Aalto University
School of Business

LAWYER CEOS AND CORPORATE RISK-TAKING

Evidence from S&P 1500 companies

Master's Thesis
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Aalto University School of Business
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Abstract of master's thesis

Abstract

The purpose of this thesis is to study how lawyer CEOs affect corporate risk-taking. Chief executives with a law degree comprise 9% of S&P 1500 CEOs but have not received wide attention in the growing CEO-focused corporate finance literature. Lawyers are generally perceived as risk-averse due to their education and previous career that typically focuses on understanding, controlling and mitigating risks. The goal of this thesis is to empirically assess whether this potential risk-aversion affects corporate policies.

I use OLS regressions to estimate the dependency between lawyer CEOs and investment, capital structure and acquisition variables, and find that lawyer CEOs associate with lower capital expenditure, lower R&D investments, higher leverage and lower cash-to-assets ratios. I find no effect for acquisition likelihood or volume but show that lawyer CEOs have a significant positive effect on cumulative abnormal stock returns surrounding acquisition announcements. The positive returns are not explained by acquisition characteristics or a higher completion rate and are robust to different sub-samples and time intervals. Finally, I do not find empirical support for risk-aversion in stock option holding behavior of lawyer CEOs.

The empirical results suggest differences in corporate policies for companies with lawyer CEOs compared to the baseline, but general lawyer CEO risk-aversion is not established. Rather it appears that lawyer CEOs are averse towards certain policies such as capital expenditures and R&D investment, which have been shown to increase the company's litigation risk, while being less risk-averse towards other corporate policies such as the capital structure of the company.

The most significant finding of my thesis is documenting 1.4 percentage points higher cumulative announcement day returns in the three-day period [-1, +1] surrounding the announcement of a large acquisition. Based on previous research, I formulate three potential explanations for the result. Lawyer CEOs may be more effective in managing investor expectations which would decrease the negative surprise typically related to acquisitions. They may also be more talented in navigating the legal complexity of acquisitions and mitigating their litigation risk. Finally, lawyer CEOs may announce better acquisitions due to better negotiation outcomes or improved target selection.

My thesis has significant contribution to finance literature and increases our understanding of CEOs, specifically lawyer CEOs, and their effect on firm policies. Further academic extensions of the thesis include studying lawyer CEOs in takeover target companies to better understand the causal effects of observed higher announcement returns. Studies could also be extended to other traditional areas of finance research such as innovativeness, IPO underpricing or stock returns. Finally, my thesis also provides practical implications to for example boards making CEO hiring decisions, investors reacting to CEO appointments and acquisition announcements, and lawyer CEOs themselves in understanding potential biases affecting their own decision making.

Keywords CEO Behaviour, lawyer CEOs, corporate policies, mergers and acquisitions

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Tiivistelmä

Tämä tutkielma tutkii juristitoimitusjohtajien vaikutusta yritysten riskinottoon. Yhdeksän prosentilla S&P 1500 -yritysten toimitusjohtajista ovat juristeja. Siitä huolimatta tämä erityisryhmä ei ole saanut merkittävää huomiota kasvavassa toimitusjohtajiin keskittyvässä akateemisessa tutkimuksessa. Juristeja pidetään tyypillisesti riskiä karttavina, johtuen heidän koulutuksestaan ja työstään joka keskittyy riskien ymmärtämiseen ja hallintaan. Tämän tutkielman tavoite on empiirisesti analysoida, kuinka toimitusjohtajan juristitausta vaikuttaa yrityksen toimintatapoihin.

Käytän pienimmän neliösumman menetelmää analysoidakseni juristitoimitusjohtaja-muuttujan sekä investointeihin, pääomarakenteeseen sekä yrityskauppoihin liittyvien muuttujien yhteyttä. Regressioiden mukaan juristitoimitusjohtajien johtamilla yrityksillä on pienemmät investoinnit, enemmän velkaa sekä vähemmän kassavaroja kuin muilla yrityksillä. Yrityskauppojen lukumäärässä ei ole merkittäviä eroja, mutta juristitoimitusjohtajat assosioivat voimakkaasti korkeampien yrityskaupan julkaisua ympäröivien osaketuottojen kanssa. Korkeampia tuottoja eivät selitä yrityskauppojen ominaisuudet tai toteutumistodennäköisyydet, ja tulokset pitävät eri aikaintervalleille ja osaotoksille.

Empiiriset tulokset viittaavat siihen, että yrityksien välisiä eroja voidaan osittain selittää toimitusjohtajan juristitaustalla. Yleinen riskin karttaminen ei kuitenkaan saa täyttä empiiristä tukea. Vaikuttaa ennemminkin siltä, että juristitoimitusjohtajat suhtautuvat tiettyihin oikeudellista riskiä lisääviin päätöksiin kuten investointeihin riskiä karttavasti, joka ei kuitenkaan reflektoidu kaikkiin päätöksiin kuten esimerkiksi pääomarakenteeseen tai yrityskauppojen lukumäärään.

Tutkielmani tärkein löydös on 1.4 prosenttiyksikköä korkeampien kumulatiivisten osaketuottojen dokumentointi suurta yrityskauppaa ympäröivien kolmen päivän [-1, +1] aikana. Aikaisempaan akateemiseen tutkimukseen pohjaten muodostan kolme selitystä tulokselle. Juristitoimitusjohtajat saattavat olla tehokkaampia sijoittajien odotusten hallinnassa, joka voisi vähentää yrityskauppoihin liittyvää yllätystä. Juristitoimitusjohtajat saattavat myös olla taitavampia hallitsemaan yrityskauppoihin liittyviä oikeudellisia seikkoja, vähentäen niistä johtuvaa riskiä. Juristitoimitusjohtajat saattavat myös saavuttaa parempia lopputuloksia kauppojen neuvotteluissa.

Tutkielmani edistää olemassa olevaa rahoituksen tutkimusta lisäämällä ymmärrystämme yrityksen toimitusjohtajien taustan, etenkin juristitaustan, vaikutusta yritysten toimintatapoihin. Mahdollisia jatkotutkimuksia ovat lakimiesten tutkiminen yrityskaupan kohteena olevien yritysten toimitusjohtajina, sekä laajentaminen muihin rahoituksen tutkimusaloihin kuten osakeantien hinnoitteluun, innovointiin tai osaketuottoihin. Tutkielmallani on käytännön implikaatioita esimerkiksi yritysten hallituksille, jotka valitsevat toimitusjohtajia, sekä sijoittajille jotka reagoivat toimitusjohtajanimityksiin. Tutkielmani tuo myös itse juristitoimitusjohtajille uusia näkökulmia mahdollisten omien ennakkoluulojen sekä niiden päätöksentekovaikutusten ymmärtämiseen.

Avainsanat Johtajakäyttäytyminen, juristitoimitusjohtajat, yrityksen toimintatavat, yrityskaupat

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1. Introduction

Half of my career was spent as a lawyer… I joke that law school consists of taking normal people and getting them to worry about what no sane person would worry about. There's a level of worrying that comes with that I guess you keep. –Francis (Frank) Blake, CEO of Home Depot from 2007 to 2014 (Institutional Investor, 28.10.2011)

1.1 Background and motivation

A law degree is not the most typical education for a CEO, which likely relates to the stereotypes attached to the lawyers' profession. Lawyers are often portrayed as cautious, risk-averse and the "naysayers" of a company. Their education, and often subsequent career, is focused on understanding, controlling and mitigating risks and thus being cautious seems like a natural trait for a successful lawyer. Lawyer risk-aversion is generally accepted which is easy to notice by searching for related business press articles: "risk-averse lawyers" yields over 5 times more Google search hits than "overconfident lawyers". Notable business publications such as Wall Street Journal (2013), Financial Times (2016) and Forbes (2018) have described lawyers or their profession as risk-averse.

Risk-aversion, however, is not intuitive for describing a successful CEO. Risk is connected with reward, and bold strategies executed by visionary leaders are the ones that reach front page news. It is likely that for example an MBA education assigns more focus on potential upside from risk-taking than an education in law, and thus it would seem like a more suitable education for a future CEO. Nevertheless, there is a clear need for CEOs with legal expertise. The regulatory environment has become more complex with laws such as the Sarbanes-Oxley act that set new standards for reporting, governance and transparency, and where non-compliance may lead to severe litigation and charges. Furthermore, the law degree has certain prestige attached to it due to the long and demanding period of education required to be awarded one. This may allow lawyers to venture outside their educational boundaries to take more strategic positions within companies such as the role of a CEO.

Consequently, approximately 9% of CEOs in S&P 1500 companies have a law degree (Henderson, Hutton, Jiang and Pierson, 2017). Lawyer CEOs are present across industries and have been employed for example within manufacturing firms such as Cisco, financial institutions such as Bank of America, pharmaceutical companies such as Merck and Actavis or consumer product companies such as Home Depot and Altria. Due to their specific education and non-trivial occurrence in large companies, lawyer CEOs are an interesting group of executives to study which has to date been relatively lightly covered in academic literature studying the effects of CEOs on corporate policies.

1.2 Research question

This thesis studies how having a CEO with legal expertise affects corporate risk-taking. The effects a CEO has on corporate policies has been a growing topic of study: CEOs have a significant influence on corporate decisions (Graham, Harvey and Puri 2013) and manager fixed effects are shown to robustly explain heterogeneity in corporate policies (Bertrand and Schoar 2003). Easily observable characteristics such as age and gender are shown to affect corporate policies such as acquisitiveness (Huang and Kisgen 2013, Yim 2013), while studies have also been conducted on more specific CEO experiences such as military background (see e.g., Bamber, Jiang and Wang 2010, Lin, Ma, Officer and Zou 2011, Malmendier, Tate and Yan 2011, Benmelech and Frydman 2015) or exposure to natural disasters (Bernile, Bhagwat and Rau 2017).

A less studied channel which may affect corporate policies is the CEOs work experience. Schoar and Zuo (2017) show that CEO management styles are affected by the timing of entering the workforce, more specifically whether a future CEO begins her career during recession or during an economically prosperous period. The authors argue that an important channel through which recessions affect CEOs is through the allocation of their first job, which robustly explains much of the effect a recession has on the CEOs management style. Thus, it is surprising that only few work-experience related CEO studies have been conducted. One limitation to studying the effect of work experience is the availability of data: while some databases such as Marquis Who's Who collect CEO work experience information, the data often requires hand-picking of specific work experiences, limiting potential sample size and thus the reliability of the study.

While work experience data is burdensome to collect, information on the executives' education is more comprehensively documented. A distinguishable educational background is possessing a law degree, which at the very least means that the CEO has received education in law, but in most cases also means that the individual has worked as a lawyer before becoming a CEO (Henderson et al. 2017). But are companies with lawyer CEOs managed differently? The findings of Henderson et al. (2017) suggest so, as lawyer CEOs are shown to associate with lower litigation frequency, less severe litigation, lower investments in R&D and tangible assets, and lower stock price volatility.

In this thesis, I expand the study of Henderson et al. (2017) to cover capital structure and acquisitiveness as well as acquisition outcomes. The accumulated legal expertise, personal traits or other factors specific for lawyer CEOs may result in differences in how companies are managed. If lawyer CEOs indeed are more risk-averse than their non-lawyer peers, as often suggested by business press, this could be reflected in corporate decisions such as leverage, the cash-to-assets ratio, and the

number or type of acquisitions. Furthermore, it may also affect acquisition outcomes such as announcement day returns or the completion rate. Conversely, however, it is also possible that a lawyer CEO has positive effect towards these corporate policies, as lawyers may be more skilled in assuring banks to grant debt, or in navigating through acquisitions that often have various and complex legal considerations and litigation risk attached to them.

1.3 *Main findings and contribution*

I find that lawyer CEOs associate with lower investment in R&D and tangible assets, confirming the findings of Henderson et al. (2017). However, the conservativeness suggested by lower investment is not extended to capital structure decisions, as companies with lawyer CEOs have higher leverage and lower cash-to-assets, both of which are statistically significant effects. I find no statistically significant effect for lawyer CEOs in studying the likelihood of announcing a large acquisition. The most significant finding of my thesis is that cumulative abnormal returns for the three-day period [-1, +1] surrounding acquisition announcements are 1.4 percentage points higher for acquisitions announced by companies with a lawyer CEO than for the rest of the sample. This finding is statistically significant at the 1% level, is not explained by other acquisition characteristics or the completion rate of acquisitions, and holds for different sub-samples and time intervals.

Furthermore, I study lawyer CEO risk-aversion which is partially used to explain the findings of Henderson et al. (2017). Following Malmendier and Tate (2005) I study the option holding behaviour of lawyer CEOs to assess their level of overconfidence. While generally accepted by the public, lawyer risk-aversion is less documented in academic studies, and it is much less established than for example risk-aversion related to gender (Huang and Kisgen 2013) or age (Yim 2013). In fact, Goodman-Delahunty, Granhag, Hartwig and Loftus (2010) show that lawyers are overconfident in estimating their likelihood of success in case outcomes. The finding outlines the importance in academically evaluating lawyer risk-aversion, rather than accepting it as a given due to the public image of the lawyer's profession. I do not find significant risk-aversion in lawyer CEOs. In fact, lawyer CEOs tend to be more likely to hold options that are 67% in the money, hold options until the end of their expiration, and to be net buyers of company shares, which are all consistent with overconfident behaviour (Malmendier and Tate, 2005).

The contribution of my thesis is adding to the growing CEO literature studying how manager specific effects, both self-imposed and external, affect corporate policies. Lawyer-specific studies are scarce and have mostly focused on law-related factors such as litigation. To my understanding, my thesis is among the first papers that studies the relation between lawyer CEOs and acquisitiveness. It

is also one of the first studies to explicitly study lawyer conservativeness in a corporate finance setting. My thesis adds to the broader corporate finance literature on acquisitiveness, expanding the potential reasons for acquisitions beyond the traditional cash-flow and valuation –related explanations (see e.g., Jensen and Meckling 1976, Jensen 1986, Schleifer and Vishny 2003). While my thesis does not intend to answer the question whether or not lawyers are better or worse CEOs in general, my findings provide insight in evaluating what type of companies or strategies could be enhanced by having a lawyer at the helm of the firm.

As lawyer CEOs are a non-trivial group of executives, it is valuable to understand the differences and their potential explanations for corporate policies. Knowledge of these aspects may be important for boards when making hiring decisions, investors reacting to new information on a CEO hire, and CEOs themselves in evaluating potential biases that affect their decision making. My findings may also be applicable for designing and analysing top management incentive schemes, which may in the future more effectively account for manager specific factors to steer companies towards more desirable decisions and performance. Finally, the findings of my thesis will give ground for further academic research on the effects a CEOs background may have in corporate decision making, and suggest new areas to be examined. As the quality of CEO work experience information increases, more studies regarding the CEOs career path will be feasible, potentially increasing our ability to evaluate the value and effect of the past experiences of an executive.

1.4 *Limitations of the study*

There are several limitations affecting my study. The methodology allows to study correlation but not conclusively establish causality, and thus it is possible that unobserved factors correlating with both the dependent and independent variables are causing the observed results. For example, if lawyers are in fact more conservative, it is difficult to differentiate whether it is the law education or innate conservativeness which is driving the observed results. This concern is addressed by controlling for various CEO-specific characteristics consistent with previous CEO literature, as well as explicitly testing lawyer CEOs for overconfidence. Another complicating factor is that results may also be affected by endogeneity in CEO-firm matching. It may be that a CEO looking to utilize certain policies may choose to join a company that is already embracing these policies. To mitigate this issue, I utilize a difference-in-differences approach as a robustness check for the results, which limits sample size but allows me to study changes in corporate policies post CEO transition.

Endogeneity may also work the other way. It is possible that companies looking to change their policies choose to hire a CEO with a background as a lawyer, a limitation that is not fully controlled

in this study. However, this limitation will not affect the validity of the results, only their interpretations. While reliable causality cannot be established, it is interesting and insightful to observe correlations between lawyer CEOs and firm policies. As Malmendier and Tate (2005) argue, boards should be aware of the "dark sides" of CEO characteristics such as overconfidence, even though the characteristics would be the reason for hiring the executive in the first place. Finally, there are also data-driven limitations to the study due to the utilization of five separate databases to construct the sample, leading to many observations being omitted due to lack of data. These limitations and their mitigations are further discussed in Chapter Four.

1.5 Structure of the thesis

The rest of the thesis is organized as following. I review CEO literature in Chapter Two, and present the hypotheses in Chapter Three. Data and methodology is presented in Chapter Four and the empirical results in Chapter Five. Chapter Six presents the results of robustness analyses and Chapter Seven discusses the results. Chapter Eight concludes the thesis.

2. Review of prior literature

There have been several distinguishable developments in the market for CEOs within the last century. CEOs have received more mobility (Murphy and Zabojnik 2004), shifted towards generalists as opposed to specialists (Frydman forthcoming) and experienced a significant increase in pay (Edemans, Gabaix and Jenter 2017). This Chapter begins by reviewing and analysing the recent trends in the executive market in Section 2.1. In Section 2.2 I review research studying the impact of CEOs, and in Section 2.3 I review agency conflicts and cognitive limitations, the most common explanations for how managers affect corporate policies. In Section 2.4 I provide an overview of research on how other CEO characteristics, both external and self-imposed, may affect corporate policies, and in Section 2.5 I focus on how work experience could affect CEO decision making. I finish the literature review in Section 2.6 with lawyer-specific research.

2.1 Recent developments in the market for CEOs

Although the CEO undeniably has influence over the company, the magnitude of this influence is debated. On one extreme theorists argue for a perfect CEO-market, in which individual managers are seen as completely replaceable and non-value-adding to the company that is ultimately steered by the shareholders (Bertrand and Schoar 2003). However, the growing amount of CEO compensation documented by e.g. Murphy and Zabojnik (2004) and Edmans et al. (2017) does not align with an argument of a perfect market for managers. The commonly accepted view is that CEOs possess skills and influence the company to an extent, but that the magnitude of the effect is difficult to quantify.

The market for CEOs has undergone important developments over the last century. There seems to be a growing emphasis on the CEOs skillset evident from the increase in the share of externally recruited CEOs (Frydman forthcoming), which for S&P 500 companies rose from 15% in 1970 to 26% in 1990. The shift towards externally recruited CEOs suggests that inside information from within the company or existing relationships with other directors carry less emphasis than before (Murphy and Zabojnik 2004). When firm-specific information is less important, the search for a new executive can be widened from intra-firm candidates to the executive market in general, even outside the industry sector of the company. The education of CEOs has simultaneously shifted towards a business degree, while earlier in the century having a technical education was more common for managers (Frydman forthcoming). Benmelech and Frydman (2015) show that the number of MBA CEOs has risen from 16% in 1980 to 35% in 2006 for large publicly listed companies.

Bertrand (2009) explains the trend towards more generalist CEOs by the development that firms today utilise more complicated financial instruments and require sophisticated strategies to stay competitive. Technology development has led to higher performance of information systems which increases the amount of knowledge available for executive decision making and allows for an increased number of managers reporting directly to the CEO (Bertrand 2009). Frydman (forthcoming) argues that the increased importance of general management skills as well as asymmetric information in the executive market have led to a higher mobility of CEOs, increased pay and larger salary inequalities across managers within a firm. The author also notes that the average number of industries where the manager has worked has increased, further suggesting that general management knowledge is more important than firm- or even industry-specific knowledge.

A range of constraints in the executive job market, such as self-serving activist investors, biased business press or ineffective executive search companies, have become common over the past decades (Khurana 2002). Certain skills such as convincing communication with investors or the press may receive more focus in the CEO hiring process than what would be necessary from the job positions' point of view. Khurana (2002) argues that the identification of managerial talent may be sub-optimal, as executive search companies are often used to legitimize the CEO choice the board has already made, rather than to identify and promote new candidates for the position. Suggesting further market imperfections, Bertrand (2009) argues that some specific groups such as females or family members are over- or underrepresented in the C-suite. While the share of females as CEOs for major U.S. companies has grown from 0.5% in 1994 to 1.5% in 2005, and from 3.0% to 7.5% for CFOs respectively (Huang and Kisgen 2013), females are still significantly underrepresented. Bertrand (2009) suggests that this may be related to pipeline issues, as historically men have been

much more likely to hold an MBA degree than women[1]. However, the share of female CEOs has grown much slower than the share of female MBA students, suggesting that this can only be a partial explanation. Other explanations have been the glass ceiling argument, i.e. that females are discriminated against by the corporations themselves or their shareholders (Bertrand 2009). There may also be negative conceptions of female managerial ability as argued by Wolfers (2006). Finally, women may face more severe career-family trade-offs that may explain their underrepresentation (Bertrand 2009).

