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Implicit or Explicit Employment Contract for CEOs?

An investigation in the factors that can determine the type of employment contract for CEOs of firms in the S&P 500 index

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Abstract

This paper tries to provide the first insights into the determinants of the choice of an implicit or explicit contract for CEOs and firms of the S&P 500 index and follows the paper of Gillan, Hartzell and Parrino (2009) that also investigated the determinants in the choice of an implicit or explicit contract. The data is mostly collected by reading and processing information of 1,037 contracts by hand, and firm characteristics are retrieved from the financial database Compustat. The variables in this research are grouped in contract, CEO, compensation and firm characteristics. A Linear Probability Model and Probit model is used to investigate the relationship of the choice of an implicit or explicit contract with contractual terms and uncertainty. Next to that, an analysis in the contract duration of explicit contracts with contractual terms and uncertainty is performed with the help of an ordinary least squares model and Tobit model. This paper showed that the nature of the relationship between the CEO and firm has an impact on the choice of an implicit or explicit contract. CEOs that have an employment at will are more likely to have an implicit contract. Regarding uncertainty, no significant relationship is found with having an explicit contract. It seems that uncertainty does not influence the choice for an implicit or explicit contract. However, when an additional analysis is performed for the influence of the 2007 financial crisis on the choice of an implicit or explicit contract, the patterns in the data suggest that economic conditions do have an influence on the type of contract CEOs and firms enter into. Further research into this topic is recommended to provide evidence for this link. The analysis of the contract duration of explicit contracts shows that CEOs that have more to lose in the event that the firm does not adhere to the contract, have a longer explicit contract duration. CEOs that receive more incentive-based compensation and shares upon commencement of their employment are more likely to have a longer explicit contract duration. They try to ensure their variable compensation for a fixed period of time. Another interesting finding of this research is that the provisions of both explicit and implicit contracts suggest that both the CEO and firm have bargaining power when establishing a contract.

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1. Introduction

In the last thirty years chief executive officers (CEOs) and their pay are much-discussed around the world. The pay levels of CEOs have increased dramatically, while the pay levels of employees did not experience similar increases. This wage gap between CEOs and its employees kept growing. Employees and the society started to ask questions which led to debates if the high CEO pay is justly and if so, what are the reasons behind the high pay levels. A lot of research has been conducted concerning the CEO contracting process, outcomes of the contracting process and how these are linked with firm and industry performance, to find an explanation for the high CEO pay. Gray and Cannella (1997) found that the higher pay is used to align the interests of the CEO with the shareholders of the firm and with long-term performance (see also Coughlan & Schmidt, 1985). Another possibility can be that the CEO pay reflects the actual work load, pressure and risk CEOs face. However, surprisingly, there is very little research that focuses on the contracts of CEOs itself.

Contracts are very complex employment agreements between an employer and employee that are discussed and established in personal meetings. Therefore, CEO contracts among each other are quite different. Even the basic terms like the compensation structure, the legal terms, the provisions, use of perquisites and the contract duration differ from each other (Kole, 1997). Despite the complexity and differences of the contracts, many firms do not have explicit contracts with their CEOs. In 2000, less than half of the firms in the S&P 500 index had an explicit contract with their CEOs (Gillan, Hartzell, & Parrino, 2009). The other firms and their CEOs relied on implicit contracts through which the CEO was employed at will (Gillan, Hartzell, & Parrino, 2009). So when investigating the contracts of CEOs, the first question one should ask is whether the CEO has an explicit contract in the first place, and what determines whether a CEO will have an implicit or explicit contract. Schwab and Thomas (2006) were one of the first to look at CEO contracts and its key legal characteristics. They found that CEOs are not at-will employees. Firms do not have all the power when establishing an explicit contract, the CEO also has bargaining power and is well protected against actions of the firm. Gillan, Hartzell and Parrino (2009) performed a research similar to this research and found that less than half of the CEOs of S&P 500 firms have an explicit contract. Yet research in this subject is limited, while it is actually the basis when investigating the outcomes of contracting processes like CEO turnover, or CEO compensation and benefits, as these outcomes are likely to be affected by whether the contracts are explicit or implicit. More attention for and studies in this subject will help better understand the choice of an implicit or explicit contract for the CEO, in which situations an implicit contract can be more beneficial than an explicit contract and how this affects contracting outcomes and firm performance. Next to

that, it can shed more light on the reason why there are so less explicit contracts between the CEOs and firms of the S&P 500 index, and also on the high pay levels of CEOs that are much debated. This research will try to provide some of the first and scarce insights concerning the choice of an implicit or explicit CEO contract. The research question of this paper is stated as followed: ***How is the choice between an implicit or explicit contract affected for CEOs of firms in the S&P 500 index?***

To investigate the research question of this paper, 1,037 contracts are read and processed by hand, as there was no accessible dataset available for this relatively new topic. Different characteristics regarding the content of the contracts, compensation and CEOs of the S&P 500 were collected for the period of 2004 till 2013. Characteristics of the firm were retrieved from the financial database Compustat. The variables in this research will be sorted based on these four categories, to keep a clear overview during the analysis of the research question. This paper will follow the paper of Gillan, Hartzell and Parrino (2009) that also investigated the determinants in the choice of an implicit or explicit contract and contract duration. Nonetheless, this research is performed for multiple and more recent years than the paper of Gillan, Hartzell and Parrino (2009) and an additional analysis is performed regarding the 2007 financial crisis. To perform the investigation into the determinants of the choice of an implicit or explicit contract, a Linear Probability Model and Probit are used. The main results show that the nature of the relationship between the CEO and firm has an impact on the choice of an implicit or explicit contract. CEOs that have an employment at will are more likely to have an implicit contract. Regarding uncertainty, no significant relationship is found with having an explicit contract. It seems that uncertainty does not influence the choice for an implicit or explicit contract. However, when an additional analysis is performed for the influence of the 2007 financial crisis on the choice of an implicit or explicit contract, the patterns in the data suggest that economic conditions do have an influence on the type of contract CEOs and firms enter into. However, further research into this is necessary to provide evidence for this relationship.

This research also includes an analysis where the relationship of the contract duration of explicit contracts with the terms of the contracts and uncertainty is performed. For this analysis, an ordinary least squares model and Tobit model are used. The analysis of the contract duration of explicit contracts shows that CEOs that have more to lose in the event that the firm does not adhere to the contract, have a longer explicit contract duration. CEOs that receive more incentive-based compensation and shares upon commencement of their employment are more likely to have a longer explicit contract duration. They try to ensure their variable compensation for a fixed period of time. Another interesting finding of this research is that the provisions of both explicit and implicit contracts

suggest that both the CEO and firm have bargaining power when establishing a contract, which is in line with the findings of the paper of Schwab and Thomas (2006).

In the remainder of this paper a theoretical background is provided with a discussion of the choice of an implicit or explicit contract in relation to uncertainty. Then a review of literature is given that is related to the field of this paper, and the hypotheses of this research are established. Afterwards, the statistical part of this research is discussed with a summary of the variables and the methodology employed to investigate the research question. After that the results of the main analysis are presented, followed by the results of the explicit contract duration analysis and 2007 financial crisis analysis. Subsequently, a discussion of the limitations of this study will be given and this research concludes with a conclusion that gives an answer on the research question of this paper.

