THE EFFECT OF INSTITUTIONAL OWNERSHIP ON ABNORMAL M&A RETURNS

RADBOUD UNIVERSITY
Nijmegen School of Management
Master's thesis – August 2020

Abstract

This thesis empirically analyses the effect of institutional ownership on the abnormal returns of an M&A-announcement. Literature stipulates that institutional activism as a corporate governance mechanism decreases wasteful management behaviour and provides positive effects to an M&A-announcement's returns. Using OLS-analyses and adopting marginal analyses it is shown that this is not the case. Robust results are presented showing that institutional ownership in the U.S.A., the U.K. and Japan provides negative effects on the returns of M&A-announcements in between 2009 and 2019. More importantly, it is found that firms with a dispersed institutional ownership structure, a small amount of assets and a smaller market capitalisation are the driving force behind the negative effects of institutional ownership on the CARs of an M&A-announcement.

Keywords: Mergers & Acquisitions; Corporate Governance Mechanisms; Institutional ownership; Institutional activism; Marginal Analysis

---

Author: Vleugels, S.W.A. (Sjoerd)
Student ID: 4463544
Supervisor: dr. D. T. Janssen
Specialisation: Corporate Finance & Control

Summary

Corporate governance mechanisms are put in place to ensure shareholders of a return on their invested capital. Institutional investors, typically long-term and low-risk investors, are an external corporate governance mechanism as they, via institutional activism, pressure management to ensure solid returns without excessive risk-taking. When a firm with institutional owners conducts an M&A it is hypothesised to be a decision which provides positive CARs for the acquiror. As the foundation of a financial system matters it is furthermore hypothesised to be the case that control-based economies, such as Germany and Japan, observe less value-destroying M&As when compared to market-based economies, such as the U.S.A. and the U.K. This is because control-based economies have more internal controls within firms via the relationships with their stakeholders. Lastly, it is hypothesised that firms which have alternative investors, such as private equity holders, hedge funds managers and venture capitalists, observe positive returns on the CARs of an announcement. This as these alternative investors, which are denoted by their alternative investment strategies being short-term, leveraged or start-up investments, are investors which partake in less, albeit more profitable M&A-opportunities. A variety of OLS-analyses are conducted to show what the effect of institutional ownership is on the CARs of an M&A-announcement. Evidence is provided that there is a significant negative and robust effect of institutional ownership on the CARs of an M&A-announcement. Deeper analyses on the marginal effects of a self-constructed *HH-Institutional* Index, *Assets*, and *Market Capitalisation* interacted with the ownership data indicate that the negative effects of institutional ownership are only present for firms which have a dispersed institutional ownership structure, little assets and a small market capitalisation.

Acknowledgements

As no thesis process depends solely on the author itself many thanks go out to those aiding to the process. Special gratitude goes out to my supervisor dr. Dirk-Jan Janssen for providing feedback and comments during the process, and stimulating an independent workflow, drs. Maarten Gubbels for his help on data-gathering and -processing, and Lamar Crombach MSc, PhD-student at ETH Zürich, for his inspiring ideas and being a great discussion partner.

Table of contents

1. Introduction....1
2. Literature Review....4
2.1 Institutional control....4
2.2 Different Financial Systems....7
2.3 Alternative Shareholder Activism....8
3. Data & Methodology....10
3.1 Data-collection....10
3.2 Dependent variables....11
3.3 Independent variables....14
3.3.1 Herfindahl-Hirschman Institutional Index....15
3.4 Control variables....16
3.4.1. Firm-specific controls....16
3.4.2. Deal-specific controls....18
3.4.3. General controls....20
3.5 Statistical tests....21
4. Results....24
4.1 OLS-estimations....24
4.2 More is always better?....27
4.3 A big Deal?....29
5. Conclusion & Discussion....31
5.1 Conclusion....31
5.2 Discussion....32
5.3 Recommendations....34
6. References....36
7. Appendix....42

1. Introduction

Mergers & acquisitions (M&As) are one of the most prominent corporate restructuring phenomena aimed at creating shareholder value (Baker & Kiymaz, 2011). The market of corporate control has seen booms and busts throughout history yet saw a total value of 3,7 trillion U.S. Dollars in 2019 (Institute for Mergers, Acquisitions and Alliances, 2020). Restructuring activities are believed to be necessary to retain and increase shareholder value. Research on the returns of such activities has been abound (Bruner, 2004). Conclusions overall point towards positive returns for those to be acquired whereas those which acquire generally yield little or even negative returns on their restructuring adventures, where overall only 20% of the M&As actually succeed (Atkas, Croci & Simsir, 2015; Bruner, 2002; Grubb & Lamb, 2000). The debate as to why M&As still happen in such a gigantic fashion is one which is far from being settled.

Corporate restructuring is a broad concept which can be dissected into two main restructuring activities, being either financial or operational (DePamphilis, 2015). Financial restructuring concerns how companies are financed, regarding their debt structure and dividend policy. Operational restructuring relates to how firms alter their ways of doing business, implying a joint venture, a spin-off, a merger, or an acquisition. Doing so is believed to benefit shareholders as firms can lose their competitive edge or the environment they are in is changing. Restructuring decisions are typically made without direct consultation of the owners, namely with management's discretion.

As history has pointed out that management does not always act in the best interest of the owners, corporate governance mechanisms (CGMs) are put in place. A great body of literature has considered the CGMs which are assumed to govern the separation of ownership within firms (Fama & Jensen, 1983; Gillan, 2006). The goal of CGMs is to ensure a return for shareholders. These mechanisms consist of internal forms such as a board of directors and incentive systems, and of external forms such regulations, auditing standards and markets (Gillan, Hartzell & Starks, 2004; Gillan, 2006). The latter is of particular interest here. Markets monitor companies for obvious reasons: they are the capital providers and they vote on who becomes the management. The market for corporate control is one that often gets media-attention as large amounts of dollars in take-over deals make good headlines. As the magnitude of the market for corporate control has a size of 3,7 trillion U.S. Dollars, it is worth mentioning. The market for corporate control finds its origin in the fact that the providers of capital want a pay-off on their invested capital. Investors monitor the management, which they put in place

for their capability to run a firm and ensure returns for the shareholders. When this monitoring shows that management is not adding shareholder value to their invested capital the investors will sell their invested capital. Poorly managed firms generally observe declining profits which implies that less dividends can be paid out to shareholders after which shares in the company are sold, resulting in declining stock prices. The decrease in stock prices leads to the firm being worth less than its fundamental, making it a takeover target. When the firm is taken over this consequently leads to the possibility of job loss for the management team when they are held accountable for the declining profits. Jensen & Ruback (1983) argue that the market for corporate control can be described best as a market for the right to manage corporate resources in which the managers compete with each other. When the competition for a management position is stronger than the current management team the market for corporate control will grant the right to another management team, in the form of a take-over.

This market for corporate control in combination with the capital markets is made up of all kinds of actors. Private equity and hedge funds make headline news when they purchase stock. Yet, the majority of shareholders are institutional investors (OECD, 2019). These investors are pension funds, insurance companies, mutual funds and government investment vehicles (Chung & Zhang, 2011). The investors apply a buy-and-hold strategy, regular dividend payments, providing market-conform returns to their shareholders, which are pensioners, common citizens and policy holders. These investors are thus regarded as the more prudent investors (Grinstein & Michealy, 2005).

As institutional investors are generally defined by their investment horizons, being long term with concentrated shareholdings and independence from management, institutional investors generally have bigger monitoring incentives (Ramalingegowda & Yu, 2012). Monitoring incentives, which decrease the information asymmetry, are more abound in the form of external corporate governance mechanisms where management is checked more rigorously (Gillan, 2006; Chaganti & Damanpour, 1991; Ramalingegowda et al., 2012). As blockholders of large amounts of shares, institutional owners have more incentives to actively monitor what management is doing and they can use their voting power to keep management in line. This is commonly referred to as institutional activism (Goranova, Dharwadkar & Brandes, 2010). Institutional activism can thus be an external CGM to ensure a solid return for the shareholders.

As there are theories abound regarding CEO-overconfidence, in general but also specifically regarding M&As, it could be the case that the presence of institutional investors might provide resistance towards management when they are bound to undertake a value-destroying M&A (Malmendier & Tate, 2008). Chung et al. (2011) stresses that when

institutional investors owns more shares in a firm the quality of CGMs strongly improves. As the goal of CGMs is to ensure the providers of capital of a return on their invested capital this can be seen as a control mechanism to slow down the undertaking of wasteful projects, in particular shareholder value-destroying M&As (Shleifer & Vishny, 1997).

Literature, to this date, does not provide a concise answer regarding the effectiveness of institutional activism as a CGM in M&As. Therefore, the research question of this thesis is:

What is the effect of institutional ownership on abnormal M&A-returns?

This thesis will continue as follows. Chapter 2 will provide an overview of relevant literature as well as a theoretical foundation for the hypotheses. Chapter 3 will elaborate on the data and methodology applied. Chapter 4 will show the results of the performed tests. Chapter 5 will summarise the conclusion, open a discussion on the findings and tackle limitations which open the door for future research.

2. Literature Review

Jensen & Meckling (1976) state that managerial behaviour at its core can best be explained by the ownership structure and the separation of ownership. As a potential M&A-decision is made by management, it is important to consider what theories influence the core of these decisions and what external factors exist alongside of it.

2.1 Institutional control

The agency theory defines an agency relationship as an agreement between two actors in which one is subordinate (agent) to the other (principal) (Eisenhardt, 1989). The root of the agency problem stems from an information asymmetry where the principal and the agent have different goals and there is a constraint to observe each other's actions. In economics this theory is readily applied. The principal gives the agent the right to conduct business in the name of the principal whilst the efforts of the agent are limitedly, or not at all, observable. The agent needs to be given this right to conduct business in the principal's name. Property rights theory specifies the individual rights in the determination of who owns what and how one can determine how to manage their firm. These theories, in combination with how a firm is financed via its capital structure, can be combined into a framework which explains the separation of ownership and control (Fama et al., 1983). In the end the rightful owners of a firm give the control of their firm to a group of managers who are then to act in the best interest of the owners.

Agency theory states that the difference in goals between the principal and the agent can lead to opportunistic behaviour. Due to limited monitoring possibilities and the assumption that every economic actor acts in his self-interest the agent can misuse the given power for their own good. This implies that the agent does not safeguard the interests of the shareholders. To overcome this issue CGMs have been put in place.

These CGMs are channels through which the providers of capital, the principals, ensure themselves of a positive return (Shleifer et al., 1997). These mechanisms are designed to ensure that the managers, i.e. the agents, act in the best interest of the financiers. CGMs are either internal or external (Gillan, 2006). The internal governance structures can be subdivided into the board of directors, managerial incentive systems, capital structures, bylaws, and internal controls systems. The board of directors concerns the role, size, independence, appointment, and compensation for managerial positions. Managerial incentives generally involve the (extra) compensation schemes to provide incentives. Gillan (2006) states that the amount of debt is a self-enforcing governance mechanism. The capital structure applies to the amount of outstanding debt a firm has. Debt implies interest payments that need to be made which forces

management to generate enough cash to meet its obligations. This also mitigates the agency costs of free cash flows (Grossman & Hart, 1982). Large amounts of free cash flows pose a problem as management could be using this for empire building, wasteful purposes, and entrenchment of their positions. Through the capital structure a trade-off is made between the agency costs of debt and the agency costs of equity and it is seen as a form of control on the management team. Next to that are bylaws which are put in place to protect the firm by providing anti-takeover measures aimed at ensuring to withhold unsolicited takeovers. Lastly are internal control systems which include codes of ethics to overcome potential unlawful behaviour as observed with for instance the Enron scandal.

The external CGMs are outside the firm's direct sphere of control (Gillan, 2006). These concern laws and regulations, markets, ownership structures, accounting standards, information channels and external oversight bodies. Accounting rules and other related financial services concern auditing standards, liability insurances and services provided by investment banks. External oversight involves media attention, private sources, and potential legal matters such as lawsuits. Markets, as a collective term, can be subdivided into a plurality. Markets are involved in the product markets regarding the goods the firm sells. Next to that is the labour market for managerial and directional employees. The earlier mentioned market for corporate control, is also an external influencer as this market punishes the management team for not handling the firm properly which then leads to a hostile takeover. The capital structure is an external mechanism as the capital structure, the division between debt and equity, has effects on the rating of the firm's debt and the voting power that the holders of equity have. Capital markets also influence the ownership structure.

Ownership structures are of importance when it comes to external governance. Ownership structures directly influence the agency problem of the firm. A dispersed ownership structure leads to a potential free-riders problem regarding monitoring of the management. A dispersed ownership structure has many shareholders which all hold a stake in the firm. None of these shareholders have the incentive to exercise monitoring activities as the reward does not weigh up to the cost of it. Next to that is the fact that all other shareholders will benefit from the monitoring activities conducted at no cost, better known as the free-riders problem of monitoring.

A concentrated ownership structure tends to yield more extensive monitoring and more control on management (Guriev, Lazareva, Rachinsky & Tsouhlo, 1993; Tsionas, Merikas & Merika, 2012). With a concentrated ownership the free-riders problem becomes smaller as shareholders now have the incentive to monitor. This stems from the fact that blockholders are

more inclined to protect their investments. As mentioned before, institutional investors generally are more prudent and these conservative investors buy-and-hold shares within a firm to ensure a solid return (Eakins, Stansell & Wertheim, 1998; Grinstein et al., 2005)**.** They also tend to hold larger blocks of stock and exercise more monitoring activities on the management (Ramalingegowda et al., 2012).

Institutional ownership is an important facet of external governance. Hartzell & Starks (2003) claim that the concentration of institutional investors generally tends to limit the agency problem that many listed companies face. Institutional investors are more prudent and conservative investors which is shown by their tendency to avoid extreme risks (Eakins et al., 1998). When the ownership structure of a firm comprises institutional investors the monitoring activities will be more abound and control on the management will be stronger.

Smith (1996) in an event-study on the Californian Public Sector pension fund found that shareholder activism by institutional investors, also known as institutional activism, has positive effects on the targeted companies regarding changes made in these companies. These positive effects are shown in higher operating performance and stock prices. Institutional activism thus aids in decreasing the agency problem and other forms of wasteful behaviour. Gillan (2006) proclaims that institutional activism is a form of external governance where blockholders act as a controlling factor on management. This ought to mean that when management is not acting in the best interest of these blockholders the institutional investors will act on it (Gillan & Starks, 2000). Blockholders thus push management to maximise shareholder value.

The framework of external governance should aid in overcoming the agency problem stemming from the separation of ownership and control. Decisions made by management considering the separation of ownership also involve choices made regarding M&As. Often M&As are conducted as management believes it is a shareholder value enhancing move. Research, however, has pointed out that this often is not the case and signals towards the fact that CEOs, who are ultimately responsible for such decisions, fall victim for overconfidence and detrimental managerial links (Berger & Ofek, 1996; Malmendier et al., 2008; Ishii & Xuan, 2014). This results in value-destroying M&As which ultimately harm shareholders. CGMs exist to ensure shareholder returns and its external mechanisms, institutional ownership in particular, should play an essential role here. This can help avoid wasteful projects, institutional ownership with its blockholdings, monitoring activities and institutional activism should control for this. This leads to the first hypothesis of this thesis:

H1: *The presence of institutional investors has a positive effect on the CARs of M&As*.

The presence of these investors is hypothesised to have a positive effect on cumulative abnormal returns (CAR) following the announcement of an M&A compared to a situation in which this type of investors is not, or to a lesser extent, present. This implies that higher ownership by institutional investors would yield higher returns when M&As are conducted in contrast to the M&As conducted by firms which have an ownership structure with less institutional investors.

2.2 Different Financial Systems

Markets are of great importance as external governance mechanisms. Markets can be differentiated based on whether they are bank-based/control-based and market-based financial systems (Demirgüç-Kunt & Levine, 1999; Hall & Soskice, 2001). A financial system is seen as a funnel for mobilising funds for investment transferring it from the excess to the shortage (Mishkin, Matthews & Giuliodori, 2009). This also provides incentives for the monitoring of invested capital (Demirgüç-Kunt & Maksimovic, 2002).

Examples of bank-based financial systems are Germany and Japan in which banks have the most prominent role regarding the allocation of capital, guiding investment decisions and the provision of financial risk management. Examples of market-based financial systems are the U.K. and the U.S.A. in which capital markets share the main role with banks.

As there are differences among the composition of financial markets it is evident that these markets also have different types of ownership structures regarding the institutional ownership. The bank-based view highlights the fact that acquiring information about firms, the capital allocation and corporate governance is generally of better quality (Levine, 2002). In this system banks have strong relationships with their customers which implies that the agency problem is smaller. This in part is shared by the fact that these systems have less liquid markets which makes controls on investments more stringent. Control-based economies thus exercise more control on management, hence the name (Chakraborty & Ray, 2006). The market-based economy assumes capital markets to oversee the allocation of capital and in the end resolve the agency problem via the markets.

