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DIRK FORSCHUNGSREIHE



Germany as a federal republic has different forms of government, and similar to this, you find a lot of different forms of corporate government. The public debate about corporate governance and shareholder activism was boosted by the labeling of private-equity-investors as "locusts" causing extensive damage and thus requiring more regulatory efforts. In this context the academic discussion faces two facts: On the one hand, it is necessary to consider large and active shareholders, but on the other hand it is more important to know and determine who they are.

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Upon this starting point the present dissertation works on different research questions: How is a blockholder's ability to solve the agency problem between managers and owners? Can an active blockholder change the objective function of a company? Does the transition of ownership of a state-owned enterprise improve the operating and financial performance? Mark Mietzner's dissertation – published as volume 13 of the "DIRK-Forschungsreihe" – consequently compares the differences of value creation between Hedge Funds and Private Equity Funds as active shareholders, shows the effects of shareholder activism and concentrates on results of different exit strategies.



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Mark Mietzner

Changes in Corporate Governance and Corporate Valuation

DIRK Forschungsreihe, Band 13



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Preface of the president of DIRK

Lately the activities of large and active shareholders have occurred with considerable interest. Economists believe that large shareholders' monitoring activities can be very effective in reducing problems that arise from the separation of ownership and control. However, large and active shareholders differ from each other in the way they enforce their interests. Therefore, it is necessary not only to consider them, but it may be even more important to determine who they are and what kind of influence they have on the corporate governance structure of their portfolio companies.

In Germany, the discussion of shareholder activism has considerably intensified at the time the German public was unfamiliar with the activities of large and active shareholders like private equity investors and hedge fund managers. Franz Müntefering, a top-ranking politician of Germany's Social Democratic Party, famously labeled private equity fund managers as "locusts" descending on unprotected companies. This ignited a public debate about the activities and proceedings of financial investors and the necessity of regulation. However, regulatory constraints rest on the need for a sound understanding of potentially negative effects of hedge funds and private equity engagements in German companies.

Unfortunately, only little empirical research analyzes the economic effects of the smallest possible economic unit – the individual shareholder. Therefore, this doctoral thesis follows the research objective of improving our understanding about value implications of changes in corporate governance structures and focuses on the effects of stakeholder governance, especially the information incorporation process at a single firm as well as the aggregated industry level.

The chapters in this book cover a wide range of corporate governance and corporate valuation topics attributable to four main areas: It starts on a single-firm level and investigates the short-term and long-horizon performance of German exchange-listed companies targeted by hedge funds and private equity investors. Secondly, it proceeds with a consideration of intra-industry effects by examining the impact of hedge fund and private equity engagements for firms involved in similar economic activities like target companies. Chapter 4 concentrates on the exit of active shareholders. Finally, the fifth chapter of this book focuses on a special type of shareholder: the government.

The publication of this dissertation within the DIRK research series was supported by Mr. Mietzner's supervisor Prof. Dirk Schiereck, who is a member of DIRK's scientific advisory board. This body was formed to enhance the involvement of investor relations in modern finance and to improve its external communications in order to recruit young scientists. This intention was fully achieved by this doctoral thesis. I highly recommend this book to academic researchers and practitioners as it contains many intriguing and surprising results which make the analyses an interesting reading.

Hamburg, February 2009

Bernhard Wolf President of DIRK – Deutscher Investor Relations Verband (German Investor Relations Association)

Foreword

How changes in a firm's ownership structure influence the (expected) corporate governance and, consequently, the corporate valuation has been widely discussed in the finance literature for decades. However, many important questions raised in this discussion remain unanswered today – in particular with regard to active institutional shareholders like private equity investors and hedge funds. The core market for these financial investors is the US market, which is the most mature and well established market with a long-run history and a large number of very experienced market participants. In contrast, the German market is younger and smaller but has been characterized by a sharp increase in transaction volumes during recent years. Whether empirical evidence for the US market can be transferred to the German institutional setting is highly questionable because the political, legal and financial environment in Continental Europe deviates remarkably from the Anglo-Saxon countries.

In his thesis, Mr. Mietzner sets out to analyze whether active investors generate shareholder value when they invest in German corporations and change the corporate governance. This is not only a remarkable endeavour, as Mr. Mietzner uses hand collected, unique German data to present state-of-the-art analyses, which are competitive and meet highest international standards.

The thesis on hand carefully identifies and addresses open research questions related to the investments in German corporations. Its primary objective was to identify value consequences of corporate governance changes in Germany analyzing stock price and accounting data. Another focus of the thesis concerns share issue privatizations, a divestment vehicle commonly employed by (partly) state owned corporations to disentangle public ownership. Updated empirical evidence provides significant valuelosses for capital market participants in Western Europe.

Mr. Mietzner fully achieves the objectives of this dissertation. The analysis contains many intriguing and surprising results, which make this thesis an interesting read, which I highly recommend to corporate finance researchers and investor relations practitioners. I wish for the dissertation its due wide diffusion in corporate finance and investor relations research.

Darmstadt, February 2009

Professor Dr. Dirk Schiereck TU Darmstadt

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List of Abbreviations

ALM	Amihud Liquidity Measure
AR	Abnormal Return
ATV	Abnormal Trading Volume
BaFin	Federal Financial Supervisory Authority
BASIC	Basic Industry
BBC	Biggest Blockholder – Corporation
BBHC	Biggest Blockholder – Holding Company
BBHF	Biggest Blockholder – Hedge Fund
BBHIA	Biggest Blockholder – Investment Advisor
BBII	Biggest Blockholder – Individual Investor
BHR	Buy-and-Hold Return
BHAR	Buy-and-Hold Abnormal Return
САРМ	Capital Asset Pricing Model
CAR	Cumulative Abnormal Return
CAAR	Cumulative Average Abnormal Return
CEROE	Cash Earnings Return on Equity
CoRe	Consumer Retail Industry
CYCGD	Cyclical Consumption Industry
CYSER	Cyclical Services
DPO	Dividend Payout
E1YG	Equity 1-Year Growth
EBITDA	Earnings before Interest, Taxes, Depreciation and
	Amortization
EMH	Efficient Market Hypothesis
EPS	Earnings per Share
GENIN	General Industry
GMSPR	Geometric Mean of the Stock Price Return
HF	Hedge Funds
HFF	Hedge Fund Follow on Dummy
HHI	Herfindahl-Hirschman-Index
IEODS	Interest Expenses on Debt Divided by Sales
INDC	Industrial classification (Level 6 Mnemonic)
INDG	Industrial grouping (Level 6 Number)
InitialRet	Initial Return (Underpricing)
ITECH	Information Technology
LBO	Leverage Buyout
LNC	Logarithm of Cash
LNMV	Logarithm of Market Value
LNTA	Logarithm of Total Assets
LR	Likelihood Ratio
MarRet	Market Return

MCTCE	Market Cap to Common Equity
NCYCG	Non-Cyclical Consumption Industry
NCYSR	Non-Cyclical Services
NOHFT	Number of Hedge Funds
NOPE	Number of Private Equity Funds
NOB	Number of Blockholders
OPROA	Operating Return on Assets
OPROS	Operating Return Divided by Sales
OTC	Over-the-Counter
Overprct	Overallotment
PE	Private Equity
PEA	Private Equity - Affiliate Target
PIPE	Private Investments in Public Equity
RESOR	Resources
ROA	Return on Asset
ROE	Return on Equity
TD%TA	Total Debt Percentage Total Assets
TOTLF	Financial Services
SCAR	Standardized Cumulative Abnormal Return
SDC	Security Data Company
SEO	Seasoned Equity Offering
SIC	Standard Industrial Classification
SIP	Share Issue Privatization
SOE	State-Owned Enterprise
Telec	Telecommunications
UnderRept	Underwriter Reputation
UTILS	Utilities
VC	Venture Capital
WR	Wealth Relative
%OAT	Percentage Owned After the Transaction
ΔROA	Change in Return on Asset

α_{i}	y-axis intercept term in cross-sectional regression
$\mathcal{E}_{i,t}$	Cross-sectional regression error-term for observation i at time t
$\sigma(CAR_{[t_0^- \tau, t_0^+ \tau]})$	Standard deviation of CARs for firm i from over period T
$AR_{i,T}$	Abnormal return for firm i on day t
$BHR_{i,T}$	Buy and hold return for firm i from point in time t until T
BHAR _{i,T}	Buy and hold abnormal return for firm i from point in time t until T
$CAR_{i,[t_0^{-}\tau,t_0^{+}\tau]}$	Cumulative abnormal return for firm <i>i</i> from point in time $t_0^- \tau$ until $t_0^+ \tau$
$CAAR_{i,[t_0^{-} \tau, t_0^{+} \tau]}$	Cumulative average abnormal return for firm i from point in time $t_0^- \tau$ until $t_0^+ \tau$
i =1,,I	Index of observations
$\bar{K_t}$	Rank of abnormal returns for firm i from point in time t until T
\overline{K}_t	Average rank of abnormal returns over time interval t
$P_{i,0}$	Offering price of stock i
$P_{i,t}$	Price of stock i over time interval t
R _{m,t}	Return of firm i over time interval t
$R_{i,t}$	Return of market index m over time interval t
$\overline{R_m}$	Mean market return from point in time <i>t</i> until T
SCAR _{it}	Standardized cumulative abnormal returns for firm i from point in time t until T

$\stackrel{\wedge}{SE}_{i,[t_0-\tau,t_0+\tau]}$	Estimate of standard deviation for firm i from point in time $t_0^- \tau$ until $t_0^+ \tau$
t ₀	Event date

 $t = 1, \dots, T$ Index of time

1 Introduction

The governing structure of a German corporation resembles the governing structure of a nation, with stakeholders as voters, directors as representatives and managers as bureaucrats.¹ Similar to a nation's different forms of government, we also observe different forms of government in corporations. For example, a situation when directors have the power to govern without the consent of their stakeholders (who may have less effective instruments at their disposal to monitor or influence the directors) is reminiscent of a dictatorship. By contrast, a democracy corresponds to a situation when stakeholders are equipped with the power to influence important decisions, and directors are equipped with little power.

But why should stakeholders pay attention to a firm's form of government? Or, in other words, why does corporate governance matter? Stakeholders are providers of capital, e.g., equity or human capital, which is pooled and employed within a firm to generate profits. Financiers are normally rewarded for providing capital to a firm. However, the size of the profits and their distribution among the providers depends on decisions that will be made in the future [Schmidt (2004)]. To the extent that these decisions are made by directors, the providers of capital must be assured that their reward for providing capital will not be expropriated by the firm's directors.

One solution might be a contract between the providers and the firm directors. Admittedly, however, it is difficult to incorporate arrangements concerning future states into a complete contract [see Shleifer and Vishny (1997) for a detailed discussion]. Therefore, fund providers cannot be fully assured that they will be rewarded on the basis of contracts alone. Against this background, the impracticality of contracts might result in increased interest in monitoring and influencing decisions. Stakeholders may not otherwise be as willing to provide their capital [Schmidt (2004)].

The effectiveness of control depends critically on the instruments stakeholders have to enforce their interests, which are determined by the corporate governance system.² Schmidt (2004, pp. 392-393) states:

(...a) good corporate governance system provides instruments and assigns an active role to those stakeholders – and only to those – that have incentives and strategies for using their instruments in such a way that management is made to follow a business policy which benefits all groups of stakeholders or at least affords them so much protection that they all find it attractive to contribute their respective resources to the pool that is called the firm.

For equity providers, this implies that effective instruments are needed to encourage managers to allocate their capital to projects that reflect the interests of the owners. In other words, because managers control the capital, they may expropriate the investors. This problem is well-known as the agency problem induced by the separation of ownership and control [see the seminal works of Coase (1937) and Jensen and Meckling (1976)].

From a theoretical perspective, Grossman and Hart (1980) and Shleifer and Vishny (1986) suggest that one solution for the agency problem is a monitoring role by large shareholders.

 For a discussion from a systematic perspective, see Schmidt (2004).

Note that while the relationship of corporate governance and the form of government is in accordance with Gompers, Ishii and Metrick (2003), we also consider stakeholders.

Although a considerable body of research has analyzed the effectiveness of large shareholders' monitoring activities and their ability to directly influence corporate policy, empirical research has found ambiguous evidence of successful changes in corporate policy. Many studies have tried to explain this lack of empirical evidence by further developing the research question from a consideration of large blockholders to a separation between active and passive blockholders.

More recent research has focused on the ownership structure. Cronqvist and Fahlenbrach (2007), for example, consider a shareholder's identity and argue that changes in investment and financial policy as well as in operations are greater in the presence of specific groups of active blockholders. They conclude it is necessary to consider large and active shareholders, but it may be even more important to determine who they are.

This is the starting point for the following analysis of this doctoral thesis which consists of four papers. By analyzing the effects of the smallest possible economic unit the individual blockholder each paper of this thesis contributes to the debate of understanding the value implications of corporate governance structures.

First research question:

The first research question considers a blockholder's ability to solve the agency problem between managers and owners. We argue that a resolution or at least a reduction of this problem can result in an increase in a company's stock price and, therefore, in increased shareholder value. However, changes in shareholder wealth are related to the motivation, possibility and opportunity for being an active blockholder who successfully reduces agency problems. But not all blockholders are motivated to align the interests between managers and owners [Schmidt (2004)].

As a result, we focus on two types of blockholders, hedge funds and private equity firms, who are perceived to have the opportunity, possibility, and motivation to be active. Given that these two blockholders are able to mitigate the agency problem, we believe the capital markets should react to engagements of these investors. Consequently, two questions arise: Are the activities of specific and active large blockholders value-enhancing? And is the value creation caused by a reduction in agency costs?

To answer these questions, we use a unique data set of 226 German companies that have been targeted by hedge funds and private equity investors between 1993 and 2007. The empirical evidence is based on short-term event studies, and shows positive abnormal returns following an announcement that an active shareholder has acquired at least 5% of a company's voting rights. Although the positive market reaction may indicate that these two types of investors are able to reduce agency costs and thereby enhance value, variables used to control for agency costs can only explain the market reaction for private equity investments. Remarkably, the long-lasting return drift to private equity and hedge fund targets is on average negative, ranging from -2.47% to -21.46% for up to 250 days after the announcement. This is consistent with the beginning of the J-curve for the private equity portfolio.

In contrast, the considerably more negative long-term returns for hedge fund targets can be explained by the German corporate governance system, whereby hedge funds must align their interests with supervisory board members. To the extent that hedge funds can persuade board members of the soundness of their strategies, it is possible they can reduce the agency problem. However, we believe the distinct negative post-announcement stock performance of hedge fund targets may be a misinterpretation by the capital markets of a hedge fund's abilities and motivations to solve this problem [Gompers, Ishii and Metrick (2003)].

The results provide evidence that engagements of hedge funds and private equity investors are associated with substantial positive valuation effects over the short term, which can be explained by agency cost proxies only for the private equity subsample. Comparing these findings with related study results, we find that hedge fund targets experience an increase in payouts, operating performance and CEO wages [Brav, Jiang, Partnoy and Thomas (2008) and Clifford (2007)]. In contrast, Klein and Zur (2008) find no increase in operating performance, but a decline in profitability ratios and an extraction of cash due to an increase in payouts. The empirical evidence on the activities of private equity investors reveals that their targets experience an increase in operational performance and efficiency.³

Overall, these results indicate that the new institutional investors at least have the ability to improve the operating performance of their target firms by changing their objective functions toward more of a shareholder value orientation. However, this can also affect the way firms compete [Allen, Carletti and Marquez (2007) and Boyson and Mooradian (2007)]. Furthermore, engagements by hedge funds or private equity investors may inadvertently convey valuable private information about the target firm as well as its industry. As a result, these investments have the potential to affect rival firms involved in similar economic activities. This leads to the second research question.

Second research question:

To the extent that active blockholders can change the objective function of a company, this might also change the competitive environment, or convey private information about the target company and the industry. Consequently, we ask whether we can observe any valuation effects to rivals from the information associated with an engagement of hedge funds or private equity investors. We argue that positive valuation effects are consistent with the information signaling hypothesis, while an increase in competition should affect rivals detrimentally.

Using a sample of 223 German industry rivals, we find that rival firms are clearly affected by an acquisition of an ownership claim by hedge funds or private equity investors. Rivals to hedge fund targets experience negative valuation effects in the short term. But our private equity rival portfolio exhibits positive announcement effects that are inversely related to industry concentration and positively related to a change in profitability, the market-to-book ratio and trading volume. The valuation effect of rivals to hedge fund targets can be explained only by the market-to-book.

Because the intra-industry effects directly impact short-term industry returns, we posit an influence on the long-lasting returns, especially if changes in the target firms' objective functions affect the competitive environment. We illustrate that both rival portfolios experience negative buy-and-hold abnormal returns (BHARs), while the reaction for hedge fund rivals cause greater losses up to 250 days after the announcement.

Examining the BHAR drivers provides evidence that the capital markets are concerned about the negative competitive effects. However, firms with growth prospects and an increase in profitability prior to the announcement are less detrimentally affected by the

See, for example, Kaplan (1989), Kaplan and Stein (1993), Hogan, Olson and Kish (2001) and Bowman and Graves (2005).

engagement of private equity investors in a rival company. The picture for our hedge fund rival portfolio is ambiguous. Thus further research is warranted.

The effects of the acquisition of an ownership stake by private equity investors, as we have described so far, show a great deal of positive valuation effects for target firms due to reduced agency costs and a negative long-lasting return drift for their rival firms. However, until now, we have only analyzed the beginning of a private equity engagement and a short period thereafter. The business model of private equity and similar investors consists of raising money in limited partnerships with finite lifetimes. These investors are thus forced to recapitalize from their investments within a restricted time period. Consequently, the third research question considers the exit of financial investors.

Third research question:

The starting pint of our analysis of exit strategies of financial investors is again that they can improve the operating performance of their portfolio companies by streamlining business structures. Typically, private equity investors (PE) and venture capitalists (VC) recapitalize from their investments by conducting an initial public offering (IPO), if the firm is privately held. When a firm goes public, outside investors generally do not have the same information about firm value as inside investors. Therefore, outside investors must be compensated for taking the risk of investing in the equity offering.

Given a high level of asymmetric information, high-quality firms will not be willing to sell their shares at average prices. They will attempt to separate themselves from low-quality firms by underpricing their shares and thus signaling their quality. Academics and practitioners suggest that a certification of the issuing company might lower underpricing. And the engagement of a financial specialist, such as a private equity investor or a venture capitalist, is perceived as a positive and reliable signal of a high-quality firm [Megginson and Weiss (1991)].

A considerable body of research has analyzed the effectiveness of financial sponsors' certification roles. The empirical research finds evidence of an inverse relationship between a financial sponsor's reputation and short-term and long-horizon returns [see, e.g., Megginson and Weiss (1991) and Brav, Jiang, Partnoy and Thomas (2008)]. However, VCs are regarded as specialists in young and high-growth companies' funding, which are most prone to information asymmetries. PE target companies, on the other hand, are generally more mature and do not necessarily need to be held privately.

Therefore, it seems unlikely that the certification role will lead to similar results among all groups of financial sponsors. It is thus necessary to consider the certification role of financial specialists, but it may be even more important to determine their identity. From these differences, we expect initial VC-backed IPO returns to be larger, and the underpricing to be higher. Consequently, we predict the following: If the certification provided by VCs and PE investors takes effect, the engagement of both will not be associated with differences in long-term returns, and overall will show no significant underperformance.

The basis for answering this question is a dataset of 188 PE- and VC-backed European IPOs that took place between 1994 and 2005. Controlling for size and different levels of asymmetric information associated with the respective IPO, we find that VC-backed IPOs experience larger first-day returns than PE-backed IPOs. When we consider the long-term performance of VC-backed IPOs, we find their returns do not differ from PE-

backed IPO returns. However, long-term market performance of VC-backed IPOs can only be explained by market- and issue-specific effects. Long-term returns of PE-backed firms are determined by leverage, growth opportunities, underwriter reputation and market environment. Size and industry effects, as well as operational performance, do not significantly impact long-term performance.

Overall, our results indicate that private equity investors can reduce underpricing more than venture capitalists, while IPOs backed by either experience lower underpricing than non-certified IPOs. Therefore, credible signals of inside shareholders are needed to convince outside investors of the quality of an IPO.

One alternative is a subsequent equity offering, since it is possible the issuers can become known for not taking advantage of new shareholders. This becomes critical if the equity offering is associated with a high level of asymmetric information. For example, privatizations are often associated with an increase in efficiency because of a stronger focus on profit maximization. They also experience fewer agency conflicts, because management no longer serves political objectives. However, in these types of transactions, governments may be a company's biggest blockholder, and they may possess superior information about a company's prospects. Therefore, a sale of shares may imply the government is taking advantage of an informational advantage.

Furthermore, the government may intend to redistribute the value of the shareholders' investment, i.e., influence firm value through policy changes in regulation and taxation [Jones, Megginson, Nash and Netter (1999)]. Thus, the valuation effect caused by an announcement of a subsequent equity offering within a privatization is ambiguous, which leads to the last research question.

Fourth research question:

The transition of ownership of a state-owned enterprise should result in an improvement in operating and financial performance. But the announcement of a further equity offering within a share issue privatizations (SIP) should cause a positive market reaction. In contrast, the underpricing of initial or subsequent share issuances, information asymmetries or agency problems should all negatively impact share price. Hence, we need to determine which effect is expected to predominate.

Our study design uses a market model event study methodology based on a sample of 134 SIPs, which are conducted by eighty-two enterprises from fifteen Western European countries over 1979 through 2003. We identify negative cumulative average abnormal announcement returns between -0.125% and -1.766%. We find that firm and offering size and market environment have a negative impact on announcement returns. In contrast, the negative CAARs are less distinct for enterprises with prior SIPs.

2.1 Introduction

It is well known that the separation of ownership and control causes agency problems when managers use investor funds to finance investment projects [Coase (1937) and Jensen and Meckling (1976)]. Because managers control the capital, they may expropriate their investors if the company does not impose a concentrated ownership structure. Numerous studies address this problem and provide mechanisms for managing it.⁴ One solution comes from Grossman and Hart (1980) and Shleifer and Vishny (1986), who suggest that large shareholders take on a monitoring role.⁵

Prior research has analyzed the effectiveness of large shareholders' monitoring activities as well as their ability to directly influence corporate policy.⁶ While large investors can be very effective in solving agency problems in theory, empirical research finds ambiguous evidence of successful changes in corporate policy. Previous research usually distinguishes between active and passive blockholders when considering their effect on corporate policies. However, Cronqvist and Fahlenbrach (2007) argue that activist shareholders differ from each other, and show that changes in investment and financial policy as well as in operations are greater in the presence of specific groups of active blockholders. They conclude it is necessary to consider large and active shareholders, but it may be even more important to determine who they are. Given blockholders' distinctive ability to change corporate policy, we believe capital markets should react to engagements of investors who reduce agency costs and thereby enhance value [Barber (2007)]. Consequently, two questions arise: First, are the activities of specific and active large blockholders value-enhancing? Second, is the value creation caused by a reduction of agency costs?

To the best of our knowledge, this is the first essay to show that stock price reactions in response to investment by two types of active shareholders, hedge funds (HFs) and private equity (PE) firms, differ substantially because of their different abilities to reduce agency costs. We argue that changes in shareholder wealth should also be related to the opportunity, possibility, and motivation of being an active blockholder, and that only large shareholders with the appropriate skill set and motivation will successfully reduce agency problems and enhance shareholder value.

It is obvious that both hedge funds and private equity funds seek to increase the market value of their pooled capital. Hedge funds often obtain returns from trading strategies, i.e.,

mergers, see Lang and Stulz (1994), Comment and Jarrell (1995), orBerger and Ofek (1995). Incentive contracts may be another effective solution to this agency conflict. Shleifer and Vishny (1997) discuss this option in more detail.

- A large shareholder (blockholder) is defined as an entity that owns at least 5% of a firm's outstanding shares.
- 6) See, for example, Barclay and Holderness (1992) and Cronqvist and Fahlenbrach (2007).

⁴⁾ See, for example, Shleifer and Vishny (1997), Aggarwal and Samwick (2006), and Becht, Bolton and Roell (2003) and their citations. A less costly form of expropriation for financiers is to require fringe benefits. Obviously, higher costs arise when management expands a company beyond its optimal point, and finances projects that maximize their own utility [Jensen (1986)], McConnell and Muscarella (1986)]. With respect to the market's perception of managerial decisions on diversifying

taking passive positions in mispriced securities and waiting for the prices to converge. A recently popular strategy is active engagement in publicly traded companies. However, both hedge fund and private equity investors may act as active shareholders, and their engagement may change the value of the target company as a result of, e.g., reducing agency costs.

The underlying reasons for the differences in strategy between the two, however, are funding structure and management reimbursement structure. In contrast to private equity, hedge funds face the problem of capital redemption by their investors, especially if the funds do not perform well. Private equity funds focus on longer investment horizons and are subject to a typical J-curve. Thus they can pursue an agency cost reduction strategy more easily. In addition, Partnoy and Thomas (2007) note that hedge funds tend to trade more frequently than other institutional investors. This raises the question whether hedge funds have the ability to reduce agency costs at all.

With respect to management compensation, it is important to note that hedge funds calculate their performance fees on unrealized capital gains, while private equity fund fees (carried interest) are derived solely from realized capital gains. This, in turn, may be an argument that hedge funds are more interested in short-term and trading-induced profits [Dai (2007) and Klein and Zur (2008)].

For our study, we construct a unique data set of 226 hedge funds and private equity engagements in German exchange-listed companies between 1993 and 2007. We apply a standard event study methodology to analyze whether the engagement of these specific active investors is associated with an increase in shareholder value. We also examine whether increases in stock returns are related to several corporate characteristics and market variables, and whether these persist over time.

Our investigation results in three main findings: First, we find substantial positive abnormal returns triggered by an announcement that a hedge fund or a private equity fund has acquired at least 5% of a company's voting rights. This result is consistent with related research and with the market's perception that both investors are able to reduce agency costs and enhance shareholder value.

Second, contrary to Brav, Jiang, Partnoy and Thomas (2008), Clifford (2007), and Klein and Zur (2008), we do not find that hedge funds enhance shareholder value due to a reduction of agency costs. Examining ownership characteristics reveals they provide only poor evidence for explaining the market reaction within our hedge fund sample; however, they are important for the private equity sample. Our findings support the common perception that a private equity fund's ability to reduce agency costs is lower if the target already has active blockholders.

Third, we find statistically significant negative buy-and-hold abnormal returns (BHAR) for both samples 250 days after the event. However, it seems market participants do not believe hedge fund activism creates wealth effects in a manner comparable to private equity engagements. We argue that this is because of the German corporate governance system, whereby hedge funds must align their interests with advisory board members. Therefore, we believe the distinct negative post-announcement stock performance of hedge fund targets may be a misinterpretation by the capital market of a hedge fund's abilities and motivations. It seems reasonable that a negative benchmark-adjusted performance is the result of an (initially) expected but (eventually) not realized reduction of agency costs.

 This important point is noted in later research that is subsequent to this work. See, for example, Klein and Zur (2008), who switched the focus of their paper from hedge fund activism to entrepreneurial shareholder activism. The rest of this essay proceeds as follows. In section 2.2, we differentiate among hedge funds, private equity funds, and traditional shareholders with respect to their perceptions, skill sets, and ability to reduce agency costs. We also review prior empirical studies. In section 2.3, we describe our data set, while section 2.4 provides our empirical methodology and research design. Section 2.5 reports our results, and the essay concludes in section 2.6.

2.2 When is expected shareholder activism associated with positive abnormal returns on publicly traded stocks?

Based on the agency-theoretical background provided by Jensen (1986) and Shleifer and Vishny (1986), blockholders often have the voting power to enhance shareholder value due to a reduction of agency costs.¹⁰ Nevertheless, blockholders do not act homogenously, as many models assume; rather, they differ in their incentives and capabilities to become active. Therefore, this section focuses on the different types of investors, emphasizing their motivations and ability to become active. We classify the investors into two groups: 1) traditional institutional investors like banks, mutual funds, and pension funds, and 2) new institutional investors like hedge funds and private equity funds.

2.2.1 Traditional Institutional Investors – The Role of Banks, Mutual Funds, and Pension Funds

Useem, Bowman, Myatt and Irvine (1993) investigate differences in shareholder activism by institutional investors and find they are heterogeneous in their behaviour even if they are of the same type. But what motivates some institutional investors to be active, while others are not, and why are some investors successful, while others fail? We find that banks usually hold substantial amounts of corporate equity and debt [Schmidt (2004)]. Casasola Martínez and Tribo (2004) argue that banks often have the required analytical skills, technical expertise, long-term business relationships, and access to superior information about firms. Therefore, in general, they meet the requirements to become active shareholders.

However, Charkham (1994) notes that different business units of a bank often do not share information because of regulatory constraints against conflicts of interests ("Chinese walls") [Calomiris and Singer (2004)]. Moreover, banks may not want to jeopardize their chance for future business [Harris and Raviv (1990)]. Thus banks may be less likely to become active shareholders.

Several studies have analyzed the relationship between German banks and non-financial companies, including Cable (1985), one of the first comprehensive studies. The author finds that banks can positively influence a company's profitability. Gorton and Schmid (2000) also document that banks positively affect firm performance.

Böhmer (2000) finds that engagement by a bank is beneficial only when other non-bank blockholders have at least comparable voting power. Elston and Goldberg (2003) document banks' ability to reduce the level of executive compensation.

