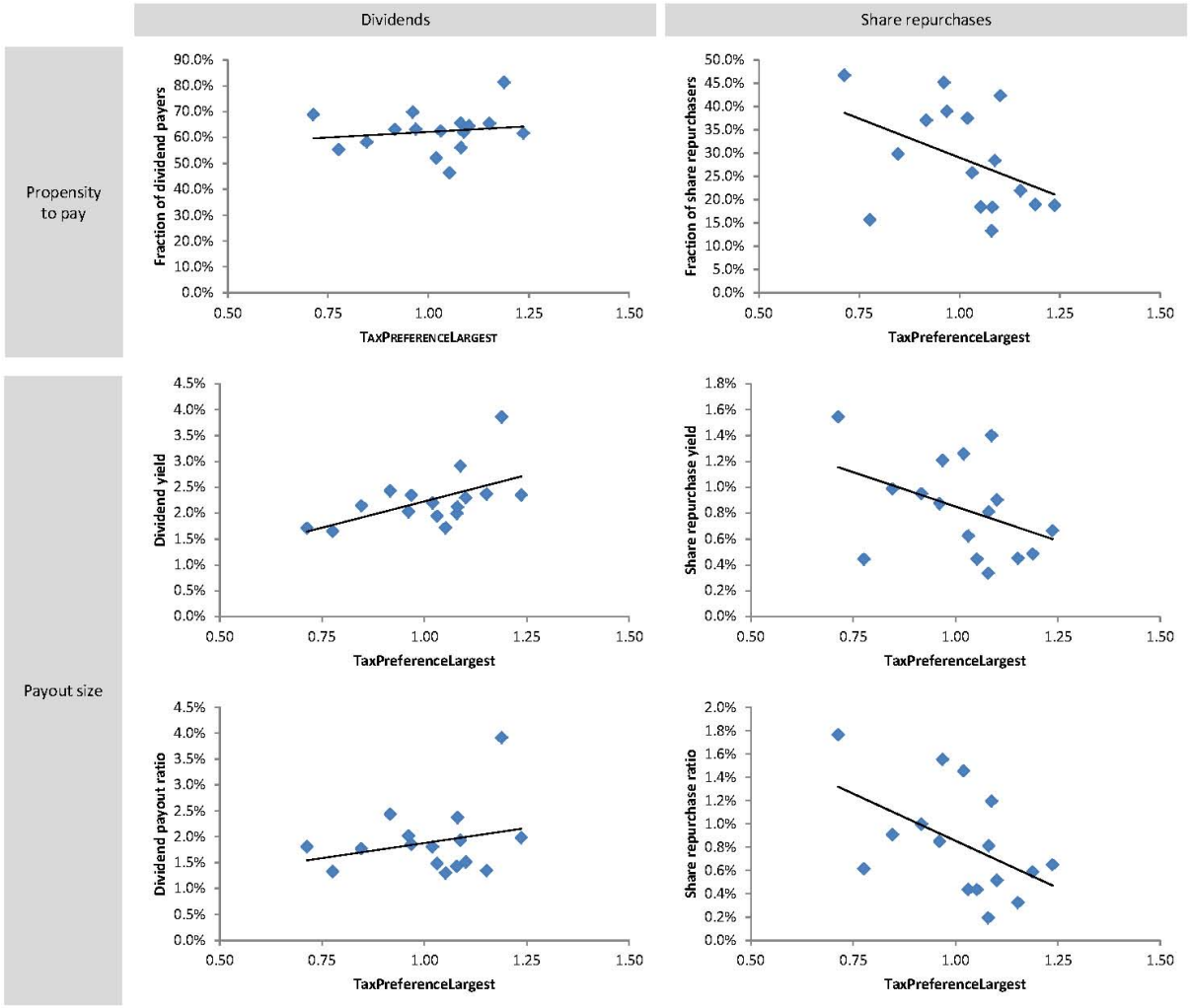
Table 7.5 Descriptive statistics by country

		Country																
		Austria	Belgium	Denmark	Finland	France	Germany	Ireland	Italy	Luxembourg	Netherlands	Norway	Portugal	Spain	Sweden	Switzerland	UK	**Total**
	Number of firms	65	109	100	118	746	464	53	246	24	106	117	62	95	260	151	1228	**3944**
TAX PREFERENCE	TAXPREFMINOR	0.750	0.843	1.000	1.287	0.926	0.791	0.721	1.000	1.284	0.725	0.994	0.786	0.926	1.000	0.592	1.206	**0.987**
	TAXPREFLARGEST	1.152	0.917	0.969	1.189	1.031	1.052	0.776	1.080	1.088	0.846	1.020	1.101	0.961	1.081	0.713	1.237	**1.080**
	DELTAPREF	0.868	0.777	0.716	0.932	0.830	0.816	0.853	0.919	0.778	0.764	0.745	0.774	0.774	0.863	0.675	-0.023	**-0.096**
GOVERNANCE INDICES	RADRI	2.5	3	4	3.5	3.5	3.5	5	2	2	2.5	3.5	2.5	5	3.5	3	5	**3.817**
	ASD	0.213	0.544	0.463	0.457	0.379	0.282	0.789	0.421	0.283	0.203	0.421	0.444	0.374	0.333	0.267	0.950	**0.532**
OWNERSHIP	BLOCKHOLDER20	0.793	0.701	0.510	0.406	0.785	0.738	0.383	0.828	0.703	0.412	0.551	0.831	0.547	0.381	0.526	0.333	**0.562**
PAYOUT POLICY	Fraction of dividend payers	0.654	0.631	0.633	0.813	0.625	0.463	0.554	0.656	0.621	0.582	0.520	0.645	0.699	0.561	0.690	0.617	**0.608**
	DIVYIELD	0.024	0.024	0.023	0.039	0.019	0.017	0.017	0.020	0.029	0.021	0.022	0.023	0.020	0.021	0.017	0.023	**0.022**
	DIVRATIO	0.013	0.024	0.019	0.039	0.015	0.013	0.013	0.014	0.019	0.018	0.018	0.015	0.020	0.024	0.018	0.020	**0.018**
	Fraction of share repurchasers	0.219	0.370	0.390	0.189	0.258	0.184	0.156	0.133	0.284	0.299	0.375	0.423	0.452	0.183	0.468	0.188	**0.233**
	REPYIELD	0.005	0.010	0.012	0.005	0.006	0.004	0.004	0.003	0.014	0.010	0.013	0.009	0.009	0.008	0.015	0.007	**0.007**
	REPRATIO	0.003	0.010	0.016	0.006	0.004	0.004	0.006	0.002	0.012	0.009	0.015	0.005	0.009	0.008	0.018	0.007	**0.007**
	TOTALPAYOUTRATIO	0.868	0.777	0.716	0.932	0.830	0.816	0.853	0.919	0.778	0.764	0.745	0.774	0.774	0.863	0.675	0.875	**0.837**

Notes: This table provides country-level statistics along four dimensions. The presented statistics presented for each dimension are country-specific mean values over the period from 1999 to 2008. The last column contains the European mean values of the 16 sample countries.

Source: Own work based on *Kaserer et al. (2012a)*.

Figure 7.2 Tax preferences and payout policy: Univariate evidence



Notes: This figure uses country-level data to illustrate the relationship between the largest shareholder's tax preference (TAXPREFLARGEST) and selected payout variables. The values of the respective variables equal their mean in a given country over the period from 1999 to 2008. It is differentiated between two payout channels and thus separate variables for cash dividends and share repurchases are used. Additionally the variables that describe the payouts via each of the two channels are differentiated according to two dimensions: One dimension addresses the propensity to pay while the other two focus on the payout size. The continuous line marks the regression line.
Source: Own work.

Variation of tax preferences across Europe

I argue that the use of a multinational panel data set with firm-specific tax preferences comes along with a considerable variation of the tax variables. The example presented in Figure 7.1 already illustrates the variation of taxes between Germany and the Netherlands in 2003.

Table 7.6 sheds additional light on the considerable tax variation across the sample countries and years. Panel A gives an overview of the tax system changes during the period 1999-2008. Seven large system changes can be detected. The pattern of the changes shows a trend away from shareholder relief systems and towards full imputation systems. This trend can be explained by the fact that the shareholder relief system tends to discriminate foreign against domestic investors and thus stands in a clear contrast to the norms of the European Union. Another disadvantage is that it has a negative impact on the attractiveness of cross-border investments.

Reforms of the *tax system* represent structural changes of the way individuals and corporations are taxed. Apart from these radical changes there are modifications of the *tax rates* that are less revolutionary with regards to the system but nevertheless have an impact on the tax preferences. These tax rate changes are reported by Panel B. Panel B shows the number of significant changes of the corporate tax rate. Moreover it shows the number of significant changes of selected tax rates on the investor level and the resulting tax preferences of substantial and non-substantial shareholders. The number of changes is reported separately for corporate and individual investors. The number of changes is determined by aggregating the number of relative changes that are larger than 5 (10) percent in comparison to the previous year.

The results reveal that independent of the threshold that serves to identify changes, the number of changes is considerable. Interestingly the number of decreases ex-

ceeds the number of increases. For example 39 (35) decreases of the corporate tax rate on distributed profits that exceed the 5 (10) percent level can be identified, compared to two (one) increases. With 21 (16) decreases and 8 (8) increases a similar picture can be observed with regards to the dividend tax rate of non-substantial individual investors.

Against the background of these numbers it is not surprising that a considerable number of changes of the resulting tax preference indicator of substantial and non-substantial investors can be observed. Altogether, Panel B provides additional evidence for the variation of taxes and the resulting preferences across Europe.

Panel C and D sheds light on the variation of TAXPREFLARGEST, i.e. the preference of the largest shareholder. Panel C reports how the dividend tax preferences of the largest investor vary within countries and across years. The standard deviation, the minimum and the maximum values are reported in percent of the country-specific mean over the sample period. The standard deviation as well as the range between minimum and maximum value underline the pronounced variation of the tax preference of the largest shareholder within each country.

Panel D presents the variation of TAXPREFLARGEST within years and across countries. This time the standard deviation, the minimum and the maximum values are reported in percent of the yearly mean averaged over all countries. Again the statistics document a high variation of the largest shareholder's tax preference.

Table 7.6 Variation of taxes and tax preferences in Europe

Panel A: Tax system changes

Country	Year	New System	Previous System
Ireland	2000	Classical Corporate Taxation	Partial Imputation System
Germany	2002	Shareholder-Relief System	Imputation System
Denmark	2005	Shareholder-Relief System	Classical Corporate Taxation
Finland	2005	Shareholder-Relief System	Full Imputation System
France	2005	Shareholder-Relief System	Full Imputation System
Norway	2005	Classical Corporate Taxation	Full Imputation System
Spain	2006	Shareholder-Relief System	Partial Imputation System

Panel B: Tax rate changes

		Relative change to previous year of at least:			
		5%		10%	
	Tax type	Increases	Decreases	Increases	Decreases
Taxation on the corporate level	Corporate income tax (distributed profits)	2	39	2	35
	Corporate income tax (undistributed profits)	2	40	2	36
Taxation on the shareholder level (individual shareholder)	Capital gains tax rate (non-substantial)	8	8	8	8
	Capital gains tax rate (substantial)	1	7	1	7
	Dividend tax rate (non-substantial)	8	21	8	16
	Dividend tax rate (substantial)	2	1	2	1
	TPI (non-substantial)	10	10	8	7
	TPI (substantial)	8	11	7	7
Taxation on the shareholder level (corporate shareholder)	Capital gains tax rate (non-substantial)	3	27	2	25
	Capital gains tax rate (substantial)	1	11	1	11
	Dividend tax rate (non-substantial)	3	32	3	29
	Dividend tax rate (substantial)	0	2	0	2
	TPI (non-substantial)	5	9	5	4
	TPI (substantial)	1	10	1	6

Continued on next page

Table 7.6 (continued)

Panel C: Variation of dividend tax preferences by country			
	TAXPREFLARGEST		
Country	Sd	Min	Max
Austria	21.2%	65.1%	131.4%
Belgium	7.5%	90.8%	107.2%
Denmark	7.4%	80.1%	103.2%
Finland	14.8%	84.1%	118.5%
France	14.5%	82.6%	145.5%
Germany	26.0%	70.6%	196.8%
Ireland	18.0%	86.9%	161.1%
Italy	10.6%	85.2%	126.9%
Luxembourg	14.4%	87.1%	132.7%
Netherlands	16.9%	47.3%	118.2%
Norway	9.2%	87.3%	136.3%
Portugal	18.4%	68.1%	128.2%
Spain	5.0%	92.3%	104.1%
Sweden	14.6%	92.5%	128.6%
Switzerland	26.2%	80.6%	140.3%
UK	10.2%	74.0%	115.5%

Panel D: Variation of dividend tax preferences by year			
	TAXPREFLARGEST		
Year	Sd	Min	Max
1999	25.5%	35.3%	182.7%
2000	25.5%	35.2%	182.2%
2001	18.5%	51.5%	126.1%
2002	18.6%	54.7%	132.6%
2003	18.1%	54.8%	139.0%
2004	18.2%	55.2%	139.9%
2005	17.3%	55.6%	133.4%
2006	17.3%	55.4%	132.8%
2007	17.6%	55.6%	133.4%
2008	16.1%	60.6%	141.4%

Notes: This table presents the variation of tax rates and the resulting investor tax preferences in Europe from 1999 to 2008. Panel A provides an overview of major tax system changes. Panel B reports the number of tax rate changes. For this purpose the percentage change of the respective tax rate from year t-1 to year t is calculated. Only relative tax changes that are above the threshold of 5% are counted. Alternatively a threshold of 10% is defined. Panel C presents the variation of the tax preference of the largest investor within a particular country and across years. *Sd* is the standard deviation. *Min* (*Max*) is the minimum (maximum) value. The standard deviation, the minimum and the maximum values are reported in percent of the country-specific mean over the sample period. Panel D presents the variation of the tax preference of the largest investor across countries and within a particular year. In Panel D the standard deviation, the minimum and the maximum values are reported in percent of the yearly mean averaged over all countries.A detailed definition of all variables can be found in Table Appendix T.1.
Source: Own work.

7.2.2 Regression results

This section presents the regression results on the relationship between taxes, payout policy and agency conflicts. The results are reported in three steps.

The impact of the tax preferences of the largest shareholders on payout policy

In the first step I estimate the impact of the tax preference of the largest shareholder on the firms' payout policy. Table 7.7 reports the corresponding results. The estimates in the first four columns of Table 7.7 are based on a pooled linear regression model where standard errors are clustered by firm. Additionally I include year dummies to account for year fixed effects.

As the results in Model 1 show, the coefficient of the tax preference variable is positive and significant at the 1 percent level. This suggests that higher tax preferences lead to larger dividend yields. The effect of the tax preference variable is also significant from an economic perspective. Ceteris paribus, an increase of the tax preference by one standard deviation leads to an increase of the dividend yield by 10.3 percent. In Model 2 I add industry fixed effects to my regression model to account for industry specific characteristics. However, this does not alter the relation between tax preferences and payout policy. In Model 3 and 4 I further include a number of firm-specific control variables that proxy for example for size, growth, profitability risk and leverage. I also include country-specific control variables that proxy for shareholder protection and the development of capital markets in the respective countries. The additional control variables show the expected signs. For example size, profitability and shareholder protection are positively associated with dividend yield, while growth, leverage and risk show a negative impact. I also note that the inclusion of additional variables leads to an increase of the adjusted R^2. More importantly, the

impact of the tax preference on payout policy does not change in spite of these additional variables.

In Model 5 and 6 I vary the regression method. Instead of a pooled OLS approach I use a panel regression with firm and year fixed effects. In Model 5 I estimate the dividend yield again as a function of the tax preference of the largest shareholder. I consider year effects but ignore additional control variables in this column. Nevertheless, the impact of the tax preferences on the dividend yield remains positive and significant. This finding persists even when again I include additional firm and country-specific control variables in Model 6.

Altogether the results presented in Table 7.7 show that the tax preference of the largest shareholder does have an impact on payout policy of the firm. This effect is significant both from an econometric and an economic point of view. In sum this result strongly supports my expectation that firms take the preferences of large blockholders into account when making decisions on the payout channel and the payout size.

A potential explanation for this observation is that large shareholders have the power and incentive to influence the management of a firm to define a payout policy that is congruent with their interests. As such, the result is consistent with recent evidence around the U.S. tax reform in 2003, the JGTRRA, which shows that the reaction to the JGTRRA was greatest not only among firms with executive ownership *(e.g. Brown, Liang and Weisbenner, 2007)* but more generally among firms where individuals and mutual funds had large shareholdings *(e.g. Blouin, Raedy and Shackelford, 2011)*.

Table 7.7 The impact of the tax preference of the largest shareholder on payout policy

Model No.	1	2	3	4	5	6
Dependent Variable	DIVYIELD					
Method	Pooled OLS				Panel (FE)	
SE	Clustered by firm				Robust	
TAXPREFLARGEST	0.010***	0.010***	0.011***	0.010***	0.004**	0.003**
	[6.93]	[7.21]	[7.30]	[7.26]	[2.47]	[2.18]
SIZE			0.001***	0.001***		0.002***
			[9.55]	[9.14]		[3.76]
GROWTH			-0.002***	-0.001***		-0.001***
			[-9.10]	[-8.45]		[-4.23]
ROA			0.025***	0.024***		0.012***
			[18.17]	[17.34]		[10.12]
LEVERAGE			-0.008***	-0.011***		-0.019***
			[-4.81]	[-6.74]		[-9.79]
MTB			-0.000***	-0.000***		-0.000***
			[-9.19]	[-8.06]		[-8.62]
LIFECYCLE			0.000**	0.000*		-0.000***
			[2.30]	[1.86]		[-5.68]
RISK			-0.062***	-0.055***		-0.022***
			[-21.62]	[-19.94]		[-9.76]
BLOCKHOLDER20			-0.001**	-0.002***		0.000
			[-2.17]	[-2.93]		[-0.90]
MCAPLISTED			0.002***	0.002***		0.003**
			[3.48]	[3.21]		[2.32]
ASD			0.003***	0.003**		
			[2.67]	[2.57]		
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	No	Yes	No	Yes	No	No
Firm Years	21,058	21,058	21,058	21,058	21,058	21,058
Firms	3,689	3,689	3,689	3,689	3,689	3,689
Adjusted R^2	0.016	0.080	0.200	0.218	0.012	0.046

Notes: This table reports the regression estimates for the impact of the largest shareholder's tax preference on the corporate dividend yield. Model 1 to 4 are pooled OLS regressions with year fixed effects and standard errors clustered by firm. Model 5 and 6 are year and firm fixed effects panel regressions with heteroscedasticity-robust standard errors. A detailed definition of all variables can be found in Table Appendix T.1. Except the tax preference variables, all explanatory variables are lagged by one period. t-values are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Kaserer et al. (2012a)*.

Largest versus minor shareholders: The role of diverging preferences on payout policy

Next I shed light on the firms' dividend payout behavior when the preferences of minor shareholders deviate from those of the largest shareholder. This allows me to answer the question whether firms just follow the preferences of the largest shareholder or whether they also care about the tax induced interests of minority investors.

For this purpose I include two tax preference variables in the regression and estimate their impact on the firms' payout policy. TAXPREFLARGEST again stands for the tax preference of the largest shareholder. Additionally DELTAPREF measures the difference between the preferences of minor shareholders and the largest shareholder.

Table 7.8 reports the results. Again I estimate in Model 1–4 a pooled OLS regression model. Consistent with my previous results I find that the tax preference of the largest shareholder has a positive and significant impact on the dividend yield. Interestingly, I find that the coefficient of DELTAPREF is also positive and significant at the 1 percent level. This implies that firms increase their dividends when the minor shareholders' preferences for dividends are all else being equal higher than the ones of the largest investor.

In Model 2 I additionally control for industry effects, however this does not change my results. The results are also robust against the inclusion of additional control variables in Models 3 and 4 or the use of a firm fixed effects panel regression in Model 5 and 6.

Altogether the results presented in Table 7.8 corroborate the importance of the tax-based payout preference of the largest shareholder. In addition to that they show that firms do not completely ignore the payout preferences of minor shareholders. These are taken into account in case that they deviate from the largest

shareholder's preferences.

Table 7.8 The impact of the tax preference of the largest shareholder and of minor shareholders on payout policy

Model No.	1	2	3	4	5	6
Dependent Variable	DIVYIELD					
Method	Pooled OLS				Panel (FE)	
SE	Clustered by firm				Robust	
TAXPREFLARGEST	0.014***	0.014***	0.020***	0.019***	0.011***	0.010***
	[8.73]	[9.38]	[10.42]	[10.59]	[5.02]	[4.67]
DELTAPREF	0.018***	0.019***	0.022***	0.022***	0.015***	0.015***
	[6.69]	[7.67]	[8.00]	[8.27]	[4.83]	[4.62]
SIZE			0.001***	0.001***		0.002***
			[10.14]	[9.70]		[3.69]
GROWTH			-0.002***	-0.001***		-0.001***
			[-9.30]	[-8.65]		[-4.34]
ROA			0.025***	0.024***		0.012***
			[18.41]	[17.59]		[10.25]
LEVERAGE			-0.008***	-0.012***		-0.019***
			[-5.11]	[-7.05]		[-9.73]
MTB			-0.000***	-0.000***		-0.000***
			[-9.59]	[-8.50]		[-8.57]
LIFECYCLE			0.000	0.000		-0.000***
			[1.41]	[0.92]		[-5.65]
RISK			-0.061***	-0.054***		-0.022***
			[-21.64]	[-19.91]		[-9.68]
BLOCKHOLDER20			-0.001	-0.001*		0.000
			[-1.07]	[-1.83]		[-0.85]
MCAPLISTED			0.001***	0.001***		0.001
			[3.19]	[2.88]		[1.09]
ASD			-0.003*	-0.003*		
			[-1.80]	[-1.93]		
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	No	Yes	No	Yes	No	No
Firm Years	21,058	21,058	21,058	21,058	21,058	21,058
Firms	3,689	3,689	3,689	3,689	3,689	3,689
Adjusted R^2	0.026	0.090	0.209	0.227	0.015	0.049

Notes: This table reports the regression estimates for the impact of shareholders' tax preference on the corporate dividend yield. Model 1 to 4 are pooled OLS regressions with year fixed effects and standard errors clustered by firm. Model 5 and 6 are year and firm fixed effects panel regressions with heteroscedasticity-robust standard errors. A detailed definition of all variables can be found in Table Appendix T.1. Except the tax preference variables, all explanatory variables are lagged by one period. t-values are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Kaserer et al. (2012a)*.

The importance of minor shareholders' preferences and the role of shareholder protection

In the third step I shed light on the moderating role of shareholder protection. I explore whether the consideration of minority shareholders tax preferences depends on the strength of their legal protection. In other words I am interested whether the difference of the tax preferences has the same impact across countries or whether the impact is more pronounced in countries with better protection. Therefore I interact DELTAPREF with HIGHASD, an indicator variable for high protection countries.

The results are reported in Table 7.9. Consistent with my previous findings I see in Model 1 of Panel A that the coefficients of TAXPREFLARGEST and DELTAPREF have a positive and significant impact on the dividend yield. The high protection indicator also has a positive sign, which is in line with evidence that firms in high protection countries make higher payouts *(e.g. La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000*b*)*. The coefficient of the interaction term between DELTAPREF and HIGHASD is negative and significant at the 1 percent level. This means that the difference between the preference of minor shareholders and the largest shareholder has a positive impact on payout policy. However, the impact is significantly more pronounced in countries with high shareholder protection. This finding is consistent even when I include industry indicators or additional control variables as in Models 2–4.

In Model 5 and 6 I reestimate the results using a firm fixed effects panel regression. Of course, the country-specific and time-invariant variable HIGHASD is dropped in this case. However, the interaction term is still positive and highly significant.

In Panel B I use the anti-self-dealing index ASD as a proxy for shareholder protection instead of HIGHASD and thus rely on a more granular measure. Nev-

ertheless the results persist and the coefficient of the interaction term still has a positive and significant sign in all models.

