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Institutional Ownership and M&A Performance

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Foreword

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TABLE OF CONTENTS

List of tables

List of abbreviations

AUM	Assets under management
CAR	Cumulative abnormal return
CEO	Chief executive officer
CTAR	Calendar time abnormal return
ETF	Exchange traded fund
ILTI	Independent long-term institution
M&A	Mergers & acquisitions
ROA	Return on assets
SIC	Standard Industrial Classification

1 Introduction

Organizational ownership structures as we know them have been changing meaningfully over the past decades. In the past, companies were mostly owned by their founders and individual, retail investors. Nowadays, another party becomes increasingly involved in obtaining ownership: Institutional investors.

An increasingly number of individuals choose to invest their savings into broadly diversified investment vehicles of professional institutions instead of directly buying the company's shares. The mutual fund industry alone experienced a twenty-six-fold growth in assets under management (AUM) in just 17 years from 1980 to 1997 (Chen et al., 2004, p. 1276). Consequently, the institutions' rising funds need to be invested and led to the fact that institutional ownership has been constantly increasing over the past years (Chen, Harford and Li, 2007, p. 280; Gillan and Starks, 2000, pp. 277-278; Borochin and Yang, 2017, p. 171). That shift in ownership from individuals to institutions has its implications for the companies as they have to deal with larger and more sophisticated shareholders.

This raises the question how institutions are using their power and influence inside the organizations. Is it possible for institutions to actively contribute to corporate decision-making? Do companies act differently due to their experienced shareholder base? Especially for decisive corporate decisions, it is important that the owners are holding the management accountable and ensure that the undertaken course of action is in the interest of both the company and its shareholders.

One of the most important decisions an organization has to make is whether or not to acquire or merge with another company. Those decisions are crucial for the shareholder's wealth because the market directly assesses the quality of a merger upon announcement which can lead to significant stock price movements. The assessment might be more favorable if institutional investors are present during the announcement because of the impact they can have on the management as a large shareholder. However, not all institutions are equal. Particularly since nowadays most companies have a large institutional shareholder base, the presence of them must not have any major implications for the market and the perceived quality of a deal.

Therefore, this thesis is not only focusing on the overall impact of institutional ownership but especially on how the largest fund families and the best managers are linked to the outcome of mergers & acquisitions (M&A). The market might react differently if one of those parties actively decides to include an acquiring company in its portfolio.

In order to approach the question, the remainder of the thesis is organized as follows: Chapter 2 addresses the importance of institutions as shareholders, their possibilities to influence corporate decisions and their implications for the organizations, especially when it comes to M&A. Chapter 3 formulates hypotheses on how particularly mutual fund companies and their fund managers may impact the performance of M&A. Chapter 4 presents the data and methodology to test the previously specified hypotheses. The results are presented and discussed in chapter 5. Chapter 6 concludes this thesis.

2 The role of shareholders

Shareholders are one of the most important stakeholders any organization needs to satisfy. Every shareholder is to some extent owner of the company and is entitled to raise its voice and vote during annual general meetings. Moreover, shareholders are a major source of an organization's financing. They can either pull back their funds or make future capital raising more difficult if the market realizes that the current owners are dissatisfied with the management (Eberhardt, 1998, p. 113). In particular, the shareholders constantly assess the quality of the management's work. If the management fails to satisfy its shareholders, this leads them to sell their shares and the share price being to decrease. Consequently, the company's value declines. This implicates that keeping shareholders satisfied also has an impact on takeover defenses since a higher share price makes it more difficult for other companies to obtain the majority and the control of the firm (Eberhardt, 1998, p. 114). If an external company is trying a hostile takeover approach, it is the shareholders' task to accept or decline the tender offer and eventually decide whether a change in control takes place or not. This provides them with an even greater responsibility and shows the shareholders' importance (Levit, 2017, p. 614).

2.1 The importance of institutional ownership

Institutional investors, like public or private pension funds, mutual funds or hedge funds accumulate capital of many individuals and ultimately obtain large stakes in several companies. Thus, they automatically represent one of the largest and most important shareholders of many firms within their portfolio (Shleifer and Vishny, 1986, p. 462).

The importance of the institutional sector also becomes apparent when looking at the number of shares held by institutions nowadays. While during the 1980s institutional ownership only accounted for roughly 20% to 30%, this percentage constantly increased up to over 65% in the 2010s (Borochin and Yang, 2017, p. 171). Especially with the rise of passive investment strategies in form of *Exchange traded funds* (ETFs) and index funds, investment firms are accumulating large blocks of shares. With almost 19% growth in 2017, the ETF sector (with equity ETFs being the largest part) outgrew other investment types which only showed a 5% or lower increase (Deutsche Bundesbank, 2018, p. 80). Due to this trend, investment firms which offer many index funds, like *Vanguard* or *BlackRock*, are among the largest shareholders of almost any major company (Azar, Schmalz and Tecu, 2018, pp. 1514-1515; Fichtner, Heemskerk and Garcia-Bernardo, 2017, pp. 302-304).

Thus, not only shareholders in general, but especially institutional investors take on an important role inside a company and can have a significant influence on the target company and its management. The following sections point out how and why institutions try to interact with their portfolio firms.

2.1.1 Agency costs

In a firm, the shareholders' interests and the ones of the managing directors are not necessarily aligned. In many instances they are even in direct conflict to one another (Gillan and Starks, 2000, p. 279). These conflicts arise through the specific structure of many organizations and its separation of ownership and control (Fama and Jensen, 1983, 301ff.).

Jensen and Meckling (1976) are among the first scholars to describe the theoretical framework for this problem in their pivotal work about ownership structure and *agency costs*. The theory states that in any situation in which a *principal* appoints an *agent* to perform a task, there is the possibility for a rather egocentric behavior of the agent in order to maximize its own utility and not the one of the principal. Since such a value maximizing behavior is rational, it can be anticipated that every agent will maximize its utility and it is the principal's responsibility to minimize the deviation from its own interests. However, this can only be ensured if the agent is monitored or incentivized to act in the interest of the principal. In other words, the assurance of no or only a little deviation is associated with higher costs because one needs to invest time or resources (Jensen and Meckling, 1976, p. 308).

In the corporate world, agency problems are very frequent since the shareholders (principals) appoint the executives (agents) to manage their company. The agency conflict arises from

the different goals and preferences of the two distinct groups. On the one hand, both parties are interested in the maximization of their own utility and on the other hand, they have different attitudes towards risk (Eisenhardt, 1989, p. 58). The shareholders' incomplete information about the management's true preferences and actions exacerbates the conflict (Gillan and Starks, 2003, p. 4). Without a thorough and costly monitoring, the principals can never be sure that the management's decisions are in line with their objective to increase shareholder value.

Apparent and severe becomes the problem when the management is facing major corporate decisions such as negotiating a takeover or a merger. The outcome significantly affects the shareholders' value of both the acquirer and the acquired company[1] (Gaspar, Massa and Matos, 2005, p. 136). If information remains incomplete and shareholders do not have supervision over the management's negotiations, it is more likely that the bargaining managers undertake less favorable M&A deals which are, above all, beneficial for their own good. The managers of the target firm, for example, might have an interest in job security or a higher compensation in the new company (Gaspar, Massa and Matos, 2005, p. 139). If their demands are met, they could be willing to accept a lower price which is not in the interest of the shareholders (Hartzell, Ofek and Yermack, 2004, pp. 56-58). The negotiating managers of the bidding firm, on the other hand, might only be interested in building an empire at any cost and therefore overpay for the target (Trautwein, 1990, pp. 287-288). Additionally, some managers simply overestimate their abilities and believe that they can achieve higher abnormal returns after the merger. Thus, they do not mind paying a higher price than is justified by the market and traditional valuation methods (Roll, 1986, pp. 199 ss.).

2.1.2 Activism, monitoring and exiting

In order to overcome these agency problems and to ensure that the creation of shareholder value remains the main objective of the company, the investors need to be attentive and supervise the management's actions.

One concept to influence the management is *shareholder activism.* The shareholders do not just quietly hold their shares without any further engagement but are actively participating in the corporate decision making. In doing so, they have to closely *monitor* the company's actions. This can be an important and inevitable step if the stockholders are not satisfied with the recent performance of the management and fear a loss in shareholder value (Gillan and

[1] In the following referred to as "target".

Starks, 2000, p. 276). Through activism, shareholders plan to elevate the company's business and increase their shares' value rather than selling them.

However, becoming actively engaged and help to improve the firm always comes at a higher cost. One needs to invest time and resources to obtain information about the company and its intentions. Therefore, it is usually not beneficial for smaller, individual shareholders to actively monitor and bear the costs alone while the other shareholders just reap the benefits of the improvements (Gillan and Starks, 2003, p. 6; Shleifer and Vishny, 1986, p. 462). For larger shareholders like institutions, these costs are not just bearable but also amortize quickly. As they own larger stakes in the firm, they are also more affected by the underlying agency problems. Activism and monitoring can help decrease the resulting agency costs and offset the expenses of monitoring (Parrino, Sias and Starks, 2003, p. 8).

An alternative approach is the concept of *voting with the feet*. With this method, which is also known as the *Wall Street Walk,* institutions rather sell their shares instead of trying to improve the company if they are not satisfied with the recent performance or leadership (Admati and Pfleiderer, 2009, p. 2646). The fact that shareholders are using this option, can also be seen as an assessment. Additionally, it puts pressure on the management as they do not want other investors to follow and leave the firm as well. Parrino, Sias and Stark (2003, p. 17) investigate whether the widely recognized Wall Street Walk really exists and find that the institutional ownership decreases by 4.34% in the two years prior to a forced CEO turn-over. Such a forced change in leadership shows the dissatisfaction of several shareholders. Institutions express their disapproval by selling their shares before such an event until the company does not have a choice but to replace their top executive.

Even though this approach represents the cheapest and easiest option for the investor, voting with the feet is less frequently used today. One reason is that institutional stakes are often too large in order to sell the shares on the market without suffering severe losses (Helwege, Intintoli and Zhang, 2012, p. 23). Additionally, many large shareholders are pension funds which often allocate their capital in passively managed index funds. Hence, the allocation of the fund is predetermined by the index it wants to track. Therefore, the securities cannot be liquidated even if the fund wants to (Helwege, Intintoli and Zhang, 2012, p. 23). Due to these circumstances, the investors are starting to lose their leverage over the management and companies do not fear the Wall Street Walk anymore.

In order to keep the management accountable, the institutions are therefore increasingly engaging in activism. Even the aforementioned passively managed funds are making use of their large number of shares and are influencing the management not via selling but by exercising their voting rights (Appel, Gormley and Keim, 2016, pp. 127-128). Despite the fact that they are mostly evaluated by their achieved *tracking error* (Schmidt and Fahlenbrach, 2017, p. 286), meaning their ability to reproduce the performance of a certain index, those funds are still concerned about the value of their AUM. Since they cannot sell their underperforming assets, it is in their best interest to monitor those companies and try not just to improve single companies but ideally their entire market. Those funds are hoping for spillover effects and are using publicity methods to reach as many companies in the market as possible. Other companies might follow the fund's agenda as they are afraid of being publicly targeted by the fund as well (Del Guercio and Hawkins, 1999, pp. 299-301). In doing so, ideally more than just one of the fund's holdings improves without having to invest too many resources.

Another way of conducting activism are *shareholder proposals*. In such proposals the owners can express their dissatisfaction with the current situation and propose a different course of actions. These proposals are presented at the general annual meeting and can be voted on by the other shareholders (Gillan and Starks, 2000, pp. 276-277). Trying to promote change through this way of communication is quite costly since there is no guarantee that the suggested proposition casts enough votes. Moreover, the management has the option to fight the proposal. Gantchev (2013, p.624) finds that the costs for an activist campaign by a hedge fund which ends up being fought by the board are on average over $10 million. Even though the *US Securities and Exchange Commission* made it easier for shareholders to communicate with each other, activism remains an expensive matter. Once again, this shows the importance of institutional investors which not only have the resources to bankroll such campaigns but also the incentive to actually do so (Gillan and Starks, 2000, p. 279).

Even if a proposal reaches a majority vote at the general annual meeting, the proposed ideas do not have to be implemented. In the United States, the management is not obliged to follow the proposal and can decide themselves whether the implications would be beneficial for the company (Levit and Malenko, 2011, p. 1579). In fact, Ertimur, Ferri and Stubben (2010, p. 58) find that only 31.1% of the proposals receiving the necessary votes are finally implemented by the management. However, the likelihood is increasing since 2001. It is also decisive how many votes a proposal gets. The higher the approval rate, the higher the likelihood

of implementation (Ertimur, Ferri and Stubben, 2010, p. 62). Given the fact that institutional shareholders can gather more votes in favor of their proposals, it is also more likely that institutional proposals are implemented (Gillan and Starks, 2000, p. 296).

Because proposals are expensive and not always successful some shareholders choose to engage in a different way. The so called *just vote no campaigns* of some shareholders are an approach to reach out to as many shareholders as possible and ask them to withhold their vote for the appointment of a certain director to the board (Del Guercio, Seery and Woidtke, 2008, p. 85). Since they cannot directly vote against the director (because there is usually no opponent to vote for), voting *no* is their only possibility to express their dissatisfaction. The hope of the initiator of such a campaign is that the elected director with such a low approval rate is eager to promote change to the board because she does not want to be publicly confronted by the shareholders if nothing changes (Grundfest, 1993, p. 866).

The effectiveness of and motivation for institutional monitoring can differ depending on the relationship between the owners and the company. Institutional investors might be influenced in their decisions because of eventual business ties with their holdings. The institutions do not want to jeopardize their relationships with the company and might not initiate proposals which oppose the management's opinion. There is evidence that especially on a fund family level there are practices implemented in order to vote in favor of their clients' management (Davis and Kim, 2007, pp. 553-554., 564-565; Chen, Harford and Li, 2007, p. 292). Therefore, independence from the company is often a mandatory criterion when analyzing the influence of institutions (Chen, Harford and Li, 2007, p. 281; Ferreira and Matos, 2008, p. 504).

All in all, there are different methods how shareholders can pressure and influence the management's behavior. The threat of exiting the company, a steady monitoring and communication with the management, voting or not voting, as well as initiated proposals are all ways for institutional shareholders to raise their voice.

2.2 The impact of shareholder activism

After reviewing the possibilities that shareholders have in order to get engaged in a company's practices, it is of interest to evaluate what impact the involvement generates. In general, one would expect that active shareholders are a positive sign because there is an exchange of ideas between the different stakeholders and that the market reacts positively to

institutional engagement. However, there are also scholars who argue that the announcements of a proposal can have negative implications for the targeted company's share price. The market might perceive a proposal of an institutional shareholder as a sign of disquiet inside the company because they only use this option as a last resort after private negotiations with the management have failed (Gillan and Starks, 2000, pp. 300-301; Prevost and Rao, 2000, p. 185). Additionally, proposals do not necessarily have to represent the interest of every shareholder but can be part of one's personal agenda and primarily benefit the initiator (Goranova and Ryan, 2014, p. 1249).

One of the most obvious reasons why institutional owners become active is that they want to increase the company's share price in order to augment their AUM. Moreover, a higher firm value is in the interest of both the company as well as other shareholders of the firm. However, the causal effect of activism on the company's valuation is not entirely clear.

Cuñat, Gine and Guadalupe (2012, p.1948) analyze the impact of 3,984 shareholder proposals which had a governance related topic on the shareholder value. The authors find a statistically significant abnormal return of 1.3% for proposals that passed the vote on the day the it occurred (Cuñat, Gine and Guadalupe, 2012, pp. 1961-1962). Because these findings include all kinds of proposals, it is of interest whether institutional ownership increases this effect. Additional analyses reveal that the market reacts more positively when the company has large institutional owners among their biggest shareholders. The abnormal return on the day of the proposal increases to 2.1% and is also more persistent over the following days. This indicates that the market values the engagement of institutional owners because it implies a better monitoring and increases the likelihood of the proposal's implementation. The effect is even stronger when the target company has been pressured by shareholder proposals in the past which contradicts the view that a series of proposals can be evidence of failed negotiations (Cuñat, Gine and Guadalupe, 2012, pp. 1965-1966).

Nevertheless, some scholars argue that the announcement of a proposal by an institutional owner can be perceived as a negative event. Those shareholders have the experience and resources to privately negotiate with the management and try to reach an agreement without the need of expensive and often ineffective proxy proposals (Prevost and Rao, 2000, p. 185). Gillan and Starks (2000, pp. 300-301) find evidence for this hypothesis as they observe a negative and significant market reaction to institutional proposals. Prevost and Rao (2000) build upon the same argumentation and come to similar results. They are analyzing public pension funds and find slightly negative abnormal returns with the strongest significance for

the time frame of 20 days prior to 20 days after sending out the proxy proposals to the company's shareholders (Prevost and Rao, 2000, pp. 187-189). Further evidence for the hypothesis of proposals being a negative signal provides the authors' additional tests. They find that especially companies that are targeted by multiple proposals experience a higher and longer-lasting decline in firm value (Prevost and Rao, 2000, pp. 191-192). Furthermore, the long-term operating performance as well as stock return are declining for companies that have been targeted repeatedly. This strengthens the argument that multiple proposals are a sign of weak management and failure to implement the proposed changes in the past (Prevost and Rao, 2000, pp. 193-197).

As described, the direction of the effect of activism on the firm's value is not unambiguously clear. In their survey about shareholder activism, Denes, Karpoff and McWilliams (2017, p. 409) point out that mainly older studies find either a negative impact or insignificant effects on the firm's valuation while more recent research repeatedly reports a small but positive impact of shareholder proposals.

Another widely analyzed aspect is the influence of activism on the governance of the target companies. Many shareholder proposals and activist campaigns aim at promoting change in the governance structure (Del Guercio and Hawkins, 1999, p. 294). A primary request of the largest shareholders is to change the company's leadership if the performance is unsatisfying. As described earlier, passive voting through exiting the firm can have an impact on the company and induce the board to act and replace their current CEO (Parrino, Sias and Starks, 2003, p. 17).

The next more active approach, the *just vote no campaigns*, can also influence those corporate decisions. Del Guercio, Seery and Woidtke (2008) analyze 112 such campaigns between 1990 and 2003. The authors find strong evidence that just vote no campaigns have a significant influence on forced CEO turnovers. Firstly, they find that the forced CEO turnover rate at companies being targeted by such campaigns is three times larger than in the control group which contains companies that are performing badly and therefore could have been targeted by activist campaigns but have not (Del Guercio, Seery and Woidtke, 2008, pp. 95-97). Secondly, their regression analysis supports this univariate finding and confirms that companies being targeted are more likely to replace their CEO within one year (Del Guercio, Seery and Woidtke, 2008, pp. 97-99). Buchanan et al. (2012, pp. 794-795) find similar results for active shareholder proposals used as the independent variable. They report a significant difference

in CEO turnover during the year of a shareholder proposal compared to companies not being targeted by at least one of its shareholders.