The market, which uses prices as the main gauge, monitors the firms in which funds are invested and lowers prices when opportunistic, shareholder value-destroying behaviour is observed. Might it be the case that management is not acting in the shareholder's best interest this will be easily observable in these markets. Decreasing profits and wasteful behaviour leads to a decrease of stock prices. Lowered stock prices imply a lower firm value which makes them

a relatively inexpensive target for its competitors and other investors (Manne, 1965). The threat of a takeover is thus bigger than in the bank-based/control-based economy.

Institutional ownership as external governance should dampen the occurrence of shareholder-value destroying M&As. This effect could be dissimilar over different types of markets. A different composition of CGMs could accelerate or dampen the effect of institutional ownership. Institutional ownership and its activism are assumed to have a less strong effect on potential wasteful M&As in market-based economies than in bank-based economies. This stems from the fact that the market-based economies have, apart from institutional ownership, other mechanisms in place to exercise control. As liquidity in these markets is higher a bad performance is shown in stock prices faster which makes the threat of a takeover credible. Bank-based systems are less liquid than the market-based systems. One can thus state that the effect of institutional ownership yields less wasteful M&As in bank-based economies compared to market-based economies. This leads to the second hypothesis:

H2: *Bank-based economies see less-value destroying M&As than market-based economies.*

The type of financial system is hypothesised to have a moderating effect on the CARs of M&A-deals (Baron & Kenny, 1986). A financial system which is classified as bank-based has due to its character of strong control less value-destroying M&As than a market-based economy.

2.3 Alternative Shareholder Activism

Hedge fund managers and private equity investors make headline news when they purchase stakes in a company. These alternative shareholders generally hold onto stocks for a shorter time in which they restructure firms to ensure high returns. This alternative form of shareholder activism influences the hypothesised relationship. Following Wu & Chung (2020) hedge fund activism generally provides an increase of shareholder value. Hedge fund activism leads to less M&A-activities as they force firms to make fewer, yet, better acquisitions. Hedge funds and private equity investors are known for taking over poorly-run firms, via the market for corporate control, using threats of hostile strategies as well as proxy fights and forcing management into acting in such a way that shareholder value is improved (Burkart & Lee, 2015). This is generally the case since these firms are believed to be undervalued in the way they are run. Activism by shareholders via hedge funds and private equity investors leads to a significantly higher CAR of M&As. As these investors utilise different strategies these are denoted here as ‘alternative shareholders’, providing ‘alternative shareholder activism’.

Before the 2008 Global Financial Crisis private equity and hedge fund involvement in M&As was on the rise (Gaughan, 2007). Mainly the fifth merger wave gave way to an important role for private equity, the main reason was the fact that the cost had increased for firms to go public due to audit-related Sarbanes-Oxley Act regulations. Private equity ensures steep returns for its investors by primarily buying poorly managed firms. The sale of the subsequently bought firms generally occurs after the market has recognised that the undervaluation has disappeared which leads to activist shareholder cashing out on their investments. This leads to the third hypothesis:

H3: Shareholder activism, via hedge funds and private equity, has a positive effect on the CARs of M&As.

The involvement of alternative shareholders such as hedge funds and private equity are hypothesised to have a positive effect on the CARs of M&As. This form of shareholder activism is supposed to push management into returning gains to its shareholders which implies a positive effect on the returns of an announced M&A.

3. Data & Methodology

The data used in this thesis is outlined below as well as the methodology applied. First, the data-collection and sources are specified. Second the dependent variables, the methodology behind the CARs, is specified after which the independent variables and controls are outlined. Lastly, the used analysis will be discussed.

3.1 Data-collection

As this thesis aims to find the effects of institutional ownership on the CARs of an M&A the search criteria for the data start with the classification of these shareholders. The shareholders of the companies performing an M&A should at least have one shareholder defined as an institutional owner. This is specified in table 1.

As this thesis investigates a comparison on the effect of a market-based and control/bank-based financial system initially four countries are added. These four countries are most used in comparisons for the two different financial systems (Levine, 2002). This implies that M&As are taken in which the acquiror is listed in Germany (DE), Japan (JP), the United Kingdom (U.K.) or the United States of America (U.S.A.). To only observe M&As the dataset is filtered for a merger- or acquisition-classification. The indices at which the acquirors are listed are the most prominent exchanges of the above-listed countries. The DAX (Deutscher Aktienindex) is added for Germany, the FTSE100 for the United Kingdom, the Nikkei 225 (Nikkei Stock Average) for Japan and for the U.S.A. the NASDAQ-100, S&P-500 and NYSE Composite Index are added.

The timeframe in which the M&As are announced is in between 2009 and 2019 where there is no exclusion on deal-size, implying all announced M&As for an acquiror meeting the abovementioned criteria are added. All deal sizes are added to obtain a representative view of the M&A-market. The firms are filtered based on their U.S. Primary SIC codes as common literature excludes financial firms (Martynova & Renneboog, 2006). This is done as financial companies are subject to different regulatory filings and accounting rules which implies that all firms with a U.S. Primary SIC code in the range 6000-6999 are excluded from the sample.

These criteria are used for the data-search on Zephyr which provides a range of M&As of which the institutional ownership is known for the announcement year. An overview of the search criteria and sources of the data is provided in table 2. The original search provides 2.720 deals consisting of 872 individual firms which are initially suitable for analysis. The data-cleaning process reduces the total to 2.321. The data-cleaning process leads to the exclusion of firms for which no adequate stock data and/or no sufficient amount of controls are available.

As in this time frame only 34 German-based M&As took place which fit the listed criteria the effect of specifically German-based firms is too small to derive conclusions from and therefore is excluded from the dataset. This also stems from the fact that for most German observations no adequate stock data or controls are available and fit for analysis. 384 Japanese M&As remain as well as 216 firms listed in the U.K., which provides an adequate amount for the analysis. The remainder of the dataset contains 1.721 U.S.-listed firms. All 2.321 observation's stock data, ownership statistics as well as controls are retrieved from Thomson Reuters Datastream, if not present in the dataset coming from Zephyr.

3.2 Dependent variables

MacKinlay (1997) states that to capture the effect of an event, in this case an M&A, one needs to isolate this via an event study. This is conducted by taking the abnormal return of the company. The abnormal return (AR) is compared to the normally expected return of said company if the M&A would not have taken place. Mathematically this looks as follows:

$$AR_{it} = R_{it} - E(R_{it}|X_t)$$

In which the AR is denoted by AR_{it}, the actual observed return by R_{it} and the normal returns by $E(R_{it}|X_t)$ at time t for firm i. Next to that, X_t assumes a linear relation between the market return of the listed stock on the index and the security's return itself. Ergo, the expected returns are deducted from the observed returns, which should show the returns in excess of the expectations which would have shown when the M&A had not happened. This isolates the event itself and provides an image as to what returns are caused by a single event. The process to obtain all values per observation is specified below.

Fama, Fisher & Roll (1969) elaborate how stock splits, dividends and new information alters the price and show how one can isolate these alterations. To capture these alterations in stock prices, being the M&A taking place, this thesis follows Binder (1998) and MacKinlay (1997). The model which they propose aids in the investigation of changes in for instance accounting rules. Still, this static model can be used to look at changes in ownership structures, such as M&As. Here the market model is applied in such a way that it shows the effect of the announcement of an M&A on the CARs which can be compared to the different ownership structures. To do so the price changes per day are taken. From this MacKinlay (1997) concludes in a market model which allows one to perform economic event-studies. The following methodology is applied by previous studies also regarding event studies on M&As and ownership structures (Binder, 1998; Du & Boateng, 2015; Ma, 2019; MacKinlay, 1997).

The cumulative AR (CAR) can be calculated by taking the summation of the AR. These are captured by taking the stock i and control for the relation between the return of the company during the period t and the general return of the exchange the stock is listed on (Binder, 1998). This is estimated by MacKinlay (1997) as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}$$

Where R_{it} comprises the return of the specified company i over the period t. R_{mt} concerns the market portfolio, i.e. the stock index on which the stock is listed. The error term ϵ_{it} captures the unexplained variance. Adding to the specification are $E(\epsilon_{it} = 0)$ and the fact that $var(\epsilon_{it}) = \sigma^2$ which implies an assumed error of zero, where together with the α_i and β_i the linear model is specified. MacKinlay (1997) stipulates that this model is an improvement over the constant mean return model as this model removes a portion of the return which can be attributed to the variation in the market's return. This implies that the variance in the AR is reduced which then more clearly showcases the effects of the event. Subsequently one can estimate the AR from the market model which shows:

$$AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt}$$

Where the market return multiplied with the β_i and the α_i are deducted from the returns of the company. This provides the returns which exceed the market's return and can be attributed to the event taking place. From this, one can calculate the CAR which is defined as the sample cumulative abnormal returns from τ_1 to τ_2, implying:

$$CAR_i(\tau_1, \tau_2) = \sum_{\tau=\tau 1}^{\tau 2} AR_{i\tau}$$

To monitor the effects of an event happening the estimation window and event window need to be defined (MacKinlay, 1997). Kothari & Warner (2007) specify that AR behaviour related to an M&A can show up in the period before the official announcement as well as after the event took place. This is due to the fact that before the event, insider-trading and market rumours can be an influence on the price, whereas after the event, it can be the case that due to limited efficiency within the market the event might not be priced in immediately or as well as it would be in a perfect market (Meyer, Gremler & Hogreve, 2014). As stock data is examined based on daily changes this thesis joins McWilliams & Siegel (1997) in setting an estimation and event window. To estimate a good market model this thesis will take a timeframe of 250 trading days. As a trading year generally is defined by approximately 250 trading days the

market model is thus estimated based on a full year prior to the M&A (Brown & Warner, 1985). The estimation window is subsequently estimated from 260 trading days prior to the M&A-announcement to 10 trading days prior to the announcement which then comes down to an estimation window lasting 250 trading days (all days mentioned further on in this thesis imply trading days).

The event window is used to calculate what the excess returns are due to the M&A-announcement. Various event windows are applied to have a clear view on the CAR the M&A-announcement caused. These event windows are -5 to +5, -2 to +2, -1 to +1, 0 (as the announcement day itself), -5 to +10, -5 to +25, -5 to +40 and -1 to +21 days (Adnan & Hossain, 2016; Benninga, 2008; Cowan, 1992). These dependent variables are specified as variables *CAR_1* through *CAR_8*, respectively, as shown in table 3. A variety of event windows is estimated in order to obtain a clear picture, from an estimated week before (5 days prior to announcement) to a maximum of 8 weeks after the announcement (*CAR_7*). Benninga (2008) argues that the post-event window is generally not considered in these types of research as the post-event window mainly serves research for long-term stock and company performances. Holler (2014) stipulates that most event studies centre symmetrically around the event (*CAR_1*, *CAR_2*, *CAR_3*) and it is portraited that the most commonly used event window is -5 to +5 days (*CAR_1*). Furthermore, the extended event windows are motivated by Dickgiesser & Kaserer (2009) who stipulate that due to market inefficiencies price corrections are slow (*CAR_7*, *CAR_8*). It is found that mispricing due to insider information is slow to be priced in which indicates that an extended period after the announcement is adequate. This effect could also be dissimilar over the different financial systems in this analysis as other systems might show to be slower in incorporating new information into their prices, or faster.

In order to observe a clear effect of institutional ownership on the CARs it is particularly interesting to examine this in the period ranging from 2009 to 2019. The phase after the 2008 Global Financial Crisis to 2020 has shown a boom, with in Europe a setback during the 2012 Sovereign Debt Crisis, ending in 2020 due to the (ongoing) Corona pandemic. This time-period, which can be marked as an expansionary phase, with its low interest rates has fuelled high economic growth due to the inexpensive financing opportunities. Mavlutova & Olevsky (2015) state that with the decreasing productivity M&As provide an opportunity for the development of new business which might have sparked more M&A-activity. Scheuering (2014) underscores the fact that M&As which are financed with debt provide tax benefits. This as the interest payments on debt are tax-deductible which can prove to be profitable to firms. With a low-interest environment taking on debt to perform an M&A could prove to be even more profitable.

This could yield the result that the amount of M&As undertaken during 2009 to 2019 has increased, also in M&A-size. Therefore, this thesis will dive into the period ranging from 2009 to 2019.

3.3 Independent variables

To define institutional ownership this thesis follows Ma (2019) and Du et al. (2015) in identifying institutional owners. An institutional owner is defined as a shareholder which invests funds that are not owned by the investing parties themselves such as insurance companies, mutual funds, pension funds, government investment vehicles, foundations or sovereign wealth funds (Chung et al., 2011; Gillan et al., 2000). This thesis classifies institutional owners in the dataset as governmental agencies, insurance companies, pension, and mutual funds, (independent) research firms, sovereign wealth funds and endowment funds. The specification of these classified investors is specified in table 4. As these investors are generally seen as the prudent investors which are investing for their policyholders, citizens etc. they tend to invest for longer time-horizons (Grinstein et al., 2005). These firms are classified to have an effect as institutional owners through their activism, as hypothesised above.

As this thesis also sheds light on shareholder activism by alternative investing funds an addition needs to be made to table 4 which stipulates that investing by special entities is defined by the fact that they are private equity investors, hedge funds and hedge fund portfolio investors, and venture capitalists. These investors also invest funds which are not (fully) owned by themselves, yet, due to their alternative strategies, these firms are expected to provide 'alternative shareholder activism'. The investment strategies of these investors contain take-overs with high amounts of leverage, a short time horizon in which a company is restructured and sold profits or investing in a high-risk start-up company.

Thomson Reuters Datastream defines a variety of shareholders of which only a segment is used in this thesis (Thomson Reuters Eikon, 2020). This thesis excludes a variety of investor-types from the analysis. Banks and trusts, brokerage firms, financing companies (which are commonly seen as shadow banks in providing loans which do not stem from deposits but rather from other sources) are excluded even though these firms do hold stock in firms, however, they are not active investors as these entities have these holdings for market-marking purposes (only). Private portfolio funds, invested by private portfolio investors and corporations, are left out of the analysis as these organisations are investors which merely hold stakes for strategic private purposes. Next to that, are holding companies which are excluded as these legal entities exist to retain control within firms via voting structures. Apart from these investors are

investment advisors which are SEC-registered entities which provide advice to private investors or to companies. Investment advisors, being in general investment banks, are added as control variable to account for the effect an advisor has on the CAR of an M&A, this is specified in section 3.4.2. Individual investors are also excluded as these invest according to private strategies and are not categorised as providing institutional activism to a firm.

Following Cornett, Marcus, Saunders & Tehranian (2007) and Lo, Wu & Kweh (2017) the operationalisation of these investor types, being pension funds, insurance companies etc. is conducted by taking the percentage of outstanding shares owned by the different institutional owner-types. To observe the initial effect of all institutional ownership the percentage of outstanding stock owned by all institutional owners is added (*Institutional*) and the summation of all alternative owners is subsequently added (*Alternative*). Furthermore, the separate institutional owners are added which is specified in table 5. This is showcased by the percentage of outstanding owned by the individual category of institutional owners which translates insurance companies (*Insurance*), pension funds (*pension funds*), Sovereign Wealth Funds (*SWF*), mutual funds (*Mutual*), governmental investment agencies (*Governmental*), (independent) research firms (*Research*), endowment funds (*Endowment*), hedge funds (*Hedge*), private equity investors (*PE*) and venture capitalists (*VC*) of which the last three are taken as alternative shareholders throughout this thesis.

3.3.1 Herfindahl-Hirschman Institutional Index

The dispersion of ownership is important to include as the independent variables only measure how much a particular type of shareholder owns in stock. The dispersion of institutional ownership among the shareholders is important as this influences the hypothesised relationship.

A very disperse ownership structure, in theory, implies low monitoring incentives due to the free-rider problem which then in turn affects the effects of institutional ownership has. A concentrated ownership structure subsequently influences the relationship as these companies consequently would have more monitoring incentives and this could bias the results. Therefore, this thesis adds its own version of the Herfindahl-Hirschman Index. This index is used to measure the concentration of an industry (Rhoades, 1993). It is constructed by taking the market share a company has relative to the total market size. This provides every firm in a market with the relative share they have of the whole market. Every individual market share is squared and added in a summation. This indicates how concentrated a market is in which a low value on the index implies that the market is competitive, i.e. many companies have a small market size, and when the index is high this implies that the market is less competitive with little participants,

i.e. oligopoly-like. This measure is generally used to assess take-overs in order to observe whether an industry does not become a monopoly-type of market. Here the idea of the index is used to construct a similar index, namely a *HH-Institutional* Index. The percentages of the separate categories of *Institutional* are taken relative to *Institutional*. This leads to the shares of the categories, denoted as *Insuranceshare*, *SWFshare*, *Pensionshare*, *Governmentalshare*, *Researchshare*, *Endowmentshare* and *Mutualshare*. In order to design the *HH-Institutional* Index all listed *share*-variables are squared, and a summation of all squares comes down to the *HH-Institutional*-Index. The process is shown below:

$$Individual\ Category\ Share = \frac{Subcategory\ (\%\ per\ owner)}{Institutional\ (total\ \%)}$$

$$HHI = \sum_{i=1}^{N} (Individual\ Institutional\ Share)^2$$

This *HH-Institutional* Index will show the concentration of ownership among the institutional owners. The higher the index the more concentrated the institutional ownership figures are which implies that the institutional ownership dispersion is smaller. The other way around shows that when the index is low this implies that the institutional ownership is less concentrated and thus more disperse.