The persistence of family CEOs, i.e. executives who are related to the founder of the company, the previous CEO, or to a large shareholder (Perez-Gonzalez 2006), is also an area of research interest. There are some arguments in favor of family CEOs: the interests of family CEOs may be better aligned with shareholders due to the share ownership of the family or they may have a more long-term view (Bertrand and Schoar 2006) which would explain their overrepresentation in the CEO population. However, when choosing a family member for the executive position the pool for potential candidates is significantly smaller than for unrelated CEOs, suggesting that the most talented individual may not be chosen. Indeed, it seems that the market assigns a negative weight for family CEOs as suggested by Perez-Gonzalez (2006) who shows that unrelated CEO appointment announcements carry positive abnormal returns which are not present when a related CEO appointment is announced. Furthermore, the author shows that operating performance is negatively correlated with family CEOs.

A CEO characteristic that has significantly decreased over the past years is military experience. Benmelech and Frydman (2015) document that the share of CEOs who have served in the military has decreased from 59% to 6% from 1980 to 2006. While a large part of the trend is likely related to pipeline issues i.e. to the fact that executives who served in World War II have exited the pool of potential CEOs as they have become old, it is likely also related to the trend of valuing generalist and business expertise over military merits. Interestingly, CEOs with a background in law have also significantly increased over the last decades (Bagley 2008, Litov, Sepe and Whitehead 2014), one of the main motivators for this thesis in particular. The increase is likely related to pressure from regulators as well as a more complicated risk environment in which companies benefit from the CEOs legal expertise. Consequently, approximately 9% of S&P 1500 companies have CEO with a law degree (Henderson et al. 2017).

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[1] In 1970, over 95% of students that graduated from MBA programs in U.S. were male (Bertrand, 2009).

2.2 The impact of CEOs

The increased availability of manager specific data has allowed more research on the way CEOs affect corporate decision making. According to the upper echelons theory the company's performance and strategic decisions can be predicted, to an extent, by characteristics related to the managers of the company (Hambrick and Mason 1984). Bertrand and Schoar (2003) track individual managers across different companies and show that a significant amount of heterogeneity in a range of firm policies such as investment, financing and organizational practices are explained by effects attributable to manager fixed effects. In other words, managers seem to have a distinguishable managing style which they incorporate throughout their career, and which significantly affects the decisions taken by the companies they manage. Similarly, Bamber et al. (2010) track individual managers and find that they have unique disclosure styles that significantly influence their companies' voluntary disclosures.

Bennedsen, Perez-Gonzales and Wolfenzon (2011) provide further support for the argument that CEOs matter by showing that CEO deaths have a strong correlation with operating profitability declines. In addition, the authors show that deaths of the CEOs immediate family members are strongly correlated with performance declines, arguing that the family members' deaths decrease the CEOs ability to focus on managing the company. On the contrary, board member deaths do not seem to have a significant effect on performance, suggesting that CEOs are more important for operating profitability, an intuitive result given that board members typically distribute their attention to various firms as opposed to the CEO. Utilizing a unique dataset of CEO candidates for private equity and venture capital –related companies, Kaplan, Klebanov and Sorensen (2012) show that the company's performance after the hiring of a new CEO is positively correlated with the selected CEOs general ability and execution skills, providing further evidence that CEOs do matter.

Evaluating the extent to which CEOs affect corporate decisions, Adams, Almeida and Ferreira (2005) study powerful CEOs. The authors evaluate the power of a CEO by using different measures such as whether the CEO is the founder of the company, whether he is the only insider board member, and whether the company is in an industry where CEOs are likely to have a lot of power over decisions. The authors find that companies with powerful CEOs have significantly higher stock return variability, suggesting that when CEOs have more power in the company corporate policies may be more affected by CEO specific characteristics such as her opinions (Adams et al. 2005).

Accepting that CEOs do make a difference, however, provides only limited insight unless we understand what distinguishable characteristics are important, and which decisions they affect. Thus, the following sections focus on specific CEO characteristics and their effects on corporate policies.

2.3 *Agency conflicts and cognitive limitations*

Agency conflicts and cognitive limitations have received the most attention in explaining how CEOs can affect their companies (Bertrand 2009). The interests of CEOs may differ with those of shareholders despite the existence of incentive packages with the purpose of aligning interests, which results in agency conflicts (Jensen and Meckling 1976). One such agency issue is empire building, i.e. growing the company to beyond shareholder-maximizing size, towards which CEOs have several incentives. They may receive personal benefits e.g. in the form of higher status or increased fame, as well as monetary benefits from increased salaries as CEOs running larger companies tend to be paid better (Gabaix and Landier 2008). Diversifying the company can also be attractive from the CEOs point of view given most of the executive's human capital is invested in the single company she is running, and thus declines in the company's industry may have severely negative outcomes for the CEO. Entering other industries can diversify the CEOs exposure towards industry-risk, while it may not be optimal from the shareholders point of view who could diversify simply by buying stocks in other companies. Complicating the organization through growing it in size may also entrench the CEO, making it harder to replace her due to the large amount of firm-specific understanding required to manage the company. The manager's risk of unemployment may also be decreased by entrenching investments that are projects or acquisitions that require, and reward certain skills possessed by the CEO (Schleifer and Vishny 1989).

There are a few contradicting studies to the generally accepted empire building view. Bertrand and Mullainathan (2003) study plant-level data through the passing of anti-takeover laws and find that when takeover threat is reduced, both the destruction of old plants and the creation of new plants falls. This is contrary to empire building, which would suggest that weakened governance through the lower threat of a takeover should lead to increased firm size. The authors conclude that managers may instead be enjoying the quiet life, i.e. avoid difficult and cognitively challenging questions of shutting down old plants or building new ones when they are not under pressure. Similarly, Bertrand (2009) argues that CEO entrenchment might be a factor decreasing acquisition propensity as tenured CEOs put less emphasis on the identification of acquisition targets to maintain the status quo and enjoy less stress from having to manage acquisitions.

An increasing focus on behavioral corporate finance research suggests that cognitive limitations and biases may affect CEOs and thus corporate decisions. CEO overconfidence has been vastly studied and documented. Ben-David, Graham and Harvey (2013) show that executives utilize too narrow confidence intervals, documenting that executives realize market returns that are in their 80% confidence interval only 36% of the time. Overconfidence also affects corporate policies:

overconfident CEOs use less equity financing, are more likely to invest when internal funds are available and overestimate future returns from investments (Malmendier and Tate 2005, Ben-David et al. 2013). Furthermore, overconfident managers undertake more acquisitions, while announcement day returns for acquisitions announced by overconfident CEOs tend to be lower (Malmendier and Tate 2008). Companies with overconfident CEOs are more likely to issue optimistic forecasts (Hribar and Yang 2016) and associate with higher likelihood of financial misreporting (Schrand and Zechman 2012). Overconfidence, however, also bears some positive effects. Galasso and Simcoe (2011) show that CEO overconfidence is positively correlated with innovation outcomes of the company[2], which is intuitive as overconfident CEOs are likely to take more risk which typically is required for successful innovation. In line with their findings, Hirshleifer, Low and Teoh (2012) show that companies with overconfident CEOs have higher stock price volatility, invest more in research and development and have more successful innovation outcomes.

Overconfidence is not the only cognitive bias affecting executive decision making. Anchoring, which is excessively relying on first piece information which may even be completely irrelevant from the decision-making point of view (Tversky and Kahneman 1974) is shown to affect corporate decisions. While the effect of anchoring tends to be smaller for experienced professionals than individuals with less experience (Kaustia, Alho and Puttonen 2008), its effect is documented for top executives as well. For example, acquisition outcomes are shown to be affected by anchoring as executives, both in the acquiring and in the target firm, are influenced by prior peak stock prices (Baker, Pan and Wurgler 2012). Interestingly, anchoring has also been studied in a legal setting as random irrelevant sentencing demands is shown to affect judicial sentencing decisions (Englich, Mussweiler and Strack 2006).

2.4 Other self-imposed and external CEO characteristics

In addition to the studies on agency conflicts and cognitive biases, a range of self-imposed and external CEO characteristics have been studied and used to explain differences in how companies are managed. A common area of research has been studying how the background of the CEO affects corporate policies. Mullins and Schoar (2016) show that family CEOs tend to perceive their role differently than unrelated CEOs, exhibiting a stakeholder-view with more focus on employees and debtholders compared to unrelated CEOs who are more focused on shareholders. Companies with family CEOs also tend to have lower operating profits and market-to-book ratios (Perez-Gonzales 2006), and the negative effect is amplified when the family CEO has not attended a selective

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[2] Measured by patent count and subsequent citation count of the patents (Galasso and Simcoe 2011).

undergraduate institution, suggesting that education does matter. The finding is consistent with Bertrand and Schoar (2003) who show that MBA CEOs are associated with better operative performance.

The CEOs childhood experiences also seem to affect how companies are managed. Malmendier et al. (2011) show that CEOs living through the Great Depression are more likely to rely on internal finance and less likely to use debt financing. The findings are consistent with Malmendier and Nagel (2011), who show that individuals who have lived through times of low stock market returns are more conservative i.e. have a lower willingness to take financial risk, are less likely to own stock, predict lower stock returns and invest a lower share of their wealth in stocks if they participate. Bernile et al. (2017) study the effect of fatal disasters experienced by CEOs during their early-life and find an inverse U-curve for risk-aversion: CEOs who experience disasters without extreme downsides had a tendency for aggressive behaviour observable from higher leverage and lower cash holdings, whereas CEOs at the extreme tail of natural disaster exposure exhibit risk-averse policies. The time of entering the job market also seems to play a role in managerial style as well as career outcomes. Oyer (2008) examines Stanford MBA students who entered investment banking, noticing that those graduating during the bull markets of the mid 1980s and early 1990s had a higher probability for starting a career on Wall Street, and to work longer and earn more in the industry, than their graduate peers who enter the work market during a the stock market bust of 1988-1989 and 1993-1994. Schoar and Zuo (2017) show that companies with CEOs who began their career during a recession execute conservative policies in capital expenditures, R&D, leverage and working capital needs when compared to companies with a CEO who has joined the labour force during an economically prosperous period.

In addition to background, personal characteristics are shown to explain corporate policies. Yim (2013) shows that younger CEOs have a higher likelihood of announcing a large acquisition, and that acquisitions announced by younger CEOs tend to have lower announcement day returns. A large acquisition increased the CEOs compensation by an average of $300 000 a year, and this increase persisted throughout the CEOs career giving younger CEOs higher incentives to pursue acquisitions. The likelihood of being replaced after a poor quality acquisition[3] was roughly the same as when no acquisitions were undertaken, further skewing incentives towards acqisitions (Yim 2013). The findings are in line with Bertrand and Schoar (2003), who show that older CEOs tend to have more conservative management policies with regard to capital expenditures, leverage and cash holdings.

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[3] A poor quality acquisition was one that fell into the lowest quartile of cumulative abnormal returns in the sample (Yim 2013).

The physical appearance of the CEO is also found to affect corporate policies. Cook and Mobbs (2017) measure executive facial attractiveness and find that attractive new CEOs are associated with better operating performance in homogenous industries, evident from higher sales and better long-run abnormal stock returns. Furthermore, attractive CEOs exhibit higher abnormal earnings upon the announcement of their appointment, suggesting that markets also view the CEOs physical appearance as firm-value enhancing. Attractive CEOs are also found to associate with higher announcement day returns for the acquisitions their companies announce (Halford and Hsu 2013). Graham, Harvey and Puri (2015) show that CEOs whose appearance is perceived as more competent[4] tend to manage larger firms and receive higher salaries, although no link is found between perceived competence and actual corporate performance.

Another extensively studied physical factor affecting managerial decisions is the gender of the CEO. Huang and Kisgen (2013) examine the differences in corporate policies between male- and female-led companies and argue that overconfidence is more present in male executives throughout different corporate decisions such as acquisitiveness and debt issuance. Female CEO issue less debt and undertake less acquisitions, while the acquisitions that they do execute have approximately 2% higher announcement day returns than those announced by their male peers (Huang and Kisgen 2013). Gender can also affect managerial decisions through the CEOs children, as argued by Dahl, Dezso and Ross (2012) who study male CEOs in Danish firms between 1996 and 2006 and show that the birth of a son to the CEO has a more negative effect on wages paid to the company's employees than that of the birth of a daughter. The authors show that if the daughter is the CEO's first, wages even tend to increase within the company. Marriage, another family-related event, is shown to drive more conservative investment policies and lower stock return volatility which is not explained by innate heterogeneity in CEOs (Roussanov and Savor 2014).

Personal values and attitudes, often proxied by political preferences, are also shown to affect financial decisions such as stock market participation (Kaustia and Torstila 2009) or stock selection (Hong and Kostovetsky 2012). These effects also extend to CEOs. Republican executives exhibit more conservative corporate policies, which is explained by their conservative ideologies (Hutton, Jiang and Kumar 2014). The authors show that companies managed by republicans have lower leverage and invest less in capital expenditures or R&D. Psychological traits of the manager also affect corporate decisions. Using a survey-based approach, Graham et al. (2013) show that companies

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[4] The authors find that a high competence score is linked to the maturity score of the executives face, i.e. that baby-faced CEOs are perceived as less competent, a potentially worrisome finding as psychology literature suggests baby-faced people often possess qualities opposite to the qualities projected by their looks (Graham et al. 2015).

undertake more acquisitions when their CEO is risk-tolerant, and that companies led by optimistic CEOs have more short-term debt than those led by their less optimistic peers. Culture is also likely to affect management, as U.S. CEOs are more risk-tolerant and optimistic than non-U.S. CEOs (Graham et al. 2013). Even the free-time preferences of CEOs is shown to explain corporate policies: a CEOs hobby of flying airplanes is shown to associate with better innovation outcomes of the company (Sunder, J., Sunder, S. and Zhang 2017). This is explained by sensation seeking i.e. the search of varied, complex and intense sensations through taking physical, social, financial or legal risk (Zuckerman 1971), which is typically related to risky behaviour such as gambling or speeding, but is also shown to affect for example stock trading volumes (Grinblatt and Keloharju 2009).

2.5 *Work experience of the CEO*

In addition to studying the CEOs demographics, childhood or overconfidence, some research has focused on the work experience of the CEO. A limitation to these studies has been the availability of data, as well as the scarcity of certain backgrounds. For example, if one wanted to study former investment bankers who became CEOs, the sample would require either a very long time window or a wide range of companies, both of which significantly affect the availability of data.

Work experience, especially the first place of work after graduating, is shown to significantly affect the career path of individuals and their decision making after becoming a CEO (Bertrand and Schoar 2003). CEOs are argued to relate decision making situations to their past experiences (Mintzberg 1973; Castanias and Helfat 1991) and newly hired CEOs are found to replicate successful strategies from their previous organisations (Boeker 1997; Kraatz and Moore 2002). Studying the semiconductor industry, Boeker (1997) shows that the managers' exposure to different products and strategies in their previous organization influence the product-market entries executed in the executive's new firm, especially if the new management team is small or has a short tenure. Studying liberal arts colleges, Kraatz and Moore (2002) show that colleges were more likely to adopt professional programs when led by newly hired presidents who had migrated from institutions that offered such programs.

Due to a limited amount of data, only a few studies on the CEOs working background have been published. A specific work background with enough available data is CEOs who have served in the military. Bamber et al. (2010) show that military CEOs follow more precise disclosure styles, while Malmendier et al. (2011) find that companies with military CEOs follow more aggressive capital structures e.g. higher leverage than other companies. Lin et al. (2011) document that companies with military CEOs have higher announcement day returns for their acquisitions, and that their deals

exhibit stronger synergies. Benmelech and Frydman (2015) show that military CEOs tend to implement more conservative policies such as lower corporate investment, a somewhat contradicting finding to Malmendier et al. (2011). Benmelech and Frydman (2015) also show that military CEOs maintain a higher level of ethicality as measured by the likeliness to be involved in corporate fraud.

Another work experience area studied is a CEOs background in finance. CEOs with a financial background seem to be more sophisticated in evaluating investments: their investment decisions are less sensitive to cash flows (Malmendier and Tate 2005, Custodia and Metzger 2014) and they are more likely to use project-specific discount rates rather than a single companywide discount rate (Custodia and Metzger 2014). Companies with financial expert CEOs also tend to have less cash, more debt, and implement more share repurchases (Custodia and Metzger 2014).

In general, the CEOs experience of certain situations seems to matter. Davidson, Elsaid and Wang (2011) show the stock market reaction towards the announcements of outside CEO appointments is more positive when the newly appointed CEO is an exCEO[5]. However, the authors also find that firms hiring exCEOs have worse financial performance after the succession. The CEOs experience from specific situations or projects has also been shown to affect corporate outcomes. Studying takeovers, Bernile and Kang (2016) show that CEOs who have experience from leading companies that have been targets of a takeover are able to negotiate higher returns or safer cash payments to their shareholders than companies led by CEOs without takeover experience. The authors argue that this is due to learning rather than skills or self-selection, and that the better outcomes do not come at the price of other contractual concessions or at an increased risk of terminating negotiations. Furthermore, firms managed by CEOs that have experienced distress earlier in their careers have lower leverage, higher cash-to-assets ratios and lower investments (Dittmar and Duchin 2016). Custodia, Ferreira and Matos (2013) show that CEOs with general managerial skills are seen as more valuable for companies that are undertaking restructurings and acquisitions than CEOs with firm-specific skills.

In addition to certain skills, previous work experience may expose the CEO to important stakeholders that can affect corporate policies and a company's success. Companies with politically connected CEOs in China are shown to significantly outperform peers with non-connected CEOs in terms of post-IPO stock returns (Fan, Wong and Zhang 2007), and they are more likely to appoint other politically connected individuals to executive positions. Guner, Malmendier and Tate (2008) show that companies with bankers as board members have better capital markets access and use more

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[5] exCEO is defined as executives who have held the CEO position for three years before being hired, and hold the CEO position for three year after the hiring (Davidson et al. 2011).

external financing, and that the increase in external funding occurs after commercial bankers join boards. However, the increased use of external finance tends to benefit the financial institutions serving the company rather than the company's shareholders (Guner et al. 2008, Custodia and Metzger 2014). Connections to other companies' executives also affect corporate outcomes. Ishii and Xuan (2014) show that existing social connections between directors and executives of acquiring and target firms associate with lower announcement day returns. The authors also show that the likelihood for the target firm's CEO and former board members to continue as board members of the merged company is higher when social connections between the acquirer's and target's executives exist. Furthermore, target CEOs tend to receive higher bonuses post-merger when social ties with acquiring managers exist, concluding that decisions may be distorted towards the benefit of the executives rather than shareholders in the presence of pre-merger social ties (Ishii and Xuan 2014).

2.6 *CEOs with legal expertise*

My thesis focuses on the effect of CEO legal education. The number of lawyer CEOs in public corporations has increased significantly over the last decades (Bagley 2008, Litov et al. 2014). The functional background of the CEO (e.g. finance, legal, technical) is suggested to affect the way CEOs manage their firms (Hambrick and Mason 1984, Jensen and Zajac 2004). The usefulness of executive legal expertise is documented, although many studies have focused on the general counsel of the company rather than lawyer CEOs. General counsel is shown to reduce profits from insider trading (Jagolinzer, Larcker and Taylor 2011) and companies tend to give more accurate earnings forecasts when general counsel is represented among the top executives as these companies are more likely to issue bad news forecasts (Kwak, Ro and Suk 2012). In a similar manner, the presence of executives with a background in law within an audit committee is shown to relate to better financial reporting quality (Krishnan, Wen and Zhao 2011). Lawyer-directors are also argued to improve monitoring and regulation management as well as improving the alignment of CEO and shareholder interest through better structured compensation packages (Litov et al. 2014).