Nevertheless, studies exist which do not support the hypothesis that companies being subject to shareholder activism experience a higher CEO turnover rate. In their analysis of pension fund activism, Del Guercio and Hawkins (1999, pp. 307-308) find several implications of activism on corporate governance or business policies, though CEO turnover is not one of them. The authors do not find that target companies replace their CEO significantly more often than the control group does. These findings are in line with Karpoff, Malatesta and Walking (1996, p. 388) who do not find a significant difference for CEO turnover, either. However, Del Guercio and Hawkins (1999, p. 312) can observe a significant difference between companies that experienced shareholder activism and those that did not when including all senior top management positions and not just the CEO.

All in all, there are several studies indicating that shareholders influence the companies through monitoring or activism. Especially institutional investors have an impact because they have more power and resources to promote change. Because of their effort, agency costs are reduced and the management is held accountable. This ensures that the company acts in the shareholders' interests. However, there are also several, especially older, studies showing no significant influence.

Some authors provide ideas for the difference in findings. Helwege, Intintoli and Zhang (2012, pp. 32-34) also analyze the effect of activism on CEO turnover but split their sample in two time periods. In their first subsample for the years from 1982 to 1994 they are able to identify a significant influence of voting with their feet on CEO turnover while in the later period from 1995 until 2006 the variable loses its significance. Activism, however, is significant for both periods and shows a slightly higher importance for the later time period. Due to the increasing number of shares owned by institutional investors in recent years, exiting the company is not a feasible strategy anymore to influence the management. Thus, activism becomes more important nowadays and companies might put a stronger emphasis on effective monitoring. This might be a reason why in more recent studies activism becomes a significant predictor for a change in governance like CEO turnover because this method is the only way for companies to engage.

Furthermore, Helwege, Intintoli and Zhang (2012, p.34) find that the simple presence of larger *blockholders*[2] which are often seen as a proxy for monitoring institutions are not a significant factor for CEO turnover. They claim that due to the aforementioned rise in AUM, blockholdings automatically occur but that this does not represent an institution's motivation to become active. Fich, Harford and Tran (2015) build upon the same argument and reason that the traditional way in how institutional monitoring is measured might be inaccurate. They promote the idea of motivated investors which have the incentive to monitor if the company's shares represent a top ten position in their own portfolio independent of how important that institutional shareholder is for the company. The authors describe that these two different approaches on how to measure the importance of a certain company for an investor as one of the reasons why there are often inconclusive and mixed results regarding the true impact of institutional ownership (Fich, Harford and Tran, 2015, p. 45).

Additionally, Chung and Zhang (2011, pp. 254-255) show that institutional investors are attracted to well-governed companies since it decreases the monitoring costs. If institutions mostly invest in companies that already have a well-functioning governance, it is less likely to observe CEO turnovers for companies with the presence of an institutional owner. Chung and Zhang (2011, pp. 255-258) find evidence that their theory is more likely the driving force behind the relationship between institutional ownership and good governance. However, they cannot rule out that institutions further improve the governance in addition to their attraction towards already well-governed firm. These dependencies might increase the difficulty to obtain conclusive results as some scholars might account for this possible confounding effect while others do not.

2.2.1 Investment horizon of institutional investors

When analyzing the impact of institutional ownership, it is also important to differentiate between different kinds of shareholders. Not all institutional owners are alike and pursue the same objectives. Therefore, it can be predicted that also their influence and active engagement differs. One major distinction is the institution's investment horizon. There are some investment companies which are primarily engaging in active trading and are frequently changing their portfolios' positions. Other institutions, like passively managed index funds,

[2] Usually defined as companies owning at least 5% of the shares (Chen, Harford and Li (2007, p. 285)).

have a longer investment horizon and are holding the company's shares for a long time without selling. Evidently, those distinct types of institutional investors also differ in the way they interact with their holdings (Borochin and Yang, 2017, p. 172).

Long-term investors usually have a higher stake in the company which incentivizes them to monitor instead of selling their shares. They are more interested in long-term gains than short-term profits and even try to correct potential bad decisions made by the management (Chen, Harford and Li, 2007, p. 304). Short-term investors, on the other hand, do not have the incentive to actively monitor. It usually takes time until the investor's effort pays off and improvements are noticeable. With a short investment horizon, the investor cannot reap the benefits from the resources spent on active campaigns and only the other shareholders benefit (Gaspar, Massa and Matos, 2005, p. 137).

There are studies analyzing whether the aforementioned implications of institutional monitoring and their impact on the target company are intensified when especially long-term investors are holding the firm. A common measure of the investment horizon is the *portfolio turnover*. An institution is classified as a long-term investor if a certain percentage of its portfolio remains unchanged for a specified time (Harford, Kecskés and Mansi, 2018, p. 428). Harford, Kecskés and Mansi (2018, pp. 433-434) find in their regression analysis that companies with long-term investors receive 3.5% more shareholder proposals. Those proposals also have a higher chance of being successful. This is evidence for the higher dedication of long-term investors regarding activism. Furthermore, long-term oriented institutions have a positive influence on the quality of the company's board in terms of more independent and experienced directors while underperforming CEOs are more likely to be replaced.

Especially passive investors have a longer investment horizon which makes them important and influential shareholders. Pursuing a passive investment strategy does not necessarily mean taking on a silent ownership. On the contrary, those funds are particularly interested in well-governed and well-performing companies as they do not plan or are not able to sell those positions (Appel, Gormley and Keim, 2016, p. 111). However, there are also critics claiming that even though passive funds have a long-term investment horizon, their portfolios are too diverse in order to efficiently monitor and improve their holdings (Appel, Gormley and Keim, 2016, p. 113). Index funds also have a low low-fee structure and thus do not have the same resources as other institutions which makes it harder to monitor (Schmidt and Fahlenbrach, 2017, p. 286). Studies which address the different point of views do not come to conclusive results, either. Appel, Gormley and Keim (2016, pp. 124-126) find that passive

funds become actively involved and therefore have a positive influence on corporate governance related topics. They show that those companies have more independent directors, equal voting rights for all shareholders and less takeover defenses. Additionally, the authors find long-term operative improvements for companies with an increase in passive ownership measured in terms of a higher *return on assets* (ROA) (Appel, Gormley and Keim, 2016, p. 129).

Schmidt and Fahlenbrach (2017), on the other hand, do not discover an improvement in the company's governance when ownership by passive funds is high. Conversely, they find that a higher passive ownership leads to a more powerful CEO who is more likely to become chairman or president, too. This provides the opportunity for the CEO to work primarily for his own instead of the company's benefit. These powerful CEOs also appoint fewer independent directors (Schmidt and Fahlenbrach, 2017, pp. 293-294). Furthermore, passive ownership negatively affects the performance of M&A deals which is going to be addressed in more detail in chapter 2.3 (Schmidt and Fahlenbrach, 2017, pp. 298-299). Schmidt and Fahlenbrach (2017) argue that the differences between their and the study of Appel, Gormley and Keim (2016) partly result from the varying costs for different kinds of monitoring. While certain methods like exercising voting rights at annual meetings or trying to reverse endeavors to defend takeovers represent low-cost methods of monitoring, overseeing M&A transactions or appointments to the board are more costly (Schmidt and Fahlenbrach, 2017, p. 287).

Being constantly monitored by long-term shareholders does not necessarily have to be adverse for the companies. With those dedicated investors, the management can focus on long-term strategies and goals whilst neglecting the immediate impact of the next financial reports. When having a large base of short-term oriented investors, this can be more difficult since those shareholders are more interested in immediate good financial numbers and short-term profits (Bushee, 2001, p. 229). Therefore, studies find that companies with more long-term institutional owners outperform their peers with a larger base of short-term investors when examining longer periods (Borochin and Yang, 2017, p. 194; Harford, Kecskés and Mansi, 2018, pp. 441-442). Additionally, companies often feel pressured to have instant success which induces them to engage in managerial misbehavior like *earnings management* which means that the true financial numbers are glossed over in order to please and mislead investors (Hadani, Goranova and Khan, 2011, p. 1353). Since short-term investors show a higher interest in near-term earnings (Bushee, 2001, p. 229), studies find that the use of

earnings management decreases with the presence of long-term investors (Harford, Kecskés and Mansi, 2018, p. 434; Koh, 2007, pp. 284-288). If lower earnings are reported and they are not due to poor governance, long-term investors will not react as negative towards this announcement. Thus, there is no need for the management to engage in earnings management (Koh, 2007, pp. 273-274). This has positive implications for the company since earnings management often has negative consequences. It is usually associated with a higher cost of capital, a lower stock price and increased firm risk.[3]

Hence, long-term investors are especially important for companies since they undertake a more thorough monitoring. They can influence their portfolio firms to improve the governance as well as to engage in less managerial misbehavior both of which can only be beneficial for the company.

2.2.2 The special case of hedge funds

Institutional owners do not only differ in their investment horizon but also in their type. One widely analyzed special form of institutional investors are hedge funds. Even though only a small number of hedge funds engages actively, they are analyzed due to their different preconditions for activism (Kahan and Rock, 2015, pp. 163-164). Most importantly, hedge funds do not have to obey the same regulations as, for example, mutual funds. Those fewer restrictions make it possible for hedge funds to obtain a significant number of shares of only a few companies. Subsequently, they can use their influence to promote changes (Brav et al., 2008, p. 1730). They can also make use of derivatives to further expand their positions, a possibility that mutual or pension funds do not have (Kahan and Rock, 2015, p. 174). Moreover, hedge fund managers have a higher performance-related compensation and thus are more incentivized to actively improve their holdings (Clifford, 2008, pp. 323-324; Kahan and Rock, 2015, pp. 175-176). Due to this, several scholars argue that hedge funds are more influential than other institutional investors for which there are only mixed results regarding their impact on their holdings (Greenwood and Schor, 2009, pp. 362-363; Clifford, 2008, p. 323). The importance of particularly hedge fund activism can also be seen by the fact that the market reacts positively towards the announcement of such campaigns as the target companies experience short- and long-term abnormal stock returns (Klein and Zur, 2009, p. 207; Brav et al., 2008, pp. 1755-1756; Clifford, 2008, p. 328).

[3] For a summary of consequences see Hadani, Goranova and Khan (2011, p. 1353).

A major difference between hedge funds and other institutional investors is that hedge funds actively invest in companies that are suitable for activist campaigns. While other institutions usually only become active if necessary, in order to protect their investment from bad governance and poor performance, hedge funds obtain large positions in companies with the designated goal to pursue profit-maximizing activist campaigns (Kahan and Rock, 2015, pp. 178-179). Therefore, hedge funds also address different aspects inside the company. While mutual and pension funds often try to promote changes in the corporate governance structure, hedge funds realize the largest returns when improving the business' strategy or arrange the sale of the company (Brav et al., 2008, p. 1759).

A critique towards hedge fund activism is that those campaigns and changes are focusing on short-term profits which are in the interest of the hedge funds but might harm shareholder value in the future. However, Brav et al. (2008, pp. 1748-1749) do not find evidence to support this hypothesis. Conversely, they discover that hedge fund investment horizons are approximately one year or even longer. Moreover, hedge funds usually do not seek control in the companies they own but only obtain 5% to 10% of the shares. Since many other shareholders are long-term institutions, it would be hardly possible to promote changes that are harmful for the long-term success because those institutions would intervene (Kahan and Rock, 2015, p. 192).

2.3 Institutions and M&A transactions

The outlined characteristics of institutional investors also play a role during one of the most important corporate decision: M&A. In fact, most active campaigns, especially the ones of hedge funds have the goal to sell the target company at a premium or to buy other companies at a discount. The institutions aim to generate a significant increase in shareholder value through M&A deals. Particularly the investors of the company which sells parts or all of its business, are likely to increase their value since most of the merger's wealth creation results from the target company (Martynova and Renneboog, 2008, p. 2164). As smaller, individual investors hardly have the resources to monitor (Gillan and Starks, 2003, p. 6; Shleifer and Vishny, 1986, p. 462) or the knowledge to evaluate possible M&A transactions (Levit, 2017, p. 614), it is important that institutional owners hold the management accountable in order to minimize agency costs and to inhibit self-centered negotiations on behalf of the involved managers (Gaspar, Massa and Matos, 2005, p. 139).

That hedge funds are eager to improve their returns by trying to arrange the divestiture of their portfolio firms, can be seen by the findings of Greenwood and Schor (2009) as well as Boyson, Gantchev and Shivdasani (2017). The two studies find that the likelihood of a merger or acquisition of companies being targeted by a hedge fund activist campaign in comparison to their peers is 2.5 times and 5 times as high, respectively (Greenwood and Schor, 2009, pp. 371-372; Boyson, Gantchev and Shivdasani, 2017, pp. 59-60). Boyson, Gantchev and Shivdasani (2017, p. 60) explain the stronger effect of their findings by their larger sample which includes years after 2007 when many hedge funds were becoming increasingly active.

Hedge funds also rely on M&A deals as an essential part of their activist strategy since the success of hedge fund activism, in terms of significant abnormal long-term returns, depends heavily on whether the targeted firm is acquired after the activism campaign or not. Companies which are not subsequently bought, do not show significant returns and hence, are not responsible for an increase in shareholder value (Greenwood and Schor, 2009, pp. 368-370). This example illustrates the overall importance of M&A deals for all shareholders and especially institutional investors. However, the question remains whether institutional owners are simply arranging more takeovers for their holdings because M&A deals are in general associated with a significant increase in shareholder value for the target firm (Martynova and Renneboog, 2008, pp. 2153-2159), or if they can positively influence the outcome of such transactions.

Masulis, Wang and Xie (2007, pp. 1866-1867) document that companies with stronger takeover defenses are associated with lower M&A announcement returns for the acquiring company. Due to the defenses, managers in such firms do not have to fear the same pressure of the market for corporate control and can therefore initiate unfavorable deals for the company (Masulis, Wang and Xie, 2007, p. 1853). Harford, Humphery-Jenner and Powell (2012) confirm those results. They also find a value destruction during M&A deals undertaken by entrenched managers whose position inside the company is more protected. Those managers desire to maintain this entrenched position and therefore primarily select public targets which are less likely to induce a monitoring institution. Buying private targets would create a large stakeholder either in the form of the acquired company which would form one large shareholder for the acquirer, or a financial institution as lender depending on whether the acquisition is financed with equity or debt, respectively. Both options are not in the interest of the entrenched manager and lead to the negligence of private targets which are known for

realizing higher returns (Harford, Humphery-Jenner and Powell, 2012, pp. 248-249, 253-254).

The previous chapter illustrates that institutional owners are making an effort in order to improve the governance of their holdings. Hence, it can already be argued that institutional shareholders provide a benefit for M&A transactions through their monitoring and assurance of good governance. Nevertheless, explicitly overseeing M&A transactions is essential as well because of the higher agency costs. As mentioned before, Schmidt and Fahlenbrach (2017) find a negative impact of the total ownership by passive institutions on M&A deals and explain it with their inability to monitor expensive M&A transactions. In particular, the scholars observe a significant decrease in M&A announcement returns of up to 0.38% per 1% increase in passive ownership. In view of their observed average sample firm size the decrease in announcement returns represents an economically significant reduction of $15 million in firm value (Schmidt and Fahlenbrach, 2017, pp. 298-299). Since Appel, Gormley and Keim (2016, pp. 124-126) find that passive owners improve governance, this indicates that a better governance is not sufficient in order to ensure value-enhancing M&A deals.

However, there are also studies showing that especially long-term oriented institutional investors, a group that also contains passive indexing funds, are responsible for a higher post-merger performance. Chen, Harford and Li (2007) analyze over 2,000 US mergers that were announced between 1984 and 2001. The authors especially differentiate between institutional owners in general and independent long-term institutions (ILTIs) in order to isolate the effect of the latter (Chen, Harford and Li, 2007, pp. 285-286). Their findings suggest that the companies benefit from ILTI ownership in two ways. First, the post-merger performance is significantly and positively influenced by the presence of ILTIs in terms of a higher 3-year buy and hold abnormal return, a higher change in ROA and more positive earnings per share forecasts of analysts. All institutional holdings in general, on the other hand, do not reveal any significant results (Chen, Harford and Li, 2007, pp. 290-292). Secondly, companies monitored by ILTIs are less likely to announce a merger that entails negative announcement returns and if they do, ILTIs are more often able to convince the management to withdraw the bid than companies without ILTI owners (Chen, Harford and Li, 2007, pp. 295-296).

Gaspar, Massa and Mattos (2005, p. 149) confirm those findings and report a negative relationship between the acquirer's announcement return and the institutions' portfolio turnover

ratio indicating that more short-term oriented investors are negative for M&A deals. In addition to that, monitoring institutions on the target's side are also important. Targets which lack the monitoring of long-term institutions and only have short-term institutional owners, receive significantly lower premiums. Short-term investors do not possess the necessary information in order to determine the accurate value of their company. Consequently, the management is tempted to negotiate for its own good and to accept a lower premium. Moreover, short-term shareholders do not have the time for long-lasting negotiations and therefore are willing to accept a lower but immediate offer (Gaspar, Massa and Matos, 2005, pp. 148-149).

Even though M&A deals are an important transaction and impact the shareholder value, not every large and long-term oriented institutional investor must be motivated to put up the necessary capital to monitor complicated merger negotiations. The value of the company inside the institution's own portfolio might be greater incentive for the institutional shareholder to become active. Fich, Harford and Tran (2015) document that they only find a significant influence on M&A transactions with their adjusted measure of *motivated institutional investors*. Motivated investors are institutions for which the acquirer produces a top ten position in their portfolio and thus represents an important holding. This is a difference to other measures like blockholders which focus exclusively on the shareholder's importance for the acquirer (Fich, Harford and Tran, 2015, p. 24). For the motivated investors, Fich, Harford and Tran (2015) find that they can negotiate a higher premium for their portfolio firms which reduces the acquirer's return. In absolute terms, the bidding firm is paying on average $43 million more for the targets per one standard deviation increase in motivated investors at the target firm. Evidently, this fact results in fewer takeover bids for companies with such motivated owners (Fich, Harford and Tran, 2015, p. 30). The authors also investigate known activists like hedge funds among those motivated investors and detect and an amplifying effect on the paid premiums (Fich, Harford and Tran, 2015, p. 34). Thus, besides a constant monitoring of institutions, activism is still an important tool in order to raise premiums for the target.

In summary, M&A transactions are a special case for shareholder activism and monitoring since the outcome of those deals can be decisive for their shares' value. Those deals also represent the largest leeway for the management to negotiate for their own benefit and not in the interest of its shareholders. Therefore, the success of M&A deals is driven by the ownership structure and the institutional investors' incentives to supervise the negotiations

in order to assure a superior post-merger performance for the company. Whether and how much institutional investors observe and monitor the outcomes depends, among others, on their investment horizon and the importance of the firm for their portfolio.