Table 7.9 The impact of the tax preference of the largest shareholder and of minor shareholders on payout policy: the role of shareholder protection

Panel A: High versus low shareholder protection						
Model No.	1	2	3	4	5	6
Dependent Variable	DIVYIELD					
Method	Pooled OLS				Panel (FE)	
SE	Clustered by firm				Robust	
TAXPREFLARGEST	0.011***	0.012***	0.016***	0.016***	0.009***	0.009***
	[5.78]	[6.76]	[10.03]	[10.01]	[4.40]	[4.15]
DELTAPREF	0.008**	0.010***	0.012***	0.012***	0.009***	0.008**
	[2.47]	[3.50]	[4.82]	[4.98]	[2.69]	[2.57]
HIGHASD	0.001*	0.001	0.000	0.000		
	[1.68]	[0.80]	[0.58]	[0.45]		
DELTAPREF * HIGHASD	0.020***	0.020***	0.018***	0.017***	0.014***	0.014***
	[3.61]	[3.85]	[3.70]	[3.65]	[2.82]	[2.95]
SIZE			0.002***	0.001***		0.002***
			[10.40]	[9.99]		[3.74]
GROWTH			-0.002***	-0.001***		-0.001***
			[-9.42]	[-8.75]		[-4.31]
ROA			0.025***	0.024***		0.012***
			[18.18]	[17.36]		[10.21]
LEVERAGE			-0.008***	-0.012***		-0.019***
			[-5.03]	[-6.97]		[-9.80]
MTB			-0.000***	-0.000***		-0.000***
			[-9.51]	[-8.46]		[-8.56]
LIFECYCLE			0.000	0.000		-0.000***
			[1.53]	[1.06]		[-5.67]
RISK			-0.061***	-0.054***		-0.021***
			[-21.48]	[-19.73]		[-9.59]
BLOCKHOLDER20			0.000	-0.001		0.000
			[-0.68]	[-1.44]		[-0.89]
MCAPLISTED			0.001**	0.001**		0.001
			[2.46]	[2.11]		[0.75]
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	No	Yes	No	Yes	No	No
Firm Years	21,058	21,058	21,058	21,058	21,058	21,058
Firms	3,689	3,689	3,689	3,689	3,689	3,689
Adjusted R^2	0.029	0.093	0.211	0.228	0.016	0.050

Continued on next page

Table 7.9 (continued)

Panel B: Shareholder protection measured by the continuous anti-self-dealing index						
Model No.	1	2	3	4	5	6
Dependent Variable	DIVYIELD					
Method	Pooled OLS				Panel (FE)	
SE	Clustered by firm				Robust	
TAXPREFLARGEST	0.018***	0.018***	0.020***	0.019***	0.009***	0.009***
	[8.19]	[8.77]	[10.46]	[10.63]	[4.33]	[4.10]
DELTAPREF	0.028***	0.030***	0.027***	0.028***	0.018***	0.017***
	[7.81]	[9.02]	[9.19]	[9.57]	[5.37]	[5.25]
ASD	-0.006***	-0.006***	-0.004***	-0.004***		
	[-3.25]	[-3.40]	[-2.65]	[-2.82]		
DELTAPREF * ASD	0.043***	0.049***	0.043***	0.043***	0.040***	0.039***
	[4.22]	[5.13]	[4.84]	[4.99]	[3.93]	[4.07]
SIZE			0.001***	0.001***		0.002***
			[10.25]	[9.78]		[3.69]
GROWTH			-0.002***	-0.001***		-0.001***
			[-9.29]	[-8.66]		[-4.33]
ROA			0.025***	0.024***		0.012***
			[18.32]	[17.50]		[10.29]
LEVERAGE			-0.008***	-0.012***		-0.019***
			[-5.07]	[-7.03]		[-9.77]
MTB			-0.000***	-0.000***		-0.000***
			[-9.67]	[-8.58]		[-8.58]
LIFECYCLE			0.000	0.000		-0.000***
			[1.41]	[0.92]		[-5.71]
RISK			-0.061***	-0.054***		-0.021***
			[-21.60]	[-19.83]		[-9.59]
BLOCKHOLDER20			0.000	-0.001		0.000
			[-0.85]	[-1.62]		[-0.80]
MCAPLISTED			0.001***	0.001***		0.001
			[3.04]	[2.73]		[0.75]
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	No	Yes	No	Yes	No	No
Firm Years	21,058	21,058	21,058	21,058	21,058	21,058
Firms	3,689	3,689	3,689	3,689	3,689	3,689
Adjusted R^2	0.029	0.094	0.211	0.229	0.017	0.050

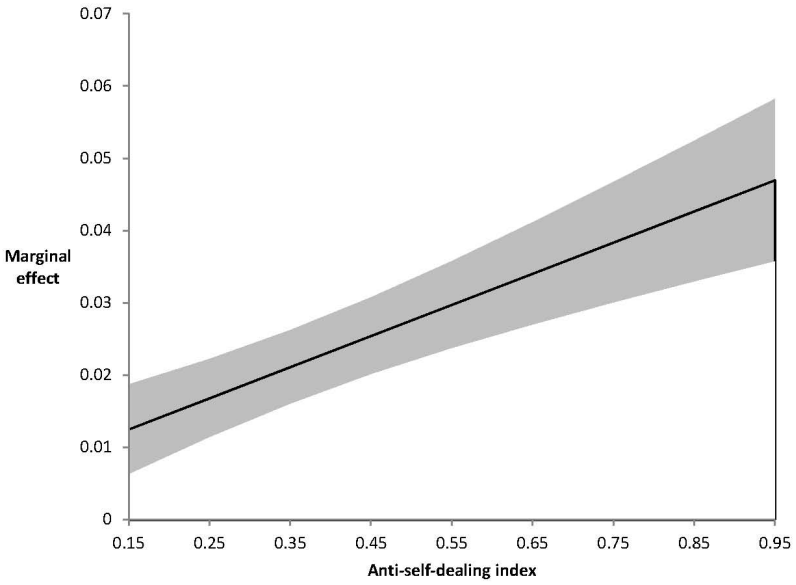
Notes: This table reports the regression estimates for the impact of shareholders' tax preference on the corporate dividend yield. Model 1 to 4 are pooled OLS regressions with year fixed effects and standard errors clustered by firm. Model 5 and 6 are year and firm fixed effects panel regressions with heteroscedasticity-robust standard errors. DELTAPREF is interacted with a measure of shareholder protection. In Panel A HIGHASD is used, a dummy variable that separates the sample countries according to their degree of shareholder protection as measured by the anti-self-dealing index presented in *Djankov et al. (2008)*. It equals one for high protection countries and zero for low protection countries. In Panel B the more granular anti-self-dealing index, ASD, is employed. A detailed definition of all variables can be found in Table Appendix T.1. Continuous variables that are part of an interaction term are centered. Except the tax preference variables, all explanatory variables are lagged by one period. t-values are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.
Source: Own work based on *Kaserer et al. (2012*a).

Based on the results of Panel B in Table 7.9, the impact of DELTAPREF on the dividend yield in dependence of the degree of shareholder protection is illustrated in Figure 7.3. As the coefficients show the effect of DELTAPREF is significantly higher in high protection countries than in low protection countries. The coefficient in high protection countries is approximately three times as large as in low protection countries.

Altogether, the results presented in Table 7.9 suggest that in principal minority shareholder preferences matter. However, not all firms are equally sensitive to the preferences of minor shareholders. The extent to which minority shareholder preferences are considered depends on the degree of shareholder protection. The more pronounced the rights of minority shareholders are, the larger is the role of their preferences for the firms payout policy. First of all, in general this finding is in line with previous results that underlined the importance of shareholder protection for the reducing the expropriation of minority shareholders *(cf. La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000*b*)*. Additionally this result sheds light on the large versus small shareholder conflict as it shows that the preferences of minor shareholders have considerably less impact on the payout policy of the firm when their legal protection is weak.

Consequently, these findings support the view that blockholders might misuse their power to enjoy private benefits at the expense of minority shareholders *(e.g. Barclay and Holderness, 1989; Shleifer and Vishny, 1997; Johnson, La Porta, Lopez-de Silanes and Shleifer, 2000; Becht and Boehmer, 2003)*. The less the minority shareholders' tax preferences are taken into account, the higher the resulting tax costs that they have to bear. This provides additional evidence in favor of the costs that small shareholders face in case of large blockholdings. As such the results shed light on the dark side of blockholder ownership.

Figure 7.3 Diverging tax preferences and payout policy: The moderating role of shareholder protection as measured by the anti-self-dealing index



Notes: This figure illustrates the marginal effects of DELTAPREF on the payout policy of the firm as measured by DIVYIELD at various levels of shareholder protection. DELTAPREF stands for the differential tax preferences between minor shareholders and the largest shareholder. DIVYIELD stands for the dividend yield of the firm. The anti-self-dealing index serves as proxy for the degree of shareholder protection in the respective countries. The dark line marks the predicted values of the marginal effect of DELTAPREF. The light grey area marks the 95 percent confidence interval of the marginal effect. A detailed definition of all variables can be found in Table Appendix T.1.
Source: Own work based on *Kaserer et al. (2012a).*

In sum, the results suggest that the difference between the tax preferences of large and small investors is relevant for the payout policy. Large shareholders tend to define a payout policy that rather serves their benefits instead of the benefits of the minority investors. This sheds light on a particular form of expropriation. While the governance literature documents many different direct forms of expropriation such as excessive salaries of the management or tunneling by dominant blockholders, the ignorance of outside shareholders' tax preferences might represent a more indirect form of expropriation. This kind of expropriation results from the tax cost of a payout policy that is not in line with the outside shareholders' preferences. As already reported in another context, the legal protection of minority shareholders has the power to limit this behavior.

7.3 Robustness tests

To ensure the robustness of the main regression results, several tests are conducted.

7.3.1 Tax preferences and payout policy: The problem of endogeneity

Thus far, the results reveal that firms adjust their payout behavior to the tax induced preferences of the shareholders, primarily to the largest shareholder. This view implies that when tax laws are reformed and preferences change, also the payout policy should adapt accordingly. Yet, this view has to be interpreted with care. Recent evidence by *Blouin et al. (2011)* and *Desai and Jin (2011)* casts some doubt on the widespread view that the shareholders' tax preferences have an unidirectional impact on payout policy. The effect could also be vice versa since it can be argued that new tax rules might simultaneously induce share-

holders to rebalance their portfolios in order to maximize after-tax returns. In the end this leads to a change of investor composition on the firm level. To separate firm responses to tax reforms from investor reactions and thus to address potential simultaneity concerns I use a simultaneous regression approach.[163] As an instrument for the largest shareholders tax preferences I use the strictly exogenous variable TAXPREFMINOR.

Table 7.10 reports the results of a three stage least squares regression. As column 1 reports, the impact of the tax preference variable TAXPREFLARGEST on the dividend yield remains positive and significant. But it can also be observed in column 2 that the tax preference measure of the largest shareholders is positively affected by the payout policy. This indicates that the largest shareholders rebalance their portfolios in a way that is consistent with value maximization. As such, this finding is consistent with results presented by *Blouin et al. (2011)* that document simultaneous changes of shareholder composition and payout policy around the U.S. Jobs and Growth Tax Relief Reconciliation Act of 2003.

Note that this result is robust even when I opt for DIVRATIO (see column 3 and 4) or TOTALPAYOUTRATIO (see column 9 and 10) as dependent variable. I also test the impact of the largest shareholder's preferences on two pure share repurchase measures, i.e.REPYIELD and REPRATIO. As expected, the coefficients of TAXPREFLARGEST are negative and highly significant, i.e. the amount spent on share repurchases decreases when the preferences for dividends increase. As observed for dividend variables, the tax preference measure is also affected by the share repurchase variables. Overall, this test underlines that the results are robust against simultaneity concerns.

[163] For a detailed discussion of the characteristics as well as the pros and cons of the simultaneous equation approach see Section 6.2.2.

Table 7.10 Robustness Test: Simultaneous equation approach

Column No.	1	2	3	4	5	6	7	8	9	10
Method	3 stage least squares regression									
Dependent variable	DIVYIELD	TAXPREFLARGEST	DIVRATIO	TAXPREFLARGEST	REPYIELD	TAXPREFLARGEST	REPRATIO	TAXPREFLARGEST	TOTALPAYOUTRATIO	TAXPREFLARGEST
TAXPREFLARGEST	0.014***		0.010***		-0.005***		-0.006***		0.148***	
	[14.36]		[9.86]		[-5.66]		[-6.41]		[9.56]	
TAXPREFMINOR		0.515***		0.519***		0.534***		0.535***		0.511***
		[59.39]		[60.07]		[56.26]		[56.49]		[45.64]
SIZE	0.002***	0.002***	0.001***	0.003***	0.001***	0.003***	0.001***	0.003***	-0.009***	0.002***
	[15.55]	[3.65]	[6.22]	[4.38]	[12.22]	[3.58]	[11.68]	[3.63]	[-5.46]	[2.76]
GROWTH	-0.001***	0.001	-0.001***	0.001	0.000	0.000	-0.000*	0.000	-0.010*	0.001
	[-6.87]	[0.89]	[-6.40]	[0.74]	[-1.61]	[-0.03]	[-1.81]	[0.04]	[-1.74]	[0.22]
ROA	0.025***	-0.030***	0.043***	-0.031***	0.003***	-0.023**	0.009***	-0.020**	0.193***	-0.139***
	[20.69]	[-3.66]	[34.45]	[-3.69]	[3.05]	[-2.48]	[7.77]	[-2.18]	[4.67]	[-5.93]
LEVERAGE	-0.011***	-0.032***	-0.034***	-0.028***	-0.005***	-0.026***	-0.010***	-0.027***	0.103***	-0.024**
	[-9.33]	[-4.30]	[-28.17]	[-3.62]	[-5.00]	[-3.17]	[-8.80]	[-3.27]	[5.43]	[-2.27]
MTB	-0.000***	0.001***	0.001***	0.000	0.000	0.001*	0.001***	0.001**	-0.002**	0.002***
	[-6.26]	[2.97]	[25.04]	[1.21]	[-0.44]	[1.77]	[11.85]	[2.05]	[-2.10]	[3.33]
LIFECYCLE	0.000***	-0.001**	0.001***	-0.001**	0.000	-0.001	0.000**	-0.001	0.015***	0.003
	[2.94]	[-2.01]	[10.06]	[-2.33]	[0.44]	[-1.33]	[2.56]	[-1.28]	[4.80]	[1.48]
RISK	-0.053***	0.029*	-0.049***	0.017	-0.003	0.015	-0.005**	0.015	-0.505***	0.036
	[-22.04]	[1.76]	[-19.47]	[1.05]	[-1.24]	[0.80]	[-2.12]	[0.80]	[-8.76]	[1.08]
BLOCKHOLDER20	-0.002***	0.051***	-0.001***	0.051***	-0.001***	0.050***	-0.002***	0.051***	0.030***	0.051***
	[-4.10]	[21.35]	[-3.75]	[21.32]	[-4.15]	[19.16]	[-5.22]	[19.18]	[5.10]	[15.30]
MCAPLISTED	0.002***	-0.054***	0.003***	-0.054***	0.003***	-0.048***	0.003***	-0.048***	-0.039***	-0.048***
	[5.51]	[-23.88]	[8.52]	[-23.88]	[9.98]	[-19.17]	[9.27]	[-19.07]	[-7.29]	[-16.40]
ASD	0.002**	0.101***	-0.002*	0.101***	-0.001	0.096***	-0.001	0.096***	0.064***	0.109***
	[2.01]	[14.52]	[-1.78]	[14.51]	[-1.22]	[12.67]	[-0.78]	[12.60]	[4.90]	[11.97]
DSTOCKPRICE		0.000		0.000		0.000		0.000		0.000
		[-0.40]		[-0.37]		[0.25]		[0.06]		[0.09]
DIVYIELD		0.447***								
		[8.31]								
DIVRATIO				0.270***						
				[5.87]						
REPYIELD						-0.169**				
						[-2.39]				
REPRATIO								-0.147**		
								[-2.50]		
TOTALPAYOUTRATIO										0.025***
										[4.44]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	20,062	20,062	20,082	20,082	15,382	15,382	15,395	15,395	10,190	10,190
R^2	0.185	0.419	0.197	0.418	0.037	0.471	0.070	0.471	0.081	0.476

Notes: This table reports the simultaneous regression estimates for the relationship between shareholders' tax preferences and the corporate payout policy. Different payout measures are used: As a proxy for dividend payout behavior, column 1 and 2 use DIVYIELD while column 3 and 4 employ DIVRATIO. As a proxy for share repurchase behavior, column 5 and 6 employ REPYIELD while column 7 and 8 use REPRATIO. The payout ratios in column 1 to 8 are winsorized at the one percent level on both tails of the distribution to avoid that the results are driven by the effect of outliers. Columns 9 and 10 include TOTALPAYOUTRATIO, which measures the ratio of dividends and total payouts, i.e. the sum of dividends and share repurchases. A detailed definition of all variables can be found in Table Appendix T.1. Continuous variables that are part of an interaction term are centered. Except the tax preference variables, all explanatory variables are lagged by one period. t-values are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.
Source: Own work based on *Kaserer et al. (2012a)*.

7.3.2 Estimating censored variables: Alternative regression methods

Next, I vary the regression method for the estimation of the impact of taxes on payout policy. Since the sample contains a non-negligible number of firms that do not pay any dividends, the dividend yield of these firms as measured by DIVYIELD equals zero. To account for this accumulation of values at the lower boundary of the dependent variable I follow *Desai and Jin (2011)* and use a tobit regression model in Model 1–4.[164] Also similar to *Desai and Jin* I employ a Fama-MacBeth approach in Model 5 and 6 as an alternative to control for potential cross-correlations in residuals. As Table 7.11 shows, the sign and significance of the variables of interest do not change. Consequently, the main regression results are robust against the regression method.

[164] For a more detailed explanation of the benefits of the tobit regression model see Section 6.3.2.

Table 7.11 Robustness Test: Alternative regression methods

Model No.	1	2	3	4	5	6
Dependent Variable	DIVYIELD					
Method	Tobit regression				Fama-MacBeth regression	
SE	Clustered by firm					
TAXPREFLARGEST	0.015***	0.028***	0.028***	0.026***	0.011***	0.020***
	[7.92]	[11.53]	[11.49]	[11.35]	[6.89]	[7.28]
DELTAPREF		0.030***	0.038***	0.023***		0.021***
		[8.81]	[10.03]	[6.04]		[5.88]
ASD	0.007***	-0.001	-0.003		0.004**	-0.003
	[4.02]	[-0.55]	[-1.46]		[2.63]	[-1.30]
HIGHASD				0.000		
				[0.34]		
DELTAPREF * ASD			0.059***			
			[4.46]			
DELTAPREF * HIGHASD				0.014**		
				[2.38]		
SIZE	0.003***	0.003***	0.003***	0.003***	0.001***	0.001***
	[11.94]	[12.45]	[12.56]	[12.58]	[8.08]	[8.46]
GROWTH	-0.006***	-0.006***	-0.006***	-0.006***	-0.001***	-0.002***
	[-8.44]	[-8.52]	[-8.51]	[-8.53]	[-7.67]	[-8.62]
ROA	0.116***	0.116***	0.116***	0.116***	0.024***	0.024***
	[17.58]	[17.64]	[17.67]	[17.68]	[13.49]	[13.07]
LEVERAGE	-0.009***	-0.009***	-0.009***	-0.009***	-0.012***	-0.012***
	[-3.43]	[-3.70]	[-3.70]	[-3.71]	[-8.05]	[-8.22]
MTB	-0.001***	-0.001***	-0.001***	-0.001***	-0.000**	-0.000**
	[-9.44]	[-9.66]	[-9.69]	[-9.66]	[-2.66]	[-2.92]
LIFECYCLE	0.004***	0.004***	0.004***	0.004***	0.000**	0.000*
	[4.25]	[4.14]	[4.13]	[4.13]	[2.58]	[1.98]
RISK	-0.128***	-0.127***	-0.127***	-0.127***	-0.053***	-0.052***
	[-17.56]	[-17.57]	[-17.56]	[-17.53]	[-17.43]	[-18.93]
BLOCKHOLDER20	-0.001	0.000	0.000	0.000	-0.002***	-0.001**
	[-1.08]	[-0.01]	[0.20]	[0.14]	[-3.56]	[-2.74]
MCAPLISTED	0.002***	0.002***	0.002***	0.002***	0.001**	0.001**
	[3.32]	[3.15]	[2.93]	[2.92]	[2.70]	[2.92]
Year effects	Yes	Yes	Yes	Yes	No	No
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	21,058	21,058	21,058	21,058	21,058	21,058
Firms	3,689	3,689	3,689	3,689	3,689	3,689

Notes: This table reports the regression estimates for the impact of the largest shareholder's tax preference on the corporate dividend yield. To test the robustness of previous results, alternative regression methods are employed. Columns 1 to 4 are pooled tobit regressions with year fixed effects and standard errors clustered by firm. Columns 5 and 6 are Fama-MacBeth regressions *Fama and MacBeth (1973)*. A detailed definition of all variables can be found in Table Appendix T.1. Continuous variables that are part of an interaction term are centered. Except the tax preference variables, all explanatory variables are lagged by one period. t-values are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Kaserer et al. (2012a)*.

7.3.3 Standard error estimation in panel data sets: Alternative methods

In my main regressions I use two different methods to estimate standard errors. First, I use a pooled OLS regression with year fixed effects and standard errors clustered by firm. Second, I employ a firm and year fixed effects panel regression model with heteroscedasticity-robust standard errors. To ensure that my results are robust against alternative standard error estimation methods, I make some additional tests. The motivation for these tests has been already explained in detail in Section 6.3.3.

In Panel A of Table 7.12 I vary the granularity of the cluster and use a pooled OLS model that clusters standard errors by country instead of firm.

In Panel B I present estimations with a two dimensional clustering of standard errors. As I noted above I include year dummies in my regressions and thus implicitly assume year fixed effects. However it might be the case that the time effects are not necessarily fixed. Under this condition the complete removal of the time-series dependence fails which results in biased standard errors - even when I use standard errors clustered by firm *(cf. Petersen, 2009)*. As a remedy to this problem *Petersen (2009); Cameron et al. (2006); Thompson (2010)* propose standard errors clustered by two dimensions. Consequently, I use standard errors clustered by time and firm which enable me to account both for correlation between firms in a given year and across years for a given firm. Similarly I cluster on the two dimensions of country and time in Panel C.

Finally I run Fama-MacBeth regressions in Panel D. This procedure estimates a separate cross sectional regression for each of the ten sample years and reports the average of the resulting coefficients *(cf. Fama and MacBeth, 1973)*. This way they allow to consider potential cross correlations in residuals. The use of Fama-MacBeth regressions is an option in regressions that do not contain a firm effect,

because otherwise the standard errors are biased. Even though I am convinced that the regressions are affected by a firm effect I use Fama-MacBeth regressions as an additional test. Altogether, the table shows that the results remain robust in spite of different variations of the standard error estimation method.

In sum, Table 7.12 shows that the main regression results are robust against the specification of the standard error estimation method. Interestingly, the results of the robustness tests have higher standard errors and thus lower t-statistics compared to those in the main regression results. This suggests that the dependencies addressed in these robustness checks matter. For example the t-statistics in Model 2 of Panel C are considerably lower than the t-statistics in Model 4 of Table 7.8. This indicates that the data is probably affected by a firm and a time effect.

