



**Date: 15-3-2022**

Student name: **Adriana Sansal**

Student number: **456002**

Student e-mail: **456002as@student.eur.nl**

Coach name: **Prof. Vadym Volosovych**

Co-readers name: **Dr. Fabrizio Core**

**Ownership concentration and M&A performance: The moderating effect of outside ownership concentration**

**Abstract**

This study examines the influence of ownership concentration on M&A performance for listed companies based in the US for the period 2013-2019. This paper provides evidence that when ownership is split up in insider and outside ownership, the individual relationship these measures have on M&A performance are revealed. Supportive evidence is found that an increase in insider ownership affects M&A performance negatively whereas an increase in outsider ownership affects M&A performance positively. Besides, a novel addition to literature can be added, namely, that when a firm's outside shareholdings increase, it consequently weakens the negative relationship between inside ownership concentration and M&A performance.

## **Acknowledgements**

This master thesis is the end product of a challenging but incredible era of my life as a student at the ESE. Although writing this thesis was one of the most challenging tasks I had to complete in my life, finishing it was also one of the most rewarding. Above all, this process has taught me a lot about perseverance, intrinsic motivation and I can say that I have gained a sense of self-efficacy which I think will help me prosper for the rest of my life. I owe a lot of gratitude to the people who have helped me during the thesis process.

First of all, I would like to thank professor Vadym Volosovic who provided me with enlightened insights and made sure I could finish my thesis and start at my new job. Also, there is one person I am especially thankful for, which is Melissa, she has been my rock in this thesis process and her support has made me see the light at the end of the tunnel.

Moreover, I would like to thank my brother, my in-laws, my parents, my boyfriend, and my dearest friends for their unconditional support during this process. I could not have written this thesis and therefore completed my masters without them, especially during these challenging times.

Hopefully you will enjoy reading my Master Thesis,

Adriana Sansal

January 2022, Rotterdam

The copyright of this paper rests with the author. The author is responsible for its contents. ESE is only responsible for the educational coaching and cannot be held liable for the content.

# Index

Introduction .....	5
1. Literature review .....	9
1.1 Ownership concentration.....	9
1.2 Inside ownership concentration.....	11
1.3 M&A performance .....	13
1.4 Outsider ownership concentration and its effect on M&A performance .....	15
1.5 Insider ownership concentration and its effect on M&A performance .....	16
1.6 Outsider ownership concentration and its moderating effect on the relationship between insider ownership concentration and M&A performance .....	19
2. Methodology and Data .....	22
2.1 Methods and techniques .....	22
2.2 Regressions.....	22
2.2 Variables.....	26
2.2.1 Independent variable: Insider ownership concentration.....	26
2.2.2 Dependent variable: Acquirer firm performance .....	26
2.2.2.1 Return on assets.....	26
2.2.2.2 Return on equity .....	27
2.2.2.3 Cumulative abnormal returns .....	28
2.2.2.4 Buy and hold abnormal returns .....	29
2.2.3 Moderating variable: Insider ownership .....	30
2.2.4 Control variables .....	30

2.2.4.1 Acquirer-level control variables .....	31
2.2.4.2 Deal-level control variable .....	31
2.2.4.3 Target-level control variable .....	32
2.2.4.4 Overview of the variables .....	32
3. Results .....	33
3.1 Descriptive statistics.....	33
3.2 Variance inflation factor (VIF) .....	37
3.3 Regression results.....	37
3.3.1 Regression results deal-level dataset.....	38
3.3.2 Hausman tests year-level dataset.....	43
3.3.3 Regression results year-level dataset.....	43
3.3.4 Testing the hypotheses .....	49
4. Conclusion and discussion .....	51
5. Implications and limitations .....	54
6. Bibliography.....	55

## Introduction

Over the last years major changes have been seen in business cycles, economies and economic activity in general. No firm is managed as how it was 20 years ago, and this evolution has also made room for changes in corporate governance and structure. One of the most discussed topics in academic literature is to what extend corporate governance mechanisms improve the decision-making process, and consequently help value maximization that firms are after. Ownership structure is one of these extensively examined and important corporate governance mechanisms which affect the performance and efficiency of a firm. Ownership structure comprises of two parts, ownership concentration and ownership identity, this research will focus on the former. The importance of ownership concentration, as a corporate governance mechanism and its effect on the performance of a firm is a extensively debated theme in the framework of corporate governance (Nashier & Gupta, 2020).

Berle and Means (1932) were the first ones to address the corporate governance problem, which today is referred to as the 'separation of ownership and control'. They mention that since most publicly listed companies have dispersed shareholdings, the 'owners' of these kind of firms lack supervision over the managers which manage and control the day-to-day business of a company. When there is no concentrated ownership, this separation of ownership and control leads to the widely discussed 'agency problem', which is a well-known problem within any typical principal-agent relationship. Public companies, where the agent (manager) acts on behalf of the principal (shareholders), face this problem and this is the reason why ownership concentration is an important corporate governance mechanism (Jensen & Meckling, 1976; Shleifer & Vishny, 1986).

When examining the ownership concentration– and performance relationship prior literature has mostly focused on firms outside the US. This is because the widely dispersed ownership structure which Berle and Means (1932) propose is not the most common ownership structure, it is mostly common in the US and UK (Denis & McConnell, 2003). In most countries, such as in Asia or in most European countries, the largest shareholder holds a significant block of the voting rights, which in addition is usually a family. In other countries, such as Malaysia, Taiwan and France the shareholder which holds the biggest blocks is the government. Whereas, in Germany and Belgium non-financial companies control most of the firms. Blockholders use several control enhancing mechanisms to monitor publicly listed firms. These mechanisms include shares with differing voting rights, different classes of shares and pyramid schemes (Faccio & Lang, 2002).

Until recently, there was a widespread agreement that in the US and UK, ownership is less concentrated in public corporations than it is outside of the US (Denis & McConnell, 2003) (Harris, 1995). A few theories have been formulated to explain the differences between ownership concentration in US firms and firms in the rest of the world, all of them rely on legal differences. For example, La Porta Lopez-De-Silanes, Shleifer, and Vishny (1997) suggest that in countries with weak shareholders' protection, shareholders will have to control large blocks of shares to effectively exercise control rights over managers. The large blocks serve as a substitute for weak shareholder protection. Moreover, following this weak shareholder protection, the demand for shares is lower which indirectly stimulates concentrated ownership. Given that the US has one of the best legal shareholder protections, the authors argue that following this fact, the US also has the most diffuse ownership. Furthermore, Harris (1995) mentions that the roots of diffused ownership lie in US laws which discourages owning large shareholdings. Also, Bebchuk (1999) mentions that when the

private benefits of control are smaller, ownership will most likely diffuse. This is the case in the US, where shareholders have the right to attack the excessive consumption of private benefits by blockholders.

Following these theories, prior literature concerning concentrated ownership is mostly focused on countries outside of the US. The literature regarding ownership in the US is mostly regarding ownership as managerial ownership which is a subject which is extensively researched for US firms. Following these gaps in literature, it is not surprising that there is a widespread consensus reached that ownership in US publicly listed firms is less concentrated than it is outside of the US. However, a paper by Holderness (2005) sheds new light on this debate, in his paper “A contrarian view of ownership concentration in the United States and around the world”, the author finds that prior literature does not know the fundamental facts about US ownership. The author points out that the gaps in prior literature are an evident indication that ownership concentration structure is a misinterpreted matter. The authors mention that most of the literature only takes managerial shareholdings into account, and almost none of the literature examines which fraction of the shares are held by blockholders or how much blockholders typically own. And that therefore it is surprising that despite this paucity, there is a consensus reached that US ownership is less concentrated than ownership outside of the US. The authors find that dispersed ownership is not the rule, but rather a mere exception.

Mergers and acquisitions offer the most ideal setting to examine the effects of ownership concentration on strategic decision making. This is because mergers and acquisitions are among the highest and most important corporate investments, they create great value impacts that are easily observed by outsiders and are also associated with agency problems and

uncertainty (which are caused and influenced by ownership), offering an opportunity to study the above stated relationship which may not be revealed when studying exclusively internal investments, where these problems and uncertainty are not as clear as in M&As.

As literature regarding concentrated inside and outside ownership and how it impacts the performance of mergers and acquisitions in the US is limited, this paper aims to contribute to this discussion with the following research question:

***RQ:** To what extent does insider and outsider ownership concentration impact M&As performance?*

The objective of this paper is to discover the relationship between insider ownership, outsider ownership and M&A performance. The results of this thesis are relevant for several stakeholders of the firms which partake in M&A. For example when a firm has a high inside ownership, shareholders of the firm should be cautious if this firm is involved in a lot of merger decisions. This thesis proposes that an increase in insider ownership as opposed to outsider ownership will have a negative effect on the performance of a merger, and also that outsider ownership works as a weakening moderator between the negative insider ownership and performance relationship. The significant results suggest that the proposed hypotheses can not be rejected. Even though there is some contradicting evidence found for the insider ownership– and performance relationship, this result can be explained when diving deeper in the performance metric, and therefore, the proposed conclusion can be drawn when taking the previous issue into account. Namely, that insider ownership negatively influences M&A performance, outside ownership positively influences M&A performance and that outside ownership works as a weakening moderator between the negative insider ownership – performance relationship.



The remainder of this paper is structured as follows: Section 1 discusses the literature from which the hypotheses are developed, Section 2 discusses the variables and the empirical strategy, Section 3 reports the results, Section 4 concludes, and Section 5 discusses the limitations and implications.

## **1. Literature review**

### **1.1 Ownership concentration**

It is a general understanding that ownership structure is one of the most important components of corporate governance (Shleifer & Vishny, 1986). The ownership structure-performance relationship has interested scholars and researchers for many years over several disciplines such as strategic management (Demsetz & Lehn, 1985; Oswald & Jahera Jr, 1991; Bethel & Liebeskind, 1993) and finance (Han & Suk, 1998; Belkhir, 2009; Omran, 2015; Ramaswamy, 2017). Since the introduction of Berle & Means' (1932) dominant business model, literature has made room for the discussion related to governance problems which originate from the principal-agent problem between shareholders and managers (Jensen & Meckling, 1976). These agency problems are more striking when shareholders are very fractioned and are too small to have resources to discipline management (Grossman & Hart, 1980).

On the other hand, next to the monitoring and control risk that firms face which have widely dispersed ownership, firms who do have concentrated ownership face expropriation risks. Ownership concentration refers to the extent to which the shares of a listed company are

narrowly or widely held. One of the examples of the detrimental influence that concentrated ownership has on corporate performance arises from conflicting interest between minority and controlling shareholders. (Hansmann & Kraakman, 2004). Firms face the risk that the controlling shareholders may extract private benefits at the expense of the minority shareholders.

Most prior research share the consensus that concentrated ownership creates better monitoring incentive and consequently reduces agency costs. In their study Leech & Leahy (1991) examine the relationship between ownership concentration and firm performance. They collect a sample which includes 470 large UK firms in the time period 1983-1985. The authors find that concentrated firms, with regard to several performance measures such as growth of sales, growth of net assets, return on equity and total profit margin are more profitable and thus perform better than dispersed firms. Furthermore, Mitton (2002), found a positive relation between firms with a higher ownership concentration and firm performance during the East Asian financial crisis of 1997-1998. Mitton's results suggest that higher outside ownership concentration ensures better monitoring as well as preclusion of expropriation of minority shareholders, both positively influencing firm performance. In addition, research on this topic in markets with weak minority shareholder protection also reached the same consensus. For example, in their research Claessens & Djankov (1999), where the authors examine the relationship between ownership concentration and firm performance for 706 Czech firms. They find that, when they use labor productivity and profitability as proxies of firm performance, a positive relationship is found. The authors measure ownership concentration as the amount of shareholding by the top five shareholders. Even when the authors control for endogeneity and firm characteristics by the means of sensitivity test, they still find a robust relationship.

However, there is also literature regarding the ownership performance relationship which indicates a negative effect. Wang & Shailer (2015) use several meta-analytical techniques to integrate diverse empirical findings. The authors mention that the literature regarding this relationship tested in emerging markets present conflicting predications and inconclusive results. Examining 42 primary studies in 18 emerging markets, the authors find that ownership concentration has negative relation with firm performance across countries. The authors mention that the theories which are based on the cost of capital hypothesis, controlling shareholder agency problem, and negative impact on governance mechanisms are stronger in predicting the ownership-performance relationship than the theories which predict a positive relationship such as, interest alignment, ownership as substitute for weak legal and institutional environments due to the nature of emerging markets.

To this day arguments to whether outside concentrated ownership enhances or impedes firm performance are competing. Many studies concerning the ownership-performance relationship report inconsistent and contradicting results and this heterogeneity hinders the process of understanding the relevance and source of this dynamic ownership-performance relationship. Inconsistent empirical evidence in this field of research is accompanied by conflicting theoretical predictions.

## **1.2 Inside ownership concentration**

Managers and their influence on a firms' strategic decisions and performance has been a topic of interest in academia for many years. Jensen & Meckling (1976) were the first ones to address that a company which is publicly listed with hired managers would not be managed in a way that would maximize the firms' value. The authors argued that the passivity of

dispersed shareholders is a serious weakness which could allow managers to neglect shareholders' interest and pursue their own agenda.