Contrary to these findings, however, more recent studies such as Agarwal and Elston (2001) and Chirinko and Elston (2005) report only minor evidence that banks have successfully affected firm profitability or growth. Cronqvist and Fahlenbrach (2007) find no relationship between a bank's blockholder effects and corporate policy. Dittmann,

An appropriate skill set is defined by the freedom from regulation of being an active shareholder, the incentive to do so, and the funding structure.

⁹⁾ For an explanation of the J-curve, see section 3.2.

¹⁰⁾ For an overview, see, e.g., Shleifer and Vishny (1997).

Maug and Schneider (2005) document significantly negative correlations between firm value and bank representation. Given such mixed empirical evidence, it seems banks have the appropriate skill sets, but may prefer not to actively influence corporate policies. In contrast to banks, mutual funds and pension funds do not face most of these conflicts

of interest. However, they may not become active shareholders for five main reasons, which we explain in more detail next: 1) the substantial costs of informing themselves about a single portfolio company, 2) the lack of incentives to become active if, for example, a fund has below-average portfolio weights in a target compared to their peer group funds, 3) the lack of direct additional compensation for activist efforts, 4) certain conflicts of interest, and 5) regulatory or political constraints.

Funds with large amounts of assets under management obviously invest in numerous companies. Keeping on top of pertinent day-to-day business decisions requires substantial effort, which may or may not be accomplished by fund management. Although information about portfolio companies is easily obtained, analysis is costly, and funds will not be compensated for these additional costs. Because additional costs reduce the short-term compensation of fund management, there may be limited incentives to become active [Kahan and Rock (2007)]. One might assume these costs would be covered by an increase in performance. But this can result in a "free-ride" problem from other funds. Funds that own a significant proportion of voting rights in a portfolio company have no or negative incentive to become active when a target company's portfolio weight is smaller than its peer group funds. Thus the positives resulting from successful activism may be outweighed by a fund's underperformance relative to its peer group. This would reduce the probability of new capital inflows and fees, and therefore also the probability of activism [Kahan and Rock (2007)].¹¹

On the other hand, above-average performance compared to the peer group is likely to attract additional investments [Choi and Kahan (2007)]. New inflows generate additional management fees, which result in increased long-term compensation. Furthermore, mutual fund managers generally charge fixed management fees and no performance fee. This is another low financial incentive for mutual fund managers to become active in their portfolio companies [Rock (1992) and Brav, Jiang, Partnoy and Thomas (2008)].¹²

Conflicts of interest may arise when mutual funds are subsidiaries of other financial institutions like insurance companies or banks.¹³ The latter might wish to retain the potential for future business with the firms in question [Kahan and Rock (2007) and Davis and Kim (2005)]. During periods of high uncertainty, mutual funds bear the risk of high capital redemptions [Black (1990)]. Thus, they should not take illiquid positions, because they cannot be reduced quickly. Furthermore, the aim of mutual funds is to accumulate assets over the long term, and thus diversification is a minimum requirement. This point has been made into law in the U.S. and in Germany. The U.S. Investment Company Act states that 75% of a mutual fund's assets are subject to the limitation that the fund may own no more than 10% of the outstanding securities of a portfolio company. In addition, to qualify for significant tax benefits, the value of the stock of any portfolio company may not exceed 5% [Kahan and Rock (2007) and Black (1990)]. Section 64 of the German Investment Act (InvG) similarly restricts the holding of voting rights to 10% per stock.

In contrast to mutual funds, Rock (1992), Romano (1993a), and Romano (1995) note that most of the problems preventing activism in pension funds arise from the fact they

are political entities and subject to political interests. Thus, they are not fully aligned with the investor objective of return maximization.

Romano (1993b) summarizes several cases where political goals hinder effective pension fund activism. One of the most important conflicts of interest arises when portfolio managers use their position for self-promotion in political issues, rather than to enhance investor returns. Barber (2007) refers to this behavior as "social activism." Strong oversight by the board could prevent portfolio managers from pursuing political agendas, but board members are often driven by political issues, too. We believe a conflict-free oversight by board members is unlikely [Barber (2007)].

Kahan and Rock (2007) note that pension fund managers are not responsible for raising the funds they manage, and their compensation is not directly linked to economic success. Thus they are not necessarily motivated to maximize investor returns. Hence, successful shareholder activism is less likely for pension funds. Even if they do choose to become active, they need the voting rights of supportive blockholders. But because of the problem of politically motivated activism, support from other blockholders can be difficult to obtain. This further reduces the chance of successful shareholder activism [Kahan and Rock (2007) and Brav, Jiang, Partnoy and Thomas (2008)]. Conflicts of interest are obviously agency costs for pension funds [Barber (2007)].

Overall, pension fund managers often engage in "behind the scenes" discussions with board members and managers to achieve modest corporate governance changes rather than using aggressive activism [Carleton, Nelson and Weisbach (1998)]. Kahan and Rock (2007) note that pension funds aim for similar small corporate governance changes in several companies. This, in turn, should have only marginal impact on a company's corporate policy.

2.2.2 New Institutional Investors

We next outline the reasons that hedge funds and private equity investors become successful active shareholders. Hedge fund managers charge both a management fee and a performance fee.¹⁴ The management fee typically covers fund costs, while the performance fee is an incentive for fund management. Depending on the type of fund, management (performance) fees can range from 0.50% to 3% (5% to 25%) [Hennessee (2007)]. These high performance fees guarantee highly motivated managers.¹⁵

Furthermore, almost every hedge fund has a high water mark, meaning the manager does not earn the performance fee unless the fund value exceeds the previously achieved high value. In addition, about 15% of hedge fund managers also specify a hurdle rate [Van (2005)]. These managers do not charge a performance fee until the annualized performance exceeds the hurdle rate (this is sometimes a benchmark, such as T-bills, or a fixed percentage over some period). Hedge funds must avoid periods of low or negative performance because of the risk of substantial capital redemption by investors and low or no new cash inflows. Private equity managers, in contrast, generally assess an annual management fee of 2%, with carried interest of 20% and a hurdle rate of 8% [Beauchamp (2006), Metrick and Yasuda (2007), and Phalippou and Gottschalg (2007)].¹⁶ Private equity funds that do not exceed the hurdle rate do not generate profits, except for the management fee.

 Management fees are assessed as a percentage of assets under management; performance fees are usually a percentage of profits. more than U.S. \$130 million. In 2006, James Simons, the founder of Renaissance Technologies, earned U.S. \$1.7 billion.

16) The carry is a high incentive for private equity managers and can be above U.S. \$100 million per year. In 2006, Stephen A. Schwarzman, chairman, CEO, and cofounder of Blackstone, earned about U.S. \$400 million.

¹¹⁾ Rock (1992) notes that index funds, unlike mutual funds, have a low incentive to become active because they are paid for replicating an index. Thus any costs of activism reduce expected gains.

Furthermore, we believe the same holds for pension funds, because management compensation is not linked to fund performance [Kahan and Rock (2007)].

În Germany, many mutual funds are affiliated with banks or insurance companies.

¹⁵⁾ Hedge Fund managers are among the most highly compensated people in the world. Annual compensation of more than U.S. \$100 million is not uncommon. In 2005, the top twenty-five hedge fund managers each made

In the life cycle of a private equity fund, the first stage is fundraising and seeking new capital from outside investors. Investors or limited partners sign a legal agreement with the general partner, which binds them to provide a certain amount of cash (the commitment, or committed capital). The general partner is responsible for day-to-day management of the fund, including making investment decisions.

However, when the capital is committed, it is not necessarily transferred immediately to the fund. The cumulative capital calls or drawdown capital equal zero at the time of fund creation. In the next step, the general partner seeks investment opportunities in target companies. At this stage, the fund is not yet generating profits, but it does charge annual management fees, which are the first capital calls of the fund.

When the fund starts investing in target companies, some of the committed capital will begin to be called. The general partner may, for example, restructure portfolio companies in order to enhance their value.

The last stage is the exit of the private equity fund from the portfolio companies in order to distribute returns to investors. This process of generating negative revenues in the beginning, and high expected gains from successful exits at fund end, is well known as private equity's "J-curve."¹⁷

Hedge funds do not exhibit a J-curve. But, as we mentioned above, it is critical that they avoid negative returns. In order to acquire voting rights without owning a large long position in a company's underlying stock, hedge funds often use stock lending [Christoffersen, Géczy, Musto and Reed (2007)] or derivatives [Partnoy and Thomas (2007) and Hu and Black (2007)]. Since hedge funds are not registered under the U.S. Investment Company Act of 1940, they are not restricted from short-selling securities or leveraging. Thus, they can obtain large blocks of voting rights more easily than traditional investors. Furthermore, they do not have to disclose their holdings, investment strategies, short-selling positions, or leverage ratios.¹⁸

Some hedge funds build "side pockets" in order to keep illiquid assets separate. Once an investment enters a side pocket, only current investors benefit from its returns.¹⁹ Side pockets resemble private equity funds and are usually comprised of highly illiquid assets. But they offer the opportunity to pursue a long-term investment strategy for smaller amounts of capital.

Private equity funds and hedge funds exhibit similar advantages, except for the ability of private equity funds to use derivatives.²⁰ Hedge fund managers have greater flexibility, and are often able to invest within a day. Private equity managers must request capital, which can take up to three weeks. This funding structure enables private equity managers to focus on longer investment horizons and provides a wide range of investment strategies. Management is also not subject to redemption risk. But private equity funds must aim to avoid total losses of portfolio companies, because they must be sensible of attracting potential investors into their next funds [Kaiser, Lauterbach and Schweizer (2007)].

In contrast, hedge fund managers may face significant capital withdrawals after reporting negative performance for several subsequent months [Getmansky (2005)]. They may also face the problem of losing their best employees if fund performance is substantially below the high water mark.

17) Note that we also observe a J-curve for targets.

20) An exception would be special situations where the use of derivative instruments can preserve unrealized gains. Moreover, private equity funds can buy derivatives for investment purposes, but in general they do not rely on their beneficial tax position [Achleitner and Kaserer (2005)]. But more important is that hedge fund and private equity funds differ dramatically with respect to management compensation. Hedge fund performance fees are calculated on unrealized gains (mark-to-market calculations); private equity funds' carried interest is only calculated on realized gains.²¹

Thus we posit that both hedge funds and private equity funds may have the skill set and preference to become active in their portfolio companies. In addition, it is well documented that the announcement of expected activism in public companies by either hedge funds or private equity funds substantially increases share price.

Brav, Jiang, Partnoy and Thomas (2008), Clifford (2007), and Klein and Zur (2008) analyze capital market reactions triggered by an accumulation of at least 5% of voting rights. These studies do not take a target's ownership structure into account, and do not focus on agency cost reduction in particular. But their approach differs from ours in that they possess detailed information about the intentions of the acquirer via the SEC 13D and 13G filings.

Brav, Jiang, Partnoy and Thomas (2008) report average abnormal returns ranging from 0% to 16.8%, depending on the expected aggressiveness of the activism. An abnormal return of 0% is associated with the announcement of targeting the corporate governance structure, while a return of 16.8% is in line with the sale of the target or to provide financial assistance.

Clifford (2007) reports a median cumulative abnormal return of 1.74% around the filing date. Klein and Zur (2008) estimate mean and median BHARs of 10.3% and 8.9%, respectively. Differences in their findings may be due to differences in their sample periods, which range from two to eight years [Brav, Jiang, Partnoy and Thomas (2008), Klein and Zur (2008), and Clifford (2007)]. The number of hedge fund blockholders also varied substantially.

The abovementioned articles consider hedge fund managers to be suitable active investors, but they neglect private equity managers. Private equity research, in contrast, focuses mainly on leveraged buyouts (LBOs). DeAngelo, DeAngelo and Rice (1984), Lehn and Poulsen (1988), and Kaplan (1989) report cumulative abnormal returns of about 20% associated with LBO announcements in the U.S. More recently, Andres, Betzer and Hoffmann (2005) found similar evidence for Europe, while Pindur (2006) focused on successful European LBOs, and investigated the determinants of value creation.

Barber and Odean (2007) show that individual investors, in contrast to professionals, prefer to buy stocks that have caught their attention due to, e.g., increased media coverage, abnormal trading volume, or high returns. We find that a purchase of at least a 5% block of voting rights by hedge funds or private equity investors is accompanied by not only increased media attention, but also by high abnormal returns and trading volumes. This, in turn, makes it more likely that (private) investors will invest in these stocks (although it may not be wise to invest on the day such purchases become public).

Brav, Jiang, Partnoy and Thomas (2008) find marginal abnormal returns for hedge fund targets one year after the announcement. In contrast, Klein and Zur (2008) and Clifford (2007) observe significantly positive abnormal returns for the year following the block purchases by hedge funds.

Dai (2007) compares the short- and long-term market reactions triggered by private investments in public equity (PIPE) announcements of hedge funds and venture capital

21) The general partner may be able to catch up on unrealized

gains, but at least part of the catch-up will be clawed back.

Hedge funds, unlike mutual funds, are not subject to diversification requirements to qualify for significant tax benefits, as per subchapter M of the Internal Revenue Code.

Investors who leave the hedge fund still receive shares of the side pocket's realized returns.

²⁸

investors. The author finds that market reaction is positive and more pronounced for private equity investors as PIPE investors than it is for hedge funds. This is attributable to the fact that private equity investors are more likely to request board seats than hedge fund investors.

Furthermore, Dai (2007) argues that hedge funds are interested in short-term and tradinginduced profits. He observes increased operating profitability for both samples, which implies that private equity investors do not achieve higher increases from their monitoring role within one year after the PIPE. Strikingly, Klein and Zur (2008) find no increase in operational performance one year after a hedge fund's engagement. But they do find decreases in ROA, ROE, and EPS.

Clifford (2007) documents an increase in ROA, which is accompanied by a reduction in EBITDA and is primarily caused by asset divesture. These findings are a puzzle: Why do hedge fund and private equity targets experience positive or at least stable long-term returns, while operative performance indicators appear to decrease? One explanation may be the mixture of investment strategies of the dedicated investor, e.g., opposing a proposed merger. This is applicable especially for hedge fund targets.

2.3 Data

We use three primary databases for our analysis. We obtain time series data, i.e., daily closing prices and consolidated trading volumes for all firms in our sample and the CDAX[®] index,²² from Thomson Financial DataStream.²³ For accounting data, we use the Thomson Financial Worldscope database to obtain information from the fiscal year prior to the announcement. Finally, the Thomson Financial ownership database provides information on sample firms' ownership structures on a quarterly basis starting in 1997. Specifically, we use the ownership structure information from the prior quarters and at the announcement. The database reports investor name, type (i.e., classification), percent of total shares outstanding, and number of shares held by a reporting single investor. Obviously, our ownership database is determined by the reporting activities of the investors.

2.3.1 Hedge Fund Sample

Investors are required by the German Securities Trading Act (§§ 21 et sqq. German Securities and Trading Act) to disclose an acquisition of at least 5% of the voting rights of any German publicly traded company no later than nine days after the transaction. Following Becht and Böhmer (2003), we use the Federal Financial Supervisory Authority [Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin)] to identify disclosures of shareholders who owned 5% or more of a company's voting rights from 2001 through 2007. This database provides information on direct holdings, as well as cumulative voting rights that investors acquire, for example, due to joint control. Our data differ from recent U.S. studies because we include not only direct stakes of blockholders, but also chains of direct stakes.²⁴

- The CDAX[®] index is based on all German companies listed in the Prime Standard and General Standard segments.
- 23) As a robustness check, we investigate whether our results are affected by the choice of data source. We find that the results remain quantitatively and qualitatively similar

when we use market data obtained from Deutsche Börse Group. Tables are available upon request. The BaFin database dates back to 1995, and includes 3,860 disclosures through March 2007.²⁵ We exclude all filings of mutual funds, pension funds, and non-financial corporations. The remaining filings are matched with data obtained from Eureka Hedge, a hedge fund data provider, in order to identify all companies that are targeted by hedge funds (we assume Eureka covers most active hedge funds in the German market).

We matched Eureka's information on 3,843 hedge funds with BaFin data to identify the percent of total shares outstanding held by hedge funds. Based on this information, we exclude all disclosures of non-hedge funds and non-publicly traded companies. We searched Lexis Nexis and discussed our hedge fund sample with industry participants to obtain suggestions for additions, deletions, and transaction information. To avoid confounding events, we excluded all hedge fund disclosures that are within three months subsequent to a prior announcement of a 5% shareholding in that company by any other investor. To avoid potential biases from illiquid stocks, we also excluded all companies with absolute daily returns of less than |0.001%| on more than 70% of the trading days within the 200 days prior to the announcement. We are left with a total of sixty-seven hedge fund target firms listed in Germany. The industry classification for the target companies is given in Table 2-1.

Table 2-1: Industry Classification

This table summarizes the industries of the hedge fund and private equity fund target firms. Each firm is classified as one of the ten SIC divisions according to its primary four-digit SIC.

	Panel I: all tra	insactions	Panel II: priva trans	te equity actions	Panel III: hed tran	ge fund
	No. of Transactions	Percent of Panel	No. of Transactions	Percent of Panel	No. of Transactions	Percent of Panel
Agriculture, Forestry, and Fishing	1	0.43%	0	0.00%	1	1.35%
Construction	3	1.29%	3	1.89%	0	0.00%
Manufacturing	107	45.92%	84	52.83%	23	31.08%
Transportation, Communications, Electric, Gas, and Sanitary Services	17	7.30%	13	8.18%	4	5.41%
Wholesale Trade	6	2.58%	5	3.14%	1	1.35%
Retail Trade	4	1.72%	1	0.63%	3	4.05%
Finance, Insurance, and Real Estate	39	16.74%	27	16.98%	12	16.22%
Services	49	21.03%	26	16.35%	23	31.08%
Total	226	100.00%	159	100.00%	67	100.00%

2.3.2 Private Equity Sample

We obtain transaction information for private equity investor target companies over the November 1993 to March 2007 period from the Thomson Financial Mergers and Acquisition database.²⁶ In addition to other information, we extracted the announcement days for all transactions in Germany with acquirer primary SIC codes between 6000 and 6999 (the financial industry). We exclude all withdrawn and incomplete transactions, since those investors did not acquire voting rights. We also exclude acquirers from the banking or insurance industry. To be included in our final sample, an acquirer must be a private equity investor or an appropriate special-purpose vehicle, i.e., a company fully controlled by a private equity

Brav, Jiang, Partnoy and Thomas (2008), Klein and Zur (2008), and Clifford (2007) have all conducted research on the U.S. market.

Although the BaFin database dates from 1995, we were unable to identify a hedge fund deal before 2001.
 Figure 2-1 plots the historical distribution of private equity and hedge fund events.

Figure 2-1: Distribution of hedge fund and private equity events from 1993 through 2007

The entire sample covers all events (226), divided into 159 private equity events and 67 hedge fund events. The subsample is reduced for all private equity events related to affiliated companies (51), and is divided into 108 private equity events and 67 hedge fund events.



Figure 2-1—Continued



investor with an objective to acquire another company. Note that special-purpose vehicles are not always classified with 6000-6999 SIC codes. Consequently, we searched the deal synopsis for private equity funds that own a special-purpose vehicle, or for terms like leveraged buyout to classify a deal as a private equity transaction. We included the acquisition of subsidiaries of publicly listed companies, because we assume that the market reaction to the announcement of selling the business unit to a private equity investor would also apply to the parent company.²⁷

We validated our sample by matching it with the BaFin data, and by conducting a search on Lexis Nexis. We again discussed our final sample with participants in the private equity industry to obtain suggestions for additions, deletions, and transaction information. We are left with a private equity sample of 159 target firms. The industry classification for the target companies is given in Table 2-1.

2.4 Methodology

Market reactions to announcements of a purchase of at least a 5% block of voting rights by hedge funds or private equity investors provide an estimate of the agency costs that the market expects to be eliminated by the new blockholders. Therefore, we apply the standard event study methodology of Brown and Warner (1985). Using pre-event data over a 200-day period from $t_{i,220}$ to $t_{i,20}$, we estimate the risk-adjusted market model $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$, where R_{it} is the return to firm *i* at time *t*, R_{mt} is the market (CDAX[®]) return at time *t*, and ε_{it} is an i.i.d. error term.²⁸ We draw statistical inferences for the different event-window cumulative average abnormal returns (CAARs) using a standard t-test statistic. We also apply the test according to Böhmer, Masumeci and Poulsen (1991) to capture possible event-induced increases in variance.

To detect whether the capital markets distinguish between large purchases of voting rights by hedge funds or by private equity investors, we analyzed the differences in means and medians of event-window abnormal announcement returns. But we faced the problem that investors are required to disclose an acquisition no later than nine days after the transaction. Because we base the identification of announcement days within our hedge fund sample on information provided by BaFin, the pattern of announcement returns might be biased by a lagged disclosure. These differences in the announcement returns between the two samples may lead to incorrect inferences for shorter event windows.²⁹ To analyze the hedge fund and private equity targets in more detail, we first attempt to determine the likelihood that a given target will be acquired by a private equity investor instead of a hedge fund. We calculate the conditional probability by estimating a Probit model using observable firm characteristics to determine whether a firm is more likely to become an hedge fund target (dummy equals 0) or a private equity target (dummy equals 1). Our second step is to calculate the CAARs and estimate their sensitivity to transaction, ownership, and firm characteristics. We estimate the t-statistics of our cross-

(1985). Our results remain robust. We also calculate cumulative abnormal trading volumes for the different time intervals using the mean-adjusted event study approach described above to control for volume-induced stock price increases.

29) To avoid this problem, we base the subsequent crosssectional regression on a [-10;10] event window.

²⁷⁾ For robustness, we control for whether the results of the event study are affected by these events, and found that our results remained stable. Tables are available upon request.

²⁸⁾ Low trading volume might influence the estimation of the systematic risk factor bi. Therefore, we re-estimate the abnormal returns for our time intervals with a meanadjusted return model, as proposed by Brown and Warner

sectional regressions using White's heterosked asticity-consistent standard errors [White $(1980)].^{30}$

Finally, we estimate the one-year buy-and-hold abnormal return (BHAR) using the daily closing prices relative to the CDAX[®]. Because some announcements, especially within the hedge fund sample, are in the second half of 2006 or later, we consider a one-year window of BHAR only.³¹ The Probit model shows that hedge fund targets differ from private equity targets, so we need to determine whether the long-term impact is related to distinct preferences. For every agency variable within our two samples, we construct subsamples by dividing the sample at the median and calculating differences in means and medians for the resulting BHARs.

2.5 Empirical Results

2.5.1 Differences in Investment Behaviour and Target Companies

Although hedge fund and private equity managers have similar skill sets, they may have different investment preferences, which should be reflected in the target companies' characteristics. Hence, we analyze the target companies and investor behaviour by applying a Probit model to predict whether a firm will become a private equity target (the dependent variable takes a value of 1), or an hedge fund target (see Table 2-3).³²

The target characteristics of interest are firm size, interest expenses on debt divided by sales, and book-to-market ratio. We find that hedge funds prefer smaller targets with higher growth valuations and higher interest expenses compared to sales. This is not surprising, as hedge fund managers following an activist strategy will generally have less assets under management than similar private equity funds. The higher book-to-market multiples might be due to smaller companies having average higher valuations than mature companies.

Lower interest expenses to sales ratios can be explained by the fact that private equity companies typically prefer targets that are not burdened with high interest expenses. This gives them more latitude to change business plans and capital structure. However, the fact that hedge funds prefer targets with high book-to-market values and higher interest expenses on debt divided by sales is striking. It contradicts one of the most common facts of investing: a negative relationship between book-to-market values and leverage [Tirole (2006)].

Note that most of our agency proxies (TD%TA, CEROE, ROA, EPS, and LNMV) do not discriminate between hedge fund and private equity targets. This indicates a priori that the targets cannot be distinguished with respect to agency-related characteristics. Therefore, both types have similar opportunities to reduce agency costs. With regard to governance structure, however, the Probit model shows that hedge fund managers favour targets that already have blockholders in the quarter of the acquisition. Furthermore, the probability that a company will be targeted by an hedge fund is higher if another hedge fund is already a blockholder prior to the acquisition, and if the biggest blockholder is an hedge fund.

trading day window.

Descriptive statistics are without affiliated companies. The Amilud (2002) liquidity measure (ALM); abnormal trading volume from the period ten days prior to ten days after the event (ATV1010); percentage owned after the transaction = number of common shares acquired in the transaction plus any shares previously owned by the acquired invided by the total and the transaction plus any shares previously owned by the acquired interview of the transaction plus any shares previously owned by the acquired invided by the total anumber of shares outset and the transaction plus any shares previously owned by the acquired interview of the transaction plus any shares previously owned by the acquired interview of the transaction plus any shares previously owned by the acquired interview of the transaction plus any shares previously owned by the acquired interview of the transaction plus any shares previously owned by the acquired interview of the transaction pridends (Tarb) / total assets = (short term debt & current portion of long term debt / total assets * 100 (TD%TA); cash earnings return on equity = funds from operations / last year's common equity * 100 (CEROE); return on assets = (net income before preferred dividends + ((interest expense on debt-interest capitalized) * (1-tax rate))) / last year's total assets * 100 (ROA); equity 1-year growth = Current year's common shareholders equity / last year's common equity -1) * 100 (ETVG); earnings per share represent the earnings for the twelve months ending the fiscal year of the company (EPS); market cap to common equity = Market Capitalization / Common Equity at time of and Tests Statistics

acquisition (MCTCE).										
	ALM	ATV1010	%OAT	DPO	TD%TA	CEROE	ROA	EIYG	EPS	MCTCE
Private Equity-Sample										
Mean Median	0.002 0.000	8.207 0.000	$0.450 \\ 0.290$	16.565 0.000	26.829 21.577	32.570 31.158	-0.217 3.408	49.255 5.757	-1.250 0.318	3.799 1.585
Hedge Fund-Sample										
Mean Median	0.006 0.001	16.907 7.784	0.116 0.080	11.354 0.000	27.119 16.149	28.906 15.488	-3.970 3.250	48.296 5.778	-1.076 0.163	4.335 2.300
Mean t-Test										
t-Value	0.968	1.722	-6.577***	-1.148	0.047	-0.294	-1.061	-0.033	0.097	0.359
Rank Sum Test										
t-Value	-1.885	1.214	-4.605***	-0.822	-1.043	-1.955	-1.095	-0.286	-0.145	-2.163***
***, **, and * indicate st	tatistical signif	icance at the 1%	, 5%, and 10% le	vels, respective	sly.					
										(continued)

In unreported tables, we use variance decomposition according to Belsley, Kuh and Welsch (1980) to detect collinearity problems. We found no multicollinearity.
 Following Loughran and Ritter (1995), we used a 250-

³²⁾ Table 2-2 provides an overview of the descriptive statistics for hedge fund and private equity target characteristics and tests for differences.

Private Equity-Sample Private Equity-Sample Mean 4.783 2.612 4.458 0.000 0.030 2.030 1.84615 0.231 0.242 0.000 0 Meain 4.783 2.612 4.458 0.000 0.000 0.000 0.000 0 Median 4.836 2.301 4.074 0.000 </th <th>hedge fund invested in (BBHFT0); number of one quarter of the year blockholder at the time dummy variable indicat</th> <th>of acquisitic ing that the l LNTA</th> <th>UIBESSI ULUCAIN</th> <th>older at time LNMV</th> <th>HFF</th> <th>BBHFT0</th> <th>NOBT0</th> <th>BBIIT0). NOBT-1</th> <th>NOPET-1</th> <th>NOHFT-1</th> <th>BBHCT0</th> <th>BBCT0</th> <th>y (BBC10); a BBIIT0</th>	hedge fund invested in (BBHFT0); number of one quarter of the year blockholder at the time dummy variable indicat	of acquisitic ing that the l LNTA	UIBESSI ULUCAIN	older at time LNMV	HFF	BBHFT0	NOBT0	BBIIT0). NOBT-1	NOPET-1	NOHFT-1	BBHCT0	BBCT0	y (BBC10); a BBIIT0
Mean 4.783 2.612 4.458 0.000 0.030 2.030 1.84615 0.231 0.242 0.000 0 Median 4.836 2.301 4.074 0.000 0.000 2.000 1.00000 0.001 0.0	Private Equity-Sample												
Hedge Fund-Sample Mean 5.166 3.286 4.827 0.358 0.288 3.197 2.78788 0.152 1.212 0.061 0 Median 5.018 3.309 4.660 0.000 0.000 3.000 0.000 1.000 0.000 0 Mean t-Test Mean t-Test t-Value 1.024 1.594 1.142 7.719*** 4.329*** 4.536*** 3.393*** -1.151 5.066*** 2.063*** 0 Rank Sun Test	Mean Median	4.783 4.836	2.612 2.301	4.458 4.074	0.000	0.030 0.000	2.030 2.000	1.84615 1.00000	$0.231 \\ 0.000$	$0.242 \\ 0.000$	0.000	$0.254 \\ 0.000$	0.239 0.000
Mean 5.166 3.286 4.827 0.358 0.288 3.197 2.78788 0.152 1.212 0.061 0 Median 5.018 3.309 4.660 0.000 0.000 3.0000 0.000 1.000 0.000 0 Mean t-Test t-Value 1.024 1.594 1.142 7.719*** 4.329*** 4.536*** 3.393*** -1.151 5.066*** 2.063*** 0 Rank Sum Test	Hedge Fund-Sample												
Mean t-Test t-Value 1.024 1.594 1.142 7.719*** 4.329*** 4.536*** 3.393*** -1.151 5.066*** 2.063*** 0 Rank Sum Test	Mean Median	5.166 5.018	3.286 3.309	4.827 4.660	0.358 0.000	$0.288 \\ 0.000$	3.197 3.000	2.78788 3.00000	$0.152 \\ 0.000$	1.212 1.000	$0.061 \\ 0.000$	$0.288 \\ 0.000$	$0.182 \\ 0.000$
t-Value 1.024 1.594 1.142 7.719*** 4.329*** 4.536*** 3.393*** -1.151 5.066*** 2.063*** 0 Rank Sum Test	Mean t-Test												
Rank Sum Test	t-Value	1.024	1.594	1.142	7.719***	4.329***	4.536***	3.393***	-1.151	5.066***	2.063***	0.440	-0.802
	Rank Sum Test												
t-Value 0.696 2.362*** -1.296 6.674*** 4.061*** 4.660*** -3.583*** 1.146 6.362*** 2.031*** 0.	t-Value	0.696	2.362***	-1.296	6.674***	4.061^{***}	4.660^{***}	-3.583***	1.146	6.362***	2.031^{***}	0.439	-0.800

It is also important to note that private equity managers acquire, on average, a larger stake in their target companies than their hedge fund colleagues. This may be because hedge funds, with smaller average fund sizes, typically need other blockholders to support their strategic plans. Private equity investors may also be more interested in delisting the target company. In conclusion, hedge fund and private equity managers invest in target companies with a similar potential to reduce agency costs. However, the targets differ in size and relative interest rate payments. The investment behaviour of both is also very different. Hedge fund managers buy smaller stakes and seek the presence of other blockholders, preferably other hedge funds. But the presence of other blockholders may reduce the agency cost potential for further value creation. Thus hedge fund managers may be less able to affect company performance.