3 Hypotheses on how mutual fund ownership indicates M&A performance

After having examined the impact that institutional owners in general might have on its holding companies, this chapter focuses on special attributes of particularly mutual funds that can influence the performance of M&A.

As described before, the mutual fund industry is constantly growing and there is a plethora of funds being invested in many different companies. Naturally, there are disparities among the individual funds. Therefore, this study focuses on specific characteristics that let certain funds stand out from the rest. There are larger and more famous funds and fund families with an outstanding track record. Those big investment firms, like BlackRock or Fidelity, are highly respected in the field of finance. Moreover, they are subject to greater media attention than smaller fund families. On the fund level, there are difference in the attributes of the individual managers responsible for operating the fund. The presence of mutual funds and their managers with distinct characteristics among the acquirer's shareholders can have altering implication about the perceived quality of a M&A deal.

3.1 Skill and experience of the fund manager

A widely neglected factor that can also influence the relationship between institutional ownership and M&A performance, is the possibility that institutions are able to select superior stocks. Fund managers differ in their personal characteristics and abilities to manage a fund. Some have been more successful in the past than others or might have more experience in certain industries. These differences can also explain why outperforming companies have a higher proportion of institutional ownership which is independent from the theory that institutions serve as effective monitors and are therefore inducing a better performance.

Especially regarding M&A transactions, this argumentation can be valid. Many investment companies are eager to identify and invest in undervalued companies in order to achieve fast and above all abnormal returns. Those undervalued companies, however, are also more likely to be acquired because the necessary premium is relatively cheap in comparison to the true value of the target (Greenwood and Schor, 2009, p. 371). The same argumentation can also be true from the acquirer's perspective. Institutions could simply be better at selecting

superior acquirers which then find undervalued targets or are better at negotiating the deal. In this case, larger abnormal returns are achieved without the institutional shareholders influencing the management (Nain and Yao, 2013, p. 438).

Nain and Yao (2013) argue that stock picking skills are at least partly responsible for the often-observed abnormal M&A returns for acquirers with higher institutional ownership. For their main measure of skill, the authors classify the funds into quartiles based on their past performance since they find that a higher abnormal return in the past is also a good predictor for future fund performance (Nain and Yao, 2013, pp. 440-441). Ergo, it represents the skill of the manager and can be predicted that she also outperforms in the future. The question of interest is how many funds from the top quartile are holding an acquirer prior to the announcement of the merger and how this is related towards the acquirer's calendar time abnormal returns (CTAR) following the merger announcement. The scholars find strong and robust evidence that highly skilled fund managers positively and significantly impact the CTAR of the acquirer (Nain and Yao, 2013, pp. 443-444). Furthermore, Nain and Yao (2013) evaluate whether the result might be driven by the monitoring argument of previous research papers. They follow the approach of Chen, Harford and Li (2007) and determine the percentage that is held by ILTIs and subsequently divide the sample by the median of ILTI ownership. They find that in both subsets, i.e. companies held by many and companies held by fewer ILTIs, the skill measure is still a significant predictor of post-merger CTAR. However, when testing the opposite effect and dividing the top-skill group around the median of the skill measure, ILTI as a predictor for superior CTAR loses its significance. Hence, the authors conclude that the skill argument is a stronger predictor for post-merger performance than monitoring (Nain and Yao, 2013, pp.446–448; p.439). Nevertheless, Greenwood and Schor (2009) report in their analysis of hedge funds that those companies which have been targeted by an activist campaign are more likely to be subsequently bought than comparable companies without a campaign. This shows that activism is still a factor and that the correlation between M&A deals and institutional ownership cannot only be explained by the fact that also hedge funds just select better, undervalued stocks (Greenwood and Schor, 2009, pp. 371-372).

However, mutual funds usually pursue fewer active campaigns. Those fund managers are often responsible for administering widely diversified funds and obtain ownership in many different companies. Monitoring all or even just the most important portfolio firms, can become very costly and time-consuming. In consequence, it can be assumed that most of the

fund's success starts with the proper selection of the stocks. Especially regarding acquisitions which are expensive to monitor, it is important to select companies which are believed to conduct superior M&A transactions. Hence, it can be argued that fund managers with a higher skill not just pick better stocks in general but also choose better acquirers which subsequently achieve a higher performance with their deals. Moreover, the market might see the fact that the best fund managers are invested in the specific acquirer as a quality signal that the company is well-governed and pursuing better deals. This leads to the first hypothesis:

(1) *Fund managers who achieved a higher performance in the past, pick superior acquirers that generate a higher return with the announcement of their mergers than fund managers with a lower past performance.*

The first hypothesis builds primarily on the findings and argumentation of Nain and Yao (2013). The second hypothesis focuses on another aspect of the fund manager's abilities. Kempf, Manconi and Spalt (2017) show that a fund manager's experience is important for the success of the fund. The authors find evidence that managers are profiting from the experiences they made in the past and generate a higher performance in those industries in which they gained more experience. The scholars provide this as a potential source of the fund manager's skill since they include manager fixed effects which control for general abilities or attributes of the different managers (Kempf, Manconi and Spalt, 2017, pp. 15-19). Their analysis focuses on fund returns in general and not specifically on M&A of their holdings, but it can be argued that the experience of fund managers is valuable in this area of corporate decision-making as well. As fund managers strive for the augmentation of their assets' value, it is reasonable to assume that their specific industry knowledge benefits them in picking superior acquirers in their industries of expertise than managers with less or no experience. This leads to the second hypothesis regarding the fund manager's abilities:

(2) *Fund managers pick superior acquirers, that achieve higher returns with the announcement of their mergers, in the industries in which they gained more experience than managers with less experience.*

3.2 Fund size

Other forces behind the announcement returns can be reputational factors which are independent of the fund manager or her skills. Market movements are driven by the expectations of the public. For M&A transactions, the announcement returns can fluctuate strongly de-

pending on whether the public perceives the announced merger as profitable or not. As institutional shareholders take on a special role and are important for holding the management accountable, the reputation of the acquirer's institutional shareholders can impact the perceived quality of the M&A deal.

The importance of fund families and their size or reputation is often neglected in the literature. If specifically fund families are analyzed, the focus primarily lies on the importance inside the acquiring company, measured as the total holdings cumulated by the family (Bi and Wang, 2015, pp. 105-106). The size of the institution itself has been largely unresearched.

The investment decisions of the biggest companies are often publicly scrutinized. When one of their holding companies announces a merger, this gets a larger public attention. The market might value the presence of larger and well-known owners during M&A deals higher than if only smaller shareholders are involved. In contrast to the individual fund manager's name and her past track record, which might only be known to some experts, the fund family's name and its reputation are known to the wider public. The market might anticipate that if a large investment firm like Fidelity or BlackRock are holding an acquirer through one of their funds that they are going to use their influence and power to effectively negotiate with the acquirer's management and prevent adverse merger which could harm their funds' returns. Those companies usually attract the best managers who have a higher standing among corporate managements. Thus, if a merger is announced by one of their holding companies this means that the deals is approved and endorsed by the highly respected fund families. This sends out a positive sign to the market signaling a profitable deal. The same arguments can be true on the individual fund level but larger funds do not necessarily have the excellent reputation of a large family in addition to their own.

(3) *Acquirers which are held by larger funds and fund families are experiencing higher returns around the announcement of a merger.*
(4) *The impact of the fund family is stronger than for the individual fund.*

4 Data and methodology

The information about the M&A deals are retrieved from the SDC database. The final dataset contains 4,107 different M&A whose transaction volume exceeded $1 million and were undertaken by publicly listed companies in the United States between January 2002 and December 2010. The target companies in the sample are both public as well as private firms.

This represents a difference to the study of Nain and Yao (2013, p.439) who are focusing solely on public targets. In addition to that, details about single-handedly and actively managed US equity funds are retrieved from the CRSP mutual fund database for the same time period. Passive and index funds as well as those funds whose investment's objective is not provided are removed from the sample. In total, 1,236 different fund managers are responsible for 1,409 distinct mutual funds from 465 fund families. Further information about the managers and the individual companies are obtained from Morningstar Direct and the CRSP-Compustat merged database, respectively. With the quarterly information about the funds' portfolio composition, those funds which are holding an acquirer at the end of the quarter prior to the announcement date can be determined. The different information is then merged so that for each deal, all the institutional shareholders from the sample are displayed along with their specific fund level information, like the fund's past performance, its size or the individual manager's experience. In 250 occasions out of the 4,107 deals, none of the mutual funds in the sample is holding the acquirer prior to the merger announcement resulting in a final data set of 3,857 relevant deals. The number of observations in the analyses can differ because not all the information is available for every acquiring firm or mutual fund.

Studying mutual funds as a representative of institutional investors has several advantages. First, mutual funds are significant large owners in several different companies through the accumulation of shares and secondly, those institutions are less known for activist campaigns but are more focused on active stock picking (Nain and Yao, 2013, p. 438). Thirdly, active managers receive a large fraction of their compensation in form of performance-related pay which incentivizes them to carefully pick the stocks they want to invest in (Kempf, Manconi and Spalt, 2017, p. 6). As the goal is to find a relationship between a fund manager's skill and experience rather than the active influence by the shareholders, analyzing mutual funds are an appropriate setting.

4.1 Variables construction

In order to have meaningful and informative models, many different variables need to be considered. Firstly, the variables of interest, skill, experience and reputation must be defined and calculated. However, also many other factors which can either have a direct or indirect impact on the outcome of a merger, need to be addressed.

4.1.1 Skill and experience

When analyzing the impact of the fund's stock picking abilities on the M&A performance of their holdings, it is essential to evaluate a fund manager's skill. Actively managed funds want to beat their benchmark by using their superior information and pick or overweigh certain stocks which they believe will outperform in the future. Consequently, those funds are assessed and compared by looking at the fund's achieved alpha, the excess return above the benchmarks. However, those achieved alphas need to be adjusted for the underlying risk in order to ensure that the superior return does not exclusively result from an increase in risk. The retrieved dataset already contains information about the fund's achieved alpha based on the Carhart (1997, .p. 61) four-factor model which controls for the correlation to the market, the companies' sizes, their market-to-book ratios and whether the fund invested in past winning or losing stocks. The alphas are available for the past 24 months or just the last quarter. Even though the calculation of the alphas accounts for the underlying risk, alphas can still be the result of luck rather than skill (Barras, Scaillet and Wermers, 2010, pp. 180-181). Thus, the Carhart alpha of the last 24 months might be more robust and have a higher predictive power for a manager's skill. It is more difficult to achieve an alpha over a longer time span as lucky guesses are not persistent. However, both time frames are used in the analyses.

As some of the deals are undertaken by large firms, many different funds are holding the stock at the end of the quarter prior to the announcement. Thus, there are multiple observations for one and the same deal. Therefore, the different fund skill measures for the same deal need to be aggregated on the deal level so that there is one skill measure per deal. Following the procedure of Nain and Yao (2013), there are two ways on how to approach the deal level skill. The first option is to calculate the weighted average Carhart alpha of all the funds holding the acquirer. The individual fund manager's skill is weighted based on the importance of the acquirer's stock in the fund's portfolio. Normally, when assessing the impact of institutions, the number of shares held by each institution is used to evaluate the shareholder's importance. However, as the focus lies on the manager's stock picking abilities, the importance of the fund for the acquirer is not as relevant. More important is the fund manager's believe about the acquirer's prospects. A higher weight of the stock in her portfolio indicates a careful stock selection of that particular company and reveals more information the manager's skill and about possible information advantages.[4] The resulting variables are named *Weighted Alpha24* and *Weighted Alpha quarter,* respectively, depending on

[4] Same procedure as in Nain and Yao (2013, p. 441).

whether the Carhart alpha of the past 24 months or the past quarter is used for the average calculation.

The second deal level skill measure is the number of top funds invested in the acquirer. In their study, Nain and Yao (2013, pp. 440-441) first confirm that past performance has, to some extent, predictive power for future returns. The top decile shows significant future positive performance while the lower deciles lose their predictive power. The authors conclude that stock picking abilities are scarce and therefore more present in the right tail of the distribution. This thesis follows their approach and sorts all the funds by their past alpha and divides them into quartiles for each quarter. Following, for each deal, the number of owners that are ranked in the top quartile in the quarter prior to the merger announcement are determined and counted. This count measure serves as a proxy for acquirers with superior fund managers among their owners.[5] Because this approach only considers the top performers, it can be predicted that this measure is more informative in detecting an influence of skill on the M&A performance (Nain and Yao, 2013, p. 438). Consistent to the weighted measures, these variables are named *Top Alpha24* and *Top Alpha quarter,* respectively.

As Kempf, Manconi and Spalt (2017) point out, a fund manager can also benefit from her individual experience that she made in the past and increase her stock picking abilities especially in those industries in which she gained a lot of experience. Their measure is based on the believe that people are learning faster when facing adversity as one has to deal with more problems and find solutions (Kempf, Manconi and Spalt, 2017, p. 9). Therefore, the authors divide the manager's portfolio into sub-portfolios based on 12 industry classification by Fama and French.[6] Subsequently, they count the quarters in which the industry had the worst performance among the 12 existing industries and the manager had invested at least 10% of her portfolio in this industry. The measure is updated after each quarter and thus the level of experience not only differs in time but also across industries and allows for a comparison of the same manager at one point in time across industries (Kempf, Manconi and Spalt, 2017, pp. 9-11).

For this thesis, the manager's industry experience, in accordance with the calculation of Kempf, Manconi and Spalt (2017), is already provided in the dataset for each industry and quarter. Since the SDC database only provides a description about the acquirers' and targets' standard industry classifications (SIC), the corresponding four-digit SIC-codes are manually

[5] Same procedure as in Nain and Yao (2013, p. 441).
[6] For a definition of the 12 industries see French (2019).

added. With the help of the SIC-codes, the Fama-French industries can be determined. The managers' experience is then matched with the acquirers' industry codes. It is not matched with the one of the targets as the question is whether the managers benefit from their industry expertise and are able to identify good acquirers in those industries. Thereupon, the weighted average industry experience of all the acquirer's shareholders in the sample is calculated for each deal. The same weights as for the average skill measures are used resulting in the variable *Experience*.

The experience analysis is a good complementation to the evaluation of the general skill measured by the fund's past alpha as a higher performance of experienced managers is independent from her general abilities like tenure or a higher SAT[7] score (Kempf, Manconi and Spalt, 2017, pp. 16-17).

4.1.2 Fund size

For measuring whether reputational arguments of larger funds have an impact on the outcome of the merger, the sizes of the funds and fund families need to be determined. It is hypothesized that especially the fund family with its branded name is responsible for the higher announcement returns. However, the individual fund sizes are considered in the analyses as well. In fact, three different variables are testing the impact of the shareholder's size: *Fund size*, *Fund family size* and *Family invested*.

For all measures, size is defined as the fund's AUM at the end of the quarter Q-1 where Q is the quarter of the M&A announcement. The *Fund size* variable represents the average size of all the individual funds holding the acquirer. *Fund family size* specifies the average of the entire AUM of the whole fund family that distributes the single mutual funds. For this measure it is irrelevant how many of those funds belonging to the same family are invested in the acquirer. The reasoning behind this is that if just a small fund of a big family like Fidelity is invested in the acquirer, the public might directly associate that fund with the large brand *Fidelity* even though only a smaller fund is invested in the company. The last measure, *Family invested*, aggregates the AUM of all funds holding the acquirer and belong to the same fund family. Some larger fund families which have multiple funds, often invest with more than just one fund into a company. Therefore, it could make a difference for the market not just if a family's fund is invested in the acquirer but how large the cumulated funds are. Fund families with multiple funds in the acquirer could combine resources making it is easier for

[7] SAT refers to the US college admission test.

them to monitor certain M&A deals. This could provide a stronger signal to the market if one of their acquirers announces a merger.

For all average calculations, the number of shares that each fund holds serves as the weight and not the acquirer's weight in the fund's portfolio like in the previous calculations. This is because not the fund's conviction about the quality of the acquirer is of interest but the market's perception about certain shareholders. The signal that the fund families send about the quality of the merger is increased if they are holding larger stakes in the acquirer.

4.1.3 M&A performance

In accordance with the literature, the quality or the performance of a merger is measured as the announcement return over a specific event window. During the analysis, the cumulative abnormal returns (CAR) are used over the specified time period. The abnormal returns are calculated on a daily basis using the Carhart (1997) four-factor model for the risk-adjustment. The announcement returns for each deal and for different time frames are provided in the dataset and do not have to be calculated.

The main dependent variable of the study is *CAR5*, the CAR over the five-day event window [-2, 2] with the merger announcement marking day 0. The variable captures the market returns from two days prior until two days after the announcement. Consequently, any abnormal movement are due to the special event, the M&A announcement. Shorter time frames like [-1, 1] can induce specification errors because the provided announcement dates by the database can be inaccurate and the announcement effect would be misinterpreted. Fuller, Netter and Stegemoller (2002, p. 1770) review the accuracy of the reported announcement in the SDC database and confirm that 92.6% of the 500 reviewed deals were reported correctly. The remaining incorrect announcement dates are not off more than 2 days. Hence, it can be concluded that when using the five-day window, the announcement effect is properly captured by the observations (Masulis, Wang and Xie, 2007, p. 1856). The study is complemented by longer time horizons and additional measures like the change in the ROA, in order to verify the robustness of the results.

4.1.4 Control variables

There are several other factors that can influence the announcement return of the acquirer which are independent from the skill, experience or size of the institutional shareholders. First, the size and the book-to-market ratio of the acquirer need to be considered since the

returns for companies that differ in those attributes can vary significantly (Lyon, Barber and Tsai, 1999, pp. 172-173). Fama and French (1992, p. 438) find that smaller firms earn on average significantly larger returns. Even stronger is the influence for the book-to-market ratio as a higher ratio results in a higher return (Fama and French, 1992, p. 441). In the context of M&A, Moeller, Schlingemann and Stulz (2004) confirm those findings and report that smaller acquirers perform better. They argue that managers tend to be overconfident in larger companies and overpay for their targets (Moeller, Schlingemann and Stulz, 2004, pp. 207-208; 220-222). Most of the literature uses Tobin's Q instead of the book-to-market ratio. Tobin's Q is a measure to compare a company's market value with its costs of replacement (Montgomery and Wernerfelt, 1988, p. 627). Therefore, the ratio can be used similarly as the book-to-market ratio in order to capture the over- or undervaluation of the acquirer. The direction of the effect on M&A is inconclusive like Masulis, Wang and Xie (2007, p. 1861) summarize. Concomitant with the size argument is the relative size of the deal. A transaction volume that represents a large fraction of the value of the acquirer itself, implies a bigger and therefore probably more deliberated investment decision. Consequently, Moeller, Schlingemann and Stulz (2004, p. 216) document an increase of the 3-day announcement return in relative deal size. Following the approach of Chen, Harford and Li (2007, pp. 290-291) *Size* is calculated as the natural logarithm of the acquirer's market capitalization and *Relative size* is the transaction volume of the deal divided by the acquirer's market capitalization at the end of the quarter prior to the announcement. *Tobin' Q* is measured at the end of the fiscal year prior to the merger announcement.