Table 7.12 Robustness Test: Alternative standard error estimation methods

Panel A: Standard errors clustered by country				
Model No.	1	2	3	4
Dependent Variable	DIVYIELD			
Method	Pooled OLS			
TAXPREFLARGEST	0.010**	0.019***	0.019***	0.016***
	[2.79]	[3.32]	[3.42]	[5.14]
DELTAPREF		0.022**	0.028***	0.012**
		[2.68]	[3.43]	[2.88]
ASD	0.003	-0.003	-0.004	
	[1.03]	[-0.71]	[-1.05]	
HIGHASD				0.000
				[0.24]
DELTAPREF * ASD			0.043***	
			[4.86]	
DELTAPREF * HIGHASD				0.017*
				[2.09]
SIZE	0.001***	0.001***	0.001***	0.001***
	[5.54]	[6.47]	[6.57]	[6.86]
GROWTH	-0.001***	-0.001***	-0.001***	-0.001***
	[-8.15]	[-9.11]	[-9.16]	[-9.19]
ROA	0.024***	0.024***	0.024***	0.024***
	[5.28]	[5.38]	[5.31]	[5.27]
LEVERAGE	-0.011***	-0.012***	-0.012***	-0.012***
	[-4.76]	[-4.97]	[-4.90]	[-4.91]
MTB	-0.000***	-0.000***	-0.000***	-0.000***
	[-7.61]	[-7.00]	[-7.28]	[-7.32]
LIFECYCLE	0.000*	0.000	0.000	0.000
	[1.78]	[0.71]	[0.71]	[0.83]
RISK	-0.055***	-0.054***	-0.054***	-0.054***
	[-13.18]	[-13.55]	[-13.60]	[-13.47]
BLOCKHOLDER20	-0.002	-0.001	-0.001	-0.001
	[-1.38]	[-0.95]	[-0.85]	[-0.74]
MCAPLISTED	0.002	0.001	0.001	0.001
	[0.90]	[1.69]	[1.68]	[1.31]
Year effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Firm Years	21,058	21,058	21,058	21,058
Firms	3,689	3,689	3,689	3,689
Adjusted R^2	0.218	0.227	0.229	0.228

Continued on next page

Table 7.12 (continued)

Panel B: Standard errors clustered by country and year				
Model No.	1	2	3	4
Dependent Variable	DIVYIELD			
Method	Pooled OLS			
TAXPREFLARGEST	0.010***	0.019***	0.019***	0.016***
	[2.89]	[3.31]	[3.40]	[4.87]
DELTAPREF		0.022***	0.028***	0.012***
		[2.71]	[3.31]	[2.98]
ASD	0.003	-0.003	-0.004	
	[1.07]	[-0.71]	[-1.02]	
HIGHASD				0.000
				[0.25]
DELTAPREF * ASD			0.043***	
			[4.05]	
DELTAPREF * HIGHASD				0.017**
				[2.23]
SIZE	0.001***	0.001***	0.001***	0.001***
	[5.12]	[5.95]	[6.03]	[6.26]
GROWTH	-0.001***	-0.001***	-0.001***	-0.001***
	[-5.96]	[-7.57]	[-8.22]	[-7.37]
ROA	0.024***	0.024***	0.024***	0.024***
	[5.29]	[5.39]	[5.34]	[5.29]
LEVERAGE	-0.011***	-0.012***	-0.012***	-0.012***
	[-4.51]	[-4.68]	[-4.67]	[-4.68]
MTB	-0.000***	-0.000***	-0.000***	-0.000***
	[-2.67]	[-2.71]	[-2.88]	[-2.67]
LIFECYCLE	0.000*	0.000	0.000	0.000
	[1.66]	[0.65]	[0.64]	[0.74]
RISK	-0.055***	-0.054***	-0.054***	-0.054***
	[-12.82]	[-13.65]	[-13.75]	[-13.42]
BLOCKHOLDER20	-0.002	-0.001	-0.001	-0.001
	[-1.34]	[-0.93]	[-0.84]	[-0.72]
MCAPLISTED	0.002	0.001	0.001	0.001
	[0.88]	[1.60]	[1.55]	[1.13]
Year effects	No	No	No	No
Industry effects	Yes	Yes	Yes	Yes
Firm Years	21,058	21,058	21,058	21,058
Firms	3,689	3,689	3,689	3,689
Adjusted R^2	0.219	0.228	0.230	0.229

Continued on next page

Table 7.12 (continued)

Panel C: Standard errors clustered by firm and year				
Model No.	1	2	3	4
Dependent Variable	DIVYIELD			
Method	Pooled OLS			
TAXPREFLARGEST	0.010***	0.019***	0.019***	0.016***
	[5.72]	[6.11]	[6.14]	[6.48]
DELTAPREF		0.022***	0.028***	0.012***
		[5.27]	[5.34]	[4.37]
ASD	0.003**	-0.003	-0.004	
	[2.09]	[-1.22]	[-1.59]	
HIGHASD				0.000
				[0.43]
DELTAPREF * ASD			0.043***	
			[3.62]	
DELTAPREF * HIGHASD				0.017***
				[3.70]
SIZE	0.001***	0.001***	0.001***	0.001***
	[7.40]	[7.87]	[7.90]	[7.87]
GROWTH	-0.001***	-0.001***	-0.001***	-0.001***
	[-8.64]	[-9.40]	[-9.23]	[-9.17]
ROA	0.024***	0.024***	0.024***	0.024***
	[11.44]	[11.46]	[11.36]	[11.35]
LEVERAGE	-0.011***	-0.012***	-0.012***	-0.012***
	[-5.77]	[-6.04]	[-6.06]	[-6.10]
MTB	-0.000***	-0.000***	-0.000***	-0.000***
	[-2.58]	[-2.91]	[-2.92]	[-2.82]
LIFECYCLE	0.000**	0.000	0.000	0.000
	[1.99]	[1.01]	[1.01]	[1.15]
RISK	-0.055***	-0.054***	-0.054***	-0.054***
	[-17.29]	[-18.81]	[-18.87]	[-18.30]
BLOCKHOLDER20	-0.002**	-0.001*	-0.001	-0.001
	[-2.52]	[-1.71]	[-1.55]	[-1.31]
MCAPLISTED	0.002**	0.001**	0.001**	0.001
	[2.49]	[2.53]	[2.44]	[1.57]
Year effects	No	No	No	No
Industry effects	Yes	Yes	Yes	Yes
Firm Years	21,058	21,058	21,058	21,058
Firms	3,689	3,689	3,689	3,689
Adjusted R^2	0.219	0.228	0.230	0.229

Notes: This table reports the regression estimates for the impact of shareholders' tax preference on the corporate payouts. Columns 1 to 4 are pooled OLS regressions. To test the robustness of previous results, alternative standard error estimation methods are employed. In Panel A standard errors are clustered by country. While in Panel B standard errors are clustered along the two dimensions of country and year, estimates in Panel C are based on the two clusters of firm and year. *Industry (year) effects* indicates the use of industry (year) fixed effects using industry (year) indicator variables. A detailed definition of all variables can be found in Table Appendix T.1. Continuous variables that are part of an interaction term are centered. Except the tax preference variables, all explanatory variables are lagged by one period. t-values are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Kaserer et al. (2012*a*).*

7.3.4 Alternative payout definitions and the role of share repurchases

In my main regressions I follow previous studies such as *Desai and Jin (2011)* and use DIVYIELD as dependent payout variable. For robustness purposes I alternate the dependent variable and use DIVRATIO and TOTALPAYOUTRATIO.

While DIVYIELD standardizes dividends by a firm's market capitalization, DIVRATIO sets a firm's cash dividend payout in relation to its net total assets. With DIVRATIO it can be avoided that the findings are potentially driven by a firm's value changes.

For the estimation of DIVRATIO I rely both on a pooled OLS model and a firm fixed effects panel model. The regression results are presented in Panel A of Table 7.13. As can be seen, the sign and significance of the variables of interest are consistent with the main regression results – independent of the regression method. Thus, it can be concluded that the main regression results are robust against the denominator of the dividend payouts.[165]

TOTALPAYOUTRATIO measures the percentage share of dividends in the total payouts of a firm. This allows to consider explicitly the role of share repurchases. The downside of pure dividend payout measures is that they neglect the importance of share repurchases as an alternative payout channel. Since TOTALPAYOUTRATIO is naturally censored between 0 and 1, I opt for a tobit regression model that accounts for this characteristic.

As Panel B of Table 7.13 shows, increasing tax preferences for dividends lead to a larger share of cash dividends in a firm's total payouts. Thus, the sign and significance of the tax variables and the interaction terms remain stable even under consideration of share repurchases.

[165] In the robustness section, DIVYIELD is estimated using a tobit regression model. In unreported robustness tests, I also use a tobit regression model to estimate DIVRATIO. However, this does neither yield inconsistent results.

Overall, the results of Table 7.13 show that the main regression results hold independent of the specification of the dependent variable.

Table 7.13 Robustness Test: Alternative dependent variables

Panel A: DivRatio								
Model No.	1	2	3	4	5	6	7	8
Method	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)
SE	Clustered by firm	Robust	Clustered by firm	Robust	Clustered by firm	Robust	Clustered by firm	Robust
TaxPrefLargest	0.010***	0.004***	0.019***	0.007***	0.019***	0.007***	0.012***	0.008***
	[5.62]	[2.62]	[8.44]	[3.42]	[8.46]	[2.99]	[6.05]	[3.59]
DeltaPref			0.023***	0.008**	0.027***	0.009**	0.011***	0.009**
			[7.18]	[2.03]	[7.69]	[2.50]	[3.64]	[2.41]
Asd	0.000		-0.007***		-0.008***			
	[-0.16]		[-3.53]		[-3.95]			
HighAsd							0.001	
							[1.08]	
DeltaPref * Asd					0.025***	0.026***		
					[2.67]	[2.85]		
DeltaPref * HighAsd							0.012**	-0.003
							[2.17]	[-0.54]
Size	0.001***	0.000	0.001***	0.000	0.001***	0.000	0.001***	0.000
	[3.27]	[0.97]	[3.68]	[0.93]	[3.70]	[0.93]	[4.12]	[0.92]
Growth	-0.002***	-0.001***	-0.002***	-0.001***	-0.002***	-0.001***	-0.002***	-0.001***
	[-7.11]	[-3.84]	[-7.31]	[-3.91]	[-7.31]	[-3.91]	[-7.42]	[-3.91]
Roa	0.046***	0.016***	0.046***	0.017***	0.046***	0.017***	0.046***	0.017***
	[18.65]	[10.90]	[18.82]	[10.98]	[18.78]	[11.00]	[18.65]	[10.98]
Leverage	-0.035***	-0.038***	-0.035***	-0.038***	-0.035***	-0.038***	-0.035***	-0.038***
	[-16.42]	[-15.32]	[-16.71]	[-15.32]	[-16.70]	[-15.36]	[-16.67]	[-15.33]
Mtb	0.001***	0.000***	0.001***	0.000***	0.001***	0.000***	0.001***	0.000***
	[9.53]	[6.45]	[9.43]	[6.45]	[9.40]	[6.42]	[9.44]	[6.45]
LifeCycle	0.001***	0.000	0.001***	0.000	0.001***	0.000	0.001***	0.000
	[7.21]	[0.93]	[6.64]	[0.95]	[6.66]	[0.92]	[6.89]	[0.96]
Risk	-0.049***	-0.014***	-0.049***	-0.014***	-0.048***	-0.013***	-0.048***	-0.014***
	[-16.16]	[-5.78]	[-16.04]	[-5.72]	[-15.98]	[-5.65]	[-15.84]	[-5.78]
Blockholder20	-0.002***	-0.001	-0.001*	-0.001	-0.001*	-0.001	-0.001	-0.001
	[-2.87]	[-0.97]	[-1.90]	[-0.95]	[-1.80]	[-0.92]	[-1.10]	[-0.94]
McapListed	0.003***	0.002	0.003***	0.001	0.003***	0.001	0.002***	0.001
	[4.74]	[1.30]	[4.47]	[0.78]	[4.40]	[0.59]	[3.36]	[0.85]
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	No	Yes	No	Yes	No	Yes	No
Firm Years	21,058	21,058	21,058	21,058	21,058	21,058	21,058	21,058
Firms	3,689	3,689	3,689	3,689	3,689	3,689	3,689	3,689
Adjusted R^2	0.225	0.076	0.233	0.077	0.233	0.077	0.232	0.077

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Table 7.13 (continued)

Panel B: TOTALPAYOUTRATIO				
Model No.	1	2	3	4
Method	Tobit regression			
SE	Clustered by firm			
TAXPREFLARGEST	0.397***	0.541***	0.544***	0.683***
	[5.09]	[5.83]	[5.85]	[7.24]
DELTAPREF		0.363***	0.487***	0.329**
		[2.85]	[3.54]	[2.08]
ASD	0.314***	0.214***	0.185***	
	[4.84]	[3.01]	[2.59]	
HIGHASD				0.020
				[0.52]
DELTAPREF * ASD			0.914**	
			[1.98]	
DELTAPREF * HIGHASD				0.478**
				[2.04]
SIZE	-0.037***	-0.036***	-0.036***	-0.038***
	[-4.35]	[-4.31]	[-4.23]	[-4.59]
GROWTH	-0.033	-0.034	-0.034	-0.034
	[-1.46]	[-1.50]	[-1.49]	[-1.50]
ROA	0.778***	0.766***	0.769***	0.772***
	[4.09]	[4.04]	[4.06]	[4.07]
LEVERAGE	0.427***	0.424***	0.423***	0.415***
	[4.24]	[4.24]	[4.24]	[4.19]
MTB	-0.009	-0.009	-0.009	-0.009
	[-1.57]	[-1.60]	[-1.62]	[-1.61]
LIFECYCLE	0.063***	0.062***	0.061***	0.060***
	[3.64]	[3.62]	[3.58]	[3.51]
RISK	-1.520***	-1.528***	-1.524***	-1.513***
	[-5.86]	[-5.91]	[-5.90]	[-5.83]
BLOCKHOLDER20	0.168***	0.179***	0.181***	0.162***
	[5.59]	[5.94]	[6.02]	[5.51]
MCAPLISTED	-0.098***	-0.093***	-0.096***	-0.078***
	[-3.52]	[-3.42]	[-3.49]	[-2.84]
Year effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Firm Years	11,728	11,728	11,728	11,728
Firms	2,361	2,361	2,361	2,361

Notes: This table reports the regression estimates for the impact of shareholders' tax preference on the corporate payouts. To test the robustness of previous results, two alternative dependent variables are employed. In Panel A the dependent variable is DIVRATIO. As indicated in the table, the estimates are based on two different regression methods. First, a pooled OLS regression with year fixed effects and standard errors clustered by firm is employed. Second, the estimates are based on year and firm fixed effects panel regressions with heteroscedasticity-robust standard errors. The dependent variable in Panel B is TOTALPAYOUTRATIO. The estimates in Panel B are based on a pooled tobit regression with industry fixed effects and standard errors clustered by firm. A detailed definition of all variables can be found in Table Appendix T.1. Continuous variables that are part of an interaction term are centered. Except the tax preference variables, all explanatory variables are lagged by one period. t-values are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Kaserer et al. (2012a)*.

7.3.5 The impact of other firm and country-specific control variables

In the main regression I already use a broad variety of firm and country-specific control variables. For robustness purposes I include additional control variables in the regressions. As past studies show, these variables might affect the firms' payout policy.[166] This test is designed to ensure that the results are not affected by the erroneous omission of important control variables.[167]

First, I augment the list of firm-specific variables by INTACC to control for the impact of the accounting standard of the firm. INTACC indicates whether a firm follows international accounting standards or not. The inclusion of an accounting indicator is reasonable in light of the considerable heterogeneity of accounting standards that is covered by the sample. This is due first of all to the cross country variation of accounting standards and second the switch from national to international standards.[168]

Fama and French (2001) find that the characteristics of newly listed firms correspond to the characteristics non-dividend-paying firms. Consequently I introduce NEWLISTING that equals 1 if the year of observation matches the year of the initial public offering and zero otherwise

Next, I consider the potential impact of new listings through the dummy variable NEWLISTING. This step is motivated by *Fama and French (2001)* who find that the characteristics of newly listed firms correspond to the characteristics non-dividend-paying firms. Furthermore I include proxies for R&D (RNDDUMMY and RNDRATIO) and capital expenditures (CAPEX) to account for the

[166] For a motivation of these variables and relating empirical evidence see Section 7.1.3.

[167] Note that to control for unobserved and time-invariant firm heterogeneities I already use panel regression with firm fixed effects in the main regression section.

[168] Driven by initiatives of the European Union, international accounting standards became mandatory for all member states from 2005 on *(e.g. Daske, Hail, Leuz and Verdi, 2008)*. Two important initiatives are the Regulation (EC) No 1606/2002 of the European Parliament and the Regulation of the Council of 19 July 2002 on the application of international accounting standards.

investment behavior of a firm. This way I am able draw a more granular picture of a firm's growth opportunities, which have proven to affect payout policy *(e.g. La Porta, Lopez-de Silanes, Shleifer and Vishny, 2000*b*; Denis and Osobov, 2008; Fama and French, 2001)*.

I also include the dividend reporting frequency (DIVREPFREQ), measured in times per year, as the degree of disclosure may affect the payout policy *(cf. Wood, 2001; von Eije and Megginson, 2008)*. I expect a negative impact of DIVREPFREQ as higher standards of financial disclosure should reduce the necessity for payouts. Moreover, I am interested in the impact of liquidity (CASH) defined as the ratio of cash and short-term investments divided by total assets *(e.g. Dittmar, 2000; Moser, 2007; Skinner, 2008; Stephens and Weisbach, 1998)*. I expect a positive impact of liquidity.

Finally, I follow *Lie and Lie (1999)* and *Moser (2007)* and measure the average monthly stock price appreciation over the past 2 years (DSTOCKPRICE). Their results suggest that stock price appreciation affects corporate payout policy in the form that firms with higher price appreciation in the previous year have a higher propensity to payout funds through dividends.

I also control whether the inclusion of additional country-specific governance variables has an impact on the results. The first variable is the creditor rights index CRI which measures the legal protection of debt holders. While previous studies concentrate on the agency costs of equity and the resulting role of shareholder protection rules for payout policy, *Brockman and Unlu (2009)* highlight the importance of the agency costs of debt. They show that the creditor rights index might explain payout policies that have been previously attributed solely to the level of shareholder protection.

Most importantly, the results presented in Table 7.14 show, the inclusion of additional variables does not change the main regression results. Nevertheless, the inclusion of additional variables yields some interesting results. Consistent

with the expectations, the impact of NEWLISTING is negative and significant. Also in line with the expectations, capital expenditures turn out to have a negative impact on the dividend yield. However, this effect is significant only in the pooled OLS models. Interestingly, the coefficients of INTACC are negative and highly significant across all models. A potential explanation for this finding is that the high quality of international accounting standards reduces the necessity for payouts.

Table 7.14 Robustness Test: The impact of other firm and country-specific control variables

Model No.	1	2	3	4	5	6	7	8
Dependent Variable	DIVYIELD							
Method	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)
SE	Clustered by firm	Robust	Clustered by firm	Robust	Clustered by firm	Robust	Clustered by firm	Robust
TAXPREFLARGEST	0.011***	0.003**	0.020***	0.010***	0.020***	0.009***	0.014***	0.009***
	[7.39]	[2.28]	[10.75]	[4.46]	[10.82]	[3.91]	[8.33]	[3.98]
DELTAPREF			0.022***	0.014***	0.028***	0.016***	0.008***	0.008**
			[8.35]	[4.22]	[9.52]	[4.86]	[3.25]	[2.26]
ASD	-0.003		-0.010***		-0.010***			
	[-1.64]		[-5.43]		[-5.72]			
HIGHASD							0.000	
							[0.19]	
DELTAPREF * ASD					0.042***	0.040***		
					[4.92]	[4.13]		
DELTAPREF * HIGHASD							0.021***	0.014***
							[4.51]	[2.85]
SIZE	0.001***	0.002***	0.001***	0.002***	0.001***	0.002***	0.001***	0.002***
	[7.83]	[3.99]	[8.08]	[3.90]	[8.18]	[3.90]	[8.50]	[3.94]
GROWTH	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	[-7.61]	[-3.80]	[-7.78]	[-3.91]	[-7.77]	[-3.91]	[-7.87]	[-3.89]
ROA	0.020***	0.012***	0.020***	0.012***	0.020***	0.012***	0.020***	0.012***
	[14.37]	[9.60]	[14.53]	[9.72]	[14.46]	[9.78]	[14.29]	[9.69]
LEVERAGE	-0.012***	-0.019***	-0.012***	-0.018***	-0.012***	-0.019***	-0.012***	-0.019***
	[-6.44]	[-9.55]	[-6.65]	[-9.51]	[-6.67]	[-9.55]	[-6.54]	[-9.57]
MTB	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	[-8.40]	[-8.05]	[-8.79]	[-8.03]	[-8.90]	[-8.03]	[-8.81]	[-8.02]
LIFECYCLE	0.000*	-0.000***	0.000	-0.000***	0.000	-0.000***	0.000	-0.000***
	[1.77]	[-5.56]	[0.91]	[-5.53]	[0.86]	[-5.61]	[1.13]	[-5.57]
RISK	-0.056***	-0.023***	-0.056***	-0.023***	-0.055***	-0.023***	-0.055***	-0.023***
	[-19.97]	[-9.72]	[-19.94]	[-9.68]	[-19.86]	[-9.60]	[-19.78]	[-9.61]
CASH	0.002	0.006***	0.002	0.006***	0.002	0.006***	0.002	0.006***
	[0.99]	[3.79]	[1.13]	[3.69]	[1.16]	[3.71]	[1.25]	[3.75]
DSTOCKPRICE	0.000***	0.000	0.000***	0.000	0.000***	0.000	0.000***	0.000
	[4.43]	[0.54]	[4.52]	[0.68]	[4.49]	[0.62]	[4.54]	[0.68]
BLOCKHOLDER20	-0.001**	0.000	-0.001	0.000	-0.001	0.000	-0.001	0.000
	[-2.45]	[-0.78]	[-1.15]	[-0.74]	[-1.13]	[-0.69]	[-1.12]	[-0.77]

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Table 7.14 (continued)

Model No.	1	2	3	4	5	6	7	8
Dependent Variable	DIVYIELD							
Method	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)
SE	Clustered by firm	Robust	Clustered by firm	Robust	Clustered by firm	Robust	Clustered by firm	Robust
DIVREPFREQ	0.005***	0.000	0.005***	0.000	0.005***	0.000	0.004***	0.000
	[8.02]	[-0.11]	[8.22]	[-0.17]	[8.27]	[-0.02]	[7.43]	[-0.06]
INTACC	-0.003***	-0.002***	-0.002***	-0.001***	-0.002***	-0.001***	-0.001**	-0.001***
	[-4.86]	[-3.91]	[-3.43]	[-3.06]	[-3.28]	[-2.95]	[-2.28]	[-2.89]
RNDDUMMY	0.000	-0.001	0.000	-0.001	0.000	-0.001*	0.000	-0.001
	[-0.35]	[-1.50]	[-0.41]	[-1.52]	[-0.68]	[-1.73]	[-0.74]	[-1.53]
RNDRATIO	-0.003*	0.003**	-0.003**	0.003*	-0.003**	0.003*	-0.004**	0.003*
	[-1.85]	[1.98]	[-2.09]	[1.91]	[-2.00]	[1.93]	[-2.18]	[1.89]
CAPEX	-0.002***	-0.001	-0.003***	-0.001	-0.003***	-0.001	-0.003***	-0.001
	[-5.25]	[-1.49]	[-5.52]	[-1.51]	[-5.57]	[-1.49]	[-5.49]	[-1.54]
NEWLISTING	-0.004***	-0.003***	-0.004***	-0.003***	-0.004***	-0.003***	-0.004***	-0.003***
	[-6.68]	[-5.40]	[-6.86]	[-5.56]	[-6.70]	[-5.54]	[-6.61]	[-5.49]
CRI	0.000		0.000		0.000		-0.001***	
	[-0.48]		[0.66]		[-0.23]		[-2.64]	
MCAPLISTED	0.001**	0.002**	0.001**	0.001	0.001*	0.001	0.000	0.001
	[2.13]	[2.10]	[1.98]	[0.97]	[1.73]	[0.63]	[0.08]	[0.64]
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	No	Yes	No	Yes	No	Yes	No
Firm Years	20,803	20,803	20,803	20,803	20,803	20,803	20,803	20,803
Firms	3,667	3,667	3,667	3,667	3,667	3,667	3,667	3,667
Adjusted R^2	0.231	0.051	0.241	0.052	0.243	0.054	0.240	0.053

Notes: This table reports the regression estimates for the impact of shareholders' tax preference on the corporate payouts. Dividend payout is measured by DIVYIELD. To test the robustness of previous results, additional control variables are included in the regression. As indicated in the table, the estimates are based on two different regression methods. First, a pooled OLS regression with year fixed effects and standard errors clustered by firm is employed. Second, the estimates are based on year and firm fixed effects panel regressions with heteroscedasticity-robust standard errors. A detailed definition of all variables can be found in Table Appendix T.1. Continuous variables that are part of an interaction term are centered. Except the tax preference variables, all explanatory variables are lagged by one period. t-values are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Kaserer et al. (2012a)*.