2. Theoretical background

Before the previous papers are discussed that investigated this topic, a brief discussion of the contract theory, how uncertainty can affect the choice of implicit and explicit CEO contracts, and the bargaining power between a firm and CEO is given. In this way a better understanding of this relatively new subject can be gained.

2.1. Contract theory

The process of establishing contracts is very complex. Contract theory studies the way a principal and agent construct and develop legal agreements. It covers how the different parties make decisions to create a contract with particular terms in case of uncertain conditions and asymmetric information. Contract theory is based on principles of financial and economic behavior as the different parties have different incentives to perform or not perform particular actions. According to this theory, contracts exist to draw a line between what the principal expects to happen and what will happen; it is a clear and specific understanding and agreement of how both parties stand and how they should perform. There is a mutual trust that all of the discussed terms are valid and will be followed. The theory analyses the agent's behavior under specific structures and while taking these into account it aims to find an optimal design for employee benefits in such a way that it will optimize the agent's decisions for the principal. Contracts are thus very useful agreements for the principal to make sure the agent will act in the best interest of the principal. But also the agent gains from a contract. With a contract the agent can ensure that the principal cannot dismiss him for an invalid or unreasonable reason, and if this does happen, the agent will be compensated for this.

2.2. The choice of an implicit or explicit contract and uncertainty

Despite the complexity of an employment agreement and the uncertainty both parties can face, it is yet often observed that firms and CEOs do not have an explicitly written contract. According to economic theory, an implicit contract is more likely when the benefits from voluntarily adhering to it exceeds the costs for both parties. Tesler (1980) argues that an implicit contract must involve a sequence of transactions in which there is always a positive probability of continuing the relationship. The profits of the contract are an incentive for the principal, in this case the firm, to adhere to the terms of the contract. However, when there is a pre-arranged contract duration, the timing of the last transaction is known with certainty and both parties might have an incentive to violate the terms of the contract because there are no profits to lose in the future. Nevertheless, Klein (1996) argues that reputational concerns ensure that both parties will abide by the contract even if the date of the last

transaction is known with certainty (see also Gibbons & Murphy, 1992). But it can also be the case that the parties face uncertainty about the profits of the contracts. One or both parties can be uncertain about the benefits and costs of the contract, which causes uncertainty about the chance that one of the parties will alter the contract. In this case, an explicit contract seems more beneficial as it can reduce direct costs, agency costs or contracting costs. In case of direct costs, an explicit contract reduces uncertainty faced by a risk-averse CEO who is then willing to accept a lower level of compensation in exchange for a written contract. Or with an explicit contract, the firm is able to attract higher quality CEOs for the same price with a written contract. In case of agency costs, an explicit contract that reduces uncertainty can make the CEO more willing to make risky positive net present value projects and less likely to make overly conservative financing and dividend policies because he is better protected with a written contract. Contracting costs are reduced because renegotiations are relatively less likely with an explicit contract. Both parties can also face uncertainty about how the costs and benefits of the contract can change over time. Explicit contracts give more protection for the possibility that one party can alter the agreement when the conditions change, but it also makes it costly to adjust the terms or terminate the contract when this is more beneficial. When flexibility regarding the contract and its terms is important, an implicit contract will be the better option.

Uncertainty about the profits that the opposite party expects to receive from the contract or uncertainty about the importance of reputation to the opposite party can also affect the choice of an implicit or explicit contract. In the first situation, a board of a poorly performing firm can face lower costs from altering the contract with the CEO because the future profits that can be lost by this firm are smaller, when compared to a board of a firm that is performing well. For the situation of reputation, a board that has recently fired a CEO can face lower costs from altering the contract because their reputation is already damaged and doing so again will have a smaller effect on their reputation than a similar action by a board that has not recently broken a contract. Alternatively, the board can also have incentives to behave myopically, such as when the firm is likely to be acquired, forced into bankruptcy or other circumstances that increase the chance of board turnover. The board can then be more likely to alter the contract with the CEO, because the reputation effects are smaller for directors that did not enter into the original contract with the CEO (Knoeber, 1986). So when the CEO is not sure about the costs to the board in these cases, he will prefer an explicit contract, while the board might prefer the flexibility of an implicit contract.

When there is a need for investments in firm- or industry-specific human capital, both the CEO and firm can face risks. If a CEO himself invests in the specific human capital, he faces higher potential costs in case the contract is altered by the firm; other firms are not willing to compensate the CEO for the

firm- or industry-specific human capital. This can be an incentive for the board to take advantage of the CEO; they can alter the contract or pay the CEO less than agreed (Hart & Holmström, 1987). If the firm pays for the investment in the specific human capital, the CEO can have an incentive to take advantage of this situation, since he has expertise that the firm needs and the costs of replacing the current CEO are high. When there is a possibility that such behavior might occur from one of the parties, an explicit contract is preferred (see also Klein, Crawford, & Alchian, 1978). Another situation where an explicit contract can be preferred, is when the CEO earns an above-market compensation and thus has more to lose if the board alters his contract. It will be harder for him to find a job that pays a similar wage. This effect is stronger for a young CEO, as he will incur these lost wages for a longer period of time and thus has more to lose. When the compensation of a CEO for a large part consists of incentive compensation, an explicit contract can also be preferred. This compensation is more susceptible to being lost than salary when a contract is altered. Next to that, this type of compensation can be very risky since many different factors can influence the performance of the firm and thus the CEO, which the CEO does not have control over. Especially risk-averse agents do not like to have a salary that is for a large part based on incentive compensation. Another setting where an explicit contract might be preferred, is when the CEO is from outside the firm. Incumbent CEOs generally have stronger negotiating positions than CEOs from outside because they, among other things, have an ongoing relationship with the incumbent board, have more and better information and they also already have experienced some degree of success in running the firm (Schwab & Thomas, 2006). Incumbent CEOs can also assess better whether the board will adhere to an implicit contract. The CEO from outside thus faces more uncertainty than the incumbent CEO.

Uncertainty about the future operating environment of a firm also affects the choice of an implicit or explicit contract. When the operating environment of the firm changes, it can be the case that the current CEO is not the best executive for the job anymore and other executives are better suited for the job requirements. The board can have an incentive to replace the CEO regardless of the contract, because the costs of adhering to the contract are larger than the benefits. It can also be the case that the CEO is still the best person for the job when the operating environment changes, but the board can have an incentive to change the conditions of employment like the structure of the CEO's compensation. The uncertainty about the future operating environment of the firm also go hand-in-hand with increases in the uncertainty about the future reputational concerns of the board. These changing business conditions can lead to financial distress and damage to the board's reputation when altering a contract, which reduces the board's incentive to adhere to an implicit contract. The CEO faces potential losses in these cases, but even for him it can be beneficial to terminate the contract when environmental changes occur. Other jobs can become more attractive for the CEO (Gillan,

Hartzell, & Parrino, 2009). The labor market specifically can affect the cost of terminating a contract with a CEO. If there are many other executives that possess the necessary skills for a particular CEO position, it will be less expensive to replace the CEO (Parrino, 1997). A CEO with a job that requires more general skills, experiences more uncertainty and will therefore prefer an explicit contract.