Moreover, the literature often considers the recent stock performance of the acquirer as this could correlate with future performance. Some scholars argue that a good recent performance implies a high-quality management which also undertakes better mergers (Morck, Shleifer and Vishny, 1990, pp. 33-34). However, a higher stock price can also lead to negative reactions upon a merger announcement since the true value of the acquirer is revaluated and some unjustified overvaluations could be detected (Harford, Humphery-Jenner and Powell, 2012, p. 255). The past performance, *Past return,* is measured as the buy and hold return from Q-5 until Q-1 based on quarterly prices with Q being the quarter of the announcement.[8]

Another important criterion is the capital structure of the acquirer. Especially the amount of debt used to finance the company's operations is decisive. The financial situation can have

[8] Calculation based on Lyon, Barber and Tsai (1999, p. 169).

an impact on whether and how carefully investment decisions are made. While large amounts of debt can induce the management to improve performance, large amounts of unused cash can lead to imprudent investment decisions (Masulis, Wang and Xie, 2007, p. 1861). The *Debt-to-assets* ratio as well as the *Cash ratio* of the acquirer are serving as proxies for those factors.

A further wildly analyzed aspect of M&A deals is the chosen target and whether that firm is a private or public company. Many studies find that particularly acquiring private targets results in a higher announcement return (Fuller, Netter and Stegemoller, 2002, pp. 1775-1776; Masulis, Wang and Xie, 2007, p. 1858). Therefore, the dummy variable *Private* is created in order to account for the public status of the target. It equals one if the acquired firm is a private company and zero otherwise. In addition to the public status of the target, the chosen method of payment is decisive as well. There can be significant differences in announcement returns depending on whether a merger bid is financed by cash, purely with equity or a combination of both (Fuller, Netter and Stegemoller, 2002, pp. 1775-1776). The dummy *Cash* is equal to one if the deal is purely paid by cash and zero otherwise while the dummy *Equity* is equal to one if equity is the only choice of payment and zero otherwise.

Furthermore, other dummy variables regarding the type of the deal are included. The *Hostile* dummy is equal to one if the SDC database explicitly states that the deal attitude was *hostile* and zero otherwise. Friendly deals are believed to perform better since both parties are in favor of the deal and decide to merge businesses. Thus, the post-merger integration can be easier than if the merger is forced (Ramaswamy and Waegelein, 2003, p. 118). *Diversifying* is equal to one if the determined Fama-French 12 industry classifications for the acquirer and the target differ. Diversifying acquisitions can be both good and bad depending on how well both companies complement each other (Lubatkin, 1987, p. 40). Morck, Shleifer and Vishny (1990, pp. 32-33) point out that diversifications can be disadvantageous because the management might have different objectives which are not benefiting the shareholders.

Finally, considering the strong literature on institutional monitoring, it is also important to consider institutional ownership in general because a higher share of such owners could induce a better monitoring of M&A deals. Therefore, the variable *Total holdings* controls for the percentage of shares being held by all the mutual funds in the dataset. In the models with the top alpha or the experience measure, the variable *Total holdings* is divided into *Top holdings* / *Experienced holdings* and *Other holdings*. Better and more experienced funds

could also be better at monitoring or influencing the management due to their specific knowledge.

4.2 Sample summary statistics

The summary statistics for the deal sample are displayed in table 1. Panel A reveals that the quantity of deals differs across the years ranging from 705 deals in 2005 to just 116 deals in 2007. The acquirer's size increases from $5.5 billion in 2002 to $8.5 billion in 2010. There is just one extreme year in 2007 in which the average acquirer's market capitalization is almost $23 billion and is then decreasing back to normal levels in 2008. A closer look at the dataset reveals that in 2007 primarily large technology companies like Microsoft, Cisco or Hewlett-Packard are driving this increase in the average acquirer's size by announcing several deals. Together with the low number in total deals in 2007, this could indicate that with the beginning of the financial crisis only a few larger companies are able to acquire target companies, whereas at the peak of the crisis in 2008, companies increasingly suffer from financial distress and are forced to merge in order to survive resulting in a higher number of deals. This is surprising as Fich, Harford and Tran (2015, pp. 24-25) document a decline in merger announcements during the 2008-2009 span. A difference between their study and this thesis is that Fich, Harford and Tran (2015) focus exclusively on public targets. Yet, table 1 does not show a higher tendency towards private targets in 2008 or 2009 which could explain the diverging findings.

In column 5, the acquirer's Tobin's Q is displayed. It stays rather constant over the years with an average of 2.05. This shows that most companies engaging in M&A activities would be considered growth stocks as opposed to value stocks. Growth stocks are companies with a higher market value than book value. A Tobin's Q above 1 indicates such an overvaluation. This is in line with the sample of Nain and Yao (2013, p. 440) who report an average market-to-book ratio, which is based on the same idea as Tobin's Q, close to 2 as well.

Furthermore, almost three out of four acquirers every year target private firms which shows the favoritism towards private mergers. This supports the literature claiming that private targets are more profitable than public ones (Fuller, Netter and Stegemoller, 2002, pp. 1775-1776). The preferred method of payment is cash over equity as only a fraction of the deals is paid purely with equity while almost 45% of the deals have been paid using cash only. The use of cash increased over the years while pure equity transactions mostly declined with

a short reverse during the financial crisis. Finally, friendly takeovers are clearly the preferred tactic as hostile deals are almost inexistent.

Table 1 - Deal sample

Panel A shows the underlying deal sample which consists of 3,857 different mergers & acquisitions information between the years 2002 and 2010. *Number of deals* is the total number of deals that have been announced in the specific year. *Acquirer size* is measured as the acquirer's market capitalization in million dollars at the end of the quarter prior to the announcement. *Relsize* is the deal's transaction volume divided by *Acquirer size*. *Acquirer Tobin's Q* is the Tobin's Q value of the acquirer at the end of the fiscal year prior to the year of the announcement. *Private* is the percentage of deals in which the target company has been private. *Cash* is the percentage of deals in which the transaction volume has been paid purely in cash. *Equity* is the percentage of deals purely paid by equity. *Hostile* is the percentage of deals which have been stated as hostile by the SDC database.
Panel B displays the mean and median value of the cumulative abnormal return (CAR) over the [-2, 2] event window adjusted by the Carhart four-factor model for different subsamples. The significant difference from a mean of 0 is tested with the Wilcoxon signed rank test. ***,**,* indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: Deal summary statistics

Year	Number of deals	Acquirer size (in $million)	Relsize	Acquirer Tobin's Q	Private	Cash	Equity	Hostile
2002	438	5,537	14.77%	2.26	67.12%	37.67%	12.10%	0.23%
2003	535	5,739	23.51%	1.70	68.79%	35.70%	13.64%	0.56%
2004	697	7,362	15.99%	2.20	75.18%	43.47%	9.18%	0.72%
2005	705	7,348	15.71%	2.16	76.45%	44.68%	7.38%	0.28%
2006	199	8,998	10.06%	2.34	77.89%	55.28%	4.02%	0.00%
2007	116	22,896	10.57%	2.17	76.72%	62.07%	1.72%	0.00%
2008	441	8,914	16.44%	2.16	72.79%	52.15%	6.12%	0.45%
2009	322	9,511	20.33%	1.85	66.15%	45.65%	12.11%	0.31%
2010	404	8,451	20.24%	1.76	71.53%	49.01%	4.95%	0.50%
All	3,857	7,950	17.23%	2.05	72.39%	44.88%	8.76%	0.41%

Panel B: Deal announcement returns

		Whole sample	All cash	All equity	Public target	Private target	Subsidiary, JV, Gov.	Hostile takeover
CAR [-2, 2]	Mean	0.43%**	0.51%***	-0.57%**	-1.47%***	1.00%***	3.25%***	-3.43%
	Median	0.12%	0.20%	-0.70%	-0.96%	0.44%	1.51%	-2.54%
Number of obs.		3,857	1,731	338	967	2,792	98	16

Source: Own creation

Panel B displays the cumulative abnormal announcement returns over the five-day event window by group. Whether the observed returns are significantly different from zero or just a coincidence in this sample can be tested with a one-sample t-test. However, for a t-test the variable of interest must be normally distributed (Auer and Rottmann, 2015, pp. 365-366). The evaluation of the *CAR5* reveals that this assumption is violated.[9] Thus, t-statistic can be misleading. The Wilcoxon signed rank test does not require the variable to be normally distributed and is therefore used in order to determine the significance. Because the sample

[9] The Kolmogorov-Smirnov test, Cramer-von Mises test and Anderson-Darling test all show significance for rejecting the null hypothesis of normally distributed announcement returns.

sizes are mostly sufficiently large, the t-test and signed ranked test yield almost always the same results. Overall, the acquirers achieve an abnormal announcement return of 0.43% which is significantly different from zero at the 5% level. Hence, overall the merger announcements are profitable for the acquirers and their shareholders. Like stated in the literature, the method of payment is also important (Fuller, Netter and Stegemoller, 2002, pp. 1775-1776). Panel B provides evidence for the differences as deals paid by cash have a highly significant positive announcement return of 0.51% while purely equity transaction show a negative average return of -0.57%. Even more important seems to be the public status of the target. Acquiring public targets results on average in a significant negative return of -1.47% while private targets have an announcement return of 1.00%. This is also consistent with the literature advocating the opinion of private targets being more profitable for the shareholders (Fuller, Netter and Stegemoller, 2002, pp. 1775-1776; Masulis, Wang and Xie, 2007, p. 1858). The highest return in the dataset, however, realize targets which are neither private nor public with a highly significant return of 3.25%. This category includes subsidiaries, joint ventures or governmental entities. The most harmful approach to M&A deals are hostile takeover earning on average a *CAR5* of -3.43% However, this is not significantly different from zero. Nevertheless, the small number of observations shows that acquirers try to avoid this approach and strive to involve the target's management and close the deal in a friendly manner.

Panel A of table 2 displays the information about the institutional ownership structure of the acquirer. On average over 24 mutual funds out of the sample are holding the acquirer prior to the merger announcement. This result is primarily driven by the mergers of the largest companies which are held by up to 222 funds in this sample. More interesting is that the median acquirer is only held by 15 funds which is less than half of the reported results by Nain and Yao (2013, p. 441). A reason could be that their sample of funds is not restricted to single-managed funds. Team-managed funds are less concentrated and thus invest in more firms. The median acquirer is held by only 3 *Top Alpha24* funds and 2 *Top Alpha quarter* funds. This could indicate that the best funds do not generate their higher performance by identifying companies that are about to undertake M&A deals or even influence them to conduct more mergers. This provides support for the hypothesis that especially the shareholder of the target company profit from a takeover and that institutional investors are eager to invest in those companies which are subsequently bought (Fuller, Netter and Stegemoller, 2002, p. 1763; Capron and Pistre, 2002, p. 781).

Table 2 - Summary statistics

Panel A shows the summary statistics of the deals and the variables of interest. *Number of funds* is the total number of funds in the dataset holding the acquirer in the quarter prior to the announcement. The rest of the variables is explained in Appendix 1.
Panel B compares the average alpha of the entire sample with the average of the top funds.

Panel A: Deal level summary statistics

Variable	N	Minimum	Median	Maximum	Mean
Number of funds	3,857	1	15	222	24.22
Top Alpha24	3,849	0	3	42	4.54
Top Alpha quarter	3,803	0	2	49	4.22
Weighted Alpha24	3,849	-2.53%	0.03%	2.72%	0.02%
Weighted Alpha quarter	3,803	-17.07%	0.03%	29.42%	0.07%
Industry experience	3,217	0	0.36	8	0.99
Fund family size (in mio.)	3,857	0.1	43,994	418,591	92,209
Family invested (in mio.)	3,857	0.1	6,527	233,377	18,349
Fund size (in mio.)	3,857	0.1	3,114	53,172	6,129

Panel B: Average past alpha top funds vs. all funds

Variable	Top quartile	All funds
Alpha24	0.59%	0.03%
Alpha quarter	3.95%	0.07%

Source: Own creation

The median values for *Weighted Alpha24* and *Weighted Alpha quarter* indicate that the funds holding the median acquirer are achieving on average an alpha of 0.03% over their respective period. Furthermore, the average as well as the median values for the experience of the fund managers in the specific industry are quite low. The average acquirer is held by fund managers that have only experienced one quarter of distress on average in the same industry as the acquirer. However, it must be noted that the experience measure is only present for a fraction of the managers and thus many funds are excluded from the sample for the experience calculation. For 640 deals, there even is not any manager with an experience measures present resulting in 3,217 observations in this category.

Panel B of table 2 shows the difference in alpha values between the top funds and the overall sample. The results already show the difficulty to achieve an alpha, even for the best funds in the sample. The top quartile realized on average a Carhart alpha of 0.59% over the past 24 months while the whole sample just achieved an alpha of 0.03%. The results are almost identical compared to the findings of Nain and Yao (2013, p. 441). Managers are more successful when considering only the past quarter as the top funds are able to achieve a higher alpha of 3.95% compared to the sample mean of 0.07%. These results are consistent with Barras, Scaillet and Wermers (2010, pp. 200-204) who document that a higher alpha can be

achieved in shorter time periods. The longer the horizon, the more attraction is led towards the successful funds and they become too large for the chosen strategies to continue being successful. Consistently, Nain and Yao (2013, p. 441) also report higher alphas for their 12 months compared to their 24 months measure.

4.3 Model

The underlying data represents a pooled cross-sectional data as the data contains several deals across different companies over multiple years. However, in contrast to a panel data set, the deal samples differ each year and do not contain the same acquirers over a time-series. Therefore, the data can be assessed using ordinary cross-sectional models while accounting for the differences in time.[10] Hence, it is essential to include time fixed effects into the model so that the parameters are estimated properly. These control for unobservable effects that could influence the outcome of a merger due to the specific year in which the deal is announced. M&A could generally be better in one year than in another independent of the other factors or the overall quality of the deal. Especially regarding the underlying time frame of the sample which covers the years before, during and after the financial crisis, the point in time of the announcement can have a vital impact on the dependent variable, the announcement returns. In addition to that, industry fixed effects are included in the model as there can be unobservable effects across industries as well. Some industries might be prone to M&A deals and therefore companies experience a higher announcement return than a firm which announces a merger at the same time in a different industry even though both deals have the same observable attributes. Industry fixed effects are based on the Fama-French 12 industry classifications.

Furthermore, the data set contains acquirers that made multiple deals over the years, sometimes even in the same year. Those observations are likely to be correlated as the outcome of past mergers can influence the assessment of newly announced M&A deals by the same company. This means, the observations for the same acquirer are not independent from each other and hence, also the standard errors are correlated. In order to account for the within-cluster correlation, the standard errors are clustered by acquirer so that the resulting p-values are not misleading.[11]

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[10] Most of the studies on M&A returns use cross-sectional models: E.g. Nain and Yao (2013, p. 443); Chen, Harford and Li (2007, p. 290); Moeller, Schlingemann and Stulz (2004, p. 215).

[11] Same approach as in: Masulis, Wang and Xie (2007, pp. 1866-1867); Harford, Humphery-Jenner and Powell (2012, p. 256).

Taking these considerations as well as the variables mentioned in the previous section into account, this results in the following cross-sectional regression using ordinary least squares with industry and year fixed effects as well as standard errors clustered by acquirer:

$$\begin{aligned} CAR5_i = \beta_0 \quad & + \beta_1 \text{ skill/size measure}_i + \beta_2 \text{ Total holdings}_i + \beta_3 \text{ Size}_i + \beta_4 \text{ Private}_i \\ & + \beta_5 \text{ Relative size}_i + \beta_6 \text{ Cash}_i + \beta_7 \text{ Equity}_i + \beta_8 \text{ Past return}_i \\ & + \beta_9 \text{ Debt-to-assets}_i + \beta_{10} \text{ Cash ratio}_i + \beta_{11} \text{ Diversify}_i \\ & + \beta_{12} \text{ Hostile}_i + \beta_{13} \text{ Tobin's Q}_i + \varepsilon_i \end{aligned}$$

The index i denotes a unique M&A deal in the dataset. All continuous variables are determined at the end of the quarter prior to the M&A announcement. A list of all the variables used in the regression models is provided in Appendix 1

The cumulative abnormal announcement returns are calculated using the Carhart (1997) four-factor model and therefore already adjust for factors like size, momentum and book-to-market ratio. Nevertheless, those factors can still be important predictors for the announcement return. The characteristics of a company can change over time making the adjustment of the model insufficient to properly account for the factors. Hence, those controls remain in the model.

In order to rely on the results produced by the model, the assumptions for linear regressions need to be assessed. The models for skill, experience and size all show the same results.

First, the linear structure of the model must be appropriate in order to analyze the data effectively. This is checked with Ramsey's RESET test which evaluates whether the model can be improved by quadratic, cubed or interaction terms (Auer and Rottmann, 2015, pp. 486-487). The results do not show any significance for either of the tests and thus the linearity assumption is valid. Second, the equality of the residuals' variance is an assumption. When plotting the residuals, the pattern seems random and does not show any trends. This suggest that the error terms have equal variance. The Breusch-Pagan test and the White test, however, show that the homoscedasticity assumption is violated (Auer and Rottmann, 2015, pp. 531-534). As this can have an impact on the estimated parameters, the standard errors are adjusted for heteroscedasticity in addition to the adjustment for clustering.

Another assumption is that the error terms across clusters are not correlated. This is highly unlikely as the data does not follow a time series. Additionally, the Durbin-Watson test shows a value close to 2 indicating no autocorrelation (Auer and Rottmann, 2015, p. 542; p.

554). The error terms also need to be normally distributed. The assumption is violated as the Kolmogorov-Smirnov tests show significant p-values resulting in the rejection of the hypothesis of a normal distribution. Nevertheless, the sample size is large and with the central limit theorem the OLS predictors can still approach a normal distribution if the observations are independent (Greene, 2003, pp. 67-69). Due to the cross-sectional setting and that each year the population of acquirers and deals changes, the observations are naturally independent from each other and thus the t-tests for significance of the parameter estimates are still valid in this large sample. Furthermore, the predictors do not show any sign of multicollinearity as the *Variance inflation factors* are below ten which is often seen as the critical value (Auer and Rottmann, 2015, pp. 515-516).

When analyzing the data, some outliers can be detected which could alter the regression estimates. Some deals show unreasonably high or low announcement returns. The continuous variables which represent the characteristics of the acquirer reveal some extreme observations as well. Due to the presence of such potential influential outliers, the regression analyses are repeated with the winsorized values for the continues variables at the 1st and 99th percentiles which is a common practice in the literature (Harford, Kecskés and Mansi, 2018, p. 428).