The consequence of managers not being the shareholders is that they do not have the same financial interest in the company as the shareholders. However, when managers held a significant fraction of the shares (e.g. 10%), it was assumed that they did identify with the firms' shareholders and maximized their wealth (Gugler et al., 2008). The financial interests of managers and shareholders converge as ownership incentives rise (Wright et al., 2002). This phenomenon is called the 'alignment effect'. This effect is further explained by Shleifer & Vishny (1986), in their article, the authors define corporate governance as a means through which corporate investors can assure themselves of a positive return on investment. One of the most effective corporate governance mechanisms the authors mention is insider ownership. As the level of insider ownership increases, the chances of conflict are reduced, because management now has a stronger incentive to follow the common value-maximization goal.

In contrast, Morck et al. (1988) highlighted a second feature of insider ownership in their article, namely, that the more shares managers would own, the more entrenched they would be. Demsetz, (1983) shares the same argument, the author states that when management owns a significant portion of the firms' shares, it will lead to management having an insignificant interest in the profitability of this firm's activities. This double-edged sword of insider ownership has caught academia to be well invested into this topic.

These two hypotheses also serve as a possible explanation for why the insider ownership and firm performance relationship is a bell-shaped relationship. McConnel and Servaes (1990)

investigate the relationship between Tobin's Q and the structure of insider equity ownership. The authors find that this relationship is upward sloping until ownership reaches around 40-50% and then slopes downward for concentrated percentages of ownership. This indicates that controlling interest, does not support the importance of it being a monitoring agent for corporate managers, and that holding controlling interest makes managers perform worse, than they would have if they held a smaller fraction of the firms' shares.

### **1.3 M&A performance**

M&A performance is a topic which has been extensively researched within the M&A literature. M&A is one of the most famous and preferred growth strategies for firms across the world. However, literature on this topic, most specifically in the finance field, has reached the consensus that this preferred growth strategy is often not the one which creates the most value for the company and can even be value destroying. Cartwright & Schoenberg's (2006) review about the last thirty year of M&A research concludes that the failure rate for M&A's reaches even 44 to 50 percent. The question whether or not M&A creates value has reached a vast amount of attention in the world of research. The reason why outcomes on this matter differ is partly because measuring M&A performance is theoretically complex and ambiguous. The variables to measure performance which are used in prior literature include objective as well as subjective assessments. Subjective measurements have focused on integration effectiveness, synergy realization and strategic gap reduction. Whereas objective measurements have used market performance, accounting performance and other operational data (Das & Kapil, 2012).

Zollo & Meier (2008) examine the concepts of acquisition performance, by the means of a study which includes the most used M&A performance metrics in prior finance and strategic

management literature. The first measure which they used to assess M&A performance includes an integration process performance measure, which involves a survey that has been sent to the managers of the firms which performed the acquisitions. This survey includes questions regarding the effective integration and alignment of human resources, operations and systems and whether or not capabilities were effectively transferred. Moreover, they proxied M&A performance as employee and customer retention. The authors also examined overall acquisition performance, which they proxied by sales/cost measures and the development of new customers relations. Furthermore, the authors used accounting measures such as ROA and RIOC and short-term event study measures such as the 5-day cumulative abnormal returns. The conclusion that they reach is that M&A performance is a multifaceted construct and that there is no overarching measure to capture all the ways to proxy it. Moreover, the authors mention that short-term windows for event studies, which have been used most frequently as metric to approximate M&A performance, gauges something other than M&A performance, namely, the collective cognitive heuristic which is the “market sentiment” about how a given acquisition should perform. The authors point out that in their research it seems that the market does not have enough information to systematically predict the future of an acquisition based on common available knowledge at the announcement time. A more precise term for the use of the short-term window event studies would be that they proxy the market expectation about the performance of the M&A and not acquisition performance per se. To conclude, M&A performance is a very complex concept and to address it there has to be made use of multiple measures. This is needed to have any satisfactory progress in the discussion to unveil the puzzle of M&A performance.

#### **1.4 Outsider ownership concentration and its effect on M&A performance**

As literature concerning ownership concentration has not reached a clear consensus as to whether it has a positive or negative effect on firm performance, literature about its relationship with M&A performance is clearer.

There are several rationales that drive M&As. These rationales can be subdivided into value-enhancing drivers and value-destructive drivers, for the firm as a whole. Value enhancing drivers include the desire for synergies and improvements of inefficiently managed target firms. Value destructive drivers include managerial hubris and that the firms' expansion will positively influence the CEO's remuneration. As M&As are inherently risky activities and a large proportion of prior literature concludes that M&As fail to contribute to the financial wealth of the acquiring firm, it can be concluded that most of the time these M&As are value-destroying and therefore, the value destructive drivers predominate. The majority of research that uses event-study analysis (Agrawal et al., 1992; Asquith, 1983) and research that compared pre- and post-M&A financial performance (Ghosh, 2001; Ravenscraft & Scherer, 1989) draw on this conclusion.

One of the explanations of this phenomenon is that, in M&A literature, which is focused on large publicly traded companies, widely dispersed ownership has the feature of not monitoring management well enough (Bhaumik & Selarka, 2012). And because M&As are complex and uncertain strategic activities, dispersed ownership and the lack of monitoring that flows from it, almost ensures a not well integrated and potentially value-destructive acquisition. Concentrated outside ownership would therefore monitor management and guide them into only performing value enhancing M&As.

Moreover, another detrimental effect on firm performance would be the lack of intervention. When a firm loses sight of its main objectives or lacks the drive and focus to perform as the shareholders would want, there could be external interference needed to get it back on track (Shleifer & Vishny, 1986). This is mostly done by a blockholder with a significant portion of the shareholdings, as they have the power through voting rights to make value enhancing interventions, this is also called the “Voice” (Edmans & Manso, 2011).

Even though literature on concentrated ownership and firm performance is divided whether it adds or destroys shareholders value, in the context of M&As, concentrated outside ownership is most likely to increase monitoring on management and consequently management is stopped from engaging in empire-building value destructive M&As. Moreover, intervention from outside blockholders which have enough control through voting rights is also found to have a positive effect on firm value (Maher & Andersson, 2000). This effect would be even more stringent during times when strategic decision making is of great importance, such as during M&As. As the effect on firm value from the choices of ownership concentration has implications for corporate governance, strategic decision making of the management and policy making. It is expected that in the case of M&A’s, concentrated outside ownership would benefit firm performance. Therefore, the proposed hypothesis is:

***Hypothesis 1:** Outside ownership concentration is positively related to M&A performance*

### **1.5 Insider ownership concentration and its effect on M&A performance**

Another dominant explanation of failing M&As is the agency problem between owners and managers, whereby managers take share-price decreasing decisions because their goals and that of shareholders are not aligned. It is often seen that entrenched managers use M&As as



an aggressive growth strategy, as a way of rapidly expanding and growing the company. So given that M&As are extremely risky activities and often fail, it could be concluded that the entrenchment effect is a driver of M&A's. This entrenchment effect finds its origin in Roll's (1986) research, in which the author develops the hubris hypothesis. The author finds that managers who are infected with by hubris, let this hubris greatly influence their merger decisions. This hubris is developed by managers who have a past of great achievements, praises, recognition, and successes. This hubris negatively influences firm performance (and M&A performance) and it increases the likelihood of an entrenched management.

Moreover, another way this entrenchment effect increases is when ownership concentration of management increases, and this entrenched management are more likely to make investment decisions which are empire-building strategies instead of share-price increasing strategies which benefit the firm as a whole, e.g. overpaying for a target firm (Shleifer & Vishny, 1989).

Marris (1998) confirms this statement, the author mentions that the number one constraint on managerial empire building is the threat of takeover, should the share price of the company fall too low. This threat of takeover is negatively related to the number of shares which management holds, as when management holds a significant portion of the outstanding shares, it is less likely that the firm is being subjected to a hostile takeover. When this threat of takeover is eliminated, a low share-price is not an antecedent of a hostile takeover anymore, and this results in an entrenched management. So, it can be argued that insider ownership is a proxy for management entrenchment. And indeed, prior literature on this topic finds a negative relationship between insider ownership and M&A performance.

In their research Gugler et al. (2008) separate the positive wealth effects that insider ownership has, from the negative entrenchment effects. And by doing so, they want to demonstrate that because insider holdings entrench management, this has a negative effect on investment performance (including M&A performance). The authors follow Marris' (1998) reasoning about how the threat of takeover decreases with the number of shares the management holds, causing an entrenched management. And indeed, the authors find a significant negative effect between insider shareholdings (IS) and investment performance (marginal q).

Masulis et al. (2007) examine the different corporate governance mechanisms and how they affect the profitability of acquisitions. In their research they find that acquiring firms which have more anti-takeover provisions and greater stock option remuneration, experience significantly lower announcement abnormal stock returns. This indicated that managers who work at firms which are protected by more anti-takeover provisions and have a significant portion of their pay in stock options are less likely to be subject to the disciplinary power of the market for corporate control and are more likely to indulge in empire-building acquisitions which destroy shareholders value. Therefore, it can be concluded that building on prior literature, insider shareholdings cause two conflicting hypotheses to be true at the same time, the entrenchment hypothesis and the alignment hypothesis. And although both competing hypotheses are not mutually exclusive, in the context of mergers and acquisitions it is expected that the entrenchment effect dominates. Therefore, the second proposed hypothesis is:

*Hypothesis 2: Insider ownership negatively impacts M&A performance (entrenchment effect is bigger than alignment effect in the context of M&A performance)*

## **1.6 Outsider ownership concentration and its moderating effect on the relationship between insider ownership concentration and M&A performance**

As can be concluded from the above paragraphs, outside ownership concentration is expected to have a positive effect on M&A performance, due to an increased level of monitoring and intervention. Whereas insider ownership concentration has an expected negative effect on performance in the context of mergers and acquisitions, this is because the predicted negative entrenchment effect is more dominant than the expected positive alignment effect.

Demsetz & Lehn (1985) and Fama & Jensen (1983) recognized that a manager with only a small stake in the firm may still be forced towards value maximization by market discipline ( e.g. the market for corporate control, the managerial labor market). Contrastingly, a manager which owns a substantial fraction of the firms' shares may have more voting power or even have an influence on his/hers employment with the firm at an appealing salary. Grullon et al. (2011) reports that no firms which have insiders that own over 30% have ever been acquired by a hostile takeover. This shows that when the insiders have effective control over the firm, they could indulge in non-value-maximizing behavior. The above stated entrenchment hypothesis predicts that the firms' assets can be less valuable when they are managed by a manager which is free from the monitoring on his control. Whereas the convergence-of-interests hypothesis states that the larger the stakes of the managers, the higher the market valuation of the company. These two hypotheses do not exclude each other, the authors even mention that while the convergence of interest hypothesis predicts a more uniform positive

relationship between ownership and market valuation, the entrenchment hypothesis suggest that the market valuation could be adversely affected for different ranges of high ownership stakes. These two effects could also differ for different times of the year, or different strategic decisions. In the context of mergers and acquisitions it is predicted that the entrenchment effect would predominate, for the reason that most of the M&As fail. And therefore, these failing M&As can be seen as a consequence of a value-destroying antecedent (e.g. empire building)

When outsider ownership is concentrated, there is a lot of incentive for the outsider to monitor the management, whether the insiders are also the firms' owners or not (Weisbach, 1988). So not only is it expected that outside ownership concentration has a positive influence on M&A performance due to the monitoring and intervention effect they have on management which hold only a small portion of the firms' shares (H1). It is also expected that this monitoring effect is also substantial on managers who do hold a significant portion of the firms' shares.

Following this monitoring effect of outsider concentration on insiders, this research is expecting that the entrenchment effect of insiders will not be as substantial as it is when there are no outside blockholders. It is anticipated that when outsider owners have enough incentive to monitor management, management (which hold a significant portion of the firms' shares) will not be able to make value-destructive M&A investment for their own agenda. Even when these insiders hold a significant portion of the firms' shares, the concentrated outside ownership will have say in important strategic decisions that are being made (e.g. M&As). Therefore, the last proposed hypothesis is:

**Hypothesis 3:** *Outsider ownership concentration moderates the relationship between insider ownership concentration and M&A performance, such that when the concentration of outside ownership in the firm is high, the negative relationship between insider ownership and M&A performance will be weaker.*

Figure 1 summarizes the literature review and the addition of this paper to existing literature