Recently the effect of a legal background has been expanded to study top management. Bagley (2008) argues that legal astuteness[6] in management teams may result in a competitive advantage through reduced transaction costs (due to efficient use of formal contracts), stronger protection for firm resources, option creation through legal tools and creating opportunities from regulatory constraints. Legally astute management teams understand that interpreting and managing the legal aspects of corporate decisions should not be delegated to the general counsel, but rather should be

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[6] Defined as "the ability of a top management team to communicate effectively with counsel and to work together to solve complex problems" (Bagley 2008, 378).

tackled by the business management who have better understanding of business objectives (Bagley 2008). The presence of a lawyer CEO may also affect the composition of the management team. Litov et al. (2014) show that a presence of a lawyer CEO can predict the increase in presence of directors with legal training, which may amplify the effect of the single lawyer executive.

Bamber et al. (2010) show that CEOs with a background in law give more conservative guidance to financial markets reflecting risk-aversion towards litigation. Consistent with their findings, Henderson et al. (2017) studied companies with CEOs who possessed a law degree and find that lawyer CEOs are associated with lower frequency of litigation and less severe charges when litigated. In addition, the authors show that companies with a lawyer CEO tend to have lower capital expenditure and R&D investment, which is often inversely related to CEO overconfidence (see e.g., Malmendier and Tate 2005, Huang and Kisgen 2013, Bernile et al. 2017). Henderson et al. (2017) also document that lawyer CEOs associate with lower stock return volatility, a commonly used proxy for managerial risk-taking (see e.g., Guay 1999, Chakraborty, Sheikh and Subramanian 2007). Their paper is among the first to document lawyer risk-aversion, which has this far mostly been based on anecdotal evidence. Finally, the authors show that lawyer CEOs are associated with higher firm value when operating in litigation-prone industries and high-growth firms, which is explained by lower earnings manipulation particularly in industries with a high litigation risk (Henderson et al. 2017).

Lawyers however also exhibit overconfident behaviour, contradicting the general perception of risk-aversion. Litigators are overly optimistic on their odds of winning cases, even when presented with statistics of similar litigations with lower success probabilities (Kahneman and Lovallo 1993). Goodman-Delahunty et al. (2010) find similar results studying lawyers in general, showing that they are overconfident in estimating their likelihood of success in case outcomes. Lawyers are also shown to overestimate their ability in resisting pressure, both social and cognitive, when making judgements (Langevoort and Rasmussen 1997), suggesting that the risk obsession of lawyers may be a by-product of professional self-interest rather than personal risk preferences.

Conclusively, our understanding of how a background in law may affect corporate policies is limited. On the other hand, corporate policies may be more cautious due to risk aversion. However, the opposite may also be true if lawyers are better in navigating the risky territories due to better understanding of potential legal consequences. My thesis contributes to the existing literature through studying a range of corporate policies and how they are affected by the presence of a lawyer CEO.

3. Hypotheses

In this Chapter I present six distinguishable hypotheses that are empirically tested in the thesis. Each hypothesis is developed based on existing academic literature, and broadly relates to the perceived risk-aversion for lawyer CEOs.

Practicing law in the United States is regulated, and professionals pursuing a legal career have to be accepted to the state's bar association to be allowed to practice their profession. Furthermore, the Juris Doctor (J. D.) programme, which is by far the most common education for a lawyer[7], generally follows the same structure across law schools in the country, which is natural as all law students prepare for passing the bar. While there are areas of specialization within law school, the differences between fields of specialisation are narrower than those within technical of business education, as the J. D. programme only lasts for three years with the first year consisting mostly of mandatory (non-elective) studies. Due to the abovementioned heterogeneity in the studies of lawyers, I expect to find heterogeneity also in corporate policies executed by lawyer CEOs.

While not extensively studied in academia, lawyers are generally perceived as cautious and risk-averse. Lawyers are hired to identify, manage and mitigate different business risks through contracts, hedges and claims, and legal advisors are argued to have economic reasons to overstate these risks (Bagley 2008). Business lawyers, the focus of this study, seldom have success fees related to their compensation but are rather paid by the hour, especially when outside legal advice is used. This may cause misaligned interests between lawyers and their clients, as identifying and overstating risks can lead to more billable work through e.g. designing more specific and complex contracts to mitigate these risks. Furthermore, Bagley (2008) notes that lawyers have a reputational or even financial downside if they understate risks, as clients will likely not give them further business should they significantly understate the presence of a risk that would later materialize. The potential misalignment also affects in-house lawyers, who may receive more resources, entrenchment or a higher status within the organization from overweighing risks (Bagley 2008). To add to the potentially misaligned interests, the personality traits of lawyers are often described as cautious, thorough or risk-averse, and business press articles related to for example the low innovativeness of lawyers due to their conservativeness are common. Thus, it is no wonder that lawyers are characterised as the "nay-sayers" and "gatekeepers" in corporate decision making (Langevoort and Rasmussen 1997).

In my thesis I study corporate risk-taking for companies with lawyer CEOs. Henderson et al. (2017) are among the first to empirically document lawyer risk-aversion in a business setting by

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[7] 96% of S&P 1500 lawyer CEOs have a J.D. degree in the study of Henderson et al. (2017).

showing that companies with lawyer CEOs invest less in R&D and tangible assets and have lower stock return volatility. Lawyer CEOs are also shown to associate positively with conservative earnings guidance (Baber et al. 2010) and cautious earnings management particularly when the risk of litigation is high (Henderson et al. 2017), both consistent with risk-averse policies. Henderson et al. (2017) show that lawyer CEOs are associated with higher company value in industries where litigation risk is large or legal guidance necessary, such as high-growth companies or the pharmaceutical industry. In other types of companies, lawyer CEOs associate with lower firm value, which the authors argue to be due to more conservative firm policies that negatively affect future cash flows and growth. I expect to find conservativeness in the investment policy of firms with lawyer CEOs in my sample, confirming the findings of Henderson et al. (2017). Following Bernile et al. (2017), who show that a high level of natural disaster exposure leads to conservativeness implied by company capital structure, I also examine the effect of a lawyer CEO on leverage and cash holdings. I formulate my first and second hypothesis as:

H1: Companies with a lawyer CEO have lower capital expenditures and invest less in R&D than companies with non-lawyer CEOs.

H2: Companies with a lawyer CEO have lower leverage ratios and higher cash-to-assets ratios than the companies with non-lawyer CEOs.

I expect conservative policies to also reflect in the acquisitiveness of the company, a policy that is shown to positively correlate with overconfidence in various studies (see e.g., Malmendier and Tate 2008, Huang and Kisgen 2013, Bernile et al. 2017). Lawyers may exhibit lower acquisitiveness due to innate risk-aversion or better understanding of the risks, both of which would either increase their discount rate or lower the expected cash flows from completing acquisitions and resulting in lower NPVs for potential acquisitions and thus a smaller pool of acceptable acquisitions with a positive NPV. It is also possible that the risk-aversion towards litigation documented by Henderson et al. (2017) would drive lower acquisitiveness, as the risk of litigation increases from large complex transactions. Krishnan, Masulis, Thomas and Thompson (2012) document that approximately 10% of announced acquisitions in the U.S. result in shareholder class action lawsuits, the most typical form of litigation related to acquisitions. Acquisitions subject to these lawsuits are much less likely to be completed than those that are not litigated (Krishnan et al. 2012). The authors show that shareholder litigation is especially likely in large acquisitions, in situations when the acquirer already holds stock of the target, and in acquisitions with relatively more cash financing. The risk of litigation may be overweighed by litigation-conscious lawyer CEOs, resulting to lower acquisition appetite. Thus, I

expect that lawyer-led companies should announce less large acquisitions[8], and formulate my third hypothesis as:

H3: Companies with a lawyer CEO are less likely to announce large acquisitions than companies with non-lawyer CEOs.

In addition to acquisitiveness, I expect to find differences in acquisition outcomes. If lawyer CEOs are less overconfident and thus have higher discount rates or project lower cash flows from acquisitions, they should on average complete better acquisitions. Malmendier and Tate (2008) and Huang and Kisgen (2013) show that overconfident CEOs are associated with lower announcement day returns when they acquire companies, measured as the three-day [-1, +1] abnormal stock return surrounding the acquisition announcement. Conservativeness is shown to associate with higher announcement day returns (Benmelech and Frydman 2015), and anecdotal evidence supports the categorization of lawyers towards conservativeness rather than overconfidence.

Legal expertise of the CEO may also prove to be an asset when undertaking acquisitions. Karsten, Malmendier and Sautner (2017) show that legal advisors with better expertise obtain better contractual outcomes for their clients when advising them in acquisitions than advisors with less experience. Lawyer CEOs are likely to have experience from negotiating acquisitions before becoming CEOs as most executives with a law degree have practiced law at some point of their career (Henderson et al. 2017). Following the argumentation of Bernile and Kang (2016) who show that CEOs learn to negotiate takeovers through experience, lawyer CEOs may be better in negotiating favourable contracts to their shareholders in acquisition situations.

The presence of a lawyer CEO is shown to positively correlate with the number of lawyers on the board of directors (Litov et al. 2014, Henderson et al. 2017), suggesting that lawyer CEOs associate with improved legal astuteness of the top management team and thus better oversight (Bagley 2008). Legal astuteness of the management is argued to drive lower transaction costs through more effective uses of contractual tools such as earn-outs, clauses or contingent claims (Bagley 2008). Barney and Hansen (1994) argue that managers skilled in managing legal contracts with suppliers have a competitive advantage compared to other managers who must utilize more costly governance forces such as vertical integration or joint ventures. The same could be true for acquisitions, given

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[8] I define "large acquisitions" as those where the transaction value exceeds 5% of the market capitalization of the acquirer, in line with previous literature studying CEOs and acquisitiveness such as Malmendier and Tate (2008), Huang and Kisgen (2013) and Yim (2013).

the complexity of share purchasing and shareholding agreements, as well as the size of potential claims or penalties related to non-compliance of these contracts.

Finally, lawyers are shown to manage analyst and investor expectations more carefully than other CEOs (Bamber et al. 2010, Henderson et al. 2017), which can lead to less surprises in terms of acquisition announcements. As announcement day returns for large takeovers are typically negative (see e.g. Andrade, Mitchell and Stafford 2001, Moeller, Schlingemann and Stulz 2005), a smaller surprise could translate to cumulative announcement returns closer to zero, i.e. a positive effect. I formulate my fourth hypothesis as:

H4: Companies with a lawyer CEO exhibit higher announcement day returns for acquisitions than companies with non-lawyer CEOs.

I also study the types of acquisitions undertaken by lawyer CEOs. Consistent with the lower-overconfidence hypothesis, I expect lawyer CEOs to engage in less unrelated acquisitions and less cross-border acquisitions, both of which are related to higher risk (Bernile et al. 2017). I also look at the way acquisitions are financed: using stock as the financing method for the acquisition reduces the valuation risk of the target (Bernile et al. 2017), and thus I expect lawyer CEOs to be more likely to finance acquisitions all-stock. Finally, I also expect lawyers to exhibit a higher completion rate for their acquisitions due to better management of potential shareholder litigations that significantly decrease the completion rate (Krishnan et al. 2012), a higher ability to anticipate outcomes from legal due diligence, and a stronger understanding and negotiation of regulatory blocking of acquisitions. I formulate my fifth hypothesis as:

H5: Companies with a lawyer CEO are less likely to announce unrelated or cross-border acquisitions, more likely to finance their acquisition all-stock, and have a higher completion rate in the acquisitions they announce.

Henderson et al. (2017) study litigation activity and conclude that lawyers are valuable as CEOs in high-litigation-risk companies, which they document by studying the relation between lawyer CEOs and the company's Tobin's q measure. In their study, lawyer CEOs are found to associate with higher Tobin's q values when companies are in high litigation risk industries[9], in the pharmaceutical industry, or are high-growth companies, and lower Tobin's q measures otherwise. If my hypotheses hold and lawyer CEOs associate with better acquisition outcomes (i.e. higher announcement day returns), they could be valued more in highly acquisitive companies. Thus, I expect to find a positive

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[9] High litigation risk industries are defined as those in the top 10th percentile of litigation frequency (Henderson et al. 2017).

relation with the Tobin's q measure and lawyer CEOs for companies in the first quartile measured by the number of announced acquisitions, which would further support the hypothesis that lawyers are better acquirers than other CEOs. I formulate my sixth hypothesis as:

H6: Lawyer CEOs associate with higher Tobin's q measures in acquisitive companies, and with lower Tobin's q measures for other companies.

4. Data and methods

This Chapter presents the data and empirical methods used in the thesis. I begin by describing the data sources as well as summary statistics in Section 4.1 and present the primary empirical methods in Section 4.2. The robustness and causality tests of the thesis are described in Section 4.3, and the Chapter is finished by evaluating the potential limitations of the study in Section 4.4.

4.1 Data description

My sample comprises the CEOs of companies included in the S&P 1500 index during 1999-2014, which is the longest period for which I have BoardEx data available. I include companies from the time when they are included in the index, except for companies which appear multiple times which I include from the first time they have been included in the index until the last time[10]. This way all the companies in my sample are considered for consecutive years only. As is common practice for research on mergers and acquisitions I exclude companies that operate in banking, insurance and regulated utilities[11]. For the companies I collect balance sheet, income statement and cash flow items from S&P Capital IQ's Compustat database. The data retrieved from Compustat is complemented with stock market data that is extracted from the Center for Research in Security Prices (CRSP) database. I retrieve data for acquisitions from Thomson Reuters SDC Platinum database. I exclude transactions where the acquirer and target have the same ultimate parent, which are typically repurchases, spin-offs or other restructurings and should thus not be mixed with acquisitions.

I collect executive data from two main sources. I start with a list of CEOs from the ExecuComp database, from which I retrieve general CEO information such as name, age and tenure, as well as data regarding the executives' stock option holdings. Information on the CEOs education is collected from BoardEx, from which data is available between 1999 and 2014. BoardEx covers 93.2% of CEOs in my sample, and for the remaining 6.8% education data is collected from publicly available sources such as Bloomberg, company websites and press announcements upon appointment. It should be

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[10] For example, if a company is included in the S&P 1500 from 2000 to 2004 and again from 2008 o 2010, I include it in my sample for the whole time between 2000 and 2010.
[11] The exclusion is done based on the 4 digit Standard Industry Classification (SIC) code: I exclude companies with the SIC code 4800 – 4999 and 6000 – 6999.

noted that data availability biases my sample towards S&P 500 companies since education information is more available for large company CEOs. I present the summary statistics in Table I comparing non-lawyer CEOs to lawyer CEOs. All variables are defined in Appendix A, and their correlations with each other are presented in Appendix B.

Table I: Summary statistics

This table reports sample characteristics, observations are at the firm-year level in Panel A and Panel B, and at the transaction level in Panel C. Panel A shows CEO personal characteristics, Panel B firm characteristics and Panel C acquisition characteristics. Lawyer CEO is defined as a CEO with a law degree. All variables are defined in Appendix A. Firm characteristics are lagged by one year. The correlation between variables in Panel A and Panel B are shown in Table XX in Appendix B. The statistical significance of the t statistic of the mean difference between non-lawyer and lawyer CEOs observations is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	Non-lawyer CEOs		Lawyer CEOs		Mean difference	
	Mean	Std. dev.	Mean	Std. dev.	Difference	t-Test
Panel A: Personal characteristics (total of 2,522 unique CEOs, 13,370 firm-year observations)						
Age	54.877	7.084	56.017	7.421	1.140	5.142***
Tenure	7.251	7.553	9.058	8.690	1.806	7.007***
Female	0.024	0.154	0.017	0.130	-0.007	-1.813*
MBA	0.402	0.490	0.078	0.268	-0.324	-36.641***
Panel B: Firm characteristics (total of 1,385 unique companies, 13,370 firm-year observations)						
Total assets ($M)	8,482	32,037	7,107	14,181	-1,375	-2.756***
Total debt ($M)	2,389	16,243	1,793	3,582	-596	-3.321***
Market cap. ($M)	10,471	31,552	9,508	25,469	-963	-1.230
Total cap. ($M)	15,854	50,264	13,586	30,974	-2,268	-2.277**
Leverage	0.205	0.167	0.239	0.167	0.034	6.852***
Cash-to-assets	0.155	0.163	0.129	0.151	-0.025	-5.532***
ROA	0.051	0.122	0.058	0.083	0.007	2.674***
Tobin's q	2.115	1.630	2.028	1.583	-0.087	-1.829*
CapEx	0.238	0.180	0.225	0.173	-0.013	-2.465**
R&D[12]	0.099	0.247	0.063	0.105	-0.036	-6.634***
Return	0.158	0.426	0.147	0.398	-0.010	-0.850
Volatility	0.112	0.063	0.105	0.057	-0.007	-3.808***
Cash flow	0.051	0.041	0.054	0.043	0.002	1.744*
P(large acquisition)	0.178	0.442	0.184	0.443	0.006	0.482
Firm age	31.319	20.679	34.870	21.457	3.551	5.534***
Panel C: Acquisition characteristics (total of 2,382 large acquisitions)						
Relative deal value	0.251	0.347	0.299	0.376	0.048	1.832*
All stock acquisition	0.073	0.261	0.053	0.225	-0.020	-1.243
Unrelated acquisition	0.372	0.483	0.391	0.489	0.019	0.564
Hostile bid	0.013	0.115	0.013	0.115	-0.000	-0.014
Cross border acquisition	0.235	0.424	0.231	0.422	-0.003	-0.117
Private target	0.313	0.464	0.258	0.438	-0.055	-1.786*
Public target	0.309	0.462	0.351	0.478	0.042	1.254
Tender offer	0.101	0.301	0.102	0.304	0.001	0.054
Challenged bid	0.042	0.200	0.067	0.250	0.025	1.449
CAR	0.006	0.069	0.018	0.074	0.012	2.388**
Completed	0.929	0.258	0.916	0.279	-0.013	-0.673

Matching the data from Compustat, CRSP, SDC, ExecuComp and BoardEx from 1999-2014 yields 13,370 firm-year observations from 1,385 different companies. Of these firm-year

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[12] For R&D the total number of observations is 7 437 firm-years instead of 13 370 firm-years, as only observations where R&D is above zero are included in the analysis.

observations, 1,223 have lawyer CEOs while 12,147 are non-lawyer CEO observations. Panel A shows executive characteristics of the 2,522 unique CEOs in my sample. I match each firm-year with one CEO on the grounds of who held the title in the beginning of the calendar year and consider the previous year the CEO transition year. I justify this methodology by the tendency that corporate policies are typically long-term and new CEOs have only limited ability to immediately affect them, thus the matching methodology accounts the CEO who has likely had the largest effect on the policy with the corresponding firm-year-observation. Specifically, acquisitions tend to be long-term projects, and thus even if the CEO is replaced before announcement (but held the position in the beginning of the year), she is likely to be the one with the highest influence on the deal supporting my choice of using calendar-year-beginning CEOs throughout my sample. If the company has had an interim CEO or no CEO at all in the beginning of the year, I accept the next full-time manager of the company as the CEO, however this only occurs in seldom instances.

Of the 2,522 CEOs in my sample, 219 or 8.7% have a law degree, consistent with Henderson et al. (2017) who document that 9% of S&P 1500 CEOs have a law degree. BoardEx documents the degree level as well as the qualification for each executive. In line with Henderson et al. (2017), I accept undergraduate (LLB), graduate (LLM) and doctorate (J.D.) level law degrees for a CEO to be categorized as a lawyer CEO, although it is noteworthy that the majority (over 80%) of lawyer CEOs have a J.D. degree. I verify executives with the BoardEx qualification "Doctorate" from secondary sources to be sure whether they hold a J.D. degree. The number of observations as well as the fraction of lawyer CEOs is stable across sample years, as illustrated in Figure I. The highest fraction of lawyer CEOs, 11.7%, is observed in 1999 while the lowest fraction, 7.8%, is from 2007. The size of the sample is 800-900 observations from 2001 to 2014, while there are somewhat less observations from 1999 and 2000.