7.3.6 Shareholder protection measures: Alternatives to the anti-self-dealing index

Another legitimate concern about the main regression results refers to the choice of the shareholder regulation proxy. To investigate the role that agency conflicts play in the relationship between tax preferences and payout policy I use the anti-self-dealing index as the main governance variable. Another index that is commonly used in corporate governance research is the anti-director-right index as originally presented by *La Porta et al. (1998)* and then in revised form by *Djankov et al. (2008)*. While the RADRI measures more generally the level of legal protection of minority shareholders against the interests of corporate insiders, the ASD focuses on a concrete self-dealing transaction.

Djankov et al. (2008) compare the anti-director rights index and the anti-self-dealing index and state that the latter is more theoretically grounded and addresses the widespread problem of corporate self-dealing respectively tunneling more directly.[169] This explains why I opt for the anti-self-dealing index as the primary measure of shareholder protection. However, to ensure that the results are not driven by the choice of the shareholder protection variable, the RADRI is used in an additional robustness test.

As the results presented in Table 7.15 show, the sign and significance of the RADRI correspond with those of the ASD. Thus, the main regression results are robust against the choice of the shareholder protection measure.

Based on Table 7.15, the impact of DELTAPREF on the dividend yield in dependence of the degree of shareholder protection is illustrated in Figure 7.4. As the coefficients show the effect of DELTAPREF is significantly higher in high protection countries than in low protection countries. The coefficient in high protection countries is approximately four times as large as in low protection countries.

[169] For a detailed description as well as a comparison of the two indices see Section 6.1.3.

Table 7.15 Robustness Test: Alternative shareholder protection measure

Model No.	1	2	3	4	5	6	7	8
Dependent Variable	DivYield							
Method	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)
SE	Clustered by firm	Robust	Clustered by firm	Robust	Clustered by firm	Robust	Clustered by firm	Robust
TaxPrefLargest	0.011***	0.003**	0.018***	0.010***	0.018***	0.010***	0.020***	0.010***
	[8.61]	[2.18]	[11.54]	[4.67]	[11.56]	[4.47]	[12.64]	[4.40]
DeltaPref			0.020***	0.015***	0.023***	0.017***	0.021***	0.012***
			[8.54]	[4.62]	[9.44]	[5.16]	[8.30]	[3.41]
rAdri	0.001*		0.000		-0.001			
	[1.92]		[-0.80]		[-1.52]			
HighAdri							-0.003***	
							[-4.15]	
DeltaPref * rAdri					0.009***	0.009***		
					[3.85]	[3.06]		
DeltaPref * HighAdri							0.015***	0.015**
							[2.86]	[2.55]
Size	0.001***	0.002***	0.001***	0.002***	0.001***	0.002***	0.001***	0.002***
	[9.06]	[3.76]	[9.75]	[3.69]	[9.86]	[3.68]	[9.70]	[3.69]
Growth	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	[-8.40]	[-4.23]	[-8.71]	[-4.34]	[-8.74]	[-4.34]	[-8.57]	[-4.33]
Roa	0.024***	0.012***	0.024***	0.012***	0.024***	0.012***	0.024***	0.012***
	[17.29]	[10.12]	[17.55]	[10.25]	[17.57]	[10.28]	[17.60]	[10.27]
Leverage	-0.011***	-0.019***	-0.012***	-0.019***	-0.012***	-0.019***	-0.012***	-0.019***
	[-6.73]	[-9.79]	[-6.99]	[-9.73]	[-7.13]	[-9.72]	[-7.15]	[-9.76]
Mtb	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	[-8.08]	[-8.62]	[-8.46]	[-8.57]	[-8.52]	[-8.58]	[-8.44]	[-8.56]
LifeCycle	0.000*	-0.000***	0.000	-0.000***	0.000	-0.000***	0.000	-0.000***
	[1.80]	[-5.68]	[1.07]	[-5.65]	[1.04]	[-5.68]	[0.91]	[-5.68]
Risk	-0.055***	-0.022***	-0.054***	-0.022***	-0.054***	-0.022***	-0.055***	-0.022***
	[-20.16]	[-9.76]	[-19.92]	[-9.68]	[-19.79]	[-9.66]	[-19.93]	[-9.64]
Blockholder20	-0.002***	0.000	-0.001	0.000	-0.001	0.000	-0.001**	0.000
	[-3.13]	[-0.90]	[-1.62]	[-0.85]	[-1.31]	[-0.77]	[-2.08]	[-0.80]
McapListed	0.002***	0.003**	0.001**	0.001	0.001**	0.001	0.001***	0.001
	[3.66]	[2.32]	[2.49]	[1.09]	[2.44]	[0.89]	[3.28]	[1.02]
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	No	Yes	No	Yes	No	Yes	No
Firm Years	21,058	21,058	21,058	21,058	21,058	21,058	21,058	21,058
Firms	3,689	3,689	3,689	3,689	3,689	3,689	3,689	3,689
Adjusted R^2	0.217	0.046	0.226	0.049	0.228	0.050	0.228	0.049

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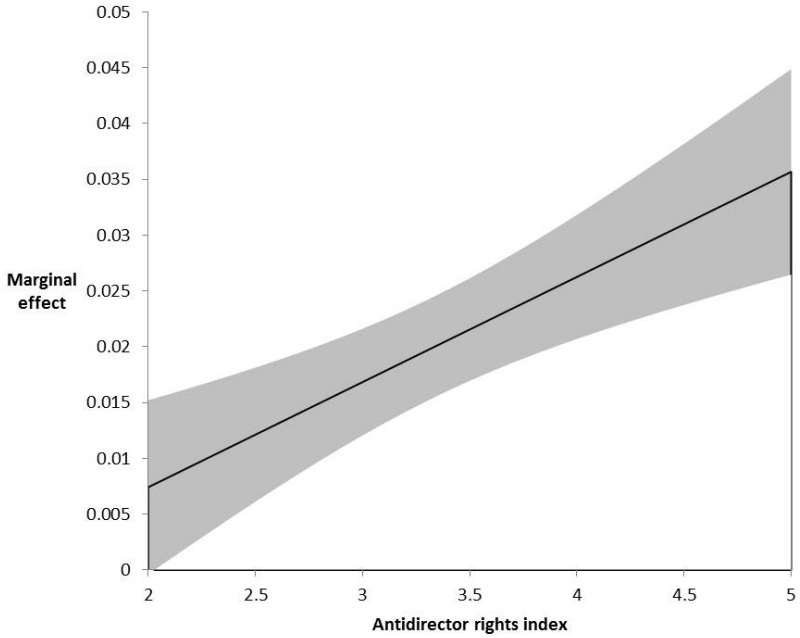
Table 7.15 (continued)

Notes: This table reports the regression estimates for the impact of shareholders' tax preference on the corporate payouts. Dividend payout is measured by DIVYIELD. To test the robustness of previous results, RADRI and HIGHADRI are used as alternative shareholder protection measures. As indicated in the table, the estimates are based on two different regression methods. First, a pooled OLS regression with year fixed effects and standard errors clustered by firm is employed. Second, the estimates are based on year and firm fixed effects panel regressions with heteroscedasticity-robust standard errors. A detailed definition of all variables can be found in Table Appendix T.1. Continuous variables that are part of an interaction term are centered. Except the tax preference variables, all explanatory variables are lagged by one period. t-values are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.
Source: Own work based on *Kaserer et al. (2012a)*.

Figure 7.4 Diverging tax preferences and payout policy: The moderating role of shareholder protection as measured by the anti-director rights index



Notes: This figure illustrates the marginal effects of DELTAPREF on the payout policy of the firm as measured by DIVYIELD at various levels of shareholder protection. DELTAPREF stands for the differential tax preferences between minor shareholders and the largest shareholder. DIVYIELD stands for the dividend yield of the firm. The anti-director rights index serves as proxy for the degree of shareholder protection in the respective countries. The dark line marks the predicted values of the marginal effect of DELTAPREF. The light grey area marks the 95 percent confidence interval of the marginal effect. A detailed definition of all variables can be found in Table Appendix T.1.

Source: Own work based on *Kaserer et al. (2012*a*)*.

7.3.7 The impact of ownership concentration

In the main regressions both the level of shareholder protection as well as the ownership concentration of a firm serve as explanatory variables. However, as Chapter 6 and empirical evidence *(e.g. La Porta, Lopez-De-Silanes, Shleifer and Vishny, 1998; La Porta, Lopez-de Silanes and Shleifer, 1999; La Porta, Lopez-De-Silanes and Shleifer, 2006; Stulz, 2005; La Porta, Lopez-De-Silanes and Shleifer, 2008; Djankov, La Porta, Lopez-de Silanes and Shleifer, 2008)* prove, shareholder protection and ownership concentration are negatively associated with each other. In this context it has to be remarked that the main regressions reveal low variance inflation factors and thus suggest that multi-collinearity is not an issue in the presented results.[170] Nevertheless, to ensure that the results are not driven by the relationship between ownership concentration and minority shareholder protection, additional robustness checks are performed.

For this purpose I reestimate the main regressions for four separate subsamples. Each subsample is restricted to those firms that have at least one blockholder above a certain threshold among their investors. I use four different thresholds at the 5, 10, 20 and 30 percent level. As can be seen in Table 7.16, the number of sample firms decreases with higher thresholds. Along with this observation I notice a decrease of the t-statistics. Nevertheless the results turn out to be still significant and in line with the main regression results.

Consequently, this test shows that the observed relation between tax preferences of large and minority shareholders, the level of shareholder protection and the corporate payout policy hold irrespective of the level of ownership concentration of a firm.

[170] In the main regression results the variance inflation factors reach at the maximum values around 3.5 and thus significantly lower than 10, which scholars often define as the upper boundary of acceptable VIF values *(cf. Neter, Wasserman, Kutner and Li, 1996)*.

Table 7.16 Robustness Test: Controlling for the impact of ownership concentration

Panel A: Subsample of firms with blockholders above the threshold of 5% and 10%								
Model No.	1	2	3	4	5	6	7	8
Dependent Variable	DIVRATIO							
Method	Pooled OLS							
SE	Clustered by firm							
Subsample	Firms with blockholders above the 5% threshold				Firms with blockholders above the 10% threshold			
TAXPREFLARGEST	0.009***	0.019***	0.019***	0.015***	0.011***	0.018***	0.018***	0.014***
	[6.57]	[10.13]	[10.19]	[9.67]	[8.10]	[8.82]	[8.84]	[8.57]
DELTAPREF		0.022***	0.028***	0.012***		0.020***	0.027***	0.011***
		[8.09]	[9.52]	[4.90]		[7.17]	[8.65]	[4.16]
ASD	0.004***	-0.003	-0.004**			-0.002	-0.003**	
	[2.92]	[-1.62]	[-2.49]			[-1.36]	[-2.02]	
HIGHASD				0.000				0.001
				[0.38]				[0.71]
DELTAPREF *ASD			0.046***				0.050***	
			[5.27]				[5.16]	
DELTAPREF *HIGHASD				0.018***				0.018***
				[3.71]				[3.53]
SIZE	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.002***
	[8.91]	[9.45]	[9.56]	[9.77]	[8.09]	[8.79]	[8.94]	[9.13]
GROWTH	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	[-7.98]	[-8.18]	[-8.21]	[-8.28]	[-6.40]	[-6.73]	[-6.82]	[-6.90]
ROA	0.025***	0.025***	0.025***	0.025***	0.026***	0.026***	0.026***	0.026***
	[17.26]	[17.40]	[17.34]	[17.26]	[17.55]	[17.74]	[17.74]	[17.66]
LEVERAGE	-0.012***	-0.012***	-0.012***	-0.012***	-0.013***	-0.013***	-0.013***	-0.013***
	[-6.75]	[-7.07]	[-7.05]	[-7.01]	[-7.24]	[-7.42]	[-7.39]	[-7.39]
MTB	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	[-7.36]	[-7.81]	[-7.91]	[-7.79]	[-6.72]	[-7.13]	[-7.23]	[-7.10]
LIFECYCLE	0.000*	0.000	0.000	0.000	0.000*	0.000	0.000	0.000
	[1.73]	[0.80]	[0.80]	[0.90]	[1.70]	[0.96]	[0.94]	[1.00]
RISK	-0.056***	-0.055***	-0.055***	-0.055***	-0.053***	-0.053***	-0.052***	-0.052***
	[-19.36]	[-19.32]	[-19.24]	[-19.13]	[-17.85]	[-17.66]	[-17.55]	[-17.46]
BLOCKHOLDER20	-0.002***	-0.001**	-0.001*	-0.001*	-0.002***	-0.001**	-0.001*	-0.001
	[-2.98]	[-2.11]	[-1.83]	[-1.68]	[-3.55]	[-2.04]	[-1.67]	[-1.53]
MCAPLISTED	0.002***	0.001***	0.001**	0.001**	0.002***	0.001**	0.001*	0.001
	[3.03]	[2.69]	[2.51]	[2.03]	[3.84]	[2.14]	[1.93]	[1.56]
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	19,730	19,730	19,730	19,730	16,896	16,896	16,896	16,896
Firms	3,576	3,576	3,576	3,576	3,337	3,337	3,337	3,337
Adjusted R^2	0.217	0.226	0.228	0.228	0.208	0.217	0.220	0.219

Continued on next page

Table 7.16 (continued)

Panel B: Subsample of firms with blockholders above the threshold of 20% and 30%								
Model No.	1	2	3	4	5	6	7	8
Dependent Variable	DIVRATIO							
Method	Pooled OLS							
SE	Clustered by firm							
Subsample	Firms with blockholders above the 20% threshold				Firms with blockholders above the 30% threshold			
TAXPREFLARGEST	0.007***	0.014***	0.014***	0.011***	0.006***	0.015***	0.014***	0.010***
	[4.33]	[6.06]	[6.00]	[5.21]	[3.05]	[5.09]	[4.93]	[4.03]
DELTAPREF		0.017***	0.025***	0.008***		0.017***	0.027***	0.007*
		[5.19]	[6.44]	[2.70]		[4.47]	[6.09]	[1.90]
ASD		-0.004*	-0.004**			-0.007**	-0.007**	
		[-1.94]	[-2.16]			[-2.40]	[-2.46]	
HIGHASD				0.000				-0.001
				[0.10]				[-0.61]
DELTAPREF *ASD			0.051***				0.069***	
			[4.25]				[4.58]	
DELTAPREF *HIGHASD				0.018***				0.024***
				[2.94]				[3.49]
SIZE	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	[6.40]	[6.69]	[6.90]	[7.09]	[4.76]	[4.89]	[5.21]	[5.44]
GROWTH	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	[-4.09]	[-4.37]	[-4.55]	[-4.54]	[-3.07]	[-3.20]	[-3.28]	[-3.27]
ROA	0.030***	0.031***	0.031***	0.031***	0.034***	0.034***	0.034***	0.034***
	[14.89]	[14.99]	[15.02]	[14.93]	[12.66]	[12.70]	[12.78]	[12.68]
LEVERAGE	-0.013***	-0.014***	-0.013***	-0.013***	-0.011***	-0.011***	-0.011***	-0.011***
	[-6.23]	[-6.36]	[-6.34]	[-6.28]	[-4.39]	[-4.53]	[-4.53]	[-4.42]
MTB	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.001***	-0.001***	-0.001***
	[-6.41]	[-6.73]	[-6.76]	[-6.70]	[-6.01]	[-6.25]	[-6.22]	[-6.21]
LIFECYCLE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	[1.05]	[0.44]	[0.38]	[0.50]	[1.05]	[0.52]	[0.33]	[0.53]
RISK	-0.050***	-0.050***	-0.050***	-0.050***	-0.047***	-0.047***	-0.046***	-0.047***
	[-14.41]	[-14.28]	[-14.18]	[-14.17]	[-11.74]	[-11.63]	[-11.54]	[-11.53]
MCAPLISTED	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.000
	[1.45]	[0.71]	[0.53]	[-0.15]	[0.90]	[0.82]	[0.55]	[-0.31]
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Years	11,764	11,764	11,764	11,764	8,455	8,455	8,455	8,455
Firms	2,534	2,534	2,534	2,534	1,856	1,856	1,856	1,856
Adjusted R^2	0.181	0.188	0.190	0.189	0.166	0.172	0.176	0.175

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Table 7.16 (continued)

Notes: This table reports the regression estimates for the impact of shareholders' tax preference on the corporate payouts. Dividend payout is measured by DIVYIELD. To test the robustness of previous results, four different subsamples are generated. To be included in a subsample a company must have a large blockholder who exceeds a minimum threshold. For each of the four subsamples a separate minimum threshold is defined. The thresholds are 5%, 10%, 20% and 30%. The estimates are based on a pooled OLS regression with year fixed effects and standard errors clustered by firm. A detailed definition of all variables can be found in Table Appendix T.1. Continuous variables that are part of an interaction term are centered. Except the tax preference variables, all explanatory variables are lagged by one period. t-values are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.
Source: Own work.

7.3.8 The impact of the tax preference of domestic investors

The final robustness test deals with the role of the tax variable that measures the preference of the largest shareholder. The calculation of the tax preference variable follows the implicit assumption that all investors are of domestic origin, i.e. that all investors are taxed in the country of origin of the respective firm in which they invest. This idealistic assumption does not hold in the real world where foreign investors play a non-negligible role.[171] However, the tax preference of foreign investors is hard to identify since their taxation of is regulated by separate bi- or multilateral tax agreements.[172]

One might argue that the tax variable TAXPREFLARGEST is an imperfect proxy the firm-specific tax preference. Tho account for this problem, I use the variable TAXPREFLARGESTDOM. TAXPREFLARGESTDOM calculates the tax preferences of the largest shareholders only for domestic investors. DELTAPREFDOM measures the corresponding difference. The preference of foreign investors is approximated by the tax preference of the minor shareholders. This way it can be at least partly avoided that the findings of the main regressions are influenced by an erroneous assumption concerning the preferences of large, foreign investors. As Table 7.17 reveals, the sign and significance of the alternative tax preference variable is consistent with the main regression results. Thus it can be concluded that the main findings are also robust against an alternative specification of the tax preference variable.

[171] In the empirical literature this aspect is often neglected. *Jacob and Jacob (2011)* for example legitimate the implicit assumption of domestic tax preferences by the large body of evidence that documents a substantial home bias in national investment portfolios *(e.g. French and Poterba, 1991; Tesar and Werner, 1995)*.

[172] See Section 7.1.3.

Table 7.17 Robustness Test: Alternative tax preference measure

Model No.	1	2	3	4	5	6	7	8
Dependent Variable	DIVYIELD							
Method	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)	Pooled OLS	Panel (FE)
SE	Clustered by firm	Robust	Clustered by firm	Robust	Clustered by firm	Robust	Clustered by firm	Robust
TAXPREFLARGEST _D	0.013***	0.004**	0.020***	0.010***	0.020***	0.009***	0.016***	0.009***
	[8.39]	[2.44]	[10.63]	[4.69]	[10.61]	[4.23]	[10.14]	[4.28]
DELTAPREFDOM			0.020***	0.014***	0.025***	0.018***	0.013***	0.009**
			[7.16]	[4.26]	[7.56]	[4.78]	[4.54]	[2.48]
ASD	0.002		-0.003*		-0.004**			
	[1.63]		[-1.96]		[-2.51]			
HIGHASD							0.000	
							[0.47]	
DELTAPREFDOM * ASD					0.032***	0.040***		
					[2.83]	[2.83]		
DELTAPREFDOM * HIGHASD							0.014***	0.014**
							[2.65]	[2.33]
SIZE	0.001***	0.002***	0.001***	0.002***	0.001***	0.002***	0.001***	0.002***
	[9.27]	[3.75]	[9.69]	[3.69]	[9.66]	[3.67]	[9.91]	[3.67]
GROWTH	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	[-8.59]	[-4.23]	[-8.67]	[-4.34]	[-8.66]	[-4.38]	[-8.76]	[-4.36]
ROA	0.024***	0.012***	0.024***	0.012***	0.024***	0.012***	0.024***	0.012***
	[17.41]	[10.15]	[17.60]	[10.25]	[17.56]	[10.31]	[17.47]	[10.28]
LEVERAGE	-0.011***	-0.019***	-0.012***	-0.019***	-0.012***	-0.019***	-0.011***	-0.019***
	[-6.78]	[-9.76]	[-6.99]	[-9.73]	[-6.99]	[-9.80]	[-6.90]	[-9.81]
MTB	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	[-8.16]	[-8.65]	[-8.50]	[-8.58]	[-8.54]	[-8.58]	[-8.43]	[-8.58]
LIFECYCLE	0.000	-0.000***	0.000	-0.000***	0.000	-0.000***	0.000	-0.000***
	[1.57]	[-5.67]	[0.93]	[-5.65]	[0.97]	[-5.68]	[1.13]	[-5.67]
RISK	-0.055***	-0.022***	-0.054***	-0.022***	-0.055***	-0.022***	-0.054***	-0.022***
	[-19.78]	[-9.72]	[-19.88]	[-9.67]	[-19.87]	[-9.64]	[-19.74]	[-9.67]
BLOCKHOLDER20	-0.001***	0.000	-0.001*	0.000	-0.001*	0.000	-0.001	0.000
	[-2.69]	[-0.89]	[-1.89]	[-0.86]	[-1.82]	[-0.85]	[-1.51]	[-0.92]
MCAPLISTED	0.002***	0.003**	0.001***	0.001	0.001***	0.001	0.001**	0.001
	[3.23]	[2.14]	[2.96]	[1.18]	[2.87]	[0.90]	[2.31]	[0.94]
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	No	Yes	No	Yes	No	Yes	No
Firm Years	21,058	21,058	21,058	21,058	21,058	21,058	21,058	21,058
Firms	3,689	3,689	3,689	3,689	3,689	3,689	3,689	3,689
Adjusted R^2	0.220	0.047	0.227	0.048	0.227	0.049	0.227	0.049

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Table 7.17 (continued)

Notes: This table reports the regression estimates for the impact of shareholders' tax preference on the corporate payouts. Dividend payout is measured by DIVYIELD. To test the robustness of previous results, alternative tax preference measures are employed: TAXPREFLARGESTDOM and DELTAPREF-DOM. As indicated in the table, the estimates are based on two different regression methods. First, a pooled OLS regression with year fixed effects and standard errors clustered by firm is employed. Second, the estimates are based on year and firm fixed effects panel regressions with heteroscedasticity-robust standard errors. A detailed definition of all variables can be found in Table Appendix T.1. Continuous variables that are part of an interaction term are centered. Except the tax preference variables, all explanatory variables are lagged by one period. t-values are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.
Source: Own work based on *Kaserer et al. (2012a)*.