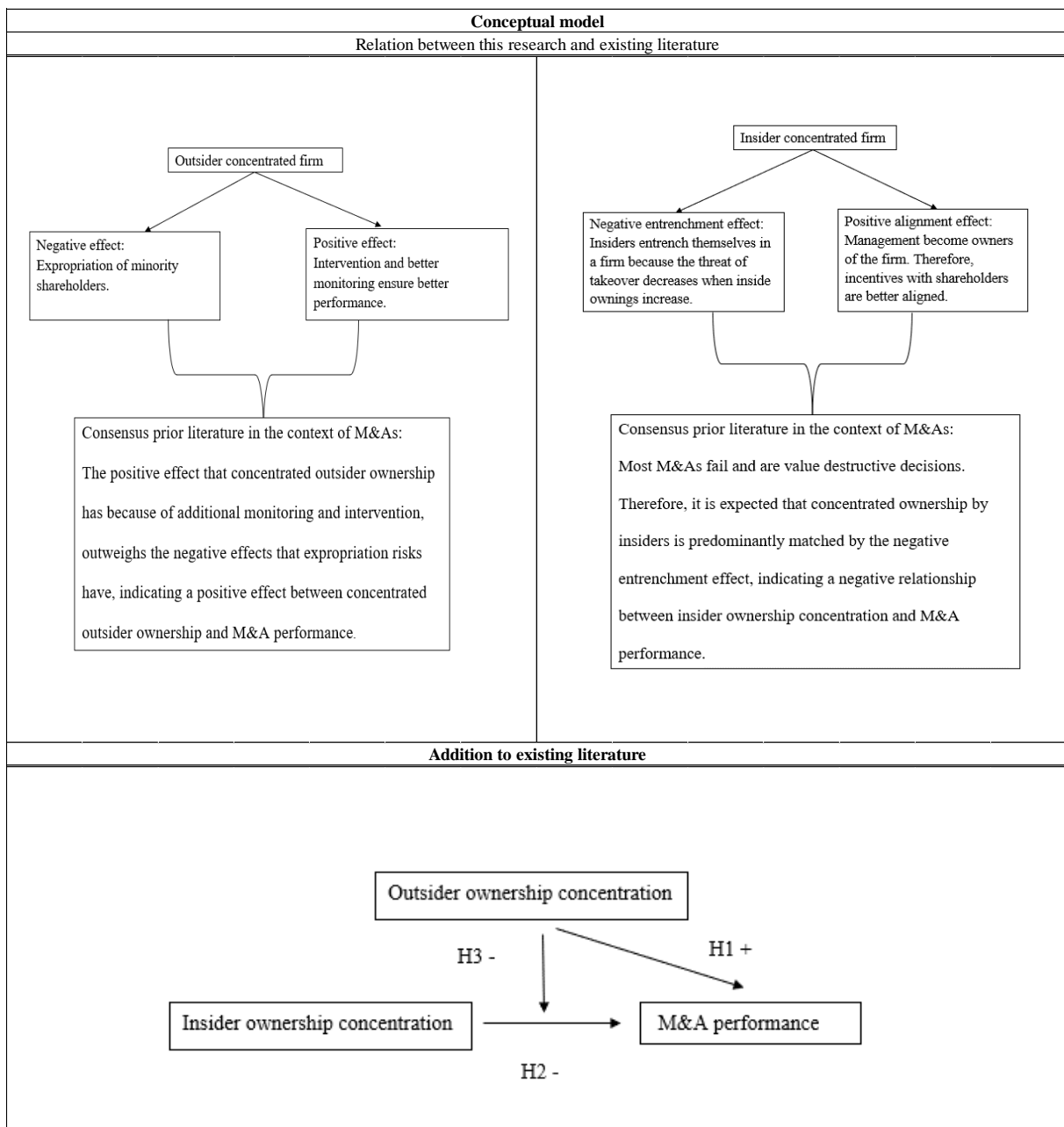


Figure 1: Conceptual model

## **2. Methodology and Data**

### **2.1 Methods and techniques**

The dataset which is used in this study is derived from S&P Capital IQ. The dataset is obtained by creating a list of all public firms which are active in the United States. As this research is about examining the effect of ownership on M&A performance, all firms which are more than 50% owned by owners which do not acquire with the purpose of growing a stronger more profitable business (e.g. diversifying M&A, core business acquisitions) are excluded. Moreover, firms which have no outside blockholders (holdings < 5%) are excluded from the sample. Another set of firms which are excluded are corporate pension sponsors, charitable foundations, union pension sponsor, investment managers, REITs, firms which have the status 'unclassified', VC/PE firms, educational/cultural endowments, banks/investment banks, sovereign wealth funds, insurance companies, hedge funds and government pension sponsors. Moreover, family firms are excluded from the sample, as corporate governance mechanisms affect family firms in an entirely different way, therefore the estimated effect cannot be generalized to family firms, including these firms in the sample could distort the relationship which this research is after. Also, firms operating under the following industries: utilities (SIC codes 4900-4949); financials (SIC codes 6000-6999); and public administration (SIC codes 9100-9999) are excluded from the sample.

### **2.2 Regressions**

To test the relationship between the above-stated variables, there has been made use of linear regression analyses and multivariate panel regressions analyses with fixed effects.

To test the hypotheses, the following specifications are estimated in the regression analysis.

To test hypothesis 1 the regressions with the accounting variables as dependent variables can be shown as follows:

$$\begin{aligned}
 ROA_{it+1} - ROA_{it} = & \alpha + \beta_1 \text{Ln}(\text{OutsiderOwnership})_{it} + \beta_2 \text{Investment opportunities}_{it} \\
 & + \beta_3 \text{Leverageratio}_{it} + \beta_4 \text{Ln}(\text{FirmAge})_{it} + \beta_5 \text{Growth level}_{it} + \beta_6 \text{Numberofdeals}_{it} \\
 & + \beta_7 \text{Ln}(\text{Assets})_{it} + \varepsilon_{it}
 \end{aligned}$$

$$\begin{aligned}
 ROE_{it+1} - ROE_{it} = & \alpha + \beta_1 \text{Ln}(\text{OutsiderOwnership})_{it} + \beta_2 \text{Investment opportunities}_{it} \\
 & + \beta_3 \text{Leverageratio}_{it} + \beta_4 \text{Ln}(\text{FirmAge})_{it} + \beta_5 \text{Growth level}_{it} + \beta_6 \text{Numberofdeals}_{it} \\
 & + \beta_7 \text{Ln}(\text{Assets})_{it} + \varepsilon_{it}
 \end{aligned}$$

To test hypothesis 1 the regressions with the financial variables as dependent variables can be shown as follows:

$$\begin{aligned}
 CAR(5)_{it} = & \alpha + \beta_1 \text{Ln}(\text{OutsideOwnership})_{it} + \beta_2 \text{Investopportunities}_{it} \\
 & + \beta_3 \text{Leverageratio}_{it} + \beta_4 \text{Growthlevel}_{it} + \beta_5 \text{Numberofdeals}_{it} \\
 & + \beta_6 \text{Ln}(\text{Firmage})_{it} + \beta_7 \text{Industryrelatedness}_{it} + \beta_8 \text{LN}(\text{Assets})_{it} \\
 & + \beta_9 \text{Equitydummy}_{it} + \beta_{10} \text{Cashdummy}_{it} + \beta_{11} \text{Mixdummy}_{it} + \varepsilon_{it}
 \end{aligned}$$

$$\begin{aligned}
 BHAR(12)_{it} = & \alpha + \beta_1 \text{Ln}(\text{OutsideOwnership})_{it} + \beta_2 \text{Investopportunities}_{it} \\
 & + \beta_3 \text{Leverageratio}_{it} + \beta_4 \text{Growthlevel}_{it} + \beta_5 \text{Numberofdeals}_{it} \\
 & + \beta_6 \text{Ln}(\text{Firmage})_{it} + \beta_7 \text{Industryrelatedness}_{it} + \beta_8 \text{LN}(\text{Assets})_{it} \\
 & + \beta_9 \text{Equitydummy}_{it} + \beta_{10} \text{Cashdummy}_{it} + \beta_{11} \text{Mixdummy}_{it} + \varepsilon_{it}
 \end{aligned}$$

To test hypothesis 2 the regressions with the accounting variables as dependent variables can be shown as follows:

$$\begin{aligned}
ROA_{it+1} - ROA_{it} &= \alpha + \beta_1 \text{Ln(Insiderownership)}_{it} \alpha \\
&+ \beta_2 \text{Investment opportunities}_{it} + \beta_3 \text{Leverageratio}_{it} + \beta_4 \text{Ln(FirmAge)}_{it} \\
&+ \beta_5 \text{Growth level}_{it} + \beta_6 \text{Numberofdeals}_{it} + \beta_7 \text{Ln(Assets)}_{it} + \varepsilon_{it}
\end{aligned}$$

$$\begin{aligned}
ROE_{it+1} - ROE_{it} &= \alpha + \beta_1 \text{Ln(Insiderownership)}_{it} \alpha \\
&+ \beta_2 \text{Investment opportunities}_{it} + \beta_3 \text{Leverageratio}_{it} + \beta_4 \text{Ln(FirmAge)}_{it} \\
&+ \beta_5 \text{Growth level}_{it} + \beta_6 \text{Numberofdeals}_{it} + \beta_7 \text{Ln(Assets)}_{it} + \varepsilon_{it}
\end{aligned}$$

To test hypothesis 2 the regressions with the financial variables as dependent variables can be shown as follows:

$$\begin{aligned}
CAR(5)_{it} &= \alpha + \beta_1 \text{Ln(Insiderownership)}_{it} + \beta_2 \text{Investopportunities}_{it} \\
&+ \beta_3 \text{Leverageratio}_{it} + \beta_4 \text{Growthlevel}_{it} + \beta_5 \text{Numberofdeals}_{it} \\
&+ \beta_6 \text{Ln(Firmage)}_{it} + \beta_8 \text{Industryrelatedness}_{it} + \beta_9 \text{Ln(Assets)}_{it} \\
&+ \beta_{10} \text{Equitydummy}_{it} + \beta_{11} \text{Cashdummy}_{it} + \beta_{12} \text{Mixdummy}_{it} + \varepsilon_{it}
\end{aligned}$$

$$\begin{aligned}
BHAR(12)_{it} &= \alpha + \beta_1 \text{Ln(Insiderownership)}_{it} + \beta_2 \text{Investopportunities}_{it} \\
&+ \beta_3 \text{Leverageratio}_{it} + \beta_4 \text{Growthlevel}_{it} + \beta_5 \text{Numberofdeals}_{it} \\
&+ \beta_6 \text{Ln(Firmage)}_{it} + \beta_8 \text{Industryrelatedness}_{it} + \beta_9 \text{Ln(Assets)}_{it} \\
&+ \beta_{10} \text{Equitydummy}_{it} + \beta_{11} \text{Cashdummy}_{it} + \beta_{12} \text{Mixdummy}_{it} + \varepsilon_{it}
\end{aligned}$$

To test hypothesis 3 the regressions with the accounting variables as dependent variables can be shown as follows:



$$\begin{aligned}
ROA_{it+1} - ROA_{it} = & \alpha + \beta_1 \text{Ln}(\text{OutsiderOwnership})_{it} + \beta_2 \text{Ln}(\text{Insiderownership})_{it} + \\
& \beta_3 \text{Ln}(\text{OutsiderOwnership} \# \# \text{Insiderownership})_{it} + \beta_4 \text{Industryrelatedness}_{it} + \\
& \beta_5 \text{Investmentopportunities}_{it} + \beta_6 \text{Leverageratio}_{it} + \beta_7 \text{Ln}(\text{FirmAge})_{it} + \\
& \beta_8 \text{Growth level}_{it} + \beta_9 \text{Numberofdeals}_{it} + \beta_{10} \text{Ln}(\text{Assets})_{it} + \varepsilon_{it}
\end{aligned}$$

$$\begin{aligned}
ROE_{it+1} - ROE_{it} = & \alpha + \beta_1 \text{Ln}(\text{OutsiderOwnership})_{it} + \beta_2 \text{Ln}(\text{Insiderownership})_{it} + \\
& \beta_3 \text{Ln}(\text{OutsiderOwnership} \# \# \text{Insiderownership})_{it} + \beta_4 \text{Industryrelatedness}_{it} + \\
& \beta_5 \text{Investmentopportunities}_{it} + \beta_6 \text{Leverageratio}_{it} + \beta_7 \text{Ln}(\text{FirmAge})_{it} + \\
& \beta_8 \text{Growth level}_{it} + \beta_9 \text{Numberofdeals}_{it} + \beta_{10} \text{Ln}(\text{Assets})_{it} + \varepsilon_{it}
\end{aligned}$$

To test hypothesis 3 the regressions with the financial variables as dependent variables can be shown as follows:

$$\begin{aligned}
CAR(5)_{it} = & \alpha + \beta_1 \text{Ln}(\text{OutsiderOwnership})_{it} + \beta_2 \text{Ln}(\text{InsiderOwnership})_{it} \\
& + \beta_3 \text{Ln}(\text{OutsiderOwnership} \# \# \text{InsiderOwnership})_{it} \\
& + \beta_4 \text{Industryrelatedness}_{it} + \beta_5 \text{Investopportunities}_{it} \\
& + \beta_6 \text{Leverageratio}_{it} + \beta_7 \text{Growthlevel}_{it} + \beta_8 \text{Numberofdeals}_{it} \\
& + \beta_9 \text{Ln}(\text{Firmage})_{it} + \beta_{10} \text{LN}(\text{Assets})_{it} + \beta_{13} \text{Equitydummy}_{it} \\
& + \beta_{14} \text{Cashdummy}_{it} + \beta_{15} \text{Mixdummy}_{it} + \varepsilon_{it}
\end{aligned}$$

$$\begin{aligned}
BHAR(12)_{it} = & \alpha + \beta_1 Ln(OutsiderOwnership)_{it} + \beta_2 Ln(InsiderOwnership)_{it} \\
& + \beta_3 Ln(OutsiderOwnership\#\#InsiderOwnership)_{it} \\
& + \beta_4 Industryrelatedness_{it} + \beta_5 Investopportunities \\
& + \beta_6 Leverageratio_{it} + \beta_7 Growthlevel_{it} + \beta_8 Numberofdeals_{it} \\
& + \beta_9 Ln(Firmage)_{it} + \beta_{10} LN(Assets)_{it} + \beta_{13} Equitydummy_{it} \\
& + \beta_{14} Cashdummy_{it} + \beta_{15} Mixdummy_{it} + \varepsilon_{it}
\end{aligned}$$

## 2.2 Variables

This section will discuss the variables which are used in the regression analysis.