Figure 1: Number of firm-year observations and fraction of lawyer CEOs over time

Panel A also shows that approximately 37% of CEOs in my sample have an MBA degree, while the rest have other degrees such as technical educations, MA degrees or no education information available. Consistent with the findings of Huang and Kisgen (2013), approximately 2% of CEOs in my sample are female. Lawyer CEOs are on average slightly older than non-lawyer CEOs and have longer tenures as CEO. They are also less likely to be female, and significantly less likely to have a MBA degree, which is not surprising as most of the CEOs only have one master level degree.

Panel B shows firm characteristics which are used both as dependent and independent variables in the thesis. Firm age is computed as the difference between the calendar year and the firm's first observation in Compustat or CRSP, consistent with Yim (2013). It should be noted that for any tests measuring R&D spending, only companies that report R&D figures, i.e. for which the number of R&D investment is above zero, are included in the analysis. Conducting univariate differences in means tests reveals several differences in firm characteristics for companies with lawyer CEOs compared to their peers with non-lawyer CEOs. Lawyers are more likely to be CEOs in smaller companies in terms of book assets, debt or total capitalization. Lawyer CEOs also associate with higher leverage ratios, lower cash-to-assets ratios, higher operating profitability and lower Tobin's q measures. Finally, as documented by Henderson et al. (2017), companies with lawyer CEOs seem to invest less in tangible and intangible assets and have lower stock return volatility.

Panel C shows acquisition characteristics of the 2,382 acquisitions in my sample with a transaction level above 5% of the acquirer's previous year-end market capitalization. Univariate tests in mean differences suggest that lawyers are more likely to announce larger acquisitions, less likely to acquire private targets, and have higher announcement day returns for the acquisition announcements. There are no significant differences in other acquisition characteristics. When interpreting these differences, however, it should be noted that they do not include any control variables and thus only offer preliminary guidance for underlying correlations. The results for the more sophisticated regressions including control variables are shown in Chapter Five.

Table II presents the division of lawyer CEOs across industries. I define industries by the 2-digit NAICS code and further divide manufacturing to three sub-industries from the standard classification to have observations more evenly split out, resulting in 14 different industries of which one is a pooled industry for all other industries. Lawyer CEOs are present in each industry, with the lowest percentage in the information industry and largest in the construction industry. It should, however, be noted that manufacturing is by far the largest industry measured by the number of companies as well as the number of lawyer CEOs.

Table II: Firm industries

This table reports the number and fraction of lawyer CEOs in each 2-digit-NAICS industry. Observations are at the firm-year level. Lawyer CEO is a binary variable which equals one if the CEO of the company has a law degree.

Industry	2-digit NAICS	Lawyer CEOs	Total observations	Lawyer CEOs as % of total
Mining	21	113	744	15.2%
Construction	23	83	286	29.0%
Manufacturing 1	31	87	881	9.9%
Manufacturing 2	32	200	1,951	10.3%
Manufacturing 3	33	320	4,580	7.0%
Wholesale	42	43	547	7.9%
Retail	44-45	62	1,000	6.2%
Transport	48-49	59	462	12.8%
Information	51	54	960	5.6%
Scientific	54	43	633	6.8%
Administrative	56	49	351	14.0%
Healthcare	62	33	249	13.3%
Accommodation	72	49	358	13.7%
Other	-	28	368	7.6%

4.2 Empirical methods

I examine the relation between *Lawyer CEO* and investments in capital expenditures and R&D as well as leverage and cash-to-assets ratios by using Ordinary Least Squares (OLS) regressions following Bernile et al. (2017) and Henderson et al. (2017). For studying the investment policies of the company, I regress the capital expenditure to net tangible assets (CapEx) of a company i during year t with the CEO j:

$$CapEx_{ijt} = \beta_0 + \beta_1 Lawyer\ CEO_j + X_{ijt-1}\delta + \epsilon_{ijt} \qquad (1)$$

where *Lawyer CEO* is a binary variable with a value 1 if the company's CEO has a law degree and 0 otherwise. $X_{ijt-1}\delta$ is a matrix including a defined set of control variables that are lagged by one year and ϵ_{ijt} are the errors that are assumed to be independent between firms. The same regression is conducted for the investment in intangible assets (R&D). In addition to studying investment policy, I conduct similar regressions for debt in current liabilities plus long-term book debt to total assets (Leverage) and cash and marketable securities to book assets (Cash-to-assets). Throughout the thesis I report the results of two-tailed t-tests although the risk-aversion hypothesis would suggest one-tailed hypothesis tests (see e.g. Malmendier and Tate 2008), and thus results reported at the 10% significance level can be interpreted as significant at the 5% level for one-sided tests.

For studying acquisitiveness of companies with a lawyer CEO, I follow Malmendier and Tate (2008) and Yim (2013) and estimate logit regressions of the probability of a company i to announce an acquisition exceeding 5% of the previous year-end market capitalization of the acquirer during year t with the CEO j:

$$Prob(large\ acquisition_{ijt}) = F(\beta_0 + \beta_1 Lawyer\ CEO_j + X_{ijt-1}\delta + \epsilon_{ijt}) \qquad (2)$$

where $F(z)=1/(1+e^{-z})$. *Lawyer CEO* is a binary variable with a value 1 if the company's CEO has a law degree and 0 otherwise. $X_{ijt-1}\delta$ is a matrix including a defined set of control variables that are lagged by one year and ϵ_{ijt} are the errors that are assumed to be independent between firms.

For studying announcement day returns, I conduct OLS regressions on the cumulative abnormal stock return (CAR) during the three-day period [-1, +1] surrounding the announcement following Malmendier and Tate (2008) and Yim (2013). As all companies in my sample are included in the S&P 1500, I subtract the daily return of the S&P 1500 index from the daily return of the company making the acquisition to calculate the abnormal return. The observations are at the transaction level, and only include large acquisitions. I regress the CAR of a transaction k announced by a company i during year t with the CEO j:

$$CAR_{kijt} = \beta_0 + \beta_1 Lawyer\ CEO_j + X_{kijt-1}\delta + \epsilon_{kijt} \qquad (3)$$

where *Lawyer CEO* is a binary variable with a value 1 if the company's CEO has a law degree and 0 otherwise. $X_{kijt-1}\delta$ is a matrix including a defined set of control variables that are, if applicable (i.e. if they are not related to the acquisition) lagged by one year, and ϵ_{kijt} are the errors that are assumed to be independent between transactions.

4.3 *Robustness and causality tests*

While panel regressions with lawyer CEOs as a binary variable is the main methodology for studying the relationship between lawyer CEOs and corporate policies, I use additional tests for the sake of robustness as well as to make the study comparable with other existing research. To evaluate causality, I replicate my tests for investment policies, capital structure and acquisitiveness using the difference-in-differences framework in line with for example Huang and Kisgen (2013). Specifically, the difference-in-differences regression is estimated by regressing the variable of interest, for example large acquisitions, of company i with CEO j at a time t:

$$Large\ acquisitions_{ijt} = \beta_0 + \beta_1 Post_{ijt} + \beta_1 Lawyer_j \times Post_{ijt} + X_{ijt-1}\delta + \epsilon_{ijt} \qquad (4)$$

where *Lawyer* is a binary variable for whether a company is a non-lawyer-to-lawyer CEO transition company and $Post_{ijt}$ is a binary variable for whether year t is after the transition of non-lawyer CEO to lawyer CEO. $X_{ijt-1}\delta$ is a matrix including a defined set of control variables that are lagged by one year and ϵ_{ijt} are the errors that are assumed to be independent between firms. I include three years before the transition and three years after the transition in the sample, excluding the

transition year. I require a company to have data for two years before the transition year to be included in the sample.

The difference-in-differences methodology compares corporate policies within a company before and after a CEO replacement, i.e. before a lawyer CEO is selected and afterwards. All non-lawyer to non-lawyer transitions are used as the control group, and non-lawyer to lawyer transitions as the treatment group, mitigating effects of a CEO transition in general as well as time-invariant company specific effects. The difference-in-differences methodology allows controlling for firm fixed effects and mitigate issues from selection bias i.e. if lawyer CEOs self-select to companies that are already executing policies consistent with their management style. Instead, the methodology documents the possible shift in managerial policies after a lawyer CEO is hired. While the methodology has clear upsides, it is used as a robustness test rather than the main methodology because using it significantly decreases sample size as it requires an executive change to take place, and the CEO to be in power for a sufficient number of years before and after the replacement.

For announcement day returns, I will not use the difference-in-differences approach as the sample size will become too small for meaningful analysis. Instead, I use a sub-sample approach to check for robustness, conducting the same OLS regressions as previously to a restricted sample. In addition, I verify the results using different time intervals in addition to the three-day [-1, +1] interval. I also study long-term abnormal returns after the acquisition to evaluate the quality of the acquisitions from a long-term perspective, however it should be noted that these tests are preliminary and highly indicative due to the exclusion of control variables and the difficulty of isolating the effect acquisitions have on stock returns.

To test the risk-aversion hypothesis of lawyer CEOs, I follow Malmendier and Tate (2005) and establish three overconfidence measures related to stock option behaviour of the CEOs that should have a negative correlation with lawyers if they indeed are risk-averse. Stock grants are a common way to compensate CEOs and align their interests with the shareholders of publicly listed companies. However, CEOs have their human capital already invested in the company, receive most of their salary from the company, and are unable to hedge their risk towards negative movements in the stock price through short selling the stock. This causes CEOs to be over-invested in the companies they work in, and over-exposed to their idiosyncratic risks. At the same time, some of the risks related to for example the industry cannot be affected by the CEO, further increasing potential downside. In worst case scenarios, CEOs may be replaced due to low performance of stock, which would simultaneously significantly decrease their salary as well as the value of their options and company stock. Due to this under-diversification, risk-averse CEOs should avoid holding vested in-the-money

options or sellable shares in the company, and rather cash their options when the stock price is sufficiently high (Malmendier and Tate 2005).

To be specific, Malmendier and Tate (2005) define three measures of overconfidence that I replicate in my thesis. A Holder 67 is a CEO who has twice over the sample period held exercisable options that are over 67% in-the-money, which corresponds to a Constant Relative Risk-Aversion (CRRA) measure of three (Malmendier and Tate 2005). A Longholder is a CEO who over the sample period has held options until the last year of their duration. Options are fully vested typically in five years and are on average over 200% in-the-money during their final year (Malmendier and Tate 2005), and thus executives who decide to hold on to their options until their year of expiration should likely have exercised them already would they not be overconfident. Finally, a Net buyer is a CEO who over the sample period has more years of net stock increase than decrease, i.e. buys stock more often than sells (Malmendier and Tate 2005). Following Huang and Kisgen (2013), I include a fourth measure of overconfidence accounting for career outcomes. If lawyer CEOs are less overconfident, they should on average have better career outcomes due to a lower amount of shareholder-wealth-destroying policies. I measure the likelihood of being replaced within the first 4 years of the executive's tenure, which should be larger for non-lawyers were they less overconfident.

As ExecuComp only reports option data on an aggregate level, some simplifications must be made to the measures. The moneyness for Holder 67 tests is calculated by dividing the estimated value of in-the-money unexercised exercisable options by the number of unexercised exercisable options to receive the realizable value per option, which is compared to the end-year price of the stock to obtain the average strike price. The Longholder tests requires the expiration date of the option which is only available from 2006 to 2014, and thus the Longholder test has a smaller sample of CEOs than the other overconfidence tests. For the Net buyer test, I compare the number of stock at the end of the previous year to that at the end of the current year to determine whether a CEO has bought more stock than sold, which means that I do not account for stock grants or the exercise of options. Thus, the likelihood of a CEO being a Net buyer is higher than of being a Holder 67 or a Longholder, consistent with Malmendier and Tate (2005).

4.4 *Limitations of the study*

There are several potential limitations to my study. As is common for most CEO studies, conclusively determining causality is not feasible with the methodology of this study. Rather, the results show correlations that suggest potential causality, which is further evaluated through robustness tests. The main methodology is unable to control for firm fixed effects, and while this is

mitigated by controlling for industries, it is possible that results are due to lawyer CEOs present in certain types of companies within industries. Furthermore, CEOs are not randomly assigned to companies, leading to endogeneity concerns in CEO-firm matching. Observed results may be driven by self-selection of CEOs looking to utilize certain policies, or selection by boards who wish to see certain policies executed in the company. As argued by Malmendier and Tate (2005), observable CEO characteristics such as gender, age or employment background may be selection criteria for the board and thus drive results. Finally, it is also possible that unobserved variables correlating both with dependent variables and lawyers, rather than the lawyer-effect per se, are driving results. I address these matters of endogeneity by including a large set of control variables consistent with previous literature, and through additional tests of robustness. Furthermore, endogeneity limitations do not cause systematic bias or errors in the results but are rather aspects to keep in mind when making interpretations. Even if lawyers are chosen as CEOs specifically due to their background, boards should be aware of the different corporate policies that may be affected.

Another methodology-related limitation is the potential multicollinearity, i.e. strong correlation between two explanatory variables, which decreases the reliability of interpretations for one variable. If a CEOs law degree is highly correlated with control variables their individual effect might be biased. I present the correlations for *lawyer CEO* and control variables in Table XX in Appendix B. All correlations between the *lawyer CEO* variable and other CEO and firm control variables are between the interval -0.1 and 0.1 except for MBA CEO, which has a negative correlation of -0.19, suggesting no significant bias caused by multicollinearity in the regressions. Some control variables such as age and tenure are highly correlated with each other, decreasing the reliability of these effects individually. The effects of highly correlated variables should not be interpreted individually but together. However, as these variables are only used as controls they do not present complications towards the analysis.

A concern regarding the sample is survival bias. Although the timespan for the analysis is 16 years, all companies are not present throughout the timespan due to dropping out from the S&P 1500 index due to e.g. merging with another company, losing market capitalization or bankruptcy. As the index is based on the market capitalisation of the company, firms experiencing a large decline in their share price are at risk of being omitted from the sample whereas firms with an increase in share price are more likely to be included. As share price valuation is shown to affect acquisitiveness (Schleifer and Vishny 2003) and announcement day returns (Wang 2018), this could lead to bias in the average acquisitiveness or announcement day returns. However, as we are not interested in the actual number of acquisitions per se but rather on the difference in acquisitiveness between lawyer CEOs and their

peers, this is not a problem to the analysis. Furthermore, as seen from Appendix B, lawyer CEO does not significantly correlate with prior year returns, suggesting that no systematic error should be present due to the sampling logic.

Finally, there are data-driven limitations to be considered when interpreting the results of this study. The largest limitation is the availability of transaction value for acquisitions in the SDC Platinum database, which significantly lowers the amount of acquisitions accepted to the sample. This may also cause bias in the sample if for example lawyer CEOs are less willing to announce transaction values, resulting in less acquisitions in the sample for companies with lawyer CEOs. This issue is mitigated by sample selection as all companies are publicly listed and thus subject to certain transparency and disclosure regulations that should decrease their ability to decide whether to announce the transaction value. Furthermore, acquisitions without transaction value are likely to be small and thus insignificant as we are interested in large acquisitions.

Another potential issue is reliance on multiple sources of data for the CEOs education background. My sample is weighed towards large companies as for S&P 500 CEOs I hand-collect CEO data from public sources if it is not included in BoardEx. However, for S&P 400 and S&P 600 CEOs, I hand-collect the data only in situations where the exclusion of the company would lead to an interrupted sequence of firm-years and exclude the firm-years from the sample otherwise[13]. The choice of this sampling policy is to keep the sample as large as possible, while accepting the constraint that if all missing information had to be hand-collected it would be extremely time-consuming. It will likely over-present the number of lawyers in the sample since that a J. D. degree is probably more likely to be in BoardEx than a less known degree, and since the sampling decision excludes S&P 400 and S&P 600 CEOs without any education information. However, the potential over-representation seems mild as my share of lawyer CEOs is the same as in Henderson et al. (2017). Furthermore, there should be no correlation between dependent variables and companies omitted due to the sampling logic, and thus it should not significantly affect the interpretation of the results.

One variable that may drive results but is omitted from the control variables is the CEOs compensation structure. It is possible that boards decide on different incentive structures for lawyers to tackle for example potential risk-aversion, or that lawyers negotiate different kinds of incentive packages due to their legal background. Yim (2013) shows that incentives towards acquisitions for younger CEOs are different than those of older CEOs and argues that this is one of the main reasons

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[13] For example, consider a company with CEO A from 1999-2004, CEO B from 2005-2009, and CEO C from 2010-2014. If only CEO A and CEO C have education data available, I hand-collect data for CEO B to maintain an uninterrupted sample. However, if CEO C would be the one with missing education data, I exclude years 2010-2014 from the sample.

why younger CEOs tend to announce more acquisitions which also tend to be more value-destroying on average. However, consistent with most CEO studies, I exclude incentive structures from the control variables of this study, which is largely due to data limitations for building incentive variables that could explain the dependent variables.

There are also limitations to the firm specific control variables I collect for the analysis. The largest complication is caused by the difference in company specific reporting years and calendar years. The firm specific accounting variables are taken from the latest full-year report at the beginning of each calendar year, and they are used as a control variable in explaining the dependant variables in the following year. This will cause a lagged effect of accounting variables for companies that have a different reporting year than the calendar year. There is also a potential for a systematic error in this practice as firms in certain industries tend to follow similar reporting standards: the accounting variables for some industries might be more lagged on average than for others. However, as the control variables are not the focus of the study, and as lawyer CEOs are relatively evenly split across industries as shown in Table II, this potential error is acceptable. The differences occurring from industries should also be captured in the Industry * Year control variable, further mitigating the issue from lagged accounting controls.

Finally, the results reflect only large publicly listed U.S. companies and their generalisation for other countries, for smaller companies and for companies with a different ownership structure are debatable. However, as my paper is among the first to document how lawyer CEOs relate to corporate policies, studying these effects in different markets is an attractive area of potential further research.

5. Empirical results

This Chapter presents the empirical results from OLS and logistic regressions. In Section 5.1 I present results from investment and capital structure regressions, evaluating Hypotheses One and Two. Section 5.2 presents results on acquisitiveness evaluating Hypothesis Three, while Section 5.3 presents the results of acquisition outcomes and characteristics evaluating Hypotheses Four and Five. Section 5.4 presents the results of firm value evaluating Hypothesis Six.

5.1 *Investments and capital structure*

I begin the analysis by running OLS regressions on investment policies in both tangible (CapEx) and intangible (R&D) assets with *Lawyer CEO* as an independent variable with the value 1 if the CEO has a law degree and 0 otherwise. The results are presented in Table III.

Column 1 shows that in univariate regressions, i.e. when only one independent variable is used to explain CapEx, *Lawyer CEO* has a statistically significant negative effect. The effect remains

negative and significant after including both CEO specific control variables in Column 2 and firm-specific control variables in Column 3. In Column 3 I also include Industry * Year control variables to control for the time-variance of capital expenditures, as well as the industry dependence. Columns 4-6 present the results of panel OLS regressions with R&D expenditure to sales as the dependent variable. The *Lawyer CEO* effect towards R&D is shown to be negative and statistically significant at the 1% level after including both CEO, firm-specific and Industry * Year control variables.