Table 2-3: Probit Model Predicting Differentiation in Private Equity and Hedge **Fund Targets**

The sample covers all target firms excluding affiliated companies. The Probit regressions were run so that the dependent variable equals 0 if the company was targeted by a private equity fund (and 0 if targeted by a hedge fund). The target characteristics are: percentage owned after the transaction = number of common shares acquired in the transaction plus any shares previously owned by the acquirer divided by the total number of shares outstanding. (%OAT); total debt percentage of total assets = (short-term debt & current portion of long-term debt + long-term debt) / total assets * 100 (TD%TA); cash earnings return on equity = funds from operations / last year's common equity * 100 (CEROE); return on assets = (net income before preferred dividends + ((interest expense on debt-interest capitalized) * (1-tax rate))) / last year's total assets * 100 (ROA); earnings per share represent the earnings for the twelve months ending the fiscal year of the company (EPS); market cap to common equity = market capitalization / common equity at time of acquisition (MCTCE); interest expenses on debt divided by sales (IEODS); logarithm of market value at time of acquisition (LNMV); number of blockholders one quarter of the year before acquisition (NOBT-1); number of hedge funds one quarter of the year before acquisition (NOHFT-1); a dummy variable indicating that the biggest blockholder at time of acquisition is an individual investor (BBIIT0); a dummy variable indicating that the biggest blockholder at time of acquisition is a holding company (BBHCT0); a dummy variable indicating that the biggest blockholder at time of acquisition is a hedge fund (BBHFT0); a dummy variable indicating that the biggest blockholder at time of acquisition is a company (BBCT0).

Target Characteristics	Coefficient	t-Value	
%OAT	3.343***	3.34	
TD%TA	0.014	1.09	
CEROE	-0.004	-1.26	
ROA	0.005	0.34	
EPS	0.135	1.33	
MCTCE	-0.161*	-1.96	
IEODS	-15.943**	-2.04	
LNMV	0.192*	1.79	
NOBT-1	-0.336**	-2.22	
NOHFT-1	-0.318*	-1.66	
BBIIT0	0.404	0.72	
BBHCT0	-6.538	-0.30	
BBHFT0	-1.440**	-2.46	
BBCT0	-0.760	-1.53	
Mc Fadden R ²	53.55%		
LR-Ratio	72.127		
Number of Observations	102		

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

2.5.2 Market Reaction to Purchases of Large Blocks of Voting Rights

This section examines market reaction to the announcement that hedge funds or private equity investors have reached the level of becoming active blockholders. We hypothesize that the announcement is associated with a positive abnormal return due to the opportunity that agency costs could be reduced and/or the business strategy of the target company could be enhanced by the new blockholder.

We calculate the market- and risk-adjusted returns for different event windows and define the disclosure date as day 0. Estimates of the wealth effects are presented in Table 2-4 for the full sample of 226 hedge fund and private equity targets (Panel I), for the sample of 159 private equity targets (Panel II), and for the 67 hedge fund targets (Panel III). Figure 2-2 and Figure 2-3 illustrate the market reaction during the [-30;+30] window for different subsamples.

The results in Table 2-4 strongly support our hypothesis of a statistically significant positive market reaction to purchases of at least 5% of voting rights. For all chosen event windows, Panel I shows the entire sample of CAARs is roughly 4.00%. The forty-one-day CAAR [-20;+20] is 4.47%, significantly different from 0. Panel II shows a CAAR of 3.55% for private equity targets. Note that the estimate of the wealth effect for hedge fund targets in Panel III is 6.24% for the [-20;+20] window. The results in Panel III are statistically significant, robust, and in line with those of Brav, Jiang, Partnoy and Thomas (2008), Clifford (2007), and Klein and Zur (2008).

Comparing Panel III's hedge fund findings with the abnormal returns of Panel II, we find the market reaction for larger event windows is more distinct in absolute terms. This suggests the market perceives purchases of large blocks of voting rights by hedge funds as more value-enhancing than those by private equity investors.³³

However, part of the difference can be explained by a slight run-up by private equity targets prior to the event. In addition, the tests for differences do not find that the hedge fund and private equity CAARs differ statistically. This result is not surprising, as we have noted that both sets of managers have similar skill sets and, therefore, the ability to reduce agency costs.

2.5.3 Explanations for Investment Behavior and the Sources of Value Creation

To answer the questions we raised in the previous subsection, we apply several crosssectional regression models (see Table 2-5). The first model is designed to control for several aspects that could distort the results of the subsequent models. The following three models are explanatory in nature, in order to determine whether agency cost proxies, corporate governance variables, or firm characteristics explain the market reaction.

Control Model

The control variables are as follows:

1. *Illiquid stocks*. The Amihud (2002) liquidity measure controls for illiquidity in outstanding shares over the 200-day period from $t_{i,220}$ to $t_{i,20}$ prior to the announcement. If the share

33) Note that we cannot compare shorter event windows because of the distortion from the disclosures of at least 5% holdings of voting rights in publicly listed companies within the BaFin database. Funds are obligated to report acquisitions of at least 5% of voting rights no later than nine days after they have reached or exceeded that level.

Figure 2-2: Cumulative average abnormal returns around the disclosure of holding at least 5% of voting rights

The graph illustrates the cumulative average abnormal returns from Day -30 through Day +30. Panel I shows the cumulative average abnormal returns for the entire sample (all hedge fund and private equity events). Panel Ia shows the cumulative average abnormal returns for the entire sample without affiliated companies.



Figure 2-3: Cumulative average abnormal returns around the disclosure of holding at least 5% of voting rights for the subsamples

Panel III shows the cumulative average abnormal returns for the hedge fund subsample. Panel II shows the cumulative average abnormal returns for the private equity subsample. Panel II a shows the cumulative average abnormal returns for the private equity subsample without affiliated companies.



	Panel I: all	transactions		Panel II: priv	ate equity transa	actions	Panel III: hec	lge fund transac	ctions	Test i	for Difference
		Boehmer Test	t-Test		Boehmer Test	t-Test		Boehmer Test	t-Test	t-Test	Rank Sum-Test
Event window	CAAR	z-score	t-value	CAAR	z-score	t-value	CAAR	z-score	t-value	t-value	z-score
-20;+20]	4.47%	3.54***	3.24***	3.55%	2.52***	3.24***	6.24%	2.57**	2.62***	0.35	0.78
-20;+10]	4.15%	3.87***	3.54***	3.89%	3.34***	3.54***	4.64%	2.00**	2.14***	-0.19	0.51
-10+20	4.62%	4.00^{***}	3.92***	3.79%	2.87***	3.92***	6.25%	2.90***	3.08***	0.42	0.68
-10+10	4.32%	4.49***	4.45***	4.14%	3.98***	4.45***	4.65%	2.19**	2.51***	-0.16	-0.30
-10+5]	4.58%	4.82***	4.61***	4.44%	3.92***	4.61***	4.83%	2.78***	2.87***	-0.21	-0.01
-10;0]	3.07%	4.04***	3.38***	2.79%	3.15^{***}	3.38***	3.62%	2.63***	2.72***	0.15	0.18
-5;+5]	4.46%	5.03 * * *	5.10^{***}	5.05%	4.62***	5.10^{***}	3.31%	2.14**	2.16^{***}	-1.25	-1.02
-5:0]	2.96%	4.61^{***}	4.35***	3.40%	4.34***	4.35***	2.10%	1.75*	1.82^{***}	-1.11	-1.10

10% levels, respectively. and 5%. the 1%, at 1 statistical significance ndicate and

have statistically different announcement effects.

Table 2-5 reports the results of the control model, which shows no statistically significant coefficient at the 1% or 5% levels. Only the Amihud (2002) liquidity measure coefficient is significant at the 10% level within the hedge fund sample. This implies that the CAARs in the hedge fund panel might be influenced by buy-side pressure in illiquid stocks.

Firm Characteristics, Ownership Structure, and the Impact of Agency Cost Proxies

The three models are designed to provide evidence about what drives the CAARs and how the proxies for the variables fit into the theoretical framework. The proxies we use are as follows:

- 1. Leverage. Leverage reduces the agency costs between owners and managers. Our proxy for leverage is the ratio of debt-to-total assets. The higher the value of the ratio, the higher the relative level of debt, which disciplines management and reduces agency costs [Jensen (1986)]. Thus, we expect a negative coefficient.
- 2. Free cash flow. Agency costs are higher when managers have large amounts of cash at their disposal. This suggests the agency problem is more pronounced for firms with high operational performance. Our proxies for the disposability of free cash flows are growth in equity from two years prior to the announcement to the subsequent year, the cash flow return on total assets, and the cash earnings return on equity. Capital markets should consider a high level of cash flow an opportunity to increase shareholder value if active investors achieve their goal of reducing agency conflicts. Therefore, we expect a positive coefficient.
- 3. Buy-side pressure. Active investors must acquire at least 5% of voting rights to be considered an event. This acquisition could cause an increase in trading volume of the stock, and may be accompanied by abnormal trading volume. Our corresponding proxy is the abnormal trading volume from ten days prior to the announcement until ten days afterward, calculated using standard event study methodology. We expect a positive sign if the CAARs are related to buy-side pressure.

4I

price increase is induced by buy-side pressure for illiquid stocks, the coefficient on the variable should be positive.

- 2. Run-ups drawdowns. After periods of run-ups or drawdowns, the market tends to move in the opposite direction, a so-called technical reaction. Therefore, we would expect a negative sign on the coefficient.
- 3. Systematic risk. The market reaction could be a risk premium captured by the CAPM's beta coefficient. Thus, we would expect a positive sign on the coefficient.
- 4. Hedge fund herding. In the previous section, we observed that hedge fund managers tend to follow other hedge fund managers when building activist strategies. With a dummy variable (a follow on investments equals 1), we control for whether fund managers who follow previous fund managers three months after the initial investment
- 5. Affiliated companies. Private equity managers acquire business units from publicly listed companies. The announcements of these acquisitions have an impact on the share price of the listed company. We control with a dummy variable for whether the acquisition of an affiliated company has statistically different announcement effects.

4. *Valuation level.* The book-to-market ratio measures whether growth opportunities are reflected in the current share price. The higher the ratio, the more growth opportunities are currently reflected in the share price. We conjecture that in such cases it will be more difficult to enhance value due to activism. Thus, we expect a negative coefficient.

42

- 5. *Firm size*. Helwege, Pirinsky and Stulz (2007) assume a negative relationship between firm size and the level of information asymmetry. They argue that larger firms are covered by analysts and monitored by institutional investors and regulators more frequently, which reduces information asymmetries. We use the logarithm of a company's market capitalization at the announcement day as the proxy for firm size. Thus, we expect a negative coefficient.
- 6. Ownership structure. We use the number of blockholders to control for ownership. Following Cronqvist and Fahlenbrach (2007), we do not expect a significant impact on the CAARs, because the number of blockholders does not provide evidence of effective monitoring or a reduction in agency costs. However, the higher the concentration of activist shareholders in a listed company, the higher the associated monitoring efforts, which reduces agency potential. Therefore, we expect a negative coefficient if the largest blockholder in the quarter prior or in the quarter of the acquisition is a hedge fund or a private equity fund.

Furthermore, for private equity funds, if the biggest blockholder in the quarter of the acquisition is an investment advisor, we expect a negative impact on the CAARs. Because private equity fund managers generally acquire larger stakes and often seek a full acquisition, investment advisors usually negotiate a premium for their blockholding and thus reduce the potential profits for the private equity fund.

Hedge fund managers generally do not intend to acquire large stakes, and so do not face these difficulties. However, they might need the voting power of their investment advisors. We therefore expect a positive sign for the hedge fund sample and a negative sign for the private equity sample.

The results of the models are shown in Table 2-5. The results for our leverage proxy do not support the theory that higher levels of debt act to discipline managers. Furthermore, the results for our free cash flow variables contradict our hypothesis. Within the private equity sample, the coefficients for the return on asset and the cash earnings return on equity are positive and statistically significant, which is in line with the literature. However, the signs for the return on asset and equity growth indicate a negative relationship between the level of free cash flow and stock returns. This contradicts prior findings and suggests that private equity investors focus solely on agency cost reduction.

Regarding abnormal trading volume, we find a positive and significant coefficient in all regressions. This observation, combined with positive CAARs on the announcement, supports the hypothesis that part of the CAARs can be explained by buy-side pressure. As expected, the coefficient on the market-to-book ratio is negative and significant for all regressions in the private equity sample. Therefore, the opportunity for value creation from future restructurings and business strategy-related changes helps explain the CAARs for private equity managers.

However, we find no relationship within the hedge fund sample. The proxy for firm size has a negative but insignificant coefficient in most of the regressions. This implies at most

The results for our hedge fund sample are striking. We find a positive relationship between the existence of a private equity investor one quarter prior to the announcement of an hedge fund's engagement and the market reaction. This may be explained by the fact that private equity and hedge fund managers have similar but not equal skill sets, and complement each other in the value creation process. But in light of reducing agency problems, it is questionable whether a subsequent hedge fund engagement could be valueenhancing. Instead, we find that hedge fund engagements in targets where other hedge funds are the biggest blockholders cause lower market reactions.

In conclusion, we find no support for the theory that hedge fund managers aim to reduce agency costs in their target companies, as postulated by Brav, Jiang, Partnoy and Thomas (2008), Clifford (2007), and Klein and Zur (2008). In addition to the presence of a private equity fund blockholder, abnormal trading volume is the only variable that affects the CAARs in the hedge fund panel positively. This can be attributed to buy-side pressure. Therefore, we do not find that hedge fund managers select their targets to reduce agency costs. Admittedly, our results are consistent with the perception that private equity investors can reduce agency costs and thereby enhance value. While this should be reflected in the target company's balance sheet performance and in positive long-term market reactions, we expect an hedge fund engagement to negatively impact a target's post-acquisition market performance.

2.5.4 Time Series Patterns - Should (Private) Investors Follow "Smart Money"?

Table 2-6 shows long-term buy-and-hold abnormal returns (BHAR) for our samples. We find that the median BHAR relative to our benchmark index is negative and statistically significant for the pooled sample of hedge fund and private equity targets (Panel A).³⁴ Considering the hedge fund (Panel C) and private equity samples (Panel B), the slightly negative BHAR for the 250-day period of -2.47% in Panel B is remarkably low in comparison to Panel C (-21.46%).³⁵ This indicates that investors in hedge fund targets on the day the information becomes public experience considerable losses. These findings are in contrast to studies by Brav, Jiang, Partnoy and Thomas (2008), Klein and Zur (2008), and Clifford (2007), who observe positive abnormal returns for the year following block purchases by hedge funds.

It is tempting to conclude that the observed means and medians in Panels B and C are a mixture of different investment strategies comprised of, for example, an agency cost reduction policy. Consequently, we would expect investors targeting firms with a high potential for reducing agency costs to perform significantly better in the long term than those interested more in short-term trading-induced profits. This perspective is not

weak evidence for a relationship between information asymmetries and market reaction. The number of blockholders in the quarter before the acquisition is used as a control variable for ownership concentration and has no statistical influence, which confirms the findings of Cronqvist and Fahlenbrach (2007). Examining the ownership structure of targets within our private equity sample, we find that the market reaction is lower if another private equity manager is already invested in the same target. This suggests low value-enhancing opportunities. Controlling for the type of the largest blockholders at the announcement date further supports this view.

³⁴⁾ Means may be influenced by single observations, i.e., outliers. Therefore, we pay more attention to medians.

However, the BHAR are less negative for the period 2005 to 2007.

³⁵⁾ The results remain stable when we control for time effects.

Table 2-5: Determinants of the Cumulative Average Abnormal Returns The sample is divided into hedge fund and private equity targets. For each group, we estimate a control model, two esplanatory models, and one agency model. For estimation, we use the [-10;+10] event window of the cumulative average abnormal return as a dependent variable in all regressions. The exogenous determinants are: The Amilhud (2002) liquidity measure (ALM); geometric mean of the stock price return calculated over 200 trading days before the event (BETA); a hedge fund follow dummy (HFF) equal to 1 if a second hedge fund invested in the same target three months to one year after the first, a private equity affiliate dummy (PEA) equal to 1 if the target is an affiliate dummy (PEA) equal to 1 if the target is an affiliate dommy (PEA) equal to 1 if the target is an affiliate dommy (PEA) equal to 1 if the target is an affiliate dommy (PEA) equal to 1 if the target is an affiliate dommy (PEA) equal to 1 if the target is an affiliate dommy (PEA) equal to 1 if the target is an affiliate dommy (PEA) equal to 1 if the target is an affiliate dommy (PEA) equal to 1 if the target is an affiliate dommy (PEA) equal to 1 if the target is an affiliate dommy (PEA) equal to 1 if the target is an affiliate dommy (PEA) equal to 1 if a second hedge fund invested in the same target three months to one year after the first, a private equity attime dommy (PEA) equal to 1 if the target is an affir the target is an affiliate dommy (PEA) equal to 1 if a second hedge fund invested in the same target three months to one year after the first, a private equity at the biggest blockholder at time of acquisition is a hedge fund (BBHFTO); number of blockholders one quarter of the year before aquistion (NOTE-1), a dummy variable indicating that the biggest blockholder at time of acquisition is a hedge fund (BBHFTO); number of blockholders one quarter of the year before equity invested and the target is a flow of the company (EPS); a dummy variable indicating that the seg

		Hedge F	unds			Private Eq	uity	
	Control	Model I	Model II	Agency	Control	Model I	Model II	Agency
CONSTANT	0.024	0.061*	0.108*		0.036	0.039	0.092***	
ALM	2.419*				6.641			
GMSPR	-7.960				-0.951			
BETA	-0.023				-0.023			
HFF	0.069							
PEA					-0.007			
TD%TA		-0.001				0.000		
CEROE		0.000				0.000		
ROA		-0.002***	-0.002**			0.003 **	0.003 ***	
EIYG		-0.000***				0.000		
MCTCE		0.005	0.000			-0.009***	-0.011***	
BBHFT0		***260.0-	-0.089**			-0.211**	-0.224**	
ATV1010		0.001^{***}	0.001^{***}			0.003 * * *	0.003***	
								(continued)

	Agency				0.136^{***}	0.001*	0.002^{**}	***600.0-	-0.012***
uity	Model II	-0.005	-0.001	-0.181***					
Private Eq	Model I								
	Control								
	Agency				0.104	0.000	-0.002***	-0.001	-0.010
Eunds	Model II	-0.012	0.002	0.012					
Hedge	Model I								
	Control								

CONSTANT

CEROE

ROA

BBHIA0

LNMV

EPS

MCTCE LNMV NOBT-1 NOPET-1

1

Table 2-5-Continued

-0.009*** -0.012*** 0.010 -0.185** -0.154***

78 34.51%

82 43.03%

78 37.51%

72 10.36%

62 24.60%

63 30.16%

58 39.08%

61 9.04%

Number of Observations R²

BBHFT0

BBHIA0

-0.001 0.125** 0.003 -0.079**

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 2-6: Benchmark-Adjusted Buy-and-Hold Returns

This table reports the benchmark-adjusted buy-and-hold returns (CDAX[®] is the corresponding benchmark) for 150-, 200-, and 250-day holding periods. Panel A includes all hedge fund and private equity events (entire sample) (n = 226); Panel B covers private equity events without affiliated companies (n = 108); and Panel C covers hedge fund events (n = 67). The mean (t-test) and median (Wilcoxon rank sum test) BHARs for all holding periods are tested versus difference from zero. The test for differences analyzes differences between the mean and median BHARs of Panels B and C.

	150-Day Period	200-Day Period	250-Day Period
Panel I			
Mean	1.44%	1.92%	-0.51%
Median	-4.71%***	-8.04%***	-9.58%***
Panel II			
Mean	4.11%	4.10%	3.25%
Median	-0.61%**	1.15%	-2.47%**
Panel III			
Mean	-0.2%	3.50%	-1.02%
Median	-11.95%	-14.61%	-21.46%***
Test for Difference			
Mean	-0.546	0.032	-0.371
Median	-1.217	-1.367	-1.732*

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

³⁴ Means may be influenced by single observations, i.e., outliers. Therefore, we pay more attention to medians.
³⁵ The results remain stable when we control for time effects. However, the BHAR are less negative for the period 2005 to 2007.

supported by Panels B and C, however. We construct two subsamples by dividing each at the median of our agency variables, and test the means and medians for the resulting BHARs. We find no significant differences.³⁶ Firms with more distinctive agency cost reduction potential do not experience higher long-term BHAR returns.

These findings need to be clarified, though, because a reduction in share price also affects portfolio performance. As we noted earlier, BHARs for private equity targets may decline in the subsequent year simply because of the beginning of the J-curve.³⁷ As for hedge funds, a recent study by Wright, Andrew, Ball, Scholes, Meuleman and Amess (2007) finds they use derivatives extensively to increase returns. This may be why hedge funds are not concerned with reducing agency costs, and have a short-term interest in decreasing stock prices if they have a net short position. However, we cannot quantify the use of derivatives or shorting techniques, and therefore we provide an alternative explanation.

Franks and Mayer (1994) distinguish between two different corporate governance systems: an outsider-controlled system, and an insider-controlled system. An outsider-controlled system is characterized by a dispersed ownership, with only minor stakes of voting rights held by individuals. An insider-controlled system is characterized by a concentrated ownership structure [Mayer (2002)]. German corporations, for example, normally have a high concentration of voting power by one blockholder, who often controls more than 25% [Becht and Böhmer (2003)].³⁸

Additionally, and in contrast to an Anglo-Saxon outsider-controlled system that relies on market mechanisms, insider-controlled systems focus on the interests of different groups of stakeholders, i.e., blockholders, employees, union representatives, or banks [Schmidt (2004) and Hackethal, Schmidt and Tyrell (2006)].³⁹ The interests of these different stakeholders are exerted via the advisory board, which can, for example, hire or fire executives. However, the composition of the advisory board is critical, because it determines the potential influence that individual stakeholders will have on management [Schmidt (2004)].⁴⁰

As we have noted, hedge funds tend to acquire smaller stakes than private equity investors. But hedge funds face the problem of having to align their interests with those of the advisory board members, as the investment advisor proxy requires. This makes it more complex to reduce agency costs within a target company. It seems reasonable that a negative benchmark-adjusted performance is the result of an (initially) expected but (eventually) unrealized reduction of agency costs.

This explanation is in line with the findings of Gompers, Ishii and Metrick (2003), who analyze the relationship between corporate performance and shareholder rights. They find that firms with a high level of shareholder rights outperform those with a weak level. This discrepancy is only partially reflected in share prices at the beginning of the sample period. However, by 1999, this disproportion in market valuation was adjusted [Gompers, Ishii and Metrick (2003)].

Alternatively, Loughran and Ritter (1997) propose that investor overoptimism about persistent positive past returns may explain deteriorating stock returns after a firm has conducted a seasoned equity offering. The theory is that investors are disappointed if the positive pre-issue performance does not continue. This corresponds with the perception that capital markets do not properly assess the possibility of a short-term profit-oriented investor, and therefore misinterpret hedge fund investment strategies.

Taken together, our evidence supports the interpretation that hedge funds do not intend to reduce agency costs when they invest in publicly listed companies, while the opposite seems to be true for private equity investors.

2.6 Conclusion

This essay analyzes market reactions triggered by announcements that hedge funds and private equity investors intend to purchase large blocks of voting rights. We argue that changes in shareholder wealth are related to the opportunity, possibility, and motivation

38) The major shareholders of German firms are other corporations, insurance companies, and individuals, and not strictly profit-oriented banks [Hackethal, Schmidt and Tyrell (2006)]. On 14 July 2000, the capital gains tax on sales of large stakes held by corporations was abolished. It thus became attractive for corporations to sell their blocks. Ownership concentration dispersed, which should favour the business models of active investors. However, and regardless of other blockholders, active shareholders are required to align their interests with those of the advisory board.

³⁶⁾ Tables are available upon request.

³⁷⁾ Note that two J-curves exist. The fund's J-curve has already been discussed. The target's J-curve results from underperformance in the first years after the acquisition

³⁹⁾ The focus on stakeholders is not only in line with corporate law in Germany. Indeed, a focus on single groups that have an interest in a company is against the law [Schmidt (2004)]. For more on the role of employees, union representatives, or banks, see Schmidt (2004) and the references therein.

⁴⁰ Note that small shareholders are not part of what Schmidt (2004) calls the "governing coalition."

of being an active blockholder who successfully reduces agency problems. This study is based on a unique data set of German publicly listed companies, and relates their shortterm stock performance to several corporate characteristics and stock market variables. Additionally, we examine effects besides long-term returns that are specific to ownership structure.

Our evidence of substantially positive abnormal returns triggered by an announcement that a hedge fund or a private equity fund has acquired at least 5% of a company's voting rights is consistent with the market's perception that both investors can reduce agency costs and enhance shareholder value. Furthermore, distinguishing between companies targeted by hedge funds and by private equity funds shows that hedge funds target smaller companies and acquire lower stakes. Hedge funds seek targets that have more blockholders in the quarter before the acquisition, and prefer targets whose biggest blockholders are already hedge funds.

One explanation for this herding effect might be that hedge funds require support from other investors due to their relatively small stake. We find that the ability to reduce agency costs is indistinguishable between hedge fund targets and private equity targets, which indicate that both types of investors have a comparable ability.

Contrary to previous findings [Brav, Jiang, Partnoy and Thomas (2008), Clifford (2007), and Klein and Zur (2008)], we find no support that hedge funds, unlike private equity funds, enhance shareholder value due to a reduction of agency costs. Within our hedge fund sample, we find no relationship between market reaction and our agency cost proxies. Instead, only abnormal trading volume positively affects the CAARs. This is consistent with the conclusion that at least part of the CAARs in our hedge fund sample is the result of buy-side pressure.

Examining ownership characteristics reveals they provide only poor evidence for explaining the market reaction within our hedge fund sample. However, they are important for our sample of private equity targets. Interestingly, our findings support the market perception that a private equity fund is less capable of reducing agency costs when the target already has active blockholders.

We find statistically significant negative buy-and-hold abnormal returns (BHAR) for both samples at the end of the 250-day period after the event. However, market participants do not seem to believe that hedge fund activism creates wealth effects in a manner comparable to private equity engagements, as the negative long-term performance of hedge fund targets is more distinct. This result indicates that the capital markets may misinterpret hedge fund motivations and actions. It seems reasonable to conclude that a negative benchmark-adjusted performance is a result of expected but unrealized reductions of agency costs.

3 Intra-Industry Effects of Shareholder Activism – Market Reactions to Hedge Fund and Private Equity Investments

3.1 Introduction

Economists believe that large shareholders'³⁹ monitoring activities can be very effective in solving agency problems that arise from the separation of ownership and control [see, for example, the seminal work of Shleifer and Vishny (1986)]. However, more recent research argues that large shareholders differ from each other in important ways, and that changes in investment and financial policy as well as in operations are greater in the presence of specific groups of active blockholders [Bertrand and Mullainathan (2003) and Cronqvist and Fahlenbrach (2007)]. They conclude it is necessary to consider large and active shareholders, but it may be even more important to determine who they are. Private equity funds and hedge funds (new institutional investors) are the two main groups of shareholders that acquire large blocks of voting rights with a desire to take on an active engagement and monitoring role. The empirical literature reports they have an ambiguous impact on corporate performance. For example, Brav, Jiang, Partnoy and Thomas (2008) find that hedge fund targets experience an increase in payout, operating performance and CEO wages.

Clifford (2007) also finds operating performance increases after a hedge fund manager has become a blockholder. However, Klein and Zur (2008) find no increase in operating performance. But they do find a decline in profitability ratios and an extraction of cash due to an increase in payouts. Furthermore, after the engagement of private equity managers, the target often experiences an increase in research and development expenditures, an optimization of cash flow and a decrease in capital expenditures. As several articles have concluded, these measures lead to improved operating profits during the buyout period.⁴⁰

Note that hedge fund and private equity managers may spend considerable resources gathering information about the target, but only if the transaction increases expected wealth. Consequently, the investment conveys investors' private information about the target firm, and may also convey valuable information about the industry.

Following Jensen (1986) and Shleifer and Vishny (1988), problems arising from the separation of ownership and control do not only affect a single target firm, but can affect the entire industry as well (due to, e.g., information spillover). As a result, the market may expect rival firms to experience parallel gains. And, as per the information signaling hypothesis, we may expect to see positive valuation effects upon the announcement of a block purchase in the target.