5 Empirical results

The following section provides answers to the hypotheses from chapter 3 whether, how much and what kind of influence fund managers and fund companies have on the outcome of M&A deals. Chapter 5.1 to 5.4 point out the results from the different analyses. Chapter 5.5 discusses the findings in view of the proposed hypotheses and its contribution to the literature. Chapter 5.6 addresses the weaknesses and limitations of the obtained results whilst pointing out future areas of research.

Each hypothesis is first evaluated using a univariate setting. T-tests comparing the differences in means as well as simple linear models regressing the announcement returns solely on the variable of interest are used in order to obtain a first impression of the underlying effects before turning to the multivariate analysis with the aforementioned model. For all analyses, the announcement returns are multiplied by the factor 100 in order to detect smaller effects with the regressions' parameter estimates.

5.1 Skill and experience of the fund manager

To start, the influence of the fund manager's abilities is evaluated. Panel A of table 3 presents the groupwise comparisons of the skill measures. Each measure is divided around the median value into deals with an above median skill value and those deals in which the acquirers are held by mutual funds in the lower half of the skill measures. The differences in means is tested with a two-sided t-test with a 5% confidence level. Even though *CAR5* are not normally distributed, the sample sizes are sufficiently large and thus approximately normally distributed (Auer and Rottmann, 2015, pp. 373-374). Surprisingly, the groups with a below median value are showing a higher average cumulative abnormal announcement return across all skill measures. While the differences in means is not statistically different from zero for both *Weighted Alpha* measures, the higher *CAR5* for deals with a below median number of top funds among their owners is highly significant at the 1% level. The difference of 0.67% and 0.73% for *Top Alpha24* and *Top Alpha quarter*, respectively, also represents a large economic impact. For the average acquirer size of $7.95 billion this difference represents an additional increase in shareholder value of $53 million to $58 million over the five days for those acquirers with a below median number of top fund shareholders compared to those with more top institutional owners. While acquirers with many top fund owners barely achieve any abnormal announcement returns with their deals, the below median group does. Similar results can be observed in panel B which shows the simple, univariate regression of CAR5 on the skill measures. The regression coefficients indicate a significant negative impact for *Top Alpha24* and *Top Alpha quarter* at the 1% level while the other measures are insignificant. Both top fund measures indicate a decrease in *CAR5* of roughly 6 basis points per additional top fund that is holding the acquirer. As those measures capture particularly the right tail of the skill distribution and are therefore predicted to be more informative about the presence of stock picking abilities in the M&A sector, one would expect a positive or insignificant effect. The results are also not much driven by outliers since the winsorized data (untabulated) also show a significant difference in favor of the below median group, though the difference becomes slightly smaller. In the linear regression, the coefficients for both *Top Alpha* measures remain significant.

Table 3 - Univariate analysis for the skill measures

All the used variables are explained in Appendix 1.
Panel A shows the comparison in means of *CAR5* using a two sided t-test. For this purpose, the dataset of deals is split around the median into above median deal level skill and below median deal level skill.
Panel B shows a simple univariate regression without fixed effects or controls. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer.
Panel C uses the same model as Panel B but includes the variable *Size*. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer. ***,**,* indicate the significance at the 1%, 5% and 10% level, respectively.

Panel A

	Skill measures			
	Top Alpha24	Top Alpha quarter	Weighted Alpha24	Weighted Alpha quarter
Above median	0.045%	0.051%	0.312%	0.310%
Below median	0.712%	0.780%	0.551%	0.542%
Difference	-0.666%	-0.730%	-0.239%	-0.232%
t-statistic	(-2.75)***	(-2.87)***	(-0.94)	(-0.90)

Panel B

Explanatory variables	(1)	(2)	(3)	(4)
Top Alpha24	-0.056***			
	(-2.77)			
Top Alpha quarter		-0.061***		
		(-3.14)		
Weighted Alpha24			-0.223	
			(-0.53)	
Weighted Alpha quarter				0.012
				(0.21)
Intercept	0.684***	0.685***	0.435***	0.425***
	(3.76)	(3.94)	(3.34)	(3.27)
Industry fixed	No	No	No	No
Year fixed	No	No	No	No
Adj. R-squared	0.001	0.001	-0.000	-0.000
Number of obs.	3,849	3,803	3,849	3,803

Panel C

Explanatory variables	(1)	(2)
Top Alpha24	0.070**	
	(2.55)	
Top Alpha quarter		0.041
		(1.64)
Size	-0.502***	-0.436***
	(-4.77)	(-4.22)
Intercept	10.517***	9.312***
	(4.91)	(4.38)
Industry fixed	No	No
Year fixed	No	No
Adj. R-squared	0.008	0.007
Number of obs.	3,849	3,803

Source: Own creation

However, this result can also occur by a negative confounding variable which is influencing the presence of top funds positively while affecting the *CAR5* negatively. Confounding variables are not accounted for in the univariate setting and thus can heavily influence the results. For example, larger companies are naturally owned by more mutual funds than smaller companies and hence also have more top funds among their owners. Indeed, when assessing

the correlation of the *Top Alpha* variables and the size of the acquirer, a strong positive correlation with a Pearson correlation coefficient of 0.71 for *Top Alpha24* and 0.69 for *Top Alpha quarter* can be observed. Furthermore, the acquirer's size is often cited to have a negative impact on the announcement returns in the literature (E.g. Masulis, Wang and Xie, 2007, p. 1866; Chen, Harford and Li, 2007, p. 290). These dependencies can cause the model to falsely attribute the negative effect of *Size* onto the correlated skill measures. Panel C presents the results for the linear regression when adding the *Size* variable into the model. As predicted *Size* is a highly significant and negative predictor for *CAR5* at the 1% level. The coefficients for the top fund measures are also impacted by the inclusion of *Size* and now show a positive influence on the announcement returns. While the coefficient for *Top Alpha24* is significant at the 5% level, the coefficient for *Top Alpha quarter* is not.

Since M&A deals and investment decisions by mutual funds are quite complex, one can be sure that there are more confounding variables which impact both, the number of top funds in a company and the performance of a merger announcement. Thus, a closer look at a more complex multivariate setting is advisable. Table 4 shows the results of the regression for the full model stated in chapter 4.3. The coefficients for the *Top Alpha* measures remain positive but lose their statistical significance. Surprisingly, the only significant skill measure is *Weighted Alpha24* in column 3 which shows a negative influence on the M&A performance at the 10% significance level. With a decrease of 1.06 percentage points per one percentage point increase in the average skill of the fund owners, this effect is also economically significant. It is also notable that the coefficients for the percentage of shares being held by all institutions as well as just the top funds are insignificant. Thus, it seems irrelevant for the announcement return whether the mutual funds are holding a higher percentage of shares of the acquirer.

The findings for the rest of the control variables are mostly in line with the literature and consistent over the different models. As assumed before, *Size* still has a negative effect of -0.200 to -0.268 on the announcement returns in the complete model which is in accordance with Moeller, Schlingemann and Stulz (2004, pp. 202-204). Even though the announcement returns are already adjusted for the size factor by the Carhart (1997) four-factor model, the variable remains a significant predictor and thus needs to be considered. The dummy variable for private targets indicates a large impact both statistically as well as economically with an increase of around 1.6 percentage points if the target is a private company.

Table 4 - Skill regressions

Cross-sectional OLS regressions of the *CAR5* on the different skill measures.
All the variables are explained in Appendix 1. All models include industry and year fixed effects whose estimates are omitted. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer. ***,**, * indicate the significance at the 1%, 5% and 10% level, respectively.

Explanatory variables	(1)	(2)	(3)	(4)
Top Alpha24	0.028			
	(0.82)			
Top Alpha quarter		0.022		
		(0.69)		
Weighted Alpha24			-1.058*	
			(-1.96)	
Weighted Alpha quarter				-0.027
				(-0.39)
Top holdings	-3.019	2.404		
	(-0.53)	(0.38)		
Other holdings	-5.075	-5.251		
	(-1.13)	(-1.35)		
Total Holdings			-2.927	-2.407
			(-0.90)	(-0.73)
Size	-0.268*	-0.252*	-0.201**	-0.200**
	(-1.84)	(-1.79)	(-2.01)	(-1.99)
Private	1.597***	1.595***	1.625***	1.604***
	(4.44)	(4.42)	(4.51)	(4.45)
Relative size	0.361	0.360	0.376	0.378
	(0.75)	(0.74)	(0.78)	(0.78)
Cash	0.198	0.191	0.207	0.203
	(0.72)	(0.69)	(0.76)	(0.74)
Equity	-1.054	-1.058	-1.073	-1.031
	(-1.00)	(-1.00)	(-1.01)	(-0.97)
Past return	-0.173	-0.166	-0.196	-0.157
	(-1.34)	(-1.28)	(-1.51)	(-1.22)
Debt-to-assets	2.103*	2.090*	2.172**	2.092**
	(1.95)	(1.94)	(2.03)	(1.96)
Cash ratio	-0.122**	-0.123**	-0.127**	-0.122**
	(-2.13)	(-2.14)	(-2.22)	(-2.12)
Diversify	-0.365	-0.373	-0.360	-0.377
	(-1.12)	(-1.14)	(-1.10)	(-1.15)
Hostile	-3.346	-3.310	-3.238	-3.310
	(-1.63)	(-1.62)	(-1.62)	(-1.61)
Tobin's Q	0.030	0.031	0.009	0.031
	(0.25)	(0.25)	(0.08)	(0.26)
Intercept	7.071**	6.671**	5.912***	5.662**
	(2.31)	(2.26)	(2.61)	(2.50)
Adj. R-squared	0.021	0.021	0.023	0.021
Number of obs.	2,879	2,873	2,879	2,873

Source: Own creation

This is very similar to the findings of Harford, Humphery-Jenner and Powell (2012, p. 256) who report almost the same values for the *CAR5* estimated with a market model instead of the four-factor model.

Moreover, the coefficient for the acquirer's *Debt-to-assets* ratio is significantly positive at the 5% and 10% level with a coefficient of around 2.1. The coefficient suggests that if the acquirer has the same amount of debt as assets (debt-to-assets ratio=1), the *CAR5* is 2.1 percentage points higher than a deal of the same characteristics but zero debt (debt-to-assets-ratio=0). Higher debt levels are argued to ensure that the management is forced to make more careful decisions and limit the executives' managerial discretion which results in better M&A deals (Masulis, Wang and Xie, 2007, p. 1861; Harford, Humphery-Jenner and Powell, 2012, p. 256). In contrast to that, a higher cash ratio could lead to unwise investment decisions. The linear regression provides evidence for this theory since the coefficient of approximately -0.12 is significant at the 5% level.

The significant findings are robust to the winsorized data (see Appendix 2). Beyond that, the winsorized analysis indicates that a lower relative deal size ($\beta = -1.6$) and non-diversifying deals ($\beta = -0.5$) increase announcement returns. Both effects are significant at the 10% level. More importantly though, the winsorized regression does not show any support for the hypothesis concerning the stock picking argument because the results for the skill measures do not change much. *Weighted Alpha24* is still a significantly negative predictor, but less in magnitude and only slightly significant (p-value=0.093). When considering a larger winsorizing at the 5th and 95th percentiles, *Weighted Alpha24* loses its significance. Analogously does the effect for *Cash ratio* and *Debt-to-assets.* Hence, the variables *Private, Size, Relative size and Diversify* are robust to the strong winsorizing while *Weighted Alpha24*, *Cash ratio* and *Debt-to-assets* are not.

The results also indicate that M&A deals are much more complex than what can be illustrated by the multivariate linear model. The coefficient of determination, which is expressed by the term R-squared in a linear regression model, expresses how much of the variation of the dependent variable can be explained by the underlying model (Auer and Rottmann, 2015, pp. 432-434). Per definition, including another variable can never reduce the value of R-squared, even if the predictor is totally insignificant. The adjusted R-squared accounts for the number of variables in the model and provides a more realistic view of the model's effectiveness (Auer and Rottmann, 2015, pp. 436-437). Across the different analyses and with the many control variables, only 2% of the variance in the announcement returns can be

explained by the model. Most of the literature reports slightly higher, yet still relatively small adjusted R-squared values of around 5%-10% (E.g. Moeller, Schlingemann and Stulz, 2004, pp. 215-216; Masulis, Wang and Xie, 2007, p. 1866). This displays the complexity of M&A deals and the arising difficulties to build models which are not too complex but still predictive for the influence of certain factors.

Table 5 - Univariate analysis of the experience measure

All the used variables are explained in Appendix 1.
Panel A shows the comparison in means of *CAR5* using a two sided t-test. For this purpose, the dataset of deals is split around the median into above median deal level experience and below median deal level experience.
Panel B shows a simple univariate regression without fixed effects or controls. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer. ***,**,* indicate the significance at the 1%, 5% and 10% level, respectively.

Panel A	
Experience	Mean
Above median	0.133%
Below median	0.469%
Difference	-0.337%
t-statistic	(-1.32)
Panel B	
Explanatory variables	CAR5
Experience	-0.050
	(-0.43)
Intercept	0.350**
	(2.25)
Industry fixed	No
Year fixed	No
Adj. R-squared	-0.000
Number of obs.	3,217

Source: Own creation

Possibly a closer look at the experience of the individual managers reveals a different, more coherent effect. Again, univariate tests are conducted first. The results are presented in table 5. In panel A, the above and below median groups are compared. Similar to the other skill measures, the results also indicate that the below median group is more successful. This means that acquirers which are held by less experienced managers, on average, are achieving higher announcement returns. The differences in means as well as the negative coefficient in the simple linear model, however, are not significantly different from zero and therefore not informative.

Table 6 - Experience regression

Cross-sectional OLS regression of the CAR5 on the experience measure.
The variables are explained in Appendix 1. The models include industry and year fixed effects whose estimates are omitted. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer. ***,**, * indicate the significance at the 1%, 5% and 10% level, respectively.

Explanatory variables	CAR5
Experience	0.233
	(1.33)
Experienced holdings	-0.908
	(-0.12)
Other holdings	9.860
	(1.15)
Size	-0.239**
	(-2.32)
Private	1.118***
	(2.83)
Relative size	0.164
	(0.12)
Cash	0.281
	(1.00)
Equity	-1.738
	(-1.55)
Past return	-0.263
	(-0.80)
Debt-to-assets	1.846*
	(1.85)
Cash ratio	-0.154**
	(-2.47)
Diversify	-0.257
	(-0.75)
Hostile	-3.248
	(-1.49)
Tobin's Q	0.092
	(0.70)
Intercept	6.109**
	(2.54)
Adj. R-squared	0.023
Number of obs.	2,574

Source: Own creation

In the winsorized analysis (untabulated), the difference in means becomes significant at the 10% as the difference increases to -0.43%. The linear regression model remains insignificant.

Table 6 presents the results from the multivariate regression including the experience measure. In the full model, there is no evidence that on average more experienced managers pick better acquirers in their industry of expertise, either. Even though the average experience shows a positive influence, the parameter estimate is not significantly different from zero with a p-value of 0.19. The cumulated holdings of all managers with an industry experience greater than zero, *Experienced holdings*, are also not a significant factor for the M&A performance.

The effects of the control variables are generally in line with the previous results from the regressions on the skill measures. Moreover, the adjusted R-squared shows the same explanatory power of the model which remains quite low with just 2.3%. The complementary untabulated analysis with the winsorized data shows similar effects as before except that *Diversify* does not become a significant negative predictor whereas *Equity* does with a coefficient of -1.62 at the 10% level. This, however, represents the opinion of some scholars that cash payments are superior towards stock payments. A stock offer is perceived as a signal that the acquirer's shares are overvalued and thus represents the cheaper method of payment for the bidding firm (Travlos, 1987, pp. 944–946, 961).

5.2 Fund size

The following analyses shift the focus from the individual manager and her abilities to the general attributes of the fund, namely its size and affiliation to a larger family. Hypothesis 3 assumes that the presence of larger fund families sends a signal to the market about the quality of the underlying deal.

For the univariate analysis, the sample is split again around the median of the different size measures in order to evaluate whether acquirers held by larger funds are realizing higher announcement returns. The results are displayed in table 7 and do not indicate such a conclusion. On the contrary, it seems that companies held by smaller funds are achieving higher announcement returns even though the difference in means is only significant for the *Fund family* variable. The simple linear regressions show a negative pattern of the size measures as well, yet only the estimates for *Fund family* and *Family invested* are significant at the 10%

and 5% level, respectively. Those results are robust using the winsorized data. Again, a reason could be the correlation towards the size of the acquirer. The biggest fund families are almost always invested in the biggest companies with at least one of their funds. In many cases even multiple funds of one family invest in the same company which could explain the negative impact of the variables *Fund family* and *Family invested*.

Table 7 - Univariate analysis for the size measures

Panel A shows the comparison in means of *CAR5* using a t-test. For this purpose, the dataset of deals is split around the median into above median size and below median size.
Panel B shows a simple univariate regression without fixed effects or controls. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer. ***,**,* indicate the significance at the 1%, 5% and 10% level, respectively.

Panel A

	Size measures		
	Fund family	Fund size	Family invested
Above median	0.112%	0.289%	0.277%
Below median	0.748%	0.577%	0.589%
Difference	-0.631%	-0.288%	-0.312%
t-statistic	(-2.47)**	(-1.13)	(-1.22)

Panel B

Explanatory variables	(1)	(2)	(3)
Fund family (in $bn)	-0.002**		
	(-1.84)		
Fund size (in $bn)		-0.010	
		(-0.65)	
Family invested (in $bn)			-0.006**
			(-2.10)
Intercept	0.648***	0.492***	0.542***
	(3.43)	(2.79)	(3.51)
Industry fixed	No	No	No
Year fixed	No	No	No
Adj. R-squared	0.001	-0.000	0.000
Number of obs.	3,857	3,857	3,857

Source: Own creation

In order to control for this, the same multivariate model as before is used but with the reputational proxies replacing the skill or experience measures. Table 8 shows the results of the cross-sectional regressions. In the multivariate setting the negative tendency of larger funds disappears as all coefficients for the reputational measures are positive. The coefficients for *Fund size* and the *Family invested* are also significantly different from zero at the 1% level. The effect is economically a bit stronger for the former than for the latter.

Table 8 - Size regressions

Cross-sectional OLS regression of the *CAR5* on the different size measures.
All the variables are explained in Appendix 1. All models include industry and year fixed effects whose estimates are omitted. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer. ***,**,* indicate significance at the 1%, 5% and 10% level, respectively.