### 2.2.1 Independent variable: Insider ownership concentration

Insider ownership will be measured using Gugler et al. (2008) way of measuring, which is the total number of shares which are held in aggregate by all of the officers and directors of the firm, divided by the number of shares outstanding, this fraction is then multiplied by 100 and then transformed into a logarithm.

### 2.2.2 Dependent variable: Acquirer firm performance

To measure the M&A performance of the deals in the sample, several proxies will be used.

#### 2.2.2.1 Return on assets

The first proxy for firm performance will be ROA, which is acknowledge by prior literature as an appropriate variable to measure M&A performance (Jaquinto & Fredrickson (1997), Zollo & Meier (2008), Das & Kapil (2012)). To capture the performance of the M&A, the performance will be measured by means of a score change. ROA for multiple years will be

collected, thereafter, a comparison will follow. The ROA of the year following the merger (t+1), will be collected and compared to the ROA the year of the merger (t). This comparison reflects the synergies, operational efficiency and how well the merged assets are being deployed (Ramaswamy, 2017). ROA change is used instead of ROA of the year of the merger, as it is not a given that the performance of the merger will completely unveil itself the within one year after the deal, instead it is useful to examine how ROA will develop itself the year after the merger (Zollo & Singh, 2004).

The performance of the M&A will be measured by the change of the ROA based on two years, where 't' will stand for the year when the M&A has taken place. The higher the score of the change, the higher this performance indicator will be for this firm.

$$\text{ROA change} = \text{ROA}(t + 1) - \text{ROA}(t) \quad (1)$$

#### **2.2.2.2 Return on equity**

The second proxy used to measure M&A performance is return on equity (ROE), return on equity is a measure of the total earnings which are generated by the shareholders' equity of a period of one year. It comprises of three levers which can be used to assure the financial health of a firm: asset management, financial leverage, and profitability. Return on equity is calculated by dividing net income by the book value of equity.

The performance of the M&A will be measured by the change of the ROE based on the two years, where 't' will stand for the year when the M&A has taken place. The higher the score of the change, the higher this performance indicator will be for this firm.

$$\text{ROE change} = \text{ROE}(t + 1) - \text{ROE}(t) \quad (2)$$

### 2.2.2.3 Cumulative abnormal returns

The third proxy for firm performance will be the cumulative abnormal returns. To calculate the cumulative abnormal returns, WRDS's Beta Suite event study tool is used. The short-term CAR (CAR5) is used to account for deviating market reactions and exclude disruptive events to the greatest extent. These deviating market reactions and events can result from inefficiencies in the market, and information leakage prior to the deal. It is not enough to use short term financial measures as a proxy for M&A performance, as CAR(5) is a proxy for the market expectation about the performance of the M&A and not acquisition performance per se (Zollo & Meier, 2008). Therefore, a long-term financial performance measure is used in conjunction with the short-term financial performance measure.

For the CAR(5), the abnormal returns are calculated for five days around the announcement day (two days after and two days prior the announcement date). The abnormal returns are calculated based on equation 1:

$$AR_{it} = R_{it} - E(R_{it}) \quad (3)$$

Where  $AR_{it}$  stands for the abnormal stock return of the acquirer  $i$  on day  $t$ ,  $R_{it}$  stands for the actual return, and  $E(R_{it})$  stands for the expected normal return of the acquiring firm on the announcement date. Using the market model, the expected normal return of the acquirer is calculated, which is denoted by the following formula:

$$E(R)_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (4)$$

Where:

$$E(\varepsilon_{it}) = 0 \text{ and } VAR(\varepsilon_{it}) = \sigma^2_{it} \quad (5)$$

$E(R)_{it}$  is calculated by the means of the market model, where  $R_{mt}$  stands for the return of the market on day  $t$ ,  $\varepsilon_{it}$  represents the zero mean disturbance term.  $\alpha_i$ , represents the constant and  $\beta_i$  represents the regression estimate over the estimation window of the acquirer  $i$ . The estimation window consists of 100 days, which ends 25 days before the announcement of the deal. To eliminate distortions of the share price, this 25-day gap between the announcement date of the deal and the estimation window is taken. Moreover, the index of the S&P 500 is used to calculate the market return, as the focus of this research lies on listed US-based firms.

To calculate the cumulative abnormal returns (CAR), the daily  $AR_{it}$  have to be cumulated from the beginning of the event window to the end of the event window. The CARs are calculated according to the following formula:

$$CAR_i(t_1, t_2) = \sum_{t=1}^{t_2} AR_{it} \quad (4)$$

#### **2.2.2.4 Buy and hold abnormal returns**

To account for long term financial performance, BHAR is used as a proxy for merger performance. Prior literature has reached the consensus that CAR is preferred way of measuring short term financial performance, whereas BHAR is a superior measure of long-term financial performance. Barber & Lyon (1997) mention the several advantages of using BHAR over CAR when assessing long-term performance, the authors mention that the greatest benefit of BHAR is that it reflects investors experience. The BHAR is calculated based on the following formula:

$$BHAR_i = \sum_{i=1}^N [\prod_{t=1}^T (1 + r_{i,t}) - \prod_{t=1}^T (1 + r_{b,t})] \quad (5)$$

Where  $r_{b,t}$  is the return of the benchmark (b), which in this case is the S&P 500, at the month of the event (t). and  $r_{i,t}$  is the return of the firm (i) at the month of the event (t). The equation above shows the monthly compounded return of every individual company deducted by the monthly compounded return of the S&P 500. The BHAR is calculated on a 12-month basis.

### **2.2.3 Moderating variable: Insider ownership**

Outside ownership concentration will be measured as the percentage of shares which is owned by the largest shareholder (or the second largest shareholder when the largest shareholder is an insider), which is mostly used in prior literature to measure ownership concentration (Mitton, 2002); (Morck et al., 2005). The concentration of insider and outsider ownership is measured one year before the merger, as changes in ownership the year of the merger, do not reflect the ownership structure which has led to this merger. This variable will then be transformed to a logarithm.

### **2.2.4 Control variables**

To capture the purest effect of the above-named relationship, a few control variables will be added to the regression. The control variables will be added on three levels, acquirer- target- and deal level. This is necessary when controlling for other possible determinants which could have an influence on firm performance.

#### 2.2.4.1 Acquirer-level control variables

This research will include industry specific dummy variables to test the industry specific influences on firm performance. Rules and growth opportunities and other circumstances in industry could influence the performance of the firm operating in that specific industry. The **industry dummies** are set according to the standard industrial classification (SIC) codes. The second control variable will be **firm size**. Firm size will be measured as the natural logarithm of the total assets of the firm. Furthermore, there will be controlled for **leverage**, as high leverage may reduce the agency costs which arise when managers are not encouraged enough to operate in the interest of shareholders. A higher leverage ratio decreases free cash flow and stimulates management to work as efficient as possible. Following Anderson & Reeb (2003) and Xu & Wang (1999) leverage will be proxies by the ratio of total debt to total assets. Also, there will be controlled the **growth level** per company. Moreover, **firm age** will be added as a control variable, this is added to control for life-cycle effects. Performance of older firm might be enhanced over time due to productivity gains which are gained during the life of the firm. Also, reputation effects could lead to increased demand which would positively affect firm performance. In contrast the older the firm is, the more bureaucratic and less dynamic which can have the opposite effect on firm performance (Leech & Leahy, 1991), (Mueller, 1972). Finally, **merger experience** is added as a control variable. This measure takes the value of the number of mergers the acquirer has performed in that year.

#### 2.2.4.2. Deal-level control variable

To control for effects which are related to deal characteristics, **method of payment**, is added to the regression. Based on prior empirical research, the way of paying for the deal has a significant influence on how well the merger performs in the future. When the merger is paid for in cash, the observed relationship with post-merger performance is significantly positive

(Ghosh, 2001; Moeller et al., 2004). Method of payment will consist of three dummy variables, the dummy '**cashdeal**' which will be coded '1' when the merger is paid in cash, and '0' otherwise. The dummy '**equitydeal**' which will be coded '1' when the merger is paid exclusively in shares, and '0' otherwise. And finally, the dummy '**mix**' which will be coded '1' when the merger is paid for with a combination of cash and shares, and '0' otherwise.

#### **2.2.4.3. Target-level control variable**

To control for effects which are related to the target firm, **industry relatedness** is added to the regression. Industry relatedness will be included as a dummy variable, which will be coded '1' if the acquirer buys within its own industry and '0' otherwise.

#### **2.2.4.4 Overview of the variables**

Below an overview of variables is provided. This empirical research includes operational and financial dependent variables. While the accounting variables (ROE, ROA) are measured on an acquirer-level, the financial variables are measured on a deal-level (CAR(5), BHAR(12)). Therefore, the total sample is divided into two subsamples.

The sample which includes the financial measures as dependent variables, will include control variables on acquirer- target- and deal-level. The sample with the accounting measures will include the variables on the acquirer-level, as the dependent variable is based on the year of the merger and not on the merger itself. Would the sample with the operational dependent variables include the deal- and target-level controls, then the dataset would comprise of datapoint which are duplicates of the dependent variables.



Table 1: Overview of variables

Overview variables	Operationalization
<b>Dependent variables</b>	
ROA	ROA change = (ROA(t+1) – ROA(t))
ROE	ROE change = (ROE(t+1) – ROE(t))
CAR(5)	Cumulative abnormal returns (-2,2)
BHAR(12)	Buy and hold abnormal returns twelve months after the merger
<b>Independent variable</b>	
Outsider ownership concentration	The natural logarithm of ((Total number of shares held by the largest holder/total outstanding shares)*100+1)
<b>Moderating variable</b>	
Insider ownership	The natural logarithm of ((Total number of shares held by CEO and management/total outstanding shares)*100+1)
<b>Control variables</b>	
<i>Acquirer level</i>	
Acquirers size	Natural logarithm of the firm's assets
Leverageratio	Total debt/Total assets
Growth level	(Ebit(t+1)-Ebit(t))/Ebit(t)
Number of deals	Variable which includes how many mergers the acquirer has performed in that year
Firm age	The natural logarithm of (Founding year - year of the merger)+1
<i>Target level</i>	
Industry relatedness	'1' if the SIC code of the acquirer matches that of the target, '0' otherwise
<i>Deal level</i>	
Method of payment	Four dummy variables; 'equitydeal', 'cashdeal', 'debtdeal' and 'mix'

Used in the models with CAR5 and BHAR12 as independent variables

### 3. Results

The following section discusses the descriptive statistics and results of the above stated regressions.

#### 3.1 Descriptive statistics

Table 2a and 2b show the summary statistics for the two sets of data which are used in this research.

	Mean	S.D.	Min	Max	CAR5	BHAR12	Ownership concentration	Insider ownership	Assets	Growth level	Leverage ratio	Number of deals	Firmage	Debt dummy	Equity dummy	Cash dummy	Mix dummy	Industry relatedness	Fiscal year	
CAR5	-0,014	0,107	-0,241	0,6	1.000															
BHAR12	-0,49	1,844	-11,291	2,639	0.173*** (0.000)	1.000														
Outside ownership concentration	27,567	20,098	5	95,82	-0.011 (0.697)	0.042 (0.129)	1.000													
Insider ownership concentration	12,574	18,327	0	90	-0.261*** (0.000)	-0.062*** (0.025)	0.242*** (0.000)	1.000												
Assets	5802,71	26114,84	0.097	204751	-0.139*** (0.000)	0.069* (0.012)	0.371*** (0.000)	0.008** (0.775)	1.000											
Growth level	-0,263	4,465	-37,848	43,171	0.047* (0.087)	-0.030* (0.283)	0.040* (0.148)	0.002 (0.928)	-0.038 (0.170)	1.000										
Leverage ratio	0,286	0,369	0	9,206	0.001 (0.983)	-0.132*** (0.000)	-0.003 (0.918)	0.012*** (0.671)	0.125 (0.000)	0.055** (0.046)	1.000									
Number of deals	1,699	2,335	0	12	-0.103*** (0.000)	0.012 (0.662)	0.129*** (0.000)	0.055 (0.043)	0.369*** (0.000)	-0.083*** (0.002)	0.087*** (0.001)	1.000								
Firm age	35,02	31,921	0	156	0.014 (0.612)	0.068** (0.014)	-0.068** (0.013)	-0.040 (0.147)	0.210*** (0.000)	0.033 (0.230)	0.006 (0.817)	-0.027 (0.322)	1.000							
Debt dummy	0,001	0,039	0	1	-0.022 (0.434)	-0.048* (0.082)	0.035 (0.197)	0.096*** (0.000)	0.006 (0.823)	-0.020 (0.463)	0.004 (0.882)	-0.003 (0.904)	-0.016 (0.564)	1.000						
Equity dummy	0,041	0,199	0	1	-0.007 (0.787)	-0.105*** (0.000)	-0.022 (0.419)	0.036 (0.191)	-0.130*** (0.000)	0.033 (0.232)	0.052* (0.055)	-0.080*** (0.004)	-0.081*** (0.003)	-0.008 (0.770)	1.000					
Cash dummy	0,474	0,5	0	1	0.048* (0.079)	0.013 (0.626)	0.022 (0.425)	-0.008 (0.763)	0.023 (0.392)	0.031 (0.254)	0.009 (0.756)	-0.111*** (0.000)	0.094*** (0.001)	-0.037 (0.180)	-0.196*** (0.000)	1.000				
Mix dummy	0,484	0,5	0	1	-0.044 (0.113)	0.032 (0.244)	-0.016 (0.564)	-0.013 (0.624)	0.028 (0.310)	-0.043 (0.119)	-0.030 (0.278)	0.143*** (0.000)	-0.061** (0.026)	-0.037 (0.171)	-0.200*** (0.000)	-0.918*** (0.000)	1.000			
Industry relatedness	0,476	0,5	0	1	0.059** (0.033)	0.015 (0.596)	-0.002 (0.936)	-0.041 (0.129)	-0.026 (0.348)	0.019 (0.487)	0.014 (0.615)	-0.039 (0.152)	0.095*** (0.001)	-0.037 (0.178)	-0.039 (0.153)	0.069** (0.011)	-0.051* (0.062)	1.000		
Fiscal year	2015,59	1726	2013	2019	-0.029 (0.298)	-0.023 (0.398)	-0.011 (0.692)	-0.040* (0.144)	0.046* (0.095)	-0.021 (0.442)	0.096*** (0.000)	0.091*** (0.001)	-0.042 (0.121)	-0.013 (0.628)	0.019 (0.496)	-0.038 (0.169)	0.031 (0.254)	0.049 (0.071)	1.000	