The new blockholder changes the firm's objective functions toward a more shareholder value orientation. This in turn affects the way firms compete [Allen, Carletti and Marquez

 A large shareholder (blockholder) is defined as an entity that owns at least 5% of a firm's outstanding shares. 49

Hogan, Olson and Kish (2001) and Bowman and Graves (2005).

⁴²⁾ See, for example, Kaplan (1989), Kaplan and Stein (1993),

(2007) and Boyson and Mooradian (2007)], which leads to an ambiguous consequence for rival firms. Increased competition can force industry peers toward economic efficiency [see, e.g., Shleifer and Vishny (1997)], and can negatively affect their profit margins (the competitive hypothesis).

Given active blockholders' distinct ability to change the objective function of target companies and the competitive environment (or simply convey private information about the target and the industry), we ask whether we can observe any valuation effects to rivals from the information associated with an engagement of hedge funds or private equity investors. Therefore, our objective is to provide empirical evidence on the valuation effects of a change in ownership structure by activist blockholders on directly affected rival firms. If market valuation effects are observable, are they consistent with the information signaling or the competitive hypotheses? This question is important to help us understand how capital markets incorporate the information contained in ownership structure changes or corporate governance into stock prices.

Although both hedge fund and private equity investors have similar abilities to increase a target's value, their level of activism may differ. Private equity investors usually focus on longer investment horizons, while hedge funds are more interested in short-term and trading-induced profits [Dai (2007) and Klein and Zur (2008)]. Because we expect competitive effects to appear over the long term, we need to determine whether rivals to hedge fund targets experience long-lasting valuation effects from changes in product market competition.

To answer this question, we use a unique data set of 175 German companies that were targeted by hedge funds and private equity investors between 1993 and 2007. Using a matching procedure based on industry classification codes and return correlations, we identify 223 industry rivals. We then apply standard event study methodology to analyze whether the engagements of these specific active investors are associated with short-term valuation effects for industry rivals. We also relate stock returns to several corporate characteristics and market variables in order to determine whether they can be explained by information signaling or competitive effects. Because we expect the acquisition of a significant ownership claim by new institutional investors to affect an entire industry, we also examine long-term rival stock performance by calculating benchmark-adjusted buy-and-hold returns (BHARs).

We find two main results. First, the announcement of a change in ownership structure generates statistically significant intra-industry effects of between 0.875% and 2.682% for rivals to private equity targets, and between -2.480% and -3.636% for competitors of hedge fund targets. The intra-industry effects for our private equity rival portfolio are inversely related to industry concentration, and positively related to a change in profitability, the market-to-book ratio and trading volume.

Considering the rivals to hedge fund targets, we identify only the market-to-book ratio as an explanatory factor. However, the results of our cross-sectional regression analysis suggest that valuation effects are more favourable for private equity rivals that are effectively positioned to respond to competitive challenges. This is, of course, in contrast to the interpretation of positive short-term market reactions due to positive information signaling. To summarize, our first result is that short-term market reactions occur as predicted under the information signaling hypothesis, but the explanatory factors provide evidence of the competitive hypothesis for private equity target rivals. Second, we find that the long-lasting return drift to hedge fund rivals is consistent with short-term results. In fact, rivals experience negative BHARs of -26.27% on average for up to 250 days after the announcement. Private equity rivals suffer statistically significant losses of -12.23% for up to 250 days after the announcement. Examining the drivers for the BHARs illustrates that the capital markets are concerned about the negative competitive effects. However, firms with growth prospects and an increase in profitability prior to the announcement are affected less negatively by the engagement of private equity investors in a rival company.

Note that we find only limited factors to explain the negative long-term performance of rivals to hedge fund targets. Nevertheless, we find consistent evidence that the competitive hypothesis explains the empirical long-term findings.

The rest of the paper proceeds as follows. In section 3.2, we review related empirical studies. We discuss the impact of hedge funds and private equity funds on their target firms and the reasons for possible intra-industry spillover effects in section 3.3. In section 3.4, we describe our data set and the methodology. Section 3.5 reports our results. The paper concludes in Section 3.6.

3.2 Hedge Funds and Private Equity Funds as Blockholders: The Potential for Intra-industry Effects

Based on the agency-theoretical background provided by Jensen (1986) and Shleifer and Vishny (1986), blockholders often have the voting power to enhance shareholder value due to a reduction in agency costs.⁴³ Nevertheless, all blockholders do not act homogenously, as many models assume; rather, they differ in their incentives and capabilities to become active [see Crongvist and Fahlenbrach (2007) for a detailed discussion]. A recent strand in the literature argues that two types of new institutional investors (hedge funds and private equity funds) have the highest incentives and capabilities to become active.44 Previous evidence on the engagement of new institutional investors as blockholders indicates that target firm shareholders receive substantial positive returns in response to the announcement. Bray, Jiang, Partnoy and Thomas (2008), Klein and Zur (2008), Clifford (2007), Boyson and Mooradian (2007) and Greenwood and Schor (2007) report average excess returns to target firms of about 5% when a hedge fund becomes a blockholder in US firms. Mietzner and Schweizer (2007) show positive announcement returns of up to 6.25% on average for German hedge fund targets.⁴⁵Similar announcement returns are noted when the acquirer of voting rights is a private equity fund in the US [Klein and Zur (2008)] and Germany [Mietzner and Schweizer (2007) and Achleitner, Andres, Betzer and Weir (2008)].

The sources of these gains are discussed widely in the literature. As we noted, an alignment of interests between managers and shareholders as well as an increase in monitoring activities of blockholders can serve as mechanisms for solving the agency problem

⁴³⁾ For overviews, see Shleifer and Vishny (1997) and Becht, Bolton and Roell (2003), for example.

⁴⁴⁾ For more insight about hedge funds and private equity, see, for example, Fung and Hsieh (1999) and Gompers and Lerrer (2006). A detailed comparison between both types of investors can be found in Achleitner and Kaserer (2005), Wright, Andrew, Ball, Scholes, Meuleman and Amess (2007), and Mietzner and Schweizer (2007).

[Grossman and Hart (1980) and Shleifer and Vishny (1986)]. However, private equity targets typically experience an increase in research and development expenditures, a selloff of assets, a reduction in working capital, optimization of cash flows or a decrease in capital expenditures [Muscarella and Vetsuypens (1990)]. This leads to improved operating profits during the engagement period [Kaplan (1989), Muscarella and Vetsuypens (1990), Kaplan and Stein (1993), and Hogan, Olson and Kish (2001)].

Clifford (2007) documents an increase in operational efficiency after the engagement of an activist hedge fund, but finds this may be the result of a reduction in assets. Boyson and Mooradian (2007) show that a change in a target firm's corporate governance improves performance and reduces agency costs.

In any event, increasing a target firm's value becomes essential for new institutional investors. Against this background, our central hypothesis is that an engagement of a new institutional investor reveals valuable information about the target company, and that at least some of this information will also apply to rival firms. On the one hand, the engagement may signal new information about the future prospects of the industry. On the other hand, changes implemented by the new institutional investor may affect firm competition industrywide. Thus, announcements of this particular change in ownership structure should generate market valuation effects for industry rivals.

In testing this hypothesis, we believe three possible outcomes are possible: 1) a positive intra-industry effect supports the information signaling hypothesis, 2) a negative intra-industry effect supports the competitive hypothesis, or 3) no intra-industry effect implies no intra-industry information spillover, or that the information signaling hypothesis offsets the competitive hypothesis.

Note that there are three factors supporting the hypothesis that an acquisition by a new institutional investor conveys information abut the industry (the information signaling hypothesis) [Slovin, Sushka and Bendeck (1991)]: 1) an engagement of a new institutional investor may reveal private information about future industry cash flows, 2) the probability increases that rival firms will become future targets, and 3) the market perceives the agency problem is industrywide and that the engagement will induce rival firm managers to improve performance to avoid becoming the next target.

In contrast, the competitive hypothesis assumes an acquisition by a new institutional investor may adversely affect the target firm rivals' future performance. Two major factors support this hypothesis. First, when new institutional investors obtain a sufficient level of voting power in a target company, they often seek to change the board of directors and force management to pursue strategic alternatives [Klein and Zur (2008)]. Second, this may lead to the target firm management being forced to either 1) extend their market share (which adversely affects rivals), and/or 2) improve firm efficiency (which may reduce rivals' profits by, e.g., more aggressive pricing).

When analyzing information spillover effects, we must consider the degree of intra-industry competition. Giroud and Mueller (2007) argue that highly competitive industries do not leave room for managerial inefficiency, which reduces the potential for agency cost reduction. Consequently, the level of competition in an industry is negatively correlated with the expected effects on its rivals, because product competition acts to discourage managers from wasting corporate resources [Masulis, Wang and Xie (2007)]. We discuss this idea in more detail when we consider the possible determinants of valuation effects.

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3.3 Determining Factors of Rival Stock Valuation Effects

Our objective in this subsection is to determine the potential factors that can cause a price effect on rivals, and whether these factors are evidence of the information signaling hypothesis or the competitive hypothesis. We thus introduce several factors used to determine whether there are cross-sectional differences in the competitive or the information effects. We use six explanatory factors for the rivals (competition, change in profitability, valuation level, leverage, target rival correlation and size), and three control factors (abnormal trading volume, beta and industry effects) to estimate four different cross-sectional regression models for the private equity and hedge fund rival subsamples. The description of the factors and proxy variables are as follows:

1. *Competition.* Firms operating in a non-competitive environment can set prices above their marginal costs, and can thus earn higher profit margins than firms operating in highly competitive industries. However, such firms often do not operate on a minimal cost basis, and consequently earn fewer profits than those obtainable on an optimal cost basis in a competitive environment [Leibenstein (1966)]. Generally, this "X-inefficiency" results from managerial inefficiency.

Consistent with this view, Bris and Brisley (2008) find that negligent corporate governance can induce managers to choose suboptimal output and cost levels in a non-competitive product market. Furthermore, Giroud and Mueller (2007) provide evidence that firms in non-competitive industries experience increasing costs and wages after the passage of business laws that reduce the fear of a hostile takeover and thus provide a "quiet" life for managers. Nickell (1996) shows that competitive leads to higher productivity growth, while Schmidt (1997) argues that firms in a competitive product market face decreasing profit margins.

The competitive hypothesis suggests a negative relationship between increased competition and stock price. The rationale is that a change in corporate governance of private equity and hedge fund targets leads to higher product market competition because of the increased profitability and efficiency of the target company. Also, an increase in product market competition reduces rivals' profit margins. While firms in competitive markets are already in aggressive competition with several companies, we expect that the additional challenge from one company targeted by a new institutional investor puts further pressure on profit margins, and thus negatively impacts rivals [Akhigbe, Johnston and Madura (2006)].

In contrast, if the rival firm is in a less competitive industry, we expect more negative impact on rivals, but for different reasons. Because lower competition enables rivals to achieve substantially positive profit margins, it is rational to assume that an increase in competition reduces profit margins. In other words, we assume that rivals operating in less competitive industries are more negatively affected by an increase in product market competition induced by one company than are rivals in competitive industries that are already experiencing the effects of competition.

However, an increase in product market competition may also cause a positive market reaction. We explain this by the fact that low competition in industries may allow for more managerial inefficiency, and thus substantial agency costs. As we noted earlier,

problems that arise from the separation of ownership and control do not only apply to a single target firm, but can affect the entire industry [Jensen (1986) and Shleifer and Vishny (1988)]. Rival company managers may attempt to reduce inefficiency to avoid becoming a new institutional investor's next target. Therefore, a positive relationship between product market competition and valuation effects is consistent with the view that the engagement of a new institutional investor can provide valuable information (the information signaling hypothesis).

We use the Herfindahl-Hirschman Index (HHI) as the proxy variable for the degree of competition.⁴⁶ We interpret a negative HHI as support for the competitive hypothesis; a positive HHI provides support for the information signaling hypothesis.

2. *Change in Profitability*. Investors who acquire voting rights in a company and spend resources on acquiring information about the target will invest only if the transaction increases their expected wealth. Thus, the engagement of an active investor implies valuable information about the specific target company that may also apply to industry peers. Consistent with the information signaling hypothesis, firms with an increase in profitability prior to the announcement have already reduced the potential for managerial inefficiency. We therefore expect a negative sign.

In contrast, under the competitive hypothesis, rival companies with an increase in profitability prior to the announcement should experience a positive price impact, as they have a competitive advantage.

Our proxy variable for change in operating performance is the change in return on assets from one year prior to the announcement to the year of the announcement (Δ ROA). Furthermore, we use the cross term Δ ROA*HHI to control for whether the acquisition of an ownership stake by private equity investors or hedge funds causes different market reactions depending on the change in operating performance of rival firms in both competitive and non-competitive product markets.

- 3. *Valuation Level.* A low market-to-book ratio may indicate a company is undervalued and may subsequently be targeted or acquired by private equity investors or hedge funds. But Akhigbe, Martin and Whyte (2007) find that companies with stronger growth prospects are more likely to be acquired. However, the market-to-book ratio also measures whether growth opportunities are already reflected in the current share price. The higher the ratio, the more growth opportunities are currently reflected in the share price. We conjecture that rivals with high market-to-book ratios possess a competitive advantage that will offset the disadvantage of an increase in product market competition. Therefore, we expect a higher valuation level to cause positive price effects under the information signaling and competitive hypotheses. Our proxy variable for growth opportunity is the market-to-book ratio (Market-to-Book Ratio).
- 4. *Leverage*. High financial leverage makes it more difficult for firms to react to competitive challenges [Akhigbe and Martin (2000) and Stulz (1990)]. We thus assume that highly leveraged firms are more negatively affected by an increase in competition, and, under the competitive hypothesis, we expect a higher negative price impact for higher levels of leverage. Higher levels of leverage also reduce managerial inefficiency [Jensen

(1986)] and may result in a lower probability of a takeover. The proxy variable for leverage is the change in leverage from one year prior to the announcement to the announcement date (Change in Leverage).

- 5. *Similarity in Cash Flows.* Akhigbe and Martin (2000) study industry rival effects in response to foreign direct investments. They use the correlation of stock returns over the 200 days prior to the announcement as an indicator for similarity between target and rival cash flows. Under the competitive hypothesis, we assume that rivals with higher similarity in cash flows, i.e., comparable technology, experience more negative effects. In contrast, the information signaling hypothesis implies that industry peers with similar cash flows to the target company might experience parallel gains from a reduction in managerial inefficiency and/or an increased probability of acquisition. Our proxy variable for the similarity in cash flows between a target and its rivals is their correlation (Target-Rival-Correlation).
- 6. *Firm Size.* A firm's response to competitive challenges depends on its position within an industry. Because larger firms are assumed to be positioned more effectively, we conclude that smaller firms are more adversely affected by an increase in competition resulting from the acquisition of an ownership claim by private equity investors or hedge funds [see, for example, Akhigbe, Martin and Whyte (2007)]. Under the competitive hypothesis, we expect a positive relationship between firm size and price reaction.

On the other hand, however, Helwege, Pirinsky and Stulz (2007) assume a negative relationship between firm size and the level of information asymmetry. They argue that larger firms are covered by analysts and monitored by institutional investors and regulators more frequently. This reduces information asymmetries and the potential for managerial inefficiency. Furthermore, the probability of becoming the next target decreases with an increase in firm value [Ambrose and Megginson (1992) and Song and Walkling (2000)]. Under the information signaling hypothesis, we thus expect a negative relationship between firm size and price reaction. We use the proxy variable (ln(Market Value)) to measure firm size as the natural logarithm of the market value at the announcement day.

- 7. *Abnormal-Trading-Volume*. Despite excluding illiquid stocks, the market reaction to an announcement might simply be triggered by an increase in trading volume and not by new information. Consequently, we must control for increased trading volume during the event period. Our proxy for abnormal trading volume is the average trading volume over the event period less the average trading volume over a 200-day period ending thirty days prior to the announcement (Abnormal-Trading-Volume). Therefore, we expect a positive (negative) sign on the coefficient when the market reaction is positive (negative).
- 8. *Systematic Risk.* The market reaction could be a risk premium captured by the CAPM's beta coefficient. Thus, we expect a positive sign on the coefficient if the market reaction is influenced by systematic risk.

⁴⁶⁾ The abbreviations for the proxy variables in the crosssectional regressions are in parentheses.

9. *Industry Effects.* We include two dummy variables to account for industry-specific effects from the technology and industrial industries, where most of the rivals are from.⁴⁷

3.4 Data and Methodology

We first gather all firms listed in the CDAX® index⁴⁸ between January 1, 2000 and January 1, 2008 by searching monthly constituency lists.⁴⁹ Next, we obtain stock return data and consolidated trading volumes for all firms from Thomson Financial DataStream. Finally, we use the Thomson Financial Worldscope database to obtain accounting data for the three fiscal years prior to and one year after the announcement date. In accordance with prior research based on Fama and French (1992), we assign all accounting variables for the fiscal year-end in year t-1 to announcements between July and June of year t+1.

3.4.1 Private Equity and Hedge Fund Targets

Mietzner and Schweizer (2007) obtain and describe our sample of 67 hedge fund and 108 private equity targets. Following Becht and Böhmer (2003), the authors identify acquisitions of at least 5%⁵⁰ of the voting rights of German publicly traded companies from 2001 through 2007 by searching the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin)) database. The sample of sixty-seven hedge fund targets excludes all acquisitions by mutual funds, pension funds, non-financial corporations and funds not classified as hedge funds in the Eureka Hedge Fund database, a leading hedge fund data provider.

For further sample refinement, the authors searched LexisNexis and discussed the sample with hedge fund industry participants to obtain suggestions for additions, deletions and transaction information. Furthermore, the sample does not include acquisitions of voting rights that were disclosed within three months subsequent to a prior announcement of a 5% shareholding in the same company by any other hedge fund investor.⁵¹ We also excluded companies with an absolute daily return of less than 0.001% on more than 70% of the trading days within the 200 days prior to the announcement.

Information on private equity transactions come from the Thomson Financial Mergers and Acquisition database. The private equity sample includes announcements between November 1993 and March 2007. From this database, we identified 108 completed transactions, where acquirers are private equity investors or appropriate special-purpose vehicles, i.e., a company fully controlled by a private equity investor with the objective of acquiring another company.⁵² Finally, we validated our sample by matching it with the BaFin database, by conducting a search on LexisNexis and in discussion with private equity practitioners.

- 47) Note we also control for other industry-specific effects. However, we find that our results are not affected by these industries. Tables are available upon request from the authors.
- The CDAX[®] index is based on all German companies listed in the Prime Standard and General Standard segments.
- By compiling our own constituency list, we avoid problems associated with survivorship bias.
- 50) In January 2007, the minimum threshold was lowered to 3%.
- 51) This should ensure that the results of the subsequent analysis are not biased by clustering of single events due to the well-known problem of hedge fund herding behavior.
- We exclude the fifty-one affiliated companies targeted by private equity investors.

3.4.2 Construction of Rival Portfolio

We construct our rival portfolio using a three-step procedure. First, we developed a portfolio of industry rivals by identifying all firms listed in the CDAX during our sample period with the same three-digit INDG industrial classification code.⁵³

Second, we removed rivals that themselves became targets over our sample period.⁵⁴ Because this constitutes a broad classification of industry rivals, we refine the rival portfolio using the return correlation of each peer group firm with the target over a 200-day estimation period ending thirty days before the transaction. We require a return correlation of at least 0.15 for a firm's returns with the target company to be included in our rival portfolio. In accordance with Akhigbe and Martin (2000) and Akhigbe, Johnston and Madura (2006), we assume that the correlation of daily returns between a target and a rival can be regarded as a measure of homogeneity.

Third, we narrow our portfolio by calculating the Amihud (2002) liquidity measure in order to avoid potential biases from illiquid stocks. We exclude all rivals with daily price reactions of more than 5% to one Euro of trading volume.

3.4.3 Estimation of Valuation Effects

We measure a rival's market reaction to the announcement of a purchase of at least a 5% ownership share by hedge funds or private equity investors by calculating their abnormal returns around the disclosure date. We follow Brown and Warner (1985) and Fuller, Netter and Stegemoller (2002), and apply the standard event study methodology by using the modified market model and calculating the cumulative abnormal returns, as follows:⁵⁵

$$CAR_{[t_0-\tau, t_0+\tau]} = \sum_{t=t_0-\tau}^{I} (R_{i,t} - R_{CDAX,t})$$

where $R_{i,i}$ is the return of rival *i* at time *t*, and $R_{CDAX,i}$ is the market return (CDAX[®]) at time *t*.

We use a standard t-test statistic to draw statistical inferences for the different event window cumulative average abnormal returns (CAARs). We apply the test according to Böhmer, Masumeci and Poulsen (1991) to capture possible event-induced increases in variance. We can evaluate differences in the mean and median market reactions between our two rival subsamples by using a standard t-statistic and the Wilcoxon rank sum z-score.

As noted by Mietzner and Schweizer (2007), investors are required to disclose an acquisition of voting rights no later than nine days after the transaction. To avoid any biases caused by a lagged disclosure, we base the subsequent cross-sectional regression on a [-10; 10] event window, and estimate the sensitivity of market reactions to transaction,

similar when we use the market model. Tables are available upon request from the authors. However, the impact of frequent acquisitions of ownership claims by private equity and hedge funds within the same industry might be included in the estimation period, and may therefore bias the estimation of the beta coefficient. Funke, Gebken and Johanning (2008) and Fuller, Netter and Stegemoller (2002) present the same arguments for the market model.

⁵³⁾ As a robustness check, we investigate whether our results are affected by the choice of industry classification codes. We find that the results remain stable when we use the primary SIC code obtained from Thomson One Banker. Tables are available upon request from the authors.
54) Servaes and Tamavo (2007) use a similar process.

⁵⁴⁾ Servaes and Tamayo (2007) use a similar process.

⁵⁵⁾ We also estimated market parameters based on a 200day estimation period to calculate abnormal returns. We find that the results remain quantitatively and qualitatively

firm and industry characteristics.⁵⁶ We estimate the t-statistics of our cross-sectional regressions using White's (1980) heteroskedasticity-consistent standard errors.⁵⁷

To detect whether the capital markets distinguish between competitive and non-competitive product market environments, we calculate the respective industry concentration using the Herfindahl-Hirschman-Index:

$$HHI_{j,t} = \sum_{i=1}^{N_j} s_{ijt}^2$$

where $s_{i,j,t}^2$ is the market share of firm *i* in industry *j* at announcement day *t*. We again use the INDG industrial classification code provided by Thomson DataStream. In robustness checks, we use the four-digit SIC industry classification provided by Thomson One Banker. Our results remain stable.⁵⁸

In order to detect the long-horizon impact of the acquisition of ownership claims by private equity investors or hedge funds, we calculate 150-day, 200-day and 250-day buyand-hold abnormal returns (BHAR) to measure the performance of our industry rival portfolio. We estimate the one-year BHAR for each rival company over T days:⁵⁹

$$BHAR_{i,T} = \left[\prod_{t=1}^{T} (1+R_{i,t})\right] - \left[\prod_{t=1}^{T} (1+R_{m,t})\right],$$

where $R_{i,t}$ is the return of rival *i* on day *t*, $R_{m,t}$ is the return of the CDAX® on day t and *T* is the end of the period of interest, i.e., 150, 200 or 250 days. We evaluate the statistical significance of the mean and median portfolio return of industry rivals using a standard t-statistic and the Wilcoxon rank sum z-score. Because some announcements, especially within the hedge fund sample, occur during the second half of 2006 or later, we consider a one-year window of BHRs only.

3.5 Empirical Results

3.5.1 Short-Term Valuation Effects to Industry Rivals

This section presents the short-term valuation effects of an industry rival portfolio in response to the acquisition of a 5% ownership stake by a new institutional investor. In the previous section, we proposed the information signaling and competitive hypotheses as two competing propositions to explain the market reaction of a target's horizontal rivals. The information signaling hypothesis predicts positive market reactions, while the competitive hypothesis predicts decreasing stock prices.

Figure 3-1 and Table 3-1 reveal that industry effects depend on the type of new investor. The stock price effects for industry rivals of private equity investors cause significantly positive market reactions of between 0.875% ([-10; +5]) and 2.682% ([-20; +20]) on average. In contrast, the stock price effects for rivals of hedge fund targets are significantly

- 56) To detect the influence of outlier observations, we winsorize abnormal returns at different percentiles, including the 1st and 99th and the 5th and 95th percentiles. The results of our regression analysis remain quantitatively and qualitatively similar. Tables are available upon request from the authors.
- 57) In unreported tables, we use variance decomposition according to Belsley, Kuh and Welsch (1980) to detect collinearity problems. We found no multicollinearity.
- 58) Tables are available upon request from the authors.
 59) This approach is in line with prior literature, e.g., Akhigbe, Johnston and Madura (2006).

negative, with CAARs ranging from -2.480% ([-5; +10]) to -3.636% ([-20; +20]) (see Panels II and III of Table 3-1).⁶⁰ Furthermore, the short-term effects for our private equity industry peer group portfolio are in line with those of Servaes and Tamayo (2007), who find a 1.30% stock price reaction following a takeover announcement by another firm.⁶¹

Figure 3-1: Cumulative average abnormal returns to industry rivals



We compare stock price reactions of industry rivals to targets acquired by private equity investors with the return of the hedge fund rival portfolio, and find that market reactions differ statistically at the 1% level (see Table 3-2). The results in Table 3-1 indicate that information signaling effects are prevalent within the private equity rival portfolio, while the competitive hypothesis is dominant for industry rivals to hedge fund targets.

This result is interesting in light of corporate governance theories, because it indicates that acquisitions of at least 5% voting blocks by different activist shareholders can manifest themselves at industry levels. More important, this finding extends the results of Cronqvist and Fahlenbrach (2007), who document that firm policy and performance differ in the presence of different large blockholders.

We find a negative market reaction for rivals to hedge fund targets and positive valuation effects for our private equity rival portfolio, which suggests that heterogeneity across active shareholders plays a significant role in explaining stock returns to industry rival

59) Note that the market reaction for the combined subsamples is not statistically different from zero, as the valuation effects of Panels II and III of Table 3-1 are diametrically opposed.

⁵⁸⁾ The results of Table 3-1 are statistically significant and robust whether we define rivals by the three-digit INDG code or the four-digit SIC industry classification code. They also remain significant and robust whether we use the market model with beta estimates over a 200-day

period ending 30 days before the announcement.

	Private Eq	uity Rivals	Hedge Fu	nd Rivals	Test fo	or Difference
	CA	AR	CA	AR	t-Test	Rank Sum-Test
Event window	Mean	Median	Mean	Median	t-value	Z-SCOFC
[-20; +20]	2.682%	3.359%	-3.636%	-2.044%	3.12***	-2.78***
[-10; +10]	1.527%	1.153%	-2.486%	-1.874%	2.74***	-3.14***
[-10; +5]	0.875%	0.740%	-3.489%	-2.662%	3.26***	-4.13***
[-5; +10]	1.701%	1.719%	-2.480%	-1.465%	3.57***	-3.99***
[-5; +5]	1.048%	0.986%	-3.482%	-3.068%	4.16^{***}	-5.15***

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companies. Our results also indicate that the capital markets perceive an engagement of hedge funds in a specific industry as an indication of an increase in product market competition. Investments of private equity investors are perceived as an indication of positive new information about the future of an industry.

3.5.2 Cross-Sectional Regression Analysis of Rivals' Short-Term Valuation Effects

In the previous subsection, we found support for the information signaling hypothesis within the private equity rival subsample, as well as support for the competitive hypothesis within the hedge fund rival subsample. Using four cross-sectional regression models, we next explore these differences in valuation effects across the rivals of companies targeted by new institutional investors. We examine whether the signs on the proxy variables have the expected directions.

Table 3-3 gives results for the hedge fund rival subsample. The table shows that only Market-to-Book Ratio is significantly related to the market reaction with a positive sign. Therefore, at most, we can assume that firms with high growth prospects are less negatively affected by the acquisition of an ownership claim by hedge funds in an enterprise operating in the same industry. This explanation supports the competitive hypothesis. All other proxy variables are not significant, and thus provide no clear indication of which hypothesis is supported.

When we focus on the cross-sectional regressions for the private equity rival subsample in Table 3-3, we find four proxy variables that explain the valuation effects of rivals (HHI, AROA, Abnormal-Trading-Volume and Market-to-Book Ratio). However, before we can interpret the coefficients for proxy variables Δ ROA and HHI, we must consider their interaction term. The coefficients for ΔROA and HHI measure the direct effect on market reaction, but the interaction term (ΔROA^*HHI) expresses how industry concentration varies with a change in profitability. The total effect for a change in ROA on the market reaction can be computed as the sum of the coefficients of the direct effect and the interaction term.62

We find that the coefficient for the interaction term is significantly positive, and ranges from 0.044 to 0.045, indicating that overall market reaction for rivals with an increase in ROA is positive (see Table 3-3). This finding supports the competitive hypothesis, because rivals that experience an increase in profitability prior to the announcement have a competitive advantage when product market competition increases.

Regarding industry concentration, we find that the total effect on CARs is negative. This implies that the positive market reactions for rivals in the private equity rival subsample are smaller for firms operating in less-competitive industries (HHI). Furthermore, the negative effect is lessened for rivals that experience an increase in operating performance prior to the announcement (ΔROA).

In summary, these results are consistent with the competitive hypothesis. Rivals in lesscompetitive industries should be negatively affected by an increase in competition, while firms with enhanced performance are likely to be better positioned to effectively compete with the target company.