2.3. CEO contract duration and uncertainty

When a CEO has an explicit contract, it typically covers for which fixed period of time the contract will last. The contract can allow for a renewal under specified conditions. The contract duration of an explicit contract can be measure of the degree of protection the contract provides. Contracts with longer explicit durations provide more structure, legal protection over a longer horizon and a guaranteed compensation for the CEO. Therefore, CEOs that experience greater uncertainty regarding the firm altering their contract, can be more likely to have an explicit contract for a longer period of time (Gillan, Hartzell, & Parrino, 2009). In this way they are protected from the risks regarding their tenure they would otherwise be exposed to. CEOs that work in uncertain business environments or work in firms that have lower costs of altering a contract can be more likely to have a longer contract duration along with having an explicit contract. CEOs that earn above-market compensation can also be more likely to have a longer contract duration, to secure their high compensation for a longer period of time. So when the CEO faces more uncertainty, contract duration can be used to hedge against the risk he faces and is thus a means of protection.

2.4. Bargaining power between the firm and the CEO

The bargaining power of both a CEO and firm is also a topic closely related to contracts and their establishment. An important question here is if the contract strongly reflects what the CEO wants or that it serves both parties' interests well. The final terms of a contract can depend on the relative bargaining power of the parties. The contracts of CEOs and other employees in the firm are quite different and previous research has shown that CEOs do have significant bargaining power in the negotiations over the terms of their employment contract (Schwab & Thomas, 2006; Bebchuk, Fried, & Walker, 2002). CEOs from outside the firm have relatively more bargaining power than incumbent CEOs, because they are not from within the firm and face more uncertainty. But it seems that both the firm and CEO have some power when establishing a contract, since the economic terms and legal agreements of contracts do not only protect the CEO, but also protect the firm against unreasonable actions of the CEO. A contract is thus not a one-sided power contract (Schwab & Thomas, 2006).

3. Literature review

Research into CEO contracts is very limited, especially when one focuses on the type of contracts CEOs have. The contracts are most of the time publicly available, but when it is not, it is hard to find out whether the firm does not have a contract with its CEO or it simply did not make it available for the public. Next to that, datasets about the different aspects in the contracts are very scarce. This section will focus on papers that studied the choice of an implicit or explicit CEO contract and CEO contract duration. Based on the previous findings of the papers and the theoretical background, hypotheses are established that will help in answering the research question of this paper.

3.1. The choice of implicit or explicit CEO contracts and CEO contract duration

In 2000, less than half of the firms in the S&P 500 index had an explicit contract with their CEO. The paper of Gillan, Hartzell and Parrino (2009) recently studied the choice of implicit or explicit CEO contracts with the help of Probit models and the CEO contract duration of explicit contracts with the help of Tobit models. It is the only paper that specifically focused on the choice of implicit or explicit CEO contracts. They report evidence on the determinants that influence the choice of an implicit or explicit contract. First, they find that explicit contracts are used more frequently in firms operating in more uncertain business environments and in firms that are likely to face lower costs from altering the contract with the CEO. This finding is consistent with the idea that firms that face greater uncertainty are more likely to experience situations in which altering the contract with the CEO is more beneficial because the benefits from altering outweigh the costs. Second, CEOs who are from outside the firm are more likely to have explicit contracts. These CEOs experience greater uncertainty about the sustainability of their contracts with their firm than incumbent CEOs. The CEOs from outside the firm often have a weaker relationship with the board and other senior executives and in general are less knowledgeable about the firm. Third, CEOs who have more to lose when the firm alters their contract, like CEOs that earn an above-market compensation, are more likely to have an explicit contract. Fourth, in addition to the previous finding, the authors find that CEOs who receive a larger share of their pay as incentive-based compensation, which is more susceptible to being lost when the contract is altered, are more likely to have an explicit contract. Regarding the contract duration of explicit contracts, the authors find that CEOs who face a greater possibility that their contract will be altered, or CEOs that have more to lose if the contract is altered, are not only more likely to have an explicit contract but they are also more likely to have a contract for a longer period of time. This study will follow the study of Gillan, Hartzell and Parrino (2009), but with more and recently data to find actual and more accurate results.

Schwab and Thomas (2006) performed an empirical analysis of CEO employment contracts. They particularly focused on contracting issues of dismissal with and without good reason, resignation with and without just cause, and provisions like non-competition clauses, arbitration clauses, contractual restrictions, perquisites and change-in-control agreements to see which party has the bargaining power; the firm or the CEO. The authors find that CEOs are not at-will employers; they are well protected against actions of the firm, while the firm is relatively seen less protected against actions of the CEO. Change-in-control agreements are used to investigate whether CEOs are able to get highly favorable provisions in these contracts because only an unwanted takeover of the firm would trigger their provisions, and the acquiring firm would at least initially be the one held responsible for making any payments that the CEO of the departing firm would receive. So the terms in these change-in-control agreements illustrate what a CEO contract might look like if CEO power was not checked by a board. The authors found the board gave CEOs more latitude to quit with good reason that their regular contracts did. Relatively seen, the agreements also included fewer do-not-compete provisions than CEO contracts. If change-in-control agreements do reflect what CEOs would like to have in their contracts, than these differences the authors found, show that CEO contracts are not one-sided contracts or at-will contracts as has been suggested. Another finding is that CEOs receive a lot of perquisites despite the high compensation they receive. Song and Wan (2014) investigated explicit contract and CEO compensation and reported findings that are consistent with the predictions of Klein, Crawford and Alchian (1978). An explicit contract is used to encourage CEOs to invest in firm-specific human capital that is susceptible to opportunistic behavior. The authors determine that compensation is higher when CEOs have explicit contracts, have a longer contract duration, or have a contract that is more explicit in terms. Such explicit contracts are more likely in situations where the CEO is from outside the firm, the CEO has an above-market compensation, the firm has a low investment intensity or low growth opportunities, and CEOs that have a short employment history with the firm.

Xu (2009) studied the effects of contract duration of CEO employment contracts on CEO performance. The author uses the terms of 1,018 contracts and found that firms with shorter CEO contracts trade at a discount to firms with longer contracts. CEOs with short-term contracts invest less but show higher profitability than their peers, which is in line with the argument that short-term oriented CEOs sacrifice long-term investments for short-term value maximization. Employment contracts that have a shorter duration also have a disciplining effect; when CEOs with longer term contracts are close to contract renewal and termination is more likely, they overinvest in unproductive or very risky projects and destroy firm value more than CEOs with the shortest term contracts. Conyon (1994) investigated the tenure and contract duration of UK CEOs and found that the average CEO tenure is five and a half years. The median CEO contract duration is three years. González-Uribe and Groen-Xu (2016) also

investigated CEO contract horizon together with innovation quality. Their results suggest that fixed-term contracts protect CEOs from dismissal, like economic theory suggested, and thus set a managerial time horizon. The authors also investigate the link between CEO contract horizon and innovation measured with patent citations. One additional year in CEO contract horizon is associated with better innovation quality. This finding finds support as a causal interpretation, as the authors also find a decrease in innovation quality after exogenous restrictions to executive contract length due to a governance reform are implemented.