Table 2a: Descriptive statistics and correlation matrix

	Mean	S.D.	Min	Max	ROE	ROA	Ownership concentration	Insider ownership	Assets	Growth level	Leverage ratio	Number of deals	Firm age	Fiscal year
ROE	-0,119	7,677	-105.616	142.485	1.000									
ROA	-0,053	1,914	-53.978	3.924	-0.059* (0.090)	1.000								
Outside ownership concentration	25,977	18,875	5	95,82	0.025 (0.469)	0.025 (0.472)	1.000							
Insider ownership concentration	14,068	21,408	0	90	0.091*** (0.008)	-0.008 (0.828)	0.286*** (0.000)	1.000						
Assets	3.534,49	19285,68	0.097	204751	0.000 (0.992)	0.004 (0.899)	0.186*** (0.000)	-0.023 (0.506)	1.000					
Growth level	-0,115	4,415	-37,848	43,171	0.006 (0.858)	-0.026 (0.449)	0.048 (0.166)	-0.006 (0.865)	0.005 (0.885)	1.000				
Leverage ratio	0,269	0,417	0	9,206	-0.031 (0.373)	0.035 (0.318)	0.034 (0.332)	-0.036 (0.302)	0.021 (0.551)	0.035 (0.319)	1.000			
Number of deals	1,096	1,716	0	12	0.011 (0.749)	0.019 (0.583)	0.125*** (0.000)	0.015 (0.656)	0.201*** (0.000)	-0.040 (0.243)	0.097*** (0.005)	1.000		
Firmage	33,663	30,242	0	156	0.032 (0.361)	0.003 (0.928)	-0.088* (0.011)	0.004 (0.908)	0.180*** (0.000)	0.018 (0.600)	0.021 (0.550)	0.012 (0.730)	1.000	
Fiscal year	2015,64	1740	2013	2019	0.041 (0.240)	0.014 (0.676)	-0.021 (0.553)	-0.012 (0.727)	0.009 (0.784)	-0.004 (0.916)	0.062* (0.073)	0.061* (0.077)	-0.036 (0.299)	1.000

Table 2b: Descriptive statistics and correlation matrix

First the descriptive statistics of table 2a will be discussed. During the period 2013-2019 a total of 1322 deals have been performed. As seen in the table above, both abnormal return measures show a negative mean. This is in line with prior literature about M&A performance which indicate that on average, an M&A transaction has a negative effect on shareholders' value (e.g. Cartwright & Schoenberg, 2006; Zollo & Meier, 2008). Moreover, it is seen that the outside blockholders of the firm on average hold around 27% of the firm, whereas inside management on average holds around 12%, indicating that outsiders mostly hold more shares than insiders do. Furthermore, there are some statistically significant correlations coefficient in the above matrix, however as none of the values are around 1 or -1 (which would suggest perfect multicollinearity), no relationship assumptions can be made. In table 2b the correlation matrix and descriptive statistics of the panel dataset, which is the same sample as the 1322 deals but without observations on the deal level, can be found. Without the double observations, a total of 836 year-level observations are observed. Again, the performance measures show a negative mean, indicating the same conclusion, which is drawn upon earlier, namely that an M&A has a negative effect on firm and shareholders' value. Moreover, the outside and inside shareholdings seem to not differ so much from the previous sample, the values stay approximately the same. The same table also shows a few significant correlation coefficients, however, as none of the correlations are close to -1 or 1, multicollinearity can be ruled out.

Even though Pearson's' correlation matrix is an appropriate indicator to test for multicollinearity, it is always best to perform an additional test such as the Variance inflation factor test.

### 3.2 Variance inflation factor (VIF)

In order to check the results of the regression analyses for multicollinearity, Variance Inflation Factor (VIF) assessments are done. The VIF analyses are performed to prevent cases in which two variables having high correlation, securing correctness of the executed regression analyses. As stated by Cohen et al., (2013), a common VIF threshold value of below 10 is used to indicate that no issues with multicollinearity are found. Any value below 5 is even better. In the case of the VIF assessments of the regression analyses, all values are around a VIF of one, which indicates almost no correlation is found (table 3a and 3b). With the highest value being 1.49 for Assets, it is plausible to say that no issues are found in the performed regression analyses regarding multicollinearity.

Variable	VIF	1/VIF
Ownership concentration	1.29	0.777989
Insider ownership	1.08	0.922240
Assets	1.49	0.672025
Growth level	1.03	0.969186
Leverage ratio	1.05	0.955294
Number of deals	1.22	0.821865
Firm age	1.12	0.892863
Debt dummy	1.01	0.985778
Equity dummy	1.08	0.929152
Cash dummy	1.07	0.930698
Industry relatedness	1.03	0.974913
Mean VIF	1.04	

Table 3a: Variance inflation factor, CAR(5)/BHAR(12)

Variable	VIF	1/VIF
Insider ownership	1.11	0.903713
Ownership concentration	1.27	0.785043
Assets	1.35	0.743383
Growth level	1.01	0.985291
Leverage ratio	1.03	0.974421
Number of deals	1.15	0.868700
Firm age	1.09	0.917668
Mean VIF	1.14	

Table 3b: Variance inflation factor, ROA/ROE

### 3.3 Regression results

Several regressions are needed in order to fully test the conceptual model which is outlined in figure 1. Section 3.3.1 discusses the regressions which include the deal level dataset. Section

3.3.2 discusses the results of the Hausman tests which are needed to evaluate whether there should be controlled for fixed or random effects in the panel dataset. And finally, section 3.3.3 discusses the results of the regression which include the year level dataset, which is the dataset that includes a subset of the deal-level dataset.

### **3.3.1 Regression results deal-level dataset**

Table 4a and 4b below show the regression results of the financial dependent variables (Buy and hold abnormal returns and Cumulative abnormal returns). Firstly, the control variables are assessed. “Assets” are positively correlated with M&A performance when looked at model 1, 2, 4,5 and 6, which indicates that larger firms are more able to bring the M&A to a success, this result could be due to the fact that a greater asset base increases the chance of generating economies of scale and scope. Furthermore, in models 1,2 and 3 a negative coefficient for “Leverage ratio” is displayed (-0,631, -0,632, and -0,617 respectively, p-value < 0,01). Although leverage may have a positive effect on general firm performance, as it limits managers’ ability to allocate resources to unprofitable uses, it can also have a negative effect as increased leverage could increase risk. And combined with other risks that are inherent to performing an M&A, it could lead managers to perform actions which decrease risks, and which could adversely impact the value maximization process which they are after during an M&A (Harrison et al., 2014). In model 4 and 5 the coefficients that belong to the variable “Number of deals” are displaying a negative and statistically significant effect (p-value < 5%). As the coefficient is negative it implies that when the firm is acquiring other targets next to the target concerned, the market values the next acquisition to be of poor consequence for firm performance. Furthermore, models 4 and 5 show a negative and significant effect of the “debt dummy” coefficient. This implies that when the merger is financed with debt only, ceteris paribus, it would have a negative impact on the performance of the M&A than when it

would be financed with a mix of debt, equity and cash. Moreover, models 1 and 2 show a negative and statistically significant sign for the “equity dummy” coefficient, implying that when the acquisition is financed with equity only, *ceteris paribus*, it would have a negative impact on the performance of the M&A than when it would be financed with a mix of debt, equity and cash. Following Shleifer & Vishny (2003) research where they examine payment methods and its impact on M&A performance, the same conclusion can be drawn regarding these results, namely that when an M&A is financed with all equity it is related to poor short and long term stock performance. The reasoning behind this observation lies in the stock’s valuation, namely the rationale for stock issuance is mostly based on the assumed overvaluation of the firms’ stock. When management thinks the firms’, stock is overvalued, then it is more preferred to pay for the acquisition in stock. Lastly, models 4 and 5 show a positive and statistically significant effect (0,010, 0,010, p-value < 0,1) for the coefficient of the variable industry relatedness, this result implies that when a firm acquires in their own industry (SIC), it is expected that the M&A would have a positive impact on firm performance. This is in line with prior literature which argues that when firms acquire a target within their own industry, it will facilitate the post-acquisition integration process due to a smoother integration which is caused by similar organizational and cultural characteristics (Al-Laham et al., 2010).

Model 1 and model 4, which test how outsider ownership impact the M&A performance measures, both show a positive coefficient of outsider ownership. However, this measure is statistically insignificant in model 1, therefore this positive result cannot be interpreted. On the other hand, model 4 shows a statistically significant effect on the 10% level, indicating that indeed a higher outside ownership concentration is correlated with better performance (when performance is proxied by Cumulative abnormal returns), the coefficient shows that

when outside ownership concentration increases by 10%, cumulative abnormal returns increase by 0.0017. This result is in line with prior literature (e.g. Bhaumik & Selarka (2012)), and can be viewed as a consequence of the monitoring effect.

Subsequently, model 2 and model 5 test how insider ownership concentration impacts the M&A performance measures. Both regressions' insider ownership concentration coefficients are statistically significant at the 1% level and show a negative sign. Which implies that when performance is proxied by either BHAR(12) or CAR(5), it is being negatively affected by insider ownership concentration. The insider ownership concentration coefficient in model 2 is -1.546 which implies that the buy-and-hold abnormal returns measured on a 12-month timeframe decrease by -0.0067, when insider ownership increases by 1%. Model 5 shows a coefficient of -0.186, which implies that when insider ownership increases by 10%, the cumulative abnormal returns measured 5 days around announcement date, decrease by -0.008.

Lastly, model 3 and model 6 show if and how outside ownership concentration would impact the relationship between inside ownership concentration and M&A performance. By assessing model 3, it can be implied that there is no moderation effect found in this regression. The minimum criteria for implying some sort of moderation is not met in this regression, namely that the interaction term between inside and outside ownership concentration is statistically significant, so therefore this model cannot add to understanding the relationship. Model 6 does meet the minimum criteria for moderation, in this regression the interaction term between inside and outside ownership concentration is statistically significant at the 10%. On itself this effect can not be interpreted as the model is not linear anymore by adding the interaction term, also there are more criteria to be met to fully conclude the moderation that is stated in hypothesis 3, namely if an increase in outside



ownership weakens the negative relationship between inside ownership and M&A performance.

The table presents the coefficient estimates of the regression models. The dependent variable is the Buy-and-hold abnormal return measured on a 12 months basis (BHAR12). Standard errors are robust. Year fixed effects are added. Assets and Firm age are transformed to natural logarithms. Outsider and insider ownership variables are lagged one year. Model 1 tests hypothesis 1, model 2 tests hypothesis 2 and model 3 tests hypothesis 3.

	model1 b/se	model2 b/se	model3 b/se
Outsider ownership	0.329 (0.350)		0.366 (0.386)
Insider ownership		-1.546*** (0.314)	-2.666*** (0.744)
Outsider ownership # Insider ownership			3.130 (2.032)
Assets	0.056** (0.027)	0.062*** (0.023)	0.043 (0.027)
Growth level	-0.005 (0.012)	-0.004 (0.011)	-0.006 (0.011)
Leverage ratio	-0.631*** (0.241)	-0.632** (0.248)	-0.617** (0.255)
Number of deals	-0.010 (0.019)	-0.005 (0.018)	-0.003 (0.019)
Firm age	0.090* (0.051)	0.085* (0.049)	0.096* (0.050)
Debt-dummy	-2.250 (2.217)	-1.731 (2.428)	-1.879 (2.350)
Equity-dummy	-0.821** (0.336)	-0.769** (0.329)	-0.770** (0.326)
Cash-dummy	-0.053 (0.100)	-0.053 (0.100)	-0.060 (0.099)
Industry relatedness	0.038 (0.101)	0.022 (0.100)	0.012 (0.100)
Constant	-0.917*** (0.260)	-0.589** (0.247)	-0.572** (0.243)
Year Fixed effects	Yes	Yes	Yes
R-squared, adjusted	0.036	0.050	0.053
Number of observations	1322	1322	1322

\* p<0.10, \*\* p<0.05, \*\*\* p<0.010

Table 4a: Regression results deal level, BHAR(12)

The table presents the coefficient estimates of the regression models. The dependent variable is the Cumulative abnormal return measured on the announcement date and two days before and after this date (CAR(-2,2)). Standard errors are robust. Year fixed effects are added. Assets and Firm age are transformed to natural logarithms. Outsider and insider ownership variables are lagged one year. Model 4 tests hypothesis 1, model 5 tests hypothesis 2 and model 6 tests hypothesis 3.