Explanatory variables	(1)	(2)	(3)
Fund family size (in $bn)	0.002		
	(0.98)		
Fund size (in $bn)		0.069***	
		(3.02)	
Family invested (in $bn)			0.013***
			(2.59)
Total holdings	-5.000	-6.800*	-4.878
	(-1.44)	(-1.94)	(-1.46)
Size	-0.239**	-0.333***	-0.350***
	(-2.17)	(-2.83)	(-2.67)
Private	1.650***	1.671***	1.648***
	(4.54)	(4.62)	(4.57)
Relative size	0.405	0.387	0.372
	(0.85)	(0.81)	(0.78)
Cash	0.204	0.231	0.238
	(0.75)	(0.84)	(0.87)
Equity	-1.048	-1.004	-1.040
	(-0.99)	(-0.95)	(-0.98)
Past return	-0.176	-0.173	-0.175
	(-1.35)	(-1.34)	(-1.35)
Debt-to-assets	2.040*	2.238**	2.249**
	(1.92)	(2.10)	(2.09)
Cash ratio	-0.123**	-0.122**	-0.125**
	(-2.15)	(-2.14)	(-2.18)
Diversify	-0.340	-0.354	-0.344
	(-1.04)	(-1.08)	(-1.05)
Hostile	-3.305	-3.288*	-3.267
	(-1.62)	(-1.66)	(-1.63)
Tobin's Q	0.026	0.008	0.028
	(0.21)	(0.07)	(0.23)
Intercept	6.670***	8.453***	8.830***
	(2.75)	(3.29)	(3.12)
Adj. R-squared	0.022	0.025	0.024
Number of obs.	2,880	2,880	2,880

Source: Own creation

The coefficient of 0.069 for *Fund size* suggests that if on average the AUM of the funds holding the acquirer rises by $1 billion, the announcement return increases by 6.9. The effect for *Family invested* is a bit smaller with an increase of just 1.3 basis point per $1 billion rise in the accumulated AUM on average of all funds belonging to the same family. The same results are obtained with the winsorized data.

5.3 Robustness tests

In order to verify the obtained results and to gain insights on thus far undetected effects, it is advisable to evaluate the merger performance with different measures. The announcement returns over the short-time period are suitable as they reflect the market's assessment about the quality of the deal with all the available public information. However, uncertainty remains about certain aspects about the deal and whether the acquirer even follows through with the merger. Thus, the assessment of the returns over a longer period, especially from the announcement until the completion of the deal, can unveil important information for the market about the true quality of the merger or acquisition (Andrade, Mitchell and Stafford, 2001, p. 109). The best fund managers could possess superior information about the true value of a deal because of their good business contacts which are not covered by the market information efficiency. The assessment of the deal could be worse than it actually is and might be corrected at a later point when the deal is concluded or more information about possible synergies unveil. As the dataset reveals that on average a deal is completed within 58 calendar days and the 99th percentile also completes their deals within one year, the chosen complementary dependent variable is the cumulative abnormal announcement return over the [-2, 250] period (*CAR253*) which are 253 trading days or approximately one year.

Instead of looking at market returns, it is also possible to assess the acquirer's operational performance. For this reason, many scholars are evaluating the change in the ROA (Chen, Harford and Li, 2007, p. 287; Nain and Yao, 2013, p. 442). Chen, Harford and Li (2007, p. 287) find that the results do not change whether they employ an autoregressive model in order to identify abnormal changes in ROA or simply using the absolute changes in ROA. Accordingly, the additional robustness tests use the absolute change in ROA (*ΔROA).* The difference is calculated from t-1 until t+1 where t is the end of the fiscal year in which the announcement occurred. This time span is large enough to reflect the effect of the target's integration into the acquirer's business after concluding the deal. To account for industry-wide differences, the acquirer's ROA is adjusted by subtracting the industry median which

is based on the Fama-French 12 industry classifications (Chen, Harford and Li, 2007, p. 287).

Table 9 shows the results for the cross-sectional regression of the one-year announcement return, *CAR253*, on the different variables of interest. The first prominent observation is that the predictive power of the model is much higher for the *CAR253* than in the previous section when regressing *CAR5* onto the full model. The adjusted R-squared shows that roughly 20% of the variation of the *CAR253* can be explained by the different models. This increase is primarily driven by the variable *Past return* which explains most of the variation. Excluding the variable from the model results in a decrease of the adjusted R-squared to slightly over 5%.

Regarding the hypothesis about the skill of the fund managers and their stock picking abilities, the regression provides some evidence for the stock picking abilities. While the effects of both *Top Alpha* measures as well as for *Weighted Alpha quarter* and *Experience* are all insignificant, the impact of the *Weighted Alpha24* in model 3 is slightly significant at the 10% level and economically large. The regression coefficient of 7.458 suggest that the announcement return over the 253 trading days increases by approximately 7.5 percentage points if the average skill of all the managers holding the acquirer increases by 1 percentage point. The effect for the total ownership of the funds in model 3 is also significant, though negative. The coefficients are quite large because the announcement return is multiplied by the factor 100 while the ownership is not. Thus, the coefficient of -43.526 can be interpreted as a decrease in *CAR253* of 0.43 percentage points per additional percentage point of shares held by the mutual funds in the dataset. Yet, it is surprising that a higher institutional ownership is associated with a lower announcement return over the subsequent year. The effect for the ownership of experienced managers in model 5 is even larger and indicates a decrease in *CAR253* of 1.35 percentage points per additional percentage point of shares held by experienced managers. Concerning the reputational hypothesis, the size measures which are significant for the *CAR5* lose their positive significance for the longer time horizon (models 6-8).

Table 9 - Robustness test with CAR253

This cross-sectional model regresses the *CAR253* on all previously analyzed variables of interest. The table is split in two parts. Model 1-4 show the results for the different skill measures and are shown on this page. Models 5-8 are shown on the next page. Model 5 analyzes the experience variable. Model 6-8 include the size measures. All variables are defined in Appendix 1.
All models include time fixed and industry fixed effects whose estimates are omitted. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer.
***, **, * indicate significance at the 1%, 5% and 10% level.

Explanatory variables	(1)	(2)	(3)	(4)
Top Alpha24	-0.268			
	(-1.11)			
Top Alpha quarter		-0.185		
		(-0.85)		
Weighted Alpha24			7.458*	
			(1.94)	
Weighted Alpha quarter				0.347
				(0.73)
Top holdings	-46.164	-40.972		
	(-1.22)	(-0.92)		
Other holdings	-23.284	-28.254		
	(-0.67)	(-0.93)		
Total holdings			-43.527*	-36.079
			(-1.73)	(-1.42)
Size	0.207	-0.013	-0.427	-0.467
	(0.22)	(-0.01)	(-0.67)	(-0.74)
Private	-1.964	-2.181	-2.212	-2.231
	(-0.78)	(-0.86)	(-0.87)	(-0.88)
Relative size	2.245	2.142	2.113	2.020
	(0.72)	(0.69)	(0.67)	(0.65)
Cash	3.402	3.415	3.342	3.392
	(1.63)	(1.63)	(1.60)	(1.62)
Equity	-15.078**	-15.120**	-14.984**	-15.273**
	(-2.46)	(-2.47)	(-2.46)	(-2.50)
Past return	-21.990***	-21.937***	-21.821***	-21.998***
	(-2.95)	(-2.93)	(-2.95)	(-2.93)
Debt-to-assets	9.425	9.232	8.946	9.345
	(1.34)	(1.31)	(1.27)	(1.33)
Cash ratio	0.337	0.333	0.375	0.325
	(0.83)	(0.82)	(0.93)	(0.80)
Diversify	1.984	1.940	1.928	2.007
	(0.91)	(0.88)	(0.88)	(0.91)
Hostile	-0.364	-0.784	-1.221	-0.855
	(-0.02)	(-0.04)	(-0.06)	(-0.04)
Tobin's Q	-3.595***	-3.571***	-3.451***	-3.575***
	(-3.19)	(-3.17)	(-3.06)	(-3.17)
Intercept	-19.571	-15.504	-8.292	-6.820
	(-0.95)	(-0.78)	(-0.56)	(-0.46)
Adj R-squared	0.200	0.198	0.202	0.199
Number of obs.	2,879	2,873	2,879	2,873

Source: Own creation

Table 9 - Continued

Explanatory variables	(5)	(6)	(7)	(8)
Experience	0.182			
	(0.16)			
Fund family size (in $bn)		0.015		
		(1.24)		
Fund size (in $bn)			0.041	
			(0.27)	
Family invested (in $bn)				-0.019
				(-0.58)
Experienced holdings	-135.222*			
	(-1.87)			
Other holdings	5.213			
	(0.09)			
Total holdings		-50.880*	-42.090	-38.650
		(-1.90)	(-1.58)	(-1.52)
Size	-0.140	-0.737	-0.515	-0.230
	(-0.21)	(-1.05)	(-0.68)	(-0.27)
Private	-0.334	-1.799	-1.976	-2.033
	(-0.14)	(-0.71)	(-0.78)	(-0.80)
Relative size	6.374	2.523	2.478	2.527
	(1.41)	(0.79)	(0.78)	(0.79)
Cash	1.623	3.420	3.343	3.255
	(0.79)	(1.64)	(1.60)	(1.56)
Equity	-15.020***	-15.331**	-15.328**	-15.370**
	(-2.72)	(-2.51)	(-2.50)	(-2.52)
Past return	-37.830***	-21.967***	-21.962***	-21.964***
	(-9.70)	(-2.95)	(-2.95)	(-2.95)
Debt-to-assets	14.958**	8.874	9.029	8.620
	(2.20)	(1.26)	(1.28)	(1.22)
Cash ratio	0.329	0.325	0.335	0.338
	(0.83)	(0.81)	(0.83)	(0.83)
Diversify	2.551	2.138	2.134	2.148
	(1.18)	(0.97)	(0.97)	(0.97)
Hostile	15.036	-0.841	-0.905	-0.988
	(0.64)	(-0.04)	(-0.05)	(-0.05)
Tobin's Q	-1.977**	-3.654***	-3.655***	-3.646***
	(-2.00)	(-3.23)	(-3.23)	(-3.23)
Intercept	-18.520	0.759	-3.430	-8.933
	(-1.14)	(0.05)	(-0.20)	(-0.48)
Adj. R-squared	0.248	0.200	0.199	0.199
Number of obs.	2,574	2,880	2,880	2,880

Source: Own creation

However, the range in the returns over the 253 days is quite large and the outliers can influence the parameter estimates. In the winsorized setting at the 1st and 99th percentiles the effect for *Weighted Alpha24* becomes smaller and is no longer statistically significant (see Appendix 3). However, *Top Alpha24* becomes significantly negative with a coefficient of -

0.402 at the 10% level. Compared to the effect of *Weighted Alpha24* in the previous analysis, this impact is much smaller. Nevertheless, it is surprising that the effect shows a negative direction as one would expect that more top funds among the owners indicates a better long-term performance of the M&A deals because highly skilled managers picked those acquirers.

The impact of the control variables differs noticeably from the baseline setting with the *CAR5*. Factors that are impacting the short-term announcement return, like the acquirer's size or the public status of the target, are not as important for the one-year abnormal returns. The method of payment seems to be more important. Like the finding in the regression of *CAR5* on the experience measure with the winsorized data, as well as cited in the literature, paying the transaction volume purely by equity has negative implications for the acquirer's announcement return (Travlos, 1987, pp. 944–946, 961). Though, in the one-year event window, the negative effect is significantly larger. When choosing equity as the only method of payment, *CAR253* decreases by approximately 15 percentage points in comparison to a purely cash payment or a combination of the two. The effect is mostly significant at the 5% level, in model 5 even at the 1% level. The dummy variable indicating a purely cash payment does not show a similar significant positive effect. Those differences for the control variables between short-term and long-term return can also be found by Chen, Harford and Li (2007). In their three-day CAR regression, they detect significant predictors in *Size*, *Private* and *Relative size* while in their long-term oriented buy-and-hold regression, those predictors lose their significance and *Equity* becomes a significant negative predictor (Chen, Harford and Li, 2007, pp. 290-291). As mentioned before, the acquirer's stock performance preceding the merger announcement is also highly significant. It also shows a strong negative effect on the *CAR253*. If holding the acquirer's stock for one year until the quarter prior to the announcement generates a return of 100% (A one-unit change in *Past return*), the abnormal announcement return over the subsequent year is predicted to fall by roughly 22 percentage points. This provides support for the contrarian hypothesis that outperforming stocks in the past are doing worse in the future. In the context of M&A deals this also supports Roll's hubris theory of managers who have performed well in the past and thus become overconfident and pursue worse M&A deals (Morck, Shleifer and Vishny, 1990, p. 33; Roll, 1986, pp. 199-201). Furthermore, the acquirer's Tobin's Q also shows a negative effect.

A possible caveat of those findings is that the calculation of cumulative abnormal returns over long-term periods can induce misspecifications. Conrad and Kaul (1993, pp. 43-46) argue that daily or monthly stock returns are subject to noise and due to the aggregation over

longer periods this effect enhances and can induce biased results. The often-observed over-reaction of the market towards past winning or losing stocks can partly be explained by this phenomenon. This explanation could also be the reason for the findings of *CAR253* and the observed strongly negative effect of past stock price runup.

Analyzing the change in ROA is therefore beneficial in two regards. First, it is not a cumulated measure and therefore bias is not a great concern. Second, the measure focuses on operative numbers and not market figures. Only the skill and the experience measure are considered in the following regression because just for those funds with superior stock picking abilities or experience it is expected that they are able to invest in better companies. For the size measure, this effect is not expected to be strong. It is predicted that the presence of larger funds and fund families signals a higher quality of the deal to the market, but it does not necessarily indicate that those acquirers improve their performance. Untabulated regression results confirm this view as they do not provide significant results across all size measures.

The results for the regressions using the change in the industry adjusted ROA as the dependent variable are presented in table 10. Those models do not provide evidence for the hypothesis of superior stock picking abilities of mutual funds in the M&A sector, either. In this regression only *Size* and *Past return* are constantly significant across the different models. Contrary to the previous analyses, which focus on the announcement returns, the two variables indicate a positive relationship towards the change in ROA. Even though larger acquirers show constantly lower announcement returns, those companies apparently are able to integrate the acquired companies better and create synergies which result in a higher operating performance.

In total, the robustness tests with the different performance measures do not detect a positive influence of top performing funds on the acquirer's announcement returns, either. Only the *Weighted Alpha24* shows a positive influence on the *CAR253*. However, this effect is presumably driven by some outliers and is not robust to the winsorized data. Possibly, stock picking skills are even more scarce than assumed. For additional robustness tests at the skill level, it is also possible to just evaluate the best shareholder per deal. This means that not an aggregated measure serves as a proxy for the skill of all shareholders but only the fund with the highest past Carhart alpha or the highest experience remains in the analysis.[12]

[12] Similar to Nain and Yao (2013, pp. 450-451).

Table 10 - Robustness test with ROA

These cross-sectional models regresses the ΔROA on the skill and experience measures. Model 1-4 show the results for the different skill measures. Model 5 analyzes the experience variable. All variables are defined in Appendix 1. All models include time fixed and industry fixed effects whose estimates are omitted. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer. ***, **, * indicate significance at the 1%, 5% and 10% level.

Explanatory variables	(1)	(2)	(3)	(4)	(5)
Top Alpha24	-0.001				
	(-1.36)				
Top Alpha Quarter		-0.000			
		(-1.16)			
Weighted Alpha24			0.004		
			(0.42)		
Weighted Alpha quarter				0.000	
				(0.43)	
Experience					0.001
					(0.56)
Top holdings	0.060	0.058			
	(0.98)	(0.83)			
Experienced holdings					-0.003
					(-0.04)
Other holdings	0.066	0.050			0.005
	(0.90)	(0.80)			(0.06)
Total holdings			0.047	0.044	
			(0.83)	(0.80)	
Size	0.007***	0.007***	0.006**	0.006**	0.005***
	(2.74)	(2.79)	(2.55)	(2.53)	(3.92)
Private	0.001	0.000	0.000	0.000	0.005
	(0.12)	(0.06)	(0.05)	(0.05)	(1.11)
Relative size	-0.003	-0.003	-0.003	-0.003	0.002
	(-0.50)	(-0.51)	(-0.54)	(-0.55)	(0.21)
Cash	-0.001	-0.001	-0.001	-0.001	-0.000
	(-0.27)	(-0.22)	(-0.26)	(-0.21)	(-0.01)
Equity	-0.032	-0.032	-0.032	-0.033	0.007
	(-1.10)	(-1.10)	(-1.10)	(-1.11)	(0.51)
Past return	0.011***	0.011***	0.011***	0.011***	0.016***
	(3.04)	(3.00)	(3.05)	(2.99)	(4.77)
Debt-to-assets	0.005	0.005	0.006	0.006	-0.014
	(0.29)	(0.30)	(0.32)	(0.34)	(-1.23)
Cash ratio	-0.000	-0.000	-0.000	-0.000	0.000
	(-0.02)	(-0.03)	(-0.01)	(-0.04)	(0.32)
Diversify	-0.000	-0.000	-0.000	-0.000	-0.002
	(-0.04)	(-0.09)	(-0.05)	(-0.04)	(-0.80)
Hostile	0.008	0.007	0.007	0.007	-0.002
	(0.50)	(0.41)	(0.43)	(0.41)	(-0.09)
Tobin's Q	-0.008	-0.008	-0.008	-0.008	-0.010***
	(-1.13)	(-1.12)	(-1.11)	(-1.12)	(-4.35)
Intercept	-0.124**	-0.117**	-0.097**	-0.095**	-0.073**
	(-2.52)	(-2.58)	(-2.41)	(-2.40)	(-2.55)
Adj. R-squared	0.025	0.025	0.025	0.025	0.052
Number of obs.	2,698	2,693	2,698	2,693	2,425

Source: Own creation

Table 11 - Robustness test with maximum variables

These cross-sectional models regresses the *CAR5* on the maximum variables per deal and the controls. All variables are defined in Appendix 1.
All models include time fixed and industry fixed effects whose estimates are omitted. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer. ***, **, * indicate significance at the 1%, 5% and 10% level.

Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)
Max Alpha24	-0.396					
	(-1.11)					
Max Alpha quarter		-0.029				
		(-0.61)				
Max experience			0.058			
			(0.80)			
Max fund size				0.026***		
				(2.87)		
Max fund family size					-0.001	
					(-1.14)	
Max family invested						0.009**
						(2.49)
Max holdings	0.197	7.828	10.214	-5.655	3.805	-3.117
	(0.02)	(0.60)	(1.02)	(-0.70)	(0.70)	(-0.52)
Other holdings	-3.415	-4.407	-3.076	-6.716	-6.628	-6.279
	(-1.07)	(-1.31)	(-0.89)	(-1.58)	(-1.39)	(-1.36)
Size	-0.155	-0.160	-0.256**	-0.385***	-0.136	-0.386***
	(-1.47)	(-1.49)	(-2.19)	(-2.93)	(-1.17)	(-2.66)
Private	1.624***	1.619***	1.116***	1.637***	1.634***	1.645***
	(4.50)	(4.50)	(2.81)	(4.56)	(4.50)	(4.57)
Relative size	0.369	0.372	0.136	0.380	0.380	0.365
	(0.76)	(0.77)	(0.10)	(0.80)	(0.79)	(0.77)
Cash	0.199	0.199	0.279	0.233	0.201	0.245
	(0.73)	(0.73)	(0.99)	(0.85)	(0.73)	(0.89)
Equity	-1.050	-1.045	-1.710	-1.029	-1.048	-1.040
	(-0.99)	(-0.99)	(-1.53)	(-0.97)	(-0.99)	(-0.98)
Past return	-0.173	-0.149	-0.249	-0.179	-0.174	-0.175
	(-1.34)	(-1.18)	(-0.76)	(-1.38)	(-1.34)	(-1.35)
Debt-to-assets	2.145**	2.149**	1.944*	2.170**	2.170**	2.276**
	(2.01)	(2.02)	(1.93)	(2.03)	(2.02)	(2.11)
Cash ratio	-0.120**	-0.119**	-0.153**	-0.124**	-0.123**	-0.125**
	(-2.09)	(-2.07)	(-2.48)	(-2.15)	(-2.14)	(-2.17)
Diversify	-0.362	-0.382	-0.259	-0.370	-0.334	-0.350
	(-1.11)	(-1.16)	(-0.76)	(-1.12)	(-1.02)	(-1.06)
Hostile	-3.274	-3.351	-3.329	-3.302*	-3.228	-3.281
	(-1.61)	(-1.64)	(-1.54)	(-1.65)	(-1.55)	(-1.64)
Tobin's Q	0.028	0.034	0.092	0.007	0.024	0.020
	(0.23)	(0.28)	(0.70)	(0.06)	(0.20)	(0.17)
Intercept	5.248**	5.003**	6.831**	9.496***	4.707*	9.544***
	(2.28)	(2.17)	(2.56)	(3.38)	(1.86)	(3.09)
Adj. R-squared	0.022	0.021	0.023	0.024	0.023	0.024
Number of obs.	2,879	2,873	2,574	2,880	2,880	2,880

Source: Own creation

In doing so, only the very right tail of the skill distribution is analyzed in which true stock picking abilities should be found. The variables are called *Max Alpha24*, *Max Alpha quarter* and *Max Experience*. The same argument can hold for the fund size. The largest fund or fund family could stand out from the rest and be a better signal for the market and for the acquirer's return. Therefore, also additional tests for *Max fund size*, *Max family size* and *Max family invested* are conducted. Because of the questionable validity of the *CAR253* measure, all tests are done with the *CAR5* and *ΔROA* performance measures, yet only the results for *CAR5* are tabulated.

The regression results in table 11 are in line with the previously shown effects. The coefficients for the skill and experience measures remain insignificant and thus even the strongest skill measures do not provide any evidence for the underlying hypothesis that better or more experienced fund managers are able to pick better acquirers. The previously obtained results for the size measures of the funds translate into the maximum setting and show similar effects. When evaluating the announcement returns, *Fund size* and *Family invested* still have a significant and positive effect of 3 basis points and 1 basis point per $1 billion increase in the measures. This positive relationship disappears when analyzing the change in ROA.

5.4 Alternative explanations

This chapter addresses additional explanations and theories that have not been addressed in the main model but could help explain the obtained results.

The possible confounding effect that can occur when analyzing the impact of a certain factor on M&A returns, is that the company is held by more institutional investors. Since this group of shareholders is often found to be beneficial for a company's performance, it is possible that this effect explains some of the detected impacts of the researched predictor. The models control for this possibility by including the *Total holdings* variable. However, researcher find that institutional ownership by itself does not always induce a higher M&A performance (Chen, Harford and Li, 2007, pp. 290-292). An increasingly number of scholars can find that especially larger and more long-term oriented investors are monitoring M&A deals (Gaspar, Massa and Matos, 2005, p. 149; Chen, Harford and Li, 2007, pp. 290-292).

As the skill and experience measures do not show a positive impact on the announcement returns, there is no reason to assume that such a possible confounding effect explains the results. For the size measures there is an observable positive effect on the *CAR5*. In table 11 the variable for the cumulated holdings of the largest funds (models 4-6), *Max ownership,*

are insignificant. Hence, the general variable for monitoring incentives does not indicate such an effect. However, there is the possibility that larger funds are also more long-term oriented which could explain the findings.

To test the possibility of existing monitoring institutions, different measures are created based on various ideas in the literature. Blockholders often serve as a proxy for the incentive of companies to monitor as those institutions have a high stake and a larger voting power (Schnatterly, Shaw and Jennings, 2008, p. 221). To be considered a blockholder, an institution usually has to own at least 5% of the shares (Chen, Harford and Li, 2007, p. 285). Actively managed mutual funds usually do not own that many shares of one and the same company. However, acquirers in this sample are held by multiple funds of the same fund family and it is often shown that mutual funds vote in accordance with their family's policy (Rothberg and Lilien, 2005, p. 1). Therefore, the shares of all funds belonging to the same family are accumulated in order to identify family *Blockholders* with a combined share of over 5%. Even though the accumulated holdings variables of all funds do not show a tendency to increase announcement returns, the presence of more blockholder families might.

Moreover, the fund's yearly turnover ratio is provided in the dataset and this measure can serve as a proxy for the fund's investment horizon. A higher turnover ratio indicates that the fund is actively changing the positions of its portfolio more frequently and thus would be considered a short-term investor. A common threshold for the determination of long-term owners is a turnover ratio of less than 35% meaning that the fund changed less than 35% of its portfolio over the last year. (Harford, Kecskés and Mansi, 2018, p. 428) Both measures are analyzed separately by summing up all the shares of those funds being classified as either a blockholder or a long-term institution. Additionally, both measures are combined and only those funds being both, a blockholder and a long-term investor, are marked as a monitoring institution. The cross-sectional regression also contains the variable *Other holdings* which is always the difference between the percentage of shares held by all funds and the variable of interest: *Blockholder ownership*, *Long-term ownership* or M*onitoring ownership*.

Table 12 - Regressions of CAR5 on monitoring proxies

These cross-sectional models regress the *CAR5* on different monitoring proxies. Models 1-3 analyze all funds in the dataset while models 4-6 focus on above median size funds. The variable *Small monitoring* is the remaing percentage of shares being held by a Blockholder, long-term or monitoring institution (depending on the model) that is not a large fund. All other variables are defined in Appendix 1.
All models include time fixed and industry fixed effects whose estimates are omitted. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer. ***, **, * indicate significance at the 1%, 5% and 10% level.

Explanatory variables	All funds			Large funds		
	(1)	(2)	(3)	(4)	(5)	(6)
Blockholder ownership	-4.309			-7.242		
	(-1.13)			(-1.06)		
Long-term ownership		-8.430*			-7.075	
		(-1.77)			(-1.09)	
Monitoring ownership			-8.592			-9.947
			(-1.52)			(-1.45)
Small monitoring				17.544	-23.854	19.907
				(0.39)	(-0.50)	(0.45)
Other holdings	-2.732	1.075	-1.087	-2.714	1.111	-1.066
	(-0.50)	(0.23)	(-0.27)	(-0.50)	(0.24)	(-0.26)
Size	-0.206**	-0.228**	-0.219**	-0.206**	-0.229**	-0.218**
	(-2.07)	(-2.24)	(-2.17)	(-2.06)	(-2.24)	(-2.16)
Private	1.623***	1.625***	1.617***	1.624***	1.626***	1.616***
	(4.49)	(4.51)	(4.48)	(4.49)	(4.51)	(4.48)
Relative size	0.399	0.396	0.394	0.400	0.394	0.395
	(0.83)	(0.83)	(0.82)	(0.84)	(0.82)	(0.82)
Cash	0.191	0.197	0.194	0.192	0.195	0.196
	(0.70)	(0.72)	(0.71)	(0.70)	(0.71)	(0.72)
Equity	-1.048	-1.031	-1.036	-1.050	-1.033	-1.039
	(-0.99)	(-0.97)	(-0.98)	(-0.99)	(-0.98)	(-0.98)
Past return	-0.175	-0.187	-0.178	-0.177	-0.187	-0.180
	(-1.35)	(-1.43)	(-1.37)	(-1.36)	(-1.43)	(-1.38)
Debt-to-assets	2.045*	2.027*	2.021*	2.039*	2.028*	2.014*
	(1.92)	(1.91)	(1.90)	(1.92)	(1.91)	(1.90)
Cash ratio	-0.122**	-0.126**	-0.125**	-0.122**	-0.126**	-0.125**
	(-2.13)	(-2.20)	(-2.18)	(-2.13)	(-2.20)	(-2.17)
Diversify	-0.337	-0.340	-0.331	-0.334	-0.342	-0.328
	(-1.03)	(-1.04)	(-1.01)	(-1.02)	(-1.04)	(-1.00)
Hostile	-3.314	-3.274	-3.317	-3.312	-3.278	-3.315
	(-1.62)	(-1.59)	(-1.61)	(-1.62)	(-1.59)	(-1.61)
Tobin's Q	0.026	-0.001	0.014	0.026	-0.001	0.014
	(0.22)	(-0.01)	(0.12)	(0.21)	(-0.01)	(0.11)
Intercept	6.027***	6.474***	6.282***	6.008***	6.502***	6.271***
	(2.67)	(2.83)	(2.77)	(2.66)	(2.83)	(2.76)
Adj. R-squared	0.022	0.023	0.022	0.022	0.022	0.022
Number of obs.	2,880	2,880	2,880	2,880	2,880	2,880

Source: Own creation

Table 12 shows the results of the different models using *CAR5* as the dependent variable. Models 1 to 3 are focusing on all shareholders. In models 4-6, the funds in the sample are marked as above or below median size. For those regressions, the three monitoring variables accumulate only the percentage of shares held by the above median size group.

Across all different models, there is no evidence that the monitoring institutions increase the *CAR5*. Neither all funds (models 1-3) nor the larger funds (models 4-6) indicate such a conclusion. On the contrary, the coefficient for long-term institutions in model 2 is significantly negative with an estimate of -8.43 at the 10% level. This means that the announcement return would fall by 8.43 percentage points if all the shares are held by the long-term institutions in the sample.

In the context of experienced managers, there could still be a hidden effect which is not revealed so far. Since the hypothesis focuses on the manager's ability to pick better acquirers in her industries of expertise, it does not address the possibility that highly experienced managers give advice to the management when bidding on a company in which they have a lot of experience. Therefore, the manager's experience is matched with the targets' Fama-French industry classification and not the one of the acquirers like before. Moreover, the average experience per deal is calculated by weighting the shareholder's individual experience with the percentage of shares that the manager holds. An experienced manager has a stronger influence on the management when being more important for the company in question.

Consequently, if a relationship is observed, one would assume that the effect is stronger during diversifying deals since that industry is less known to the management. In this case, the shareholders' expertise in that industry would become more valuable. Column 1 of table 13 displays the model with the adjusted experience measure and *CAR5* as the dependent variable. The results indicate that there is a positive relationship between the level of experience of the fund managers and the announcement returns. The coefficient of 0.355 suggests an increase by 0.355 percentage points per additional quarter of experience in the target's industry on average for every shareholder. This effect is significant at the 10% level. As expected, the effect is even stronger when analyzing only diversifying deals. Model 2 shows an increase in *CAR5* of 0.58 percentage points which is significant at the 5% level. However, this effect is not robust when using the *ΔROA* measure as the dependent variables. Neither the complete deal dataset in column 3 nor the subset of diversifying deals in column 4 shows a positive effect of *Experience*.

Table 13 - Alternative experience analysis

Cross-sectional regressions of *CAR5* and *ΔROA* on the experience proxy in the targets industry. Model 1 & 3 contrain the entire dataset. Model 2 & 4 focus on diversifying deals. *Experience* is the weighted average of the shareholders experience in the target's industry based on the measure of Kempf, Manconi and Spalt (2017). All other variables are defined in Appendix 1.
All models include time fixed and industry fixed effects whose estimates are omitted. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer. ***, **, * indicate significance at the 1%, 5% and 10% level.

Explanatory variables	Dependent variables			
	CAR5		*ΔROA*	
	(1)	(2)	(3)	(4)
Experience	0.356*	0.583**	0.002	-0.001
	(1.94)	(2.10)	(0.97)	(-0.47)
Experienced holdings	-1.039	1.880	0.045	0.146
	(-0.13)	(0.10)	(0.57)	(1.28)
Other holdings	5.357	3.420	-0.076	-0.242*
	(0.61)	(0.25)	(-0.90)	(-1.84)
Size	-0.248**	-0.405*	0.005***	0.006***
	(-2.41)	(-1.80)	(3.84)	(3.49)
Private	1.108***	1.901**	0.005	0.001
	(2.80)	(2.37)	(1.09)	(0.10)
Relative size	0.170	4.370	0.002	-0.006
	(0.13)	(0.98)	(0.22)	(-0.48)
Cash	0.292	0.349	-0.000	0.005
	(1.03)	(0.63)	(-0.05)	(0.99)
Equity	-1.743	-2.322	0.007	-0.005
	(-1.55)	(-1.18)	(0.49)	(-0.36)
Past return	-0.238	1.174	0.017***	0.021***
	(-0.73)	(1.08)	(4.88)	(4.12)
Debt-to-assets	1.782*	2.978	-0.015	-0.021
	(1.79)	(1.54)	(-1.31)	(-1.16)
Cash ratio	-0.149**	0.013	0.000	0.002
	(-2.44)	(0.13)	(0.39)	(1.17)
Diversify	-0.222		-0.002	
	(-0.65)		(-0.67)	
Hostile	-3.499	3.043*	-0.003	-0.000
	(-1.63)	(1.83)	(-0.15)	(-0.01)
Tobin's Q	0.068	0.234	-0.010***	-0.012***
	(0.51)	(0.87)	(-4.42)	(-3.64)
Intercept	6.516***	6.411	-0.069**	-0.079**
	(2.69)	(1.25)	(-2.40)	(-2.19)
Adj. R-squared	0.024	0.041	0.053	0.106
Number of obs.	2,571	725	2,422	695

Source: Own creation

5.5 Discussion

The goal of the thesis is to draw an inference of different characteristics of mutual funds on the announcement returns of M&A deals. Since the funds in the dataset are all single-managed funds, it is possible to analyze the abilities of the specific manager which would not be detectable when looking at team-managed funds. It is hypothesized that managers who have proven themselves in the past and showed that they can beat the market, are also better at picking acquirers. Furthermore, Kempf, Manconi and Spalt (2017, pp. 15-19) show that managers, that went through times of distress with their portfolio positions in certain industries, benefit from this experience in the future and can generate higher returns in those industries. Therefore, it is also tested whether the same effect can be observed for M&A activities and experienced managers invest in better acquirers. Finally, it is analyzed whether the individual managers' characteristics are irrelevant but simply the institutions' sizes have positive implications for the announcement returns.

The results for the regression of the *CAR5* on the different skill measures do not support the hypothesis 1 that highly skilled fund managers are able to pick better acquirers. The only significant results can be obtained by the *Weighted Alpha24* measure, but the findings are inconsistent. For *CAR5* it shows a negative, for *CAR253* a positive and for *ΔROA* a non-significant impact. Moreover, the variable is influenced by outliers since both significant effects disappear when considering the winsorized data. Even the strongest skill measures *Max Alpha24* and *Max Alpha quarter* do not provide evidence in favor of hypothesis 1. Consequently, the results are in contrast to Nain and Yao (2013, pp. 443-444) who find a positive and robust effect of fund skill on M&A performance. Since many other control variables are significant and in accordance with the existing literature on M&A returns, the overall sample seems reasonable. A difference between this thesis and the study of Nain and Yao (2013, pp. 439-440) is that the latter focuses solely on public targets and does not restrict the fund sample to single-managed funds. A reason for the different findings could be that primarily team-managed funds are responsible for the superior selection of good acquirers.

The results cannot provide support for the findings of Kempf, Manconi and Spalt (2017), either. Hypothesis 2 that managers with a higher experience are able to pick better acquirers in their areas of expertise is not confirmed. Thus, the observed effect of Kempf, Manconi and Spalt (2017, pp. 17-19) that managers perform better in the sub-portfolios in which they gained more experience does not result from the fact that they invest in better acquiring firms.

Overall, the results indicate that there is either no stock picking ability and the achieved past alpha is a result of luck and is not persistence in the future, or that active and highly skilled fund managers do not generate their performance with the selection of superior acquirers. It is probably a mixture between both arguments. Achieving alpha remains very difficult especially nowadays with instant and constant information flow. If a manager is truly better than the market, it is also more beneficial to use that skill by identifying possible merger *targets* since the returns for the acquirers are usually lower than the ones for the targets' shareholders (Fuller, Netter and Stegemoller, 2002, p. 1763; Capron and Pistre, 2002, p. 781). Consequently, it is more reasonably for the fund manager to identify undervalued companies which are subsequently bought at a premium. Matvos and Ostrovsky (2008, pp. 394-395) can find that many institutional shareholders are losing value during a merger from holding the acquirer but cover or even overcome these losses by being also a shareholder in the target company. Naturally, these shareholders are in a conflict of interest and are more likely to support a merger that has negative implications for the acquirer because they know they will be compensated through the gains of their target ownership (Matvos and Ostrovsky, 2008, p. 399). It is possible that also the best funds are exposed to such a situation and are promoting adverse deals because they still generate abnormal returns from the aggregated positions. This situation of cross-ownership can only occur when the target is a public company. But even for private deals, the fund families of active funds might be involved through their private equity departments and could influence their active mutual funds to accept or even promote adverse deals for the acquirer. This would not explain how the top funds achieve their alpha because the fund itself would lose on those deals, but it could explain why many top funds are also present during negatively perceived deals. Moreover, the experience measure is independent from the general abilities of the managers. Nevertheless, more experienced managers apparently do not use their knowledge to select better acquirers. This also supports the theory that even with potential superior information, the focus of investing lies on different areas.

Experience is still important, however differently than expected. There is rather evidence that experienced shareholders are able to help their holding companies to identify better targets. The announcement returns increase when the company announces a merge in an industry in which their shareholders have a higher experience. Whether or not a holding company announces a M&A in their industry of expertise cannot be known upon investing and thus is

not a result of superior stock picking. That companies benefit from their shareholders' experience is also shown by the circumstance that effect of *Experience* is higher when the deal is not in their own industry. Thus, the knowledge of the shareholders becomes more valuable for the company. Therefore, the results suggest a spillover effect of shareholder knowledge to the acquirer's management rather than superior stock picking based on their experience.