This research contributes to the existing literature of implicit and explicit contracts in several ways. First, the dataset in this research consists of more CEO contract observations than the paper of Gillan, Hartzell and Parrino (2009). Their sample consists of 494 observations and this research includes 1,037 contracts. Second, this research is performed over a longer time period and for more recent years; from 2004 till 2013. The paper of Gillan, Hartzell and Parrino (2009) only investigated the choice of implicit and explicit contracts in the year 2000. These contributions will make the results in this research more accurate and actual compared to Gillan, Hartzell and Parrino (2009). Lastly, this research performs a brief additional analysis where the change in pattern of the choice of an implicit or explicit contract before, during and after the 2007 financial crisis analysis is investigated, to see if there is a difference in the terms of the contracts. In this manner, the first step in the direction of further research into this is set and a better understanding can be gained about implicit and explicit contracts and the influence of economic conditions on the contracts.

3.2. Hypotheses

In order to answer the research question of this paper as clear and complete as possible, hypotheses are used. These hypotheses are constructed with the help of the theoretical background and previous literature on the choice of implicit or explicit CEO contracts and the CEO contract duration. Based on the results of this study, the hypotheses will be accepted or rejected and a clear answer on the research question can be given. The provisions and clauses of the contracts can also show if the firm and CEO have bargaining power. These provisions provide protection for either the CEO or the firm[1]. In the main analysis, this research will also see if the CEO and firm both have bargaining power, as Schwab and Thomas (2006) found.

[1] The variables amendment protection, change of control agreement and CEO resignation for good reason protect the CEO for harmful actions of the firm. Non-competition clause, confidentiality clause, arbitration clause and CEO dismissal for cause protect the firm for harmful actions of the CEO. The presence of these forms of protection can show if one of the parties has relatively more bargaining power.

3.2.1. Hypotheses regarding the choice of implicit or explicit CEO contracts

First, this research focuses on the choice of an implicit or explicit contract in relation to contractual terms[2] and uncertainty. Employment at will seems to be more likely for implicit contracts as the employment is then completely at will and both parties can end the employment with or without reason at any time. No protection is provided to either party. Therefore, the first hypothesis is stated as follows:

Hypothesis 1*: CEOs with employment that is at will are more likely to have an implicit contract.*

CEOs in firms with higher financial risk face more uncertainty about the future of the firm, but also the chance that the firm will adhere to the contract and does not change the terms like the compensation of the CEO. In these cases an explicit contract might be preferred[3]. The second hypothesis states:

Hypothesis 2: *CEOs that work in firms with relatively more financial risk are more likely to have an explicit contract.*

If the CEO works in a highly competitive labor market, he might prefer an explicit contract because he is easy replaceable. The explicit contract provides protection in the form of job security for the CEO. A CEO that works in a labor market where the firm is relatively big compared to the industry and competition is less prevalent, is not easy replaceable and faces less uncertainty. An implicit contract is relatively more often observed in this case[4]. The third hypothesis states:

Hypothesis 3: *CEOs that work in a firm that operates in a relatively more competitive industry and is relatively smaller in relation to the industry, are more likely to have an explicit contract.*

CEOs who are from outside the firm have relatively less knowledge about the firm and a weaker relationship with the board than an incumbent CEO, and thus face more uncertainty. For this reason they prefer an explicit more often (see Gillan, Hartzell, & Parrino, 2009; Schwab & Thomas, 2006). The fourth hypothesis states:

Hypothesis 4*: CEOs who are from outside the firm are more likely to have an explicit contract.*

[2] Contractual terms is used to refer to the contract, CEO and compensation characteristics together.
[3] The variables that reflect financial risk are leverage and median volatility of sales. Industry-adjusted EBIT/Assets indirectly reflects the financial risk of a firm, as it shows how effective the firm uses its assets to generate earnings.
[4] The competition and size of the firm in relation to the industry is measured by the Herfindahl-index.

Regarding the compensation of CEOs, CEOs that receive relatively more compensation are more likely to have an explicit contract because they have more to lose in case the firm alters their contract. Also, when a CEO receives relatively more incentive-based compensation, he is more likely to have an explicit contract as this is subjected to other uncertain factors (Gillan, Hartzell, & Parrino, 2009). The fifth hypothesis states:

Hypothesis 5: *CEOs that receive relatively more compensation, are more likely to have an explicit contract.*

3.2.2. Hypotheses regarding the contract duration of explicit CEO contracts

The sixth hypothesis refers to CEO contract duration for explicit contracts[5]. CEOs that face more uncertainty, because they face a greater possibility that their contracts will be altered, or they have more to lose if their contract is altered, are not only more likely to have an explicit contract but they are also more likely to have a contract with a longer horizon. The contract duration acts as a way of protection (Gillan, Hartzell, & Parrino, 2009). Therefore, the sixth and seventh hypotheses state:

Hypothesis 6*: CEOs that face more uncertainty, have a longer explicit contract duration.*

Hypothesis 7: *CEOs that have more to lose in the event the firm does not adhere to the contract, have a longer explicit contract duration.*

[5] This research only investigates the contract duration of explicit contracts. The contract duration of implicit contracts was often not mentioned and as a result there were too many missing observations to include all contracts.

4. Data

In this section the source and collection of the data are briefly discussed. Subsequently, an explanation and a summary of the variables used in this research are presented.

4.1. Source and collection of the data

As research in this topic is very limited, there was no accessible dataset available for this research. Therefore, it was necessary to read the contracts and process the required information by hand in an excel file. To investigate the choice of an implicit or explicit contract and the relation of explicit contract duration with contractual terms, different characteristics regarding the content of the contracts, the compensation, the CEOs and the firms of the S&P 500 were collected. The variables in this research are arranged in these four groups to keep a clear overview. This research will follow the paper of Gillan, Hartzell and Parrino (2009) that also investigated the determinants in the choice of an implicit or explicit contract and contract duration. The variables in this research are mostly chosen on basis of this paper, and some extra variables are included because they can have an added value to the research and it will be interesting to see their relationship with having an explicit contract. Even though the paper of Gillan, Hartzell and Parrino (2009) is followed, this research is performed for multiple and more recent years than the paper. Next to that, to have more added value to the existing literature of the choice of an implicit or explicit contract, this research will perform a brief additional analysis regarding the 2007 financial crisis, which will be discussed in the next chapter *methodology*.