3.4 Control variables

As the relationship between the CARs of M&As and the institutional ownership is not an isolated one a variety of controls are added. The controls can be grouped in three categories, namely firm-specific, deal-specific, and general controls. These controls are added as they might influence the hypothesised relationship. Firm-specific controls concern the financials of the firms involved, deal-specific controls regard the values specifically attributed to the M&A at hand and the general controls account for the issues which can regard all observations, such as year-specific and industry-specific controls. All control variables are specified in table 6.

3.4.1. Firm-specific controls

Regarding firm-specific controls this thesis joins Cornet et al. (2017), Ma (2019) and Du et al. (2015) in controlling for the financials. To account for the size of the firm the amount of total assets is added in a natural log form (*Assets*). The addition of this variable is to adjust for the fact that firms of bigger size are more often able to take over other companies than smaller firms and have a relatively large effect on the CARs of M&As. For all variables that are added in natural logarithmic form the notion of Strong (1992) is applied stating that data is normalised

by using a logarithmic form. This equals out the relatively small and large corporations. As the size of a firm is not merely defined by the amount of total assets the market capitalisation is also added as market value of the outstanding stock at the moment of the merger announcement (*MarketCap*). To account for the amount of leverage a firm has the amount of debt is added. This is added as a ratio relative to the assets of the firm (*Debt*) (Andriosopoulos & Yang, 2015; Ferreira & Matos, 2008). High levels of debt can have negative effects on the CARs of M&As as the market can perceive deals as not fitting for firms which have high debt-levels. This is important to consider when later discussing the method of payment and how the market signals its perception of the deal. In order to control for the returns a firm makes the return on assets (*ROA*) is added. Firms which provide higher ROAs are perceived to provide a positive effect to the CARs of an M&A as firms which have high ROAs are perceived by the market to make profitable choices, such as an M&A, which then aid to this high profitability. This variable is added as a ratio of all returns over the total assets.

Du et al. (2015) specify that cash holdings are of great importance, also in this thesis. Cash holdings are a common determinant of corporate governance issues in standard corporate finance literature. Large cash holdings within firms can lead to problems with management. Management, as specified in the agency theory, has different objectives with respect to its owners, and it is detrimental for a firm to hold large amounts of cash as management can attain this cash to partake in empire building and other wasteful projects instead of paying out excessive cash holding to shareholders in the form of dividends. This can lead to management entrenching itself. Due to the agency problem of cash a too high level of cash holdings within a company does signal to the market that wasteful endeavours can be undertaken. In combination with the method of payment, being a cash payment for instance, the cash levels of a company will have an effect on the CARs of an M&A where too high cash levels will be punished by the market as this is seen as the agency costs of cash holdings. As cash holdings at the moment of an M&A-announcement can be arbitrary due to the fact that cash holdings are relative to a firm the ratio of cash and cash equivalents to total assets is added (*Cash & Equivalents*).

To account for dividend payments relative to the stock market of the acquiring company the dividend yield is added (Wu et al., 2020). The dividend yield is added as a ratio of dividend payments relative to the share price of the acquiror (*DividendYield*) (Andriosopoulos et al., 2015). High dividend yield companies pay out more dividends relatively to their share price (MacDonald, 2005). As pay-out policies are priced into the share prices, the announcement of an M&A will have an effect on the share prices. Following MacDonald (2005) it can be stated

that cash can be spent only once, either as a dividend or on a new project such as an M&A. If firms were to pay high dividends and then partake in a take-over this can be negatively reflected in the stock price, and therefore the CARs of the M&A. The expectations of investors are updated repeatedly and knowing that dividend can become lower due to a wasteful M&A thus will be priced in.

To measure the market value of a company relative to its book value the market-to-book value is added (*MTBV*). The market-to-book value (MTBV) is the ratio of the market value of outstanding equity relative to the book value of said equity. Andriosopoulos, Yang & Li (2016) show that high growth companies which perform take-overs generally have higher MTBVs than their lower-growth take-over peers. This accounts for potential over- and undervaluation of the company. Companies with higher MTBVs, which can be seen as overvalued, might be overrepresented in this dataset as these companies are more often able to perform a take-over. The CARs of an M&A are influenced by the fact that the market perceives a company to be over- or undervalued. Overvalued firms might show fewer high returns than undervalued companies.

To control for the firm's age the acquiror's age is added as a sum of years since the first date of incorporation to the year of the M&A-announcement (*CompanyAge*). This variable is added as firms which exist for a longer period of time have a positive effect on the CARs of an M&A. This is because firms which are established a longer time ago will be perceived to be making well-founded decisions. These firms operate for a longer time and thus are perceived to have more experience in business. Markets will react positively to an announcement coming from a firm which is around for a longer period. Next to age, a control is also added to check for being operational in the technology-sector (*NewEconomy*). This dynamic type of industry needs to be accounted for separately as companies active in the internet-, software-, network-services, telecom and computers sector might be overrepresented in the M&A-market (Ma, 2019). In the timeframe of this dataset, information- and technology firms have seen a booming growth in their industry and thus might have an extreme positive effect on the reported CARs.

3.4.2. Deal-specific controls

Regarding the deal-specific controls this thesis adds a multitude of controls specifically for every M&A. Deal-specific controls are unique to every deal, even when a company is partaking in multiple deals in this dataset. The method of payment of a company, of which the age of the firm is always the same, not necessarily needs to be the same for every deal the company participates in.

Andriosopoulos et al. (2015) touch upon a variety of controls. As this thesis contains firms which conduct multiple M&As a variable is added to account for experience (*Experience*). An acquiror which performs a take-over for the second time thus obtains a 1 up to 31 in which one firm has conducted 32 M&As within this dataset. The experience of undertaking an M&A stems from the fact that when conducting another M&A this must imply that the experience positively influences the CARs of the M&A.

Next to that, a dummy is added for the method of payment as this influences how the shareholders of the acquiring firm react to the announcement of the deal. As the deal can be a cash payment, share payment, leveraged deal or a combination of any or all, three dummy variables are added as binary variables to measure this (*CashPayment*, *SharePayment*, *LiabilitiesPayment*). These dummy variables show whether a deal is a take-over which is paid for in full by one of the three mentioned methods of payment. Shareholders of the acquiring companies namely react differently to the type of the deal concerning the financials of the deal. Antoniou & Zhao (2004) state that share payments significantly underperform the other forms of payment. Cash payments are a reduction of the earlier mentioned agency problem of free cash flows which can be suspected to provide a positive effect on the M&A CARs.

Hostile deals can have a strong initial effect on the CARs of an M&A after the announcement and can also show effect on the post-announcement returns. Goranova et al. (2010) argue that a friendly takeover is assumed to provide synergies between the companies, whereas unfriendly takeover bids are viewed upon to be disciplinary in the reallocation of firm resources, connected to the market for corporate control. The acquiror, when attempting to perform a hostile takeover, can observe lower returns a dummy is added in which the take-over is characterised as a hostile, contested, or unsolicited bid (*Hostility*).

Next to the hostility of a deal an acquiring company is aided by an investment bank which guides the process of the take-over (Boa & Edmans, 2011). This thesis controls for the firm advising the take-over deal by adding a dummy when the acquiring company is aided by one of the top investment banks of the world in the given timeframe which are J.P. Morgan Chase, Morgan Stanley, Goldman Sachs, Citi Group and Bank of America Securities (The Wall Street Journal, 2020). It is found that the aid from a top-tier investment bank matters when conducting an M&A due to connections within the banking world and the financing options provided by these banks (Boa et al., 2011). These traits aid to the profitability of a deal and the status of the investment bank supporting the process positively signals this to the market. The effect of a top-tier investment bank thus is assumed to provide positive effects on the CARs of a take-over and is added in dummy form (*Advisor*).

Andriosopoulos et al. (2015) states that cross-industry M&As need to be accounted for. A cross-industry M&A is defined by a two-digit difference in U.S. Primary SIC codes. It is believed that a two-digit difference shows that an M&A is performed not in the same industry. It is important to account for the fact that when a firm takes over another company in a different industry this can have effects on the post-announcement CARs. As investors know this at the moment of announcement this will be shown in the CARs. Integration within the acquiring company is deemed more difficult when the company takes over a firm in a different industry and investors immediately factor this into the price. Therefore, a binary dummy is added based on the difference in U.S. Primary SIC codes when it is larger than a two-digit difference (*CrossIndustry*).

As M&As are not limited to borders a cross-border dummy is added (Du et al., 2015). A cross-border M&A is defined by the fact that the acquiring company which is performing an M&A is doing so in a country which is not the same as its incorporation. Cultural differences over borders can lead to difficulties regarding post-announcement integration and is immediately priced into the CARs of the M&A. This is shown in a dummy variable in the case the incorporation of a company is different from its target (*CrossBorder*).

3.4.3. General controls

To control for general effects various specific dummies are added to the model as well. In the dataset, three countries partake, Japan, the U.K. and the U.S.A. Various countries have experienced events which need to be accounted for.

Japan was hit in 2011 by an earthquake of a magnitude of 9.0 which caused a severe shock and subsequent tsunami which hit parts of the east-coast of Japan and caused severe damage (Norio, Ye, Kajitani, Shi & Tatano, 2011). As this has had effects on the financial markets of Japan, a dummy is added for the year 2011 for M&As in this year concerning Japanese firms (*Japan*). Next to that, the U.K. voted to leave the European Union on 23rd of June in 2016. As this has severe implications for the economy of both the EU and the U.K. this needs to be controlled for. The separation of the U.K. from the EU, which at time of writing still had not happened officially via a separation of markets, sent grave shocks through the economy of both the U.K. and the EU in the form of insecurity (Matti & Zhou, 2017). Therefore, a dummy is added for the year 2016 and all the following years to 2019 for all M&As undertaken by firms listed in the U.K. (*UK*).

As the Euro Area was hit with the Sovereign Debt Crisis after the Global Financial Crisis of 2008 this needs to be controlled for. The EU has felt negative setbacks due to the potential defaults of some of its member states. A dummy is added for the years 2010, 2011 and 2012 to

account for potential effects of this crisis for firms listed in the EU (*SD*) (BBC, 2012; Lane, 2012). Lastly, in order to control for potential effects over time and industry-specific setback time- and industry-fixed effects are added to the model.

3.5 Statistical tests

An OLS-regression is conducted to observe whether there is a cross-sectional effect between the institutional ownership data and the CARs. In order to perform an OLS-regression this analysis needs to meet the criteria to be allowed to perform an OLS. To meet these criteria seven outliers are removed from the dataset. Data-visualisation via plots shows that these variables are outliers and these five extremely negative *CAR*-values as well as two extremely positive *CAR*-values are excluded from the dataset. The individual M&As of Arcosa Inc. (2018), Par Pacific Holdings (2013), NeoPhotonics Corporation (2011), Tenneco (2019), Turning Point Bands Inc. (2019), Facebook Inc. (2012) and Skyline Corporation (2018) are removed from the dataset. The remaining data used for analysis is shown in the descriptive statistics of table 7.

A variety of general tests are run to check whether the proposed OLS-estimations suffer from multicollinearity, heteroskedasticity and whether the residuals of the model are normally distributed. Due to sizing reasons not all output is reported, yet the first result of the tests run is shown.

For an OLS-regression the residuals of the analysis need to be normally distributed. Running preliminary tests shows that the residuals are not normally distributed. This is attributed to the fact that this thesis deals with ownership statistics. All ownership data, for the separate categories, are counted as the percentage of outstanding stock which is owned by institutional owners where the distribution runs from 0 to some percentage, shown in table 7.

This institutional ownership data is not normally distributed since the aggregate of companies have rather smaller amounts of their outstanding stock owned by institutional owners. Therefore, this thesis continues with the following: all observations of *Institutional, Alternative,* and the separate categories obtain a +1-value which implies that the distribution runs from 1 to some percentage. Providing all data with a +1 allows for a logarithmic value. This as certain companies have no ownership data which would imply a logarithmic value needs to be attained from a zero-value, which mathematically is impossible. These transformed values of all institutional ownership data are shown in table 8. These variables appear to be normally distributed now. However, as there are 301 firms which either have no institutional owners, or no data available, there is a concentration of companies with a zero-value and therefore, the

following is done. A dummy-variable is constructed based on *Institutional* to account for the absence of the institutional ownership data. This due to the fact that companies which have a zero-value and obtain a +1-value return to a zero-value when a logarithmic value is attained. *NoInstitutional* is constructed such that all firms which obtain again a zero-value for *Institutional* obtain a 1 in the dummy variable and all firms which have any value bigger than zero for institutional ownership obtain a zero. Adding this dummy variable then allows to observe what the additional effect is of having no institutional ownership data. This dummy variable then accounts for the fact that *Institutional* is not fully normally distributed, due to the concentration of firms with a zero value for *Institutional*. Running preliminary test with these transformed variables and the dummy *NoInstitutional* shows that the residuals of the analysis are normally distributed.

The correlation matrix is shown in table 9. The correlation matrix provided shows no highly negatively or positively correlated variables. In order to overcome potential problems with variables included in the model which are linearly related to the independent variables the model is tested for multicollinearity (Berry & Feldman, 1985). Multicollinearity proves to be detrimental when establishing relationships as with perfectly linearly related relations the estimations become biased and not fit for reporting. A Variance Inflation Factor (VIF) test is run after every regression and shows a mean VIF of around 1,42 or lower with the highest individual values not exceeding 3,79. The high values stems from *NoInstitutional* and *Institutional*, which is logical as the dummy variable *NoInstitutional* is based on *Institutional*. The VIF-scores are reported in table 10 and indicate the model used does not suffer from multicollinearity.

A Breusch-Pagan test is conducted to determine whether the residuals are homoscedastic or heteroscedastic. The Breusch-Pagan test, when significant, indicates that the errors in the model used do not have a constant variance which leads the standard errors to be biased and provides unreliable estimations. Table 11 provides the test-statistic of the Breusch-Pagan test which shows that the model does suffer from heteroscedasticity. In order to overcome this issue, the OLS-estimations are conducted with robust standard errors (White, 1980).

To address missing variables the dummy adjusted method is utilised. As *DividendYield* and *CrossIndustry* suffer from missing observations a dummy is created for both individually to overcome this issue. This is done following Cohen & Cohen (1985). A dummy variable is constructed for all missing values and the missing values are subsequently substituted by the mean of *DividendYield* and *CrossIndustry*; 1,512977 and 0,4783362 respectively. The dummy

variables then account for the missing values in the original *DividendYield* and *CrossIndustry* and are added into the model (*DivDummy*; *CrossDummy*).

As this thesis also looks at the foundation of a financial system a binary dummy is constructed to account for the difference in financial systems (*Financialsystem*). This is constructed such that the United Kingdom and the United States are grouped at 0 and Japan at 1. From this the interaction effect will be constructed to capture the moderating effect of the foundation of the financial market.

The following models are used to test the hypotheses in this thesis:

$$CAR_i = \beta_0 + \beta_1 Institutional\ ownership_i + \beta_2 Alternative\ ownership_i + \beta_3 Controls_i + \epsilon_i$$

$$CAR_i = \beta_0 + \beta_1 Institutional\ ownership_i + \beta_2 Alternative\ ownership_i + \beta_3 Financialsystem_i * Institutional\ ownership_i + \beta_4 Controls_i + \epsilon_i$$

In which $Controls$ represent *Assets, Debt, MTBV, ROA, Cash & Equivalents, DividendYield, CompanyAge, NewEconomy, CashPayment, SharePayment, LiabilitiesPayment, Hostility, Advisor, Experience, CrossBorder, CrossIndustry, Japan, UK, SD, CrossDummy, DivDummy,* Time fixed-effects and Industry fixed-effects.

4. Results

Initially an OLS-regression is conducted with all variables described above to provide a starting point. From there a multitude of other regressions are run and marginal analyses used to dissect the results shown below.

4.1 OLS-estimations

Table 12 shows part of the results from the initial OLS-estimation. For clarity, a variety of control variables are not displayed to save space, the full result is shown in table 13. The total percentage of institutional ownership within a company provides a significant and robust negative effect on the CARs. The effect varies from -0,836 on the announcement date itself (*CAR_4*) to -3,575 for the event window which runs up to 8 weeks after announcement date (*CAR_7*). This indicates that when institutional ownership is higher (i.e. a bigger portion of stock is owned by institutional investors) the CARs of an announced M&A are lower. The alternative shareholders provide no significant positive or negative effect. The size of the firm, measured with *Assets*, shows to be negative implying that when firms have more assets, the CARs of an announcement are more negative when compared to firms with less assets.

Furthermore, the industry- and year-fixed effects show not to be significant. As these are added as dummies, they are not shown due to size issues. It is also found to be the case that the hostility of the deal provides a positive effect on the CARs. This implies that when a deal is hostile (i.e. a not recommended or a contested bid) positive effects can be observed on the medium/long-term CARs of an announced M&A (*CAR_7*). The added Japan dummy provides a significant and negative effect. This entails that firms which have conducted an M&A in 2011 experienced significant negative CARs. This is attributed to the fact that Japan was hit by a strong earthquake in 2011.The M&As taking place in 2011 then are seen by the market as a decision they do not fully agree with as the CARs are negative for a variety of event windows. This effect, however, fluctuates considerable in size and in significance.