Table III: Investment policies, OLS regressions

This table shows the results of OLS regressions where the dependent variable is capital expenditure to net tangible assets in Columns 1-3 and R&D expenditure to total sales in Columns 4-6. The observations are on the firm-year level. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. All control variables are defined in Appendix A and firm control variables are lagged by one year. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	CapEx			**R&D**		
	(1)	(2)	(3)	(4)	(5)	(6)
Lawyer CEO	-0.012**	-0.014***	-0.010**	-0.036***	-0.036***	-0.024***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.005)	(0.005)
MBA CEO		-0.008***	-0.003		-0.015***	-0.004
		(0.005)	(0.002)		(0.005)	(0.005)
Age		-0.004***	-0.002***		-0.005***	-0.003***
		(0.000)	(0.000)		(0.000)	(0.000)
Tenure		0.002***	0.001***		0.004***	0.003***
		(0.002)	(0.000)		(0.000)	(0.000)
Female		-0.010	-0.004		-0.023***	-0.013*
		(0.007)	(0.006)		(0.008)	(0.007)
Log TA			-0.008***			-0.008***
			(0.001)			(0.003)
ROA			0.016			-0.325***
			(0.019)			(0.090)
Tobin's q			0.019***			0.018***
			(0.003)			(0.006)
Leverage			-0.094***			-0.062*
			(0.010)			(0.037)
Return			0.016***			-0.026**
			(0.004)			(0.012)
Volatility			0.127***			0.628***
			(0.026)			(0.153)
Fixed effects	No	No	Industry * Year	No	No	Industry * Year
Observations	13,370	13,370	13,370	7,459	7,459	7,459
Adjusted R^2	0.000	0.036	0.290	0.002	0.026	0.164

The effects of control variables are in line with previous literature (see e.g., Bertrand and Schoar 2003, Henderson et al. 2017). Age has a negative effect on CapEx as older CEOs tend to follow more conservative policies. Higher valuation, suggested by Tobin's q and previous year return, also seem to drive investments as funds are more likely to be available, while leverage has a significant negative

effect. The negative effect of firm size, measured by Log TA, is likely driven by the mechanic inversion of the dependent variables[14]. For R&D, ROA, stock return, and leverage all have significant negative effects, while Tobin's q and volatility have a positive effect, consistent with previous literature (see e.g., Hirshleifer et al. 2012, Henderson et al. 2017).

The negative effect of *Lawyer CEO* on both CapEx and R&D confirm the findings of Henderson et al. (2017), which is not surprising as my sample is very similar to theirs[15]. Both effects, especially the R&D effect, are economically significant: -0.010 corresponds to 4.4% less capital expenditure, while -0.024 corresponds to 25.3% lower R&D expense. Thus, Hypothesis One is strongly supported by the empirical results. The magnitudes are consistent with Henderson et al. (2017) who report 6.3% and 46.6% lower investments respectively. The difference in the magnitude of the *Lawyer CEO* R&D effect is likely driven by sampling methodology. I exclude all companies with zero R&D investment, interpreting it as not reporting R&D as opposed to the interpretation that no R&D investments are made. This methodology yields approximately 44% less observations for the R&D regressions, while Henderson et al. (2017) have slightly more observations for the R&D test than CapEx regressions.

I continue to study the *Lawyer CEO* effect on capital structure. Table IV presents the results of leverage and cash-to-assets as dependent variables. I report the results of univariate regressions in Columns 1 and 4 and continue to add CEO specific characteristics in Columns 2 and 5, and firm, industry and year control variables in Columns 3 and 6. The standard set of firm control variables include Log TA, ROA, Tobin's q, asset tangibility, sales growth and a dividend paying indicator with value 1 if the company pays dividends and 0 otherwise, consistent with Bernile et al. (2017). Contrary to Hypothesis Two, *Lawyer CEO* has a positive association with Leverage and a negative effect to Cash-to-assets, which suggest aggressive corporate policies instead of risk-aversion. The effects remain statistically significant after the inclusion of control variables.

The control variable effects are in line with previous literature. Consistent with Huang and Kisgen (2013), companies with female CEOs have lower leverage. ROA and Tobin's q also drive lower leverage, as documented also by Huang and Kisgen (2013) and Bernile et al. (2017). Higher assets, asset tangibility, dividends and sales growth drive lower cash-to-assets ratios as documented in Bernile et al. (2017) which is likely due to higher capital expenditure requirements. Tobin's q on the contrary seems to associate with higher cash holdings, in line with Bernile et al. (2017) but

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[14] The dependent variable is CapEx/PP&E, and PP&E is included in total assets. Companies with higher total assets are likely to have higher PP&E and would thus require a higher cash investment to CapEx, which may drive the negative effect as investment opportunities may be limited.

[15] Henderson et al. (2017) have a slightly larger sample, covering S&P 1500 companies for the time period 1992 to 2012 while my sample covers S&P 1500 companies from 1999 to 2014.

somewhat contradicting to the general understanding that excess cash should be paid out to shareholders to maximize firm value.

Table IV: Leverage and cash-to-assets, OLS regressions

    This table shows the results of OLS regressions where the dependent variable is the debt in current book liabilities plus long-term book debt to total assets ratio of the company in Columns 1-3 and the cash and marketable securities to total asset ratio of the company in Columns 4-6. The observations are on the firm-year level. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. All control variables are defined in Appendix A and firm control variables are lagged by one year. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	Leverage			Cash-to-assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Lawyer CEO	0.038*** (0.005)	0.042*** (0.005)	0.024*** (0.005)	-0.023*** (0.005)	-0.028*** (0.005)	-0.009** (0.004)
MBA CEO		-0.014 (0.009)	-0.023*** (0.008)		0.003 (0.007)	0.003 (0.006)
Age		0.010*** (0.003)	0.004 (0.003)		-0.010*** (0.003)	-0.008*** (0.002)
Tenure		0.002*** (0.000)	0.000 (0.000)		-0.004*** (0.000)	-0.002*** (0.000)
Female		-0.002*** (0.000)	-0.000** (0.000)		0.004*** (0.000)	0.002*** (0.000)
Log TA			0.027*** (0.001)			-0.016*** (0.001)
ROA			-0.138*** (0.037)			-0.074*** (0.021)
Tobin's q			-0.011*** (0.002)			0.026*** (0.004)
Asset tangibility			0.100*** (0.009)			-0.234*** (0.009)
Sales growth			0.011 (0.007)			-0.019*** (0.007)
Dividend paying			0.010*** (0.003)			-0.052*** (0.003)
Fixed effects	No	No	Industry * Year	No	No	Industry * Year
Observations	13,370	13,370	13,370	13,370	13,370	13,370
Adjusted R^2	0.004	0.014	0.210	0.002	0.040	0.359

    The findings are contradictory to general risk-aversion in lawyer CEOs, which would suggest similar effects as for extreme-fatality CEOs in the study of Bernile et al. (2017). The evidence in Columns 3 and 6 suggest that lawyer CEOs associate with 2.4 percentage points higher leverage ratios and 0.9 percentage points lower cash-to-assets ratios. While both effects decrease in magnitude through the inclusion of control variables, they remain statistically significant and thus provide no support for Hypothesis Two. The findings may, however, be in line with efficient management of the company, which is discussed in more detail in Chapter Seven.

5.2 Acquisitiveness

Acquisitiveness is shown to be affected by CEO characteristics such as age (Yim 2013), gender (Huang and Kisgen 2013), overconfidence and risk-tolerance (Malmendier and Tate 2008, Graham et al. 2013), and more specific factors such as natural disaster exposure (Bernile et al. 2017). I study the relation between *Lawyer CEO* and the probability of announcing an acquisition with a transaction value exceeding 5% of the acquirer's previous year market capitalization. I run logistic regressions and present the results in Columns 1-3 of Table V. The coefficients are presented as odds ratios, which are interpreted as the factor by which the independent variable affects the dependent variable.

Table V: Acquisitiveness, logistic regressions

This table shows the results of logistic regressions (Columns 1-3) where the dependent variable is a binary variable that equals one if the company announces one or more acquisitions with a transaction value above 5% of the acquirer's market capitalization, and of OLS regressions (Columns 4-6) where the dependent variable is the number of announced large acquisitions. Coefficients in Columns 1-3 are reported as odds ratios. The observations are on the firm-year level. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. All control variables are defined in Appendix A and firm control variables are lagged by one year. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	Logistic regressions Pr(large acquisition)			OLS regressions N(large acquisition)		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Lawyer CEO	1.037	1.070	1.073	0.006	0.010	0.009
	(0.085)	(0.089)	(0.092)	(0.013)	(0.013)	(0.013)
MBA CEO		1.022	0.996		0.002	-0.003
		(0.051)	(0.052)		(0.008)	(0.008)
Age		0.995	0.995		-0.000	-0.000
		(0.004)	(0.004)		(0.001)	(0.001)
Tenure		0.988***	0.987***		-0.002***	-0.002***
		(0.004)	(0.004)		(0.001)	(0.001)
Female		0.724*	0.817		-0.059***	-0.037*
		(0.124)	(0.145)		(0.020)	(0.020)
Log TA			0.958**			-0.007**
			(0.019)			(0.003)
Tobin's q			0.862***			-0.018***
			(0.027)			(0.004)
Return			1.465***			0.054***
			(0.102)			(0.011)
Cash flow			63.701***			0.605***
			(46.359)			(0.099)
Firm age			0.996***			-0.001**
			(0.001)			(0.000)
Fixed effects	No	No	Industry * Year	No	No	Industry * Year
Observations	13,370	13,370	13,050	13,370	13,370	13,370
Pseudo R^2	0.000	0.02	0.047			
Adjusted R^2				0.000	0.002	0.045

I show the results of univariate regressions in Column 1 and I include control variables related to CEO and company characteristics in Columns 2 and 3. I find no statistically significant effects for *Lawyer CEO*. Mergers are shown to occur in year-specific waves and cluster strongly within

industries (Andrade et al. 2001) and thus I include Industry * Year fixed effects. As age and tenure are both reported in years and are highly correlated with each other, their effect should be studied together. Consistent with Yim (2013), older CEOs (who also tend to have higher tenures) are associated with a factor below 1 which is statistically significant at the 1% level. Consistent with Huang and Kisgen (2013), female CEOs are less likely to announce large acquisitions, although this effect is no more statistically significant after firm control variables are included in Column 3. In line with traditional corporate finance literature, previous year returns and cash flow associate positively with acquisitiveness, as acquisitiveness is shown to be driven by internally generated cash as well as company valuation (Jensen 1986, Schleifer and Vishny 2003, Savor and Lu 2009).

A limitation to logistic regressions is that it does not account for serial acquirers i.e. companies that announce more than one acquisition per year. While this is seldom as the 5% market capitalization threshold is high, there are a total of 238 firm-year observations with more than one large acquisition. To account for these observations, I run OLS regressions with the dependent variable as the number of acquisitions and report the results in Columns 4-6. The effects are in line with the observations in Columns 1-3, and now the negative coefficient for female CEOs remains significant at the 10% level after the inclusion of firm, industry and year control variables.

Hypothesis Four, i.e. that lawyer CEOs associate with less acquisitions than their non-lawyer peers, is not supported by the findings. In fact, the effect for lawyers seems to be positive through all regressions, although it is not statistically significant[16]. With the control variables in line with previous literature, I conclude that lawyer CEOs do not significantly differ from their non-lawyer peers in terms of acquisitiveness.

5.3 *Acquisition outcomes and characteristics*

The most studied acquisition outcome is the market's reaction to the acquisition announcement. According to the efficient market hypothesis, existing information is reflected in the stock price of a company and thus the most relevant period to assess the value of an acquisition is looking at the time when new information is published, i.e. immediately upon the announcement of an acquisition. A common way to study the value of acquisitions is measuring the cumulative abnormal return (CAR) of the acquiring company's stock around the acquisition announcement, typically one day before and one day after the announcement day [-1, +1]. The methodology assumes that some market participants

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[16] In unreported regressions, I relax the market capitalization requirement for large acquisitions to 2.5% and find similar results: slightly positive, but not statistically significant effects for lawyer CEOs. The same is true when I test for very large acquisitions that exceed 10% of acquirer market capitalization.

may anticipate the announcement while others may react slightly late, and thus the relevant time interval is three days.

I run OLS regressions with CAR as the dependent variable and *Lawyer CEO*, among other CEO, firm, industry, year and acquisition specific control variables as independent variables. I consider only large acquisitions as smaller ones would likely not receive a significant market reaction and would thus introduce noise to the analysis. The sample is 2,382 acquisitions which are completed by 909 companies (66% of the original sample) and 1,213 CEOs (54% of the original sample) of which approximately 9% are lawyers. The results are presented in Table VI.

I present univariate regressions in Column 1 and find that *Lawyer CEO* has a significant positive association with announcement day returns. The effect and its statistical significance increases after the inclusion of other CEO control variables in Column 2, firm, industry and year control variables in Column 3 as well as deal specific control variables in Column 4. As opposed to previous regressions, I include industry and year fixed effects separately to have a sufficient amount of observations in each category. Firm size has a large negative effect on announcement day returns in line with previous literature (see e.g., Moeller, Schlingemann and Stulz 2004, Yim 2013) while unrelated acquisitions as well as acquisitions pursuing publicly listed target companies have a significant negative effect. Furthermore, previous year returns associate positively with CAR, which could be explained by companies using overvalued stock to pay for the acquisitions in line with Schleifer and Vishny (2003) and Pavel and Lu (2009).

As shown in Column 4, *Lawyer CEO* associates with 1.4 percentage points higher cumulative abnormal returns surrounding the announcement than the baseline. As the average CAR for the acquisitions in my sample is 0.7%, this result has large economic significance. For example, the positive effect associated with *Lawyer CEO* is larger than the negative effect associated with unrelated acquisitions, a commonly accepted proxy for risky and on average value-destroying acquisitions (see e.g., Bernile et al. 2017). Hypothesis Four is thus strongly supported by empirical evidence. In addition to high litigation-risk and high growth industries (see Henderson et al. 2017), lawyers seem to add value also in acquisitions, which may be explained by the fact that acquisitions often lead to litigation e.g. to shareholder class action lawsuits, and even when they do not, significant legal risk and complexity is associated to them.

Table VI: Announcement returns, OLS regressions

This table shows the results of OLS regressions where the dependent variable is the cumulative abnormal return in percentage points three days surrounding the announcement day [-1 +1]. The observations are on the transaction level and only include large acquisitions. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. All control variables are defined in Appendix A and firm control variables are lagged by one year. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	Cumulative abnormal return (CAR) [-1, +1]			
	(1)	(2)	(3)	(4)
Lawyer CEO	0.012**	0.013**	0.014**	0.014**
	(0.005)	(0.005)	(0.006)	(0.006)
MBA CEO		0.002	0.002	0.001
		(0.003)	(0.003)	(0.003)
Age		0.000	0.000	0.000
		(0.000)	(0.000)	(0.000)
Tenure		0.000	0.000*	0.000*
		(0.000)	(0.000)	(0.000)
Female		-0.009	-0.016	-0.016
		(0.012)	(0.011)	(0.011)
Log TA			-0.008***	-0.006***
			(0.001)	(0.001)
Tobin's q			-0.004	-0.003
			(0.002)	(0.002)
Return			0.007	0.008
			(0.005)	(0.005)
Volatility			-0.026	-0.023
			(0.040)	(0.040)
Cash flow			0.008	0.011
			(0.045)	(0.045)
Leverage			0.021*	0.017
			(0.011)	(0.011)
Cash-to-assets			-0.007	-0.003
			(0.011)	(0.011)
Firm age			0.000**	0.000**
			(0.000)	(0.000)
Unrelated acquisition				-0.008**
				(0.003)
All stock acquisition				-0.004
				(0.008)
Relative deal value				0.001
				(0.006)
Private target				-0.005
				(0.003)
Public target				-0.024***
				(0.004)
Tender offer				0.007
				(0.006)
Hostile bid				0.013
				(0.010)
Challenged bid				0.000
				(0.008)
Cross border bid				0.001
				(0.003)
Fixed effects	No	No	Industry, Year	Industry, Year
Observations	2,382	2,382	2,382	2,382
Adjusted R^2	0.003	0.004	0.103	0.123

The observed higher announcement returns may, however, also be explained by the type of acquisitions that lawyer CEOs engage in. Unrelated acquisitions are typically interpreted as symptoms for managerial empire building and thus markets tend to have a negative reaction towards them. The same is true for cross-border acquisitions, which may in some cases be value-enhancing from a synergy perspective, but often are more related to geographical diversification. Thus, if lawyer CEOs were more likely to engage in unrelated or cross-border acquisitions, it could result in higher CAR. Even though these effects are mitigated by including them as binary control variables in Column 4 of Table VI, I regress acquisition characteristics as dependent variables on lawyer CEOs to further study their relation.

Lawyers may also use different payment methods for the acquisitions. When acquisitions are paid for with the acquirer's stock, the valuation risk related to the target is mitigated. However, as all-stock acquisitions typically signal overvaluation of the company, the market reaction may be negative due to the revelation effect (see e.g. Wang 2018). Finally, lawyer CEOs may have a better completion rate in their acquisitions, if they are more able to anticipate the outcome of legal due diligence or the antitrust authorities' reaction or avoid litigation by existing shareholders which is shown to increase the risk of not completing the acquisition (Krishnan et al. 2012).

I study these possible explanations by logistic regressions with the dependent variable a binary variable with the value 1 if the acquisition is unrelated, cross-border, all stock or not completed and *Lawyer CEO*, as well as other CEO, firm, transaction, year and industry control variables are used as independent variables. The results are presented in Table VII and coefficients are presented as odds ratios. The results show opposite evidence for Hypothesis Five: *Lawyer CEO* seems to associate with more unrelated acquisitions, more cross-border acquisitions, they are less likely to do all stock financed acquisitions and have a lower completion rate of acquisitions. However, only the observation for unrelated acquisitions is statistically significant. Thus, acquisition characteristics do not seem to explain why lawyer CEOs have higher announcement day returns for their acquisitions than non-lawyer peers.

The control variable effects are intuitive. Unrelated acquisitions tend to be smaller and are more likely for public targets, cross border bids are less likely to be financed all stock, and more likely to be tendered and challenged, and all stock acquisitions tend to occur when the acquirers previous year's Tobin's q and volatility are high, or when the target is publicly listed. Acquisitions are more likely to be not completed when the acquisition is large, the target is public or when the deal is challenged, while tendering increases the completion rate.

Table VII: Acquisition characteristics and outcomes, logistic regressions

This table shows the results of logistic regressions where the dependent variable is a binary variable that equals one if the target company is in a different 2-digit SIC industry than the acquirer, if the bid is a cross border bid, if the acquisition is financed all stock or if the acquisition is not completed. Coefficients are reported as odds ratios. The observations are on the transaction level and only include large acquisitions. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. All control variables are defined in Appendix A and firm control variables are lagged by one year. Other CEO effects are MBA CEO, Age, Tenure and Female, none of which are statistically significant. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	Unrelated acquisition		Cross-border bid		All stock acquisition		Not completed	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lawyer CEO	1.085	1.388*	0.981	1.138	0.713	0.897	0.834	1.037
	(0.156)	(0.234)	(0.163)	(0.222)	(0.220)	(0.334)	(0.212)	(0.373)
Log TA		0.915*		1.084		1.082		1.040
		(0.042)		(0.054)		(0.102)		(0.091)
Tobin's q		0.970		0.948		1.469***		0.825*
		(0.056)		(0.054)		(0.117)		(0.085)
Return		1.033		1.291*		0.978		1.023
		(0.143)		(0.198)		(0.225)		(0.270)
Volatility		0.448		9.463*		>100***		0.104
		(0.501)		(11.419)		(>100)		(0-193)
Cash flow		0.470		0.049**		0.128		0.009**
		(0.732)		(0.069)		(0.329)		(0.022)
Leverage		1.278		1.080		2.026		1.770
		(0.497)		(0.440)		(1.678)		(1.199)
Cash-to-assets		0.984		0.623		0.442		1.079
		(0.387)		(0.263)		(0.366)		(0.804)
Firm age		1.008***		1.003		0.992		1.000
		(0.003)		(0.003)		(0.007)		(0.005)
Unrelated				0.952		0.874		1.191
				(0.109)		(0.195)		(0.246)
All stock		0.868		0.468***				2.079**
		(0.178)		(0.131)				(0.675)
Relative deal value		0.619***		0.515***		2.313***		1.612**
		(0.152)		(0.103)		(0.648)		(0.339)
Private target		1.3265*		0.669***		1.955**		0.737
		(0.152)		(0.089)		(0.620)		(0.198)
Public target		1.400**		0.642***		10.740***		2.173***
		(0.193)		(0.101)		(3.425)		(0.536)
Tender offer		1.079		2.220***		0.188***		0.298***
		(0.197)		(0.428)		(0.068)		(0.110)
Hostile bid		1.016		0.563		2.636		3.110**
		(0.438)		(0.307)		(2.095)		(1.753)
Challenged bid		0.593*		2.497***		0.461		6.421***
		(0.159)		(0.675)		(0.237)		(1.980)
Cross border		0.949				0.439**		1.160
		(0.108)				(0.145)		(0.249)
Other CEO effects	No	Yes	No	Yes	No	Yes	No	Yes
Fixed effects	No	Ind., Year	No	Ind., Year	No	Ind., Year	No	Ind., Year
Observations	2,382	2,370	2,382	2,291	2,382	2,077	2,382	2,197
Pseudo R^2	0.000	0.127	0.000	0.088	0.001	0.370	0.000	0.191

5.4 *Firm value*

Lawyer CEOs are shown to have a negative relation with firm value measured by Tobin's q, except for companies with a high litigation risk (Henderson et al. 2017). The authors explain the lower valuations by the observation that lawyer CEOs have a negative effect on investments, which may lower future cash flows. The effect is off-set if the company has a high litigation risk. Previously, I find that lawyer CEOs associate positively with announcement day returns for acquisitions, and that the effects are not explained by acquisition characteristics or acquisition outcomes. If lawyers make better acquisitions, lawyer CEOs should be valuable in acquisitive companies. This could be reflected in their valuation measured by Tobin's q. I define acquisitive companies as the firms that are in the top quadrant on their average number of large acquisitions per year. In line with Henderson et al. (2017), I run OLS regressions with the dependent variable as the Tobin's q of the company, and with *Lawyer CEO*, Acquisitive company, and their interaction as well as a matrix of control variables as independent variables. The results are presented in Table VIII.