The results for the proxy variable Market-to-Book ratio support the information signaling

⁶²⁾ We use the Wald test to test the null hypothesis that each variable (HHI and ΔROA) is statistically different from zero

and the competitive hypotheses, as the sign on the coefficient is significantly positive. Therefore, rivals with high market-to-book ratios have, on the one hand, a competitive advantage (competitive hypothesis) in the industry. On the other hand, however, a higher valuation increases the likelihood of being acquired or becoming the next target of a private equity fund (information signaling hypothesis).

Regarding the control variable Abnormal-Trading-Volume, we find a positive and significant coefficient in all regressions of the private equity target rival portfolio. This observation, combined with positive CARs on the announcement, supports the hypothesis that part of the CARs can be explained by buy-side pressure.

Finally, we find no relationship between market reaction and rival size, change in financial leverage or affiliation with the industrial or technology industries. Furthermore, the proxy variable Target-Rival-Correlation for similarity in cash flows is not related to the valuation effects.⁶³

The results of the cross-sectional regressions for the private equity rival subsample are noteworthy. Figure 3-1 and Table 3-1 indicate that the information signaling hypothesis can explain the short-term reaction, but we found no evidence in the cross-sectional regressions, because the signs of the proxy variables support the competitive hypothesis.

3.5.3 Long-Term Valuation Effects to Industry Rivals

The previous sections illustrate that there are information spillover effects to rivals in the same industry when hedge funds and private equity investors acquire blocks of voting rights. When the acquirer is a hedge fund, the short-term valuation effects are negative for rivals, which supports the competitive hypothesis. We find the opposite effect when the acquirer is a private equity manager. This supports the information signaling hypothesis, but we do not find clear support in the cross-sectional regressions. Instead, the proxy variables indicate an expected increase in market competition, which implies, a priori, that the long-term consequences for rivals are not obvious. Therefore, in a first step, we present a theoretical framework and derive the implications. In a second step, we show how they coincide with our empirical results.

Allen, Carletti and Marquez (2007) develop a theoretical two-period model of stakeholder governance in the context of an imperfectly competitive product market. They show that a firm's stakeholder orientation can lead to higher prices, a reduction of quantity and a softening of competition. The intuition behind this behavior is straightforward: Because firms are concerned about bankruptcy⁶⁴ in the next period, they consider the probability of not surviving when they choose prices in the current period. If the risk of bankruptcy is high, they maximize the profits in both periods and decide to set prices higher than their marginal costs. A lower bankruptcy risk leads to lower prices compared to the monopoly price.

These results are appealing when we consider industries with homogeneous objective functions. If we consider a situation where a shareholder-oriented firm acquires an incumbent (target company) operating in a stakeholder-oriented industry, the model predicts that rivals will be negatively affected. Generally, the German corporate governance system is regarded as stakeholder-oriented, because firms must account for stakeholder

63) This result is not surprising, because we only analyze firms with a correlation of greater than 0.15 over a 200-day period prior to the announcement.

	The dependent variable is the 1
Table 3-3: Determinants of the Cumulative Average Abnormal Returns	Is to hedge fund and to private equity targets. For each group, we estimate four explanatory models.
	Table 3-3: Determinants of the Cumulative Average Abnormal Returns

The sample is divided into rivals to hedge find and to private equity targets. For each group, we estimate four explanatory models. The dependent variable is the rival portfolio [-10, +10] event window cumulative average abnormal return. The exogenous determinants are: change in return on assets from the year prior to the announcement relative to the announcement year, while return on asset = (Net Income before Preferred Dividends + ((Interest Expense on Debt-Interest Capitalized) * ((-Tax Rate))/Last Year's Total Assets * 100. Herfindahl-Hirschman index, computed as the sum of squared market shares of all firms in a given three-digit INDG industry code. Market shares are obtained from Thomson Financial DataStream using market value at the announcement day. Market-to-Book value = market capitalization/common equity at the time of acquisition, while Target-Rival-Correlation = mean correlation between target and rival stock returns over t_{20} and t_{30} ; Abnormal-Trading-Volume = mean trading volume over t_{230} and t_{30} less the mean trading volume over the event window; In(Market Value) = logarithm of $2n_{30}$ and trais from the event window; In(Market Value) = logarithm of $2n_{30}$ and trais are computed using White's (1980) heteroskedasticity-consistent covariance matrix.

		Hedg	e Funds			Private F	Equity	
	Model I	Model II	Model III	Model IV	Model I	Model II	Model III	Model IV
Constant	-0.011	-0.00	-0.043	0.001	0.037^{**}	0.033	0.021	-0.018
Herfindahl Index (HHI)	-0.032	0.004	-0.021		-0.133***	-0.116***	-0.125***	
Change in Return on Assets (ΔROA)	-0.002	-0.005	-0.003		-0.009***	-0.009***	-0.009***	
(\Delta ROA*HHI)	0.009	0.018	0.011	-	0.046^{**}	0.044^{**}	0.045^{**}	
Market-to-Book Value	0.009^{***}	0.010^{***}	0.009^{***}	0.009***	0.003^{***}	0.003***	0.003^{***}	0.002^{***}
Change in Leverage				0.000		1	-	0.000
Target-Rival-Correlation	0.093	0.065	0.049	-	0.024	0.023	0.007	
Abnormal-Trading-Volume	-0.000	-0.000	-0.000	-	0.000^{**}	0.000^{**}	0.000^{**}	-
ln(Market Value)			0.009	0.002	-	1	0.003	0.005
Industrials		0.001	1	-0.004	-	0.008	-	0.020
Technology		-0.040		-0.043		-0.022		-0.053
Number of Observations	82	82	82	99	118	118	118	111
adj. R ²	5.20%	4.54%	5.70%	7.77%	20.46%	19.45%	20.10%	12.80%

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

⁶⁴⁾ The concern over bankruptcy introduces a stakeholder perspective, because employees and other stakeholders face substantial costs if a firm does not survive.

interests.⁶⁵ The shareholder-oriented acquirer, e.g., a private equity investor or a hedge fund, can implement a new governance structure that neglects a firm's concern for bankruptcy risk and, therefore, its stakeholder orientation. However, the remaining stakeholderoriented firms (rivals) will continue to consider bankruptcy risk and, therefore, will choose higher prices than their competitors. This can lead to a loss of market share for the remaining stakeholder-oriented firms (rivals).

But what are the consequences for industry rivals and their long-horizon valuation effects? The engagement of new institutional investors changes the objective function of their target companies toward a shareholder orientation as they simply adopt the shareholder value orientation of the blockholder [Boyson and Mooradian (2007)]. Consequently, stakeholder-oriented industry rivals face a situation where they must compete with a shareholder-oriented "entrant." Allen, Carletti and Marquez (2007) predict that within this situation incumbents (rivals) are hurt the most, and therefore we expect a negative long-horizon market reaction for either hedge fund or private equity activism.

Table 3-4 shows long-term abnormal buy-and-hold returns (BHARs) for different samples and three holding periods (150, 200 and 250 days). We find that the median BHAR relative to our benchmark index (CDAX[®]) is negative and statistically significant for all panels [as predicted by Allen, Carletti and Marquez (2007)].

Considering rivals to private equity targets, the negative long-horizon postannouncement BHARs are remarkable. Rivals who experienced positive valuation effects at the announcement of an ownership acquisition by private equity investors show considerable negative long-term BHARs to a significant average BHAR of -6.44% after 150 days. Consistent with this development, we find considerably negative BHARs of -19.39% for rivals of firms targeted by hedge funds. When we evaluate longer time horizons of 200 and 250 days after the event, we find continuously decreasing BHARs.

This result is consistent with the theoretical work of Allen, Carletti and Marquez (2007). Shareholder-oriented investors who implement new governance structures in their target companies negatively affect industry rivals. This effect is positively correlated with the level of shareholder orientation of the new governance structure. Because private equity investors usually intend to restructure their target companies, they need to pay close attention to stakeholder and supervisory board concerns.

In contrast, hedge funds generally have a shorter-term orientation [Partnoy and Thomas (2007)]. Thus, within their target companies they tend to implement a purely shareholderoriented governance structure. Of course, the negative effect on rivals is an increasing function of the degree of shareholder orientation of the target firm [Allen, Carletti and Marquez (2007)]. Thus, the more negative effects for our hedge fund targets are consistent with the predictions of Allen, Carletti and Marquez (2007) model (see Table 3-4 for significant differences in BHARs).

However, these findings are inconsistent with the results of our short-term event study. We found that the initial positive valuation effect of rivals to firms targeted by private

65) The focus on stakeholders is not only in line with German corporate law. Indeed, a focus on single groups with an interest in a company is against the law [Schmidt (2004)]. For more on the role of employees, union representatives or banks, see Schmidt (2004) and the references therein. Additionally, and in contrast to an Anglo-Saxon outsidercontrolled system that relies on market mechanisms, insider-controlled systems focus on the interests of different groups of stakeholders, i.e., blockholders, employees, union representatives or banks [Schmidt (2004) and Hackethal, Schmidt and Tyrell (2006)]. The interests of these different stakeholders are exerted via the supervisory board, which can hire or fire executives, for example. However, the composition of the advisory board is critical, because it determines the potential influence individual stakeholders will have on management [Schmidt (2004)]. equity investors turns into negative long-horizon BHARs.⁶⁶ In contrast, the hedge fund rival portfolio shows a continued return drift in the same direction as the initial market reaction. Overall, these results indicate that the capital markets react to information gleaned from acquisitions of voting rights by a financial investor for the industry. The negative long-horizon result for both rival portfolios is consistent with the competitive hypothesis, which predicts negative valuation effects for industry rivals.

But why do rivals to private equity targets experience a positive valuation effect over the short term, while we observe a substantial negative return drift for up to 250 days after the announcement? On the one hand, we can consider Loughran and Ritter's (1995) behavioral finance explanation. This view states that investors overweight the positive

Table 3-4: Buy-and-Hold Returns

This table reports the buy-and-hold returns for 150-, 200-, and 250-day holding periods. Panel I includes all hedge fund and private equity target firm industry rivals (n = 223); Panel II includes all private equity target firm industry rivals (n = 126); and Panel III includes all hedge fund target firm industry rivals (n = 97). The mean (t-test) and median (Wilcoxon rank sum test) BHARs for all holding periods are tested versus their difference from zero. The test for differences analyzes differences between the mean and median BHARs of Panels II and III.

	150-Day Period	200-Day Period	250-Day Period								
Panel I: Entire samp	le - rival reactions										
Mean	-12.07%***	-15.28%***	-18.34%***								
Median	-10.72%***	-16.71%***	-20.70%***								
Panel II: Private Equ	uity sample - rival re	eactions									
Mean	-6.44%**	-10.15%**	-12.23%**								
Median	-6.52%***	-14.37%***	-16.90%***								
Panel III: Hedge Fund sample - rival reactions											
Mean	-19.39%***	-21.94%***	-26.27%***								
Median	-15.43%***	-20.76%***	-26.59%***								
Test for Difference.											
Mean: t-value	3.146***	2.017**	2.075**								
Median: z-score	-3.146***	-2.758***	-2.727***								
*** ** and * indice	te statistical signifi	cance at the 1% 5%	and 10% levels								

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

information associated with private equity engagements, and slowly come to realize the firm is overpriced, which leads to negative long-term BHARs.

On the other hand, real option theory provides an alternative explanation. An investor who invests substantial amounts of equity and resources on acquiring information about a target will make an investment only if the transaction is expected to increase wealth. Therefore, we can regard private equity investments as well-timed real investments, which occur when growth options like an increase in product demand are valuable. Consequently, we will observe an information spillover to industry rivals at the

experience a positive market reaction on average over all periods, while the raw buy-and-hold return for our hedge fund target rival portfolio is negative.

⁶⁶⁾ In unreported tables, we also calculate the raw buy-andhold returns to rivals to private equity and hedge fund targets. We find that rivals to private equity targets

announcement of a target's change in ownership structure. This positive valuation effect is consistent with the information signaling theory.

However, because of increased market competition, the rivals must respond in order to avoid comparative disadvantages. They may, e.g., increase their marketing expenditures, or invest in new equipment. These activities can be interpreted as exercising growth (real) options.

Consequently, the exercising of a growth option by either a new institutional investor or by the rivals themselves can reduce a company's asset risk or uncertainty, which then lowers rivals' value because the remaining growth options lose value [see Carlson, Fisher and Giammarino (2005) for a detailed discussion of the price behavior of real options].67 Once the rivals respond to the increased market competition by exercising further growth options, we expect to see further negative valuation effects. We can see these empirically in the continuous decrease in BHARs.

3.5.4 Cross-Sectional Regression Analysis of Rivals' Long-Term Valuation Effects

Thus far, we have analyzed the course of the BHARs in relation to the holding period. We now need to determine which factors help explain it. We have shown that targets of new institutional investors increase industry competition, but we do not yet know whether the explanatory factors support the competitive hypothesis. To that end, we estimate three cross-sectional regression models for the hedge fund and private equity subsamples of industry rivals. The results are displayed in Table 3-5 and Table 3-6.

Considering the private equity rival portfolio, these results show that long-horizon BHARs are higher for rivals with high market-to-book ratios. This indicates that rivals with significant growth prospects (options) are in a more favorable market position, and are thus less negatively affected over the long term, as predicted under the competitive hypothesis (see Models I and II in Table 3-5).

The positive relationship between the change in return on assets and long-term BHARs also supports the competitive hypothesis. Note that we can compute the total effect for a change in return on assets by combining the coefficient of direct effect and the coefficient of the interaction term. Consistent with this reasoning and the results of our short-term event study, we find that firms operating in less competitive industries are more negatively affected by a change in targets' ownership structures.

The coefficient on size is significant and positive only in the third model. This parameter is not significant within the two other models, which provides only weak evidence that smaller firms are more adversely affected by an increase in competition stemming from the acquisition of an ownership claim by private equity investors or hedge funds. Therefore, in the third model, size may be a supportive proxy for the competitive hypothesis.

We use a change in leverage as a control variable to indicate a firm's ability to make investments in order to respond to an increase in market competition. The results of the cross-sectional regression analysis show that the proxy variable Change in Leverage has the expected sign as predicted by the competitive hypothesis, as a reduction in leverage increases rivals' opportunity set.

To summarize, all the significant proxy variables have the expected sign predicted under

invests, and is strongly committed in general to investing. For a detailed discussion, see Carlson, Fisher and Giammarino (2005).

prior to the amnouncement relative to the amnouncement year (AROA), while return on assets from the year prior to the amnouncement relative to the amnouncement relative to the amnouncement year (AROA), while return on asset = (Net Income before Prefered Dividends + ((Interest Expense on Deb-Interest Capitalized) * (1-Tax Rate))/Last Year's Total Assets * 100; Herfindahl: Hit he Herfindahl-Hitschman index, computed as the sum of squared market shares of all firms in a given three-digit INDG industry code. Market shares on tools of all firms in a given three-digit INDG industry code. Market shares are obtained from Thomson Financial DataStream using market value at the amnouncement day; and t₃₀ less the mean trading volume over the event window; In(Market Value) = logarithm of market value at time of acquisition; change in leverage from the year prior to the amnouncement relative to the amnouncement vary. manuely, not to the amnouncement relative to the amnouncement relative to the amnouncement vary. Interest industry effects; beta coefficient calculated over 200 trading days before the event. All test value at time of acquisition; change in leverage from the year prior to the amnouncement relative to vary. The announcement vary is defined as total deb/total assets; industrials and technology are dummy variables to control for industry effects; beta coefficient calculated over 200 trading days before the event. All test event. All test event.

industry rivals to private equit	targets								
		Model I			Model II			Model III	
	150d-BHAR	200d-BHAR	250d-BHAR	150d-BHAR	200d-BHAR	250d-BHAR	150d-BHAR	200d-BHAR	250d-BHAR
Constant	-0.091	-0.131	-0.166	-0.101	-0.119	-0.181	-0.225***	-0.243**	-0.332***
Market-to-Book Value	0.005^{***}	0.005^{***}	0.004^{**}	0.005^{***}	0.005^{***}	0.004^{**}			
Change in Return on Assets									
(DROA)	-0.027***	-0.029***	-0.023**	-0.027***	-0.029***	-0.022**			
Herfindahl Index (HHI)	-0.338***	-0.359***	-0.415***	-0.308**	-0.364**	-0.352**			
HHI* (Δ ROA)	0.135^{***}	0.158^{***}	0.094	0.133^{***}	0.156^{**}	0.087			
Target-Rival-Correlation	-0.020	0.003	0.034	-0.016	-0.001	0.039			
ln(Market Value)	0.019	0.016	0.022	0.019	0.016	0.021	0.030^{***}	0.028^{**}	0.035^{**}
Leverage Change [t.1, t ₀]		-			-		-0.389	-0.900**	-0.906**
Industrials				-0.030	-0.201	-0.079	0.065	0.041	0.101
Technology		1	-	0.018	-0.009	-0.035	-0.098	-0.090	-0.127
Beta							-0.045	-0.073	-0.062
Number of Observations	118	118	118	118	118	118	119	119	119
adj. R ²	13.97%	7.66%	8.50%	12.55%	5.99%	7.28%	7.72%	6.43%	9.30%

and 10% levels, respectively. **, and * indicate statistical significance at the 1%, 5%,

⁶⁷⁾ It is worth noting that not all growth options will be exercised at once. A gradual decline in stock prices is consistent with the perception that a firm subsequently

the competitive hypothesis. We find that the same factors explaining the short-term valuation effects are predominant over the long term as well. In addition, over the long term, firm size and leverage matter.

When we switch our focus to the hedge fund rival portfolio, we find that size and the similarity in cash flows between targets and rivals explain the variation of long-horizon BHARs only (see Table 3-6). The proxy variables have the expected signs as per the competitive hypothesis. All other variables are not statistically significant, or do not provide robust results.

Overall, the regressions for our private equity rival portfolio indicate that the capital markets are concerned about the negative competitive effects that are associated with a change in ownership structure of a company targeted by a private equity investor. However, firms with growth prospects and an increase in profitability are less negatively affected. Considering hedge fund rival portfolio returns, we find only limited factors to explain long-term BHARs. Further research is necessary to explain the observed negative market reaction, but the explaining factors support the competitive hypothesis.

The question remains whether these results are consistent with the predictions of the real option theory and the theoretical framework provided by Allen, Carletti and Marquez (2007). These authors assume that a change in corporate governance causes a change in competition, which affects industry rivals negatively in the long term. In fact, firms that are most susceptible to competition are found to be hurt the most by a change in ownership structure of one of their rivals. However, the change in competition forces rival companies to respond to this challenge in market competition by, e.g., executing investment commitments to reduce costs, or by increasing marketing efforts.

Further, this is consistent with the result that firms with high market-to-book ratios, i.e., firms with substantial growth opportunities, are less negatively affected because of their higher capabilities to respond to the challenge. In line with this argument, Carlson, Fisher and Giammarino (2005) developed an extended real option model that also considers a commitment to investment that helps explain the gradual decline in risk after seasoned equity offering announcements. We interpret our results within their context.

Considering the support for the competitive hypothesis from the proxy variables in the cross-sectional regressions, we find that the rivals must execute their growth options to respond to the increase in competition. Because this execution of growth options lowers the firms' uncertainty, there is a risk that the remaining growth (real) options will decrease in value. Therefore, rivals with substantial investments become safer in relation to firms that are not committed to investments. As soon as further growth options are executed over time, Carlson, Fisher and Giammarino's (2005) model implies a steady decrease in value of the remaining growth (real) options. When we compare the theoretical implications with our empirical findings in Table 3-4, we observe exactly this predicted course.

3.6 Conclusion

This paper investigates the valuation effects of industry rivals to firms targeted by hedge funds and private equity investors. We argue that both types of investors differ from other blockholders due to their strong motivation and ability to actively engage and monitor.

industry rival and

the year prior to on Debt-Interest on the following (1))Last Year's Total Assets * 100; Herfindahl is the Herfindahl-Hirschman index, computed as the sum of squared market shares of all NDG industry code. Market shares are obtained from Thomson Financial DataStream using market value at the announcement day, mean correlation between target and rival stock tretums over t_{230} and t_{30} ; Abnormal-Trading-Volume – mean trading volume over t_{230} g volume over the event window; ln(Market Value) = logarithm of market value at time of acquisition; change in leverage from the year elative to the announcement year, while leverage is defined as total debt/total assets; industrials and technology are dummy variables to its, beta coefficient calculated over 200 trading days before the event. All test statistics are computed using White's (1980) ((Interest Expense Preferred Dividends equity target time of acqui-Income before return on assets = (Net Income befo ndahl is the Herfindahl-Hirschman at time market capitalization/common equity 250-day (\Delta ROA), while return sts * 100; Herfindahl icement year, v calculated over Table cross-sectional announcement explanatory variables: market cap to concern the announcement relative to the anno Capitalized) * (1-Tax Rate)))/Last Ye firms in a given three-digit INDG in Target-Rival-Correlation = mean corr and t₃₀ less the mean trading volume and t₃₀ less the mean trading volume prior to the announcement relative to control for industry effects; beta concernan-heteroskedasticity-consistent covarianthe **Chis**

Hedge Funds									
		Model I			Model II			Model III	
	150d-BHAR	200d-BHAR	250d-BHAR	150d-BHAR	200d-BHAR	250d-BHAR	150d-BHAR	200d-BHAR	250d-BHAR
Constant	-0.174	-0.305*	-0.247	-0.190	-0.340*	-0.324*	-0.358***	-0.436***	-0.478***
Market-to-Book Value	-0.004	-0.013	-0.021**	-0.003	-0.014	-0.029***	1	I	I
Change in Return on Assets (AROA)	-0.033	0.002	-0.033	-0.020	0.010	-0.037	-	1	-
Herfindahl Index (HHI)	-0.125	-0.100	-0.332	-0.298	-0.215	-0.301	1		1
HHI* (AROA)	0.117*	-0.008	0.112	0.072	-0.037	0.123	1	1	I
Target-Rival-Correlation	-0.687*	-0.707**	-0.801 **	-0.606*	-0.656**	-0.821**	-		
In(Market Value)	0.049^{***}	0.078***	0.082^{***}	0.053 * * *	0.086^{***}	0.098***	0.040^{**}	0.062^{***}	0.060^{***}
Leverage Change	1	1		-	1	-	-0.227	-0.269	-0.346
Industrials	-	-		-0.127	0.001	0.305*	-0.094	-0.053	0.102
Technology	-	1		0.176^{*}	0.139	0.044	0.160^{**}	0.071	0.013
Beta							0.023	-0.026	0.002
Number of Observations	82	82	82	82	82	82	84	84	84
adj. R ²	5.60%	7.03%	6.32%	8.64%	6.24%	5.24%	4.29%	4.05%	1.23%

10% levels, respectively. and 5%, 1%, statistical significance at the indicate and * i

By changing a target firms' objective functions toward more of a shareholder value orientation, we find that the new institutional investors improve firm operating performance.

We also argue that an engagement of new institutional investors reveals valuable information about the target companies, and that at least some elements of this information will apply as well to their rivals. Therefore, if the market expects parallel gains for rival firms, we expect positive valuation effects at the announcement of a block purchase in the target (the information signaling hypothesis). Furthermore, changing a target firm's objective functions may also affect the way firms compete. This can lead to an ambiguous consequence for rival firms, because increased competition forces industry peers toward economic efficiency, but negatively affects their profit margins (the competitive hypothesis).

We use a sample of 223 German industry rivals, and find statistically significant intraindustry effects of between 0.875% and 2.682% for rivals to private equity targets, and -2.480% and -3.636% for competitors of hedge fund targets. The intra-industry effects for our private equity rival portfolio are inversely related to industry concentration and positively related to a change in profitability, market-to-book ratio and trading volume. But the return drift of hedge fund targets rivals can be explained only by market-to-book. The evidence we find of substantially positive abnormal returns for private equity rivals is consistent with the perception that valuation effects are more favorable for rivals that are better positioned to respond to competitive challenges. However, the positive valuation effect for our private equity portfolio is in line with the information signaling hypothesis. For the rivals of private equity targets, the explanatory factors provide evidence for the competitive hypothesis.

Considering the long-lasting return drift to rivals, we find that rivals experience average negative BHARs of -26.27% for up to 250 days after the announcement, while private equity rivals suffer statistically significant losses of -12.23% for up to 250 days after the announcement. Examining the drivers for the BHARs shows that the capital markets are concerned about the negative competitive effects, but that firms with growth prospects and an increase in profitability prior to the announcement are less negatively affected by the engagement of private equity investors in a rival company. Note that our regressions do not provide a precise picture of the long-term BHARs to rivals of hedge fund targets. This is an excellent topic for future research.

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4 Financial Sponsors, Underpricing, and Long-run Performance: Venture Capitalversus Private Equity-backed IPOs

4.1 Introduction

Information asymmetries are considered one important reason for substantial positive first-day returns (underpricing) of initial public offerings (IPOs) [Rock (1986), Altinilic and Hansen (2003), and Brau and Fawcett (2006)]. Credible signals of inside shareholders are thus needed to convince outside investors of the quality of an IPO. The engagements of financial sponsors such as private equity investors or venture capital companies are often perceived as positive and reliable signals of a high-quality IPO [Megginson and Weiss (1991)].⁶⁸ Financial sponsors are motivated to perform this certification role because a prestigious reputation is essential for using exchange listing as an exit strategy and for obtaining future business.

Empirical evidence supports the certification role of financial sponsors. Megginson and Weiss (1991) were among the first to find that underpricing is a negative function of financial sponsor reputation. Brav and Gompers (1997) show that this relationship also holds true for the long-term performance of IPOs.

However, differentiating between financial sponsors as venture capitalists (VCs) and as private equity (PE) investors raises doubts that the certification role leads to similar results for all groups of financial sponsors.⁶⁹ For example, the market for private equity is more concentrated than the venture capital business, and the market position of PE targets within their industries is on average more dominant and stable. Also, VCs can be regarded as funding specialists for young and high-growth companies, which are most prone to information asymmetries. PE target companies, on the other hand, are generally more mature, and do not necessarily need to be privately held.

From these differences, we expect initial VC-backed IPO returns to be larger, and the underpricing to be higher. If the certification provided by VCs and PE investors takes effect, the engagement of both will not be associated with differences in long-term returns, and overall will show no significant underperformance.

Over-the-counter (OTC) stock exchange markets are less established in Europe than in the US. Because of this lack of OTC alternatives, we concentrate on the European IPO market. Our unique data set of 188 PE- and VC-backed IPOs in Europe covers 1994 through 2005. We calculate first-day and one-year benchmark-adjusted buy-and-hold returns in order to analyze the engagement effects of the two groups of financial sponsors. Consistent with our expectations, we find two main results. First, the median level of underpricing for VC-backed IPOs is significantly higher than for PE-backed IPOs, even after controlling for size and different levels of asymmetric information. Second, the longterm performance of VC-backed IPOs does not differ from that of PE-backed IPOs.

68) Another positive signal may be the participation of prestigious underwriters [Carter and Manaster (1990) and Carter, Dark and Singh (1998)]. 69) Ritter and Welch (2002) note that IPOs are common exit channels for venture capitalists and leveraged buyout specialists in the US. However, we find that the long-term performance of VC-backed IPOs can be explained only by market- and issue-specific effects; the long-term performance of PE-backed firms is determined by leverage, growth opportunities, underwriter reputation and market environment. Size- and industry-specific effects and operational performance do not significantly impact long-term performance.

The rest of this paper proceeds as follows. In section 4.2, we review prior empirical studies. In section 4.3, we describe our data set, empirical methodology and research design. Section 4.4 reports our results, and the paper concludes in section 4.5.

4.2 The certification ability of Venture Capital and Private Equity Investors

The private equity industry encompasses the overall concept of sponsored investments, such as venture capital, leveraged buyouts, mezzanine investments, build-ups, and distressed debt. Venture capitalists are considered a subgroup of private equity investors, because they also buy privately held equity stakes. We consider VCs as funding specialists for young and high-growth companies at the seed, start-up and early stages of funding (according to common classifications of business phases) [Brav and Gompers (1997) and Gompers and Lerner (2000)]. Because of the nature of their risk characteristics, VC-backed IPOs are usually leveraged very little [Megginson and Weiss (1991)]. In contrast, we consider PE investors here as leveraged buyout specialists, with target companies that are more mature and may be burdened by significant debt.

When a company goes public, there may be uncertainty about its true value because of information asymmetries between, for example, future (outside) investors and (inside) financial sponsors. In this IPO context, VCs and PE investors are challenged to take on a certification role for their investments and to lower underpricing.

Barry, Muscarella, Peavy III and Vetsuypens (1990) conclude that underpricing should be lower for firms financed by high-quality VCs because of better monitoring. Megginson and Weiss (1991) and Lange, Bygrave, Nishimoto, Roedel and Stock (2001) show that the capital markets do perceive VCs as certifying a fair valuation of a new issue, which can result in low initial returns.

Furthermore, Gompers (1996) posits that VCs are not likely to overprice a stock at the IPO, because it could harm their reputation and hinder their future IPO placements. Brav and Gompers (1997) show that the certification role holds true for the long-term performance of IPOs, resulting in insignificant long-term abnormal returns.