The model provides results which show the opposite effect of what was hypothesised in hypothesis 1. Regarding hypothesis 3 it is shown there is no significant effect of alternative shareholders present. Due to the numerous necessary modifications to the variables, interpreting the magnitude of the found effects could lead to misleading interpretations. Besides that, the model provides a measure for the explained variance via the adjusted R^2 which is around 0,06. This implies that the model explains about 6% of the variance of the CARs of an announcement (Berry et al., 1985). Following the *CAR*-variables it is evident that the model losses explanatory power as the duration of the event window increases. This can be attained to the fact that other

factors (via the market) influence prices and thus the variables within this model no longer fully explain the effects influencing the CARs of an M&A.

Table 12. OLS-results with selected variables. Full result shown in table 13.

Ordinary Least Squares estimation with robust standard errors (in parentheses), including Industry- and Year-fixed effects. In which the abbreviations are accounted for as follows: *CAR_1* denotes the event window -5 +5 days, *CAR_2* -2 +2 days, *CAR_3* -1 +1 days, *CAR_4* 0 days, *CAR_5* -5+10 days, *CAR_6* -5 +25 days, *CAR_7* -5 +40 days, *CAR_8* -1 +21 days, *Institutional* is denoted as INST, *Alternative* as ALT, *NoInstitutional* as NOINST, *Assets* as ASSETS, *Debt* as DEBT, *DividendYield* as DIV, *DividendDummy* as DIVD, *CompanyAge* as AGE, *Hostility* as HOSTILE, *Japan* as JAPAN and the constant as CONS.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CAR_1	CAR_2	CAR_3	CAR_4	CAR_5	CAR_6	CAR_7	CAR_8
INST	-1.397***	-1.344***	-1.017**	-0.836**	-1.438**	-2.965***	-3.575***	-2.709***
	(0.526)	(0.476)	(0.435)	(0.403)	(0.650)	(0.808)	(1.048)	(0.761)
ALT	0.128	-0.0906	-0.0117	0.00345	0.134	0.132	-0.134	0.0677
	(0.269)	(0.224)	(0.200)	(0.183)	(0.311)	(0.407)	(0.511)	(0.360)
NOINST	-1.664	-1.732	-0.965	-0.783	-1.512	-4.009*	-4.689*	-3.954**
	(1.433)	(1.269)	(1.156)	(1.058)	(1.686)	(2.094)	(2.717)	(2.014)
ASSETS	-0.650***	-0.498***	-0.523***	-0.507***	-0.697***	-0.416*	-0.252	-0.395*
	(0.167)	(0.140)	(0.128)	(0.118)	(0.203)	(0.251)	(0.310)	(0.226)
DEBT	3.843***	2.795**	2.761**	3.061***	3.309*	2.988	4.445	2.851
	(1.473)	(1.300)	(1.190)	(1.075)	(1.752)	(2.289)	(2.842)	(2.111)
DIV	-0.292*	-0.301*	-0.231*	-0.271**	-0.177	-0.124	-0.0747	0.0573
	(0.172)	(0.160)	(0.140)	(0.133)	(0.209)	(0.284)	(0.356)	(0.253)
DIVD	-0.880	-0.557	-0.452	-0.411	-0.470	-1.022	-1.592	-0.793
	(0.564)	(0.472)	(0.424)	(0.385)	(0.626)	(0.814)	(1.038)	(0.705)
AGE	0.0119*	0.00432	0.00546	0.00497	0.0153**	0.0114	0.0116	0.00507
	(0.00670)	(0.00562)	(0.00496)	(0.00444)	(0.00740)	(0.00992)	(0.0128)	(0.00882)
HOSTILE	2.112**	1.296	1.306	0.288	1.477	2.992**	4.635***	2.364*
	(1.048)	(0.864)	(0.868)	(0.798)	(1.206)	(1.489)	(1.722)	(1.418)
JAPAN	-2.669**	-2.068**	-1.082	-1.431**	-2.750**	-2.320	-3.538*	-0.805
	(1.134)	(0.962)	(0.800)	(0.683)	(1.271)	(1.737)	(1.981)	(1.527)
CONS	13.01**	11.34***	10.74***	9.358***	14.30***	13.89***	10.34	13.15**
	(5.248)	(3.378)	(3.135)	(2.789)	(4.201)	(4.913)	(6.495)	(5.137)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2284	2284	2284	2284	2284	2284	2284	2284
adj. R^2	0.063	0.064	0.063	0.069	0.046	0.059	0.055	0.046

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

To test hypothesis 2, table 14 provides an OLS-result with an interaction effect. The interaction effect is added to show the potential effects of having a bank-based versus a market-based financial system as a moderating effect on the hypothesised relationship. To save space, the controls are not reported once more. What can be observed is that the effect of institutional ownership on the CARs of the M&A remains negative and is robust. The interaction effect of the financial system combined with the institutional ownership shows not be significant in most

cases. Only *CAR_8* provides a significant effect at the *p<0,05* level. For the event window of -1 to +21 days around the M&A-announcement a positive and significant effect is present. This implies that the coefficient of institutional ownership on the CARs of the announcement is 1,298, given that *Financialsystem* is held at 0 (Balli & Sørensen, 2013). As these values stem from a transformed variable the interpretation of the size of the effect proves to be problematic. Regardless, this effect is not robust. This effect is merely present for an event-window of 22 trading days, yet, not for the event window of 15 trading days (*CAR_5*) nor for the one of 45 trading days (*CAR_7*). As it concerns the foundation of a financial system it is determined here that in order to present a judgement, the effect should have been robust throughout all measures (*CAR_1* through *CAR_8*), which it is not. A potential reason can be attributed to the fact that dummy variables used denotes only Japan with a 1 where there are only 384 Japanese firms in the dataset of 2.321 companies of which the rest is denoted by a zero. This could lead to an overrepresentation of market-based economies, namely the remainder of the dataset contains the U.K. and the U.S.A. and a subsequent underrepresentation of the control-based economies.

As the results provided in table 13 and 14 provide negative results, indicating that institutional ownership provides negative effects to the CARs, more in-depth analyses are warranted to analyse the driving forces behind the found effects. Table 15 provides an OLS-result which separates the institutional owners per category. This analysis shows the individual effect of *Pension*, *Insurance*, *Mutual*, *SWF*, *Research*, *Endowment*, *Governmental*, *Hedge*, *PE,* and *VC*. No coherent nor robust nor significant answer can be deduced from table 15. It is shown that, in line with hypothesis 3, the positive drivers are *PE* and *VC*, of which the latter is not significant in any case. Hypothesis 3 reads that alternative shareholders perform less, yet, better deals. In order to better observe whether these firms posit a special ability to perform M&As which are perceived to be better for acquirors this analysis continues with the following.

Private equity investors and hedge fund managers are commonly seen as ‘alternative investors’, therefore, it is interesting what the effect is when both types of investors are present within a companies’ ownership structure. Venture capitalists are also denoted as ‘alternative investors’, however, these investors commonly invest in risky ventures and companies which are in their start-up phase. Table 16 includes the general effect of *Institutional* and the alternative shareholders as well as an interaction effect of *Hedge* and *PE*, shown by *Interaction2*. Here it is shown that the *Interaction2* can be considered significant for certain *CAR*-variables. Looking at the coefficient of the two variables *Interaction2* is based on, it is shown that *PE* has a positive and significant effect on the hypothesised relationship. This effect appears not to be present for *Hedge*. One can thus determine from table 16 that in the event a

hedge fund is present within the ownership structure of a company positive effects can be expected from the private equity investors. This statement should be considered with caution as the effect is not robust and present for all *CAR*-variables.

As these results provide little evidence as to what is the driving force behind the negative CARs more analyses are necessary. As argued in this thesis it can be the case that certain types of markets show different effects due to their foundation. A market-based economy can show stronger price fluctuations than a bank-based economy. In order to look into the specific country effects a country dummy variable is specified for either Japan, the U.K. and the U.S.A. Doing so allows for an analysis which shows whether the negative effects are driven by a certain country. Table 17 provides an overview of the outcome of the country dummy variable in which the U.K. functions as the reference category. This is done as merely Japan participates as a bank-based economy and the U.S.A. has a far larger amount of observations within this dataset. Scanning table 17 shows that there is no significant effect present which can be attributed to the specific countries.

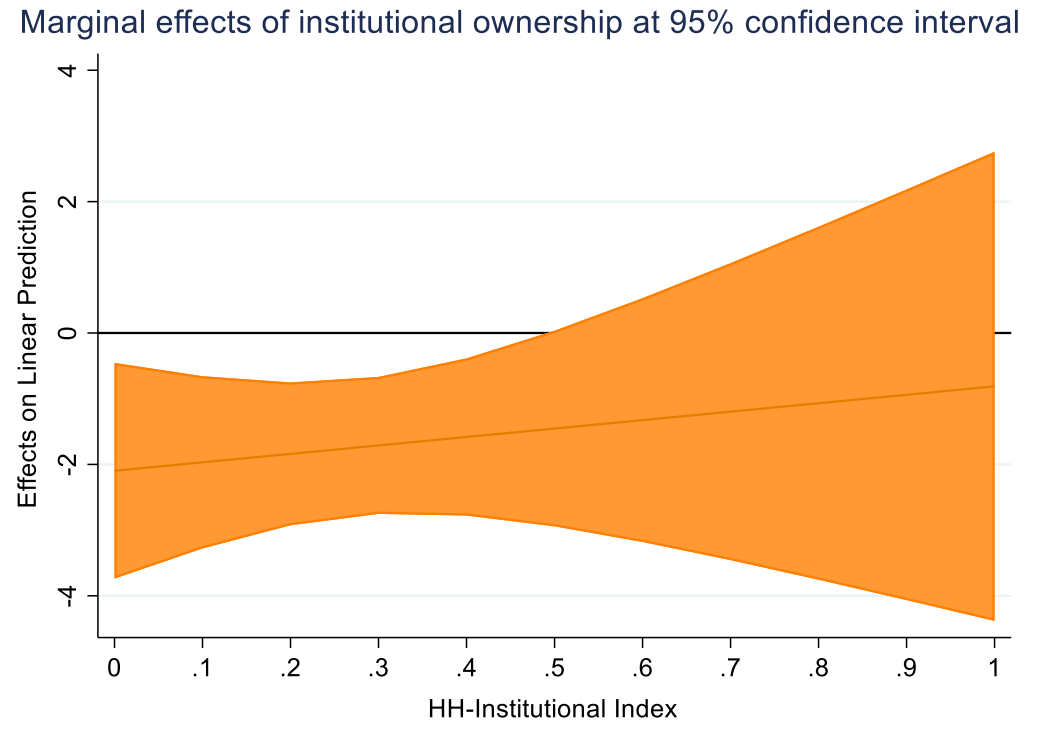
Next to that, this thesis also looks at the nature of an industry. It could be the case that certain industries have specific features which provide significant results. The same process is repeated for the groups of industries where a dummy variable is added based on the U.S. Primary SIC code. This dummy is constructed by a 1 through 9 (in which 6 is not used as these companies are excluded from the dataset) based on the four-digit SIC-code of which the companies are grouped based on their first number. Table 17 provides the results of this analysis in which firms in the 1000-1799 (SIC: 1) range functions as the reference category. It is shown that firms within the 2000-2999 (SIC: 2) and 5000-5999 (SIC: 5) range provide significant and positive effects. One can state that firms which are in the manufacturing industry of certain goods (the whole manufacturing industry uses a range from 2000-3999) and firms within retail and wholesale trade provide a positive effect on the CARs of an M&A-announcement (SEC, 2020). Rozen-Bakher (2018) coins a potential explanation that firms which are undertaking a vertical M&A within the service-sector as well as horizontal M&As within the industry-sector overall obtain positive results. Firms within these sectors can be more suited to integrate newly attained firms. This, however, does not provide a full-fledged explanation as to why the institutional ownership provides negative effects on the hypothesised relationship.

4.2 More is always better?

As stated in section 3.3.1 a self-constructed *HH-Institutional* Index is made to account for the dispersion of the institutional ownership structure. This Index is used in the regressions like

those applied above, shown in table 18. To find the driver of the negative and robust effects of institutional ownership the Index is interacted with the ownership data (*Institutional*). This ought to show what the effect is of institutional ownership combined with the relative size of that ownership data. When interacting the *HH-Institutional* Index it becomes evident that the effect of institutional ownership is significant, and negative, but only when the *HH-Institutional* Index is low. Figure 19 shows that the negative effect which is consistently found in all OLS-output is driven primarily by firms which have a low *HH-Institutional* Index value. The margins plot allows one to determine under which conditions the effect of the institutional owners (*Institutional*) has a significant effect on the CARs of an M&A. In a marginal analysis a statistically significant effect can be observed whenever the bound of the confidence intervals are either above or below the zero line (Brambor, Clark & Golder, 2006). The bounds of the confidence intervals in figure 19 are shown in orange. A glance at figure 19 shows that the dark orange line within the bounds shows an upward trend which loses significance after the *HH-Institutional* Index exceeds the 0,50. This implies that firms which have an Index value which exceeds 0,50 provide no significant effect.

Figure 19. Marginal plot of institutional ownership (*CAR_1*) with the *HH-Institutional* Index at the 95% confidence interval.



This analysis leads to the conclusion that the significant and robust negative effects that are found, which contradict the hypothesised effects, are only present for firms with a low *HH-Institutional* index value. When analysing the companies past the 0,50-mark on the Index one

sees that they provide no significant results. Figure 20 shows a marginal analysis of only the firms which have a value of 0,50 or more and it shows that the bounds of the confidence intervals are providing no significant evidence. This serves as a robustness test through which one can state with a 95% confidence interval that firms up to 0,50 on the Index do provide a significant negative effect to the CARs of an M&A. The Herfindahl-Hirschman Index points out that firms which have a low value on the *HH-Institutional* Index, and thus have a dispersed institutional ownership structure, do observe a negative effect on the CARs of an M&A-announcement. This is an understandable result when following common literature on monitoring and free-riding problems for CGMs, especially concerning institutional activism. Dispersed institutional ownership structures imply that these investors cannot make stand for themselves and thus cannot utilise their institutional activism. This subsequently shows in wasteful M&As and explains the negative CARs.

4.3 A big Deal?

The term 'size matters' is often coined. Output listed above shows that the measure for size in this thesis, *Assets*, consistently provides negative effects on the CARs of an M&A. Therefore this thesis also takes on the size of companies for a marginal analysis to find out whether this could be another driving force behind the negative effects shown. Andriosopoulos et al. (2015) and Ma (2019) do find a negative effect of firm size on the CARs of an M&A-announcement when looking into the effect of institutional ownership. They coin an explanation stating that institutional investors prefer to invest in big firms which have more assets and a higher market capitalisation. Table 21 shows the interaction effect between institutional ownership and *Assets*. An analysis of the margins plot of this interaction shows that the negative effect of institutional ownership is only significant for smaller companies, namely those with less assets. Figure 22 shows that the negative effect of institutional ownership does not provide any significant results for firms which have more assets. This result is rather weak as the confidence intervals provide these results only with a 90%-level. When assessing a related measure for size, the market capitalisation of a firm, which is added here also in log form (*MarketCap*), a more significant result is shown, in table 23. The subsequent marginal analysis points out that the negative effect is only present for firms which have a smaller market capitalisation. This is shown in figure 24. The effect again is not significant for firms with larger market caps. One can thus state that smaller firms (measured by market capitalisation and to a lesser extent by assets) observe a negative influence of institutional ownership on their CARs. This effect shows not to be significantly present for larger firms.

The figures 19, 20, 22 and 24 show that the significant and robust effects shown before are predominantly driven by *Assets*, *MarketCap* and the *HH-Institutional* Index. It would be incorrect to extrapolate the fact that within this dataset the effect of institutional ownership on the CARs of an M&A is always negative. Analysing these plots shows that this negative effect is driven by other factors, namely a more dispersed institutional ownership structure or the fact that firms are smaller.

5. Conclusion & Discussion

This section outlines the conclusion, provides a discussion on the findings and reasoning for peculiar findings. Furthermore, recommendations are made stemming from the limitations of this thesis.

5.1 Conclusion

This thesis aims to investigate what effect institutional ownership has on the abnormal returns of a firm undertaking an M&A. Theory states that institutional investors invest for a longer period of time and tend to avoid excessive risks. Their presence as shareholders, through institutional activism, ought to provide positive effects on the returns of an M&A-announcement. Control-based economies have more internal control mechanisms which implies that these markets see less value-destroying M&As. Apart from that, alternative investors are added in this thesis in order to observe whether it is true that these investors partake in less, yet better, M&A-processes.