	model4 b/se	model5 b/se	model6 b/se
Outsider ownership	0.040* (0.022)		0.077*** (0.025)
Insider ownership		-0.186*** (0.014)	-0.246*** (0.028)
Outsider ownership # Insider ownership			0.131* (0.072)
Assets	0.007*** (0.002)	0.007*** (0.002)	0.009*** (0.002)
Growth level	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Leverage ratio	0.007 (0.007)	0.007 (0.007)	0.009 (0.006)
Number of deals	-0.002** (0.001)	-0.002** (0.001)	-0.001 (0.001)
Firm age	0.002 (0.004)	0.002 (0.004)	0.003 (0.003)
Debt-dummy	-0.047*** (0.008)	-0.047*** (0.008)	0.006 (0.020)
Equity-dummy	-0.012 (0.019)	-0.012 (0.019)	-0.007 (0.018)
Cash-dummy	0.007 (0.006)	0.007 (0.006)	0.006 (0.006)
Industry relatedness	0.010* (0.006)	0.010* (0.006)	0.008 (0.006)
Constant	0.029** (0.014)	0.029** (0.014)	0.061*** (0.015)
Year Fixed effects	Yes	Yes	Yes
R-squared, adjusted	0.024	0.084	0.101
Number of observations	1322	1322	1322

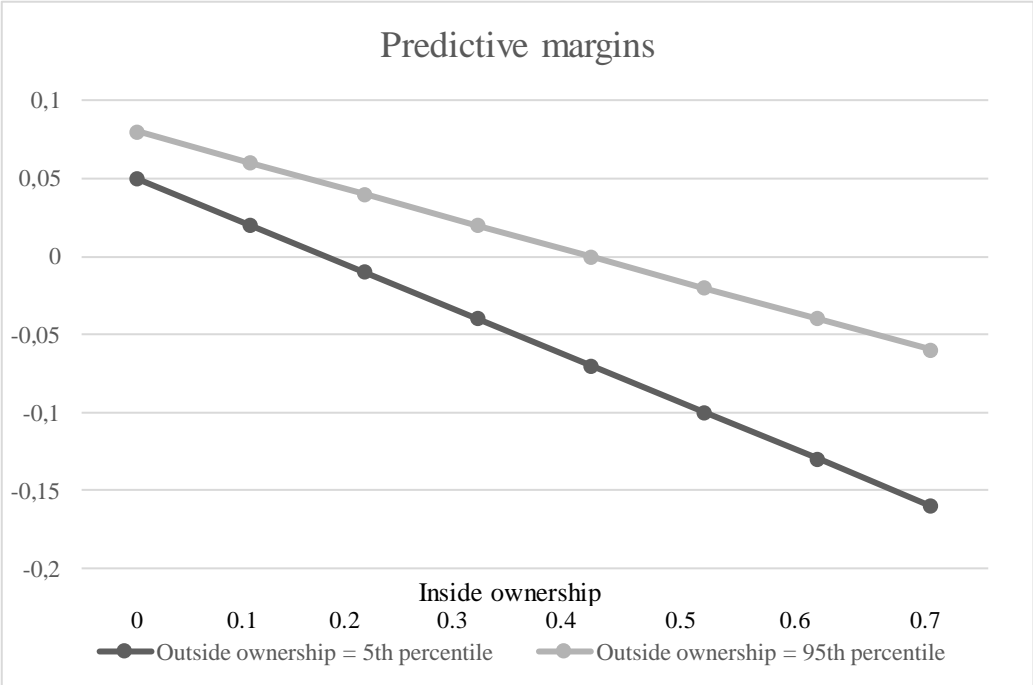
\* p<0.10, \*\* p<0.05, \*\*\* p<0.010

Table 4b: Regression results deal level, CAR(5)

To prove that there is a moderation effect which supports the hypothesis, a significant interaction effect is not enough. A significant interaction effect proves that there is some form of moderation, but the moderation that this paper is trying to prove is that of a *weakening* effect. Therefore, a closer look at Graph 1 should be taken.

Graph 1 shows the relationship between insider ownership concentration and M&A performance, when outside ownership is low (5<sup>th</sup> percentile) and when outside ownership is high (95<sup>th</sup> percentile). When outside ownership is at the 5<sup>th</sup> percentile (6,4%), the relationship

between inside ownership and M&A performance is downward sloping. Comparing this relationship when outside ownership is at the 95<sup>th</sup> percentile (91.82%), the relationship is still downward sloping. However, at the 95<sup>th</sup> percentile it is seen that this slope (-0.1577) is less steep than it is at the 5<sup>th</sup> percentile (-0.2377). The difference in slopes is statistically significant since the positive interaction term is statistically significant and consequently outside ownership concentration seems to weaken the negative relationship between inside ownership concentration and M&A performance.



Graph 1: Predictive margins, CAR(5) as dependent variable

The effect at median outside ownership concentration is -0.2154, is still less steep than the coefficient at the 5<sup>th</sup> percentile. It is of importance to assess this because, even though the interaction term is significant based on the slopes of the 5<sup>th</sup> and 95<sup>th</sup> percentile. Most of the observations are centered around the median. By showing that this slope is less steep than it is at the 5<sup>th</sup> percentile in addition to having a less steep 95<sup>th</sup> percentile slope and a positive statistically significant interaction term, it can be concluded that outside ownership

concentration weakens the negative relationship between inside ownership concentration and M&A performance.

### 3.3.2 Hausman tests year-level dataset

Table 5 presents the statistical significance of the Hausmann tests. The Hausmann test tests whether there is correlation between the unique errors and the regressors of models seven to twelve. Since the regression analyses are panel data based, the Hausman test is used to decide if fixed effects model or random effects model should be employed. The null hypothesis of the Hausman test holds that the preferred model is random effects, where the alternate hypothesis prefers fixed effects model. As seen in Table 5, the Hausman tests for the models seven to twelve all present non-significant results (p-value > 0.05). Therefore, random effects model is preferred.

Hausman test	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Prob>chi2	0.1443	0.2238	0.2802	0.6655	0.7961	0.8339

Table 5: Hausman tests

### 3.3.3 Regression results year-level dataset

This section discusses the regression results of the dataset which are developed from the above dataset. As this sample includes panel data, a panel regression analysis is applied. Tables 6a and 6b below present the results of these regressions. Firstly, the control variables are discussed. Models 10, 11 and 12 show a positive and statistically significant coefficient of the variable assets, which implies the same conclusion that is drawn from the results in the models 1, 2, 4, 5, and 6, namely, that the created scale and scope economies which apply to larger firms, positively influence the performance of the merger. Also, models 10, 11 and 12 show the same sign for the variable leverage ratio as do models 1, 2 and 3, again the same

conclusion can be drawn on. Namely, that management takes risk minimizing actions which go against the value maximization goal.

The table presents the coefficient estimates of the random effects regression models. The dependent variable is the Return on equity (ROE). Standard errors are robust. Year fixed effects and industry fixed effects are added. Assets and Firm age are transformed to natural logarithms. Outsider and insider ownership variables are lagged one year. Model 7 tests hypothesis 1, model 8 tests hypothesis 2 and model 9 tests hypothesis 3.

	model 7 b/se	model 8 b/se	model 9 b/se
Outsider ownership	2.048 (2.070)		9.733*** (3.231)
Insider ownership		3.885** (1.612)	3.823 (2.648)
Outsider ownership # Insider ownership			-21.233** (9.766)
Assets	-0.071 (0.143)	-0.025 (0.135)	-0.049 (0.143)
Growth level	0.009 (0.061)	0.014 (0.061)	0.017 (0.061)
Leverage ratio	-0.608 (0.647)	-0.546 (0.646)	-0.485 (0.645)
Number of deals	0.063 (0.167)	0.058 (0.166)	0.053 (0.166)
Firm age	0.406 (0.311)	0.323 (0.305)	0.393 (0.312)
Constant	-1.858 (1.388)	-1.994 (1.339)	-2.878** (1.433)
Industry Fixed effects	Yes	Yes	Yes
Year Fixed effects	Yes	Yes	Yes
Prob > chi2	0.9277	0.8216	0.3488
Number of groups	487	487	487
Number of observations	836	836	836

Table 6a: Regression results year level, ROE

The table presents the coefficient estimates of the random effects regression models. The dependent variable is the Return on assets (ROA). Standard errors are robust. Year fixed effects and industry fixed effects are added. Assets and Firm age are transformed to natural logarithms. Outsider and insider ownership variables are lagged one year. Model 10 tests hypothesis 1, model 11 tests hypothesis 2 and model 12 tests hypothesis 3.

	model 10 b/se	model 11 b/se	model 12 b/se
Outsider ownership	-0.192 (0.342)		-0.809*** (0.290)
Insider ownership		-0.300* (0.162)	-0.383 (0.387)
Outsider ownership # Insider ownership			1.977** (0.912)
Assets	0.074* (0.039)	0.076** (0.039)	0.068* (0.039)
Growth level	-0.004 (0.005)	-0.003 (0.005)	-0.003 (0.005)
Leverage ratio	-0.391*** (0.063)	-0.387*** (0.063)	-0.390*** (0.063)
Number of deals	0.002 (0.015)	0.004 (0.015)	0.004 (0.015)
Firm age	-0.039 (0.109)	-0.046 (0.108)	-0.029 (0.109)
Constant	0.426 (0.393)	0.467 (0.382)	0.446 (0.393)
Industry Fixed effects	Yes	Yes	Yes
Year Fixed effects	Yes	Yes	Yes
Prob > chi2	0.0000	0.0000	0.0000
Number of groups	487	487	487
Number of observations	836	836	836

Table 6b: Regression results year level, ROA

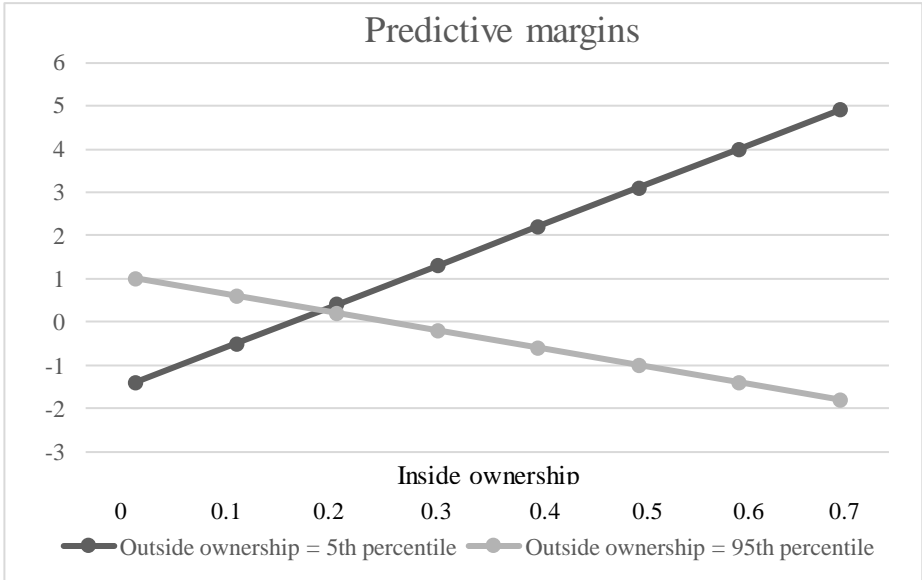
Models 7 and 10 test the relationship between outside ownership concentration and the accounting M&A performance measures. Model 7 shows a positive sign and model 10 shows a negative sign, however, as the coefficients are statistically insignificant, no claims can be made about the tested relationship. Furthermore, model 8 and model 11 test the relationship between inside ownership concentration and the M&A performance measures. Model 8 shows a somewhat unexpected result, namely a large positive coefficient which is statistically significant on the 5% level, this result indicates that an increase in inside ownership concentration is positively related to ROE change. Even though insider ownership does have its benefits, in this paper it is argued that during the M&A process a high inside ownership

would negatively impact the performance. Moreover, the regression with the other accounting measure (ROA change) does show a negative correlation between inside ownership concentration and M&A performance. This result is in line with prior literature and the hypothesized relationship in this paper. The reason for the unexpected result of model 8 could be the following. As insider ownership increases, the power and control of management also increases and with that increased power and control, the management could make some decisions that are more in their favor. One of these actions the management can take is increasing dividends. In his research Thanatawee (2013) states that likelihood of paying dividends and the magnitude of dividend payouts increase with higher ownership concentration. Therefore, as insider concentration increases, the dividend payout of the company could increase, which then decreases total equity. If net income stays the same, this decrease in equity could be the driver of an increased ROE. Another possible explanation could be that the relative portion of insiders of firms with high inside ownership concentration is so high, is because insiders would want to grab a hold on the power that they have, this could mean that they would keep the total outstanding equity lower than companies which do not have high inside ownership concentration, which then almost ensures their dominant position. An increase in net income then increases ROE relatively more for a firm which has a lower total equity than a firm which has a higher total equity. This could also be a reason for the positive insider ownership concentration – ROE change relationship. In addition to ROE being a performance measure, it is also an accounting measure which could be influenced by management.

Lastly, model 9 and model 12 show if and how outside ownership concentration would impact the relationship between inside ownership concentration and M&A performance. Model 9 shows a negative significant coefficient of the interaction term, this implies a

weakening effect of the moderator. To make any further conclusions Graph 2 has to be inspected.

Graph 2 shows the relationship between insider ownership concentration and M&A performance, when outside ownership is low (5<sup>th</sup> percentile) and when outside ownership is high (95<sup>th</sup> percentile).