7.4 Summary

Chapter 7 explores the interaction of regulation and ownership concentration and its effect on payout policy. The purpose of this analysis is to find an answer to the question, whether minority shareholder protection effectively limits blockholders' power to promote a payout policy that comes at the expense of minority shareholders. Thereby, a novel identification strategy is proposed which is based on conflicting interests concerning the optimal payout policy of a firm. The conflicting interests are due to heterogeneous tax-induced payout preferences that often differ between a firm's blockholders and its minority shareholders. The relation between shareholder protection, ownership structure and payout policy is explored using a novel, extensive panel data set covering 3,944 firms from 16 European countries over the period 1999 – 2008. The analysis reveals three central findings:

First, I find that the tax preferences of the largest shareholders do have an impact on the payout policy of the firm. Higher tax preferences for dividends lead to higher dividend payouts. This effect is not only significant from an econometric but also from an economic point of view. For example an increase of the tax preference by one standard deviation leads, all else being equal, to an increase of the dividend yield by 10.3 percent. This finding underlines that firms take the preferences of large blockholders into account when defining their payout policy.

Second I find that in many firms the tax preferences of the largest shareholder deviate from the preferences of minor shareholders. When I consider the role of minor shareholder preferences, the results show that the impact of the largest shareholder's preference on payout policy persists. However, the difference between the tax preferences of large and small investors is also relevant for the payout policy. For example I find that when the dividend preferences of minor shareholders exceed those of the largest shareholder, firms tend to pay larger

dividend amounts. Thus, the preferences of minor shareholders are not completely ignored but rather also taken into account.

Finally, the results reveal that not all firms are equally sensitive to the preferences of minor shareholders. The consideration of minor shareholders' preferences is significantly higher in high protection countries than in low protection countries. Thus, the extent to which minority shareholder preferences are considered significantly depends on the degree of shareholder protection.

Overall, the analysis documents that legal minority shareholder protection effectively restricts the power of blockholders. My results prove to be robust against a number of additional tests. For example the results are robust against alternative specifications of the payout and shareholder protection measures. Moreover, the results are robust against different clustering methods to estimate the standard errors of the regressions, e.g. firm-level clustering, country-level clustering, firm-year-level and country-year-level clustering. In addition to that, the results are robust against alternative regression methods such as pooled, tobit, Fama-MacBeth and firm fixed effects panel regression. Finally, the relation between the shareholder preferences and payout policy turns out to be robust against simultaneity concerns.

8 Payout policy, taxes, and the differential impact of corporate insiders and external blockholders: Evidence from the German Tax Reduction Act 2001

This chapter examines whether payout decisions are driven by *powerful corporate insiders* or by large *external blockholders*. First, the sample, the data and the research design are presented. Second, the empirical analysis is carried out. Thereby, it is tested whether taxes generally have an impact on the payout policy of the firm. Next it is analyzed whose blockholder's tax preferences determine the corporate payout policy – those of large insiders or those of external blockholders? To ensure the validity of the reported results, a large battery of robustness tests is presented. Finally, the results of this chapter are summarized.[173]

[173] Please note that the content of this chapter is partly based on *Kaserer, Rapp and Trinchera (2012b)*.

8.1 Sample, data and research design

This section presents the data sources and describes the sample selection process as well as the composition of the final sample. In addition to that the variables that enter the analysis are presented. Finally the estimation method is explained.

While the results presented in the previous two chapters are based on a European cross-country sample, this chapter uses a sample of German listed firms. The focus on Germany is mainly due to two reasons:

First, the German Tax Reform Act 2001 represents an ideal experiment to examine the differential impact of distinct blockholder types. In contrast to the 2003 dividend tax cut in the U.S. where all domestic taxable investors were affected in the same way, the picture is more differentiated in case of the German Tax Reform Act 2001. This act had a differential impact on the preferences of distinct shareholder types. Second, the analysis of the differential impact of distinct blockholder types involves also a distinction between corporate insiders and outsiders. The identification of insiders requires a detailed picture not only of the ownership information of a firm but also of its board structure. Unfortunately, the latter information is not available for the European sample. However, there are data providers that make this information available for German listed firms.

8.1.1 Data sources

The data used in this chapter comes from various sources. First, the sources of the dependent variables that measure the payout behavior of a firm are reported followed by the sources of the tax data. Third the data sources on the ownership structure and the board composition of the firms are presented and finally, the sources of the firm- and country-specific characteristics.

Payout data

The payout information comes from Worldscope.

Tax data

I obtain tax data from the following sources: The European Tax Handbook provided by the International Bureau of Fiscal Documentation, Ernst and Young's Worldwide Corporate Tax Guide & Directory as well as the Worldwide Personal Tax Guide and the Global Executive, Price Waterhouse Coopers' Worldwide Corporate and Individual Tax Summaries, KPMG's Corporate Tax Rate Survey and Individual Income Tax Rate Survey, and finally the OECD tax database.

Ownership and board data

Information on a firm's ownership structure as well as its supervisory and management board composition is extracted manually from the Hoppenstedt Stock Guide (*Hoppenstedt Aktienführer*).[174] I carefully check and verify the ownership information resorting to additional databases which include *Bureau van Dijk's Amadeus, Commerzbank's Wer gehört zu wem* and the director dealings' database of the Federal Financial Supervisory Authority (*Bundesanstalt für Finanzdienstleistungsaufsicht*).

The Hoppenstedt Aktienführer is published on a semi-annual base. For my analysis I use the first issue of each year which describes the ownership structure during the second half of the previous year. For example the issue number one in the year 2006 documents the ownership structure during second half of the year 2005.

[174] The Hoppenstedt Stock Guide provides detailed company portraits of all German corporations and also of selected foreign corporations that are listed in Germany. The portraits include for example descriptions of the board composition, the ownership structure, the market capitalization and the accounting figures.

The raw information I retrieve includes the identity of the shareholder as well as the size of his shareholding. The ownership data is collected each year as of December 31st.

Based on this information each shareholder is classified according to a number of predefined shareholder types (for example *bank*, *insurance*, *member of the management board* or *corporation*). The shareholder types are then assigned to superordinate categories. Table 8.1 provides an overview of the shareholder types, their categorization and their definition.

Table 8.1 Shareholder classification scheme

Investor type	Description
	Members of the management board (MB)
MB	Active member of the management board including family members
	Individual investors that are not part of the management board (INDIV)
PRIV	Outside individual, i.e. private person
SB	Active member of the supervisory board including family members
	Corporations (CORP)
BGR	Business group, i.e. a non-financial company owning more than 50% of voting rights
CORP	Corporation, i.e. a non-financial company owning less than 50% of voting rights
BANK	Bank, i.e. mortgage, credit or investment bank (for own account)
	Institutional investors (INST)
INSR	Insurance company
VCPE	Venture capital or private equity company
ENDO	Endowment, foundation
INST	Institutional investor, e.g. pension fund, asset management company or bank (for third party account)
	Other investors (OTH)
GOV	Government, i.e. German municipal, state or federal government
EMP	Employees of the company
TRE	Treasury shares, i.e. shares hold by the company itself
OTHR	Investors that cannot be assigned to one of the prior defined classifications

Notes: This table presents the shareholder classification scheme for the ownership information retrieved from Hoppenstedt. The table includes a definition of investor types and describes how single investor types are assigned to superordinate categories.
Source: Own work.

It has to be remarked that ownership stakes held by family members of a board member are assigned to the respective board member. For example if the wife of a management board member holds a stake in the company, then this shareholding is classified as if it was directly held by the management board member himself.

For each shareholder I collect the shareholding size in terms of voting rights. Whenever Hoppenstedt reports ownership chains, the classification of an ownership stake is adopted from the identity of the last, ultimate owner. Moreover, ownership stakes held by individuals through intermediary companies are assigned to the individual (e.g. the member of the management board). In case that strategic investors own majority shareholdings (i.e. shareholdings of at least 50 percent of the firm's voting rights) I investigate if the ultimate owner is an individual investor. If this is the case then I assign the shareholding of the strategic investor to the individual investor.

To provide an example of the collected data, Table 8.2 presents the ownership structure of three selected firms.

Data on firm- and country-specific data

Accounting data is retrieved from Worldscope. Also information on the accounting standard of a firm and the year of its initial public offering is obtained from Worldscope. Capital market data comes from Datastream.

8.1.2 Sample selection

Table 8.3 shows the sample generation process. The sample consists of all public companies listed in the German CDAX index at least once during the sample period covering 1996 to 2006. The CDAX includes all German firms listed at the

Table 8.2 Ownership structures of selected German firms

Rank by size	Shareholder identity	Size [%]	Shareholder type
	Panel A: IDS SCHEER AG		
1	Prof. Dr. Dr. h.c. mult. August-Wilhelm Scheer	41.25	SB
2	Prof. Dr. Alexander Pocsay	7.22	SB
3	The Goldman Sachs Group Inc.	3.42	INST
4	Schroders plc	3.08	INST
5	Credit Suisse Holding AG	2.99	BANK
	Panel B: ALTANA AG		
1	Skion GmbH	50.10	SB
2	Barclays PLC	2.77	INST
	Panel C: SOLARWORLD AG		
1	Familie Frank Asbeck	25.00	MB
2	DWS Investment GmbH	4.93	INST
3	Fidelity Management & Research Company	2.75	INST
4	BlackRock Group Ltd.	2.35	INST
5	UBS AG	1.92	BANK

Notes: This table presents the ownership structures of three selected firms in 2008. Column 1 shows the rank of the shareholder according to the direct ownership of voting rights that is reported in column 3. In column 2 the identity, i.e. the name of the shareholder is presented. Column 4 indicates the shareholder type. Table 8.1 provides a detailed definition of the different shareholder types.
Source: Own work.

regulated market of Deutsche Börse AG. The initial sample includes 1,010 share classes that are represented in the CDAX during the sample period. In case of dual class shares, I only consider the common shares of a company so that in each firm year, there is exactly one observation per company. Consequently, in a first step I eliminate 74 stocks to avoid double counting of firms. Following the tradition of most corporate finance studies, I only consider industrial and service firms. Thus, I eliminate financials (SIC codes 6000-6999) and utilities (SIC codes 4900-4949) in a second step, as both industries are subject to regulatory constraints which might affect payout policy. This reduces the sample by 183

firms. In a third step, I drop 34 firms that do not provide a set of required accounting figures. These figures include sales, assets, common equity, cash flow and income before extraordinary items. Fourth, I eliminate 13 firms with missing information on total cash dividends. In a fifth step, I drop 37 firms for which I have no ownership information. Altogether, these steps result in a final sample of 669 firms.

Table 8.3 Sample generation process

Description	Number of firms
Number of share classes represented in the CDAX during the period 1996 - 2006	**1,010**
Number of dual listings (i.e. more than one share class is listed)	-74
Number of companies represented in the CDAX during the period 1996 - 2006	**936**
Number of utility companies and financial firms	-183
Number of non-financial and non-utility companies represented in the CDAX during the period 1996 - 2006	**753**
Number of firms with any of the following variables missing: sales, assets, common equity, cash flow, income before extraordinary items	-34
Number of firms with missing information on total cash dividends	-13
Firms with missing information on ownership structures	-37
Basic sample	**669**

Notes: This table documents the sample generation process. The final sample provides data for 669 publicly traded corporations. The exclusion of financial firms and utilities is based on SIC codes. The range of SIC codes for financial firms is 6000-6999 and 4900-4949 for utility firms.
Source: Own work based on *Kaserer et al. (2012b)*.

8.1.3 Variables

This section presents the variables that I use in my analysis. First, the dependent variables that measure the firms' payout behavior are introduced, followed by

the ownership variables that provide information about the ownership stakes held by different shareholder types. Finally, the firm-specific control variables are defined. The appendix provides detailed definitions of all variables employed.[175]

Payout variables

The key variables of my analysis are *cash dividends* and *share repurchases*. Cash dividends (DIVIDENDS) include both total common and preferred dividends paid to shareholders. Share repurchases (SHAREREPURCHASES) are defined as the funds used to decrease the outstanding shares of common and preferred stock. In line with previous studies *(e.g. Jagannathan, Stephens and Weisbach, 2000; Fenn and Liang, 2001; Grullon and Michaely, 2002; Brown, Liang and Weisbenner, 2007)*, share repurchases are defined as funds which are used to buy back shares according to the cash flow statement. I use the firm year-specific information on DIVIDENDS and SHAREREPURCHASES to calculate various measures of payout behavior.

For instance, I define two dummy variables DIVDUMMY and REPDUMMY indicating whether (or not) a firm uses dividends or share repurchases as a payout device in the particular year. Moreover, I define DPS as dividend per share outstanding. DPSINCREASE indicates whether (or not) a firm increases its dividends per share. Finally I measure a firm's *dividend payout ratio* DIVPAYOUTRAT as DIVIDENDS standardized by the firm's income before extraordinary items.

Ownership variables

In order to test whether the payout behavior is in line with the expectations formulated in Chapter 5, various ownership variables are defined. Considering

[175] See Table Appendix T.1.

corporate insiders, I define MBALL as the cumulated ownership stake of all executives, i.e. members of the management board. Moreover, I define a dummy variable MBBHDUM that equals 1 if at least one member of the management board classifies as a blockholder, i.e. owns at least 5 percent of the firm's voting rights.[176] Finally, I define MBBH by accumulating the voting rights of all blockholders sitting in the management board.

Considering other shareholders, I define various dummy variables indicating whether (or not) there are individuals, corporations, institutional investors or any other entity that classifies as a blockholder of the firm. INDIVBHDUM equals one if an individual investor holds a share of at least 5 percent. The category of individual investors consists of all individuals that are not represented in the management board of a firm. This refers both to supervisory board members as well as to outside individual investors.[177] CORPBHDUM equals one if a corporate investor holds an ownership stake of at least 5 percent. The group of corporate investors consists of banks, corporations and holding companies. INSTBHDUM equals one if an institutional investor holds an ownership stake of at least 5 percent. Institutional investors include banks, institutional funds (e.g. pension funds or asset managers), venture capital firms, private equity investors and finally endowments. OTHBHDUM equals one if any other investor type has an ownership stake of at least 5 percent. This category includes for example the government or employees.

[176] Note that I follow *Becht and Boehmer (2003)* which define a blockholder as a shareholder owning at least 5 percent of a firm's voting rights. The level of 5 percent is also motivated by the fact that throughout the sample period, voting rights exceeding this threshold had to be disclosed.

[177] In the robustness section I split the group of outside individuals ($INDIV$) into the two subgroups of supervisory board members and the remaining outside individual investors.

Control variables

I include a broad set of control variables that account for firm-specific characteristics that are known to affect corporate payout decisions.[178] Past studies find that firm size, growth opportunities, and profitability are significant determinants for dividend payments *(e.g. Denis and Osobov, 2008; Fama and French, 2002; Renneboog and Trojanowski, 2007; von Eije and Megginson, 2008)*. While these studies provide evidence that the size of a company and its profitability have a positive impact on dividend payments, growth opportunities have a negative impact. I use the natural logarithm of the firm's market cap (SIZEMV) as a proxy for firm size and return on assets (ROA) as a proxy for the profitability of the firm.

Internally generated cash is measured by free cash flow normalized by total assets (FCFTA). Growth opportunities are measured by the market-to-book value of equity (MTB). Moreover, I control for leverage (LEVERAGE) defined as total debt divided by total assets as additional control variable. According to *Jensen (1986)*, leverage can be seen as one possible answer to the free cash flow problem as it represents an alternative to dividends in order to limit opportunistic managerial behavior. From another perspective it can be argued that the leverage variable may control for potential debt covenants that define specific limits of the amount a firm is allowed to distribute to shareholders.

The propensity to pay dividends is certainly also influenced by the liquidity of the firm. Therefore, I use the ratio of cash and short-term investments to total assets (CASH) as additional control variable. *Lie and Lie (1999)* and *Moser (2007)* provide evidence that firms with high stock price appreciation in the previous year have a higher propensity to pay dividends. Therefore, I control for the average monthly stock price increase (DSTOCKPRICE) over the last 48 months.

[178] In order to avoid that my results are driven by outliers, I winsorize control variables that are defined as ratios on a yearly basis at the 1 percent level on both tails of the distribution.

In addition, I account for firm risk which I measure by the standard deviation of monthly stock returns over the last 24 months (RISK). Furthermore, I follow *DeAngelo et al. (2006)* and consider the life-cycle stage of the firm. Therefore, I define LIFECYCLE as the fraction of retained earnings and total common equity. Finally, I control for industry effects by using a scheme that differentiates 12 industries.

8.1.4 Estimation method

This section, introduces the econometric approach. In order to estimate how firms' payout policy was affected by the GTRA 2001, I estimate an empirical model that is specified as follows:

$$Payout_{i,t} = f(ReformDummy_{i,t}; OS_{i,t}; \vec{X}_{i,t}; Industry_i) \tag{8.1}$$

where $Payout_{i,t}$ is a variable that captures the payout behavior of the firm, $ReformDummy_{i,t}$ is the reform dummy, i.e. a dummy variable which is set to one for all years between 2002 and 2006, $OS_{i,t}$ is a variable that measures the ownership structure, $\vec{X}_{i,t}$ is a vector of firm-specific control variables, and $Industry_i$ is a set of industry indicators.

Note that I measure payout behavior of firms along various dimensions. For instance, while DIVDUMMY and REPDUMMY measures whether (or not) a firm uses dividends or share repurchases as a payout device, DPSINCREASE indicates whether (or not) a firm increases its dividends per share. Moreover, DIVPAYOUTRAT measures the firm's dividend payout ratio, i.e. cash dividends standardized by the firm's income before extraordinary items.

Note that the first set of payout variables are dichotomous variables (DPSINCREASE, DIVDUMMY, REPDUMMY). Thus, I generally use logit regression meth-

ods to estimate model 8.1. However, I also challenge the results of the logit models by estimating linear version (i.e. a linear probability model). When I have ratios as endogenous variables, I use tobit regression methods to account for the censoring. Again, I also challenge the results of the tobit estimation by linear models.

In a first step, I use a pooled regression approach that aggregates all firm year observations. Note, however, that my sample construction provides me with a panel data set. Thus, in a second step, I take advantage of the longitudinal character of my data set and use a panel regression approach with firm fixed effects. Panel data analysis is the most efficient method for the analysis of data sets that combine cross-sectional and time-series characteristics *(cf. Baltagi, 2008)*. Using panel regression techniques allows me to consider explicitly unobservable and constant firm heterogeneity. In all estimations, I use heteroscedasticity-robust standard errors that are clustered on firm level.

8.2 Empirical analysis

This section presents the results of the empirical analysis. In the first step, descriptive statistics on the payout measures, the firms' ownership structure and on the firm-specific control variables are provided. In the second step the regression results on the impact of the GTRA 2001 on the payout policy of the firm are reported.

8.2.1 Descriptive statistics

Summary statistics

Table 8.4 presents the Summary statistics of the control variables.

Table 8.4 Summary statistics

Variable	N	Mean	SD	p25	Median	p75	Min	Max
MTB	3,734	2.522	3.011	1.048	1.659	2.764	0.181	34.243
ROA	3,734	-0.122	16.660	-0.937	3.666	6.875	-99.3	58.211
FCFTA	3,734	-0.032	0.151	-0.072	-0.004	0.046	-0.888	0.447
CASH	3,734	0.160	0.182	0.034	0.087	0.218	0.000	0.921
LEVERAGE	3,734	0.192	0.174	0.033	0.159	0.309	0.000	1.000
DSTOCKPRICE	3,734	-0.918	2.770	-2.308	-0.984	0.414	-16.629	10.083
RISK	3,734	15.537	9.214	8.910	13.134	19.568	1.370	61.412
SIZEMV	3,734	4.855	2.074	3.430	4.625	5.951	-0.238	12.273
LIFECYCLE	3,734	-0.533	3.022	-0.297	0.154	0.442	-30.473	1.051

Notes: This table reports the summary statistics of selected control variables. *N* represents the number of observations. *Mean* stands for the mean value while *Median* refers to the median value. *Sd* is the standard deviation. *p25* and *p75* represent the 25th and 75th percentile. *Min* (*Max*) is the minimum (maximum) value. A detailed definition of all variables can be found in Table Appendix T.1. In order to avoid that the results are driven by outliers control variables that are defined as ratios are winsorized on a yearly base at the one percent level on both tails of the distribution.
Source: Own work based on *Kaserer et al. (2012b)*.

Dividend payout behavior

Table 8.5 presents descriptive information on cash dividends by German CDAX companies for the years 1996–2006. During this period, aggregate cash dividends experience a considerable increase which peaks in 2001 at some 17 billion Euro. It should be noted that the exceptionally high dividend payments during the period 1998 to 2001 were induced by the already mentioned Tax Relief Act as well as the GTRA as they created an incentive to pay out retained earnings.[179] After a substantial drop to 10.1 billion Euro in 2003, they start to stabilize in 2004 and to recover in 2005.

[179] For a detailed description see *Kaserer and Wenger (2005)*. In fact, the exceptionally large total dividend payout of roughly 22 billion Euro in 1998 can be explained by an extraordinary dividend of 9.5 billion Euro paid by Daimler Chrysler. This was driven exactly by this tax consideration.

Table 8.5 Dividend payout behavior of CDAX firms

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
Year	**Number of firms with dividend information**	**Frequency of firms that pay dividends**		**Frequency of firms that increase dividends**		**Total volume of cash dividends [mill. Euro]**	**Mean dividend payout ratios defined as cash dividends standardized by:**				
		Absolute	**Relative**	**Absolute**	**Relative**		NETINCBEFEXTIT	CASHFLOW	EBIT	SALES	MCAP
1996	231	169	73.2%	103	44.6%	5,101.1	44.3%	17.6%	22.6%	1.3%	2.4%
1997	246	179	72.8%	120	48.8%	8,766.2	38.9%	18.9%	21.2%	2.0%	2.4%
1998	300	211	70.3%	137	45.7%	21,697.2	37.4%	18.1%	20.2%	1.6%	2.3%
1999	388	239	61.6%	139	35.8%	12,965.4	34.0%	16.0%	18.8%	1.2%	2.4%
2000	517	253	48.9%	140	27.1%	13,697.7	27.6%	14.2%	17.7%	1.1%	1.9%
2001	501	226	45.1%	110	22.0%	16,947.2	28.1%	14.4%	18.1%	1.0%	2.1%
2002	453	191	42.2%	71	15.7%	10,980.9	26.2%	14.1%	16.6%	1.0%	2.3%
2003	421	159	37.8%	79	18.8%	10,144.9	23.2%	12.6%	14.9%	1.0%	1.3%
2004	407	158	38.8%	121	29.7%	10,080.5	17.4%	9.0%	10.1%	0.9%	1.1%
2005	417	169	40.5%	129	30.9%	12,914.4	18.5%	10.8%	11.1%	1.3%	1.1%
2006	408	183	44.9%	133	32.6%	13,803.1	18.6%	12.5%	12.0%	1.6%	1.3%

Notes: This table reports the dividend payout behavior of the sample firms over the period 1996-2006. Column 1 indicates the year of observation. Column 2 reports the number of firms for which information on cash dividends is available. Column 3 and 4 provide the number and the relative frequency of cash dividend payers. In column 5 and 6 the number and relative frequency of dividend increases is shown. Dividend increases are defined as an increase of the dividends per share adjusted for stock splits. The total volume of cash dividends can be found in column 7. The mean dividend payout ratios defined as standardized cash dividends can be found in column 8-12. NETINCBEFEXTIT equals income before extraordinary items and preferred and common dividends, but after operating and non-operating income and expense, reserves, income taxes, minority interest and equity in earnings. CASHFLOW stands or cash flow and SALES equals sales. EBIT represents earnings before income and taxes. MCAP is the market value of equity at the end of the respective year divided by the book value of equity. A detailed definition of all variables can be found in Table Appendix T.1.

Source: Own work based on *Kaserer et al. (2012*b*).*

Of course, aggregate volume of cash dividends has to be interpreted with care as it mainly depends on the economic environment. In fact, normalizing the dividend payment by some earnings figures or by the firm's market value gives a totally different picture.[180] It is interesting to see from Table 8.5 that the average cash dividend yield is relatively constant in the range of 1.9 to 2.4 percent in the period 1996 to 2002; taking into account the tax credit, the dividend yield would even have been substantially higher. Starting from 2003, there is a substantial decline in the cash dividend yield down to a range of 1.1 to 1.3 percent. Actually, this is a first indication that dividend payments decreased in the aftermath of the GTRA. When dividends are normalized by corporate earnings, the picture changes somewhat. For instance, the payout ratio - measured as the dividend payment divided by the net income before extraordinary items - is steadily declining over time. Moreover, by looking at the fraction of dividend paying firms, it can be seen that this fraction is monotonically declining over time. While almost three quarter of the firms paid dividends in 1996, less than half of the firms did so in 2006.