In contrast to VC-backed IPOs, leveraged buyouts typically show divergent firm characteristics. PE investors target larger companies that are typically in later business stages. These companies also tend to be well established in their industries, and thus easier to evaluate. As a result of the buyout transaction, higher leverage may be seen. This reduces the agency costs between managers and owners by limiting the possibility of suboptimal investment decisions [Jensen (1986) and Bowman and Graves (2005)].⁷⁰

After a PE investment, the target typically experiences an increase in research and development expenditures, a sale of non-core assets, a reduction in working capital, an optimization of cash flows and a decrease of capital expenditures. As several articles have concluded, these measures lead to improved operating profits during the buyout period

70) Note that Bowman and Graves (2005) report no significant relationship between the investment duration of a leveraged buyout and its subsequent initial return. Therefore, we do not include the investment period of financial sponsors here to explain underpricing and long-term performance. [Kaplan (1989), Kaplan and Stein (1993), Hogan, Olson and Kish (2001), and Bowman and Graves (2005)]. The streamlined business structure should also result in a lower underpricing, which several US and European studies have confirmed [Ainina and Mohan (1991), DeGeorge and Zeckhauser (1993), and Van Frederikslust and Van der Geest (2000)]. For the risk-adjusted long-term performance, there is no evidence to suggest return differences in VC-backed IPOs

4.3 Data and Methodology

4.3.1 Sample Selection

Our analysis uses three primary databases. We use Thomson Financial DataStream for the time series data, i.e., the daily closing prices for all firms in our sample, and the two indices, the S&P Europe 350[®] and the Dow Jones EURO STOXX[®] index. For the accounting data, we use the Thomson Financial Worldscope database from the end of the fiscal year when the equity offering took place. This database provides information from January 1994 through August 2005 on whether an IPO is backed by VCs or PE investors.

In addition, we extract the issue days for all European equity offerings of either VCbacked entities or previous LBO transactions from Thomson Financial. The VC-backed filings are matched with data provided by Mackewicz & Partner (2001) to obtain suggestions for additions or deletions. We exclude all follow-up issues.

We are left with 211 VC-backed and 208 PE-backed IPOs. Adjustments due to missing accounting data or multiple entries reduce our sample to ninety-seven VC-backed and ninety-one PE-backed IPOs, with stocks quoted for at least one year after the equity offering.

Table 4-1 shows the frequency of IPOs per country and year for both samples. We note a clustering of VC-backed IPOs in 2000 and 2004, while PE-backed IPOs seem to have occurred primarily in 2001 and 2005. Considering the geographic distribution for both samples, we find that most companies that went public came from the United Kingdom, Germany or France.

4.3.2 Methodology

We calculate IPO underpricing (InitialRet) as per Megginson and Weiss (1991) and Schenone (2004) as:

$$InitialRet_i = \frac{P_{i,1}}{P_{i,0}} - 1$$

where $R_{i,j}$ is the first-day closing and P_{io} the IPO offering prices, respectively. To assess the success of private investors after the first day of trading, we estimate the one-year buy-and-hold return (BHR) by excluding underpricing as follows:

$$BHR_{i,T} = \left[\prod_{t=1}^{T} (1+R_{i,t})\right] - 1,$$

Table 4-1: Time Series Distribution of IPOs per Country

This table shows the IPOs in the two subsamples for our empirical analysis

			Ve	enture	e Cap	ital-be	acked	IPO	Samp	ole			
	<i>'94</i>	<i>'95</i>	<i>'96</i>	' 97	<i>'98</i>	<i>'99</i>	<i>`00</i>	<i>`01</i>	<i>`02</i>	<i>`03</i>	<i>'04</i>	<i>`05</i>	Total
Austria												1	1
Denmark								1				1	2
France	1				2	2	1	1	1		3	3	14
Germany				2	6	10	11				1	1	31
Gibraltar												1	1
Ireland											2		2
Italy											1		1
Netherlands							1				1		2
Norway											2	1	3
Poland												1	1
Sweden				1							1		2
Switzerland						1	1	1					3
UK			1		2	1	2	1	3	2	14	8	34
Total	1	0	1	3	10	14	16	4	4	2	25	17	97

				P	E-ba	cked i	PO S	ampl	le				
	<i>'94</i>	<i>'95</i>	<i>'96</i>	' 97	<i>'98</i>	<i>'99</i>	<i>`00</i>	<i>`01</i>	<i>`02</i>	<i>`03</i>	<i>`04</i>	<i>`05</i>	Total
Belgium					1								1
Denmark							1						1
Finland	1	2										2	5
France		2				2	1	2	1			2	10
Germany		1		1	1	1		1				2	7
Ireland											1		1
Italy				1				1				2	4
Netherlands							1	1					2
Norway								1					1
Poland						1							1
Portugal		1		1		1	1						4
Russian Fed		1											1
Spain	1				1	1		2					5
Sweden							1		1				2
Switzerland					1	1		1	2			1	6
Turkey					1								1
UK	3	1	2	2		4	2	8	5	2	6	4	39
Total	5	8	2	5	5	11	7	17	9	2	7	13	91

where $R_{i,t}$ is the return of issuer *i* in month *t*, and *T* is the length of the period of interest [Loughran and Ritter (1995) and Brav and Gompers (1997)].

Because buy-and-hold returns are influenced by overall market performance, we calculate one-year buy-and-hold abnormal returns (BHAR) and wealth relatives (WR) relative to the S&P Europe 350⁷¹ and the Dow Jones EURO STOXX⁷² indices, respectively.



where $R_{m,t}$ is the return on market index *m* of month *t* [Ritter (1991)].

To detect whether the capital markets distinguish between PE- and VC-backed equity offerings, we analyze the differences in means and medians of the initial returns, WR, and BHAR. As per Megginson and Weiss (1991), we can test for statistically significant differences with a standard t-test and the z-score according to non-parametric Mann-Whitney tests.

4.4 Empirical Results

4.4.1 Differences in Investment Behavior

Initial return differences and variations in long-term performance are driven by divergences in firm characteristics. Table 4-2 compares target company characteristics for the two subsamples. VC-backed companies tend to have smaller sales, total assets and number of employees. Consequently, their IPO proceeds tend to be smaller. Their underwriters

Table 4-2: Test of Differences in Firm and Offering Characteristics

All accounting figures and number of employees are as of the end of the fiscal year when the IPO took place. Total sales and total assets are denoted in EUR. Gross IPO proceeds are denoted in USD. Underwriter reputation (UnderRept) is measured by the market share of the lead underwriters in Europe one year prior to the IPO. Market share is calculated by the total amount underwritten by the individual underwriter, divided by the total underwritten by all underwriters in Europe. In the case of multiple underwriters, we use the average market share.

		Median	
	VC-backed	PE-backed	z-score
Sales (€ m)	50	430	5.486***
		10.0	
Assets (€ m)	73	480	5.657***
Number of Employees	248	2 543	5 799***
Number of Employees	210	2,515	5.177
IPO Proceeds (\$ m)	71	234	4.793***
Underwriter			
Reputation	0.8%	4.6%	3.589***
Significance is denoted b	y ***, **, and * f	for the 1%, 5% and	d 10% levels,

Significance is denoted by ***, **, and * for the 1%, 5% and 10% levels, respectively.

medium and small companies in twelve Eurozone countries.

The S&P Europe 350 index is a market-weighted index that covers about 70% of the region's market capitalization.

⁷²⁾ The Dow Jones EURO STOXX index represents large,

also have lower market shares in Europe one year prior to the IPO, which we attribute to the fact that underwriters with lower market shares may tend to focus on smaller IPOs. New entrepreneurial firms financed by VCs may have more growth options and a less mature business model than more established buyout firms. Hence, we expect VC-backed companies to be associated with lower profitability, as captured by three ratios [Holthausen and Larcker (1996) and Rindermann (2004): 1) return on equity (ROE), 2) operating return on assets (OPROA) and 3) operating return divided by sales (OPROS).

- 1. *Return on Equity (ROE)*. ROE is defined as net income after interest, taxes and extraordinary items, divided by total shareholder equity. It represents the profitability from the perspective of shareholders.
- 2. Operating Return on Assets (OPROA). OPROA is defined as operating income after depreciation and amortization and before interest, taxes and extraordinary items, divided by total assets. This measure is based on pre-tax and pre-interest data and disregards leverage effects. Agency costs are expected to be higher when managers have large amounts of cash at their disposal. Thus, OPROA serves also as an agency cost proxy, and suggests the agency problem is more pronounced for firms with high operational performance [Jensen (1986)].
- 3. *Operating Return on Sales (OPROS)*. During an IPO, companies substantially increase their total balance sheet assets if they issue primary shares. This in turn may cause a bias in the return ratio. In order to avoid this effect, we use OPROS as the second proxy for profitability.

Table 4-3: Test of Differences in Post-IPO Accounting Profitability

OPROA is defined as operating income after depreciation and amortization and before interest, taxes and extraordinary items, divided by total assets. OPROS is defined as operating income after depreciation and amortization and before interest, taxes and extraordinary items, divided by sales. ROE is defined as net income divided by total shareholder equity. All accounting figures are as of the end of the fiscal year when the IPO took place. We compare the equally weighted means and medians of the respective IPO portfolios.

	Median								
	VC-backed	PE-backed	z-score	Signif (one-sided)	n				
OPROA	2.0%	9.0%	-3.123	0.001***	178				
OPROS	2.0%	12.0%	-4.275	0.000***	180				
ROE	-1.0%	5.0%	-3.027	0.001***	180				

The results of Table 4-3 underline that PE-backed companies outperform VC-backed companies in all the profitability ratios.⁷³ Companies that earn larger parts of their future cash flows in the very near future are generally easier to evaluate. The more profitable buyout companies should therefore exhibit a lower level of asymmetric information and thus a lower underpricing.

4.4.2 Initial Public Offerings and First-Day Returns

Table 4-4 shows initial returns, long-term buy-and-hold returns and wealth relatives for our two samples. Note that the 5.36% median underpricing level for the VC-backed IPOs

is higher and significantly different from the 0.41% found for the PE-backed IPOs. This finding confirms the idea that VC-backed IPOs must be underpriced in order to compensate investors for asymmetric information problems.

 Table 4-4: Differences in IPO Underpricing

 Equally weighted means and medians of the respective IPO portfolios are compared.

	VC-backed Sample	PE-backed Sample	<i>t</i> -test	Signif (one-sided)	n
		М	ean		
InitialRet	67.1%	41.4%	0.678	0.247	188
		Me	dian		
InitialRet	5.36%	-0.41%	-2.722	0.006***	188
a: .c	1 / 11 +++ ++	1 * C (1 10/	co/ 1100	/1 1 / 1	

Significance is denoted by ***, ** and * for the 1%, 5% and 10% levels, respectively.

Ritter (2003) conducts a brief overview of various European IPO studies, and finds that underpricing of European IPOs ranges between 5% and 49%⁷⁴ on average. Derrien (2005) finds median first-day returns of between 4.8% and 21% for the French stock market. However, his sample only covers equity offerings from 1992 to 1998, and therefore does not capture offerings during the "dot-com bubble." Ising and Schiereck (2003) report on average an underpricing of German IPOs of 35.26% for VC-backed and 31.86% for non-VC-backed IPOs compared to the Nemax-All-Share-Performance-Index. However, they also show that VC-backed companies are younger than non-VC-backed firms. This might explain the higher first-day returns. Nevertheless, comparing our results with prior research indicates that both VCs and PE investors can reduce the underpricing of their portfolio companies.

In order to elaborate on these results, we next apply cross-sectional regression models (see Table 4-5). The models are designed to provide evidence about what drives the initial returns and how the proxies for the variables fit the theoretical framework. We use the following proxies:

- 1. *Venture Capital (VC)*. We use a dummy variable to control for whether VC-backed IPOs exhibit statistically different underpricing compared to PE-backed IPOs.
- 2. *Size (LnFloatSize):* Helwege, Pirinsky and Stulz (2007) assume a negative relationship between firm size and the level of information asymmetry. During an IPO, size is assumed to negatively correlate with the risk of the respective issue. Consequently, the bigger the issue, the less risk it is assumed to have, which results in lower first-day returns, or lower underpricing [Ellul and Pagano (2006)]. We use the natural logarithm of gross IPO proceeds as a proxy for firm size. Thus, we expect a negative coefficient.
- 3. Underwriter Reputation (UnderRept): The participation of prestigious underwriters is a positive signal in the literature, because they are perceived as providers of stocks that are worth investing in. Carter and Manaster (1990) and Carter, Dark and Singh (1998) document a negative relationship between underwriter reputation and short-term underpricing. The underlying argument is that prestigious underwriters need to maintain their reputations in order to continue to attract profitable issues. Because of their

⁷³⁾ We pay more attention to medians because means may be influenced by extreme values.

⁷⁴⁾ It is important to note that most studies analyze equity offerings for time periods prior to the year 2000.

committed reputation capital, outside investors do not request large risk compensations. Consequently, prestigious underwriters should maximize issuer proceeds by reducing underpricing.

We base the reputation of underwriters on their market share as the lead underwriter in the IPO market, i.e., the total amount they have underwritten, divided by the total underwritten in Europe in the year prior to the IPO [see Megginson and Weiss (1991)].

- 4. *Overallotment (Overpret):* The overallotment option, or the "greenshoe" clause, of an underwriting agreement authorizes the underwriter to sell additional shares and increase the IPO proceeds depending on investor demand. We measure Overpret as the percentage of oversold proceeds compared to total proceeds. On the one hand, this option is important for the underwriter, because of the uncertainty of an IPO. But, on the other hand, this option may lead the underwriter to offer too many shares, and they could be forced to cover any shortage by buying in the after-market. We assume that underpricing increases when Overpret increases, based on higher demand for the issue.
- 5. Number of Lead Underwriters (NumberBookrun): With an increasing number of underwriters, we expect that more information is conveyed to potential investors. Increased information should mean less need for underpricing. Consequently, we expect a negative relationship.
- 6. *Internet Bubble (Time):* Ritter (1991) suggests that firms go public at market peaks, i.e., comparable companies are valued above their true value, and therefore the issuer takes advantage of a "window of opportunity." Lerner (1994) shows that experienced VCs place their target companies at times when equity valuations are high. Florou (2005), on the other hand, notes that floatations were the least preferred exit strategy among VC-backed companies in the United Kingdom in 2003. It seems that after the dot-com bubble IPOs fell out of favor overall in the market.

Cumming, Fleming and Schwienbacher (2005) find that VCs invest in riskier earlystage companies when market conditions are less favorable, i.e., less liquid. It seems rational to conclude that market conditions affect IPO underpricing. Thus, we include a time variable in our model, equal to 1 if the IPO took place before 2000, and 0 if the IPO took place after 2000, to control for the strong bull market. We expect that IPOs prior to 2000 will have lower first-day returns.

Table 4-5 shows the results. We find a significant positive relationship between our VC dummy and IPO underpricing, indicating that VC-backed IPOs experience a higher underpricing on average. This is in line with results from the previous section and, therefore, our results turn out to be robust.

Regarding size, we find a negative and significant coefficient in all regressions, which is in line with prior research [Schenone (2004)]. However, this observation contradicts the assumption that VCs are able to certify their portfolio companies' IPOs so as to completely resolve the asymmetric information problem. Yet, the results are consistent with the perception that underpricing will vary systematically with the individual financial specialists present in a firm. That supports, to the extent that they matter, Cronqvist and Fahlenbrach (2007), who argue that it is necessary to consider large and active shareholders, but it may be even more important to determine who they are. Table 4-5: Ordinary Least Squares Regressions on Underpricing

Underpricing as defined by the first-day stock return (InitialRet) is used as the dependent variable and is explained by the following variables. VC is a dummy variable equal to 1 for VC participation, and 0 for no VC participation. Natural logarithm of gross IPO proceeds in USD is used as a proxy for size (LnFloatSize). Underwriter reputation (UnderRept) is measured by the market share of the lead underwriters in Europe one year prior to the IPO. Market share is calculated as the total amount underwritter by the individual underwriter, divided by the total amount underwritten by all underwriters in Europe. In the case of multiple underwriters, we use the average of their market share. Overallotment percentage used (Overpret) is defined as the percentage of oversold proceeds compared to the total proceeds of the issue. (Numbookrun) is defined as the number of lead underwriters. A dummy variable for time (Time) is used, and equals 1 for an IPO that took place before the beginning of 2000, and 0 for an IPO after the beginning of 2000. All accounting figures are as of the end of the fiscal year when the IPO took place. T-statistics are in parentheses and statistically significant values are bold. All test statistics are computed using White (1980) heteroskedasticity-consistent covariance matrix.

		OLS Regression	1
	Whole Sample	VC-backed Sample	PE-backed Sample
Constant	0.318	0.695	0.216
t-Stat	(1.009)	(2.535)**	(0.477)
VCi	0.462		
t-Stat	(2.215)**		
LnFloatSize _i	-0.216	-0.131	-0.266
t-Stat	(-2.703)***	(-2.057)**	(-2.083)**
UnderRepti	1.962	-4.645	6.732
t-Stat	(0.458)	(-2.641)**	(1.370)
Overprcti	1.069	-0.166	1.034
t-Stat	(2.234)**	(-0.180)	(1.711)*
NumberBookrun _i	0.154	0.164	0.193
t-Stat	(0.998)	(1.517)	(0.712)
Timei	-0.068	-0.253	0.157
t-Stat	(-0.345)	(-1.734)*	(0.476)
Adjusted R ²	0.031	0.137	0.030
n	158	76	82

Significance is denoted by ***, ** and * for the 1%, 5% and 10% levels, respectively.

Considering the VC sample in more detail, the coefficient on underwriter reputation is negative and significant. Therefore, we find that the underwriter's reputation capital at stake is an effective signaling mechanism for reliable information disclosure. The time dummy is used as a control variable for the effect of the dot-com bubble. It has a negative influence on underpricing in the VC sample only. VC-backed IPOs are more likely to be underpriced after the beginning of 2000. This underlines the dependence of stock performance on general market conditions [Lerner (1994)].

We find a negative relationship between size and a positive relationship between underpricing and the overallotment option only within our PE sample. While the result for size is comparable to our VC sample, the positive coefficient for the overallotment option may be explained by a high demand during the IPO process. As for the asymmetric information problem, these results suggest that the level of asymmetric information cannot be reduced by using prestigious underwriters. Contrary to VC-backed IPOs, we find here that market conditions do not impact underpricing of PE-financed issues.

In conclusion, our results support the idea that underpricing of VC-backed IPOs can be explained by information asymmetries. Although we control for size and the different levels of asymmetric information of the respective IPO, underpricing is statistically higher for VC-backed IPOs. This underlines that it is harder to convince investors of the certification ability by VCs. Consistently, Das, Jagannathan and Sarin (2002) find higher exit multiples and risk premia for early-stage investments in comparison with later-stage and buyout investments.

We find that PE-backed IPOs are not associated with significant underpricing in order to compensate investors for the risk of investing in equity offerings. Along with the finding that underwriter reputation has no impact on first-day returns, we believe this indicates the unique ability of PE investors to solve the asymmetric information problem.

4.4.3 Long-Run Underperformance of IPOs Backed by Financial Specialists

Brav and Gompers (1997) suggest that capital markets approve VC engagements by positive long-term performance. Belden, Keeley and Knapp (2001) compare the post-IPO operating and market performance of VC-backed IPOs with the stocks of mature companies. They find that VC-backed companies significantly outperform the mature companies for investment horizons greater than one year. However, in terms of operating performance, no differences are found. They believe this is consistent with the perception that VCs generate sustainable value, which persists even after they have exited [Belden, Keeley and Knapp (2001)]. However, we expect that the long-term market reaction will not be different for our two subsamples, because both investors should have a similar and positive impact on their portfolio firms.

The mean BHRs are positive: 34.4% for the VC sample, and 19.0% for the PE sample (see Table 4-6). Both samples continue to outperform after controlling for market developments. This indicates that IPO investments backed by specialized financial investors experience considerable capital gains on average over one year.

Admittedly, we find the opposite results when we include the medians. The median BHR is still positive for both samples, but the benchmark adjustments result in negative values. These findings need to be clarified, though, because a reduction in share price also affects portfolio performance for both investors.⁷⁵

In general, neither investor is likely to sell all the shares of their target companies at the IPO. Rather, they tend to make frequent smaller sell-offs, while VCs subsequently distribute shares to their limited partners [Ritter and Welch (2002)]. Bradley, Jordan, Roten and Yi (2001) attribute the negative long-term performance to the fact that the limited partners often immediately sell their shares.

Loughran and Ritter (1997), however, provide an alternative explanation. They claim that investor overoptimism about persistent positive past returns is to blame for deteriorating stock returns after a firm has conducted a seasoned equity offering. They suggest that investors are disappointed if the positive pre-issue performance does not continue. Table 4-7 analyzes the variables that may help explain the long-term performance. Each

Table 4-6: Test of Differences in Post-IPO Market Performance

Buy-and-hold returns (BHR) are calculated for each IPO by compounding the monthly returns of one year after the IPO. For each IPO, we calculate equivalent market returns over the same time frame using the S&P Europe 350 and the Dow Jones EURO STOXX indices as benchmark returns. Benchmark-adjusted buy-and-hold returns (BABHR) are calculated as BHR minus the respective market return. Wealth relatives (WR) are calculated as 1 plus the BHR, divided by 1 plus the respective market return of the benchmark. We compare equally weighted means and medians of the respective IPO portfolios.

		Me	an		
	VC-backed Sample	PE-backed Sample	t-test	Signif (one-sided)	n
BHR	34.4%	19.0%	0.860	0.196	188
BABHR (S&P)	26.2%	14.8%	0.675	0.251	188
WR (S&P)	1.19	1.15	0.668	0.253	188
BABHR (DJ)	24.9%	13.7%	0.293	0.387	188
WR (DJ)	1.16	1.14	0.175	0.432	188
		Med	lian		
	VC-backed	PE-backed	z-score	Signif (one-sided)	n
BHR	6.3%	4.8%	-0.103	0.459	188
BABHR (S&P)	-1.6%	-4.6%	-0.249	0.402	188
WR (S&P)	0.99	0.95	-0.298	0.383	188
BABHR (DJ)	-5.1%	-5.6%	-0.502	0.308	188
WR (DJ)	0.96	0.93	-0.558	0.289	188

Significance is denoted by ***, ** and * for the 1%, 5% and 10% levels, respectively.

column reports the coefficients from a regression of the buy-and-hold returns on the variables listed in the first column. We also examine the impact of the following parameters:

1. *Total Number of Employees (Ln(Employees)).* As we note above, the literature assumes a negative relationship between firm size and the level of information asymmetry [Corwin (2003) and Helwege, Pirinsky and Stulz (2007)]. In line with Jain and Tabak (2008), we use the natural logarithm of the number of employees in the year of the IPO to control for size effects. The number of employees is more representative for size across the two subsamples than such variables as total assets or total sales, which may be distorted, especially for VC-backed IPOs. We expect size to have a negative influence on the cross-sectional variation of stock returns.

because they need to continue to attract potential investors to their funds.

- 2. Level of Leverage (Book/Asset). Jensen (1986) conjectures that leverage reduces the agency costs between owners and managers, because the level of debt acts as a discipline on management. Our proxy for leverage is the ratio of the book value of equity to total assets. Since an increasing book-to-assets ratio indicates lower leverage, financial risk should be inversely related to BHR.
- 3. *Level of Valuation (Market/Book).* The book-to-market ratio measures the level of growth opportunities reflected in the current share price. We posit that for high ratios it will be more difficult to enhance value due to active engagement. Thus, we expect a negative coefficient.
- 4. *Market Environment (MarRet).* In order to control for market environment, we calculate the return of the S&P Europe 350 index for one year after the IPO. During upward-trending phases, *share* prices of VC- and PE-backed IPO companies should also increase. Therefore, the coefficient on the variable should be positive.
- 5. Operating Return on Assets (OPROA). As previously mentioned, OPROA is defined as operating income after depreciation and amortization, before interest, taxes and extraordinary *items*, divided by total assets. Because agency costs are higher when managers have large amounts of cash at their disposal, the agency problem is more pronounced for firms with high operational performance. However, we expect VCs and PE investors to restructure a company's assets and to align management and shareholder interests by, for example, implementing new management compensation structures. In turn, at the time of exit, operating profitability should have increased, which should be expressed in a positive coefficient.
- 6. *Industry Effects (Telec, CoRe)*. To capture industry-specific effects, we include dummy variables for the *telecommunications* and the consumer retail industry.

Table 4-7 reports the results of the three models. The results for our VC dummy confirm the perception that the support provided by financial specialists does not result in different long-term returns. Furthermore, the result for the underwriter reputation variable is consistent with the idea that the participation of prestigious underwriters is a positive signal, as they are perceived to be providers of stocks that are worth investing in.

Within the PE sample, we find that the coefficient for the leverage proxy is positive and statistically significant, which is in line with the literature on general stock performance [Fama and French (1992) and Eckbo and Norli (2000)]. As expected, the coefficient on the market-to-book ratio is negative, but significant for the PE sample only. Firms with a high market-to-book ratio have lower expected stock returns because of poor growth prospects.

Regarding underwriter reputation, the results are striking. Within the VC sample, we find a positive and significant coefficient, while the opposite is true for the PE sample. The positive relationship between long-run returns and underwriter reputation within the VC sample is in line with Carter, Dark and Singh (1998), and can be explained by a reduction of asymmetric information.

However, the negative relationship between long-term returns and underwriter reputation cannot be explained by this argument. Combining this observation with the almost nonexistent underpricing supports the hypothesis that high-quality underwriters seem to price IPOs at the upper end of the range. **Table 4-7: Ordinary Least Squares Regressions on Post-IPO Long-term Performance** Buy-and-hold returns (BHR) are used as dependent variables and are explained by the following variables. VC is a dummy variable defined as in the underpricing model. Natural logarithm of the total number of employees (LnEmployees) is used as a proxy for size. Book/Asset is defined as the book value of equity to assets and is used as a proxy for leverage. Market/Book is defined as the market value of equity over shareholder equity. Underwriter reputation (UnderRept) is defined as in the underpricing model. We calculate the corresponding market returns (MarRet) using the S&P Europe 350 price index for each IPO in the sample over the same time period. Operating performance is represented by operating return on assets (OPROA). Industry dummies, telecommunications (Telec) and consumer retail (CoRe), are included and equal 1 for a company that belongs to this industry according to its SIC code. The dummy variable for time (Time) is also defined as in the underpricing model. All accounting figures are as of the end of the fiscal year when the IPO took place. T-statistics are in parentheses and statistically significant values are bold. All test statistics are computed using White (1980) heteroskedasticity-consistent covariance matrix.

		OLS Regression	1
	Whole Sample	VC-backed Sample	PE-backed Sample
Constant	-0.168	-0.033	-0 758
t-Stat	(-0.549)	-0.033	(-1 738)*
VC	0.159	(0.000)	(-1,,50)
vC _i	(0.328)		
Ln(Employees):	-0.046	-0 119	0.091
t-Stat	(-0.731)	(0.2337)	(1.558)
Book/Asset;	0.308	0.304	0.644
t-Stat	(1.279)	(1.086)	(1.802)*
Market/Book;	-0.002	0.000	-0.001
t-Stat	(-1.062)	(0.459)	(-2.409)**
UnderRept _i	6.296	14.543	-2.956
t-Stat	(1.920)*	(2.330)**	(-1.677)*
MarReti	1.503	1.468	2.727
t-Stat	(3.617)***	(2.368)**	(2.819)***
OPROA _i	0.465	0.544	-0.077
t-Stat	(1.765)*	(1.510)	(-0.296)
Telec _i	-0.135	0.173	-0.094
t-Stat	(-0.583)	(0.264)	(-0.363)
CoRei	-0.033	-0.448	-0.099
t-Stat	(-0.031)	(-1.068)	(-0.228)
Timei	0.398	1.069	0.152
t-Stat	(1.705)*	(2.506)**	(0.365)
Adjusted R ²	14.70%	25.70%	8.70%
n	169	89	80

Significance is denoted by *******, ****** and ***** for the 1%, 5% and 10% levels, respectively.

As we expected, market returns appear to drive the performance of VC- and PE-backed IPOs positively. Brav and Gompers (1997) suggest that market sentiment drives stock performance. Operating performance has a positive impact on long-term performance in the combined sample only, while the time dummy variable has a significantly positive impact on the VC-backed sample. We again note that the positive influence of this

dummy variable can be interpreted as a positive effect on stock performance if the IPO took place before the beginning of 2000.

The absence of significance for PE-backed IPOs is in line with previous research that finds performance is not confined to a single time period [Cao and Lerner (2006)]. This finding is somewhat obvious, since we observed a strong bull market until 2000, partly caused by the dot-com bubble, and a bear market after 2000. We found no relationships among industry-specific effects.

In conclusion, there is no long-term underperformance of IPOs backed by financial sponsors. Additionally, we find no support that the long-term performance of VC-backed IPOs differs from the long-term performance of PE-backed IPOs. However, long-term returns are determined by different variables, such as market- and issue-specific effects for VC-backed IPOs. BHAR returns of PE-financed firms are determined by leverage, growth opportunities, underwriter reputation and market environment.

4.5 Conclusion

This study analyzes the underpricing and long-term performance of IPOs backed by two types of financial specialists: private equity investors and venture capitalists. Both investors are able to certify an IPO and thus lower underpricing, but their target companies are associated with different levels of the asymmetric information problem. Therefore, we argue that underpricing should diverge substantially between the targets of the two financial sponsors.

Companies targeted by VCs differ from those backed by PE investors in profitability underpricing. This supports the common view that VCs are regarded as funding specialists for young and high-growth companies, which are most prone to information asymmetries. The median level of underpricing for VC-backed IPOs is statistically higher than for PE-backed IPOs – even after controlling for size and different levels of asymmetric information. PE backed IPOs do not show any significant underpricing at all. However, we interpret our findings as indicators that even the less distinctive certification abilities result in a reduction of underpricing. A comparison to prior research of first-day returns of European IPOs indicate that VCs and PE investors can reduce underpricing of their portfolio companies.