Graph 2: Predictive margins, ROE as dependent variable

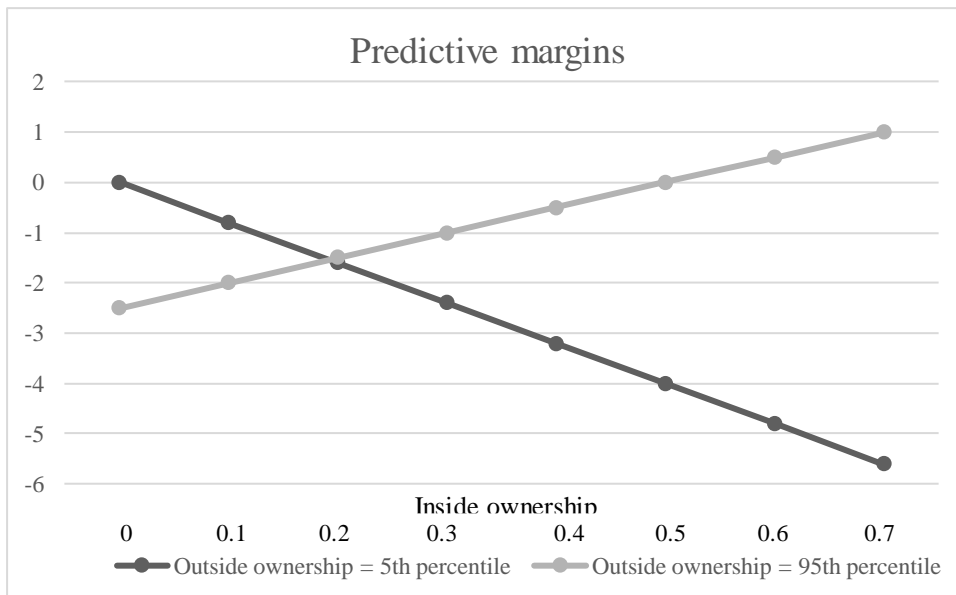
When outside ownership is at the 5<sup>th</sup> percentile (6,4%), the relationship between insider ownership and performance is upward sloping. Comparing this relationship when outside ownership is at the 95<sup>th</sup> percentile (91.82%), the relationship is downward sloping. The slope of the 5<sup>th</sup> percentile has a coefficient of 9.596 whereas the slope of the 95<sup>th</sup> percentile has a coefficient of -5.458. Moreover, the difference in these slopes is statistically significant as the interaction term is statistically significant. A positive slope on the lower level of outside ownership which turns into negative on a higher percentage of outside ownership indicates that outside ownership would weaken the positive relationship between insider ownership

concentration and ROE change. However, in this case, this conclusion cannot be made as outside ownership in model 7 is not statistically significant. The direction of the outside ownership – ROE change relationship and therefore how it would impact the inside ownership – ROE change relationship is unknown.

Here the importance of looking at the graphs which plot the effect of the moderator – dependent variable relationship for different values of the independent variable is shown. As the interaction term is significant, it does not necessarily imply the same direction as the moderation effect stated in the hypothesis. Even if the ownership concentration variable was significant, the evidence would suggest a rejection of the hypothesis as the moderator shows a weakening of a positive relationship, instead of a negative one.

The only conclusion that can be made is that the moderator does moderate the inside ownership concentration – ROE change relationship in some way.

Graph 3 shows the relationship between insider ownership concentration and M&A performance (ROA change), when outside ownership is low (5<sup>th</sup> percentile) and when outside ownership is high (95<sup>th</sup> percentile).



Graph 3: Predictive margins, ROA as dependent variable

When outside ownership is at the 5<sup>th</sup> percentile (6,4%), the relationship between is downward sloping. Comparing this relationship when outside ownership is at the 95<sup>th</sup> percentile (91.82%), the relationship is upward sloping. This indicates that when outside ownership concentration is low, inside ownership concentration has a negative effect on ROA change and that when outside ownership concentration is high, inside ownership concentration has a positive effect on ROA change. The slope of the inside ownership concentration – ROA change relationship at the 5<sup>th</sup> percentile of outside ownership concentration is -0.674, the slope of the inside ownership concentration – ROA change relationship at the 95<sup>th</sup> percentile of outside ownership concentration is 0.479, indicating a weakening of the negative relationship. However, similar to the conclusion of graph 2, there can not be made hard claims about the direction of the moderation, because the outside ownership concentration variable in model 10 is not statistically significant. The only claim that can be made is that there is found a form of moderation.



### 3.3.4 Testing the hypotheses

The test results can now be used to reject or not reject the discussed hypotheses. In table 7 an overview of support for the hypotheses can be found.

Hypothesis	Variables	Model	Support for hypothesis (Yes/No)	Effect
1	Outsider ownership concentration→BHAR12	1	No	Not significant
	Outsider ownership concentration→CAR5	4	Yes	Significant, and positive
	Outsider ownership concentration→ROE	7	No	Not significant
	Outsider ownership concentration→ROA	10	No	Not significant
2	Insider ownership concentration→BHAR12	2	Yes	Significant, and negative
	Insider ownership concentration→CAR5	5	Yes	Significant, and negative
	Insider ownership concentration→ROE	8	No	Significant, but positive
	Insider ownership concentration→ROA	11	Yes	Significant, and negative
3	Outsider ownership (Moderator) Insider ownership→BHAR12	3	No	Not significant
	Outsider ownership (Moderator) Insider ownership→CAR5	6	Yes	Significant, moderator weakens
	Outsider ownership (Moderator) Insider ownership→ROE	9	No	Significant, moderation unknown direction
	Outsider ownership (Moderator) Insider ownership→ROA	12	No	Significant, moderation unknown direction

Table 7: Overview support for hypotheses

Hypothesis 1 states that outside ownership concentration positively impacts the performance of the M&A. The results of model 1, model 4, model 7 and model 10 can be used to evaluate this hypothesis. As seen in the table above, models 1 7 and 10 show no signs of significance, the results of these regressions can not be taken into account, as significance is needed to make claims about the relationship. However, model 4, where the relationship between outside ownership concentration and performance proxied by CAR(5) is tested, shows a significant positive coefficient, hence there is enough evidence to accept the first hypothesis: *Outside ownership concentration is positively related to M&A performance.*

Hypothesis 2 states that inside ownership concentration negatively impacts M&A performance. The results of model 2, model 5, model 8 and model 11 can be used to evaluate this hypothesis. Models 2, 5 and 11 show support for the hypothesis, they show a negative and significant coefficient, this result is in line with prior literature on this topic such as that of Morck et al. (1988) which state that when insiders get a higher stake in the company, they

also get more discretion to pursue their own goals and decrease firm value. Also, following the findings of Gugler et al. (2008) research, the findings of this paper are supporting the entrenchment hypothesis. In addition, the authors mention that this entrenchment effect is complete at around 22%, which implies that the most entrenched insiders collectively hold 22%, or more of the shares. As the insiders in the sample of this paper hold around 14% of the shares, it can be concluded that following Gugler et al. (2008) reasoning, the average management in this sample is quite entrenched. The author finds that in his research the entrenchment effect seems to have the upper hand when it comes to the advantages and disadvantages of management becoming shareholders, similarly the same conclusion can be drawn upon when investigating the results of this paper.

Furthermore, model 8 shows the opposite result, which is a statistically significant positive relationship between insider ownership and the M&A performance measure. One possible explanation for this result can be given when diving deeper into the dependent variable ROE change which is explained in the paragraph above. However, since three out of four models are supportive of the hypothesis, it can be concluded that there is enough evidence to accept the second proposed hypothesis: *Insider ownership negatively impacts M&A performance.*

Hypothesis 3 states that outside ownership is expected to weaken the negative relationship between inside ownership and M&A performance. The results of models 3, 6, 9 and 12 can be used to evaluate this hypothesis. Firstly, model 3 does not offer any statistically significant results to conclude moderation, therefore this effect cannot be interpreted. Model 9 and model 12 shows a statistically significant coefficient for the interaction term. However, to infer that the moderation effect follows the hypothesis, a closer look has to be taken. Drawing on both of the corresponding predictive margin's graphs, it can be seen that there is a moderation

effect. However, as the outside ownership concentration variable in both of the models is insignificant, there can be no claims made to how exactly outside ownership moderates this relationship. Only that there is some sort of moderation present. On the other hand, model 6 also shows a significant interaction term and in addition to this, the models which test hypotheses 1 and 2 are also significant (model 4 and 5). In this model, there is not only found a form of moderation, but it is clear in which direction the moderator influences the relationship between inside ownership concentration and M&A performance. Therefore, there is enough statistical evidence to accept the third hypothesis: *Outsider ownership concentration moderates the relationship between insider ownership concentration and M&A performance, such that when the concentration of outside ownership in the firm is high, the negative relationship between insider ownership and M&A performance will be weaker.*

#### **4. Conclusion and discussion**

This study addresses the influences that ownership and its characteristics has on the performance of the acquiring firm, during an acquisition. Not only does it separate ownership into inside and outside holdings, but it also addresses the way the two interact with each other and how they impact strategic decision making. Hence this literature bridges the gap between ownership structure research and M&A research, while it segregates the forms of ownership. This research uses the percentage of the top outside holdings as a measure of outsider ownership concentration, as this measure is frequently used by prior literature as a way of measuring ownership concentration. It used the total holdings of management as a measure for insider ownership concentration. Moreover, this paper measures M&A performance in four different ways, to show that the results are robust for every measurement of performance.

Following the empirical analysis, there can be concluded that ownership and its structure does affect merger performance.

In Gugler et al. (2008) research, where the authors separate the positive effect from the negative that insider shareholdings has, the authors find that at low values of insider ownership, the wealth effect dominates. Indicating that for low levels of insider ownership, ownership does work as a mechanism to align management and shareholders' goals and therefore enhance firm value. However, the authors mention that when insider shareholdings increase, also the entrenchment effect starts to dominate, showing a negative relation of inside shareholdings and investment performance. Hence, this paper hypothesizes that the same relation is expected to be found in the sample used. On the other hand, Bhaumik & Selarka (2012) also investigate the impacts that ownership concentration has on M&A performance. The authors are one of few which separate outside and inside shareholders from each other when assessing ownership concentration. The authors mention that most M&As fail to improve the performance of the acquiring firm due to the agency conflicts between owners and managers (Agency problem 1), when an M&A is undertaken by a firm in which ownership is more concentrated, the post-M&A performance of that firm should improve. Unless this concentrated ownership results in a substitution of Agency problem 1 with Agency problem 2 (the agency conflict between large and small shareholders). The authors find that concentrated ownership does positively impact M&A performance. The authors conclude that when an M&A is performed, concentrated ownership does seem to have a positive effect on performance. Therefore, there is no shift from Agency problem 1 to Agency problem 2 to worry about, unless the concentrated ownership is in the hands of insiders. Their results imply that when the firm is insider concentrated, concentrated ownership does not affect M&A performance positively. Following their interpretation of ownership

concentration, this paper separates ownership concentration into insider and outsider shareholders. And following prior found results, this paper hypothesizes that outside ownership concentration positively impacts performance and insider concentration negatively impacts performance.

Next to the individual effects the two forms of ownership concentration, this paper also investigated the interaction between the two and their effects on M&A performance. As it is expected that insider ownership concentration negatively impacts M&A performance and outsider ownership concentration positively affects M&A performance, it is also hypothesized that a higher level of outsider ownership weakens the negative relationship that insider ownership concentration has with M&A performance.

The hypotheses were tested using data from Capital IQ and WRDS's Beta Suite event study tool. OLS regressions were used to analyze acquisition returns with controls for deal-, target-, acquirer-level, year- and industry-fixed effects. The results of this research imply that there is enough evidence to conclude the same relationships as mentioned in the literature review, and that these hypothesized relationships hold in US firms. Moreover, a novel addition to literature can be added, namely, that when a firm's outside shareholdings increase, it consequently weakens the negative relationship between inside ownership concentration and M&A performance. This is most likely due to the ascendancy which outside blockholders have on management which holds a substantial portion of the firm's shares.

## **5. Implications and limitations**

As above mentioned, ownership concentration is a governance tool which helps monitoring and affects firm performance. The empirical results obtained by this research have some striking implications for owners, investors, regulators, and policy makers. Regulators and policy makers should act in mitigating the expropriation of wealth by concentrated ownership, even when the estimated relationship between ownership concentration and performance is found to be positive, still the problem remains that the minority shareholders could be expropriated by majority shareholders. Moreover, the results also indicate that while many theories ought inside ownership to be beneficial for the firm, and it is viewed as a firm value increasing mechanism, in the context of M&A's it can have a negative effect on firm performance. Shareholders and board members should be well aware that a high amount of ownership can entrench insiders. And because M&As are inherently complex and risky investments they already have a great chance of failing. This entrenchment can lead to M&As being executed for empire-building motives, and the M&A's with this driver are the ones that fail most of the time.

There are a few limitations in this paper that are worth addressing. Firstly, the data which is used to conduct this research includes only US firms. Following this fact, the results of this thesis cannot be generalized to other countries. Moreover, the sample includes only public firms, and since a lot of M&As are performed by private firms this should be taken into account when drawing conclusions about the ownership-performance relationship that is addressed in this paper.