Column 1 presents the results of univariate regressions. Highly acquisitive companies associate with significantly lower Tobin's q values, which is in line with the average value-destruction of acquisitions[17] (Moeller et al. 2005). The effect for *Lawyer CEO* is negative as shown by Henderson et al. (2017), although it is not statistically significant. The effect of lawyer CEOs in acquisitive companies is shown by the *Lawyer CEO * Acquisitive company* interaction coefficient, which is also negative although statistically insignificant. I add CEO specific control variables in Column 2 and firm, year and industry specific control variables in Column 3. With the inclusion of controls, lawyer CEOs in acquisitive companies seem to have a significant negative effect on the Tobin's q, which is contradictory to the higher announcement day returns documented in Table VI. Thus, Hypothesis Six is not supported by empirical evidence, and the results do not support the interpretation that lawyers are better acquirers. Control variables are in line with Henderson et al. (2017): large or highly levered companies tend to have lower Tobin's q values, while ROA and volatility associate positively with the valuation. Interestingly, female CEOs seem to associate with lower Tobin's q values.

The results presented in Table VIII suggest that making significantly better acquisitions do not seem to explain the observed higher announcement day returns, as otherwise lawyer CEOs should be valued in acquisitive companies. However, it is also possible that lawyer CEOs are better acquirers but lack other skills required for highly acquisitive companies which outweigh the higher announcement day returns and thus result in a lower Tobin's q value. However, it should be kept in

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[17] Between 1980 and 2001, shareholders of acquiring companies lost more than $220 billion upon the announcement of acquisitions (Moeller et al. 2005).

mind that Tobin's q is not the only measure for valuation and thus the results are rather indicative than conclusive, and careful interpretation should be followed when establishing potential relations.

Table VIII: Tobin's q, OLS regressions

This table shows the results of OLS regressions where the dependent variable is the Tobin's q of the company. The observations are on the firm-year level. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. Acquisitive company is a binary variable that equals one if the company is in the top quadrant of the sample measured by the average number of announced large acquisitions per year. All control variables are defined in Appendix A and firm control variables are lagged by one year. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	Tobin's q		
	(1)	(2)	(3)
Lawyer CEO	-0.059	-0.068	0.022
	(0.055)	(0.056)	(0.050)
Acquisitive company	-0.475***	-0.474***	-0.382***
	(0.024)	(0.023)	(0.025)
Lawyer CEO * Acq. company	-0.063	-0.074	-0.127**
	(0.067)	(0.068)	(0.062)
MBA CEO		-0.016	-0.009
		(0.023)	(0.022)
Age		-0.023***	-0.020***
		0.002)	(0.002)
Tenure		0.018***	0.014***
		(0.002)	(0.002)
Female		-0.147**	-0.221***
		(0.068)	(0.064)
Log TA			-0.057**
			(0.010)
ROA			2.404***
			(0.471)
Leverage			-0.982***
			(0.151)
Volatility			0.133***
			(0.307)
Fixed effects	No	No	Industry * Year
Observations	13,370	13,370	13,370
Adjusted R^2	0.016	0.037	0.206

6. Robustness and causality

This Chapter presents the additional tests for robustness and causality. Section 6.1 covers difference-in-differences analyses, and Section 6.2 analyses with varied sub-samples. Section 6.3 presents the results of analysing different time intervals for announcement returns, and Section 6.4 presents results from the CEO overconfidence analysis. This Chapter is finished with Section 6.5 which covers the outlier analysis.

6.1 Differences-in-differences analysis

To further evaluate the robustness of results, I verify regressions using difference-in-differences methodology. The methodology requires a CEO transition to take place and compares the non-lawyer

to lawyer transitions with a non-lawyer to non-lawyer control group. The benefit of this methodology is that it effectively controls for factors that relate to a CEO transition. Furthermore, the methodology allows the inclusion of firm fixed effects as control variables, and thus the change in firm policies related to the new presence of a lawyer CEO is better captured. The limitation of the methodology is that it significantly decreases sample size, as not all companies have CEO transitions. The methodology also excludes all lawyer-to-lawyer and lawyer-to-non-lawyer CEO transitions. Furthermore, only one transition per company can be included in the sample, and thus if the company has more than two different CEOs over the sample other transitions are excluded[18]. Consequently, the sample size is significantly reduced: for example, the firm-year observations in investment policies decrease from 13,370 to 2,723 observations. A final limitation is that only a relatively short period of years pre- and post-transition can be included. Thus, the effects studied must occur three years post-transition which may be an insufficiently long time period for large changes to take place.

I begin the difference-in-differences analysis from the investment policies of the company. Consistent with Huang and Kisgen (2013) I include three years of firm-year observations before the transition and three years after the transition, while excluding the transition year. I require the company to have at least two years of data available before the CEO transition to be included in the sample. The results are presented in Table IX.

The lawyer CEO effect on capital expenditures is presented in Columns 1-3. Univariate regressions in Column 1 suggest that companies that have a non-lawyer to lawyer CEO transition associate with significantly lower capital expenditures and the effect remains negative and significant after the inclusion of firm control variables as well as year fixed effects in Column 2. However, the effect diminishes after the inclusion of firm fixed effects in Column 3[19]. The observation is consistent with Huang and Kisgen (2013), who also experience a significant increase in the coefficient of determination while the significance of CEO specific effects decreases. Interestingly, the interaction between lawyer and post is not significant, meaning that there is no significant change in capital expenditure post-transition, but rather lawyer CEOs are hired to companies that have lower capital expenditures to begin with.

Similar results are obtained for R&D in Columns 4-6, although here it is noteworthy that the effects are not statistically significant. This is likely due to smaller sample size, highlighted in Column 6 where none of the variables reach statistical significance. Furthermore, the inclusion of firm fixed

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[18] When multiple CEO transitions within one company exist, I include the latest (non-lawyer-to-lawyer, if available) transition with sufficient firm-year observations.
[19] I exclude the unnecessary lawyer dummy variable from regressions where firm fixed effects are included.

effects in Column 6 and the subsequent loss of statistical significance for the coefficients suggests that R&D expenditures may be less sensitive to year-on-year changes in the variables, which is intuitive due to the long-term nature of R&D investments.

Table IX: Investment policies, difference-in-differences regressions

This table shows the results of difference-in differences regressions where the dependent variable is capital expenditure to net tangible assets in Columns 1-3 and in R&D expenditure to total sales in Columns 4-6. The observations are on the firm-year level and exclude the CEO transition year. Post is a binary variable that equals one if the year t is after the CEO transition. Lawyer is a binary variable that equals one if the company has a non-lawyer to lawyer CEO transition. All control variables are defined in Appendix A and firm control variables are lagged by one year. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

| | **CapEx** | | | **R&D** | | |
	(1)	(2)	(3)	(4)	(5)	(6)
Post × Lawyer	-0.001	0.012	0.005	0.008	0.020	0.003
	(0.016)	(0.012)	(0.008)	(0.023)	(0.023)	(0.014)
Post	-0.011**	-0.014**	0.011	-0.015	-0.018	-0.015
	(0.005)	(0.006)	(0.010)	(0.016)	(0.020)	(0.026)
Lawyer	-0.025**	-0.031***		-0.022	-0.035*	
	(0.012)	(0.009)		(0.018)	(0.018)	
Log TA		-0.007***	0.003		-0.015**	-0.003
		(0.002)	(0.011)		(0.006)	(0.028)
ROA		-0.005	0.085***		-0.670***	0.030
		(0.031)	(0.032)		(0.205)	(0.103)
Tobin's q		0.031***	0.019***		0.043***	-0.011
		(0.017)	(0.005)		(0.008)	(0.009)
Leverage		-0.135***	-0.067**		-0.188***	-0.120
		(0.017)	(0.028)		(0.053)	(0.084)
Return		0.001	0.013**		-0.028	-0.025
		(0.007)	(0.006)		(0.022)	(0.016)
Volatility		0.205***	-0.101*		0.355**	-0.122
		(0.056)	(0.058)		(0.157)	(0.136)
Firm fixed effects	No	No	Yes	No	No	Yes
Year fixed effects	No	Yes	Yes	No	Yes	Yes
Observations	2,723	2,723	2,723	1,602	1,602	1,602
Adjusted R^2	0.006	0.174	0.678	0.001	0.122	0.638

I continue the analysis to cover leverage and cash-to-asset rations. The same sampling methodology is used as for investment policies, and the results are presented in Table X. The results are again in-line with the previous findings from OLS regressions, although the effect on Leverage in Columns 1-3 is no longer statistically significant when the difference-in-differences approach is used. For Cash-to-assets in Columns 4-5, the *Lawyer* coefficient is significant and negative while the *Post x Lawyer* interaction is not, again suggesting that lawyer CEOs tend to join companies with lower cash-to-assets ratios rather than decrease them post-transition. When firm fixed effects are included in Column 6, the lawyer effect diminishes.

Table X: Leverage and cash-to-assets, difference-in-differences regressions

This table shows the results of difference-in-differences regressions where the dependent variable is the debt in current book liabilities plus long-term book debt to total assets ratio of the company in Columns 1-3 and the cash and marketable securities to total asset ratio of the company in Columns 4-6. The observations are on the firm-year level and exclude the CEO transition year. Post is a binary variable that equals one if the year t is after the CEO transition. Lawyer is a binary variable that equals one if the company has a non-lawyer to lawyer CEO transition. All control variables are defined in Appendix A and firm control variables are lagged by one year. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	Leverage			Cash-to-assets		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Post × Lawyer	0.017	0.008	0.012	-0.006	0.008	-0.005
	(0.018)	(0.016)	(0.008)	(0.014)	(0.013)	(0.008)
Post	-0.003	0.003	-0.007	0.007	0.000	0.014**
	(0.006)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)
Lawyer	0.001	0.000		-0.037***	-0.040***	
	(0.013)	(0.012)		(0.011)	(0.010)	
Log TA		0.017***	0.023**		-0.011***	-0.057***
		(0.002)	(0.009)		(0.002)	(0.010)
ROA		-0.108***	-0.078***		-0.216***	-0.007
		(0.040)	(0.025)		(0.042)	(0.023)
Tobin's q		-0.018***	-0.002		0.041***	0.007*
		(0.003)	(0.004)		(0.004)	(0.004)
Asset tangibility		0.096***	0.092*		-0.177***	-0.331***
		(0.015)	(0.049)		(0.010)	(0.044)
Dividend paying		0.035***	0.017**		-0.068***	-0.007
		(0.006)	(0.007)		(0.006)	(0.007)
Sales growth		0.010	-0.003		-0.021	-0.018*
		(0.015)	(0.011)		(0.018)	(0.010)
Firm fixed effects	No	No	Yes	No	No	Yes
Year fixed effects	No	Yes	Yes	No	Yes	Yes
Observations	2,723	2,723	2,723	2,723	2,723	2,723
Adjusted R^2	0.001	0.116	0.790	0.004	0.310	0.839

The final robustness test with the difference-in-differences methodology is on the number of large acquisitions announced by the company. The results are presented in Table XI. The results are in line with OLS regressions: no significant changes in acquisition propensity is observed after a transition from a non-lawyer CEO to a lawyer CEO. The effect is slightly positive as expected based on the previous results, but not statistically significant. As opposed to the previous difference-in-difference regressions, firm fixed effects are replaced by industry fixed effects as otherwise the variation between acquisitiveness would have to happen within a 6-year period, i.e. 3 years before and 3 years after an executive transition, within one company. Since the threshold for large acquisitions is high, these requirements would not yield enough variation within companies for meaningful analysis or interpretations.

Table XI: Acquisitiveness, difference-in-differences regressions

This table shows the results of difference-in-differences regressions where the dependent variable is the number of announced large acquisitions. The observations are on the firm-year level and exclude the CEO transition year. Post is a binary variable that equals one if the year t is after the CEO transition. Lawyer is a binary variable that equals one if the company has a non-lawyer to lawyer CEO transition. All control variables are defined in Appendix A and firm control variables are lagged by one year. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	N(large acquisition)		
	(1)	(2)	(3)
Post × Lawyer	0.065	0.066	0.064
	(0.050)	(0.051)	(0.051)
Post	0.010	0.026	0.028
	(0.017)	(0.020)	(0.020)
Lawyer	-0.014	-0.013	-0.010
	(0.033)	(0.033)	(0.034)
Log TA		-0.010	-0.011*
		(0.006)	(0.006)
Tobin's q		-0.026***	-0.025***
		(0.007)	(0.007)
Return		0.090***	0.088***
		(0.027)	(0.026)
Cash flow		0.200	0.218
		(0.214)	(0.215)
Firm age		0.000	0.000
		(0.000)	(0.000)
Industry fixed effects	No	No	Yes
Year fixed effects	No	Yes	Yes
Observations	2,723	2,723	2,723
Adjusted R^2	0.001	0.027	0.043

From the difference-in-differences regressions I conclude that the results from Chapter 5 appear to hold, although results seem to be driven by CEO-firm matching rather than deliberate change in firm policies after the transition from a non-lawyer to lawyer CEO.

6.2 *Sub-sample analysis*

For studying the robustness of announcement day returns, I choose a different methodology as the difference-in-differences approach would decrease the number of possible acquisitions to be included in the analysis. Specifically, using similar sampling methodology as in the difference-in-differences analysis would yield only 48 acquisitions for firms with a non-lawyer-to-lawyer CEO transition, of which 18 would occur before the transition and 30 afterwards. This is not large enough of a sample to observe statistically significant results, and thus the difference-in-differences methodology is not applied to announcement day returns.

Instead, I run OLS regressions on four sub-samples of the main sample. I restrict the sample by acquirer size, deal size, target public status and randomization. The dependent variable is the three day [-1, +1] cumulative abnormal return surrounding the acquisition announcement, while

independent variables include the same panel of control variables as in Table VI. The results are presented in Table XII, and the full table with control variable effects is presented in Appendix B.

Table XII: Announcement returns, subsample analysis

This table shows the results of OLS regressions where the dependent variable is the cumulative abnormal return in percentage points three days surrounding the announcement day [-1 +1]. Columns 1-2 include acquisitions where the acquirer is an S&P 500 company. Columns 3-4 include acquisitions that have a transaction value exceeding 10% of the acquirer's previous year market capitalization. Columns 5-6 include acquisitions where the target is a publicly listed company. Columns 7-8 include a randomized 50% sub-sample. The observations are on the transaction level. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. Control variables and their effects are presented in Table XXI in Appendix B. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	S&P 500 acquirers (CAR)		Very large deals (CAR)		Public targets (CAR)		Random 50% (CAR)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lawyer CEO	0.019***	0.022***	0.014*	0.015*	0.027***	0.022**	0.016**	0.014*
	(0.008)	(0.007)	(0.008)	(0.009)	(0.010)	(0.010)	(0.007)	(0.007)
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Fixed effects	No	Ind., Year	No	Ind., Year	No	Ind., Year	No	Ind., Year
Observations	1,048	1,048	1,480	1,480	746	746	1,206	1,206
Adjusted R^2	0.009	0.208	0.003	0.185	0.013	0.244	0.005	0.170

In Columns 1-2 I include acquisitions where the acquirer is in the S&P 500 index at some point of the sample period. This decreases the number of acquisitions from 2,382 to 1,048. Columns 3-4 include acquisitions with a transaction value above 10% of the acquirer's market capitalization, and thus decreases the number of acquisitions to 1,480. In Columns 5-6 I include acquisitions with a publicly listed target company, which restricts the sample to 746 acquisitions. In Columns 7-8 I analyze a sub-sample where I have dropped 50% of the acquisitions in the sample randomly.

The *Lawyer CEO* effect remains positive and statistically significant throughout all subsamples, and interestingly the coefficient receives its highest value when only acquisitions including public targets are included in the sample. Conclusively, while the sub-sample approach does not allow for studying endogeneity as well as the difference-in-differences analysis, the results remain robust and significant.

6.3 *Different time intervals analysis*

I expand the analysis on cumulative announcement returns to cover different time intervals. While [-1, +1] is the most common interval for studying acquisition announcement returns (see e.g., Malmendier and Tate 2008, Huang and Kisgen 2013, Yim 2013, Bernile et al. 2017), including other time intervals will further improve our understanding on the market's reaction. I study the cumulative abnormal return on the announcement day, the 5-day period [-2, +2], the 7-day period [-1, +5] and the 11-day period [-5, +5] surrounding the announcement of a large acquisition. I include the same

control variables as previously and present the results in Table XIII. The full table with control variable effects is presented in Appendix B.

Table XIII: Announcement returns, different time intervals

This table shows the results of OLS regressions where the dependent variable is the CAR in percentage points. Columns 1-2 include the announcement day, Columns 3-4 [-2, +2] days, Columns 5-6 [-1, +5] days and Columns 7-8 [-5, +5] days around the announcement. The observations are on the transaction level and only include large acquisitions. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. Control variables and their effects are presented in Table XXII in Appendix B. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	Announcement day		CAR [-2, +2]		CAR [-1, +5]		CAR [-5, +5]	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lawyer CEO	0.002	0.002	0.014**	0.014**	0.012**	0.012**	0.008	0.008
	(0.004)	(0.004)	(0.005)	(0.006)	(0.005)	(0.006)	(0.006)	(0.007)
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Fixed effects	No	Ind., Year	No	Ind., Year	No	Ind., Year	No	Ind., Year
Observations	2,382	2,382	2,382	2,382	2,380	2,380	2,378	2,378
Adjusted R^2	0.000	0.111	0.003	0.112	0.002	0.100	0.001	0.087

The positive effect of *Lawyer CEO* remains throughout the different time intervals, although it is not statistically significant when only the announcement day is included, or during the 11-day period of [-5, +5]. The results suggest that the positive effect is strongest during the days after the acquisition, not on the exact announcement day or the period before the announcement.

I also conduct preliminary regressions on the long-term abnormal return after the transaction. I regress the 1-month, 3-month, 6-month and 12-month CAR starting from the announcement date of an acquisition to *Lawyer CEO* and present the results of these univariate regressions in Table XIV[20].

Table XIV: Stock returns post acquisition

This table shows the results of OLS regressions where the dependent variable is the CAR in percentage points at different time periods after the announcement of a large acquisitions. The observations are on the transaction level and only include large acquisitions. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	1-month CAR	3-month CAR	6-month CAR	12-month CAR
Lawyer CEO	0.002	0.018	-0.002	-0.045
	(0.009)	(0.015)	(0.024)	(0.037)
Controls	No	No	No	No
Observations	2,341	2,254	2,046	1,683
Adjusted R^2	0.000	0.001	0.000	0.001

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[20] The number of observations decreases when the required time interval is increased due to the fixed nature of stock price data I have gathered for the thesis. As the analysis is preliminary and indicative, I only include stock returns that I have available from other analyses in the thesis. When sufficient amount of stock returns are not available, the acquisition is excluded. For example, I do not gather stock price data for 2015, and thus all acquisitions from 2014 are excluded from the 12-month-CAR analysis. As the fraction of lawyer CEOs is stable across years, and furthermore as the lawyer effect should not correlate with the exclusion methodology, the sampling does not affect the interpretation of results.