In total, there was a turnover of roughly 1,051 CEOs for the S&P 500 firms in the period of 2004 to 2013, thus 1,051 contracts were processed. The contract characteristics, compensation characteristics and the variable whether the CEO was a member of the board of directors of their firm from the CEO characteristics, were prepared by hand by reading the contracts and insert the information in an excel file. The information of these variables is retrieved from the online source US Securities and Exchange Commission. With the unique *CIK* codes of the firms, the filings of the firms can be accessed. With the help of the *event date*, the date of the announcement of the appointment of the CEO or the publication of the explicit contract, the filing with the right information can be found[6]. The other variables of the CEO characteristics were already prepared by my supervisor, which was usable for this research and obtained from the financial database Compustat. The required data to calculate the variables of the

[6] The required filing is mostly a current report, an 8-K filing, with items 1.01 or 5.02 in the description. In case there was no information about the announcement of the CEO appointment, the annual proxy statement DEF 14A was used to find the necessary information.

firm characteristics are retrieved from Compustat as well. Finally, the two datasets were merged on basis of the *GVKEY*[7] and *fiscal year* of the change of the CEO, present in both datasets. The final dataset consists of 1,037 contracts, as some company filings were not available for some firms in certain years.

When preparing the hand-made dataset of contract, compensation and CEO characteristics, some assumptions were made that are important to note. For the contract characteristics, if it was not clearly stated that the contract was *at will* or contained provisions for *amendment protection*, *non-competition*, *confidentiality*, *arbitration*, *change of control*, *CEO dismissal for cause* or *CEO resignation for good reason*, and the annual proxy statement also did not mention any of these provisions, it was assumed that these provisions were not present in the contract. This was necessary to limit missing observations for these variables, as this situation occurred very often. For the compensation characteristics, the same holds for the variables *initial option award* and *initial Restricted Stock Unit (RSU) award*. These assumptions are very plausible as the chance that a contract contained the provisions, when it is not mentioned in the contract itself, the current report or the annual proxy statement, is very small. When a situation of doubt about the presence of the provisions occurred, it was left open to become a missing observation. Another very important point to note; sometimes it happened that the current report and/or annual proxy statement mentioned that the CEO and firm entered into an explicit contract. In this case, extra effort was exerted to find the explicit contract. If the contract was not found, it was treated as an implicit contract. Because of these assumptions, the missing observations were limited relative to the dataset. Most of the missing observations are present for the variables of the firm characteristics. This was the case if there was no financial data for the firm in certain years.

4.2. Explanation of the variables

Table 1 presents an overview of the variables for the contract, CEO, compensation and firm characteristics as well as the definition of each variable. The dependent variables in this research are *explicit contract* and *contract duration*. *Explicit contract* is a dummy variable that takes the value of 1 when the CEO and firm entered into an explicitly written contract and a value of 0 if they entered into an implicit agreement. The *contract duration* specifies the term of an explicit contract in years. For some implicit contracts the contract duration was given, but for most the term was infinite or there was no specified term. The contract characteristics are a measure of (legal) protection for both the CEO and firm. *Employment at will* is often stated to clearly specify the nature of the relationship between the CEO and firm and thus limits the legal exposure for the firm. The *contract length* can be

[7] A unique six-digit number key assigned to each firm in the Capital IQ Compustat database.

Table 1 Variable Definitions

This table provides an overview and definition of the variables used in this research.

Variable	Definition
Contract Characteristics	
Explicit Contract	Dummy variable denoting whether the CEO and firm entered into an explicit or implicit contract. The dummy takes the value of 1 if the CEO has entered into an explicitly written employment agreement with the firm, and a value of 0 if the CEO has entered into an implicit employment agreement with the firm.
Employment At Will	The CEO is employed by the firm at own will. The CEO and firm are allowed to terminate the contract. *Note* : protection in case of termination can still be provided.
Contract Duration	The term of employment of the CEO in years.
Contract Length	The length of an explicit contract denoted in the number of pages.
Amendment Protection	The explicit contract cannot be amended unless agreed signed by both the CEO and the firm. This provides the CEO with protection against changes in legal matters or compensation.
Non-competition Clause	The CEO has entered into a clause to not compete with the firm for a certain period. In this period the CEO is not allowed to work for competitors of the firm.
Confidentiality Clause	The CEO has entered into a clause to not provide proprieraty information of the firm to other parties.
Arbitration Clause	The CEO and firm entered into an arbitration clause where they both agreed to resolve their disputes through a defined arbitration process.
Change of Control Agreement	Agreement to protect the CEO in case a Change of Control occurs, containing certain benefits given to the CEO when termination occurs in connection with a Change of Control.
CEO Dismissal for Cause	Arrangement that if the CEO is termined by the firm for a cause, the CEO will (often) not receive any form of compensation after his termination. This arrangement provides protection to the firm if the CEO is terminated for Cause.
CEO Resignation for Good Reason	Arrangement that if the CEO terminates his employment for a good reason, the CEO will receive certain forms of compensation after his termination. This arrangement provides protection to the CEO if he wants to leave the firm for Good Reason.
CEO Characteristics	
CEO Age	Age of the CEO in years at the time of employment.
External CEO	Denotes if the CEO is from outside the firm or is appointed as CEO while already working in the firm.
CEO in Board of Directors	Denotes if the CEO is a member of the Board of Directors of the firm.
Compensation Characteristics	
Base Salary	The base salary of the CEO in dollars upon commencement of his employment as CEO.
Target Bonus	The annual Target Bonus the CEO is entitled to.
Initial Option Award	The Option award to purchase common stock of the firm given to the CEO upon commencement of his employment as CEO.
Initial RSU Award	The Restricted Stock Unit (RSU) award to purchase restricted stock of the firm given to the CEO upon commencement of his employment as CEO.
Cash Sign-on Bonus	A one-time cash bonus given to the CEO when signing his contract to become a CEO of the firm.
Retirement	Denotes if the CEO is entitled to retirement benefits, by contributions made to a retirement plan.
Supplemental Retirement	Denotes if the CEO is entitled to supplemental retirement benefits, by contributions made to a supplemental retirement plan.
Perquisites	Additional benefits the CEO receives when performing his duties.
Club Dues	Denotes if the firm pays for certain club memberships on behalf of the CEO.
Automobile Allowance	Denotes if the firm provides the CEO with the usage of a company-car or automobile allowance.
Aircraft Allowance	Denotes if the firm provides the CEO with the usage of a company-aircraft for business and/or personal related travel.
Firm Characteristics	
Leverage	The ratio of interest-bearing debt, both long and short term, to book value of assets of the firm. The book value of the assets is used to account for all assets a firm can have, including tangible and intangible assets.
Book Assets	Book value of assets of the firm in dollars of the fiscal year preceding the event date.
Industry-adjusted EBIT/Assets	The ratio of EBIT/assets for a firm of the fiscal year preceding the event date, less the median value of that ratio for the primary two-digit SIC industry in which the firm competes.
Median Volatility of Sales	The median, across all firms in the sample firm's two-digit SIC industry, of the standard deviation of the percentage change in year-to-year sales over the 7-year period surrounding the event date.
Herfindahl-index	The sum of the squares of the market shares, here the sales, of the firms within the industry for the primary two-digit SIC industry in which the firm competes.

an indicator of protection for the CEO as it ensures certain contractual terms for a fixed period of time. The longer the contract duration, the more the CEO is protected. *Amendment protection* ensures that there is no chance that the firm can legally adjust the contract and reduces uncertainty for the CEO. The *non-competition clause*, *confidentiality clause*, *arbitration clause* and *CEO dismissal for cause* are forms of protection to the firm. It ensures the CEO cannot engage in activities that can harm the firm in any way and if this does happen, the CEO will face severe consequences. The *change of control agreement* and *CEO resignation for good reason* ensure that the CEO is protected in case the firm will be taken over or the CEO wants to leave the firm for justified reasons and thus reduces uncertainty.