Share repurchase behavior

According to Table 8.6, share repurchases seemed unimportant prior to 1998. This is not surprising as share repurchases were heavily restricted by law before 1998.[181] Consequently, I observe a substantial increase in share repurchases from 1999 onwards. For instance, in the year 2000, share repurchases accumulate to 4.62 billion Euro. The considerable increase of share repurchases as a consequence of more favorable regulatory constraints is a phenomenon which

[180] I standardize cash dividends by income before extraordinary items, cash flow, earnings before interest and taxes, sales and finally market capitalization. Similarly to *Julio and Ikenberry (2004)* and *von Eije and Megginson (2008)* I set the resulting payout ratio to 1 if a firm has a positive payout in spite of negative denominator or if dividends are larger than the respective denominator. The minimum payout ratio is set to zero.

[181] Before 1998 the German law imposed large restrictions on share repurchases. The introduction of the Corporate Sector Supervision and Transparency Act in May 1998 ("Gesetz zur Kontrolle und Transparenz im Unternehmensbereich (KonTraG)") eased the restrictions.

is also known from other countries in the European Union *(e.g. von Eije and Megginson, 2008)* as well as the U.S. *(e.g. Grullon and Michaely, 2002)*. After the year 2000, share repurchases decline and start to recover from 2003 on.[182] Finally, it is interesting to see that the fraction of firms repurchasing shares is relatively constant starting from the year 2000. This fraction is in the range of 13 to 17 percent since then.

Table 8.6 Share repurchase behavior of CDAX firms

[1]	[2]	[3]	[4]	[5]
Year	**Number of firms with share repurchase information**	**Frequency of firms that repurchase shares**		**Total volume of share repurchases [mill. Euro]**
		Absolute	**Relative**	
1996	123	1	0.8%	0.7
1997	154	1	0.6%	68.5
1998	184	2	1.1%	4.2
1999	228	10	4.4%	1,527.9
2000	293	49	16.7%	4,611.3
2001	308	47	15.3%	2,374.3
2002	294	45	15.3%	1,205.3
2003	279	36	12.9%	1,086.9
2004	268	40	14.9%	2,421.7
2005	265	38	14.3%	3,119.7
2006	255	43	16.9%	3,161.0

Notes: This table reports the share repurchase behavior of the sample firms over the period 1996-2006. Column 1 indicates the year of observation. Column 2 reports the number of firms for which information on share repurchases is available. Column 3 and 4 report the number and relative frequency of firms that repurchase shares. Column 5 reports the aggregate volume of share repurchases.
Source: Own work based on *Kaserer et al. (2012b)*.

[182] It should be noted that the exceptionally high volume of share repurchases in the years 2000 and 2001 is, to a large extent, due to a large share repurchase program of BASF initiated in the year 2000. Total payout was expected to be around 2 billion Euro. It is interesting to note that according to the company this repurchase program was related to the sell-off of the U.S.-based pharmaceutical business generating a cash inflow of roughly 7 billion Euro.

Ownership structure

Table 8.7 presents a detailed overview regarding the ownership structure of the sample firms. First of all, it can be seen that there is a substantial number of qualified shareholders in all categories. Inside ownership, i.e. the fraction of voting rights held by members of the management board, is rather stable over time being equal to 11 percent in 1996 and 12 percent in 2006. However, in 1999 this ownership ratio was close to 20 percent. This finding is consistent with *Kaserer and Moldenhauer (2008)*. A similar picture emerges when only shareholdings above the 5 percent threshold are taken into consideration. Qualified shareholdings of individual external investors are even more stable over time and move in a similar range as insider holdings. Holdings of corporations behave in a totally different manner as they consistently decrease over time. This is, of course, due to the GTRA which allowed corporations to get rid of their participations on a tax free basis. Finally, qualified institutional holdings slightly increased over time even though they are still small with an average ratio of 7.6 percent in 2006.

Table 8.7 Ownership structure of CDAX firms

Year	Number of firms with ownership information	Number of blockholders by shareholder category					Mean cumulated share held by blockholder category				
		MB	INDIV	CORP	INST	OTH	MB	INDIV	CORP	INST	OTH
1996	231	52	72	95	47	8	11.2%	13.9%	22.2%	5.5%	1.2%
1997	246	63	69	102	51	7	12.5%	11.4%	22.2%	5.7%	1.0%
1998	300	102	81	109	62	11	15.2%	10.6%	18.6%	5.3%	1.1%
1999	388	175	127	132	85	24	18.6%	11.5%	16.2%	5.3%	1.0%
2000	517	250	180	183	120	59	19.8%	12.1%	16.1%	5.9%	2.0%
2001	501	243	180	172	114	47	18.6%	12.8%	15.8%	5.4%	1.6%
2002	453	194	186	145	136	45	15.9%	13.9%	14.8%	6.6%	1.6%
2003	421	176	182	133	125	42	15.4%	14.3%	13.9%	6.9%	1.5%
2004	407	160	175	127	107	45	13.6%	13.4%	13.3%	6.0%	1.4%
2005	417	158	184	123	128	38	12.4%	13.7%	11.7%	7.0%	1.1%
2006	408	147	169	106	135	34	11.9%	12.8%	10.2%	7.6%	1.1%

Notes: This table describes the ownership structure of the sample firms over the period 1996 – 2006. A detailed definition of all variables can be found in Table Appendix T.1. Blockholders are categorized into five distinct classes. MB includes all individual shareholders and their families that are part of the management board. By contrast INDIV includes all individual shareholders and their families that are not part of the management board. CORP refers to all corporate shareholders, i.e. strategic investors and banks. INST includes all institutional investors such as investment managers and insurances. All shareholders that cannot be attributed to one of the former categories are classified as OTH. Table Appendix T.2 provides a detailed definition of the different shareholder classes.

Source: Own work based on *Kaserer et al. (2012*b*).*

8.2.2 Regression results

The impact of the GTRA on payout policy

Table 8.8 reports regression results analyzing the impact of the GTRA 2001 on the payout policy of the firm as measured by three different variables. In Model 1–3 I examine the effect for the probability to increase dividends. Specifically, the endogenous variable is DPSINCREASE, a dummy variable that equals 1 when the company increases the total dividends per share (adjusted for stock splits) relatively to the previous year and zero otherwise. Using a logit approach in Model 1, I find that the coefficient of the reform dummy REFORMDUMMY is negative and statistically significant. This is in line with the expectation that firms have a lower propensity to increase dividends per share after the GTRA enactment. The results are almost unchanged when a pooled linear regression (Model 2) or a linear panel regression with firm fixed effects (Model 3) is applied.

In Model 4–6 I analyze the effect for the propensity to pay dividends. Specifically, the endogenous variable is DIVDUMMY, a dummy variable that equals 1 when the company pays cash dividends in the respective year and zero otherwise. Using a pooled logit approach (Model 4), I find that the coefficient of the reform dummy variable is again negative and significant indicating that after the GTRA 2001 the probability to pay dividends decreased. Again the results are insensitive to using a pooled linear regression model (Model 5) or a fixed effects panel regression model (Model 6).

In Model 7–9 I focus on the impact of the GTRA on the relative size (level) of dividends. I measure the level of dividends by the dividend payout ratio DIVPAYOUTRAT that is defined as cash dividends standardized by income before extraordinary items. Again, the coefficient of the reform dummy is negative and significant in Model 7. Due to the fact that the endogenous variable is censored on both sides, Model 7 relies on tobit regression methods. I then challenge the

results of the tobit model with a pooled linear regression model (Model 8) and a linear panel regression model with firm fixed effects (Model 9). The results remain robust.

In sum, the results from Table 8.8 corroborate the view that after the tax reform the size of dividend payouts decreases. Hence, based on these results, it can be concluded that the findings provide a strong support for the first expectation formulated in Chapter 5.

Table 8.8 The Impact of the tax reform on the payout policy of CDAX firms

Model No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
Dependent variable	DPSINCREASE			DIVDUMMY			DIVPAYOUTRAT			Maximum **VIF**
Model specification	**Pooled Logit**	**Pooled Linear**	**Fixed Effects Panel**	**Pooled Logit**	**Pooled Linear**	**Fixed Effects Panel**	**Pooled Tobit**	**Pooled Linear**	**Fixed Effects Panel**	
REFORMDUMMY	-0.545***	-0.070***	-0.066***	-0.576***	-0.092***	-0.072***	-0.178***	-0.081***	-0.060***	1.15
	[-5.55]	[-4.23]	[-3.70]	[-5.14]	[-5.56]	[-4.50]	[-5.48]	[-6.01]	[-4.30]	
MTB	-0.028	-0.006**	-0.009***	-0.054*	-0.015***	-0.013***	-0.01	-0.011***	-0.008***	1.33
	[-1.05]	[-2.37]	[-3.63]	[-1.86]	[-4.92]	[-4.24]	[-1.27]	[-5.18]	[-3.32]	
ROA	0.091***	0.004***	0.002***	0.019***	0.003***	0.000	0.003	0.001*	-0.001**	1.68
	[9.09]	[8.46]	[4.54]	[2.59]	[6.77]	[0.91]	[1.51]	[1.81]	[-2.51]	
FCFTA	1.076**	0.059	0.041	-0.971**	-0.139**	-0.229***	-0.442***	-0.161***	-0.228***	1.46
	[2.23]	[1.26]	[0.78]	[-2.32]	[-2.56]	[-5.08]	[-3.17]	[-3.84]	[-5.14]	
CASH	0.189	0.079	0.100	-0.451	-0.103*	-0.045	-0.265*	-0.079*	0.006	1.56
	[0.45]	[1.55]	[1.51]	[-1.07]	[-1.78]	[-0.79]	[-1.83]	[-1.75]	[0.11]	
LEVERAGE	0.464	-0.034	-0.393***	1.827***	0.148**	-0.013	0.452***	0.128**	0.137**	1.37
	[1.21]	[-0.60]	[-4.36]	[4.00]	[2.10]	[-0.17]	[3.46]	[2.35]	[2.09]	
DSTOCKPRICE	0.018	0.007**	0.008	0.038	0.011***	0.01	0.009	0.005*	0.005	1.21
	[0.76]	[2.27]	[1.09]	[1.27]	[2.82]	[1.46]	[1.10]	[1.93]	[0.93]	
RISK	-0.028***	-0.005***	-0.008**	-0.082***	-0.013***	-0.012***	-0.028***	-0.008***	-0.006*	1.73
	[-2.71]	[-5.17]	[-2.26]	[-6.55]	[-9.20]	[-3.12]	[-7.04]	[-8.53]	[-1.88]	
SIZEMV	0.283***	0.071***	0.088***	0.406***	0.090***	0.096***	0.063***	0.028***	0.024**	1.55
	[7.34]	[11.65]	[7.15]	[7.33]	[14.82]	[8.15]	[5.05]	[6.39]	[2.51]	
LIFECYCLE	1.046***	-0.002	-0.011***	1.920***	0.002	-0.006***	0.201***	0.004**	0.001	1.46
	[4.30]	[-0.93]	[-4.96]	[6.70]	[0.94]	[-2.82]	[3.15]	[2.36]	[0.38]	
Industry effects	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	
Firm Years	3,734	3,734	3,734	3,792	3,861	3,861	3,861	3,861	3,861	
Firms	629	629	629	637	638	638	638	638	638	
Adjusted R^2	0.288	0.235	0.057	0.418	0.395	0.076	0.187	0.186	0.039	

Notes: This table reports the regression estimates for the impact of the tax reform on the payout policy of CDAX firms over the period 1996-2006. As a proxy for the dividend payout behavior three different dependent variables are used: the probability to increase dividends, the probability to pay dividends and the size of dividend payouts. Model 1-3 report the estimates for the likelihood to increase dividends. Model 4-6 report the estimates for the likelihood to pay cash dividends. Finally, Model 7-9 report the estimates for the influence of the reform on the size of dividends. The size of dividends is represented by the dividend payout ratio defined as cash dividends standardized by income before extraordinary items. A detailed definition of all variables can be found in Table Appendix T.1. All models except the firm fixed effect Models 3, 6 and 9 control for industry effects using industry indicator variables. Standard errors are clustered by firm. To assess the impact of multi-collinearity, the variance inflation factors (VIF) across the presented linear regression models are compared. For each variable, the maximum VIF value of all models is reported in the last column. The t-statistics are reported in brackets. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Kaserer et al. (2012b)*.

GTRA and payout policy: The role of corporate insiders

Table 8.9 reports regression results analyzing the impact of the GTRA 2001 on the payout policy of the firm explicitly considering insider ownership. For this purpose I include variables that account for the share ownership of management board members. As I want to scrutinize the impact of insider ownership on the reaction to the GTRA, I additionally interact the management ownership variable with the reform dummy REFORMDUMMY. All models presented in Table 8.9 use the dummy variable DPSINCREASE as dependent variable, i.e. I focus on the impact of the reform on the propensity to increase dividends.[183] It should be noted that results are qualitatively unchanged when I use the dividend payout dummy or dividend payout ratios instead.

In Model 1–3 I approximate the extent of managerial ownership by MBBH which is a dummy variable that equals 1 if a member of the management board owns a share larger than 5 percent and zero otherwise. Similar to the results presented in Table 8.8, the reform dummy has a negative and significant impact. The coefficient on the managerial ownership variable is positive but insignificant. In sharp contrast to this, the coefficient of the interaction of the same variable and the reform dummy is positive and highly significant. According to this finding, managerial ownership has a positive impact on the propensity to increase dividends after the GTRA 2001. When taken together, these two effects essentially balance each other. Altogether, this indicates that the decrease in the propensity to pay dividends is almost entirely driven by those firms that have no material inside blockholder among their shareholders.

More generally, these results show that insider ownership is a very important determinant of dividend policy. This holds also for alternative regression speci-

[183] It might be argued that my results are influenced by the fact that there is a set of companies that never pay dividends because of non-tax induced reasons (e.g. strategic considerations). Therefore, I reestimate Models 1-9 in unreported tests and include only firms that pay dividends in three consecutive years. However, the results do not change significantly.

fications such as a pooled linear regression (Model 2) or a linear panel regression with firm fixed effects (Model 3). It should be noted that the results are also robust with respect to different specifications of insider ownership: In Model 4–6 I employ the cumulated share ownership of all management board members (MBALL) instead of a dummy variable. Finally, in columns 7–9 I use MBBH which is the cumulated share of all management board members that own a share above the 5 percent threshold. In sum, the results provide clear support in favor of the second expectation formulated in Chapter 5.

Table 8.9 The impact of the tax reform on the payout policy of CDAX firms: controlling for insider ownership

Model No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
Dependent variable	DpsIncrease			DpsIncrease			DpsIncrease			Maximum **VIF**
Model specification	**Pooled Logit**	**Pooled Linear**	**Fixed Effects Panel**	**Pooled Logit**	**Pooled Linear**	**Fixed Effects Panel**	**Pooled Logit**	**Pooled Linear**	**Fixed Effects Panel**	
ReformDummy	-0.738***	-0.097***	-0.113***	-0.535***	-0.067***	-0.059***	-0.537***	-0.067***	-0.059***	1.75
	[-6.27]	[-4.84]	[-5.27]	[-5.48]	[-4.08]	[-3.26]	[-5.51]	[-4.09]	[-3.28]	
MbBhDum	0.097	0.012	-0.051							2.58
	[0.63]	[0.45]	[-1.57]							
ReformDummy * MbBhDum	0.595***	0.082***	0.140***							2.98
	[3.05]	[2.71]	[4.15]							
MbAll				0.190	0.040	0.030				2.11
				[0.64]	[0.78]	[0.42]				
ReformDummy * MbAll				1.038**	0.177**	0.229***				1.99
				[2.47]	[2.53]	[2.80]				
MbBh							0.206	0.045	0.034	2.11
							[0.69]	[0.86]	[0.49]	
ReformDummy * MbBh							1.020**	0.173**	0.221***	2.00
							[2.42]	[2.46]	[2.71]	
Mtb	-0.037	-0.007**	-0.009***	-0.034	-0.007**	-0.009***	-0.035	-0.007**	-0.009***	1.34
	[-1.34]	[-2.56]	[-3.78]	[-1.26]	[-2.53]	[-3.86]	[-1.26]	[-2.53]	[-3.85]	
Roa	0.093***	0.004***	0.002***	0.092***	0.004***	0.002***	0.092***	0.004***	0.002***	1.69
	[9.20]	[8.43]	[4.49]	[9.18]	[8.31]	[4.58]	[9.18]	[8.29]	[4.57]	
Fcfta	1.119**	0.055	0.020	1.172**	0.062	0.035	1.175**	0.062	0.036	1.45
	[2.35]	[1.15]	[0.38]	[2.49]	[1.33]	[0.66]	[2.50]	[1.34]	[0.68]	
Cash	0.070	0.065	0.105	0.087	0.067	0.100	0.087	0.068	0.099	1.57
	[0.17]	[1.28]	[1.59]	[0.21]	[1.33]	[1.48]	[0.21]	[1.35]	[1.48]	
Leverage	0.446	-0.038	-0.406***	0.460	-0.036	-0.397***	0.458	-0.036	-0.398***	1.36
	[1.18]	[-0.68]	[-4.61]	[1.22]	[-0.64]	[-4.46]	[1.21]	[-0.65]	[-4.47]	
dStockprice	0.017	0.006**	0.007	0.017	0.006**	0.008	0.017	0.006**	0.008	1.22
	[0.73]	[2.14]	[0.99]	[0.71]	[2.13]	[1.07]	[0.71]	[2.13]	[1.06]	
Risk	-0.030***	-0.006***	-0.007**	-0.030***	-0.006***	-0.007**	-0.030***	-0.006***	-0.008**	1.76
	[-2.87]	[-5.31]	[-2.10]	[-2.87]	[-5.35]	[-2.24]	[-2.87]	[-5.36]	[-2.26]	
SizeMv	0.323***	0.076***	0.094***	0.315***	0.076***	0.089***	0.315***	0.076***	0.088***	1.68
	[8.02]	[12.51]	[7.56]	[7.82]	[12.35]	[7.16]	[7.82]	[12.35]	[7.13]	
LifeCycle	1.031***	-0.002	-0.010***	0.999***	-0.003	-0.011***	0.997***	-0.003	-0.011***	1.50
	[4.18]	[-1.17]	[-4.81]	[4.10]	[-1.40]	[-5.10]	[4.10]	[-1.40]	[-5.09]	
Industry effects	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	
Firm Years	3,734	3,734	3,734	3,734	3,734	3,734	3,734	3,734	3,734	
Firms	629	629	629	629	629	629	629	629	629	
Adjusted R^2	0.293	0.239	0.063	0.292	0.240	0.062	0.292	0.240	0.062	

Continued on next page

Table 8.9 (continued)

Notes: This table reports the regression estimates for the impact of the tax reform on the probability that a firm increases dividends. The regression models control for the influence of insider ownership by management board members. Three different variables are used to account for managerial shareholdings. Model 1-3 employ MBBHDUM, Model 4-6 use MBALL and finally, Model 7-9 use MBBH. A detailed definition of all variables can be found in Table Appendix T.1. All models except the firm fixed effect Models 3, 6 and 9 control for industry effects using industry indicator variables. Standard errors are clustered by firm. To assess the impact of multi-collinearity, the variance inflation factors across the presented linear regression models are compared. For each variable, the maximum VIF value of all models is reported in the last column. The t-statistics are reported in brackets. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Kaserer et al. (2012b)*.

8.3 Robustness tests

In order to check the validity of my results, I perform a number of additional tests, some of which are presented in Table 8.10.

8.3.1 The impact of other shareholder types

First of all, I scrutinize the role of external influential shareholders as some researchers argue that dividend policy is mainly a mechanism to compensate these shareholders for their monitoring activities. Note that Table 8.7 shows that there is a substantial number of qualified external shareholders. Thus, in Model 1-3 I include additional variables to control for the existence of outside individual investors (INDIVIDUAL), corporate investors (CORPORATE), institutional investors (INSTITUTIONAL) or other investors (OTHER).

The results do not support the hypothesis that influential principals do significantly impact the corporate payout decision. In fact, the findings presented in Table 8.10 are very much in line with the findings in the previous analysis presented in Table 8.9. The reform has a negative impact on the propensity to increase dividends. However, this effect is almost entirely due to firms without large corporate insiders. I find no evidence that material stakes held by other shareholder have similar impact on the decision to increase dividends.[184] Again, these results are robust for different econometric specifications and the findings do not support the third expectation formulated in Chapter 5. Thus, the analysis provides no evidence supporting the arguments of *Allen and Michaely (2003)*.

[184] From a legal perspective, it could be argued that according to the German capital market law, the payout policy could also be influenced by members of the supervisory board. Therefore, I estimate in unreported tests additional regressions that control for the impact of supervisory board members. For this purpose I split the group of outside individuals (INDIVIDUAL) into two subgroups. One subgroup includes all individual investors that are not member of the supervisory board, the other subgroup includes all individuals that are represented in the supervisory board. I find that my results are robust against the explicit consideration of supervisory board members.

8.3.2 The effect of the reform on the size of the dividend change

Second, I reexamine the changes in dividend payouts. Hitherto, I have used DPSINCREASE as the main dependent variable. However, this dummy variable provides no information on the size of the dividend change. Therefore, in Model 4–6 I use DPSDELTA as dependent variable, which is defined as the relative change of dividends per share in comparison to the previous year (adjusted for stock splits). Again, I find consistent results. Therefore I conclude that my results are robust against specification issues regarding the dependent variable.

8.3.3 The impact of the reform on share repurchases

Third, I have argued that the GTRA reduced the attractiveness of dividends relative to the attractiveness of share repurchases from the tax perspective of the dispersed shareholders. The tests whether the payouts behave in accordance with the expectations formulated in Chapter 5 focused mainly on the dividend payout. Therefore, I focus next on repurchase decisions.[185] Specifically, I reestimate the regression specification of Models 1–3 in Table 8.9 with REPDUMMY as dependent variable. REPDUMMY is a dummy variable that equals 1 when a company repurchases shares and zero otherwise.

The results presented in Model 7–9 reveal that the coefficient of the reform dummy is positive and highly significant. This suggests that the reform had a positive impact on the propensity to repurchase shares. The interaction of the managerial blockholder dummy with the reform dummy, however, is negative and significant. When I compare the size of the coefficient of the interaction effect and the reform dummy I see that both balance each other. Essentially, this means

[185] In the main analysis, I did not consider share repurchases, since legal hurdles for these type of payouts were high prior to 1998.

that the increase in the propensity to repurchase shares is almost entirely due to those firms, where the members of the management board do not hold a material stake in the company. Again, the results are independent of the specific regression approach that is used. Altogether the findings presented in Model 7–9 are consistent with the expectations above on the interaction of tax reform, managerial ownership and the propensity to repurchase shares.

The results with respect to repurchases are surprisingly clear taking into account that repurchases were almost unavailable before 1998. This might raise some concerns: One could argue that the dividend decreases in the post GTRA era, are essentially due to the fact that firms have simply adopt (slowly) to the new regulation of share repurchases and the results for the reform dummy are thus spurious. In fact, it is difficult to disentangle the effect coming from this learning curve and the effect from the changed tax environment. However, note that these arguments cannot explain why the results presented in Model 7-9 of Table 8.10 fit so nicely into the whole picture. Moreover, firms do not substitute dividend payments with repurchases to a large extent. In fact, less than ten percent of the firms that initiate repurchases reduce their dividend payments simultaneously. In sum, I am convinced that corporate dividend policy in the aftermath of the GTRA 2001 is driven by tax considerations and not simply by the availability of the share repurchase instrument.