I find no significant effect for *Lawyer CEO* on the long-term post-acquisition abnormal stock return. The results are preliminary and indicative as no control variables are included and since it is very difficult to isolate the effect of an acquisition on the stock return. Thus, caution should be exercised when making interpretations. However, the results do not indicate that acquisitions announced by lawyer CEOs would have significantly higher long-term stock returns.

6.4 *CEO overconfidence analysis*

One possible explanation for the observed results is CEO overconfidence as many of the hypotheses in this thesis build on the potential risk-aversion of lawyer CEOs. I follow Malmendier and Tate (2005) and study the perceived risk-aversion of lawyer CEOs. If lawyer CEOs are more risk-averse, they should associate with less overconfident stock option holding patterns. Specifically, they should be less likely to be categorized as Holder 67, Longholder and Net buyer. Following the argumentation of Huang and Kisgen (2013), lawyer CEOs should also have better career outcomes if they are less overconfident, as overconfidence typically leads to value-destructive decisions and subsequent replacement. Career outcomes are measured by the probability of being replaced within 4 years of CEO appointment, excluding CEOs who serve for less than 2 years.

I study the mean difference of lawyer CEOs and non-lawyer CEOs to be replaced in 4 years, hold options that are 67% in-the-money (Holder 67), hold options until the last year of expiration (Longholder), and buy more stock on net than sell (Net buyer). Consistent with Malmendier and Tate (2005), I only include CEOs that at some point of their career have held in-the-money options for the Holder 67 and Longholder tests, as then all CEOs categorized as overconfident have had the possibility to exercise their options. For Holder 67 and Longholder tests I require a CEO to have held the position for at least four years to be included in the sample, and for Net buyer five years of observations are required. The results of the mean difference tests are presented in Table XV[21].

Table XV: Career outcomes and stock purchasing behaviour

This table shows the likelihood of executives to be replaced within their first 4 years of tenure as well as their stock purchasing behaviours. Observations are at the CEO-level. All variables are defined in Appendix A. The statistical significance of the t statistic is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	Lawyer CEO	**Non-lawyer CEO**	**Difference**	**t-statistic**	**Observations**
Replaced in 4 years	23.9 %	21.9 %	2.0 %	0.37	849
Holder 67	59.7%	53.1%	6.6 %	1.38	1 421
Longholder	48.8 %	40.0 %	8.9 %	1.57	900
Net buyer	80.4 %	71.4 %	9.0 %	1.85*	1 001

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[21] The lower number of observations for the Longholder test compared to the Holder 67 test is explained by limited data availability, as the expiration date of executive options are available in ExecuComp between 2006 and 2014 while other variables can be constructed for the entire period of 1999 – 2014.

The risk-aversion argument is not supported by the evidence: lawyer CEOs do not exhibit lower but rather higher likelihoods of being categorized as overconfident, of which the Net buyer mean difference is statistically significant. Conclusively, lower overconfidence does not seem to be the primary driver of observed results such as lower investment or higher announcement day returns.

6.5 *Outlier analysis*

I analyze the outliers in my sample for non-binary dependent variables to verify that results are not driven by extreme end-tail observations. I begin the outlier analysis by examining the bottom five and top five observations in the sample. I present the mean as well as the top five and bottom five observations for each non-binary dependent variable in Table XVI and indicate if the observation if associated to a lawyer CEO by *. The bottom five observations for CapEx, R&D, Leverage, Cash-to-assets and the number of large acquisitions are zero and thus are excluded from the table.

Table XVI: Outlier observations, top 5 and bottom 5

This table shows the top three and bottom three observations for each dependent variable. Observations are on the firm-year level except for CAR, which is observed at the transaction level. If the variable is associated with a lawyer CEO, it is denoted by *.

	Mean	Bottom five observations					Top five observations				
CapEx	0.23						3.28	2.37	2.06*	1.76*	1.70
R&D	0.09						7.16	5.86	5.68	4.73	4.17
Leverage	0.21						2.46	1.44	1.39	1.35	1.25
Cash-to-assets	0.15						0.95	0.94	0.91	0.91	0.91
CAR	0.01	-0.40	-0.35	-0.33	-0.29	-0.26	0.49	0.40	0.38	0.38	0.38*
Tobin's q	2.05	0.33	0.40	0.41	0.49	0.50	17.55	16.14	16.00	15.94	15.25

From the outlier table it can be observed that results do not seem to be driven by the most extreme outliers. Lawyer CEOs are represented within the five extreme-tail observations only in three instances: twice at the positive end of CapEx (while the documented effect for lawyer CEOs on average is negative), and once in the positive end of CAR although four acquisitions with better CAR are announced by non-lawyer CEOs. Thus, it can be concluded that outliers are not significantly distorting results or their interpretation.

I continue the outlier analysis by examining the top 1% and bottom 1% of observations, and document the percentage of lawyer CEOs within these extremes. The results are presented in Table XVII. Lawyer CEOs are evenly represented in the extreme ends of the capital expenditure sample. However, the analysis suggests that the negative R&D effect may be driven by extreme R&D values by non-lawyer CEOs, as no lawyer CEOs are within the top 1% of the sample in terms of R&D investments. Leverage and cash-to-assets results are in line with the observed results, as lawyer CEOs are more presented at the top end of leverage and bottom end of cash-to-assets observations. For the

cumulative abnormal returns the observation is even stronger, as almost 21% of the best acquisitions measured by announcement day return are announced by companies with lawyer CEOs which is significantly larger than the 9% representation of lawyer CEOs in the total acquisition sample. However, interpretations from the observation should be cautious as the absolute numbers are low.

Table XVII: Outlier observations, top 1% and bottom 1%

This table shows the top three and bottom three observations for each dependent variable. Observations are on the firm-year level except for CAR, which is observed at the transaction level. If the variable is associated with a lawyer CEO, it is denoted by *.

	Bottom 1% of sample			Top 1% of sample		
	Lawyer CEOs	Observations	% of total	Lawyer CEOs	Observations	% of total
CapEx	20	134	14.9%	20	134	14.9%
R&D	13	75	17.3%	0	75	0.0%
Leverage	6	134	4.5%	18	134	13.4%
Cash-to-assets	19	134	14.1%	11	134	8.2%
CAR	1	24	4.1%	5	24	20.8%
Tobin's q	12	134	9.0%	18	134	13.4%

Because of the extreme-end concerns raised by Table XVII, I finish the outlier analysis by windsorizing the observations at 99%, i.e. by setting the value of bottom 1% observations to the value of the 1st percentile and the value of top 1% of observations to the value of the 99th percentile. This mitigates the effect of extreme-tail observations. I include the same control variables as in earlier regressions, and present the results for windsorized regressions for CapEx, R&D, Leverage and Cash-to-assets with *Lawyer CEO* in Table XVIII. The effects after the windsorization are in line with previous results, confirming that the findings are not driven by the values of the 1% extreme-tail observations.

Table XVIII: Investment policies and capital structure, windsorized observations

This table shows the results of OLS regressions where the dependent variable is capital expenditure to net tangible assets in Columns 1-2, R&D expenditure to total sales in Coulmns 3-4, the debt in current book liabilities plus long-term book debt to total assets ratio of the company in Columns 5-6 and the cash and marketable securities to total asset ratio of the company in Columns 7-8. The observations are on the firm-year level and are windsorized at 99%. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. The same control variables are used as in previous regressions, see Tables III and IV. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	CapEx		R&D		Leverage		Cash-to-assets	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lawyer CEO	-0.014***	-0.011***	-0.026***	-0.013***	0.037***	0.023**	-0.023***	-0.009**
	(0.004)	(0.003)	(0.004)	(0.003)	(0.005)	(0.004)	(0.005)	(0.004)
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Fixed effects	No	Ind. *Year	No	Ind. *Year	No	Ind. *Year	No	Ind. *Year
Observations	13,370	13,370	7,452	7,452	13,370	13,370	13,370	13,370
Adjusted R²	0.001	0.307	0.004	0.286	0.005	0.226	0.002	0.363

Finally, I windsorize the observations at 99% for the three-day [-1, +1] cumulative abnormal return surrounding acquisition announcements. I regress the CAR with *Lawyer CEO* for the windsorized observations and present the results in Table XIX.

Table XIX: Announcement returns, windsorized observations

This table shows the results of OLS regressions where the dependent variable is the cumulative abnormal return in percentage points three days surrounding the announcement day [-1 +1]. The observations are on the transaction level, only include large acquisitions and are windsorized at 99%. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. All control variables are defined in Appendix A and firm control variables are lagged by one year. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	CAR [-1, +1]	
	(1)	(2)
Lawyer CEO	0.011**	0.012**
	(0.005)	(0.005)
Controls	No	Yes
Fixed effects	No	Industry, Year
Observations	2,382	2,382
Adjusted R²	0.002	0.117

The positive effect of *Lawyer CEO* remains statistically significant after the windsorization of the observations, confirming that the observed higher announcement returns are not driven by the values of observations in the 1% extreme-tail.

7. Discussion of results

This Chapter discusses the results of empirical results from Chapter 5 and the robustness tests from Chapter 6, interpreting the observations and constructing potential causal links based on the empirical evidence as well as existing research.

The empirical results suggest differences between corporate policies when comparing companies with lawyer CEOs to their non-lawyer-CEO peers. Lawyer risk-aversion, however, does not receive consistent empirical support. While CapEx and R&D have a robust negative association with lawyer CEOs as documented by Henderson et al. (2017), other policies such as leverage, the cash-to-assets ratio and acquisitiveness do not show effects consistent with lawyer CEO risk-aversion. In fact, contrary to risk-averseness, companies with lawyer CEOs tend to have more debt and less cash than the baseline. Furthermore, risk-aversion should relate to a lower number of acquisitions (Malmendier and Tate 2008, Huang and Kisgen 2013), an effect which is not found for lawyer CEOs.

Finally, lawyer CEOs are not less likely to be categorized as overconfident based on their option holding strategies. This result may however be driven by lower financial sophistication rather than overconfidence. For example, MBA CEOs may, due to their financial education, have a better

understanding of diversifying their personal financial risk by executing options early than lawyer CEOs. Conclusively, while it is possible that lawyers exhibit risk-averse behavior towards certain areas of corporate policies such as capital expenditures, a general categorization of lawyer CEO risk-aversion is not empirically established.

As expected in Hypothesis One, the effect of lawyer CEOs towards capital expenditures and R&D are negative. Higher growth may lead to an increased litigation risk as argued by Henderson et al. (2017), and thus lawyer CEOs looking to avoid litigation will favor lower investment, especially in the riskier intangible assets. The difference-in-differences analysis reveals that the effect is not significant after including firm fixed effects, suggesting that firm selection rather than an explicit change in policies post-transition is driving results.

The conservativeness towards investment is not reflected to the capital structure of the company. This could be explained by the research of Cao and Narayanamoorthy (2014) who show that leverage does not increase litigation risk, and thus lawyer CEOs looking to avoid litigation do not have to avoid leverage. Furthermore, companies facing high litigation risk are shown to accumulate cash in anticipation of settlements (Arena and Julio, 2015). As lawyer CEOs are successful in avoiding litigation as shown by Henderson et al. (2017), companies led by lawyers should not need to accumulate cash to anticipate litigation in a same way as others. Finally, the negative relation between cash holdings and leverage is extensively documented in finance literature (see e.g., Opler, Pinkowitz, Stulz and Williamson 1999), and thus it is natural that the effects on leverage and cash-to-assets ratio are opposite. Conclusively, it seems that litigation-risk-aversion, rather than risk-aversion in general, is driving the observed effects.

An alternative explanation consistent with the legal astuteness hypothesis argued by Bagley (2008) is that lawyer CEOs are better in negotiating debt contracts. If lawyer CEOs can receive more lucrative financing from banks through for example effective contract design or through being more trustworthy from a lenders point of view, it may be in the best interests of shareholders to hold more debt. In addition, stock price volatility could explain the observed positive leverage effects. High stock price volatility is shown to result in downwards leverage adjustments (Chen, Wang and Zhou 2014) which is consistent with the trade-off theory (see e.g., Modigliani and Miller 1958, Scott 1976): high volatility relates to a higher chance of financial distress, which should be reflected as lower leverage. On the contrary, as companies with lawyer CEOs have lower volatility (Henderson et al. 2017) their debt capacity may be higher. Studying for example credit ratings of lawyer-led companies could provide further understanding to the leverage effect, however it remains outside the scope of this study. Furthermore, studying covenant levels in debt contracts could further improve interpreting

the results, as covenants typically guide minimum cash balances and may be affected by lawyer CEOs. However, as the nature of covenants are typically not disclosed, this explanation remains speculation and is not empirically tested in this thesis.

I find a slightly positive effect for lawyer CEOs related to the probability to announce large acquisitions. This is contradicting to both risk-aversion in general and litigation-risk aversion, as large acquisitions are risky to begin with and may result in shareholder litigation (Krishnan et al. 2012). The effect could potentially be explained by legal astuteness (Bagley 2008): if lawyer CEOs have skills to navigate the complexity of large acquisitions, and thus can be more certain of acquisition outcomes, the pool of potential NPV positive acquisitions should be larger as cash flows may be more secure or higher, or the investment required to complete the acquisition may be lower[22]. Additionally, legal advisors, commonly utilized in large acquisitions, have financial and reputational incentives to overstate the risk to clients, and lawyer CEOs may be better prepared to identify this bias and adjust their interpretation. Finally, it is possible that lawyers become overconfident when in a complex legal situation with a potential positive outcome, as is shown for litigators (Kahneman and Lovallo 1993) and lawyers in general (Goodman-Delahunty et al. 2010) when estimating case outcomes. However, it should be noted that the effects observed by this study are not statistically significant, and thus no conclusive interpretation regarding Hypothesis Three should be made.

Interestingly, companies with lawyer CEOs have higher cumulative announcement day returns, especially when only public target takeovers (with typically negative announcement returns) are considered. The result is robust to different sub-sample analyses and holds for varied time intervals, and it is not explained by a better completion rate or by acquisition characteristics such as hostility or the relatedness of the target's industry. I discuss three potential explanations for the higher announcement day returns, although studying their validity is outside the scope of this study due to data limitations. The explanations are better management of investor expectations, a lowered litigation risk of acquisitions and more favorable acquisition negotiation outcomes.

The higher announcement returns could be explained by lawyer CEOs managing the expectations of investors better. As acquisitions, especially the ones with public targets, are shown to be on average value destroying (see e.g. Andrade et al. 2001, Moeller et al. 2005), a positive CAR effect of lawyer CEOs could mean a smaller investor reaction i.e. a CAR closer to zero, meaning that the markets

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[22] Effective contract design may lead to a lower investment required e.g. with earn-outs or through including more stock as a payment method. Cash flows can be made more secure through better negotiation of claim policy, clauses and through assigning a larger part of the transaction risks to the buyer. Finally, cash flows post acquisition can become larger through legal expertise if e.g. patent portfolios are harmonized earlier, legal entities are merger together faster or lower taxes are achieved through the acquisition.

would react less to acquisitions announced by companies with lawyer CEOs. This interpretation is supported by the study of Henderson et al. (2017) who document a similar effect for earnings announcements communicated by companies with lawyer CEOs, i.e. that the CAR surrounding an earnings announcement is closer to zero for lawyer CEO companies than for the baseline.

Furthermore, Bamber et al. (2010) show that CEOs with a legal background have conservative disclosure styles which may also be applicable for acquisitions and thus result in more positive surprises that are rewarded by higher returns. It is possible that companies with lawyer CEOs are more transparent with their acquisitive strategies or communicate more realistic expectations when announcing acquisitions, which could lead to a better reaction by the markets upon announcement. Finally, lawyer CEOs may have better argumentation or presentation skills in communicating acquisitions and can thus sweet-talk the market of viewing their acquisitions more favorably. This interpretation is supported by the observation that highest returns are observed during the period after the acquisition, a time when CEOs typically guide investors on the deal rationale as well as expected synergies. However, the fact that earnings announcement by lawyer CEOs receive a more negative (i.e. closer to zero) reaction somewhat contradicts this view, and suggests that rather than sweet talking, lawyer CEOs are more effective in managing expectations.

The high presence of litigation risk related to acquisitions documented by Krishnan et al. (2012) is another possible explanation for the observed results. Given that shareholder lawsuits are relatively common in large acquisitions, and that they often lead to the termination of an acquisition (Krishnan et al. 2012) which will have negative impacts on the acquirer through broken deal costs or sunken resources, markets may value lawyer CEOs in acquisition situations due to their background. Furthermore, lawyer CEOs may have a better ability to anticipate the actions of antitrust regulators, or the outcomes of legal due diligence, which can give investors comfort on the validity of the acquisition and be reflected in the selection of acquisition targets in the first place. While I do not find significant differences in the completion rates of acquisitions, I do not observe shareholder lawsuits or antitrust regulators responses per se due to data unavailability. Thus, better acquisition outcomes from a legal perspective cannot be ruled out as a potential explanation.

A third possible interpretation for the observed higher announcement returns is that lawyer CEOs are complete better acquisitions e.g. through better negotiation outcomes. Lawyer CEOs may obtain better terms for key legal documents such as the share purchasing agreement and shareholders agreement and be thus rewarded by investors. Lawyer CEOs may also be more aware of the risks related to complex transactions and thus have a better ability in navigating the process, which may extend to better target selection as well. Investors may have more trust in lawyer CEOs in navigating

acquisitions and thus react to their announcements positively. This interpretation is, however, somewhat contradicted by the Tobin's q test. If lawyers were better acquirers, lawyer CEOs in highly acquisitive companies should have a positive association with the Tobin's q value of the company in a similar way as high litigation risk and high growth companies do. Such positive relation is not established empirically by this thesis. Furthermore, I do not find evidence for higher quality acquisitions by lawyer CEOs in preliminary tests analyzing long-term abnormal returns. Thus, I remain skeptical on the explanation that lawyer CEOs would be better acquirers.

There are few alternative explanations to higher announcement returns not controlled for by this study. One possible explanation relates to the anticipation of the acquisition. The anticipation effect means that markets have a certain degree of anticipation towards acquisitions which already affects the share price of the company before announcing the acquisition, and that the announcement day returns only capture the unanticipated component (Wang 2018). The effect has been used to explain the acquisitiveness puzzle, i.e. why do companies engage in large acquisitions despite them being on average value destroying, as it biases the market's reaction upon announcement downward (Wang 2018). The explanation is in line with better investor expectations management. I cannot control for anticipation empirically, but the results suggest that, regardless of the anticipation effect, the unanticipated component of the acquisition is more positive for companies with lawyer CEOs. It is possible that markets assign negative anticipation effects for lawyer CEOs, which reverse upon announcement and thus drive results, but empirically documenting this is not possible. Controlling for the anticipation effect e.g. through a structural estimation of a firm optimization model (see Wang 2018) could further enhance our understanding of the potential underlying anticipation effect.

Another possible explanation for the results is the revelation effect, i.e. the tendency of markets to re-evaluate the stand-alone value of the acquirer in connection with acquisition announcements (Wang 2018). Large acquisitions are affected by shocks that are unobservable to outside investors, and once large acquisitions are announced investors can interpret the causes of the acquisition better and reassess their stand-alone valuation of the company (Wang 2018). In the context of the results observed in this thesis, if lawyer CEOs are, on average, more present in undervalued companies, then the revaluation effect would suggest on average higher returns upon announcing large acquisitions as markets adjust the undervaluation. Indeed, as shown in Appendix B, lawyer CEOs do associate negatively towards Tobin's q and previous year stock returns, which could suggest that they are more present in undervalued companies. Furthermore, lawyer CEOs have a slightly lower probability to pursue all-stock financed acquisitions which could be explained by undervaluation. However, it should be noted that the correlations are relatively small, and the lower likelihood of all-stock

acquisitions is not statistically significant. Thus, revelation can only offer partial explanations to the observed higher announcement returns.