The long-term returns of IPOs backed by financial sponsors do not provide evidence for any underperformance. The certification role holds also true for the one-yearperformance. Additionally, the share price shows no differences in long-term performance between the two financial specialists. But to explain variations in the two subsamples different sets of variables are of importance. The long-term market performance of VCbacked IPOs can be explained by market- and issue-specific effects only. But long-term returns of PE-backed firms are determined by leverage, growth opportunities, underwriter reputation and market environment.

Our findings also have implications for the common assertion that venture capitalists and private equity investors take on similar or identical certification roles because both operate in environments associated with different levels of asymmetric information. Our results indicate that PE investors can reduce underpricing more than VCs, while IPOs backed by one of them show lower underpricing than non-certified IPOs. From an investment perspective, VC-backed IPOs and non-certified IPOs offer an investment opportunity for investors interested only in short-term profits. However, while the stock returns of VC- and PE-backed companies one year after the IPO are not significantly different form the overall market performance of common IPOs, both provide attractive investments for long-term oriented investors.

5 Information Signaling and Ownership Transition – Value Effects of Share Issue Privatizations

5.1 Introduction

A number of studies analyze the returns of initial public offerings of divested state-owned enterprises as well as returns to subsequent share issuances,⁷⁶ e.g., Dewenter and Malatesta (1997) or Jones, Megginson, Nash and Netter (1999). Prior research has found significant positive returns which are often attributed to substantial underpricing. These observations are reflected by Altinilic and Hansen (2003) or Laurin, Borardman and Vining (2004), who argue that governments deliberately underprice initial and subsequent share issue privatizations (SIP) in order to signal that they do not intend to redistribute the value of shareholders' investments and to align shareholders' interests with those of the privatizing government.

However, if underpricing is a reliable signal for stating that governments will not interfere in a firm's operating activities in the future, then, as suggested by Dewenter and Malatesta (1997), a SIPs should be underpriced more strongly compared to IPOs and seasoned equity offerings (SEO) of firms in the private sector. In turn, this expectation should be incorporated into stock prices at the day the information on a subsequent equity offering of a SEO becomes public.

Several studies document that the announcement of an issuance of seasoned equity for non-state-owned enterprises is associated with average negative abnormal returns between -2.00% and -3.00%.⁷⁷ Even though theses findings may not be strictly comparable with the announcements of a SIPs, because private-sector SEOs might be underpriced for different reasons, one may expect the announcement of a subsequent share issuance (of secondary or primary shares) during a privatization process to result in negative market reactions. Asymmetric information is regarded as one reason for the negative market reaction as outside investors usually do not exhibit the same information about the firm's true value than inside investors. Furthermore, the government's motives to privatize are ambiguous.

A rich body of literature on post-privatization performance has emerged over time providing evidence that profitability, operating efficiency, output as well as the financial

respond to political objectives. By contrast, private offerings are structured primarily to raise proceeds. We refer to the offering of a government's stakes in a stateowned enterprise for the first time as initial share issue privatization, while subsequent equity offerings are defined as seasoned or subsequent share issue privatization.

⁷⁶⁾ Prior research distinguishes between two methods of privatization through a sale of ownership claims in state property for cash payments: On the one hand, the government may sell the state-owned enterprise to individual, strategic or groups of investors. On the other hand, some or all of a government's stake in a state-owned enterprise is sold to investors through a public share offering. We define this process as share issue privatizations (SIPs), whereas some or all of a government's stakes are sold via a public offering. Although this process is similar to IPOs of privately held enterprises, the government's motives are different. Megginson and Netter (2001) claim that the motivation for SIPs is to raise money and to

⁷⁷⁾ See, for example, Asquith and Mullins (1986), Mikkelson and Partch (1986), Akhigbe and Harikumar (1996), Bayless and Chaplinsky (1996), Guo and Mech (2000), Clarke, Dunbar and Kahle (2001), Gajewski and Ginglinger (2002), Best, Payne and Howell (2003), D'Mello, Tawatnuntachai and Yaman (2003) and Byoun (2004).

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performance increase after a reduction of state ownership.⁷⁸ Barberis, Boycko, Shleifer, and Tsukanova (1996), Frydman, Gray, Hessel, and Rapaczynski (1999) and more recent Jelic, Briston, and Aussenegg (2003) demonstrate that the rationale behind these empirical findings is primarily to be found in changes in the ownership structure and the board of directors. Profit-oriented shareholders participating in SIPs processes encourage managers to the primary goal of shareholder value, whereas, in line with Moore (1992), purely state-owned enterprises (SOE) may pursue multiple aims related to diverse political objectives, for instance, job security. Hence, one can assume that the announcement of a SIP, and, more specifically, the direct (SIPs with secondary shares only) or indirect (SIPs with secondary and/or primary shares) reduction of state ownership, generate positive announcement returns.

Overall, the valuation effects associated with an announcement of a SIP are ambiguous. To the extent that an intensified monitoring by capital markets result in performance improvements, announcements of SIPs should cause positive valuation effects. By contrast, a negative market reaction reflects the market's perception of the degree to which the government intends to redistribute firm value after privatization, i.e., affect the value of the firm through policy changes in regulation, taxation and so forth. Since the valuation effect of SIP announcements is ambiguous, we enlarge the body of research by analyzing the market reaction to announcements? Second, if valuation effects are observable, are they caused by an expected increase of performance or by the market's perception of a government's motives for privatization?

Our study design applies a market model event-study methodology based on a sample of 134 SIPs, which are conducted by 82 enterprises from 15 Western European countries between 1979 and 2003. We identify negative cumulated average abnormal announcement returns between -0.125% and -1.766% which can largely be explained by firm and offering size as well as the market environment. In contrast, the negative CAARs are less distinctive for enterprises that had prior SIPs

The remainder of this paper is organized as follows: First, we explore the manifold theoretical and empirical background against which our investigation is organized. Section 5.3 deals with the data and the methodology used in our event-study analysis. Subsequently, section 5.4 describes the results of the univariate analysis. Section 5.5 discusses the results of our event-study, while section 5.6 presents the results of the cross-sectional regression. Finally, section 5.7 concludes with a summary and discussion of the results.

5.2 Theoretical Framework and Hypotheses

It is usually assumed that state-owned enterprises (SOEs) are less efficient compared to private ones due to the fact that they have to cater to the objectives of politicians and are not able to pursue the aim of maximizing efficiency. In line with Villalonga (2000), three distinct theoretical approaches (Agency and Property Rights Theory, Public Choice Theory and the Organizational Theory) can be made to explain why efficiency of SOEs

and Nash (2005). However, Martin and Parker (1995) analyze eleven British enterprises privatized during the 1981-1988 period and observe decreasing values of both performance measures they applied. is lower. Most important, as proposed in this analysis, managers of SOEs attempt to maximize their private benefits rather than the utility function of the government [De Alessi (1969)]. Furthermore, reducing ownership in SOEs is impossible for individuals prior to an equity offering. Therefore, in order to explain different levels of efficiency one has to consider the agency conflict between owners and managers as well as the absence of a market for corporate control. This leads to the objectives of the Agency and Property Rights Theory. However, the Public Choice Theory assumes that politicians are self-interested agents who aim at maximizing their own utility. Third, Villalonga (2000) suggests that the Organizational Theory explains differences between public and private firms with regard to efficiency by analyzing the SOE inherent organizational characteristics. The overviews of theoretical and empirical studies provided by Villalonga (2000) and Megginson and Netter (2001) show that considerable research energy has been invested into determining what factors may explain differences in efficiency between privately and state-owned firms. Overall evidence consistently shows that privately owned enterprises provide superior degrees of efficiency.

Boycko, Shleifer and Vishny (1996) highlight the problem of inefficient state-owned enterprises and argue that efficiency could be enhanced after privatization. A privatization transfers several control rights over a firm's resources to managers who are willing to meet the interest of the shareholders. Therefore, vote maximizing politicians who have a fundamental interest in employment in order to gain support of trade-unions in elections have to compensate managers for excess employment via subsidies. Budget restrictions for politicians are the principle reasons why a reduction of excess employment and a restructuring of the firms will be achieved after a privatization [Boycko, Shleifer and Vishny (1996)]. A privatization will subject managers to profit maximization, since shareholders are profit-oriented, whereas, in line with Moore (1992), a state-owned enterprises pursues multiple objectives, such as keeping employment rates high.

Moreover, a rich body of empirical studies on post-privatization performance has emerged over time, applying a broad set of sophisticated methods and indicators to measure possible performance variations of newly privatized firms. Empirical investigations of D'Souza, Megginson and Nash (2005) and the research pooled in Megginson and Netter (2001), document that firms experience significant increases in efficiency and profitability due to privatization because managers are monitored by the capital market [Boubakri and Cosset (1998)]. The basic idea of the performance improvement test is to compare the preprivatization performance for enterprises with their post-privatization performance. Megginson, Nash and van Randenborgh (1994) were one of the first concerning performance changes after a divesture. Backed on a sample of 61 privatized firms of 18 countries during 1961-1989 they show that profitability, operating efficiency, output as well as the financial performance increases due to a SIP. Additionally, D'Souza and Megginson (1999) and Boubakri and Cosset (1998) offer similar results as Megginson, Nash and van Randenborgh (1994).

In contrast, Martin and Parker (1995) analyze eleven British enterprises during the 1981-1988 time period and find decreasing values for their performance measures applied. They assume that privatization does not result in an enhancement of performance, as they concede that the management could have reorganized the firm prior to the privatization process with respect to capital market requirements. Frydman, Gray, Hessel and

⁷⁸⁾ Studies documenting an improvement of profitability include Boubakri and Cosset (1998), Boycko, Shleifer and Vishny (1996), D'Souza and Megginson (1999), Megginson and Netter (2001) and D'Souza, Megginson

Rapaczynski (1999) report an improvement in performance after the government sold parts of their shares to outside or foreign owners. However, they show that there is no evidence for a beneficial effect on performance if ownership rights were transferred to insiders like managers or employees. Barberis, Boycko, Shleifer and Tsukanova (1996) analyze a sample of Russian shops which have been privatized during the 1990s and conclude that for an effective privatization the chief executive officer has to be changed. In a more recent study, Jelic, Briston and Aussenegg (2003) find for Polish privatized firms a significant effect of foreign ownership on the development of share prices. In sum, Megginson and Netter (2001) conclude that their review of 22 studies provides "[...] at least limited support for the proposition that privatization is associated with improvements in the operating and financial performance of divested firms" [Megginson and Netter (2001)] and that almost "[...] all studies that examine post-privatization changes in output, efficiency, profitability, capital investment spending and leverage document significant increases in the first four and significant declines in leverage" [Megginson and Netter

All studies mentioned poses insights into the impact of ownership transition, and provide guidance for an effective privatization. In this context, a reduction of state ownership seems to be value enhancing and should result in a positive market reaction. One commonly applied methodology to privatize state-owned enterprises is a share issue privatization. Many studies, e.g., Dewenter and Malatesta (1997) or Jones, Megginson, Nash and Netter (1999), analyze the returns of initial share issue privatizations and find significant positive returns which are often caused by substantial underpricing. Perotti (1995) and Biais and Perotti (2002) provide a theoretical foundation for underpricing, based on a government's ability to signal that they do not intend to redistribute the value of the shareholders' investment, i.e., affect the value of the firm through policy changes in regulation, taxation and so forth.

Perotti (1995) categorizes governments as either populist or committed governments and only the latter can resist the politically valuable option of reallocating firm value to a specific constituency after a privatization. Since a populist government would also pretend to pursue the privatization process, a committed government requires a credible signal, whereas "[...] a partial sale and (possibly) its underpricing are signals of commitment" [Perotti (1995), p. 848)]. This approach implies that the consequences of subsequent interference also affect the government that is still the biggest shareholder after a gradual sale [Perotti (1995) and Jones, Megginson, Nash and Netter (1999)]. Furthermore, successive selling of small proportions of the governmental stake bears the risk that the motives of a populist governments become public, which reduces the proceeds achievable in subsequent share issuances.

In contrast, divesting SOE via SIP leads to the problem that the government has to assure that it intends to transfer the right of disposal. However, underpricing is a reliable signal when it is used by a committed government in order to capture the economic benefits of a privatization. Hence, the level of underpricing necessary is related to the investors' expectations about future policy and "[...] the secondary market will place a higher value on a firm if the government credibly signals commitment" [Jones, Megginson, Nash and Netter (1999)]. In addition, to signal a government's identity with the privatization process and to overcome uncertainty about future policy, underpricing of an IPO or subsequent

SIPs may provide the opportunity to maximize the present value of the total net proceeds from all equity offerings [Laurin, Borardman and Vining (2004)].

Altinilic and Hansen (2003), argue that underpricing is important to compensate investors for the uncertainty about the firm's prospects and thus, the value of the firm. With respect to the uncertainty about the firm's value and the government's motives to privatize a SOE, Jones, Megginson, Nash and Netter (1999) analyze if political objectives and economic factors have an impact on initial returns. Using sample of 630 SIPs during 1977-1997, they find returns of 34.1% for initial and 9.4% for seasoned share issue privatizations and document that their results "[...] indicate that much of the underpricing of initial SIPs is a concession by governments designed to overcome the political obstacles that stand in the way of successful privatization and the economic benefits that might flow from it" [Jones, Megginson, Nash and Netter (1999), p. 234)].

The empirical studies reviewed provide evidence that returns of subsequent SIPs are positive and that the decision to privatize, i.e., the time pattern for later SIPs is made by politicians or managers who exhibit superior information of the firm. Assuming managers to act in the interest of their shareholders, a strong incentive exists to issue new equity, when the capital market evaluates shares above the value which would be justified by the firm's prospects. Consequently, the announcement of issuing stocks should result in a reevaluation of the share price by the investors [Asquith and Mullins (1986)]. Therefore, stock prices of partially privatized firms should decline when the government is willing to sell its shares.

Concluding from the arguments mentioned above, the transition of ownership should result in an improvement of operating and financial performance. Thus, the announcement of a further equity offering should cause a positive market reaction. In contrast, underpricing of initial or subsequent share issuances, information asymmetries as well as agency problems should have a negative impact on share prices. Hence, the question can be raised which effect will predominate:

Question 1: Do share prices react to seasoned share issue privatization announcements?

Question 2: Second, if valuation effects are observable, are they caused by an expected increase in performance (positive valuation effects) or by the market's perception of a populist government's motives for privatization (negative valuation effects)?

The empirical research supports the existence of widespread negative returns related to SEO announcements of non state-owned enterprises. Prior research on non-state-owned enterprises provides evidence that an announcement of an equity issuance results in a decline of share prices between -0.82% and -3.56% within two days the information becomes public (see Table 5-1):⁷⁹

But to what extent are these findings transferable to SIPs and more generally, what affects announcement returns in a SIP process? Following the efficient market hypothesis (EMH), the announcement of an issuance will cause no price effect because arbitrage will equalize

(2001)].

⁷⁹⁾ Most of the results correspond to an event-window starting one day prior the announcement day and ending one day thereafter.

Table 5-1: Overview of selected studies on market reactions to SEO announcements

Research provided by	Market Reaction	Market	Period	Sample Size
Byoun (2004)	-2.68%	USA	1980-1997	5,776
Clarke, Dunbar and Kahle (2004)	-2.25%	USA	1980-1996	424
Bayless (1994)	-2.92%	USA	1974-1983	223
Bayless and Chaplinsky (1996)	-2% to -3.3%	USA	1974-1990	1,881
Akhigbe and Harikumar (1996)	-0.82%	USA	1977-1988	60
Best, Payne and Howell (2003)	-1.75%	USA	1976-1993	1,861
Gajewski and Ginglinger (2002)	-1.00%	France	1986-1996	237
Karim, Rudledge, Gara and	-1.57%	USA	1991-1994	283
Ahmed (2001)				
Denis (1994)	-2.49%	USA	1977-1990	435
Guo and Mech (2000)	-2.79%	USA	1980-1994	1,509
Asquith and Mullins (1986)	-2.70%	USA	1963-1981	531
Mikkelson and Partch (1986)	-3.56%	USA	1972-1982	80

stock prices and the prices of stocks' close substitutes. Thus, sales of large blocks of shares will only cause a price reaction because the stock is priced relative to its substitutes. If close substitutes are not available, then, according to the price pressure hypothesis, an excess supply leads to a negative price movement [Akhigbe and Harikumar (1996)]. Hess and Frost (1982) provide empirical support for this theory.

Allocating income rights to the capital market can result in an improvement of a firm's profitability because of a reduced likelihood of political interference. Faccio, Masulis and McConnell (2006) find empirical support that firms with small governmental influence outperform enterprises facing interference by politicians. In this context we assume governments to be at least one of the companies' biggest blockholders, who usually possess superior information about the companies' prospects. Therefore, a sale of shares conjectures the information that the government trades on an informational advantage. By selling a large proportion of shares, the government may communicate a negative signal about the firm's future cash flows. This argument corresponds to the one adduced by Fidrmuc, Goeren and Renneboog (2006) to explain negative market reactions to the announcement of insider stock sales. Furthermore, the government may be a populist government as defined by Jones, Megginson, Nash and Netter (1999) that faces the problem of liquidity needs for their redistributive policy. Thus, the negative signal of a government that sells its shares should be evaluated by the capital market with respect to the firm's cash flow [Jones, Megginson, Nash and Netter (1999)].⁸⁰

Additionally, the findings of Loughran and Ritter (1995) and Loughran and Ritter (1997) provide empirical support that firms take advantage of a current overvaluation of their shares to issue equity; then, perceived overvaluation leads to a subsequent negative market reaction if a seasoned equity offering is announced. The reason for the "window of opportunity problem" can be found in an asymmetric information problem which transfers

into information costs. Thus, firms will issue new equity only if information costs are low [Myers and Majluf (1984)]. This leads to the following hypothesis:

Question 3: The valuation effect is more detrimental for larger SIPs.

Considering IPOs of private non-state-owned enterprises, Ritter (1991) suggest that firms go public at market peaks, when comparable companies are valued above their true value, and therefore the issuer can take advantage of a "window of opportunity". Therefore, the question arises, whether abnormal returns are less negative in strong equity markets, i.e., in a market environment with substantial increases in the index return over 200 days prior to the issue as well as a low standard deviation in that period. A positive market assessment may force a clustering of equity (initially and seasoned) issuances and "[...] may induce information spillovers and hence lower adverse selection problems" [Huyghebaert and Van Hulle (2006), p. 302)]. An explanation for IPO clustering was provided by Bayless and Chaplinsky (1996) who asserted reduced discount rates and behavioral finance effects, e.g., herding, as possible reasons. Therefore, we would expect governments to increase the relative as well as the absolute number of shares during periods of high pre-issuance market conditions because of reduced information costs:

Question 4: Do abnormal returns associated with sales of ownership claims depend on market conditions?

Given the decision to sell parts of an enterprise, the level of information asymmetry as to politicians' intention to privatize should decrease in case of a seasoned SIP because the potential risk of redistribution of firm value by politicians will be reduced as described above. D'Mello, Tawatnuntachai and Yaman (2003) observe a relationship between the sequence of SEOs and the uncertainty about a firm's value. They provide evidence for less unfavorable announcement reactions because of declining level of asymmetric information. Here, the rationale is that prevalently issuers experience lower information costs due to the issuers heightened reputation of not taking advantage of new shareholders, i.e., not to pursue multiple aims related to diverse political objectives:

Question 5: The level of asymmetric information associated with SIP depends on offering frequency. The market is less concerned about successive SIP announcements of firms. Conversely, the market is more concerned about the announcement of the first equity issuance after the IPO.

Issuing equity provides the possibility of issuing not only secondary shares but also new equity which ceteris paribus improves the financial situation of the enterprise. In addition, this effect should be supported by an increase in profitability, which is to be expected after privatization [Megginson, Nash and van Randenborgh (1994) and Alexandre and Charreaux (2004)].

However, the impact of the amount of secondary shares issued in a SIP process on announcement reactions may be of a dual nature: On the one hand, selling secondary

⁸⁰⁾ Conversely, director's put their own wealth at stake and their signal of selling shares is therefore less informative,

shares only conveys the market's conviction of a reduction of political connection. This should be associated with a positive market reaction. Moreover, Alexandre and Charreaux (2004) argue that a retraction of the government and the issuance of new equity should also foster profitability due to the reduced likelihood of bankruptcy. However, a relative decrease in financial leverage due to a raise of new capital may cause declining monitoring activities of creditors [Jensen (1986)], which should result in negative announcement effects. On the other hand, the capital market may perceive a high amount of secondary shares as an indicator that the current stock price is high relative to managers' assessment of the firm's prospects, i.e., selling overpriced shares [Asquith and Mullins (1986)]. Consequently, this should results in a negative market reaction.

Question 6: The abnormal market reaction associated with SIP announcements depends on the proportion of secondary shares issued. A high (low) proportion of secondary shares should be associated with a negative (positive) market reaction.

Examining market reactions to subsequent equity offerings, Jensen (1986) draw the conclusion that managers act in their own interest by enhancing the assets under their management. The rationale is that managers even risk the consequence of a declining equity value, i.e., investment in projects with negative net present values, in order to increase the total assets controlled by them. In general, large free cash flows as well as lower financial constraints are mentioned as the origin of the over-investment problem in diversified firms [e.g., Berger and Ofek (1995)]. However, the negative market reaction caused by this agency conflict may be attenuated if the firm exhibits substantially growth opportunities. In line with previous research, the existence of growth opportunities induces less negative market reactions [e.g., Denis (1994)]. Interestingly, the study conducted by Denis (1994) does not detect any relationship between announcement effects and the profitability of new investment projects. Yet, firms with an optimistic assessment of their future prospects, as reflected in high market-to-book-ratios, should experience a less negative announcement effect:

Question 7: The market reaction to announcements of share issue privatizations depends on the market's perception about a firm's investment opportunities. The market reaction to the announcement of firms with more (less) investment opportunities is positive (negative).

Changes in the number of employees prior to a SIP may be an important signal for the capital market perception of a firm's profitability. On the one hand, a remarkable reduction in the number of employees conveys that a firm has downsized its staff in order to become more profitable, e.g., indicates a reduction of overemployment. On the other hand, politicians may noticeably increase the number of employees as a means to gain support of trade-unions for increasing employment.

Question 8: A relative decrease (increase) in the number of employees one year prior to a SIP announcement causes a positive (negative) market reaction.

5.3 Data and Methodology

5.3.1 Data and Methodology

Our initial sample consists of 248 SIPs from 15 Western European countries and covers the period of 1979 through 2003. Announcement dates are obtained from the Securities Data Corporation (SDC) database and encompass information on the type of equity issue, e.g., primary, secondary or both types, the number of shares issued, the issue price, and the issue dates. Stock price data are obtained from Thomson Financial DataStream and the announcement dates come from Dow Jones, Reuters and the Lexis Nexis databases. For an inclusion in the final sample, we require a firm's announcement of a privatization via SIP to satisfy at least one of the following criteria: (1) the government announced an equity offering, (2) the enterprise announced a share issuance, (3) a state-owned holding company announced or accomplished a stock disposition, (4) the government authorized a further reduction in their stake, (5) the government actually sold a further stake or approved an offering of a further stake in the near future, (6) the shareholders agreed to a further SIPs or (7) an investment bank acknowledged that shares had been sold.

For sample refinement purposes, initial public offerings and events of uncertain announcement days are excluded from the sample. As our research interest centers on examining the effects of seasoned share issue privatization announcements, we require all sample firms to have stock returns throughout all event and estimation periods. Since Thomson Financial DataStream does not provide share prices for every enterprise in the initial sample, our data set is reduced by 47 transactions. Moreover, in order to avoid confounding events within the event windows as well as defining different lengths of estimation periods, the final sample was pared down to 82 enterprises that conducted 134 SIPs.

5.3.2 Control Variables

We use the Thomson Financial DataStream INDC3 code to classify the firms of the final sample into ten industries: basic industry (BASIC), cyclical consumption industry (CYCGD), cyclical services (CYSER), general industry (GENIN), information technology (ITECH), non-cyclical consumption industry (NCYCG), non-cyclical services (NCYSR), resources (RESOR), financial services (TOTLF), and utilities (UTILS). As more than half of the SIPs originate from the non-cyclical consumption, the resource or the financial services industry, we construct the binary variables Financial Services and Utility to capture a firm's affiliation to the financial or utility industry. Firms that experience political interference, i.e due to changes in the regulatory environment may also suffer from an increase in their systematic risks [Schwert (1981)]

environment, may also suffer from an increase in their systematic risks [Schwert (1981)]. In order to control for a company's risk, we include the systematic risk factor obtained from the market model regression in the estimation period.

The probability to receive political attention seems to be greater for large firms. To control for firms' size, we include the company's market value at the announcement day, which is obtained from Thomson Financial DataStream. The absolute and the relative value of shares issued as well as the proportion of secondary shares offered comes also from Thomson Financial DataStream and is based on the information of the type of equity issuance. Furthermore, we include the proxy SIP-frequency to indicate whether

the enterprise had prior SIPs (coded as zero) or if the firm conducts its first subsequent equity offering (coded as one).⁸¹ We use the relative change in the number of employees one year prior to the announcement to capture reorganization activities. Additionally, we include the market-to-book value at the announcement day to measure the market's perception of the firm's future prospects. Finally, we apply two measures to control for the overall market environment: the mean return and the standard deviation of the benchmark index during the estimation period.

5.3.3 Event-Study Methodology

The stock market reactions to seasoned equity offering announcements are measured using daily stock returns. One testing strategy is to consider SIP activities and to clarify whether prices adjust to this news immediately or over a long time period [Shleifer (2000)]. For that purpose, an event-study analysis is designed to identify abnormal returns within a well-specified event period.⁸² Abnormal returns are calculated as the ex post observable returns' deviations from those returns which had occurred in the absence of SIP announcements.

Following the methodology of Armitage (1995), a market-adjusted model is used to isolate potential extraordinary effects associated with SIP announcements. We estimate abnormal returns for each security within our final sample by comparing the security's returns which occurred around the announcement dates to the returns of a market index. Thereby, it is possible to estimate expected returns for given returns of the market index as follows:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t}, \tag{1}$$

where α_i and β_i are estimates from an Ordinary Least Square regression, $\epsilon_{i,t}$ denotes the disturbance term, $R_{i,t}$ is the logarithmic return of security *i* and $R_{m,t}$ is the logarithmic return of a market index for day t. Abnormal returns are calculated as prediction errors: where $AR_{i,t}$ is the excess return on security *i* for day *t* and t_0 denotes the announcement

$$AR_{i,t} = R_{i,t} - \alpha_i - \beta_i R_{m,t}, \qquad (2)$$

day.⁸³ We defined an estimation period of 200 days which ranges from $[t_{.220}; t_{.20}]$ days prior to the event day in order to estimate the market model parameters. For each individual security, the calculated abnormal returns have to be aggregated in order to control for price adjustments over the time period. Therefore, cumulated abnormal returns (CAR) around the announcement day t_0 are calculated as the sum of the prediction errors for each security within the event window of $[t_0-\tau, t_0+\tau]$ days:

$$CAR_{i,[t_0-\tau,t_0+\tau]} = \sum_{t=t_0-\tau}^{t=t_0+\tau} AR_{i,t}$$
(3)

81) As mentioned above, we exclude IPOs of SOE.

 The term "event period" is a synonym for "event window' within this paper. In this paper, the terms "prediction error" and "abnormal return" are used as synonyms. /**-**\

Since our research scope is directed towards examining whether joint cumulated effects are different from zero, we construct a portfolio comprising all securities as well as subsample portfolios according to different categories of SIPs, e.g., the issuances of secondary shares only. For each portfolio we test the null hypotheses whether the crosssectional cumulated average abnormal returns (CAAR) in the event period are different form zero. For a sample of N securities CAARs are calculated as defined by equation:

$$CAAR_{[t_0-\tau,t_0+\tau]} = \frac{1}{N} \sum_{i=1}^{N} CAR_i$$
⁽⁴⁾

Inferences about the cumulated average abnormal returns are drawn using three different test statistics. Following standard practice, the t-statistics is calculated:

$$t = \frac{CAAR_{[t_0 - \tau, t_0 + \tau]}}{\hat{SE}_{[t_0 - \tau, t_0 + \tau]}} \sqrt{N},$$
(5)

where $SE_{[t_0-\tau,t_0+\tau]}$ is an estimate of the standard deviation, $o(CAR_{[t_0-\tau,t_0+\tau]})$, of the cumulated abnormal returns within the event window. A precondition for the application of this test statistic is that the security returns are independently normally distributed. In this case, the *t*-test follows a student-*t*-distribution with *N*-1 degrees of freedom.

A drawback of the latter *t*-test is that the dispersion of the non-event period will usually be used as an estimate of standard deviation of the cumulated abnormal returns within the event window. Brown and Warner (1985) mention that an event might increase the variance. In case of an event-induced increase in variance, the null hypothesis is rejected too often. In order verify our test results, we implement the test statistic described by Böhmer, Masumeci and Poulsen (1991) and use the variance of the market model residuals to standardize cumulated abnormal returns. Standardized cumulated abnormal residuals (*SCAR*_i) are calculated as:

Has:

$$SCAR_{j,i} = \frac{CAR_{[t_0 - \tau, t_0 + \tau]}}{\hat{SE}_i \sqrt{(2 \cdot \tau + 1) + \frac{(2 \cdot \tau + 1)^2}{T} + \frac{\sum_{i=t_0 - \tau}^{t_0 + \tau} (R_{m,i} - (2 \cdot \tau + 1)\overline{R_m})^2}{\sum_{i=1}^{T} (R_{m,i} - \overline{R_m})^2}}$$
(6)

where $(2\tau+1)$ defines the length of the event period, *T* gives the number of days of the estimation period, $R_{m,t}$ is the market return on day t, \overline{R}_m denotes the mean market return during the estimation period and \hat{SE}_t is an estimate for the standard deviation of the abnormal returns.⁸⁴ Following Mikkelson and Partch (1986) we use the market model residuals as an estimate for the abnormal return's dispersion. The following equation tests if the average cumulated abnormal return within the event window is different form zero:

$$\Theta = \frac{\frac{1}{N} \sum_{i=1}^{N} SCAR_{j,i}}{\sqrt{\frac{1}{n(N-1)} \sum_{i=1}^{N} (SCAR_{j,i} - \sum_{i=1}^{N} \frac{SCAR_{j,i}}{N})}}$$
(7)

where θ follows a student-*t*-distribution with *T*-2 degrees of freedom.