For the CEO characteristics, *CEO age* is included to account for the different ages between CEOs and to see if relatively older CEOs are more likely to have an explicit contract or longer contract duration. *External CEO* is included to see if CEOs from outside the firm are more likely to have an explicit contract and longer contract duration, as they face more uncertainty compared to inside CEOs. *CEO in board of directors* is included to see if CEOs that are a member of the board are more likely to have explicit contracts and longer contract durations. For the compensation characteristics, *base salary* and *target bonus* are included to see if CEOs receive higher salary and incentive compensation when they have an explicit contract or longer contract duration, as it is often observed that CEOs that receive relatively larger, above-market, compensation prefer explicit contracts with longer contract durations to ensure that they will not lose the high compensation. *Initial option award*, *Initial RSU award*, *cash sign-on bonus*, *retirement*, *supplemental retirement* and *perquisites* are included to see if CEOs are more likely to receive additional benefits when they have an explicit contract and a longer contract duration. CEOs might then have an incentive to prefer an explicit contract to ensure they will receive this additional benefits for a fixed period of time. It can also be the case that CEOs receive special perquisites compared to normal employees of the firm. Therefore, the variables *club dues*, *automobile allowance* and *aircraft allowance* are included in the regression in the place of perquisites to see how they relate with explicit contract and contract duration. The contracts were also checked for the provision of loans to CEOs, but since the Sarbanes-Oxley Act of 2002 that banned loans to executive officers and directors, none of the firms provided loans to their CEOs.

The firm characteristics are included in the regressions to control for differences between firms. Nevertheless, they can illustrate very important relationships for the choice of an implicit or explicit contract and the contract duration. These variables are directly linked with the uncertainty a firm can face. The *leverage* ratio of the firm is related with risk; a higher ratio means more debt relative to assets, thus the firm has a higher financial risk. The *book assets* of the firm is related with the size of the firm; the higher the book value of the assets, the bigger the firm. The *industry-adjusted EBIT/Assets*

ratio is related to effectiveness. It is a measure to see how effective a firm uses its assets to generate earnings, before the payment of obligations. The higher the ratio, the more effective the firm is in generating earnings with its assets. This is an indirect measure of financial risk, as more effectivity means less risk. The *median volatility of sales* is related to uncertainty; a higher standard deviation means more volatile sales, which is accompanied with a higher financial risk for the firm. The *Herfindahl-index* is a measure for the size of the firm in relation to the industry measured with the market share, and an indicator of the amount of competition among firms in relation to the industry. A higher ratio means that the firm is larger in relation to other firms in the industry, and it also shows that there is less competition in the industry since the firm has a higher market share and thus is larger than other firms in the industry. These variables will be used to investigate the link of uncertainty with the choice of an implicit or explicit contract and contract duration.

4.3. Summary of the variables

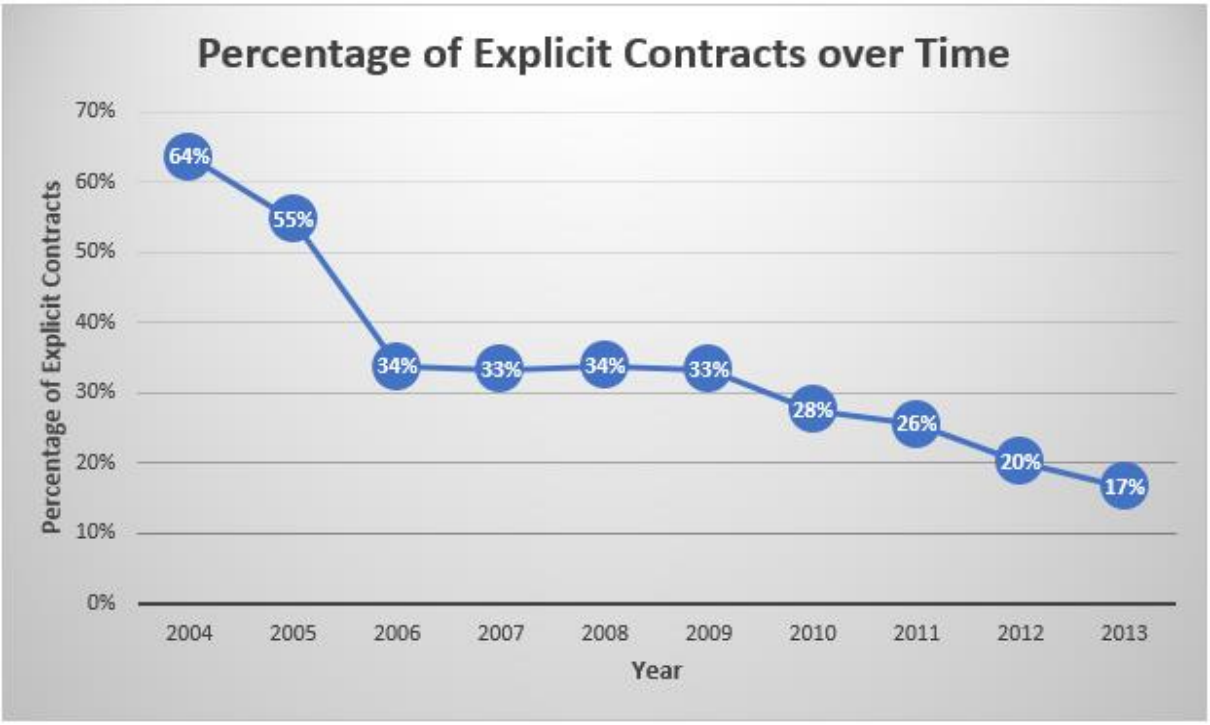
Table 2 presents a summary of the descriptive statistics for a part of the variables of this research. The number of observations, sample percentage of the observations, mean and median of the variables are reported for the total sample as well as for explicit and implicit contracts separately for the period of 2004 to 2013. *Explicit contract* and *contract duration* are used as dependent variables in this research. The table also reports if the mean and median of the explicit and implicit contracts differ significantly from each other with t-test results and equality-of-medians results, respectively. Of the 1,037 contracts, only 350 contracts are explicitly written contracts, which is 33.75 percent of the total sample. This is in line with Gillan, Hartzell and Parrino (2009), which found that less than half of the S&P 500 CEOs have an explicit contract. However, the percentage of explicit contracts is even lower than the 46 percent the paper finds. Graph 1 shows the percentage of explicit contracts for each year in this sample. In 2004, 64 percent of the contracts were explicit contracts, which implies that 36 percent of the contracts were implicit. This percentage decreased significantly in 2005 and 2006. After 2006, the percentage of explicit contracts was consistent around 33 to 34 percent until 2009. Thereafter, the percentage of explicit contracts continued to decrease to 17 percent in 2013. It seems that explicit contracts became less popular over time and implicit contracts were preferred by both the CEO and firm. Interestingly, the percentage of explicit contracts remained roughly the same during the financial crisis that occurred from 2007 to 2009. It seems that the uncertainty in the economy ceased the decrease in the percentage of explicit contracts for CEOs and firms during the crisis. CEOs might have preferred explicit contracts in those uncertain times. However, after the crisis, it seems there was a shift in preference again; implicit contracts became more and more popular. It is clear that the 2007 financial crisis had an influence on the type of contracts that were agreed to between the CEO and firm, and uncertainty plays a significant role in this decision.