Table 8.10 Robustness tests: The impact of other shareholder types, the reform effects on the size of the dividend change and the impact of the reform on share repurchases

Model No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
Dependent variable	DPSINCREASE			DPSDELTA			REPDUMMY			**Maximum VIF**
Model specification	**Pooled Logit**	**Pooled Linear**	**Fixed Effects Panel**	**Pooled Tobit**	**Pooled Linear**	**Fixed Effects Panel**	**Pooled Logit**	**Pooled Linear**	**Fixed Effects Panel**	
REFORMDUMMY	-0.878***	-0.128***	-0.174***	-1.108***	-1.088***	-1.070***	0.870***	0.075***	0.076***	4.61
	[-4.55]	[-3.98]	[-5.15]	[-5.81]	[-4.50]	[-3.33]	[4.37]	[3.97]	[3.49]	
MBBHDUM	0.054	-0.003	-0.068**	-0.946***	-0.818***	-0.794***	0.836***	0.064***	0.049	3.01
	[0.31]	[-0.10]	[-2.03]	[-5.03]	[-3.21]	[-2.73]	[3.38]	[2.92]	[1.43]	
REFORMDUMMY * MBBHDUM	0.656***	0.093***	0.164***	1.216***	1.016***	1.185***	-0.839***	-0.070**	-0.085**	3.39
	[3.08]	[2.88]	[4.54]	[5.08]	[3.56]	[3.40]	[-2.58]	[-2.01]	[-2.01]	
MTB	-0.039	-0.008***	-0.009***	-0.029*	-0.029*	0.003	-0.043	-0.003	-0.008**	1.35
	[-1.38]	[-2.92]	[-3.79]	[-1.68]	[-1.75]	[0.12]	[-1.35]	[-1.05]	[-1.97]	
ROA	0.093***	0.004***	0.002***	0.021***	0.019***	0.017***	0.002	0.000	0.000	1.70
	[9.18]	[8.42]	[4.56]	[4.10]	[3.33]	[2.90]	[0.28]	[0.65]	[0.27]	
FCFTA	1.135**	0.055	0.021	-0.874	-0.928	-1.265	0.552	0.065	0.032	1.46
	[2.36]	[1.15]	[0.40]	[-1.19]	[-1.10]	[-1.21]	[0.93]	[1.18]	[0.52]	
CASH	0.009	0.062	0.106	0.596	0.536	1.483	1.026**	0.134**	-0.026	1.61
	[0.02]	[1.21]	[1.56]	[0.92]	[0.80]	[1.22]	[2.04]	[2.03]	[-0.28]	
LEVERAGE	0.310	-0.062	-0.409***	-1.267***	-0.882	-2.14	-1.063	-0.075	0.079	1.38
	[0.79]	[-1.08]	[-4.70]	[-2.81]	[-1.48]	[-1.58]	[-1.54]	[-1.31]	[0.84]	
DSTOCKPRICE	0.021	0.008**	0.008	0.048***	0.042**	0.121	0.003	0.001	-0.012	1.23
	[0.90]	[2.47]	[1.04]	[3.56]	[2.50]	[1.45]	[0.09]	[0.13]	[-0.98]	
RISK	-0.032***	-0.006***	-0.007**	-0.016**	-0.018**	0.027	0.013	0.001	0.005	1.84
	[-2.99]	[-5.61]	[-1.96]	[-2.55]	[-2.47]	[0.64]	[1.10]	[1.07]	[0.82]	
SIZEMV	0.330***	0.077***	0.095***	0.124***	0.111***	-0.108	0.158**	0.015**	0.035**	1.71
	[8.15]	[12.77]	[7.59]	[3.19]	[3.05]	[-0.76]	[2.41]	[2.14]	[2.13]	
LIFECYCLE	1.007***	-0.003	-0.011***	-0.031***	-0.016	-0.013	0.079	0.004	-0.005	1.50
	[4.05]	[-1.52]	[-4.92]	[-2.58]	[-1.47]	[-0.75]	[1.00]	[1.47]	[-1.45]	

Continued on next page

Table 8.10 (continued)

Model No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
Dependent variable	DPSINCREASE			DPSDELTA			REPDUMMY			**Maximum VIF**
Model specification	**Pooled Logit**	**Pooled Linear**	**Fixed Effects Panel**	**Pooled Tobit**	**Pooled Linear**	**Fixed Effects Panel**	**Pooled Logit**	**Pooled Linear**	**Fixed Effects Panel**	
INDIVBHDUM	0.064	0.015	-0.026							2.61
	[0.44]	[0.64]	[-0.87]							
REFORMDUMMY * INDIVBHDUM	0.184	0.036	0.063*							3.37
	[0.92]	[1.16]	[1.94]							
CORPBHDUM	-0.215	-0.069**	-0.120***							2.57
	[-1.41]	[-2.56]	[-3.88]							
REFORMDUMMY * CORPBHDUM	0.141	0.028	0.061*							2.92
	[0.68]	[0.85]	[1.65]							
INSTBHDUM	0.263*	0.038	0.033							2.53
	[1.72]	[1.45]	[1.02]							
REFORMDUMMY * INSTBHDUM	-0.148	-0.028	0.004							2.98
	[-0.70]	[-0.83]	[0.12]							
OTHBHDUM	0.090	-0.031	-0.017							2.73
	[0.38]	[-0.77]	[-0.37]							
REFORMDUMMY * OTHBHDUM	0.023	0.035	0.027							2.83
	[0.06]	[0.60]	[0.44]							
Industry effects	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	
Firm Years	3,734	3,734	3,734	3,734	3,734	3,734	2,545	2,559	2,559	
Firms	629	629	629	629	629	629	462	464	464	
Adjusted R^2	0.296	0.245	0.070	0.004	0.020	0.010	0.065	0.045	0.018	

Notes: This table reports the results of selected robustness tests. Model 1-3 report the regression estimates for the impact of the tax reform on the probability that a firm increases dividends. Thereby, it is controlled for the impact of various shareholder types. Model 4-6 report the estimates for the impact of the reform on the size of the dividend change. Model 7-9 report the impact of the reform on the propensity to repurchase shares. A detailed definition of all variables can be found in Table Appendix T.1. All models except the firm fixed effect Models 3, 6 and 9 control for industry effects by using industry indicator variables. Standard errors are clustered by firm. To assess the impact of multi-collinearity, the variance inflation factors across the presented linear regression models are compared. For each variable, the maximum VIF value of all models is reported in the last column. The t-statistics are reported in brackets. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Kaserer et al. (2012*b*).*

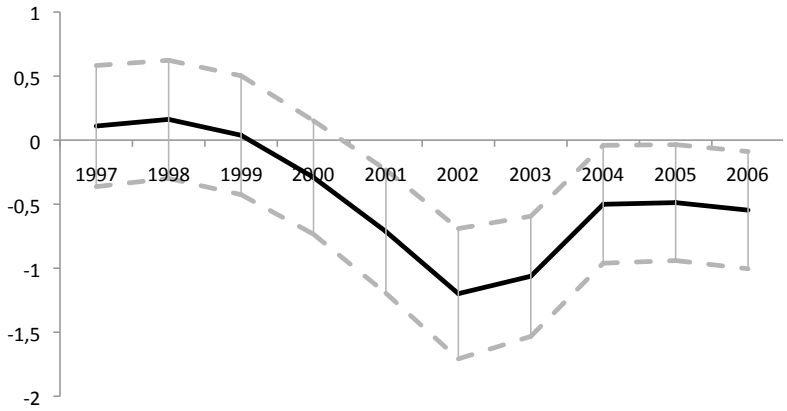
8.3.4 Temporal subsamples and year fixed effects

Fourth, commentators argued that between 1999 and 2001 firms did several extraordinary dividend payouts just because of tax reasons related to the change of the tax credit system. Hence, it could be argued that the dividend reduction observed from the year 2002 onwards is driven by the fact that the tax reforms themselves induced the firms to pay higher dividends beforehand. In unreported tests, I thus excluded the years 1999 to 2001 from my analysis. These analyses revealed quantitatively equivalent results. In addition to that, I follow an alternative approach to answer the question whether the dividend decrease observed from the years 2002 onwards is just spurious. For that purpose I use Model 1 in Table 8.8 and replace the reform dummy REFORMDUMMY by single year indicators that account for year fixed effects. The results are presented in Figure 8.1. As can be seen, year indicators are significantly negative starting from the year 2002 indicating that the GTRA had a permanent impact on the firms' dividend policy.

8.3.5 Separating reform effects from structural sample changes

Finally, it could be objected that my findings are influenced by a structural change of the sample or by a more general trend in payout policy *(cf. Fama and French, 2002)*. Therefore, I perform an additional test. I proceed in three steps. First, I reestimate the logit Model 1 of Table 8.8 for the pre-reform period, i.e. the years 1996 to 2001. Second, I use the estimated regression coefficients of the pre-reform period and forecast the propensity to increase dividends in the post-reform period 2002 to 2006. For this purpose I calculate predicted values of the propensity to increase dividends. Third, I compare the means of the de facto values with the means of the predicted values.

Figure 8.1 The impact of the reform and insider ownership on the payout policy of CDAX firms: Estimated year effects from 1996 to 2006



Notes: This figure illustrates estimated year fixed effects on the corporate payout policy. For this purpose the reform dummy REFORMDUMMY in the pooled logit regression specification of Model 1 in Table 8.8 is replaced by year indicators that account for year fixed effects. The continuous line marks the estimated coefficient for each year. The upper (lower) dashed line marks the upper(lower) boundary of the 95 percent confidence interval.
Source: Own work based on *Kaserer et al. (2012b)*.

Thereby, I consider two separate groups: (1) firms without managerial blockholdings and (2) firms with high inside ownership. Table 8.11 reports for each group the number of observations, the difference between the mean values, and the corresponding t-statistic. First, I take a look at the firms without managerial blockholders. I observe that in the post-reform period the de facto mean values are permanently lower than the predicted mean values, i.e. the difference is negative through all the years. Moreover, the t-statistics indicate that the difference is quite significant. However, when I look at the firms with a managerial blockholder I find that the difference between de facto and predicted value is insignificant. Moreover the observed difference is smaller and the sign of the difference changes over the years. This observation is consistent with the findings from the regression results. Altogether this test provides additional evidence that taxes do have an impact on payout policy and that insider ownership plays an important role in this context.

Table 8.11 Robustness test: Comparison of the predicted and de facto means of the propensity to increase dividends

	MBBHDUM = 0				MBBHDUM = 1			
Year	**N**	**Difference of means of predicted and de facto dependent variables**	**t-statistic**		**N**	**Difference of means of predicted and de facto dependent variables**	**t-statistic**	
1996	107	0.018	0.443		21	0.068	0.689	
1997	129	0.044	1.134		34	0.066	0.855	
1998	153	0.062	1.783	*	67	0.045	0.896	
1999	176	0.074	2.229	**	128	0.002	0.065	
2000	234	-0.025	-0.952		173	-0.006	-0.229	
2001	249	-0.098	-3.809	***	225	-0.026	-1.321	
2002	251	-0.173	-8.067	***	188	-0.013	-0.615	
2003	240	-0.134	-5.180	***	173	-0.055	-2.468	**
2004	239	-0.084	-3.061	***	155	0.001	0.032	
2005	252	-0.060	-2.497	**	151	-0.034	-1.110	
2006	248	-0.098	-3.959	***	141	-0.007	-0.188	

Notes: This table provides the results of an additional robustness test. For this purpose, in the first step the logit Model 1 of Table 8.8 is reestimated for the years before the reform, i.e. 1996-2001. Based on the estimated regression coefficients of the pre-reform period, in a second step the propensity to increase dividends in the post-reform is forecast. This is done by calculating predicted values of the dependent variable. In a third and final step a mean comparison is performed. Thereby, the means of the predicted values are compared with the means of the de facto values. This comparison is performed for two separate groups: Firms without a blockholder which is part of the management board and firms with a managerial blockholder. For each group the table reports the number of observations, the difference between the mean values and the significance of mean difference using a t-test. ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Own work based on *Kaserer et al. (2012*b*).*

8.4 Summary

The question whether or not firms consider taxes in their payout decision is essential for a proper understanding of the payout behavior of firms. While cross-sectional studies have only limited power to contribute to that discussion, a common practice to examine the impact of taxes is to use tax reforms as an exogenous source of variation. I also adopt this approach and use the German Tax Reduction Act 2001 to study the impact of a change in the tax system upon payout behavior of German corporations. For the commonly studied dispersed shareholder, the GTRA 2001 substantially altered tax preferences as share repurchases became much more attractive (compared to dividend payments). Hence, I use the GTRA as an experiment to test whether German firms consider the tax preferences of dispersed shareholders when deciding on their payout policy.

In line with the tax preference view, I find that taxes are indeed an important determinant of the corporate payout policy. More specifically, I find a significant decrease (increase) in the propensity to pay dividends (repurchase shares) subsequent to the GTRA 2001. Furthermore, the payout ratio as well as the probability to increase dividends both, significantly decreased after the GTRA enactment.

These results face two challenges. First, because of rules attached to the GTRA as well as a second tax act, several firms made extraordinary dividend payments in the years 1999 to 2001. However, I provide evidence that the decrease in dividend payouts in the years from 2002 onwards has materialized independently of this effect. Second, there were substantial regulatory barriers for share repurchases prior to 1998. Again, I provide evidence that the reduction in dividend payments observed starting in 2002 is not simply a consequence of the fact that firms became more familiar with this repurchase instrument over time and reduced dividends in favor of repurchase payments. After all, my results strongly support the view that there is a significant and permanent change in the divi-

dend payout behavior after the GTRA enactment.

Taking a closer look at the tax act, I argue that the GTRA 2001 has some appealing features beyond the fact that it changed preference of dispersed shareholders what makes it an interesting experiment to be used in an empirical study. In contrast to the often-studied 2003 dividend tax cut in the U.S. and many other tax acts, the GTRA had a differential impact on the tax preferences of different shareholder groups. While dividends became less attractive for individual dispersed shareholders, this does not apply to qualified investors, i.e. investors holding at least a stake of 1 percent in the company. Hence, I then use the GTRA as an experiment to scrutinize different explanations of the firm's dividend policy.

From a *private benefits perspective*, one might expect that the adjustment of the payout policy to the change in the tax environment is driven by corporate insiders. As a consequence, I expect only those firms where management board members do not own material stakes in the company to substantially decrease dividend payments. Under the *monitoring hypothesis* of *Allen et al. (2000)*, however, I would expect an overall decrease in dividend payments, even though this decrease should be less pronounced in firms where institutional investors, but also other qualified investors, are needed as monitors.

Empirically, my second finding is that the decrease in dividend payments is almost entirely due to firms where the management board does not hold a material stake in the company (i.e. 5 percent of the shares). Those companies where insider ownership is relevant did not significantly decrease dividend payments, neither from a statistical nor from an economic perspective. Moreover, this insider effect seems only to be driven by insiders that are part of the management board because ownership stakes held by individual supervisory board members have no statistically detectable effect. It should be emphasized that this is actually an insider ownership effect as the presence other shareholder groups like individuals, non-taxable institutions, or corporations does not have an impact

on the dividend payment decisions.

Overall, my findings corroborate the view that dividend policy is, to a large extent, determined by corporate insiders. From this perspective, they are in line with recent findings presented by *Brown et al. (2007)* and, to some extent, also by *Chetty and Saez (2005)*. However, it is difficult to bring them in line with the monitoring hypothesis of *Allen et al. (2000)*. Hence, I tend to support the view that dividend policy is an instrument to extract private benefits of control rather than a mechanism to solve corporate governance problems.

9 Conclusion

9.1 Summary of the core results

This dissertation explores the agency conflict between large blockholders and small shareholders, its impact on firm performance and behavior, and the mitigating role of shareholder protection. The empirical evidence is presented in a three step process.

Shareholder protection, ownership concentration and firm performance: evidence from European listed firms

In Chapter 6 of this dissertation, I explore an extensive novel panel data set covering more than 4,000 listed firms in 16 European countries to study the relationship between shareholder protection, ownership concentration and firm performance. I make the following findings:

Examining overall ownership concentration in a **first** step reveals supportive evidence for a negative association between legal shareholder protection on ownership concentration. This result is based on firm-level regressions that account for a broad set of firm- and country-characteristics. The results hold independent of the choice of the shareholder protection measure such as the revised versions of legal indices measuring shareholder protection as developed by *Djankov*

et al. (2008) or the legal origin for example. My results are also robust against various measures of ownership concentration. Moreover, they are economically meaningful.

In a **second** step I analyze the concentration of two different shareholder types: *strategic* and *institutional investors*. I find that the negative effect of shareholder rights is mainly driven by strategic investors and institutional ownership is actually positively correlated to the level of shareholder protection.

In a **third** step I further subclassify institutional investors into two groups: *independent institutions* and *grey institutions*. I find that the positive effect of shareholder rights on institutional ownership is solely driven by independent institutional investors and shareholdings of grey institutions are actually higher in countries with poor shareholder protection. This result is in line with the view that grey institutions basically are similar to strategic investors.

Finally, in a fourth step I try to shed light on the rationale for the aforementioned empirical findings. Thus, I examine whether ownership stakes of different shareholder groups are systematically related to firm valuation. I find that while independent institutional investors fuel firm valuation, strategic investors jeopardize firm valuation. Moreover, these effects are particularly pronounced in countries with weak shareholder protection. Thus, my findings support the view that blockholdings of strategic investors emerge (or survive) in case of limited minority protection at the expense of minority blockholders.

In sum, my results suggest that strategic investors are attracted by weak shareholder protection and come at the expense of the marginal investor. As such, they are consistent with the complementary view of large owners. In contrast, institutional blockholdings go hand in hand with shareholder protection and have a significantly positive effect of firm value.

Blockholder power, shareholder conflicts and legal protection: evidence from tax preferences and payout decisions of European listed firms

In Chapter 7, I examine the interaction of legal shareholder protection and ownership concentration and its effect on firm behavior. With the focus on payout policy a particular dimension of firm behavior is analyzed. I make three central findings:

First, I find that the tax preferences of the largest shareholders do have an impact on the payout policy of the firm. Higher tax preferences for dividends lead to higher dividend payouts. This effect is not only significant from an econometric but also from an economic point of view. For example an increase of the tax preference by one standard deviation leads, all else being equal, to an increase of the dividend yield by 10.3 percent. This finding underlines that firms take the preferences of large blockholders into account when defining their payout policy.

Next, I find that in many firms the tax preferences of the largest shareholder deviate from the preferences of minor shareholders. When I consider the role of minor shareholder preferences, my results show that the impact of the largest shareholder's preference on payout policy persists. However, the difference between the tax preferences of large and small investors is also relevant for the payout policy. For example I see that when the dividend preferences of minor shareholders exceed those of the largest shareholder, firms tend to pay larger dividend amounts. Thus, the preferences of minor shareholders are not completely ignored but rather also taken into account.

Finally, my results reveal that not all firms are equally sensitive to the preferences of minor shareholders. The consideration of minor shareholders' preferences is significantly more pronounced in high protection countries than in low

protection countries. Thus, the extent to which minority shareholder preferences are considered, significantly depends on the degree of shareholder protection.

Overall, these findings support the view that legal minority shareholder protection effectively restricts the power of blockholders to promote corporate behavior at the expense of minority shareholders.

Payout Policy, taxes, and the differential impact of corporate insiders and external blockholders: Evidence from the German Tax Reduction Act 2001

In Chapter 6 it is analyzed, whether distinct blockholder types have a differential impact on payout policy and which type acts as the driving force. For this purpose the relation between taxes, ownership structure and payout policy around the GTRA 2001 is examined. This reveals the following main findings:

First, I find that taxes are an important determinant of the corporate payout policy. More specifically, on average the GTRA 2001 led to a significant decrease (increase) in the propensity to pay dividends (repurchase shares). Moreover, the payout ratio as well as the probability to increase dividends significantly decreased since the enactment of the GTRA. As such, this evidence from a structural break in the tax environment is additional support for the importance of taxes as it is already documented in Chapter 7.

Second, the decrease in dividend payments is almost entirely due to firms where the management board does not hold a material stake in the company (i.e. 5 percent of the shares). Those companies where insider ownership is relevant do not significantly decrease dividend payments, neither from a statistical nor from an economic perspective. Moreover, this insider effect seems only to be driven by insiders that are part of the management board because ownership stakes held

by individual supervisory board members have no statistically detectable effect. It should be emphasized that this is actually an insider ownership effect as the presence other shareholder groups like individuals, non-taxable institutions, or corporations does not have an impact on the dividend payment decisions. The fact that the adjustment of the payout policy after the change in the tax environment is driven by corporate insiders is consistent with the private benefits perspective.

Overall, these findings corroborate the view that dividend policy is – to a large extent – determined by corporate insiders. As such, the results indicate that dividends represent rather the outcome of agency problems than a mechanism to mitigate them.

9.2 Contribution and implications

This dissertation contributes to the literature in many different ways.

The **first** important aspect is that this dissertation explores a novel panel data set on the ownership structures of European firms. This data set offers three core benefits: size, up-to-dateness and panel structure. The quite extensive *size* results from the inclusion of more than 4,000 firms and over 26,000 firm years. In addition to that the data set includes firm data until 2008 and thus provides also a quite *current portrait* of the ownership structures of listed European firms. In contrast to that, previous renowned ownership samples cannot be titled as up-to-date anymore since in the meantime they date back to the mid-nineties *(e.g. La Porta, Lopez-De-Silanes, Shleifer and Vishny, 1998; La Porta, Lopez-de Silanes and Shleifer, 1999; Faccio and Lang, 2002)*. For example the sample presented by *La Porta et al. (1998)* dates back to 1995. Also in contrast to previous data sets that are pure cross sections, this data set has a *panel structure* which is associated with certain benefits. For example the panel structure allows control-

ling for unobserved firm heterogeneity.

Second, this dissertation is among the first studies that examine the effect of the legal environment on ownership concentration using firm-level observations. Previous evidence was primarily based on country-level data. An important outcome is that the negative effect of shareholder rights on overall ownership concentration holds, even under consideration of a broad set of firm level characteristics and the use of second generation legal indices for the measurement of shareholder protection.

Third, it is shown that legal shareholder protection has a differential impact on the concentration of distinct shareholder types such strategic blockholders and various types of institutional ownership. While the concentration of strategic investors including families and grey institutionals is negatively associated with the level of shareholder protection, the concentration of independent institutionals is positively associated.

Fourth, taking into account implications for firm performance, my analysis sheds light on the substitution versus complementary controversy of corporate ownership. The results suggest that strategic investors are attracted by weak shareholder protection and come at the expense of the marginal investor. As such, they are consistent with the complementary view of large owners. In contrast, institutional blockholdings go hand in hand with shareholder protection and have a significantly positive effect of firm value.

In sum, the latter contributions support a better understanding of the mechanisms between legal protection, ownership structures and firm performance. As the following contributions make clear, this work also clarifies of the mechanisms between agency conflicts, taxation, payout policy and last but not least shareholder protection.

As a **fifth** important contribution, the results shed additional light on the im-

pact of taxes on payout policy. Thus, this dissertation contributes to the literature that explains payouts from a tax perspective. In particular this is the first study to examine the impact of the firm-specific tax preference of the largest shareholder on corporate payout policy in a cross-national panel data set. In view of the existing literature *Chetty and Saez (2005)* criticize the lack of tax variation. The use of cross country data over a long time horizon represents one approach to increase tax variation within a given sample. However, as the literature review demonstrates, international evidence is scarce. Firm-specific tax preferences are another approach. Due to the hurdles for the collection of ownership information, this approach has been primarily used in U.S. studies. To the best of my knowledge this is the first study that uses an international sample with firm-specific tax preferences and thus combines both approaches to overcome the often cited lack of tax variation. Thereby, investors are primarily differentiated by the amount of power in their hands. Previous single-country studies rather contrast the impact of selected investor clienteles and thus differentiate the shareholder base primarily by type *(e.g. Moser, 2007; Brown, Liang and Weisbenner, 2007; Blouin, Raedy and Shackelford, 2011)*.