The analyses show significant proof of the fact that institutional ownership has a negative effect on the CARs of an M&A-announcement. These results appear to be robust as they proof to be significant for all added versions of the CARs (*CAR_1* through *CAR_8*). This implies that as institutional ownership within a company is bigger and it undertakes an M&A it will observe a negative effect of institutional ownership on their CARs. This is contrary to what literature dictates as authors on this topic consistently find positive effects of institutional ownership in China and the U.K. (Andriosopoulos et al., 2015; Andriosopoulos et al., 2016; Du et al., 2015; Ma, 2019). This means that the first hypothesis is rejected. The negative effect is provided for all estimated *CAR*-variables, indicating that the effect is robust within this dataset. For this dataset it is found that companies partaking in an M&A-process observe more negative returns when their institutional ownership is higher. The hypothesised interaction effect of the foundation of the financial systems prove not to be significant and any effect which is found is not robust. Hypothesis 2 cannot be rejected nor accepted as no proof is found that either case is true and no statements can be made regarding the moderating effect of the financial system.

Concerning hypothesis 3 it is found that private equity firms do have positive effects when interacted with hedge fund holdings. This implies that firms which have more private equity investors within their ownership structure observe positive effects of these investors on their announcement's returns. This effect, however, is only present in the case that an interaction effect of both *Hedge2* and *PE2* is added, implying that private equity only provides a significant positive effect on the CARs of an M&A when there are also hedge fund managers

present as shareholders. Hypothesis 3 can thus be accepted, with caution, as the effects found are only true for private equity investors. For the other alternative investors, no proof is provided.

As the analyses of this thesis find negative effects of institutional ownership, which are contrary to literature, this thesis set out to find the driver of this negative effect. A self-constructed Herfindahl-Hirschman Index allows for a deeper analysis. The *HH-Institutional* Index aims to mimic a regular Herfindahl-Hirschman Index to show whether the dispersion of institutional ownership structures itself provides an explanation. The Index points out that that firms with a more dispersed institutional ownership structure observe significant negative effects on their CARs. Using margin plots this thesis shows that the interaction of the institutional ownership with the *HH-Institutional* Index provides evidence that the significant, and robust, negative effects of institutional ownership on the CARs are driven primarily by firms which have a dispersed institutional ownership structure. This effect is not significantly present for firms which have a more concentrated institutional ownership structure. A reasoning as to why this is the case is elaborated in the Discussion-section below.

Furthermore, this thesis demonstrates that firms which are smaller in size, measured by relatively little assets and a smaller market capitalisation, which generally go hand in hand, show negative effects when interacted with the institutional ownership. This implies that firms which are smaller and have institutional owners observe a significant negative effect on the CARs of an M&A-announcement. These effects, of the *HH-Institutional* Index, *Assets* and *MarketCap*, proof not to be significantly present for larger values. The significant and negative effect is mainly driven by smaller companies within this dataset and firms which have a more dispersed ownership structure. Extrapolating results from the original estimations would proof to be incorrect as the righthand side of the distribution does not provide significant effects. When looking at figure 19, 20, 22 and 24 it would be incorrect to assume this negative effect is true for all firms in the dataset. A reasoning as to why this could be the case is described below in the Discussion-section.

5.2 Discussion

The logic behind institutional activism is clear. This form of activism is aimed at solid returns and no excessive risk. When a take-over is given the go-ahead it can be considered as a profitable investment when companies have many institutional owners. This thesis finds the exact opposite. A peculiar finding, however, not one which defies all logic. Romano (2001) argues that less is more. It is stated that less institutional activism is perceived to be better for a

company's performance and that the actual observed activism provides very limited effects. Institutionalism, it is found, shows limited effects on cash flow and often concerns internal matters. This type of activism generally points towards executive payment schemes and, board compositions and its independence. The institutional activism argument in combination with M&As is thus not as evident as hypothesised. Next to that, it is assumed that institutional activism is always present whenever an ownership structure contains institutional investors. In practice it appears to be limitedly present and it is argued that the institutional investors often fail to form the alliances through which they could exercise their activism (Romano, 2001). It could very well be the case that less is indeed more.

Besides the significant negative effects of institutional ownership on the CAR, this thesis also provides proof that the negative effects are mainly driven by firms with a more dispersed ownership structure as well as firms which are smaller in size (measured by assets and market capitalisation). The reasoning behind this can be connected to the corporate governance literature. Institutional activism appears to be only effective when it is employed by blockholders. This form of activism implies close monitoring of management to ensure returns for the shareholders and ought to prevent a wasteful M&A. Individual monitoring in general does not happen due to the free-rider problem, whereas groups of shareholders together have monitoring incentives and can utilise their activism. This idea elaborates on the fact that firms with a more dispersed form of institutional ownership show negative returns on their M&As. The monitoring activities are absent due to the limited size of the stock holdings and this form of activism is not effective, or even non-existent, for these firms and a wasteful M&A cannot be prevented. This would explain the negative effects shown in figures 19 and 20.

An explanation as to why smaller firms observe significant negative returns would come forward out of the fact that the acquiror in general already losses out when performing an M&A, as the market perceives an M&A to be a wasteful endeavour for an acquiror (Bruner, 2002). Institutional ownership can have a negative effect on the CARs of an M&A for smaller firms as these firms have less well-developed CGMs which institutional ownership can influence via their institutional activism (Switzer & Kelly, 2006; Eisenberg, Sundgren & Wells, 1998). Larger firms, which have large amounts of outstanding stock and many shareholders, have relatively more and better developed CGMs. Here institutional investors can make a stance for their shareholders and utilise their voting power. With smaller firms it can be stated that due to the underdevelopment of their CGMs institutional activism does not work as well as hypothesised in corporate governance literature (Bushee, Carter & Gerakos, 2014). This results

in the fact that, as M&As generally see negative returns as an acquiror, the institutional ownership and its activism cannot prevent wasteful M&As from happening.

5.3 Recommendations

The findings of this thesis open the door for future research. The hypothesised reasoning behind the negative returns provides a steppingstone for further analyses as to where these effects come from and whether the hypothesised reasoning is correct. Stemming from limitations within this study a few recommendations are made.

This thesis researched the period after, at the time, the biggest crisis since the Great Depression. The world economy took a severe hit after the financial sector failed and insecurity lead to an economic downturn. Controlling for a variety of setbacks in the period from 2009 to 2019 this period is an expansionary phase. Economic growth and firm's stock values showed to be positive. Due to expansionary monetary policies of central banks around the world securities prices have increased faster than GDP-figures have. This can hint on an overvaluation of firm values. Extending this viewpoint of overvaluation suggests that firms are bought and sold for high prices and when conducting a take-over in this expansionary period it is the case that prices offered in take-over processes hint on overbidding. A recommendation made based on this thesis is to add a contractionary period to the dataset. This allows for an analysis in which firms can perform take-over at lower prices. In contractionary phases firms need to fire-sale divisions and subsidiaries which could imply that companies are undervalued. Taking an additional group of firms which performs take-overs in an economic downturn would overcome a potential bias of overpriced firms being taken over.

Another recommendation made is regarding the distribution of countries within this dataset. This thesis aimed to provide an answer on the fact whether bank-based or market-based economies showed a significant moderating effect on the institutional ownership. This sample appears to have a bias toward U.S.-based firms as 1.721 firms are U.S-listed out of a total of 2.321 firms. With 75% of the observations stemming from the U.S.A. this has biased the sample and does not aid in providing a concise answer from the interaction model. This can specifically be stated for the fact that Japan, as the only control-/bank-based economy, was underrepresented in the dataset with only 384 observations. Therefore, it is suggested to obtain an equal amount of observations of countries which are denoted in literature as market-based versus control-economies to prevent a biased sample. The idea of adding an equal amount of companies from different countries in part stems from the fact that better generalisable results will be provided. The main body of literature which does find significant positive returns from

institutional ownership conducts their research for Chinese or English firms only. A more equal distribution of countries would thus provide a more concise answer.

As literature points out that acquirors tend to lose out when performing a take-over, the same literature also points out that targets tend to win in terms of CARs of an M&A-announcement (Bruner, 2002). Acquirors generally need to pay a premium to purchase a target as these target's company's shareholders need to be convinced to sell their stakes. In this thesis no financial measure for target companies is added, apart from the type of industry and country of origin. By adding the financial data of target firms it could be that there is explanatory power stemming from the firms which are taken over. Connected to that is the last recommendation made in this thesis. To obtain a better picture of the effects of institutional owners it suggested to dissect the institutional owners themselves further. Regarding the targets it might be interesting to look at the ownership structures of both firms which strike a deal. Goranova et al. (2010) namely find significant effects when looking at M&As in which institutional owners have overlapping ownership structures. They find that acquirors are more likely to experience negative earnings when controlling for the fact that institutional owners have stakes at both sides of the table. This shows that it is important to dissect the institutional ownership structure of the targets.

Besides that, this thesis itself only investigates the ownership percentages as totals. A deeper analysis of the individual institutional owners and a grouping of subcategories might provide more answers (Andriosopoulos et al., 2015). Splitting and grouping the institutional owners on a variety of criteria such as being a domestic or foreign investor might provide a better view as to what drives the effects of institutional ownership. This for instance might show whether these types of investors experience a home-bias. One can also look at the size of an investor's stake within a company in which it can become evident that the top-5 holders of stock have an influence. Institutional investors who invests according ESG-investing criteria, or own defined 'responsible investing criteria' such as the Norwegian Government Pension Fund might provide answers as to what determines returns. Considering the alternative shareholders mentioned in this thesis it might be interesting to look at the holding periods of investors. Long-term investors might be more prone to 'defend' their holdings whereas short-term institutional investors might aim at realising short-term gains only. The dissection of the institutional ownership structures might proof to be fertile ground for further research into the topic of institutional activism.

6. References

Adnan, A., & Hossain, A. (2016). Impact of M&A Announcement on Acquiring and Target Firm's Stock Price: An Event Analysis Approach. *International Journal of Finance and Accounting, 5*(5), 228-232.

Andriosopoulos, D., & Yang, S. (2015). The impact of institutional investors on mergers and acquisitions in the United Kingdom. *Journal of Banking & Finance, 50*, 547-561.

Andriosopoulos, D., Yang, S., & Li, W. (2016). The market valuation of M&A announcements in the United Kingdom. *International Review of Financial Analysis, 48*, 350-366.

Antoniou, A., & Zhao, H. (2004). Long-run Post Takeover Stock Return: the Impact of Overlapping Return, Takeover Premium, and Method of Payment. *Centre for Empirical Research in Finance* (CERF). *Durham Business School University of Durham*.

Atkas, N., Croci, E., & Simsir, S. (2015). Corporate Governance and Takeover Outcomes. *Corporate Governance: An International Review, 23*(3), 2413-2432.

Baker, H., & Kiymaz, H. (2011). The Art of Capital Restructuring: Creating shareholder value through mergers and acquisitions. John Wiley & Sons: Hoboken, NJ.

Benninga, S. (2008). Financial Modeling, Fourth Edition. *The MIT Press*: Cambridge, MA.

Balli, H., & Sørensen, B. (2013). Interaction effects in econometrics. *Empirical Economics, 45*(1), 583-603.

Baron, R., & Kenny, D. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Bao, J., & Edmans, A. (2011). Do Investment Banks Matter for M&A Returns?. *The Review of Financial Studies, 24*(7), 2286-2315.

BBC. (2012). Timeline: The unfolding eurozone crisis. *British Broadcasting Company*. 13 June 2012.

Berger, P., & Ofek, E. (1996). Bustup Takeovers of Value-Destroying Diversified Firms. *The Journal of Finance, 51*(4), 1175-1200.

Berry, W., & Feldman, S. (1985). Multiple Regression in Practice. *50*. Sage Publications.

Binder, J. (1998). The Event Study Methodology Since 1969. *Review of quantitative Finance and Accounting, 11*(2), 111-137.

Brambor, T., Clark, W., & Golder, M. (2006). Understanding interaction models: Improving empirical analyses. *Political Analysis*, 63-82.

Brown, S., & Warner, J. (1985). Using Daily Stock Returns. *Journal of Financial Economics, 14*(1), 3-31.

Bruner, R. (2002). Does M&A Pay? A Survey of Evidence for the Decision-Maker. *Journal of Applied Finance, 12*(1), 48-68.

Bruner, R. (2004). Where M&A Pays and Where It Strays: A Survey of the Research. *Journal of Applied Corporate Finance, 16*(4), 63-76.

Burkart, M., & Lee, S. (2015). Hedge fund activism vs. hostile takeover bids. *Swedish House of Finance Research Paper*, 2015.

Bushee, B., Carter, M., & Gerakos, J. (2014). Institutional investor preferences for corporate governance mechanisms. *Journal of Management Accounting Research, 26*(2), 123-149.

Campa, J., & Hernando, I. (2004). Shareholder Value Creation in European M&As. *European Financial Management, 10*(1), 47-81.

Chakraborty, S., & Ray, T. (2006). Bank-based versus Market-based Financial Systems: A Growth-theoretic analysis. *Journal of Monetary Economics, 53*(2), 329-350.

Chung, K., & Zhang, H. (2011). Corporate Governance and Institutional Ownership. *Journal of Financial and Quantitative Analysis, 46*(1), 247-273.

Cohen, J., & Cohen, P. (1985). Applied multiple regression and correlation analysis for the behavioral sciences. 2nd Edition. Lawrence Erlbaum Associates: Hillsdale, NJ.

Cornett, M., Marcus, A., Saunders, A., & Tehranian, H. (2007). The impact of institutional ownership on corporate operating performance. *Journal of Banking & Finance, 31*(6), 1771-1794.

Cowan, A. (1992). Nonparametric Event Study Test. *Review of Quantitative Finance and Accounting* 2 (1992), 343-358.

Demirgüç-Kunt, A., & Levine, R. (1999). Bank-Based and Market-Based Financial Systems: Cross-Country Comparisons. The MIT Press: Cambridge, MA.

Demirgüç-Kunt, A., & Maksimovic, V. (2002). Funding growth in bank-based and market-based financial systems: evidence from firm-level data. *Journal of Financial Economics, 65*(3), 337-363.

DePamphilis, D. (2015). Mergers, Acquisitions, and Other Restructuring Activities. *Elsevier Science Publishing Co Inc.*: London, GB.

Dickgiesser, S., & Kaserer, C. (2009). Market Efficiency Reloaded: Why Insider Trades do not Reveal Exploitable Information. *German Economic Review, 11*(3), 302-335.

Du, M., & Boateng, A. (2015). State ownership, institutional effects and value creation in cross-border mergers & acquisitions by Chinese firms. *International Business Review, 24*(3), 430-442.

Eakins, S., Stansell, S., & Wertheim, P. (1997). Institutional Portfolio Composition: An Examination of The Prudent Investment Hypothesis. *The Quarterly Review of Economics and Finance, 38*(1), 93-109.

Eisenberg, T., Sundgren, S., & Wells, M. (1998). Larger board size and decreasing firm value in small firms. *Journal of Financial Economics, 48,* 35-54.

Eisenhardt, K. (1989). Agency theory: An assessment and review. *Academy of Management Review, 14*(1), 57-74.

Fama, E., Fisher, L., & Roll, R. (1969). The Adjustment of Stock Prices to New Information. *International Economic Review, 10*(1), 1-21.

Fama, E., & Jensen, M. (1983). Separation of Ownership and Control. *The Journal of Law & Economics, 26*(2), 301-325.

Ferreira, M., & Matos, P. (2008). The colors of investors' money: The role of institutional investors around the world. *Journal of Financial Economics, 88*(3), 499-533.

Gaughan, P. (2007). How Private Equity and Hedge Funds Are Driving M&A. *Journal of Corporate Accounting & Finance, 18*(4), 55-63.

Gillan, S. (2006). Recent Developments in Corporate Governance: An Overview. *Journal of Corporate Finance, 12*(3), 381-402.

Gillan, S., Hartzell, J., & Starks, L. (2004). Explaining Corporate Governance: Boards, Bylaws, and Charter Provisions. *Weinberg Center for Corporate Governance Working Paper*. No. 2003-03.

Gillan, S., & Starks, L. (2000). Corporate governance proposals and shareholder activism: the role of institutional investors. *Journal of Financial Economics, 57*(2), 275-305.

Grinstein, Y., & Michaely, R. (2005). Institutional Holdings and Payout Policy. *The Journal of Finance, 60*(3), 1389-1426.

Grossman, S. & Hart, O. (1982). Corporate Financial Structure and Managerial Incentives. *The Economics of Information and Uncertainty*. University of Chicago Press: Chicago, IL.

Grubb, T., & Lamb, R. (2000). Capitalize on Merger Chaos: Six Ways to Profit from Your Competitors' Consolidation on Your Own. Simon & Schuster: New York City, NY.

Goranova, M., Dharwadkar, R., & Brandes, P. (2010). Owners on Both Sides of the Deal: Mergers and Acquisitions and Overlapping Institutional Ownership. *Strategic Management Journal, 31*(10), 1114-1135.

Guriev, S., Lazareva, O., Rachinsky, A., & Tsouhlo, S. (2003). Concentrated ownership market for corporate control, and corporate governance. *CEFIR Project,* 23.

Hall. P, & Soskice, D. (2001). Varieties of Capitalism: The Institutional Foundations of Comparative Advantage. Oxford University Press: Oxford, GB.

Hartzell, J., & Starks, L. (2003). Institutional Investors and Executive Compensation. *The Journal of Finance, 58*(6), 2351-2374.

Holler, J. (2014). Event Study-Methodik und statistische Signifikanz. OIWIR: Edewecht, DE.