^{84) (2·}τ+1)defines the length of an event period where the number of days prior the announcement day correspond with the number of days thereafter.

The parametric tests described above rely on the assumption that returns are normally distributed, which may be violated in some cases, as observed by Brown and Warner (1985). Therefore, we apply a non-parametric rank test described by Corrado (1989), which is more powerful than the usual *t*-test. In order to implement this test, it is necessary to rank the abnormal returns of every single day in the estimation and event periods. We define K_t as the rank of the abnormal return at day *t* with $K_{i,t} \ge K_{i,t+1}$ if $AR_{i,t} \ge AR_{i,t+1}$. The average rank $\overline{K_t}$ for the entire period analyzed is given by:

$$\overline{K_{t}} = 0.5 + [T + (2 \cdot \tau + 1)] \tag{8}$$

(9)

where $(2\cdot\tau + 1)$ defines the length of the event window and T the days of the estimation period. If the announcement of a subsequent SIPs has no effect on share prices, the calculated average rank for N securities within the event window should correspond to the expected average rank \overline{K}_{t} . Therefore, the test statistic for the portfolio of SIP announcements is calculated as follows:

$$\Theta_{c} = \frac{\sum_{t_{0}-\tau}^{t_{0}+\tau} \frac{1}{N} \sum_{i=1}^{N} (K_{i,t} - \overline{K_{t}})}{\sqrt{(\frac{1}{[T + (2 \cdot \tau + 1)]} \sum_{t=1}^{t_{0}+\tau} \frac{1}{N^{2}} \sum_{i=1}^{N} (K_{i,t} - \overline{K_{t}})^{2})}}$$

Assuming the absence of cross-correlation, θ_c ollows a unit normal distribution.

5.4 Descriptive Statistics

The sequence of share issuances for the full sample, except 14 announcements for which further information was not available, is shown in Table 5-2. The table provides evidence that most of the enterprises conduct up to three subsequent equity offerings. 79 firms offer shares at least once after their initial privatization step, whereas 16 out of 79 enterprises issue new shares within the first subsequent SIP only. Approximately 24% of the firms (32 firms) issue conduct two equity offerings and about 17% (23 firms) are divested in three or more stages.

Remarkably, in the majority of the SIPs (91 announcements or 67,91%) the government sells secondary shares only. We interpret this observation as an indication for limited growth opportunities because the companies obviously do not need additional equity. Around one of six SIPs is a primary share issuance.

Table 5-3 shows the annual distribution of all equity offering announcements and the respective characteristics of the SIP: Most of the firms issue shares in the second half of our sample period, whereas many SIPs are conducted within a four-year time period (1996-1999). Regarding the combined equity offerings, Table 5-3 shows that almost all announcements have been conducted between 1997 and 2000.

Table 5-2: Frequency Distribution

Frequency distribution of a sample of 82 firms from 15 Western European countries that announced multiple subsequent primary, secondary as well as both equity offerings within a share issue privatization process between 1979 and 2003.

Sequence of issue	Total (%)	Primary shares issued	Secondary shares issued	Primary and secondary shares issued
1	79	16	55	3
	58.96%	69.57%	60.44%	50.00%
2	32	5	21	1
	23.88%	21.74%	23.08%	16.67%
3	15	2	9	2
	11.19%	8.70%	9.89%	33.33%
4	7	0	6	0
	5.22%	0.00%	6.59%	0.00%
5	1	0	0	0
	0.75%	0.00%	0.00%	0.00%
Total	134	23	91	6

Table 5-3: Annual Distribution of SIP Transactions

Annual distribution of a sample of 82 firms from 15 Western European countries that announced multiple subsequent primary, secondary as well as both equity offerings within a share issue privatization process between 1979 and 2003.

	No.			Primary	Secondary	Primary and	
	of		cum.	shares	shares	secondary	
Year	SEOs	Percent	Percent	issued	issued	shares issued	n.a.
1979	1	0.75%	0.75%		1		
1983	2	1.49%	2.24%		2		
1985	3	2.24%	4.48%	1	2		
1986	1	0.75%	5.22%				1
1987	2	1.49%	6.72%	1			1
1988	3	2.24%	8.96%		3		
1989	2	1.49%	10.45%	1			1
1991	1	0.75%	11.19%		1		
1992	5	3.73%	14.93%	1	4		
1993	6	4.48%	19.40%	2	2	1	1
1994	9	6.72%	26.12%	3	5		1
1995	7	5.22%	31.34%	2	5		
1996	18	13.43%	44.78%	2	13		3
1997	13	9.70%	54.48%	1	10	1	1
1998	15	11.19%	65.67%	3	10	2	
1999	11	8.21%	73.88%	3	5	1	2
2000	9	6.72%	80.60%	1	6	1	1
2001	5	3.73%	84.33%	1	3		1
2002	10	7.46%	91.79%	1	9		
2003	11	8.21%	100.00%		10		1
Sum	134	100.00%		23	91	6	14

5.5 Market Reaction to Seasoned SIP Announcements

An aggregated view on the results of the event-study reveals remarkable patterns with respect to the speed of stock price adjustments to announcements of SIPs (see Figure 5-1). The stock prices begin to decline prior to the announcement day and drop substantially at the day the information becomes public. In line with market efficiency hypothesis the CAARs remain stable thereafter.

Figure 5-1: Cumulative average abnormal returns around a SIP announcement Cumulative average abnormal returns for the entire sample



Days relative to announcement day

Statistical inferences about these observations are provided by Table 5-4. The CAARs for the full sample range between -1.766% to -0.125%. The results show that investors perceive the announcement of a SIP of seconday, primary and combined shares as unfavourable information.85 Nevertheless, compared to existing evidence provided for private companies' SEOs of up to -3.30% the capital markets seem to be less concerned about the announcement of a subsequent equity offering within a privatization process. The implication of this result may be of a dual nature: On the one hand, an average decline of -0.691% (CAAR) implies a predominance of the negative effects associated with an announcement of a successive equity offering. On the other hand, these results could support the theory that positive privatization effects attenuate the negative market reaction. A closer look at Table 5-5 reveals that omitting the announcements of primary and combined SIPs' the cumulated average market reaction for pure secondary SIPs is more negative. A pure sell-off of public ownership without proceeds for the listed company to finance future growth signals at least to some extent an attractive share price level from the perspective of the seller. Yet, seasoned equity offerings, in general, are underpriced in order to compensate new shareholders for the uncertainty about the firm's value. Our results also indicate that the underpricing has already partially been incorporated into share prices the day the subsequent offering becomes public.

for results for returns of firms that announced multiple primary SEOs.

Event window	Nobs.	Median CAR	CAAR	t-Test	Boehmer Test	Corrado Rank Test
				t-value	z-score	z-score
[-10;+10]	134	-1.166%	-1.766%	-2.021**	-1.165	-5.504***
[-10;+5]	134	-1.436%	-1.282%	-1.613	-1.111	-5.110***
[-10;+1]	134	-1.560%	-1.442%	-2.268**	-1.907*	-6.886***
[-10;0]	134	-0.823%	-0.876%	-1.495	-1.276	-4.635***
[-5;+10]	134	-1.704%	-1.517%	-2.120**	-1.253	-5.263***
[-5;+5]	134	-1.442%	-1.033%	-1.606	-1.211	-4.853***
[-5;+1]	134	-1.417%	-1.193%	-2.427**	-2.201**	-6.668***
[-5;0]	134	-0.966%	-0.626%	-1.479	-1.506	-4.361***
[-1;+10]	134	-0.148%	-1.015%	-1.655	-0.812	-2.744***
[-1;+5]	134	-0.056%	-0.531%	-0.975	-0.712	-2.265**
[-1;+1]	134	-0.666%	-0.691%	-1.913*	-1.900*	-4.064***
[-1;0]	134	-0.270%	-0.125%	-0.426	-0.858	-1.699*
[0;0]	134	-0.397%	-0.373%	-1.547	-1.675*	-2.775***

**, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Comparable studies report initial returns associated with an SEO ranging between 2.2% for private SEOs and 9.4% for seasoned SIP [Jones, Megginson, Nash and Netter (1999) and Corwin (2003)]. Moreover, Dewenter and Malatesta (1997) provide evidence for the United Kingdom that IPOs of private enterprises are less underpriced compared with the degrees of underpricing within a SIP. Jones, Megginson, Nash and Netter (1999) find mixed evidence for a greater underpricing of initial SIPs compared with IPOs. However, when we compare the difference between the negative market reaction associated with a SIP announcement and the degree of underpricing of IPOs with the differences observed for SIPs, we find some indication that SIPs are more detrimentally affected than equity offerings of private firms.

5.6 Regression Results

Table 5-6 provides the results of our regression analysis. The four models are estimated using ordinary least squares, whereas White (1980) Heteroskedasticity-Consistent Standard Errors and Covariances are applied to calculate t-statistics.

The third question addresses that the market reaction to an announcement of a further SIP to be more negative for large SIPs. Previous research uses the relative offering size as a proxy for the price pressure hypothesis and finds a negative relationship between the relative offering size and the announcement reaction [Asquith and Mullins (1986) and Akhigbe and Harikumar (1996)]. Accordingly, our two proxies for offer size (absolute and relative value of shares issued) have a negative sign and are significant on a 1% level. Beyond the potential price pressure we interpret this result as being consistent with the

⁸⁵⁾ See Akhigbe and Harikumar (1996) for a detailed discussion of stock price adjustments to SEO of all equity firms and D'Mello, Tawatnuntachai and Yaman (2003)

Table 5-5: CAARs of SIP announcements - offering of secondary shares only

econdary	SIPs				-
Nobs.	Median CAR	CAAR	t-Test	Boehmer Test	Corrado Rank Test
			t-value	z-score	z-score
91	-1.803%	-2.825%	-2.538**	-1.911*	-8.510***
91	-2.093%	-1.922%	-1.936*	-1.455	-6.155***
91	-0.943%	-1.560%	-1.773*	-1.295	-4.753***
91	-0.113%	-1.013%	-1.273	-0.955	-3.723***
91	-2.404%	-2.657%	-2.682***	-2.151**	-8.820***
91	-2.217%	-1.754%	-2.068**	-1.744*	-6.416***
91	-1.917%	-1.392%	-1.930*	-1.646	-4.986***
91	-1.171%	-0.845%	-1.363	-1.296	-3.931***
91	-1.568%	-2.154%	-2.849***	-2.045**	-6.805***
91	-1.186%	-1.251%	-2.172**	-1.563	-4.307***
91	-0.905%	-0.889%	-1.818*	-1.381	-2.807***
91	-0.448%	-0.342%	-0.898	-0.831	-1.720*
91	-0.598%	-0.459%	-1.363	-1.461	-2.883***
	Nobs. Nobs. 91 91 91 91 91 91 91 91 91 91 91 91 91	Becondary SIPs Median CAR 91 -1.803% 91 -2.093% 91 -0.943% 91 -0.113% 91 -2.217% 91 -1.801% 91 -0.113% 91 -2.217% 91 -1.917% 91 -1.568% 91 -1.186% 91 -0.905% 91 -0.448% 91 -0.598%	Median CAR CAAR Nobs. Median CAR CAAR 91 -1.803% -2.825% 91 -2.093% -1.922% 91 -0.943% -1.560% 91 -0.113% -1.013% 91 -2.404% -2.657% 91 -2.217% -1.754% 91 -1.917% -1.392% 91 -1.568% -2.154% 91 -1.568% -2.154% 91 -1.186% -1.251% 91 -0.905% -0.889% 91 -0.448% -0.342% 91 -0.598% -0.459%	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

hypothesis that the issuer trades on superior information and sells shares at attractive price levels.

However, the capital market may also perceive an announcement of an issuance of a large proportion of the enterprises' equity as a signal of a populist oriented government. A populist government may prefer to achieve privatization proceeds in the short term, because their underlying motives may become public. In contrast, the regression results indicate a weak relation between the proportion of secondary shares issued and the announcements effects. In one of four models, the variable is significantly related to CARs only. While our above mentioned results show that the capital market is more concerned about a solely secondary share offering, the regression analysis provide at most weak evidence.

In line with the results of previous research, but conversely to Masulis and Korwar (1986) and Denis (1994) strong equity markets, i.e., stock market run-ups prior to the announcement date, are negatively related to announcement period CARs. In all four models, the proxy for market environment (Mean Return $R_{i,t_{xasi},t_{ab}}$) is significant, which confirms our hypothesis that the market reaction depends on market conditions. Furthermore, our second measure for hot equity markets, the standard deviation of the benchmark index during the estimation period, provides further support for this view. In contrast to our previous assumption, the sign of our two measures (Mean Return $R_{i,(e-20)}$ and the standard deviation of the benchmark index) do not indicate, that the market environment may reduce information costs. This observation, combined with the negative impact of selling a high proportion of secondary shares, supports the hypothesis that market participants are aware that the government may take advantage of a window of opportunity.

Focusing on the possible allocation of the issuance proceeds, we suggest that issuing firms with less growth opportunities are more likely to undertake investment projects with negative net present values. Therefore, we previously concluded that the existence of growth opportunities should attenuate the negative market reaction. As our proxy for growth opportunities, the market-to-book-ratio at the announcement date, is not significant, we are not able to support this hypothesis. Thus, the short-term market reaction seems to be independent from the existence of future growth opportunities.

If we take the SIP frequency into account, we find that the negative market reaction is less distinctive for enterprises that had prior equity offerings. This supports the view of D'Mello, Tawatnuntachai and Yaman (2003) that prevalently issuers experience lower information costs. Therefore, the advantageousness of conducting more SIPs, expressed in less pronounced negative abnormal returns, confirms the hypothesis that a higher information flow to the capital market via subsequent equity offerings reduces the uncertainty regarding a government's future policy as to interference.

Because politicians may perceive seasoned equity offerings as a means to obtain votes for subsequent elections, e.g., due to preferential allocations of stock at discounted prices, we suggest that companies which have experienced an increase in employees one year prior to the announcement of a SIP, may be subjected to governmental interests. The results of Table 5-6 show that the coefficient of a percentage change in the number of employees is negative and significant at the 10% level in Model I and II. We interpret this observations as an only minor support for the hypothesis that politicians take advantage of a subsequent SIPs by increasing staff.

Following research by Best, Payne and Howell (2003) we controlled for a firm's affiliation to selected industries, systematic risk and size. We find the coefficient for utilities to be significantly positive, whereas for firms of the financial services sector no relationship is observable. In accordance with D'Mello, Tawatnuntachai and Yaman (2003), regulated industries are characterized by less information asymmetry and utility firms can reduce adverse selection costs due to an information improvement at subsequent offerings. Given a revealing base of information, our result suggests that firms in the utility sector exhibit lower negative abnormal market reactions, which is in line with reduced information asymmetries.

Following previous research, we include the market value at the announcement day as a proxy for uncertainty and asymmetric information [Corwin (2003) and Laurin, Borardman and Vining (2004)]. We assume that small firms experience more information asymmetries and greater uncertainty. However, given the coefficient's sign these firmspecific characteristics appear to have a negative influence on market reactions indicating that large firms are associated with larger information asymmetries. One possible explanation for this result might be that governmental interference is more likely in larger firms since a populist politician's intention is to raise privatization proceeds and to obtain the opportunity to redistribute firm value after privatization. Since the risk coefficients are statistically insignificant in both models, our analysis provides only weak evidence that announcement returns are dependent on a firm's systematic risk.

Table 5-6: Regression Results

Abnormal returns are the dependent variable in all regressions and are calculated as the twelve and 16-day abnormal returns surrounding the SIP announcement date. The abnormal returns are based on a market model, which was estimated over the [t_{-220}, t_{-20}] time period. Financial Services and Utility are binary variables to capture a firms affiliation to the financial or utility industry. Market Value t_0 is the market value of equity calculated at the the announcement day. Risk is a slope coefficient of the market model regression in order to control for a company's systematic risk. Absolute Value of Shares and Relative Value of Shares Issued are the absolute amount of equity issued as well as the proportion of shares issued to the total number of shares outstanding. SIP Frequency indicates whether a firm had prior subsequent SIPs (coded as zero) or not (coded as one). Relative Changes in Number of Employees One Year Prior to Announcement refers to the percentage change in staff one year before the subsequent announcement date. Mean Return ($R_{i(t-220,-20)}$) is the mean stock during the [t_{-220}, t_{-20}] time period, whereas Standard Deviation of Benchmark Index captures the volatility of the respective benchmark index. We estimated two models for each event-window in order to avoid the problem of multicollinearity. All test statistics are computed using the heteroskedasticity-consistent covariance matrix from White (1980).

	CAR [-10;1]		CAR [-5;10]	
	Model I	Model II	Model III	Model IV
Constant	0.040	0.0715**	0.074***	0.115***
Financial Services	-0.006	-0.008	-0.038	-0.035
Utilities	0.048**	0.0437**	0.041***	0.040**
Market Value t ₀		-0.000***		-0.000**
Abs. Value of Shares Issued	-0.000**		-0.000**	
Relative Value of Shares Issued		-0.010***		-0.009***
Proportion of Secondary				
Shares of all Shares Issued	-0.005	-0.018	-0.016	-0.029*
SEO Frequency	-0.014	-0.018	-0.022*	-0.027**
rel. Changes in No. of				
Employees One Year Prior to				
Announcement	-0.062*	-0.068*	-0.020	-0.027
Market to Book Value to	0.001		0.001	
Mean Return RI(200)	-9.878*	-9.978**	-13.233**	-12.884***
Risk		-0.019		-0.028*
Standard deviation of				
Benchmark Index	-3.052**	-2.553	-4.281***	-4.121***
Number of Observations	103	108	103	108
adj. R ²	12.78%	24.30%	16.65%	24.35%

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

5.7 Summary and Concluding Remarks

This paper examines the market reaction to announcements of subsequent equity offerings within a share issue privatization process. While previous research has shown a positive impact of privatization on performance due to transition of ownership, numerous studies document that the announcement of SEOs of non-state-owned enterprises is associated with substantial negative abnormal returns.

Analyzing a sample of 134 SIPs, which are conducted by 82 enterprises from 15 Western European countries during the 1979-2003 period we identify negative cumulated average abnormal announcement returns between -0.125% and -1.766%. Using different event-

windows and comparing offerings of secondary shares with our full sample we find abnormal returns to be pronounced more negative. Relating our results to prior evidence form non-state-owned enterprises, our results show that the capital market seems to be less concerned of the announcement of a subsequent equity offering within a privatization process. However, these univariate comparisons do not account for firm, issue and market environment specific effects.

The regression results reveal that offering size has a significant negative impact on the cumulated abnormal returns indicating that the capital market perceives a high proportion of the company to be sold in a SIP as consistent with a signal for a populist government. Regarding subsequent equity offerings we find that the negative abnormal returns are less distinctive indicating that each equity issue is not an independent SIP. Moreover, the results for the market environment proxies are difficult to reconcile with existing theoretical explanations. Contrary to theoretical predictions, the market environment does not seem to reduce information costs. However, we assume this finding to be in line with the idea of a window of opportunity. Finally, we control for a firm's affiliation to selected industries, systematic risk and size. In addition to previous research, we can conclude that firms in the utility sector exhibit lower negative abnormal market reactions. This might be attributed to lower information asymmetries. Our findings have implications for the privatization process as a gradual sale of state-owned enterprises via several steps that mitigate negative valuation effects and therefore preserve shareholder value.

6 Concluding Remarks

This doctoral thesis follows the research objective of improving our understanding about value implications of changes in corporate governance structures. We focus on the effects of positive aspects of stakeholder governance, especially the information incorporation process at a single firm and industry level. To achieve the objective, this doctoral thesis is comprised of four research questions.

We explore the importance of "shareholder activism" strategies and investments in exchange-listed companies followed by hedge fund and private equity managers for stock prices (Chapters 2 and 3). Chapter 2 focuses on the single-firm level, and investigates the short-term and long-horizon performance of German exchange-listed companies targeted by hedge funds and private equity. Chapter 3 considers intra-industry effects by examining the short- and long-term results for firms involved in similar economic activities.

Considering hedge fund and private equity target firms, we find new evidence that private equity investors can successfully reduce agency costs. We find no evidence that hedge funds enhance shareholder value due to a reduction in agency costs. For long-term stock price performance, we observe negative buy-and-hold abnormal returns, particularly for the hedge fund samples. We argue that these results are due to the German corporate governance system, which requires that new institutional investors align their interests with advisory board members. Attempting to use Anglo-Saxon strategies in the German financial system is thus not practical. Overall, we believe that the distinct negative longlasting return drift of hedge fund targets may be a misinterpretation by the capital markets of a hedge fund's abilities and motivations.

The engagements of hedge funds and private equity do not only lead to diverging results, we also observe different intra-industry valuation effects from a change in ownership structure by activist blockholders on directly affected rival firms. For rivals to hedge fund targets, we observe negative short-term valuation effects and a continuous negative drift of returns for up to 250 days after the announcement. In contrast, our private equity rival portfolio shows positive announcement effects but negative long-lasting BHARs. The cross-sectional analysis of the BHARs shows that the capital markets are concerned about the negative competitive effects. However, firms with growth prospects and an increase in profitability prior to the announcement are less negatively affected by the engagement of private equity investors in a rival company. Further research is needed for our hedge fund rival portfolio.

Overall, the findings from these two questions have global implications, especially in the case of activist shareholders changing a firm's objective function toward a pure shareholder value orientation within a stakeholder-oriented industry. We show that blockholders with a clear shareholder value orientation, i.e., hedge funds, negatively affect both target and rival firms over the long term. In contrast, private equity investors can at least reduce agency costs in their target firms and increase the competition concerns of rival firms. From a political economy perspective of a stakeholder-oriented society, this finding may imply the value of limiting the entry of hedge funds with a pure shareholder orientation, either by direct opposition of the incumbents or by governments. From an investor perspective, the announcement of an acquisition of an ownership stake by hedge funds and private equity investors may offer an opportunity for short-term investors. However, while both target and rival companies suffer substantial losses one year after the engagement, they provide no attractive investments for long-term oriented investors. While Chapter 2 and 3 focus on the starting point of an active investment, Chapter 4 concentrates on the liquidation and exit, depending on the certification role of VC and PE investors by analyzing underpricing and long-run performance. Overall, we find new evidence that private equity investors can reduce underpricing than non-certified IPOs. Furthermore, we find no underperformance and no differences in long-term returns between VC- and PE-backed IPOs.

Generally, these results may be interesting for companies, outside investors and investment banks. Because IPOs that are backed by a financial specialist usually experience lower first-day returns, enterprises can raise higher IPO proceeds. The participation of VCs or PE funds may thus reduce the costs of going public. From an investment perspective, VC-backed IPOs offer short-term investment opportunities only. However, although the market performance of VC- and PE-backed companies one year after the IPO is better than the market performance of other IPO companies, they may provide an interesting long-term investment. For investment banks, the certification by financial specialists reduces the level of asymmetric information associated with IPOs, which reduces underwriter risk and increases their fees. Therefore, IPOs backed by financial sponsors are favorable for investment banks.

Finally, Chapter 5 discusses whether SIPs generate positive announcement returns due to increased efficiency from the ownership transition or negative valuation effects. Note that markets believe the government intends to redistribute the value of the shareholders' investment. Based on a European sample of 134 SIPs between 1979 and 2003, we identify negative cumulative average abnormal announcement returns. As for the frequency of equity offerings, we find that the negative abnormal returns are less distinct, which indicates that each equity issue is not an independent SIP.

The results for the market environment proxies are difficult to reconcile with existing theory. Contrary to theoretical predictions, the market environment does not seem to reduce information costs. However, we assume this is in line with the idea of a window of opportunity. Our findings have implications for the privatization process as a gradual sale of state-owned enterprises via several steps that mitigate negative announcement returns and therefore preserve shareholder value.

General last remarks: All four studies together provide a differential picture that underlines the importance of corporate governance structures on shareholder value. Consistent to these observations aspects of the corporate governance structure come more and more into the focus of financial market communication/investor relations. This practitioners' adoption should be regarded as a motivation for further research in this area.

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MARK MIETZNER, studied Business Administration at the University of Frankfurt am Main and graduated in 2004. From 2004 to 2008 he worked as a Research Assistant at the University of Münster and at the European Business School (EBS). In 2007, he received a doctoral degree for his thesis on "Changes in Corporate Governance and Corporate Valuation". He currently serves as an Assistant Professor at the Chair of Corporate Finance at the Technical University Darmstadt. His research interests center around the fields of corporate finance and corporate governance with particular emphasis on private equity and hedge fund activities.



DIR K Deutscher Investor Relations Verband e.V.

Wer wir sind

Der DIRK – Deutscher Investor Relations Verband e.V. ist der deutsche Berufsverband für Investor Relations (IR). Als Sprachrohr der IR-Professionals vertritt der DIRK die Belange seiner Mitglieder aktiv im Dialog mit den Interessengruppen und Institutionen des Kapitalmarkts, der Politik und der Öffentlichkeit. Seinen Mitgliedern bietet der Verband aktive fachliche Unterstützung und fördert den regelmäßigen Austausch untereinander sowie mit IR-Fachleuten aus aller Welt. Darüber hinaus setzt er Maßstäbe für die professionelle Aus- und Weiterbildung des IR-Nachwuchses in Deutschland.

Mit über 290 Mitgliedern setzt der DIRK die Standards für die Kommunikation zwischen Unternehmen und dem Kapitalmarkt. Die Bandbreite der im DIRK organisierten Unternehmen umfasst sämtliche DAX-Werte sowie das Gros der im MDAX, SDAX und TecDAX gelisteten Aktiengesellschaften bis hin zu kleinen Unternehmen und solchen, die den Gang an die Börse noch vor sich haben oder Fremdkapitalinstrumente emittieren.

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Das Ziel, eine effiziente Kommunikation zwischen Unternehmen und Kapitalmarkt zu erreichen, verfolgt der DIRK, indem er

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- den regelmäßigen Erfahrungs- und Informations-Austausch unter den Mitgliedern und mit IR-Verantwortlichen in aller Welt fördert,

- sich als maßgebliche Instanz für Aus- und Weiterbildung des Investor Relations-Nachwuchses in Deutschland positioniert und
- die wissenschaftliche Begleitung des Berufsfeldes fördert und betreibt.

Was wir bieten

Der DIRK bietet seinen Mitgliedern eine Vielzahl hochkarätiger Veranstaltungen, Diskussionsforen, Publikationen und Weiterbildungsmöglichkeiten. Dazu gehören

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Das Weiterbildungsprogramm des DIRK

Vor dem Hintergrund der ständig steigenden Anforderungen seitens des Kapitalmarktes wird eine alle Aspekte der IR-Arbeit umfassende Weiterbildung bereits seit längerer Zeit gefordert. Der DIRK hat sich dieser Aufgabe angenommen und bietet mit dem CIRO (Certified Investor Relations Officer) ein umfassendes funktionsspezifisches Weiterbildungsprogramm an.

Das Studium ist modular aufgebaut und deckt in fünf aufeinander abgestimmten Teilen vor allem die Breite und Vielschichtigkeit der Aufgaben eines IR-Managers ab. Unter der Devise "IR von A bis Z" werden Zusammenhänge zwischen den einzelnen Themengebieten vermittelt.

Die Wissens- und Stoffvermittlung erfolgt in Form von drei sich ergänzenden Lehrmethoden. Das Selbststudium mittels Studienbriefen wird unterstützt durch Online-Tutoring. Abgerundet wird jedes Modul durch eine zweitägige Präsenzveranstaltung, wobei diese nicht lediglich dem Wiederholen der Studienbriefinhalte, sondern insbesondere auch der Vertiefung und interaktiven Erarbeitung von besonders wichtigen Themengebieten dient.

Der vollständige CIRO-Studiengang dauert 6 Monate und kann berufsbegleitend absolviert werden, wobei die Kombination von "learning on the job" und praxisbezogenem theoretischem Lernstoff in idealer Weise geeignet ist, die Breite des für erfolgreiche IR-Arbeit notwendigen Wissens direkt umsetzbar zu vermitteln. Erfolgreich beendet wird der Studiengang seitens der Teilnehmer mit dem Bestehen einer anspruchsvollen schriftlichen und mündlichen Prüfung und darauf folgender CIRO-Zertifizierung.

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Governance in Deutschland mit Gesetzes-

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Sara Pierbattisti: Die Investor Relations-Arbeit in deutschen Unternehmen: Theoretische und empirische Befunde zu Bestand und Entwicklung der IR-Arbeit der Unternehmen des DAX 30 und des MDAX. DIRK Forschungsreihe, Band 9, Oktober 2007, broschiert, 29,- Euro

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Bitte Coupon einsenden an: GoingPublic Media AG Hofmannstr. 7a, 81379 München Tel. 089-2000 339-0, Fax 089-2000 339-39 eMail: buecher@goingpublic.de www.goingpublic.de/dirk