Sixth and more importantly additional evidence on the conflict of large versus small shareholders is provided. As *Dyck and Zingales (2004)* notes, this type of conflict is quite difficult to observe. I use diverging preferences as a viable strategy for the identification of such a conflict. In particular I show how the firms' dividend behavior reacts to diverging preferences between large, dominant blockholders and minor shareholders. However, I also document that this reaction depends on the moderating role of shareholder protection.

Finally, the GTRA as a particularly interesting exogenous source of tax variation is used to show that the payout policy is strongly driven by large corporate insiders. This suggests that dividend policy is an instrument to extract private benefits of control rather than a mechanism to solve corporate governance problems.

While these contributions are of high relevance for **academia**, they have also important implications for regulatory authorities and equity investors. **Regulatory authorities** define the legal environment in which firms operate and investors make their portfolio decisions. To make effective decisions, it is of essential importance for regulatory authorities to understand, how their decisions affect firm and investor behavior. This study contributes to this need in two ways. First of all, this work contributes to a better understanding of the impact of *tax regulation* on the payout behavior of firms. Second, it is shown how *shareholder regulation* affects investor decisions, the protection of minor shareholders, payout behavior, and firm performance.

Finally, the findings of this dissertation are highly relevant for **equity investors**, particularly for those with minority shareholdings such as individual or institutional investors. Since these investors are primarily interested in value maximization a proper understanding of the differential impact of blockholders on payout policy and firm value is indispensable. Furthermore, the quality of shareholder protection laws should be taken into account as non-negligible criterion when making portfolio decisions.

9.3 Avenues for future research

Based on the results presented in this dissertation, different avenues for future research emerge.

First, it is shown in this work that the level of shareholder protection varies around the world. However, there is still a lack of evidence regarding the question, whether shareholder protection rules vary significantly over time. Assuming that there is a variation of shareholder protection over time, it could be explored whether the rules around the world converge towards a common standard. Additionally it could be examined how the temporal variation of the

shareholder protection rules correlates with the ways in which corporate finance and corporate governance evolve in the respective countries.

Second, this work analyzes the impact of shareholder protection on the concentration of different owner types as well as the impact of different owner types on firm performance. This analysis is based on a cross-national sample. Thereby, shareholder types are distinguished according to the two main dimensions *institutional* and *strategic*. A potential avenue for future research is to analyze the impact of shareholder protection on the ownership structure using alternative classification schemes. For example shareholders could be distinguished by their origin into *foreign* and *domestic* investors. Based on this separation it could be analyzed whether shareholder regulation has the same relevance for the investment decision of domestic and foreign owners. An alternative would be the differentiation according to *insiders* (i.e. shareholders that are represented in the management or supervisory board of a firm) and *outsiders* (those investors without board membership). Based on the separation according to insiders and outsiders it could be analyzed which role corporate governance plays concerning the concentration of these two categories. Overall, this avenue could contribute to a better understanding of the effect of shareholder regulation. However, both the information on the country of origin and the board membership of a shareholder (or anyone of his affiliates) cannot be collected easily. This certainly represents a major hurdle on this avenue.

Third, it is shown that legal protection does have an influence on the blockholders' power to promote corporate payout behavior at the expense of minority shareholders. In this context the role of alternative governance mechanisms could be further explored. A promising approach in this context is the consideration of firm-level governance mechanisms. This avenue could provide additional insights on the interaction and the differential impact of country and firm-specific mechanisms.

Fourth, beside the payout policy of a firm there are a number of alternative dimensions of firm behavior. These could be used to provide additional evidence on the impact of blockholders on corporate payout behavior at the expense of minority shareholders and the moderating effect of shareholder protection.

Appendix

Table Appendix T.1 Variable definition

Variable	Description
	OWNERSHIP VARIABLES
L1BLOCK	Share of the largest blockholder. The term blockholder refers to investors with a share of at least 5 percent. Source: Thomson One Banker
L3BLOCK	Cumulated share of the three largest blockholders. Source: Thomson One Banker
FREEFLOAT	Freefloat defined as the cumulated share of all non-blockholders. Source: Thomson One Banker
HERFIND	Herfindahl index, defined as the sum of squared blockholdings. Source: Thomson One Banker
BLOCKHOLDER20	Dummy variable that equals one if a blockholder's shareholding size exceeds the level of 20 percent, zero otherwise. Source: Thomson One Banker
STRATEGIC	Cumulated share of all blockholders that are classified as strategic investors, i.e. families and individuals, corporations and holding companies. Source: Thomson One Banker
INSTITUTIONAL	Cumulated share of all institutional blockholders. Institutional blockholders are defined as professional money managers which have discretionary control over assets under management. This category includes banks, insurance companies, mutual fund companies, investment advisors, private equity investors, venture capitalists, endowment funds, foundations and pension funds. Source: Thomson One Banker
INDEPENDENT	Cumulated shareholdings of institutions that are characterized as pressure-resistant. These include investment managers and mutual funds. Source: Thomson One Banker
GREY	Cumulated shareholdings of institutions that are characterized as pressure-sensitive. These include bank trusts, insurance companies, other institutions, pension funds or endowments. Source: Thomson One Banker
GLOBAL STRATEGIC	European industry median of STRATEGIC. Calculated on a yearly base. Source: Thomson One Banker
GLOBAL INDEPENDENT	European industry median of INDEPENDENT. Calculated on a yearly base. Source: Thomson One Banker
MBALL	Cumulated share of all management board members. Source: Hoppenstedt

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Table Appendix T.1 (continued)

Variable	Description
MBBH	Cumulated share of all managerial blockholders, i.e. all members of the management board that own a share of at least 5 percent. Source: Hoppenstedt
MBBHDUM	Dummy variable that equals 1 if a member of the management board owns a share of at least 5 percent and zero otherwise. Source: Hoppenstedt
INDIVBHDUM	Dummy variable that equals 1 if an individual investor that is not a member of the management board owns a share of at least 5 percent and zero otherwise. Source: Hoppenstedt
CORPBHDUM	Dummy variable that equals 1 if a corporate investor (corporations and banks) owns a share larger than 5 percent and zero otherwise. Source: Hoppenstedt
INSTBHDUM	Dummy variable that equals 1 if an institutional investor (investment managers and insurances) owns a share larger than 5 percent and zero otherwise. Source: Hoppenstedt
OTHBHDUM	Dummy variable that equals 1 if an investor that can not be attributed to the shareholder categories "managerial", "individual", "corporate" or "institutional" owns a share of at least 5 percent and zero otherwise. Source: Hoppenstedt
MEASURES OF REGULATION AND SHAREHOLDER PROTECTION	
ASD	Anti-self-dealing index. Proxy for shareholder protection. Measured as the average of the ex ante and ex post private control index of self-dealing. The index ranges from zero to one. Source: *Djankov et al. (2008)*
HIGHASD	Dummy variable that equals one if the anti-self-dealing index is larger than the median of the sample countries and zero otherwise.

Continued on next page

Table Appendix T.1 (continued)

Variable	Description
RADRI	Revised anti-director rights index. Proxy for shareholder protection. Aggregate index that considers the following six dimensions of shareholder rights: (1) Voting by mail, (2) depository of shares before a general shareholders' meeting, (3) cumulative voting, (4) oppressed minority mechanism, (5) pre-emptive rights and (6) required capital to call a shareholders' meeting. The index ranges from zero to six. Source: *Djankov et al. (2008)*
HIGHADRI	Dummy variable that equals one if the anti-director rights index is larger than the median of the sample countries and zero otherwise.
COMMONLAW	Indicator for common law origin. Equals one if the origin of the commercial law of a country is English Common Law and zero otherwise. Source: *La Porta et al. (1998)*
CIVILLAW	Indicator for civil law origin. Equals one if the Company Law or Commercial Code of the country originates in Roman Law and zero otherwise. Source: *La Porta et al. (1998)*
LAWUK	Indicator for English common law origin. Equals one if the origin of the commercial law is the English common law and zero otherwise. Source: *La Porta et al. (1998)*
LAWSCAND	Indicator for Scandinavian civil law origin. Equals one if the origin of the commercial law is the Scandinavian Civil Code and zero otherwise. Source: *La Porta et al. (1998)*
LAWGER	Indicator for German civil law origin. Equals one if the origin of the commercial law is the German Civil Code. Source: *La Porta et al. (1998)*
LAWFR	Indicator for French civil law origin. Equals one if the origin of the commercial law is the French Civil Code and zero otherwise. Source: *La Porta et al. (1998)*

Continued on next page

Table Appendix T.1 (continued)

Variable	Description
VOICEACC	Index "capturing perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media." Source: *Kaufmann et al. (2009)*
POLITSTAB	Index "capturing perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism." Source: *Kaufmann et al. (2009)*
GOVEFF	Index "capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies." Source: *Kaufmann et al. (2009)*
REGQUAL	Index "capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development." Source: *Kaufmann et al. (2009)*
ROL	Index "capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence." Source: *Kaufmann et al. (2009)*
CORRCONTR	Index "capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests." Source: *Kaufmann et al. (2009)*
LAWENFORCEMENT	"Logarithm of the length (in calendar days) of the judicial procedure to collect on a bounced check." Source: *Djankov et al. (2008)*
ASD *ROL	Product of anti-self-dealing index (ASD) and rule of law index (ROL)
RADRI *ROL	Product of revised anti-director rights index (RADRI) and rule of law index (ROL)

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Table Appendix T.1 (continued)

Variable	Description
CRI	Creditor rights index that measures the country-specific strength of the creditor's legal rights in case that a debtor defaults. The index aggregates different creditor rights. "The index is formed by adding 1 when: (1) the country imposes restrictions, such as creditors' consent or minimum dividends to file for reorganization; (2) secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); (3) secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm; and (4) the debtor does not retain the administration of its property pending the resolution of the reorganization. The index ranges from 0 to 4." Source: *La Porta et al. (1998)*
	COUNTRY CHARACTERISTICS
STOCKTRADED	Proxy for the trading volume. Ratio of total value of shares traded in the respective year and gross domestic product. Source: World Bank
MCAPLISTED	Ratio of aggregate market capitalization of listed domestic companies and gross domestic product. Listed domestic companies refer to domestically incorporated companies listed on the country's stock exchanges at the end of the year. Investment companies mutual funds or other collective investment vehicles are not included. Source: World Bank
TAX	Tax preference of an individual investor that holds a substantial share in the firm and who is located in the top income tax bracket. The tax preference is calculated by dividing the after tax value of one Euro of corporate profits that are distributed as dividends by the after tax value of one Euro of corporate profits that is retained and realized in the form of capital gains. Source: Own work based on *Kaserer et al. (2012a)*.
INSTASSETS	Ratio of institutional investors' financial assets and market capitalization of listed domestic companies. Source: OECD
REFORMDUMMY	Dummy variable that marks the years after the reform and equals 1 for the years from 2002 until 2006 and zero otherwise. Source: Worldscope

Continued on next page

Table Appendix T.1 (continued)

Variable	Description
	FIRM CHARACTERISTICS
LEVERAGE	Debt ratio measured as the ratio of book value of total debt divided by book value of total assets. Source: Worldscope
SIZE	Proxy for the size of the company measured as the natural logarithm of a firm's total assets at the end of the year. Source: Worldscope
SIZEMV	Proxy for the size of the company, measured as the natural logarithm of a firm's market capitalization at the end of the year. Source: Worldscope
RISK	Stock return volatility. Standard deviation of monthly stock returns over the most recent two years including the current fiscal year. Source: Datastream
DIVYIELD	Dividend yield defined as cash dividends divided by market capitalization at the end of the previous year. Source: Worldscope
ROA	Return on assets in percent, measured as (((NI + INTEREST x (1-TAX)) / TOTAL ASSETS) -1)* 100 with NI = net income before preferred dividends, INTEREST = interest expense on debt-interest capitalized, TAX = tax rate and TOTAL ASSETS = average of last year's and current year's total assets. Source: Worldscope
MTB	Market to book value, which is defined as market value of equity divided by book value of equity. Source: Worldscope
LNMTB	Natural logarithm of the market to book value defined as market value of equity divided by book value of equity. Source: Worldscope
CASH	Liquidity defined as the ratio of cash and short-term investments divided by total assets. Source: Worldscope
LIFECYCLE	Proxy for the life cycle stage of a firm. Defined as the ratio of retained earnings and total equity. Source: Worldscope
DSTOCKPRICE	Average monthly stock price appreciation over the past twelve months. Source: Datastream
INTACC	Dummy variable that equals one if a company follows international accounting standards such as US-GAAP or IFRS and zero otherwise. Source: Worldscope

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Table Appendix T.1 (continued)

Variable	Description
LNTOBQ	Natural logarithm of Tobin's Q defined as follows: (book value of total assets - book value of equity + market value of equity) / book value of total assets. Source: Worldscope
$-1/Q$	$-1/Tobin'sQ$. Source: Worldscope
GLOBAL TOBQ	European industry median of Tobin's Q. Calculated on a yearly base. Source: Worldscope
GROWTH	Annual growth rate of total sales defined as the percentage increase from last year's total sales to current year's total sales. Source: Worldscope
DIVREPFREQ	Dividend reporting frequency measured in times per year. Source: Worldscope
CAPEX	Ratio of capital expenditures divided by total property, plant and equipment less accumulated reserves for depreciation, depletion and amortization. Source: Worldscope
RNDDUMMY	Dummy variable that equals one if a firm reports R&D expenditures and zero otherwise. Source: Worldscope
RNDRATIO	R&D expenditures divided by sales. Source: Worldscope
NEWLISTING	Dummy variable that equals one if the year of observation equals the year of the going public, otherwise zero. Source: Worldscope
FCFTA	Free cash flow divided by total assets. Source: Worldscope
NETINCBEFEXTIT	Income before extraordinary items and preferred and common dividends, but after operating and non-operating income and expense, reserves, income taxes, minority interest and equity in earnings. Source: Worldscope
EBIT	Earnings before interest and taxes. Source: Worldscope
SALES	Gross sales and other operating revenue less discounts, returns and allowances. Source: Worldscope
MCAP	Market value of equity at the end of the year. Source: Worldscope
CASHFLOW	Cash flow from operations. Source: Worldscope

Continued on next page

Table Appendix T.1 (continued)

Variable	Description
	PAYOUT VARIABLES
DIVYIELD	Dividend yield defined as total cash dividend payout in year t+1 divided by the market value of the firm at the end of the year t. Source: Worldscope
DIVRATIO	Dividend payout ratio defined as total cash dividend payout in year t+1 standardized by net total assets in year t. Source: Worldscope
REPYIELD	Share repurchase yield defined as share repurchases in year t+1 divided by the market value of the firm at the end of the year t. Share repurchases are measured as the amount spent on the purchase of common and preferred shares according to cash flow statement. Source: Worldscope
REPRATIO	Share repurchase ratio defined as share repurchases in year t+1 standardized by net total assets in year t. Share repurchases are measured as the amount spent on the purchase of common and preferred shares according to cash flow statement. Source: Worldscope
TOTALPAYOUTRATIO	Payout ratio defined as dividends divided by total payouts, i.e. the sum of dividends and share repurchases. Source: Worldscope
D	Amount of dividends paid measured as cash dividends according to cash flow statement. Source: Worldscope
R	Amount spent on share repurchases measured as purchase of common and preferred shares according to cash flow statement. Source: Worldscope
DIVDUMMY	Dummy variable that equals 1 if the company pays cash dividends in the respective year and zero otherwise. Source: Worldscope
REPDUMMY	Dummy variable that equals 1 if the company repurchases shares in the respective year and zero otherwise. Source: Worldscope
DPS	Total dividends per share (adjusted for stock splits). Source: Worldscope

Continued on next page

Table Appendix T.1 (continued)

Variable	Description
DPSINCREASE	Dummy variable that equals 1 if the company increases the total dividends per share (adjusted for stock splits) relatively to the previous year and zero otherwise. Source: Worldscope
DPSDELTA	Annual growth rate of total dividends per share defined as the percentage increase from last year's total dividends per share to current year's total dividends per share. Source: Worldscope
DIVPAYOUTRAT	Dividends standardized by income before extraordinary items. The resulting payout ratio is set to 1 if a firm has a positive payout in spite of a negative denominator or if dividends are larger than the respective denominator. The minimum payout ratio is set to zero. Source: Worldscope
	TAX VARIABLES
TAXPREFMINOR	Tax preference of small, marginal shareholders. Minority shareholders are defined as individual shareholders that are located in the top income tax bracket. The size of their shareholding is below the country-specific materiality limit, which separates substantial from non-substantial shareholders.
TAXPREFLARGEST	The tax preference of the largest blockholder of a firm. In case that a firm does not have any blockholder the minority shareholders tax preference is used.
TAXPREFLARGESTDOM	The tax preference of the largest domestic blockholder of a firm. In case that a firm does not have any domestic blockholder the minority shareholders' tax preference is used.
DELTAPREF	Difference between the preference of the largest shareholder TAXPREFLARGEST and the preference of a minor shareholder TAXPREFMINOR divided by TAXPREFLARGEST.
DELTAPREFDOM	Difference between the preference of the largest shareholder TAXPREFLARGESTDOM and the preference of a minor shareholder TAXPREFMINOR divided by TAXPREFLARGESTDOM.

Notes: This table provides a detailed overview of the variables and their definition. The data comes from different sources. The source of the data for the construction of the variables is reported along with the definition of the according variables.

Table Appendix T.2 Definition of investor types and subtypes

Variable	Description
	INSTITUTIONAL INVESTORS
Institutional investors	Buy-side institutions that have discretionary power over assets under management (AUM) and make buy/sell decisions.
Bank and trust	These firms perform all of the functions of a retail bank. As a retail bank, a portfolio of investments are put together by an investment adviser and sold in units to investors by brokers. They may also handle Trust Accounts, which are outside companies or individuals that have a bank manage their money for their own pensions or for various other reasons. They invest the money their customers hold in their accounts in order to make interest payments and their own profits.
Insurance company	Insurance companies invest in a similar fashion as Investment Advisors. They re-invest the money they take in order to make coverage payouts as well as their own profits.
Endowment fund	Endowment funds are permanent gifts, often to universities or colleges, which are re-invested to ensure continuing profit.
Foundation	These are philanthropic organizations that are dedicated to specific missions such as strengthening democratic values, reducing poverty and injustice, promoting international cooperation and advancing human achievement. In addition, they usually make grants to organizations in order to further these missions. Examples: Amelia Peabody Foundation; Adolph & Esther Gottlieb Foundation; and The Ford Foundation.
Hedge fund	A hedge fund management firm who, through its hedge fund products, is permitted to use aggressive strategies that are unavailable to mutual funds, including selling short, leverage, program trading, swaps, arbitrage and derivatives. Many times they are highly secretive because they use risky investment styles and also involve high net investors. Since they are restricted by law to less than 100 investors, the minimum investment is typically 1 million US-Dollar.
Investment advisor	Investment advisors registered with the Securities and Exchange Commission who manage assets for private clients and institutions.

Continued on next page

Table Appendix T.2 (continued)

Variable	Description
Pension fund	A qualified retirement plan set up by a corporation, labor union, government, or other organization for its employees. In order to be included in the Thomson Financial database, the pension fund must manage a portion of its assets internally.
Private equity	Firm that invests solely in private equity investments (i.e. privately held companies). They provide equity financing to small and middle market companies engaged in a variety of industries. They often focus on management buyouts, industry consolidations, re-capitalization of existing business and other private equity opportunities.
Venture capital	A firm that specializes in providing money to startup firms and small businesses with exceptional growth potential.
Investment advisor / hedge fund	An investment firm that uses both "traditional" and hedge fund (i.e. "alternative") investment techniques.
Mutual fund	An investment vehicle operated by an investment company which raises money from shareholders and invests in a group of assets, in accordance with a stated set of objectives.
	STRATEGIC ENTITIES
Strategic investors	Entities (corporations, holding companies and individuals) that don't invest for 'investment management' purposes, but rather invest for strategic stakes in companies. They may also be a officer or director in the company.
Corporation	Typically a business organization that is given many legal rights as an entity separate from its owners. For ownership purposes, these entities will typically be set up to represent its strategic investments.
Holding company	A company that owns enough voting stock in another firm to control management and operations by influencing or electing its board of directors, therefore being able to control its policies and management. Examples: Icahn Holding Corporation and Banc One Corporation.
Individual investor	Individual wealthy investors or officers and directors.

Notes: This table provides a detailed definition of investor types and subtypes as presented in Table 6.4.

Source: Own work.

Table Appendix T.3 The calculation of tax preferences: The example of a domestic, non-substantial individual investor in Germany (2003)

	Dividends	**Capital gains**
Taxes on the coporate level		
Corporate income tax[a]:	25% + 1,5%	25% + 1,5%
Municipal trade tax[b]:	16.2%	16.2%
Other taxes[c]:	5.5%	5.5%
Total tax burden on the corporate level	39.6%	39.6%
Taxes on the investor level		
Personal income tax[d]:	48.5%	0.0%
Other taxes[e]:	5.5%	0.0%
Total tax burden on the level of the individual investor	25.6%	0.0%
Total tax burden		
Tax base on the corporate level	100.0%	100.0%
Total tax burden on the corporate level	39.6%	39.6%
Tax base on the level of the individual investor	60.4%	60.4%
Total tax burden on the level of the individual investor	25.6%	0.0%
Residual after taxes	**44.9%**	**60.4%**
Total tax burden	55.1%	39.6%
Tax preference for dividends		
Tax preference	0.743	

[a] Due to the German Flood Victims Solidarity Law of 19.9.2002, the "Flutopfersolidaritätsgesetz", the corporate income tax in 2003 was increased by 1.5 percentage points to 26.5%.

[b] Please note that the municipal trade tax consists of a federal rate and a multiplier. Since the multiplier is determined by the municipality, the municipality has a direct influence on the size of the trade tax. The federal rate in 2003 amounts to 5%. I assume a multiplier which is fixed by the municipality at the level of 387%. This equals the average multiplier as reported by the German Federal Statistical Office. Please also note that the local business tax reduces the assessment rate for the corporate income tax.

[c] Solidarity surcharge.

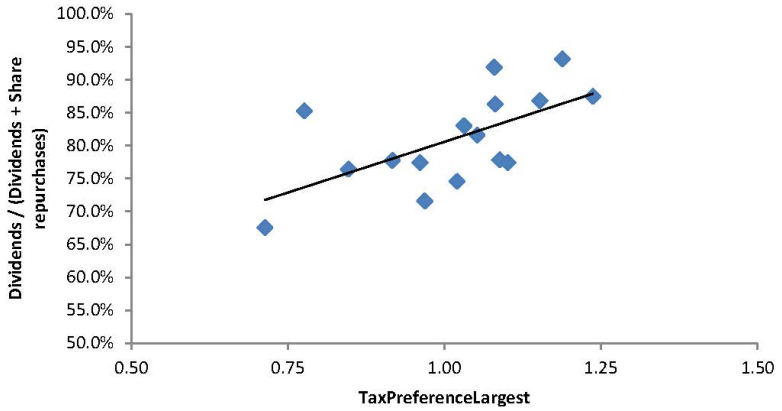
[d] 48.5% tax rate of an individual investor in the top income tax bracket; under the half-income system only 50% of the income is subject to taxation.

[e] Solidarity surcharge; Church tax is not included.

Notes: This table presents an example for the calculation of the dividend tax preference of a non-substantial, individual investor in Germany in 2003.

Source: Own work.

Figure Appendix F.1 Tax preferences and payout policy: Additional univariate evidence



Notes: This figure uses country-level data to illustrate the relationship between the largest shareholder's tax preference (TAXPREFLARGEST) and the firms' payout ratio. The values of the tax preference and the payout variable equal the mean of the respective variable in a given country over the period from 1999 to 2008. The payout ratio is defined as a firm's cash dividend amount divided by its total payout. The latter equals the sum of cash dividends and share repurchases. The continuous line marks the regression line.
Source: Own work.

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