## 6. Bibliography

Agrawal, A., Jaffe, J. F., & Mandelker, G. N. (1992). The Post-Merger Performance of Acquiring Firms: A Re-examination of an Anomaly. *The Journal of Finance*, 47(4), 1605–1621. <https://doi.org/10.1111/j.1540-6261.1992.tb04674.x>

Al-Laham, A., Schweizer, L., & Amburgey, T. L. (2010). Dating before marriage? Analyzing the influence of pre-acquisition experience and target familiarity on acquisition success in the “M&A as R&D” type of acquisition. *Scandinavian Journal of Management*, 26(1), 25–37. <https://doi.org/10.1016/j.scaman.2009.11.005>

Anderson, R. C., & Reeb, D. M. (2003). Founding-Family Ownership and Firm Performance: Evidence from the S&P 500. *The Journal of Finance*, 58(3), 1301–1328. <https://doi.org/10.1111/1540-6261.00567>

Asquith, P. (1983). Merger bids, uncertainty, and stockholder returns. *Journal of Financial Economics*, 11(1), 51–83. [https://doi.org/10.1016/0304-405X\(83\)90005-3](https://doi.org/10.1016/0304-405X(83)90005-3)

Barber, B. M., & Lyon, J. D. (1997). Detecting long-run abnormal stock returns: The empirical power and specification of test statistics. *Journal of Financial Economics*, 43(3), 341–372. [https://doi.org/10.1016/S0304-405X\(96\)00890-2](https://doi.org/10.1016/S0304-405X(96)00890-2)

Bebchuk, L. A. (1999). *A Rent-Protection Theory of Corporate Ownership and Control* (Working Paper Nr. 7203; Working Paper Series). National Bureau of Economic Research. <https://doi.org/10.3386/w7203>

Belkhir, M. (2009). Board structure, ownership structure and firm performance: Evidence from banking. *Applied Financial Economics*, 19(19), 1581–1593. <https://doi.org/10.1080/09603100902967561>

- Bethel, J. E., & Liebeskind, J. (1993). The effects of ownership structure on corporate restructuring. *Strategic Management Journal*, 14(S1), 15–31.  
<https://doi.org/10.1002/smj.4250140904>
- Bhaumik, S. K., & Selarka, E. (2012). Does ownership concentration improve M&A outcomes in emerging markets?: Evidence from India. *Journal of Corporate Finance*, 18(4), 717–726. <https://doi.org/10.1016/j.jcorpfin.2012.04.001>
- Cartwright, S., & Schoenberg, R. (2006). Thirty Years of Mergers and Acquisitions Research: Recent Advances and Future Opportunities. *British Journal of Management*, 17(S1), S1–S5.  
<https://doi.org/10.1111/j.1467-8551.2006.00475.x>
- Claessens, S., & Djankov, S. (1999). Ownership Concentration and Corporate Performance in the Czech Republic. *Journal of Comparative Economics*, 27(3), 498–513.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2013). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*. Routledge.
- Das, A., & Kapil, S. (2012). Explaining M&A performance: A review of empirical research. *Journal of Strategy and Management*, 5(3), 284–330.  
<https://doi.org/10.1108/17554251211247580>
- Demsetz, H. (1983). The Structure of Ownership and the Theory of the Firm. *The Journal of Law and Economics*, 26(2), 375–390. <https://doi.org/10.1086/467041>
- Demsetz, H., & Lehn, K. (1985). The Structure of Corporate Ownership: Causes and Consequences. *Journal of Political Economy*, 93(6), 1155–1177.  
<https://doi.org/10.1086/261354>
- Denis, D. K., & McConnell, J. J. (2003). International Corporate Governance. *Journal of Financial and Quantitative Analysis*, 38(1), 1–36. <https://doi.org/10.2307/4126762>



Edmans, A., & Manso, G. (2011). Governance Through Trading and Intervention: A Theory of Multiple Blockholders. *The Review of Financial Studies*, 24(7), 2395–2428.

<https://doi.org/10.1093/rfs/hhq145>

Faccio, M., & Lang, L. H. P. (2002). The ultimate ownership of Western European corporations. *Journal of Financial Economics*, 65(3), 365–395.

[https://doi.org/10.1016/S0304-405X\(02\)00146-0](https://doi.org/10.1016/S0304-405X(02)00146-0)

Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *The Journal of Law and Economics*, 26(2), 301–325. <https://doi.org/10.1086/467037>

Ghosh, A. (2001). Does operating performance really improve following corporate acquisitions? *Journal of Corporate Finance*, 7(2), 151–178. [https://doi.org/10.1016/S0929-1199\(01\)00018-9](https://doi.org/10.1016/S0929-1199(01)00018-9)

Grossman, S. J., & Hart, O. D. (1980). Takeover Bids, The Free-Rider Problem, and the Theory of the Corporation. *The Bell Journal of Economics*, 11(1), 42–64.

<https://doi.org/10.2307/3003400>

Grullon, G., Paye, B., Underwood, S., & Weston, J. P. (2011). Has the Propensity to Pay Out Declined? *Journal of Financial and Quantitative Analysis*, 46(1), 1–24.

<https://doi.org/10.1017/S0022109010000633>

Gugler, K., Mueller, D. C., & Yurtoglu, B. B. (2008). Insider ownership, ownership concentration and investment performance: An international comparison. *Journal of Corporate Finance*, 14(5), 688–705. <https://doi.org/10.1016/j.jcorpfin.2008.09.007>

Han, K. C., & Suk, D. Y. (1998). The effect of ownership structure on firm performance: Additional evidence. *Review of Financial Economics*, 7(2), 143–155.

[https://doi.org/10.1016/S1058-3300\(99\)80150-5](https://doi.org/10.1016/S1058-3300(99)80150-5)

Hansmann, H., & Kraakman, R. (2004). *Agency Problems and Legal Strategies* (SSRN Scholarly Paper ID 623222). Social Science Research Network.

<https://papers.ssrn.com/abstract=623222>

Harris, H. J. (1995). Mark J. Roe, Strong Managers, Weak Owners: The Political Roots of American Corporate Finance (Princeton, NJ: Princeton University Press, 1994, £19.95). Pp. 324. ISBN 0 691 03683 7. *Journal of American Studies*, 29(3), 463–464.

<https://doi.org/10.1017/S0021875800022507>

Harrison, J. S., Hart, M., & Oler, D. K. (2014). Leverage and acquisition performance. *Review of Quantitative Finance and Accounting*, 43(3), 571–603. <https://doi.org/10.1007/s11156-013-0385-5>

Holderness, C. G. (2005). *A Contrarian View of Ownership Concentration in the United States and Around the World* (SSRN Scholarly Paper ID 686175). Social Science Research Network. <https://doi.org/10.2139/ssrn.686175>

Iaquinto, A. L., & Fredrickson, J. W. (1997). Top Management Team Agreement About the Strategic Decision Process: A Test of Some of Its Determinants and Consequences. *Strategic Management Journal*, 18(1), 63–75. [https://doi.org/10.1002/\(SICI\)1097-0266\(199701\)18:1<63::AID-SMJ835>3.0.CO;2-N](https://doi.org/10.1002/(SICI)1097-0266(199701)18:1<63::AID-SMJ835>3.0.CO;2-N)

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.

[https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)

La Porta, R., Lopez-De-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Legal Determinants of External Finance. *The Journal of Finance*, 52(3), 1131–1150.

<https://doi.org/10.1111/j.1540-6261.1997.tb02727.x>

- Leech, D., & Leahy, J. (1991). Ownership Structure, Control Type Classifications and the Performance of Large British Companies. *The Economic Journal*, 101(409), 1418–1437.  
<https://doi.org/10.2307/2234893>
- Maher, M., & Andersson, T. (2000). *Corporate Governance: Effects on Firm Performance and Economic Growth* (SSRN Scholarly Paper ID 218490). Social Science Research Network. <https://doi.org/10.2139/ssrn.218490>
- Marris, R. (1998). Managerial Theories of the Firm. In R. Marris (Red.), *Managerial Capitalism in Retrospect* (pp. 108–121). Palgrave Macmillan UK.  
[https://doi.org/10.1057/9780230376168\\_5](https://doi.org/10.1057/9780230376168_5)
- Masulis, R. W., Wang, C., & Xie, F. (2007). Corporate Governance and Acquirer Returns. *The Journal of Finance*, 62(4), 1851–1889. <https://doi.org/10.1111/j.1540-6261.2007.01259.x>
- Mitton, T. (2002). A cross-firm analysis of the impact of corporate governance on the East Asian financial crisis. *Journal of Financial Economics*, 64(2), 215–241.  
[https://doi.org/10.1016/S0304-405X\(02\)00076-4](https://doi.org/10.1016/S0304-405X(02)00076-4)
- Moeller, S. B., Schlingemann, F. P., & Stulz, R. M. (2004). Firm size and the gains from acquisitions. *Journal of Financial Economics*, 73(2), 201–228.  
<https://doi.org/10.1016/j.jfineco.2003.07.002>
- Morck, R., Shleifer, A., & Vishny, R. W. (1988a). Management ownership and market valuation: An empirical analysis. *Journal of Financial Economics*, 20, 293–315.  
[https://doi.org/10.1016/0304-405X\(88\)90048-7](https://doi.org/10.1016/0304-405X(88)90048-7)
- Morck, R., Shleifer, A., & Vishny, R. W. (1988b). Management ownership and market valuation: An empirical analysis. *Journal of Financial Economics*, 20, 293–315.  
[https://doi.org/10.1016/0304-405X\(88\)90048-7](https://doi.org/10.1016/0304-405X(88)90048-7)

- Morck, R., Wolfenzon, D., & Yeung, B. (2005). Corporate Governance, Economic Entrenchment, and Growth. *Journal of Economic Literature*, 43(3), 655–720.  
<https://doi.org/10.1257/002205105774431252>
- Mueller, D. C. (1972). A Life Cycle Theory of the Firm. *The Journal of Industrial Economics*, 20(3), 199–219. <https://doi.org/10.2307/2098055>
- Nashier, T., & Gupta, A. (2020). Ownership Concentration and Firm Performance in India. *Global Business Review*, 0972150919894395. <https://doi.org/10.1177/0972150919894395>
- Omran, M. (2015). *Performance Consequences of Privatizing Egyptian State-Owned Enterprises: The Effect of Post-Privatization Ownership Structure on Firm Performance* (SSRN Scholarly Paper ID 2625143). Social Science Research Network.  
<https://papers.ssrn.com/abstract=2625143>
- Oswald, S. L., & Jahera Jr, J. S. (1991). The influence of ownership on performance: An empirical study. *Strategic Management Journal*, 12(4), 321–326.  
<https://doi.org/10.1002/smj.4250120407>
- Ramaswamy, K. (2017). The Performance Impact Of Strategic Similarity In Horizontal Mergers: Evidence From The U.S. Banking Industry. *Academy of Management Journal*.  
<https://doi.org/10.5465/257059>
- Ravenscraft, D. J., & Scherer, F. M. (1989). The profitability of mergers. *International Journal of Industrial Organization*, 7(1), 101–116. [https://doi.org/10.1016/0167-7187\(89\)90048-9](https://doi.org/10.1016/0167-7187(89)90048-9)
- Roll, R. (1986). The Hubris Hypothesis of Corporate Takeovers. *The Journal of Business*, 59(2), 197–216.
- Shleifer, A., & Vishny, R. W. (1986). Large Shareholders and Corporate Control. *Journal of Political Economy*, 94(3, Part 1), 461–488. <https://doi.org/10.1086/261385>

- Shleifer, A., & Vishny, R. W. (1989). Management entrenchment: The case of manager-specific investments. *Journal of Financial Economics*, 25(1), 123–139.  
[https://doi.org/10.1016/0304-405X\(89\)90099-8](https://doi.org/10.1016/0304-405X(89)90099-8)
- Shleifer, A., & Vishny, R. W. (2003). Stock market driven acquisitions. *Journal of Financial Economics*, 70(3), 295–311. [https://doi.org/10.1016/S0304-405X\(03\)00211-3](https://doi.org/10.1016/S0304-405X(03)00211-3)
- Thanatawee, Y. (2013). *Ownership Structure and Dividend Policy: Evidence from Thailand* (SSRN Scholarly Paper ID 2138186). Social Science Research Network.  
<https://doi.org/10.2139/ssrn.2138186>
- Wang, K., & Shailer, G. (2015). Ownership Concentration and Firm Performance in Emerging Markets: A Meta-Analysis. *Journal of Economic Surveys*, 29(2), 199–229.  
<https://doi.org/10.1111/joes.12048>
- Weisbach, M. S. (1988). Outside directors and CEO turnover. *Journal of Financial Economics*, 20, 431–460. [https://doi.org/10.1016/0304-405X\(88\)90053-0](https://doi.org/10.1016/0304-405X(88)90053-0)
- Wright, P., Kroll, M., Lado, A., & Ness, B. V. (2002). The structure of ownership and corporate acquisition strategies. *Strategic Management Journal*, 23(1), 41–53.  
<https://doi.org/10.1002/smj.208>
- Xu, X., & Wang, Y. (1999). Ownership structure and corporate governance in Chinese stock companies. *China Economic Review*, 10(1), 75–98. [https://doi.org/10.1016/S1043-951X\(99\)00006-1](https://doi.org/10.1016/S1043-951X(99)00006-1)
- Zollo, M., & Meier, D. (2008). What Is M&A Performance? *Academy of Management Perspectives*. <https://doi.org/10.5465/amp.2008.34587995>
- Zollo, M., & Singh, H. (2004). Deliberate learning in corporate acquisitions: Post-acquisition strategies and integration capability in U.S. bank mergers. *Strategic Management Journal*, 25(13), 1233–1256. <https://doi.org/10.1002/smj.426>