Ishii, J., & Xuan, Y. (2014). Acquirer-target social ties and merger outcomes. *Journal of Financial Economics, 112*(3), 344-363.

Jensen, M., & Meckling, W. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Economics social institutions,* 163-231. Springer: Dordrecht, NL.

Jensen, M., & Ruback, R. (1983). The Market for Corporate Control: The Scientific Evidence. *Journal of Financial Economics, 11,* 5-50.

Köke, J. (2004). The market for corporate control in a bank-based economy: a governance device?. *Journal of Corporate Finance, 10*(1), 53-80.

Kothari, S., & Warner, J. (2007). Econometrics of Event Studies. *Handbook of Empirical Corporate Finance,* 3-36. Elsevier.

Lane, P. (2012). The European Sovereign Debt Crisis. *Journal of Economic Perspectives, 26*(3), 49-68.

Levine, R. (2002). Bank-Based Or Market-Based Financial Systems: Which Is Better? *Journal of Financial Intermediation, 11*(4), 398-428.

Lo, H., Wu, R., & Kweh, Q. (2017). Do institutional investors reinforce or reduce agency problems? Earnings management and the post-IPO performance. *International Review of Financial Analysis, 52,* 62-76.

Ma, L. (2019). The effect of institutional ownership on M&A performance: Evidence from China. *Applied Economics Letters, 27*(2), 140-144.

Ma, J., Pagán, J., & Chu, Y. (2009). Abnormal Returns to mergers and Acquisitions in Ten Asian Stock Markets. *International Journal of Business, 14*(3), 236-250.

MacKinlay, A. (1997). Event Studies in Economics and Finance. *Journal of Economics Literature, 35*(1), 13-39.

MacDonald, R. (2005). A template for shareholder value creation on M&As. *Strategic Direction*.

Malmendier, U., & Tate G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of Financial Economics, 89*(1), 20-43.

Manne, H. (1965). Mergers and the Market for Corporate Control. *Journal of Political Economy, 73*(2), 110-120.

Martynova, M., & Renneboog, L. (2006). Mergers and Acquisitions in Europe. Advances in Corporate Finance and Asset Pricing, 13-75.

Matti, J., & Zhou, Y. (2017). The political economy of Brexit: explaining the vote. *Applied Economics Letters, 24*(16), 1131-1134.

McWilliams, A., & Siegel, D. (1997). Event Studies in Management Research: Theoretical and Empirical Issues. *Academy of Management Journal, 40*(3), 626-657.

Meyer, J., Gremler, D., & Hogreve, J. (2014). Do Service Guarantees Guarantee Greater Market Value? *Journal of Service Research, 17*(2), 150-163.

Mishkin, F., Matthews, K., & Giuliodori, M. (2009). The Economics of Money, Banking and Financial Markets. Pearson Education Limited: New York City, NY.

Mavlutova, I., & Olevsky, G. (2015). Mergers and Acquisitions (M&A) as Modern Ways of Investments. *International Journal in Economics and Business Administration, 3*(4), 72-83.

Norio, O., Ye, T., Kajitani, Y., Shi, P., & Tatano, H. (2011). The 2011 Eastern Japan Great Earthquake Disaster: Overview and Comments. *International Journal of Disaster Risk Science, 2*(1), 34-42.

OECD (2019). OECD Institutional Investors Statistics 2019. OECD Publishing: Paris, FR.

Chaganti, R., & Damanpour, F. (1991). Institutional ownership, capital structure, and firm performance. *Strategic Management Journal, 12*(7), 479-491.

Qui, L. (2004). Which Institutional Investors Monitor? *Evidence from Acquisition Activity, Yale International Center for Finance Working Paper,* 04-15.

Ramalingegowda, S., & Yu, Y. (2012). Institutional ownership and conservatism. *Journal of Accounting and Economics, 53*(1-2), 98-114.

Rhoades, S. (1993). The Herfindahl-Hirschman Index. *Federal Reserve Bulletin, 79*(3), 188-189.

Romano. R. (2001). Less is More: Making Institutional Investor Activism a valuable Mechanism of Corporate Governance. *Yale Journal of Regulation, 18,* 175-251.

Rozen-Bakher, Z. (2018). Comparison of merger and acquisition (M&A) success in horizontal, vertical and conglomerate M&As: industry sector vs. service sector. *The Service Industries Journal, 38*(7-8), 492-518.

Scheuering, U. (2014). M&A and the tax benefits of debt-financing. *ZEW-Centre for European Economic Research Discussion Paper,* (14-019).

SEC. (2020). Division of Corporate Finance: Standard Industrial Classification (SIC) Code List. *U.S. Securities and Exchange Commission*. 2020.

Smith, M. (1996). Shareholder Activism by Institutional Investors: Evidence from CalPERS. *The Journal of Finance, 51*(1), 227-252.

Shleifer, A., & Vishny, R. (1997). A Survey of Corporate Governance. *The Journal of Finance, 52*(2), 737-783.

Strong, N. (1992). Modelling Abnormal Returns: A Review Article. *Journal of Business Finance & Accounting, 19*(4), 533-553.

Switzer, L., & Kelly, C. (2006). Small Cap Firm Performance and Corporate Governance: A Simultaneous Equations Approach. *Working Paper Concordia University*. 2006.

Szmigiera, M. (2020). Value of M&A Transactions Globally 1985-2019. *The Institute for Mergers, Acquisitions and Alliances (IMAA)*. 24-02-2020.

Tsionas, M., Merikas, A., & Merika, A. (2012). Concentrated ownership and corporate performance revisited: The case of shipping. *Transportation Research Part E: Logistics and Transportation Review, 48*(4), 843-852.

The Wall Street Journal. (2020). Investment Banking Scorecard. *Dealogic* on The Wall Street Journal, 2020.

Thomson Reuters. (2018). Worldscope Database: Data Definitions Guide. *Thomson Reuters, 15*. 27-03-2018.

Thomson Reuters Eikon. (2020). Ownership & Profiles: Investor Type Definitions. 2020.

White, H. (1980). A Heteroskedasticity-Consistent Covariance Matrix Estimator and Direct Test for Heteroskedasticity. *Econometrica, 48*(4), 817-838.

Wu, J., & Chung, K. (2020). Hedge fund activism and corporate M&A decisions. *Hedge Fund Activism and Corporate M&A Decisions (March 22, 2020).*

7. Appendix

Table 1. Institutional ownership defined for search criteria.

Institutional ownership	
Institutional owners	**Description**
Governmental agencies	Governmental investment arms
Insurance companies	Investing funds providing coverage for pay-outs as well as profits
Pension funds	Investing funds providing coverage for pension-holders to participants
Sovereign wealth funds	State-owned institutions aimed to ensure governmental expenditures
Research firms	Research firms which have investment banking departments
Mutual funds	Investment vehicle invest funds in accordance with set targets
Endowment funds	Gift providers to universities or colleges re-investing to continuity

Table 2. Search strategy.

Search criteria		
Criteria	**Definition**	**Source**
Institutional holdings	Subsidiaries with shareholders by profile: Insurance companies, Mutual funds / Pension Funds, Trusts, Public authorities, States, Governments. Ownership in between 0% and 100%, being acquirer.	Thomson Reuters Datastream
Country	Germany (DE), Japan (JP), United Kingdom (GB), United States of America (US), acquirer-location.	Zephyr
Deal type	Merger or Acquisition	Zephyr
Indices	DAX (Deutscher Aktienindex), FTSE100, NASDAQ-100, Nikkei Stock Average (Nikkei 225), NYSE COMPOSITE INDEX, S&P500, acquirer-listing.	Thomson Reuters Datastream
Time period	01/01/2009 - 31/12/2019	Thomson Reuters Datastream
Deal value	All deals with known values, including estimates for missing values.	Zephyr / Thomson Reuters Datastream
Methods of payment	Business assets, cash, cash assumed, cash reserves, converted debt, liabilities, deferred payments, dividend, earn-out, bonds, other, services, share, third party shares.	Thomson Reuters Datastream
US SIC	All U.S. Primary SIC codes, excluding all values in the 6000-6999 range.	Zephyr

Table 3. Cumulative Abnormal Returns separated per event window.

Name	Description
	CAR based on an event window of a specified amount of days
CAR_1	-5 +5
CAR_2	-2 +2
CAR_3	-1 +1
CAR_4	Announcement day only
CAR_5	-5 +10
CAR_6	-5 +25
CAR_7	-5 +40
CAR_8	-1 +21

Table 4. Institutional ownership definition (including alternative activism and exclusions).

Institutional owners	Description
Governmental agencies	Governmental investment arms
Insurance companies	Investing funds to provide coverage for pay-outs as well as profits
Pension funds	Investing funds to provide coverage for pension pay-outs to participants
Sovereign wealth funds	State-owned institutions aimed to ensure governmental expenditures
Research firms	Research firms which have investment banking departments
Mutual funds	Investment vehicle invest funds in accordance with set targets
Endowment funds	Gift providers to universities or colleges re-investing to continuity
Alternative activism	
Private equity	Private equity investors focused on MBOs, LBOs and restructuring
Hedge funds (portfolios)	Aggressive investors which no financial product unavailability
Venture capital	Specialised in investments for exceptional growth potential
Excluded	
Brokerage firms	Sell-side investment firm acting as intermediary
Private portfolio funds	Portfolio investors
Corporations	Business organisations
Holding companies	Legal entities aimed at retaining control within firms
Banks and trusts	Retail banks and trust account holders
Investment advisors	SEC-registered investment advisors for private clients
Individual investor	Individual wealth investors
Financing companies	Credit-institutions facilitated not by deposit holders

Table 5. Independent variables defined.

Variable Name	Description
Institutional	Percentage of outstanding stock owned by all institutional investors
Alternative	Percentage of outstanding stock owned by all alternative investors
Private	100% - Institutional - Alternative
Insurance	Percentage of outstanding stock owned by insurance companies
Pension	Percentage of outstanding stock owned by pension funds
SWF	Percentage of outstanding stock owned by sovereign wealth funds
Mutual	Percentage of outstanding stock owned by mutual funds
Governmental	Percentage of outstanding stock owned by governmental agencies
Research	Percentage of outstanding stock owned by (independent) research firms
Endowment	Percentage of outstanding stock owned by endowment funds
Hedge	Percentage of outstanding stock owned by hedge funds
PE	Percentage of outstanding stock owned by private equity
VC	Percentage of outstanding stock owned by venture capitalists

Table 6. Control variables.

Controls	Description
Firm-specific	
MarketCap	Natural logarithm of the market price times the number of outstanding shares at the end of the year, measured in USD
Assets	Natural logarithm of the sum of total assets, including long term receivables, investments in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets, measured in USD
Debt	Ratio of total debt outstanding to total assets
ROA	Return on Assets as defined by Worldscope
Cash & Equivalents	Ratio of cash and cash equivalents to total assets
Dividend Yield	Ratio of common cash dividends to the share price
Market-to-book-value	Ratio of market value of ordinary common equity divided by the balance sheet value of ordinary common equity
Company Age	Company age from incorporation to M&A-announcement year
New Economy	Binary variable equal to one for companies operating in the New Economy (Technology) and zero otherwise
Deal-specific	
Experience	Number of M&As conducted by firms included within the dataset
Cash Payment	Binary variable equal to one when the company offers a cash payment and zero otherwise
Share Payment	Binary variable equal to one when the company offers a share payment and zero otherwise
Liabilities Payment	Binary variable equal to one when the company offers a liabilities payment and zero otherwise
Hostility	Binary variable equal to one when the target company recommends the deal and zero otherwise
Advisor	Binary variable equal to one when the investment bank advising the deal is J.P. Morgan Chase, Goldman Sachs, Morgan Stanley, Citi Group or Bank of America, zero otherwise
Cross-industry	Binary variable equal to one when the acquiring company differs two-digits on SIC codes and zero otherwise
Cross-border	Binary variable equal to one when the acquiring company performs a take-over when the target is located elsewhere and zero otherwise
General	
Earthquake 2011 Japan	Binary variable equal to one when the acquiring company announced a M&A in 2011 when listed in Japan and zero otherwise
Brexit 2016 U.K.	Binary variable equal to one when the acquiring company announced a M&A in and after 2016 when listed in the U.K. and zero otherwise
Sovereign Debt 2012	Binary variable equal to one when the acquiring company announced a M&A in 2012 when listed in Germany or the U.K. and zero otherwise
Financial system	Binary variable equal to one when the country is listed as a bank-based financial system, being Japan, zero otherwise
Year-controls	10 separate year controls
Industry-controls	Separate industry controls based on SIC-codes

Table 7. Descriptive statistics.

Abbreviations are accounted for as follows: *CAR_1* denotes the event window -5 +5 days, *CAR_2* -2 +2 days, *CAR_3* -1 +1 days, *CAR_4* 0 days, *CAR_5* -5+10 days, *CAR_6* -5 +25 days, *CAR_7* -5 +40 days, *CAR_8* -1 +21 days, *Institutional* as INST, *Alternative* as ALT, *Pension* as PENS, *Insurance* as INS, *Governmental* as GOV, *Endowment* as ENDOW *Mutual* as MUT and *Hedge* as HEDGE, *Cash & Equivalents* as CASH, *DividendYield* as DIV, *DividendDummy* as DIVD, *CompanyAge* as AGE, *NewEconomy* as ECON, *CashPayment* as CASHPAY, *SharePayment* as SHAREPAY, *LiabilitiesPayment* as LIABPAY, *Hostility* as HOSTILE, *Advisor* as ADVISE, *Experience* as EXP, *CrossBorder* as CROSSB, *CrossIndustry* as CROSSI, *CrossDummy* as CROSSD. Notations used throughout Appendix.

Variable	**Observations**	**Mean**	**Std. Dev.**	**Min**	**Max**
CAR_1	2321	.7527873	7.417608	-36.3058	40.20322
CAR_2	2321	.6494691	6.237405	-37.35395	36.81118
CAR_3	2321	.6053813	5.625097	-27.85376	36.92666
CAR_4	2321	.6147962	5.153747	-26.62638	31.37716
CAR_5	2321	.6159433	8.418595	-39.14491	57.20392
CAR_6	2321	.2780251	10.87291	-55.03809	65.75463
CAR_7	2321	-.1005844	13.4582	-72.97491	73.21871
CAR_8	2321	.4161385	9.496405	-51.87744	42.13475
INST	2321	7.184257	4.208493	0	36.8429
ALT	2321	5.009772	8.690897	0	74.1743
PENS	2321	2.578482	2.018856	0	20.9164
INS	2321	.893862	2.161977	0	16.2887
SWF	2321	1.071799	1.536117	0	29.2316
GOV	2321	.0473056	1.189042	0	33.3463
ENDOW	2321	.0097949	.0818049	0	1.99
RESEARCH	2321	1.57592	1.719745	0	17.3871
MUT	2321	.0070919	.0804047	0	2.73
PE	2321	.7447229	4.832693	0	73.2582
HEDGE	2321	4.149176	6.40546	0	66.09
VC	2321	.1158729	1.547249	0	32.99
ASSETS	2319	15.67698	1.597025	10.18806	20.47713
MARKETCAP	2319	15.64874	1.572533	10.00043	20.98928
DEBT	2319	.2968815	.1836079	0	1.630774
MTBV	2293	3.98775	21.17401	-119	603.6
ROA	2312	5.958465	7.898194	-70.82	77.33
CASH	2318	.1285884	.1341515	.0006338	.7937643
DIV	2321	1.966883	1.210701	.03	11.04
DIVDUMM	2321	.3308919	.4706356	0	1
AGE	2321	41.3184	35.90615	0	169
ECON	2321	.0736751	.2612978	0	1
CASHPAY	2321	.5062473	.5000687	0	1
SHAREPAY	2321	.07109	.2570306	0	1
LIABPAY	2321	.0280052	.1650231	0	1
HOSTILE	2321	.0163723	.1269297	0	1
ADVISE	2321	.1732012	.3785027	0	1
EXP	2321	2.556657	3.814943	0	31
CROSSB	2321	.6462732	.4782287	0	1
CROSSI	2321	.4573217	.4853801	0	1
CROSSD	2321	.9491598	.2197185	0	1
JAPAN	2321	.0163723	.1269297	0	1
UK	2321	.0280052	.1650231	0	1
SD	2321	.0275743	.163785	0	1
N	2321				

Table 8. Selected descriptive statistics for transformed variables.

Variables	Observations	Mean	Std. Dev.	Min	Max
INST	2321	1.734727	.7998229	0	3.633443
ALT	2321	1.135169	1.084209	0	4.319809
PENS	2321	1.102847	.6235616	0	3.087235
INS	2321	.3613149	.6037912	0	2.850053
SWF	2321	.612116	.4367512	0	3.408888
GOV	2321	.0065788	.1382057	0	3.536494
ENDOW	2321	.0080026	.0511072	0	1.095273
RESEARCH	2321	.7704888	.5831733	0	2.911649
MUT	2321	.0053491	.051138	0	1.316408
PE	2321	.128956	.5450576	0	4.307548
HEDGE	2321	1.077997	1.01901	0	4.206035
VC	2321	.0231865	.2290782	0	3.526066
N	2321				

Table 9. Pearson correlation matrix (main variables only).