The additional tests also reveal that the often-cited relationship between institutional ownership and the corporate performance, which is said to exist because of the institutions' monitoring role, is not driven by actively and single-managed funds. The effect of long-term institutional ownership is significantly negative, while the other proxies for monitoring do not provide significant results. This is surprising since most of the literature advocates the opinion that long-term institutions are beneficial for the company's success during M&A deals (Chen, Harford and Li, 2007; Gaspar, Massa and Matos, 2005). Consequently, active mutual funds are not responsible for the observed effect and other institutions are more important in this regard. A possible reason represents the thesis' focus on single-managed funds. While individually managed funds might be better at beating the market (Chen et al., 2004, p. 1298; Baer, Kempf and Ruenzi, 2005, pp. 23-24), monitoring is probably not their focus. Observing M&A is very time-consuming and single-managed funds do not have the manpower to effectively supervise such transactions. Furthermore, when those funds have a long-term focus, their holdings are also not being punished for bad decisions by shareholders exiting the firm. Without that pressure this could induce them to undertake less favorable deals for the company and more favorable deals for themselves. This could be an explanation why especially the *Long-term ownership* is a significant negative predictor.

The second possible relationship is between the fund families' sizes and the market's attitude towards merger announcements of their holdings. The hypothesis claims that the market reacts more positively to the announcement if larger fund families are backing the deal. The results indicate that hypothesis 3 is partly true. However, not the fund family itself but the individual fund as well as the accumulated size of all invested funds belonging to the same family are having a positive impact on the announcement returns. The effect is even stronger for the individual fund than for the accumulated measure. Thus, the market reacts even more positively if on average larger funds are holding the acquirer. Consequently, hypothesis 4 is not supported.

The effect it presumably driven by the largest of all shareholder since the *Max Fund size* and *Max family invested* are also significantly positive. The results could be in line with the

monitoring hypothesis that the market values the presence of more powerful shareholders as they are more likely to be able to monitor. A large funds has many resources and apparently many investors have confidence in the fund manager's abilities. A smaller, maybe newly created, fund might have other priorities at its early stage or simply does not have the standing inside its holding companies in order to affect the management even if it belongs to a big family. An alternative explanation could be that the largest fund families, like BlackRock or Vanguard, are mostly known for their passive index funds (Fichtner, Heemskerk and Garcia-Bernardo, 2017, p. 304). Thus, the presence of one of their actively managed funds during a merger announcement, especially if the fund being invested is small, might not be the best quality signal for the market. Those families are better off making use of their large passive blockholdings if they want to influence their portfolio firms.

That the observed impact is truly because of the reputation and the perception of the market and not actually because of the monitoring abilities of larger funds can also be shown. The monitoring measures for the larger funds are not significant, nor is the *Max holdings* variable in the columns 4-6 in table 11 which could indicate more power over the management. Moreover, the tests on more long-term oriented measures like *CAR253* or *ΔROA* show that larger funds do not influence the management into more beneficial deals over the long-term. The theory of the superior reputation is also supported by studies showing that larger funds are generally underperforming (Barras, Scaillet and Wermers, 2010, p. 182; Chen et al., 2004, pp. 1285-1286). Hence, the positive impact on the announcement returns is not due to superior stock picking abilities.

5.6 Limitations and further research

In order to evaluate the validity of the obtained results, it is necessary to address some weaknesses and limitations of this thesis.

First of all, the most common method to evaluate M&A deals is to compare the abnormal stock returns around the announcement. Though, announcement returns are not perfectly suited as companies often additionally declare other positive information alongside the merger announcement (Fuller, Netter and Stegemoller, 2002, p. 1770). Thus, a merger could be identified as positive even though the positive reaction was based on other news unrelated to the merger announcement. Moreover, short time frames are often subject to noise in the market because of its uncertainty about the transaction volume or successful execution of the deal (Chen, Harford and Li, 2007, p. 287). Furthermore, the announcement of a merger

reflects more than just the assessment of the deal's quality. It also reassesses the true value of the acquiring company (Harford, Humphery-Jenner and Powell, 2012, p. 255). Roll (1986, p. 213) also addresses the problems with announcement returns and states that some deals are also anticipated beforehand and thus the effect at the actual announcement might be weaker than it actually is because this information is already reflected in the share price. Moreover, the effect of mergers of larger companies can remain unnoticed since their share price is more volatile and the merger effect can be hidden by the noise in the acquirer's return.

In addition to that, M&A deals are complex decisions and it is hard to account for all the influencing factors. The predictive power of the models in this study are very low. Thus, confounding variables could still exist which alter the results and effects of the variable of interest. Omitting significant variables can bias the estimates of the included parameters (Auer and Rottmann, 2015, pp. 481-482). For example, the quality of the acquirer's board has not been addressed in this study even though it is most likely that highly skilled fund managers are better at identifying well-governed firms and they are eager to invest in those companies.[13] Well-governed firms, on the other hand are also more likely to be better at pursuing M&As. Since the direction of the effect would be positive as it affects both the number of top fund owners and the announcement returns of the deals positively, this cannot explain the missing findings of this thesis. However, it illustrates the possibility of misinterpreting certain impacts.

As the analyses of the thesis only address the ownership of actively managed mutual funds and their impact on the acquirer, no information is revealed about other institutional shareholders like passively managed or hedge funds. It could be that there is a dependency between certain institutions. This could also be a future research topic because it is stated in the literature that hedge funds are attracted to targets with a higher share of institutional owners (Brav et al., 2008, p. 1732). Since hedge funds usually do not obtain a majority stake in a firm, they need further support of other shareholders for their activist campaigns and it is easier for them to work with sophisticated investors. Thus, maybe especially highly skilled or more experienced managers attract hedge funds because they might share the same agenda. Again, in this case one would expect rather an improvement and therefore a more positive impact of the skill and experience measure if they attract further hedge funds. Those

[13] There are studies showing that institutional investors are attracted to well-governed companies, see Chung and Zhang (2011, pp. 254-255).

institutions are generally associated with achieving a higher performance for the company they target with their activist campaigns (Clifford, 2008, pp. 328-329).

In the light of cross-ownership, it would be interesting to evaluate whether mutual funds that belong to an investment firm with a large private equity department are influenced by its ownership. It could be that they vote differently if one of their holdings plans to acquire a target which is held by the family through a private equity ownership.

Lastly, the idea of the experience measure of Kempf, Manconi and Spalt (2017) is an interesting and not much explored setting in the literature. This leaves room for further investigations whether and how much the company's management benefits from its shareholders' knowledge. For example, one could analyze whether experienced shareholders block certain deals in their industry of expertise which would be adverse for the company. Additionally, an evaluation whether the number of experienced owners increases shortly before a profitable M&A announcement could reveal interesting insights. Due to their expertise in that industry they might be able to anticipate positive deals.

6 Conclusion

When analyzing companies and trying to understand why they act as they do and why certain companies are more successful than others, researchers turn their emphasis increasingly often towards the shareholders of the company. The largest companies are owned by a variety of different entities, from the individual person to larger institutions. Many researchers can show that especially some institutional investors significantly impact corporate decisions. This is due to their incentives and possibilities to effectively monitor their holding companies because they have large stakes invested in the companies. Some institutions are even more active and promote change inside a company through shareholder proposals (Gillan and Starks, 2000, p. 276).

M&A announcements are often in the center of the research because those decisions can heavily impact the shareholders' value. It is found that especially long-term oriented institutional shareholder which own a large stake inside the company, can improve the M&A performance for the acquiring companies (Chen, Harford and Li, 2007). Others argue that institutions are less active as monitors but are able to select well-performing companies what leads to a higher institutional ownership for successful acquirers (Nain and Yao, 2013).

This study particularly addresses the impact of certain characteristics of mutual funds on M&A performance. The fund managers skill and experience as well as the fund's size or

reputation are the focal point of this thesis. The results contribute to the rich literature on M&A returns but scarce research on the role of a fund manager's skill and experience in this setting. The thesis documents that no significant influence of the fund manager's skill on the M&A performance can be found. The size of the funds holding an acquirer, on the other hand, does significantly influence the returns of their holdings following a M&A announcement. The market reacts more positively when on average larger funds are holding an acquirer. Finally, experienced managers might not be able to pick better acquirers in their industry of expertise but can assist them to select better targets in those industries. Additional tests reveal that actively single-managed mutual funds in general are not improving the M&A performance, even the ones owning a larger block of shares and being more long-term oriented.

In conclusion, skilled fund managers are not able to pick better acquirers, nor are they able to improve them in order to gain abnormal returns through M&A. Consequently, there higher alpha must be achieved in different areas. Furthermore, actively single-managed mutual funds are not contributing to the observed effect of monitoring by long-term oriented investors. Other institutions that have larger stakes invested or a longer investment horizon must fulfill this task. While the presence of skilled managers does not affect market returns, the size of the fund does. One can conclude that the fund size which is easier to observe induces a stronger quality signal to the market than individual managers.

7 Appendix

Appendix 1 - Variables description

Variable	Description
Dependent variables	
CAR5	Cumulative abnormal announcement return over the [-2, 2] event window adjusted by the Carhart four-factor model. The returns are multiplied by the factor 100.
CAR253	Cumulative abnormal announcement return over the [-2, 250] event window adjusted by the Carhart four-factor model. The returns are multiplied by the factor 100.
ΔROA	Industry adjusted change in ROA measured at the fiscal year end from t-1 until t+1 with t being the year of the announcement.
Independent variable	
Cash	Dummy variable equal to one if the deal is paid purely by cash and zero otherwise.
Cash ratio	The acquirer's cash ratio at the end of the quarter prior to the announcement.
Debt-to-assets	The acquirer's debt-to-assets ratio at the end of the quarter prior to the announcement.
Diversify	Dummy variable equal to one if the Fama-French 12 industry classifications of the target and the acquirer differ and zero otherwise.
Equity	Dummy variable equal to one if the deal is purely paid by stock and zero otherwise.
Experience	Weighted average experience measure after Kempf, Manconi and Spalt (2017) for all the fund managers holding the acquirer in the quarter prior to the announcement.
Experienced holdings	Cumulated percentage of shares held by managers with an experience measure greater zero.
Family invested	Weighted average of the cumulated AUM (in $bn) of all funds invested in the acquirer and belonging to the same fund family.
Fund family size	Weighted average of the AUM (in $bn) of all the fund families which are invested by at least one of their funds in the acquirer.
Fund size	Weighted average AUM (in $bn) of all funds being invested in the acquirer.
Hostile	Dummy variable equal to one if the SDC database describes the deal as "hostile" and zero otherwise.
Max Alpha24	Highest Carhart alpha over the past 24 months of all fund managers invested in the acquirer.
Max Alpha quarter	Highest Carhart alpha over the past quarter of all fund managers invested in the acquirer.
Max Experience	Highest experience measure of all fund managers invested in the acquirer.
Max fund size	Largest fund being invested in the acquirer measured in AUM (in $bn).
Max fund family size	Largest fund family being invested in the acquirer with at least one of their funds measured in AUM (in $bn).

Appendix 1 - Continued

Variable	Description
Independent variable	
Max family invested	Largest cumulated AUM of all funds being invested in the acquirer and belonging to the same fund family.
Max holdings	Percentage of shares held by the max variables.
Other holdings	Difference between *total holdings* and the respective holdings of the variable of interest.
Past return	Buy and hold return of the acquirer based on quarterly stock prices from Q-5 until Q-1 where Q is the quarter of the merger announcement.
Private	Dummy variable equal to one if the target is a private company and zero otherwise.
Relative size	Ratio of the deal's transaction volume to the acquirer's market capitalization at the end of the quarter prior to the announcement.
Size	Natural logarithm of the acquirer's market capitalization at the end of the quarter prior to the announcement.
Tobin's Q	The acquirer's Tobin's Q at the end of the year prior to the announcement.
Top Alpha24	Number of funds holding the acquirer which are ranked in the top quartile in the quarter prior to the announcement based on the past Carhart alpha of the past 24 months.
Top Alpha quarter	Number of funds holding the acquirer which are ranked in the top quartile in the quarter prior to the announcement based on the past Carhart alpha of the past quarter.
Top holdings	Percentage of shares held by top funds.
Total holdings	Percentage of shares held by all mutual funds invested in the acquirer.
Weighted Alpha24	Weighted average of the Carhart alpha of the past 24 months of all managers invested in the acquirer.
Weighted Alpha quarter	Weighted average of the Carhart alpha of the past quarter of all managers invested in the acquirer.

Source: Own creation

Appendix 2 - Winsorized regression of CAR5 on skill measures

For these regressions all continous variables have been winsorized at the 1st and 99th percentiles.
Cross-sectional OLS regression of the *CAR5* on the different skill measures.
The variables are explained in the Apendix 1. All models include industry and year fixed effects whose estimates are omitted. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer. ***,**, * indicate the significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)
Top Alpha24	0.022			
	(0.64)			
Top Alpha quarter		0.013		
		(0.42)		
Weighted Alpha24			-0.891*	
			(-1.68)	
Weighted Alpha quarter				-0.040
				(-0.57)
Top holdings	-1.747	4.970		
	(-0.32)	(0.78)		
Other holdings	-3.930	-5.013		
	(-0.92)	(-1.33)		
Total Holdings			-2.054	-1.575
			(-0.67)	(-0.51)
Size	-0.299**	-0.277**	-0.249***	-0.244***
	(-2.41)	(-2.31)	(-2.84)	(-2.78)
Private	1.104***	1.111***	1.128***	1.119***
	(3.17)	(3.19)	(3.23)	(3.21)
Relative size	-1.663*	-1.635*	-1.647*	-1.630*
	(-1.85)	(-1.82)	(-1.83)	(-1.81)
Cash	0.126	0.114	0.127	0.129
	(0.48)	(0.44)	(0.49)	(0.49)
Equity	-1.162	-1.169	-1.183	-1.139
	(-1.40)	(-1.41)	(-1.42)	(-1.37)
Past return	-0.181	-0.204	-0.230	-0.181
	(-0.65)	(-0.74)	(-0.83)	(-0.65)
Debt-to-assets	1.815*	1.762*	1.857*	1.805*
	(1.90)	(1.85)	(1.95)	(1.91)
Cash ratio	-0.135*	-0.139*	-0.146*	-0.136*
	(-1.70)	(-1.73)	(-1.83)	(-1.70)
Diversify	-0.524*	-0.518*	-0.522*	-0.518*
	(-1.79)	(-1.77)	(-1.77)	(-1.76)
Hostile	-2.272	-2.245	-2.190	-2.229
	(-1.21)	(-1.20)	(-1.19)	(-1.19)
Tobin's Q	0.034	0.034	0.019	0.032
	(0.27)	(0.27)	(0.15)	(0.26)
Intercept	8.035***	7.578***	7.200***	6.942***
	(2.99)	(2.91)	(3.48)	(3.36)
Adj. R-squared	0.026	0.026	0.027	0.026
Number of obs.	2,873	2,873	2,873	2,873

Source: Own creation

Appendix 3 - Winsorized regression of CAR253

Cross-sectional regressions of *CAR253* on all variables of interest with the dataset winsorized at the 1st and 99th percentiles. Models 1-4 show the results for the various skill measures. Model 5 uses the experience measure as the explanatory variable. Models 6-8 are analyzing the different size measures. All variables are explained in Appendix 1.
All models include time fixed and industry fixed effect whose estimates are omitted. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity and clustering by acquirer. ***, **, * indicate significance at the 1%, 5% and 10% level respectively.

Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Top Alpha24	-0.402*							
	(-1.71)							
Top Alpha quarter		-0.166						
		(-0.72)						
Weighted Alpha24			3.404					
			(0.95)					
Weighted Alpha quarter				0.472				
				(0.95)				
Experience					-0.486			
					(-0.45)			
Fund family size (in $bn)						0.013		
						(1.11)		
Fund size (in $bn)							-0.044	
							(-0.29)	
Family invested (in $bn)								-0.045
								(-1.30)
Top holdings	-34.147	-14.316						
	(-0.96)	(-0.34)						
Experienced holdings					-108.091*			
					(-1.91)			
Other holdings	-12.699	-28.355			-28.427			
	(-0.43)	(-1.08)			(-0.56)			
Total holdings			-31.030	-25.847		-38.667*	-26.977	-24.971
			(-1.45)	(-1.20)		(-1.68)	(-1.19)	(-1.15)
Size	0.634	0.102	-0.282	-0.317	-0.393	-0.487	-0.137	0.261
	(0.75)	(0.12)	(-0.48)	(-0.55)	(-0.64)	(-0.74)	(-0.19)	(0.34)
Private	0.443	0.173	0.141	0.088	-0.468	0.718	0.502	0.473
	(0.19)	(0.07)	(0.06)	(0.04)	(-0.20)	(0.30)	(0.21)	(0.20)
Relative size	1.636	1.545	1.351	1.320	-0.272	3.151	3.062	3.158
	(0.34)	(0.32)	(0.28)	(0.28)	(-0.05)	(0.65)	(0.63)	(0.65)
Cash	2.006	1.993	2.004	1.983	0.772	2.124	2.009	1.887
	(1.06)	(1.06)	(1.06)	(1.05)	(0.41)	(1.13)	(1.07)	(1.00)
Equity	-14.104***	-14.182***	-14.129***	-14.279***	-11.971**	-14.393***	-14.422***	-14.429***
	(-2.83)	(-2.85)	(-2.85)	(-2.87)	(-2.34)	(-2.89)	(-2.89)	(-2.90)
Past return	-50.747***	-50.655***	-50.498***	-50.771***	-48.277***	-50.403***	-50.395***	-50.412***
	(-24.59)	(-24.54)	(-24.26)	(-24.73)	(-21.91)	(-24.70)	(-24.74)	(-24.83)
Debt-to-assets	9.329	9.019	9.269	9.100	10.380	8.676	8.558	7.980
	(1.41)	(1.36)	(1.40)	(1.38)	(1.51)	(1.31)	(1.29)	(1.21)
Cash ratio	-0.431	-0.419	-0.384	-0.434	-0.315	-0.429	-0.414	-0.396
	(-0.72)	(-0.70)	(-0.64)	(-0.72)	(-0.49)	(-0.72)	(-0.69)	(-0.66)
Diversify	1.343	1.207	1.254	1.258	1.918	1.389	1.405	1.418
	(0.68)	(0.61)	(0.63)	(0.63)	(0.93)	(0.69)	(0.70)	(0.71)
Hostile	2.096	1.499	1.344	1.401	0.543	0.903	0.854	0.753
	(0.16)	(0.11)	(0.10)	(0.11)	(0.04)	(0.07)	(0.06)	(0.06)
Tobin's Q	-2.218**	-2.228**	-2.180**	-2.209**	-1.733*	-2.274**	-2.270**	-2.284**
	(-2.26)	(-2.27)	(-2.22)	(-2.25)	(-1.77)	(-2.31)	(-2.31)	(-2.33)
Intercept	-24.178	-14.057	-6.996	-6.123	-6.484	-1.322	-7.947	-15.728
	(-1.32)	(-0.78)	(-0.50)	(-0.44)	(-0.44)	(-0.09)	(-0.50)	(-0.92)
Adj. R-squared	0.299	0.298	0.298	0.298	0.274	0.298	0.298	0.298
Number of obs.	2,873	2,873	2,873	2,873	2,574	2,880	2,880	2,880

Source: Own creation

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