Table 2 Descriptive Statistics

The table reports the number of observations, sample percentage of the observations, mean and median of the variables for the total sample as well as for explicit and implicit contracts separately. The samples include the contracts of CEOs for firms of the S&P 500 from 2004 till 2013 and the variables are grouped in contract, CEO, compensation and firm characteristics. The definition of the variables are given in Table 1. The standard deviations are given in parentheses. The table also reports test results for the difference of the mean and median values for the explicit and implicit contracts. The t-value and Pearson's chi-square are given with two-tailed significance results. The significance levels are denoted as follows: * p < 0.10, ** p < 0.05, *** p < 0.01.

	Total Sample				Explicit Contracts				Implicit Contracts				Statistics for Tests of Differences between Mean and Median Values for Explicit and Implicit Contracts	
	N	% of Total Sample	Mean	Median	N	% of Total Explicit	Mean	Median	N	% of Total Implicit	Mean	Median	T-test	Equality-of-Medians
Contract Characteristics														
Sample	**1037**	**100%**			**350**	**33,75%**			**687**	**66,25%**				
Contract Duration	336	32,40%	2.9273	3	254	72,57%	2.9413	3	82	11,94%	2.8841	3	-	-
In years			(1.0347)				(1.0355)				(1.0373)			
Contract Length	1037	100%	14.5400	6	350	100%	19.1457	16	687	100%	12.1936	4	-	-
In pages			(27.5006)				(14.3329)				(31.9577)			
CEO Characteristics														
CEO Age	1037	100%	52.3462	52	350	100%	51.9886	52	687	100%	52.5284	53	1.2640	3.9396**
In years			(6.4128)				(6.5977)				(6.3136)			
Compensation Characteristics														
Base Salary	1033	99,61%	619,786.2875	700,003.0702	348	99,43%	661,304.7127	700,003.0702	685	99,71%	599,703.1130	700,003.0702	-1.1442	0.1673
In dollars			(3.7193)				(3.6048)				(3.7767)			
Target Bonus	1033	99,61%	0,9306	1	348	99,43%	0.9660	1	685	99,71%	0.9126	1	-1.3330	1.2905
Percentage/100			(0.6379)				(0.5778)				(0.6661)			
Initial Option Award	1035	99,81%	237.4379	0	348	99,43%	918.1429	50,000.0858	687	100%	119.6803	0	-4.9008***	19.1538***
In shares			(519.9611)				(636.4889)				(419.4381)			
Initial RSU Award	1033	99,61%	34.4952	0	349	99,71%	65.0748	0	684	99,56%	24.9523	0	-2.6649***	5.0739**
In shares			(202.8178)				(282.0950)				(165.6281)			
Cash Sign-on Bonus	1037	100%	7.7230	0	350	100%	21.1878	0	687	100%	4.6184	0	-4.5214***	23.0029***
In dollars			(114.4986)				(257.9529)				(65.3313)			
Firm Characteristics														
Leverage	864	83,32%	0.2322	0.1600	290	82,86%	0.2465	0.1700	574	83,55%	0.2250	0.1550	-1.1863	0.4545
Ratio			(0.2415)				(0.2603)				(0.2313)			
Book Assets	867	83,61%	53,350.0397	90,908.6104	291	83,14%	54,488.7752	139.857,5943	576	83,84%	52,783.8209	82,451.0448	-0.1175	2.3546
In dollars, x 1000			(40.5154)				(45.5510)				(38.2595)			
Industry-adjusted EBIT/Assets	864	83,32%	-0,0523	0	290	82,86%	-0.0548	0	574	83,55%	-0.0510	0	0.2461	0.6812
Ratio			(0.2161)				(0.2203)				(0.2142)			
Median Volatility of Sales	926	89,30%	0,1931	0,1847	303	86,57%	0.1908	0.1776	623	90,68%	0.1942	0.1885	0.5940	0.8290
Ratio			(0.0817)				(0.0800)				(0.0825)			
Herfindahl-index	926	89,30%	0.0680	0,0482	303	86,57%	0.0690	0.0510	623	90,68%	0.0674	0.0473	-0.3568	1.3999
Ratio			(0.0631)				(0.0637)				(0.0628)			

Graph 1



The median contract duration for the total sample, explicit contract and implicit contract is 3 years. Contract length has a total median value of 6 pages. In line with expectations, explicit contract are relatively longer with a median of 16 pages compared to implicit contract with a median of 4 pages. For this research, contract duration and contract length are used only for analysis of explicit contracts. Tests for differences in means and medians are therefore not included. The median age of CEOs in the total sample is 52 years. This also holds for CEOs with an explicit contract, but CEOs with an implicit contract have a slightly higher significant median value of 53 years. CEOs with an implicit contract seem to be a bit older. The age of CEOs in the sample of this research is higher than the median CEO age of 49 years of the sample of Gillan, Hartzell and Parrino (2009).

CEOs in the sample receive a median base salary of 700,003 dollars and median target bonus of 1. This also holds for explicit and implicit contracts separately. When comparing this to the median base salary and target bonus of Gillan, Hartzell and Parrino (2009), it seems the base salary has decreased over time and the target bonus has increased. This suggests a shift from relatively less fixed compensation to relatively more incentive compensation over time. For initial option award the median value is zero, but CEOs with explicit contracts receive a median of 50,000 shares upon commencement of their employment while CEOs of implicit contracts have a median value of zero and receive nothing. This difference is significant at the one percent level. For initial RSU award and cash sign-on bonus CEOs in the sample, both for explicit and implicit contracts, receive nothing looking at the median values.