Horizontal numbers corresponding with vertical names and numbers. Abbreviations denoted differently for table 9 due to sizing issues. CAR_1 denoteds the event window -5 +5, *Institutional* is denoted as INST, *Alternative* as ALT, *Assets* as ASSET, MarketCap as MARKC, *DividendYield* as DIV, *CompanyAge* as AGE, *NewEconomy* as ECON, *CashPayment* as CASHP, *SharePayment* as SHAREP, *LiabilitiesPayment* as LIABP, *Hostility* as HOST, *Advisor* as ADVIS, *Experience* as EXPER, *CrossBorder* as CROS1, *CrossIndustry* as CROS2.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1) CAR_1	1.000																			
(2) INST	-0.044	1.000																		
(3) ALT	0.031	0.017	1.000																	
(4) ASSET	-0.131	0.236	-0.233	1.000																
(5) MARKC	-0.113	0.238	-0.251	0.864	1.000															
(6) DEBT	0.042	0.050	0.206	0.132	0.011	1.000														
(7) MTBV	0.003	0.017	-0.027	0.040	0.099	0.011	1.000													
(8) ROA	-0.007	0.080	-0.135	0.049	0.257	-0.002	0.050	1.000												
(9) CASH	-0.021	-0.012	0.008	-0.074	0.107	-0.348	0.023	0.029	1.000											
(10) DIV	-0.048	0.097	-0.154	0.296	0.199	0.096	0.003	-0.008	-0.084	1.000										
(11) AGE	-0.011	0.118	-0.292	0.219	0.118	-0.071	0.022	0.015	-0.156	0.128	1.000									
(12) ECON	-0.034	0.001	-0.036	0.062	0.103	0.008	-0.006	0.036	0.148	0.019	-0.118	1.000								
(13) CASHP	0.000	-0.021	-0.076	0.028	0.042	-0.040	-0.024	0.065	0.035	-0.015	0.080	-0.003	1.000							
(14) SHARP	-0.044	-0.035	-0.065	0.052	-0.060	0.019	-0.029	-0.153	-0.025	-0.018	0.095	-0.026	-0.281	1.000						
(15) LIABP	0.031	0.038	0.023	0.020	0.005	0.012	0.012	0.016	-0.001	0.014	0.009	-0.038	-0.173	-0.048	1.000					
(16) HOST	0.015	0.100	0.016	0.070	0.067	0.018	-0.001	0.008	-0.003	0.057	-0.019	0.055	-0.049	0.004	-0.022	1.000				
(17) ADVIS	0.009	0.111	0.036	0.151	0.123	0.059	0.060	0.007	-0.037	0.058	-0.054	0.016	-0.141	0.006	-0.010	0.066	1.000			
(18) EXPER	-0.019	0.018	-0.036	0.200	0.291	0.155	-0.003	0.070	0.057	0.001	0.009	-0.025	0.075	-0.085	-0.026	-0.025	-0.033	1.000		
(19) CROS1	0.008	-0.028	0.106	-0.058	-0.095	0.004	-0.006	-0.063	0.019	-0.072	-0.096	0.033	-0.047	0.131	-0.110	-0.018	0.080	-0.050	1.000	
(20) CROS2	-0.010	0.010	-0.102	0.084	0.071	-0.057	-0.018	0.019	0.016	0.023	0.112	-0.024	0.042	0.008	-0.046	-0.025	-0.069	0.105	-0.035	1.000

Table 10. VIF-scores.

Variable	VIF	1/VIF
NOINST	3,79	0,264112
INST	3,73	0,268334
ALT	2,02	0,495319
DIVD	1,56	0,641894
ASSETS	1,50	0,664892
DEBT	1,33	0,753112
AGE	1,32	0,758366
CASH	1,27	0,785407
SHAREPAY	1,23	0,810223
CASHPAY	1,22	0,820057
DIV	1,20	0,832212
EXP	1,16	0,860856
CROSSB	1,12	0,896009
ADVISE	1,10	0,906274
ROA	1,09	0,917193
UK	1,08	0,922427
SD	1,08	0,925590
ECON	1,07	0,936181
LAIBPAY	1,07	0,938311
JAPAN	1,06	0,941877
CROSSI	1,05	0,950637
CROSSD	1,04	0,958422
HOSTILE	1,03	0,974751
MTBV	1,01	0,988503
Mean VIF	1,42	

Table 11. Breusch-Pagan / Cook-Weisberg test-statistic.

H_0: Constant Variance	
Chi^2	8,65
Prob > Chi^2	0,0033
Reject H_0	Yes

Table 13. OLS-results, all variables included.

Ordinary Least Squares estimation with robust standard errors (in parentheses), including Industry- and Year-fixed effects. Abbreviations are accounted for as follows: *CAR_1* denotes the event window -5 +5 days, *CAR_2* -2 +2 days, *CAR_3* -1 +1 days, *CAR_4* 0 days, *CAR_5* -5+10 days, *CAR_6* -5 +25 days, *CAR_7* -5 +40 days, *CAR_8* -1 +21 days, *Institutional* as INST, *Alternative* as ALT, *Pension* as PENS, *Insurance* as INS, *Governmental* as GOV, *Endowment* as ENDOW *Mutual* as MUT and *Hedge* as HEDGE, *Cash & Equivalents* as CASH, *DividendYield* as DIV, *DividendDummy* as DIVD, *CompanyAge* as AGE, *NewEconomy* as ECON, *CashPayment* as CASHPAY, *SharePayment* as SHAREPAY, *LiabilitiesPayment* as LIABPAY, *Hostility* as HOSTILE, *Advisor* as ADVISE, *Experience* as EXP, *CrossBorder* as CROSSB, *CrossIndustry* as CROSSI, *CrossDummy* as CROSSD and the constant as CONS. Notations used throughout Appendix.

	(1) CAR_1	(2) CAR_2	(3) CAR_3	(4) CAR_4	(5) CAR_5	(6) CAR_6	(7) CAR_7	(8) CAR_8
INST	-1.397***	-1.344***	-1.017**	-0.836**	-1.438**	-2.965***	-3.575***	-2.709***
	(0.526)	(0.476)	(0.435)	(0.403)	(0.650)	(0.808)	(1.048)	(0.761)
ALT	0.128	-0.0906	-0.0117	0.00345	0.134	0.132	-0.134	0.0677
	(0.269)	(0.224)	(0.200)	(0.183)	(0.311)	(0.407)	(0.511)	(0.360)
NOINST	-1.664	-1.732	-0.965	-0.783	-1.512	-4.009*	-4.689*	-3.954**
	(1.433)	(1.269)	(1.156)	(1.058)	(1.686)	(2.094)	(2.717)	(2.014)
ASSETS	-0.650***	-0.498***	-0.523***	-0.507***	-0.697***	-0.416*	-0.252	-0.395*
	(0.167)	(0.140)	(0.128)	(0.118)	(0.203)	(0.251)	(0.310)	(0.226)
DEBT	3.843***	2.795**	2.761**	3.061***	3.309*	2.988	4.445	2.851
	(1.473)	(1.300)	(1.190)	(1.075)	(1.752)	(2.289)	(2.842)	(2.111)
MTBV	0.000623	-0.00066	-0.00249	-0.00275	-0.00430	-0.00550	-0.0175**	-0.00739
	(0.00559)	(0.00429)	(0.00349)	(0.00331)	(0.00614)	(0.00577)	(0.00832)	(0.00557)
ROA	-0.0212	-0.0136	0.00598	0.0106	-0.0248	-0.0419	-0.0330	-0.0126
	(0.0332)	(0.0260)	(0.0272)	(0.0255)	(0.0390)	(0.0491)	(0.0645)	(0.0441)
CASH	1.109	-0.0409	-0.233	-0.417	0.471	-0.311	1.456	-0.0543
	(1.887)	(1.497)	(1.414)	(1.287)	(2.538)	(3.080)	(3.901)	(2.826)
DIV	-0.292*	-0.301*	-0.231*	-0.271**	-0.177	-0.124	-0.0747	0.0573
	(0.172)	(0.160)	(0.140)	(0.133)	(0.209)	(0.284)	(0.356)	(0.253)
DIVD	-0.880	-0.557	-0.452	-0.411	-0.470	-1.022	-1.592	-0.793
	(0.564)	(0.472)	(0.424)	(0.385)	(0.626)	(0.814)	(1.038)	(0.705)
AGE	0.0119*	0.00432	0.00546	0.00497	0.0153**	0.0114	0.0116	0.00507
	(0.00670)	(0.00562)	(0.00496)	(0.00444)	(0.00740)	(0.00992)	(0.0128)	(0.00882)
ECON	-0.875	-1.384	-1.278	-0.537	-2.343	-3.867	-1.248	-3.489
	(4.747)	(2.366)	(2.244)	(1.898)	(2.701)	(2.574)	(3.777)	(3.229)
CASHPAY	-0.112	-0.396	-0.258	-0.0678	-0.203	-0.0957	-0.331	0.0345
	(0.377)	(0.323)	(0.292)	(0.267)	(0.431)	(0.559)	(0.681)	(0.499)
SHAREPAY	-0.990	-1.322	-1.113	-0.723	-2.293**	-1.639	-1.842	-1.915
	(0.913)	(0.857)	(0.746)	(0.670)	(1.026)	(1.315)	(1.828)	(1.271)
LIABPAY	0.471	0.231	0.406	0.171	0.439	0.813	1.080	1.082
	(0.927)	(0.654)	(0.644)	(0.603)	(1.190)	(1.304)	(1.696)	(1.183)
HOSTILE	2.112**	1.296	1.306	0.288	1.477	2.992**	4.635***	2.364*
	(1.048)	(0.864)	(0.868)	(0.798)	(1.206)	(1.489)	(1.722)	(1.418)
ADVISE	0.442	0.0504	0.0966	-0.0406	0.582	0.777	0.230	0.643
	(0.493)	(0.434)	(0.402)	(0.379)	(0.536)	(0.666)	(0.838)	(0.581)
EXP	0.0214	0.0314	0.0357	0.0302	0.0136	-0.0244	-0.0530	0.0104
	(0.0493)	(0.0413)	(0.0375)	(0.0323)	(0.0581)	(0.0764)	(0.0972)	(0.0691)
CROSSB	0.0431	-0.122	0.0538	-0.0171	0.0198	0.0962	0.179	-0.0931
	(0.388)	(0.317)	(0.281)	(0.256)	(0.450)	(0.571)	(0.686)	(0.500)
CROSSI	-0.346	-0.485	-0.639**	-0.685**	-0.348	-0.615	-0.0802	-0.652

	(0.398)	(0.330)	(0.300)	(0.268)	(0.457)	(0.578)	(0.720)	(0.513)
CROSS	-1.199*	-0.849	-0.658	-0.251	-1.144	-0.931	-2.175	-0.640
	(0.700)	(0.596)	(0.540)	(0.545)	(0.808)	(1.202)	(1.503)	(1.119)
JAPAN	-2.669**	-2.068**	-1.082	-1.431**	-2.750**	-2.320	-3.538*	-0.805
	(1.134)	(0.962)	(0.800)	(0.683)	(1.271)	(1.737)	(1.981)	(1.527)
UK	-0.333	0.549	0.622	0.769	-1.276	-1.424	-0.657	-0.536
	(1.054)	(0.969)	(0.891)	(0.852)	(1.194)	(1.451)	(1.849)	(1.292)
SD	0.332	-0.0921	-0.238	-0.0249	-0.532	-1.443	-3.460**	-1.929*
	(0.812)	(0.651)	(0.654)	(0.591)	(0.911)	(1.235)	(1.497)	(1.121)
CONS	13.01**	11.34***	10.74***	9.358***	14.30***	13.89***	10.34	13.15**
	(5.248)	(3.378)	(3.135)	(2.789)	(4.201)	(4.913)	(6.495)	(5.137)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2284	2284	2284	2284	2284	2284	2284	2284
adj. R^2	0.063	0.064	0.063	0.069	0.046	0.059	0.055	0.046

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 14. OLS-results including interaction effect (controls not shown to safe space).

Ordinary Least Squares estimation with robust standard errors (in parentheses), including Industry- and Year-fixed effects. *Financialsystem* denoted as FIN.SYSTEM, *Financialsystem*Institutional* as INTERACTION.

	(1) CAR_1	(2) CAR_2	(3) CAR_3	(4) CAR_4	(5) CAR_5	(6) CAR_6	(7) CAR_7	(8) CAR_8
INST	-1.539***	-1.514***	-1.141**	-0.990**	-1.735**	-3.303***	-3.788***	-3.138***
	(0.574)	(0.525)	(0.477)	(0.441)	(0.701)	(0.872)	(1.140)	(0.815)
FIN.SYSTEM	-1.219	-1.496*	-0.925	-1.462**	-2.165	-2.724	-1.610	-2.986**
	(1.102)	(0.897)	(0.791)	(0.733)	(1.342)	(1.669)	(2.077)	(1.432)
INTERACTION	0.354	0.412	0.351	0.339	0.867	0.906	0.601	1.298**
	(0.499)	(0.402)	(0.362)	(0.340)	(0.587)	(0.759)	(0.963)	(0.642)
NOINST	-1.897	-2.023	-1.123	-1.083	-1.871	-4.505**	-4.967*	-4.426**
	(1.449)	(1.307)	(1.189)	(1.081)	(1.692)	(2.104)	(2.758)	(2.030)
ALT	0.0909	-0.143	-0.0185	-0.0642	0.130	0.0782	-0.148	0.0891
	(0.295)	(0.245)	(0.219)	(0.201)	(0.342)	(0.448)	(0.560)	(0.393)
CONS	12.79**	11.04***	10.61***	9.035***	14.03***	13.44***	10.11	12.84**
	(5.269)	(3.360)	(3.125)	(2.797)	(4.224)	(4.871)	(6.483)	(5.082)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2284	2284	2284	2284	2284	2284	2284	2284
adj. R^2	0.063	0.064	0.063	0.070	0.046	0.059	0.055	0.046

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 15. OLS-results split per category owners (controls not shown to safe space).

Ordinary Least Squares estimation with robust standard errors (in parentheses), including Controls, Industry- and Year-fixed effects.

	(1) CAR_1	(2) CAR_2	(3) CAR_3	(4) CAR_4	(5) CAR_5	(6) CAR_6	(7) CAR_7	(8) CAR_8
PENS	0.0210	0.0736	-0.0455	-0.0723	-0.244	-0.962	-1.448	-1.320*
	(0.583)	(0.492)	(0.449)	(0.428)	(0.706)	(0.869)	(1.083)	(0.782)
INS	-0.573	-0.445	-0.303	-0.406	-0.408	-1.515***	-1.556**	-0.998**
	(0.379)	(0.325)	(0.284)	(0.248)	(0.450)	(0.579)	(0.736)	(0.507)
MUT	0.997	-1.839	-0.401	0.0684	1.693	-5.563	-6.633	-3.824
	(2.413)	(1.864)	(1.720)	(1.645)	(2.559)	(3.968)	(5.130)	(3.389)
SWF	-1.208**	-1.176**	-0.710	-0.582	-1.271**	-1.258	-0.645	-1.329*
	(0.556)	(0.477)	(0.452)	(0.412)	(0.629)	(0.825)	(1.057)	(0.744)
RESEARCH	-0.546	-0.694*	-0.738**	-0.464	-0.356	-0.943	-1.688**	-1.106**
	(0.422)	(0.362)	(0.329)	(0.289)	(0.466)	(0.606)	(0.759)	(0.542)
ENDOW	-4.103	-3.591	-2.940	-3.868	-9.081	-10.01	-13.82**	-5.032
	(4.575)	(4.169)	(3.576)	(4.159)	(6.527)	(6.277)	(6.986)	(5.537)
GOV	-0.370	0.198	0.254	0.358	-0.465	0.577	0.566	1.276
	(0.549)	(0.546)	(0.528)	(0.560)	(1.177)	(1.036)	(1.238)	(1.242)
HEDGE	-0.366	-0.360	-0.133	-0.0962	-0.370	-0.534	-0.435	-0.217
	(0.310)	(0.255)	(0.229)	(0.216)	(0.370)	(0.465)	(0.575)	(0.425)
PE	0.969*	0.633	0.320	0.192	1.253**	1.410*	0.857	0.539
	(0.550)	(0.452)	(0.434)	(0.391)	(0.632)	(0.776)	(0.926)	(0.720)
VC	0.825	0.227	0.492	0.500	0.850	2.370	2.194	2.204
	(1.022)	(0.970)	(0.816)	(0.788)	(1.060)	(1.904)	(2.443)	(1.449)
NOINST	-0.856	-0.815	-0.351	-0.247	-0.711	-2.167	-2.104	-2.724
	(1.306)	(1.108)	(1.011)	(0.918)	(1.505)	(1.888)	(2.417)	(1.789)
CONS	11.30**	9.931***	9.577***	7.957***	12.23***	9.951**	5.720	10.53**
	(5.314)	(3.423)	(3.192)	(2.829)	(4.311)	(4.916)	(6.445)	(5.219)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2284	2284	2284	2284	2284	2284	2284	2284
adj. R^2	0.065	0.065	0.063	0.068	0.051	0.064	0.057	0.048

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 16. OLS-results for alternative category owners with interaction effect (controls not shown to safe space).