My thesis has significant contribution to finance literature and increases our understanding on CEOs and their effect on firm policies. When making CEO hiring decisions, boards can consider the potential effects an individual's background as a lawyer may have on corporate policies, and design incentives in a way that steers the company to the right direction. If a company, for example, is looking to pursue growth through investments, the board should be aware of the negative association between lawyer CEOs and capital expenditure that may be driven by litigation-risk aversion. While there are many factors in addition to education affecting the choice for the company's executive, and no generalization that all lawyer CEOs invest less should be made, understanding the potential effect may lead to better alignment of interests between the executive and the shareholders.

Higher cumulative announcement day returns associated with lawyer CEOs is the most interesting new finding of the thesis. This result has several implications depending on its causality. If lawyer CEOs indeed are better acquirers, be it by more effective target choice or better negotiation, the effect has a natural explanation, although this type of interpretation is not empirically established. Even if the acquisitions are not better, lawyer CEOs may be better in communicating towards investors and thus surprise the market less with new acquisition announcements, tentatively supported by the findings of Henderson et al. (2017) on earnings announcement returns. The result may also be driven by lower likelihood of shareholder litigation when a lawyer is the CEO of the acquiring company. These would be logical and valid explanations from a market effectiveness point of view and should affect the type of CEOs highly acquisitive companies should consider. However, if the effect is rather due to a market misconception of the lawyer CEOs abilities related to acquisitiveness, or due to sweet talk not supported by actual performance, a potential market inefficiency is possible. The differences in CAR are economically and statistically significant, and while establishing a causal link between the observed better returns is out of the scope of this thesis, studying the relationship between lawyer CEOs and acquisition returns is an attractive area of further research.

There are further potential explanations for the observed results that cannot be completely controlled for in the thesis. CEOs do not make decision in their companies on their own but operate with a management team and answer the board of directors. Thus, an interesting area of future research is the top management composition of companies with lawyer CEOs. It is already documented that lawyer CEOs are more likely to bring more lawyers to the top management team and thus improve oversight (Litov et al. 2014, Henderson et al. 2017), but other management team dynamics may also differ and thus drive results. For example, CFOs are left out of this study for

scoping purposes. Nevertheless, CFOs typically have an important influence on capital structure and acquisitiveness (Huang and Kisgen 2013), and if lawyer CEOs have a different type of relationship with their CFOs it may affect results. While it is easy to single out the CEO of a company, their stand-alone impact on corporate policies is debatable and certainly to an extent affected by other executives.

Finally, a key factor with which the study could be extended is the incentive structure of the executive. Lawyer directors are shown to improve the alignment of CEO and shareholder interests (Litov et al. 2014), and if the same is true for lawyer CEOs it could explain better acquisitions from the shareholders point of view. It is also possible that executives with a background in law are given different types of incentive structures, or that former lawyers can negotiate a different type of incentive structure. A wide scope of finance literature focuses on agency issues and their mitigation through aligned interests and studying these issues from a lawyer CEO perspective may increase our understanding of the factors behind the observed results. While age and tenure do, to an extent, proxy for total compensation, it does not account for bonus structures, options or the share of stock in the company. If, for example, lawyer CEOs would hold on average more shares of their own company, they would be less incentivized in engaging in value-destroying acquisitions that could explain higher announcement returns.

8. Conclusion

In this thesis I study the relationship between lawyer CEOs and corporate risk-taking in S&P 1500 companies. I document that companies with lawyer CEOs tend to invest less in tangible and intangible assets, hold more debt and less cash, and have higher cumulative announcement day returns for acquisitions. The results are not explained by general lawyer risk-aversion opposite to my initial hypothesis, but rather suggest a litigation-risk-aversion which is only related to certain policies such as investments, but not to others such as leverage. Furthermore, I do not find lawyer CEOs to exhibit less overconfident stock purchasing behavior. The causal relation between lawyer CEOs and higher announcement day returns is not empirically documented by this study, but I hypothesize it to relate to more effective investor expectations management, a lowered litigation risk related to acquisitions and more favorable acquisition negotiation outcomes. The explanations are in line with previous research on lawyers and lawyer CEOs.

The findings of my thesis suggest that more research should be conducted on this specific group of managers with a law degree. There are several potential areas of corporate finance research that are left out of this study, such as studying incentive structures, innovation, IPOs or stock returns, that may be affected by the presence of a lawyer CEO. Furthermore, evaluating the causality for the

observed results, especially higher announcement day returns, is important to conclude whether we are observing a rational phenomenon or a potential market inefficiency. Studying deal premiums paid by lawyer CEOs could increase our understanding on whether lawyers overpay less for acquisitions, which could be one of the determinants for higher announcement returns. Another interesting study would be to analyze the lawyer CEO effect for target companies in takeover situations. The same drivers, e.g. more effective investor communication, lower litigation risk or better negotiation outcomes could be present when the CEO of a target company has legal expertise, and thus drive better takeover outcomes such as higher takeover premiums or safer cash payments. Research on this area would further improve our understanding about the value of lawyer CEOs in takeover situations.

Finally, CEO studies related to the executive's previous career should not be restricted to a career or education in law. There are plenty former consultants, investment bankers, scientists and accountants leading large companies, and each group may have their own distinguishable effects on corporate policies. Understanding these effects will increase our perception of how companies are managed and improve board's abilities to select executives and steer their decision making towards shareholder-value maximizing firm policies. Studies focusing on executive work experience, such as this thesis, will also guide investors in reacting towards CEO appointments and subsequent corporate policy decisions and assist CEOs themselves in identifying and adjusting for potential biases that may arise from their past careers and affect their decision making.

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Appendix A

Dependent variables

Variable	Definition	Primary source
CapEx	Capital expenditure to net tangible assets	Compustat
R&D	Research and development expense to sales	Compustat
Leverage	Debt in current book liabilities plus long-term book debt to total book assets	Compustat
Cash-to-assets	The ratio of cash and marketable securities to total book assets	Compustat
Pr(large acquisition)	A binary variable with the value 1 if the company announces a large acquisition i.e. one with a transaction value exceeding 5% of the acquirer's previous year market capitalization	SDC Platinum
N(large acquisition)	The number of large acquisitions announced by the company during the calendar year	SDC Platinum
CAR [-1, +1]	3-day cumulative abnormal return in percentage points surrounding the announcement day of an acquisition	CRSP
Unrelated acquisition	A binary variable with the value 1 if the acquisition target is in a different 2-digic SIC industry than the acquirer	SDC Platinum
All stock acquisition	A binary variable with the value 1 if the acquisition is financed fully with the acquirer's stock	SDC Platinum
Cross border bid	A binary variable with the value 1 if the acquisition is a cross border transaction	SDC Platinum
Not completed	A binary variable with the value 1 if the acquisition is not completed	SDC Platinum

Independent variables

Variable	Definition	Primary source
Lawyer CEO	A binary variable with the value 1 if the CEO of the company has a law degree (usually J.D.)	BoardEx
MBA CEO	A binary variable with the value 1 if the CEO has an MBA degree	BoardEx
Age	The age of the CEO	ExecuComp
Tenure	The number of years as a CEO in the current company	ExecuComp
Female	A binary variable with the value 1 if the CEO is female	EcecuComp
Log TA	The natural logarithm of total book assets	Compustat
ROA	Net income to total book assets	Compustat
Tobin's q	Total capitalisation (book assets plus market value of equity less book value of equity) to book assets	Compustat
Asset tangibility	Fixed book assets to total book assets	Compustat
Sales growth	The growth rate of total revenue from the previous year	Compustat
Dividend paying	A binary variable with the value 1 if the firm pays dividend during the year	Compustat
Cash flow	EBITDA less net interest, taxes and dividends paid to total capitalisation	Compustat
Firm age	The age of the company, defined as the difference between the current year and the earliest record of the company on Compustat	Compustat
Industry	The 2-digit NAICS code of the company, which are presented in Table II	Compustat
Year	The current calendar year	Compustat
Return	Market adjusted monthly return for the fiscal year	CRSP
Volatility	Standard deviation of monthly stock returns for the fiscal year	CRSP
Relative deal value	Transaction value to the acquirer's previous year market capitalization	SDC Platinum

Private target	A binary variable with the value 1 if the acquisition target is a private company	SDC Platinum
Public target	A binary variable with the value 1 if the acquisition target is a publicly listed company	SDC Platinum
Tender offer	A binary variable with the value 1 if the acquisition is pursued via tender offer	SDC Platinum
Hostile bid	A binary variable with the value 1 if the acquisition is hostile	SDC Platinum
Challenged bid	A binary variable with the value 1 if the acquisition is challenged	SDC Platinum
Acquisitive company	A binary variable with the value 1 if the company is in the top quadrant of the sample measured by the average number of announced large acquisitions per calendar year	SDC Platinum

Robustness tests

Variable	Definition	Primary source
Lawyer	A binary variable with the value 1 if the company is a non-lawyer CEO to lawyer-CEO transition company	BoardEx
Post	A binary variable for whether the current year is after the transition of non-lawyer CEO to lawyer CEO	BoardEx
Replaced in 4 years	A binary variable with the value 1 if the CEO is replaced within 4 years of appointment	ExecuComp
Holder 67	A binary variable with the value 1 if the CEO has twice during the sample period failed to execute options that are more than 67% in-the-money	ExecuComp
Longholder	A binary variable with the value 1 if the CEO has held options until the last year of duration over the sample period	ExecuComp
Net buyer	A binary variable with the value 1 if the CEO has bought stock on net in more years than sold stock on net over the sample period	ExecuComp

Appendix B

Table XX: Correlation table between variables

This table presents the correlations between CEO characteristics and firm-specific controls. All variables are defined in Appendix A, and firm characteristics are lagged by one year.

	Lawyer CEO	MBA CEO	Age	Tenure	Female	Cap Ex	R&D	Log TA	ROA	Tobin's q	Leverage	Cash-to-assets	Asset tangibility	Dividend paying	Revenue growth	Cash flow	Firm age	Return	Volatility
Lawyer CEO	1.00																		
MBA CEO	-0.19	1.00																	
Age	0.05	-0.03	1.00																
Tenure	0.07	-0.10	0.47	1.00															
Female	-0.01	-0.01	-0.08	-0.08	1.00														
CapEx	-0.02	-0.03	-0.12	0.05	-0.01	1.00													
R&D	-0.01	0.00	-0.02	-0.01	0.00	0.05	1.00												
Log TA	0.03	0.05	0.10	-0.09	0.02	-0.18	-0.04	1.00											
ROA	0.02	0.01	0.03	0.03	0.00	0.05	-0.09	0.06	1.00										
Tobin's q	-0.02	-0.01	-0.08	0.04	-0.01	0.23	0.05	-0.11	0.26	1.00									
Leverage	0.06	0.02	0.05	-0.05	-0.01	-0.20	-0.01	0.28	-0.12	-0.18	1.00								
Cash-to-assets	-0.04	-0.03	-0.12	0.08	0.01	0.25	0.07	-0.28	0.00	0.33	-0.37	1.00							
Asset Tangibility	0.05	-0.06	0.07	-0.01	-0.02	-0.26	-0.01	0.14	0.01	-0.13	0.21	-0.38	1.00						
Dividend paying	0.02	0.04	0.15	-0.05	0.02	-0.22	-0.03	0.32	0.13	-0.08	0.15	-0.31	0.18	1.00					
Revenue growth	0.00	-0.01	-0.04	0.04	-0.03	0.14	0.04	-0.03	0.10	0.21	-0.03	0.05	-0.02	-0.10	1.00				
Cash flow	0.02	-0.01	0.05	0.00	-0.01	-0.02	-0.07	0.04	0.34	-0.17	-0.02	-0.24	0.26	0.00	0.11	1.00			
Firm age	0.05	0.09	0.14	-0.10	0.03	-0.23	-0.02	0.47	0.05	-0.15	0.18	-0.27	0.08	0.46	-0.13	-0.01	1.00		
Return	-0.01	.00	-0.01	0.02	-0.01	-0.01	0.05	-0.06	0.15	0.25	-0.06	0.09	-0.02	-0.04	0.08	-0.04	-0.04	1.00	
Volatility	-0.03	-0.03	-0.10	0.03	-0.02	0.13	0.08	-0.30	-0.29	0.04	-0.05	0.20	-0.03	-0.30	-0.04	-0.11	-0.25	0.13	1.00

Table XXI: Cumulative announcement day returns, subsample analysis, full table

This table shows the results of OLS regressions where the dependent variable is the cumulative abnormal return in percentage points three days surrounding the announcement day [-1 +1]. Columns 1-2 include acquisitions where the acquirer is an S&P 500 company. Columns 3-4 include acquisitions that have a transaction value exceeding 10% of the acquirer's previous year market capitalization. Columns 5-6 include acquisitions where the target is a publicly listed company. Columns 7-8 include a randomized 50% subsample. The observations are on the transaction level. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. All control variables are defined in Appendix A and firm control variables are lagged by one year. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	S&P 500 acquirers (CAR)		Very large deals (CAR)		Public targets (CAR)		Random 50% (CAR)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lawyer CEO	0.019***	0.022***	0.014*	0.015*	0.027***	0.022**	0.016**	0.014*
	(0.008)	(0.007)	(0.008)	(0.009)	(0.010)	(0.007)	(0.007)	
MBA CEO		0.001		0.001		0.006		0.002
		(0.004)		(0.004)		(0.006)		(0.004)
Age		0.000		0.000		0.000		0.000
		(0.000)		(0.000)		(0.000)		(0.000)
Tenure		0.001*		0.001**		0.000		0.001*
		(0.000)		(0.000)		(0.000)		(0.000)
Female		-0.039*		-0.018		-0.049**		-0.029**
		(0.020)		(0.015)		(0.024)		(0.014)
Log TA		-0.009***		-0.008***		-0.011***		-0.006***
		(0.002)		(0.002)		(0.002)		(0.002)
Tobin's q		-0.005**		-0.005**		-0.006***		0.001
		(0.002)		(0.002)		(0.002)		(0.002)
Return		0.004		0.015**		0.012		0.014**
		(0.007)		(0.007)		(0.009)		(0.006)
Volatility		-0.041		-0.069		-0.126		-0.052
		(0.058)		(0.054)		(0.091)		(0.055)
Cash flow		0.027		0.058		0.005		-0.026
		(0.079)		(0.063)		(0.092)		(0.070)
Leverage		0.006		0.025		-0.003		0.012
		(0.015)		(0.016)		(0.022)		(0.014)
Cash-to-assets		-0.015		-0.001		-0.039*		-0.012
		(0.019)		(0.016)		(0.022)		(0.014)
Firm age		0.000		0.000**		0.000		0.000
		(0.000)		(0.000)		(0.000)		(0.000)
Unrelated acquisition		-0.013***		-0.014***		-0.017***		-0.009**
		(0.005)		(0.004)		(0.006)		(0.004)
All stock acquisition		0.004		-0.006		-0.009		0.005
		(0.010)		(0.010)		(0.010)		(0.011)
Relative deal value		-0.018*		0.001		-0.027***		0.004
		(0.009)		(0.006)		(0.008)		(0.007)
Private target		0.001		-0.004				-0.001
		(0.006)		(0.005)				(0.005)
Public target		-0.020***		-0.026***				-0.021***
		(0.006)		(0.006)				(0.006)
Tender offer		0.002		0.004		0.003		-0.001
		(0.006)		(0.007)		(0.006)		(0.007)
Hostile bid		0.020*		0.026**		0.013		0.003
		(0.012)		(0.011)		(0.012)		(0.016)
Challenged bid		0.006		0.000		0.001		0.022*
		(0.011)		(0.009)		(0.009)		(0.011)
Cross border bid		-0.002		0.003		0.006		-0.002
		(0.004)		(0.005)		(0.007		(0.004)
Fixed effects	No	Ind., Year	No	Ind., Year	No	Ind., Year	No	Ind., Year
Observations	1,048	1,048	1,480	1,480	746	746	1,206	1,206
Adjusted R^2	0.009	0.208	0.003	0.185	0.013	0.244	0.005	0.170

Table XXII: Announcement returns, different time intervals, full table

This table shows the results of OLS regressions where the dependent variable is the CAR in percentage points. Columns 1-2 include the announcement day, Columns 3-4 [-2, +2] days, Columns 5-6 [-1, +5] days and Columns 7-8 [-5, +5] days around the announcement. The observations are on the transaction level and only include large acquisitions. Lawyer CEO is a binary variable that equals one if the company has a CEO with a law degree. All control variables are defined in Appendix A and firm control variables are lagged by one year. Standard errors are presented in parentheses and are adjusted for potential heteroscedasticity. The statistical significance of the coefficients is reported: *significant at 10%, ** significant at 5%, *** significant at 1%.

	Announcement day		CAR [-2, +2]		CAR [-1, +5]		CAR [-5, +5]	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lawyer CEO	0.002	0.002	0.014**	0.014**	0.012**	0.012**	0.008	0.008
	(0.004)	(0.004)	(0.005)	(0.006)	(0.005)	(0.006)	(0.006)	(0.007)
MBA CEO		-0.001		0.002		0.004		0.001
		(0.002)		(0.003)		(0.004)		(0.004)
Age		-0.000*		0.000		0.000		0.000
		(0.000)		(0.000)		(0.000)		(0.000)
Tenure		0.000		0.001**		0.001**		0.001
		(0.000)		(0.000)		(0.000)		(0.000)
Female		-0.015**		-0.024**		-0.022*		-0.027*
		(0.007)		(0.012)		(0.013)		(0.014)
Log TA		-0.004***		-0.007****		-0.007***		-0.008***
		(0.001)		(0.001)		(0.002)		(0.002)
Tobin's q		-0.003*		-0.002		-0.002		-0.003
		(0.002)		(0.003)		(0.003)		(0.003)
Return		0.005		0.008		0.010*		0.007
		(0.003)		(0.005)		(0.006)		(0.007)
Volatility		0.032		0.013		-0.048		-0.005
		(0.026)		(0.045)		(0.049)		(0.053)
Cash flow		0.012		-0.046		-0.077		-0.105*
		(0.030)		(0.054)		(0.058)		(0.062)
Leverage		0.008		0.010		0.016		0.017
		(0.007)		(0.012)		(0.014)		(0.015)
Cash-to-assets		0.006		-0.018		-0.014		-0.016
		(0.008)		(0.013)		(0.014)		(0.017)
Firm age		0.000**		0.000		0.000		0.000
		(0.000)		(0.000)		(0.000)		(0.000)
Unrelated acquisition		-0.007***		-0.006*		-0.011***		-0.009*
		(0.002)		(0.003)		(0.004)		(0.004)
All stock acquisition		-0.005		-0.009		-0.015		-0.009
		(0.006)		(0.009)		(0.010)		(0.010)
Relative deal value		-0.004		-0.001		0.002		-0.002
		(0.004)		(0.006)		(0.006)		(0.006)
Private target		-0.006**		-0.004		-0.005		-0.005
		(0.002)		(0.004)		(0.004)		(0.005)
Public target		-0.014***		-0.024***		-0.021***		-0.018***
		(0.003)		(0.005)		(0.005)		(0.006)
Tender offer		0.004		0.009		0.007		0.001
		(0.004)		(0.006)		(0.007)		(0.008)
Hostile bid		0.015**		0.018*		0.008		0.008
		(0.007)		(0.010)		(0.013)		(0.014)
Challenged bid		-0.003		-0.002		-0.003		-0.017*
		(0.005)		(0.009)		(0.009)		(0.009)
Cross border bid		0.000		-0.001		0.002		0.003
		(0.002)		(0.004)		(0.004)		(0.004)
Fixed effects	No	Ind., Year	No	Ind., Year	No	Ind., Year	No	Ind., Year
Observations	2,382	2,382	2,382	2,382	2,380	2,380	2,378	2,378
Adjusted R²	0.000	0.111	0.003	0.112	0.002	0.100	0.001	0.087