Ordinary Least Squares estimation with robust standard errors (in parentheses), including Controls, Industry- and Year-fixed effects. INTERACTION2 denotes *Hedge*PE*.

	(1) CAR_1	(2) CAR_2	(3) CAR_3	(4) CAR_4	(5) CAR_5	(6) CAR_6	(7) CAR_7	(8) CAR_8
INST	-0.481	-0.782**	-0.621*	-0.709**	-0.549	-1.118*	-1.322	-1.096*
	(0.435)	(0.381)	(0.341)	(0.313)	(0.538)	(0.661)	(0.871)	(0.620)
NOINST	-0.707	-1.207	-0.554	-0.958	-0.620	-1.429	-1.045	-1.120
	(1.216)	(1.053)	(0.972)	(0.887)	(1.439)	(1.791)	(2.312)	(1.705)
HEDGE	-0.225	-0.254	-0.0336	-0.00904	-0.311	-0.576	-0.443	-0.374
	(0.270)	(0.235)	(0.217)	(0.205)	(0.309)	(0.392)	(0.490)	(0.361)
PE	2.235**	1.547*	1.278	0.857	2.149*	2.433*	2.666*	2.014
	(1.071)	(0.912)	(0.844)	(0.663)	(1.258)	(1.363)	(1.481)	(1.408)
INTERACTION2	-0.881**	-0.652*	-0.611*	-0.416	-0.772	-0.896	-1.138*	-0.924
	(0.420)	(0.360)	(0.330)	(0.268)	(0.500)	(0.561)	(0.608)	(0.568)
VC	0.764	0.228	0.456	0.460	0.765	2.292	2.308	2.234*
	(0.878)	(0.862)	(0.729)	(0.718)	(0.910)	(1.683)	(2.278)	(1.261)
CONS	11.15***	9.283***	7.599***	5.353***	11.51***	12.09***	8.828*	11.99***
	(2.424)	(1.983)	(1.775)	(1.651)	(2.993)	(3.812)	(4.662)	(3.346)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2284	2284	2284	2284	2284	2284	2284	2284
adj. R^2	0.034	0.038	0.035	0.038	0.032	0.030	0.026	0.031

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 17. OLS-results with Industry-dummies and Country-dummies split (controls not shown to safe space).

Ordinary Least Squares estimation with robust standard errors (in parentheses), including Controls and Year-fixed effects. Industry dummies shown are grouped per SIC where values denote the category based on the first digit of the SIC-code. SIC 1 is the reference category. For countries the U.K. is the reference category.

	(1) CAR_1	(2) CAR_2	(3) CAR_3	(4) CAR_4	(5) CAR_5	(6) CAR_6	(7) CAR_7	(8) CAR_8
INST	-0.771*	-0.976**	-0.750**	-0.800**	-0.861	-1.564**	-1.738**	-1.421**
	(0.449)	(0.391)	(0.351)	(0.316)	(0.545)	(0.670)	(0.865)	(0.625)
ALT	-0.0631	-0.198	-0.0436	-0.0326	-0.102	-0.218	-0.235	-0.192
	(0.256)	(0.218)	(0.195)	(0.179)	(0.286)	(0.365)	(0.452)	(0.330)
NOINST	-1.136	-1.550	-0.827	-1.176	-1.057	-1.996	-1.709	-1.609
	(1.222)	(1.055)	(0.974)	(0.885)	(1.439)	(1.795)	(2.304)	(1.709)
SIC: 2	1.648*	1.522**	1.507**	1.674***	1.925**	2.830**	4.193***	1.532
	(0.865)	(0.680)	(0.625)	(0.579)	(0.947)	(1.262)	(1.618)	(1.065)
SIC: 3	1.084	1.129*	0.994*	0.979*	1.609*	2.450*	4.015**	1.457
	(0.863)	(0.664)	(0.599)	(0.550)	(0.950)	(1.261)	(1.622)	(1.040)
SIC: 4	1.292	1.387*	0.973	0.759	1.603	3.244**	5.026***	2.420**
	(0.949)	(0.760)	(0.690)	(0.623)	(1.076)	(1.412)	(1.820)	(1.195)
SIC: 5	2.203**	1.934***	1.656**	1.914***	2.639**	3.315**	5.061***	2.280*
	(0.956)	(0.745)	(0.677)	(0.637)	(1.042)	(1.409)	(1.759)	(1.180)
SIC: 7	-0.456	0.201	0.0608	0.178	-0.0104	-0.180	1.231	-0.521
	(0.993)	(0.782)	(0.698)	(0.641)	(1.096)	(1.465)	(1.865)	(1.225)
SIC: 8	1.644	0.839	0.456	0.844	2.244*	2.988**	4.536**	1.908
	(1.026)	(0.785)	(0.726)	(0.669)	(1.159)	(1.500)	(1.887)	(1.274)
SIC: 9	2.181	3.313*	2.229	1.465	-0.0711	3.796	7.587**	4.880
	(2.334)	(1.723)	(1.665)	(1.592)	(3.448)	(3.818)	(3.542)	(3.968)
Country: JP	-0.716	-0.645	-0.466	-0.462	-0.924	-1.588	-1.298	-1.312
	(0.783)	(0.624)	(0.549)	(0.495)	(0.932)	(1.310)	(1.616)	(1.076)
Country: US	0.172	0.0484	-0.166	0.316	-0.333	-0.884	-1.273	-0.820
	(0.724)	(0.575)	(0.521)	(0.476)	(0.835)	(1.185)	(1.427)	(0.977)
CONS	11.81***	9.729***	8.040***	5.723***	12.15***	13.29***	10.17**	13.16***
	(2.413)	(1.963)	(1.755)	(1.641)	(2.959)	(3.828)	(4.706)	(3.356)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2284	2284	2284	2284	2284	2284	2284	2284
adj. R^2	0.029	0.036	0.033	0.037	0.029	0.025	0.024	0.026

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 18. OLS-results with *HH-Institutional* Index (controls not shown to safe space).

Ordinary Least Squares estimation with robust standard errors (in parentheses), including Controls and Year-fixed effects. *HH-Institutional* Index denoted as HHINST, *Institutional*HH-Institutional* Index as INTERACTION3.

	(1) CAR_1	(2) CAR_2	(3) CAR_3	(4) CAR_4	(5) CAR_5	(6) CAR_6	(7) CAR_7	(8) CAR_8
INST	-2.097**	-2.603***	-2.070***	-1.764***	-2.131**	-3.385**	-2.407	-3.022**
	(0.837)	(0.822)	(0.743)	(0.647)	(1.056)	(1.322)	(1.772)	(1.340)
HHINST	1.063	-4.537	-3.103	-1.477	4.575	-6.221	-4.094	-3.966
	(5.976)	(5.846)	(5.358)	(4.696)	(7.444)	(9.195)	(12.12)	(9.321)
NOINST	-1.990	-3.316*	-2.331	-2.060	-1.368	-3.957	-2.632	-3.179
	(1.897)	(1.822)	(1.661)	(1.421)	(2.374)	(2.991)	(3.975)	(3.025)
INTERACTION3	1.285	3.434	2.586	1.639	0.275	4.295	2.027	3.468
	(2.394)	(2.429)	(2.238)	(1.993)	(3.028)	(3.714)	(4.998)	(3.845)
CONS	1.808	2.844	2.063	1.218	0.179	2.877	0.280	3.765
	(1.994)	(1.931)	(1.758)	(1.531)	(2.498)	(3.254)	(4.258)	(3.267)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2321	2321	2321	2321	2321	2321	2321	2321
adj. R^2	0.018	0.024	0.021	0.027	0.019	0.021	0.021	0.020

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 20. Marginal plot of institutional ownership (*CAR_1*) with the *HH-Institutional* Index at the 95% confidence interval split for the *HH-Institutional* Index with values over 0,50.

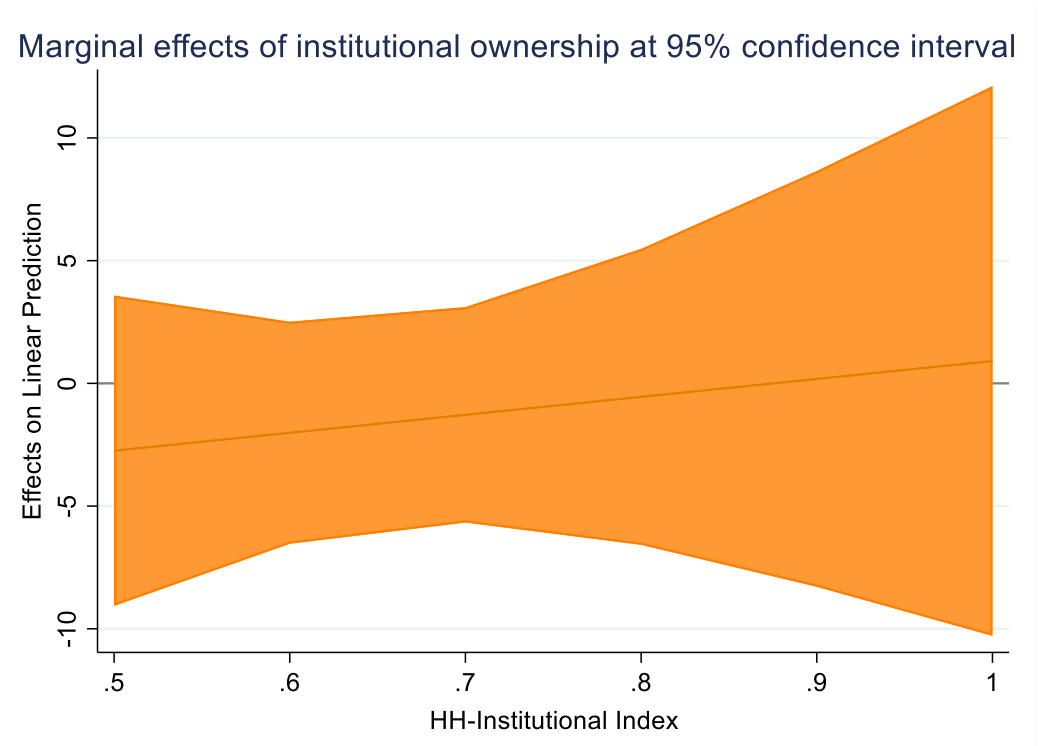


Table 21. OLS-results with *Assets* and Interaction (controls not shown to safe space).

Ordinary Least Squares estimation with robust standard errors (in parentheses), including Controls and Year-fixed effects. *Institutional*Assets* denoted as INTERACTION4.

	(1) CAR_1	(2) CAR_2	(3) CAR_3	(4) CAR_4	(5) CAR_5	(6) CAR_6	(7) CAR_7	(8) CAR_8
INST	-3.211	-4.083**	-3.192*	-2.767*	-3.613	-4.451	-5.958	-5.819*
	(2.229)	(1.869)	(1.731)	(1.585)	(2.734)	(3.588)	(4.417)	(3.209)
NOINST	-1.135	-1.579	-0.853	-1.195	-1.038	-2.008	-1.772	-1.642
	(1.221)	(1.056)	(0.977)	(0.886)	(1.441)	(1.796)	(2.315)	(1.712)
HIINSTITUTIONAL	1.931	0.941	0.582	0.540	3.106	1.603	0.0939	1.704
	(2.258)	(1.890)	(1.748)	(1.586)	(2.562)	(3.284)	(4.092)	(2.923)
ASSETS	-0.859***	-0.779***	-0.678***	-0.540***	-0.907***	-0.932**	-0.991**	-0.997***
	(0.256)	(0.205)	(0.186)	(0.173)	(0.327)	(0.425)	(0.501)	(0.379)
INTERACTION4	0.137	0.189*	0.150	0.120	0.145	0.169	0.269	0.264
	(0.130)	(0.107)	(0.0992)	(0.0920)	(0.161)	(0.214)	(0.258)	(0.189)
CONS	14.70***	14.22***	11.65***	8.597***	14.93***	17.08**	16.90*	19.32***
	(4.391)	(3.566)	(3.242)	(3.026)	(5.624)	(7.324)	(8.679)	(6.593)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2284	2284	2284	2284	2284	2284	2284	2284
adj. R^2	0.029	0.036	0.033	0.037	0.029	0.025	0.023	0.027

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 22. Marginal plot of institutional ownership (*CAR_1*) with *Assets* at the 90% confidence interval.

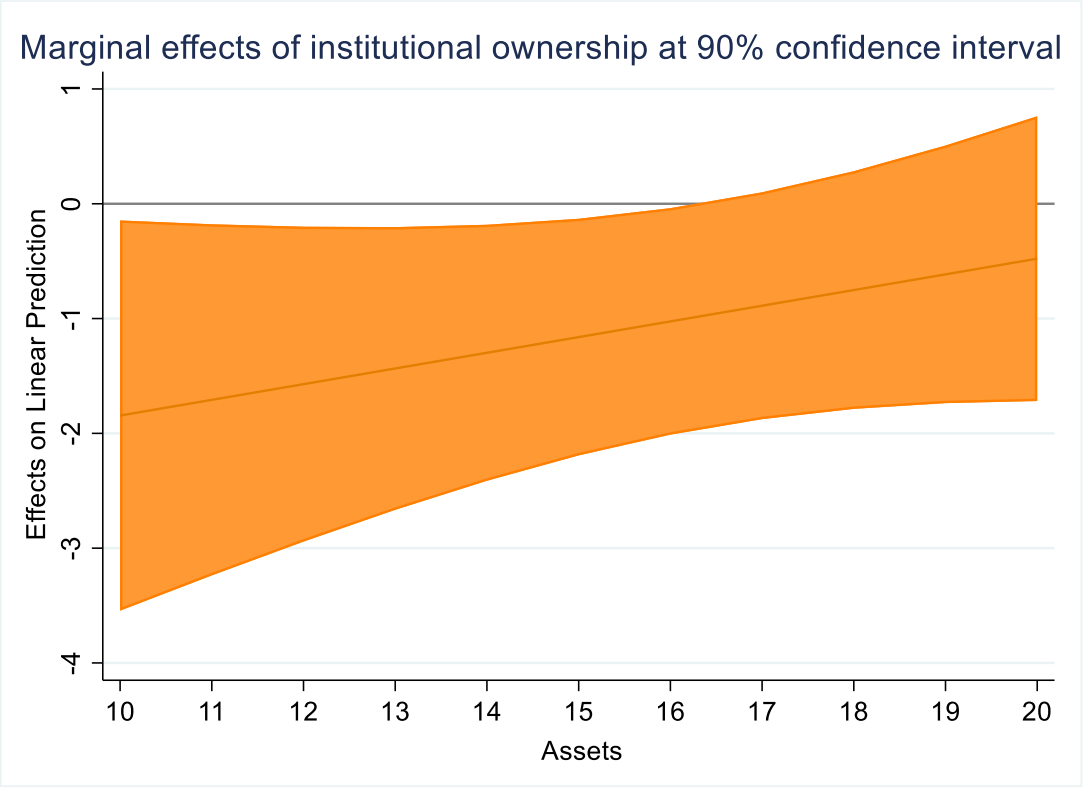


Table 23. OLS-results with *MarketCap* and Interaction (controls not shown to safe space).

Ordinary Least Squares estimation with robust standard errors (in parentheses), including Controls and Year-fixed effects. *Institutional*MarketCap* denoted as INTERACTION5.

	(1) CAR_1	(2) CAR_2	(3) CAR_3	(4) CAR_4	(5) CAR_5	(6) CAR_6	(7) CAR_7	(8) CAR_8
INST	-5.565**	-5.819***	-4.292**	-3.433*	-6.604**	-9.115**	-12.87***	-9.172***
	(2.433)	(2.168)	(1.960)	(1.779)	(2.961)	(3.852)	(4.926)	(3.520)
NOINST	-1.443	-3.124*	-1.998	-1.868	-0.752	-3.817	-2.055	-2.961
	(1.958)	(1.864)	(1.697)	(1.461)	(2.416)	(3.082)	(4.034)	(3.127)
HHINSTITUTIONAL	0.929	-5.362	-3.999	-2.114	4.531	-5.579	-0.816	-3.570
	(6.343)	(5.919)	(5.416)	(4.725)	(7.791)	(9.560)	(12.26)	(9.479)
MARKETCAP	-0.0500	-0.127	-0.179	-0.303	0.131	0.612	0.265	0.199
	(0.409)	(0.328)	(0.280)	(0.265)	(0.485)	(0.612)	(0.768)	(0.538)
INTERACTION5	0.270*	0.248**	0.182*	0.142	0.334**	0.393*	0.681**	0.424**
	(0.144)	(0.120)	(0.109)	(0.0999)	(0.170)	(0.224)	(0.275)	(0.200)
CONS	17.91***	16.91***	13.61***	10.11***	18.38***	22.54***	25.25***	23.31***
	(4.723)	(4.064)	(3.601)	(3.359)	(6.035)	(7.845)	(9.707)	(7.165)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2284	2284	2284	2284	2284	2284	2284	2284
adj. R^2	0.030	0.038	0.034	0.037	0.031	0.030	0.028	0.030

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 24. Marginal plot of institutional ownership (*CAR_1*) with *MarketCap* at the 95% confidence interval.