However, the statistically different mean values show that CEOs of explicit contracts are more likely to receive higher initial RSU awards and cash sign-on bonuses. The median leverage ratio of the sample is 0.16 with a slightly higher median ratio for firms with explicit contracts, which suggests that firms that have explicit contracts with their CEOs face relatively more financial risk. This difference in median values is, however, not significant. This finding is in line with the theory of the choice of an implicit or explicit contract and the paper of Gillan, Hartzell and Parrino (2009). The median values of the book value of assets show that firms with explicit contracts are relatively seen bigger than firms with implicit contracts in line with Gillan, Hartzell and Parrino (2009), but this difference is not significant. The median values for the industry-adjusted EBIT/Assets shows no other median values than zero, which is lower than the values of Gillan, Hartzell and Parrino (2009). It seems that all firms generate sufficient earnings with their assets. The median of the median volatility of sales shows that firms of implicit contracts have a higher ratio than the total sample, while firms of explicit contracts have a lower ratio than the total sample. The difference is not significant, but it suggests that firms with implicit contracts face more financial risk. This finding is not in line with the theory and the paper of Gillan, Hartzell and Parrino (2009) that found that firms with explicit contracts face more financial risk. This shift in risk can be a result of firms preferring an implicit contract when they operate in a rapidly changing operating environment. The Herfindahl-index shows a higher index for firms with explicit contracts than the total sample, while it shows a lower index for firms with implicit contracts. This difference is again not significant, but it can show that firms with explicit contracts are larger and face less competition in relation to the industry than firms with implicit contracts. This is in contradiction with theory, which suggests that CEOs in small firms and relatively competitive industries should prefer explicit contracts.

Table 3 presents the summary statistics for the dummy variables of this research for the total sample and the explicit and implicit contracts separately. The total number of observations for each variable is given together with the number and percentage of contracts containing the provision. For explicit and implicit contracts, the percentage of contracts containing the provision is based on the number of total observations of each variable separately. In this way missing observations are not included in the percentages. For contract characteristics, change of control agreement is the most common provision mentioned in 90.90% of all contracts, which is not in line with Gillan, Hartzell and Parrino (2009) that found that CEO dismissal for good cause was the most common provision for the provisions. CEO dismissal for cause and CEO resignation for good reason are the next most common provisions mentioned with 87.07% and 83.86%, respectively. CEOs of both explicit and implicit contracts seem to find these protections very important. For explicit contracts the most common provisions are amendment protection for the CEO against alterations in their contract with 95.71%, and CEO dismissal for cause as a protection to the firm with 95.71%. When establishing explicit contracts, it seems both

Table 3 Descriptive Statistics of the dummy variables

The table reports the summary statistics of the dummy variables of this research for the total sample as well as for explicit and implicit contracts separately. The total number of observations for each variable is given together with the number and percentage of contracts containing the provision. For all three groups, the percentage of contracts containing the provision is based on the number of total observations of each variable separately. In this way missing observations are not included in the percentages. The samples include the contracts of CEOs for firms of the S&P 500 from 2004 till 2013 and the variables are grouped in contract, CEO and compensation characteristics. The definition of the variables are given in Table 1.

	Total Sample			Explicit Contracts			Implicit Contracts		
	Total observations	Number of Contracts Containing Provision	% of Contracts Containing Provision	Total observations	Number of Contracts Containing Provision	% of Contracts Containing Provision	Total observations	Number of Contracts Containing Provision	% of Contracts Containing Provision
Contract Characteristics									
Sample	**1037**		**100%**	**350**		**33,75%**	**687**		**66,25%**
Employment At Will *Yes = 1*	1037	185	17,84%	350	78	22,29%	687	107	15,57%
Amendment Protection *Yes = 1*	1037	386	37,22%	350	335	95,71%	687	51	7,42%
Non-competition Clause *Yes = 1*	1023	707	69,11%	350	320	91,43%	673	387	57,50%
Confidentiality Clause *Yes = 1*	1018	686	67,39%	349	326	93,41%	669	360	53,81%
Arbitration Clause *Yes = 1*	1010	352	34,85%	348	250	71,84%	662	102	15,41%
Change of Control Agreement *Yes = 1*	1022	929	90,90%	349	321	91,98%	673	608	90,34%
CEO Dismissal for Cause *Yes = 1*	1021	889	87,07%	350	335	95,71%	671	554	82,56%
CEO Resignation for Good Reason *Yes = 1*	1016	852	83,86%	349	319	91,40%	667	533	79,91%
CEO Characteristics									
External CEO *Yes = 1*	1037	453	43,68%	350	211	60,29%	687	242	35,23%
CEO in Board of Directors *Yes = 1*	1037	962	92,77%	350	311	88,86%	687	651	94,76%
Compensation Characteristics									
Retirement *Yes = 1*	1037	951	91,71%	350	320	91,43%	687	631	91,85%
Supplemental Retirement *Yes = 1*	1032	415	40,21%	346	112	32,37%	686	303	44,17%
Perquisites *Yes = 1*	1037	904	87,17%	350	308	88,00%	687	596	86,75%
Club Dues *Yes = 1*	980	233	23,78%	325	86	26,46%	655	147	22,44%
Automobile Allowance *Yes = 1*	980	431	43,98%	325	151	46,46%	655	280	42,75%
Aircraft Allowance *Yes = 1*	980	256	26,12%	325	79	24,31%	655	177	27,02%

the firm and CEO want to be protected and have the bargaining power to do so. For implicit contracts the change of control agreement is the most common provision with 90.34% providing protection to the CEO and the next common provision is CEO dismissal for cause with 82.56% as protection for the firm. In the case of implicit contracts, it also seems both the firm and CEO have bargaining power. For the total sample, 43.68% of the CEOs are from outside the firm. For explicit contract, 60.29% of the CEOs are from outside the firm, while only 35.23% of the CEOs for implicit contracts are from outside the firm. It seems that CEOs from outside the firm prefer an explicit contract more than CEOs from inside the firm, because they have less inside knowledge of the firm and weaker relationships with the directors and management. In the total sample, 92.77% of the CEOs are also a member of the board of directors, and this percentage is slightly higher for CEOs with implicit contracts than CEOs with explicit contracts. For the compensation characteristics, the most common additional compensation is retirement with 91.71%, and after that perquisites with 87.17%. For the perquisites, an automobile allowance is the most provided perquisite to CEOs in the sample. This also holds for the explicit and implicit contracts separately.

Table 4 in the appendix displays the correlation of the variables in this research, with the significance of the correlations. There is no question of multicollinearity. However, there are some high correlations that are significant at the one percent level. Explicit contract and amendment protection are highly correlated, non-competition clause and confidentiality clause are highly correlated, and CEO dismissal for cause and CEO resignation for good reason are highly correlated. The reason behind this is very logical. Each of the pair of variables occurred together in the contracts. For explicit contracts, it was logical that the contract provided protection against amendments. The reason of an explicit contract is to write down certain terms that cannot be changed without consent of both parties. Observed from the contracts during the collection of the data, if the contracts included non-competition clauses for restrictions of competition for a certain period, the contracts also contained confidentiality clauses to not disclose proprietary information to third parties. In this way the firm was well protected when the CEO left the firm. CEO dismissal for cause and CEO resignation for good reason both belong to severance arrangements, so they mostly occurred together.

Employment at will, amendment protection, non-competition clause, confidentiality clause, arbitration clause, CEO dismissal for cause, CEO resignation for good reason, external CEO, initial option award, initial RSU award and cash sign-on bonus show significant positively relationships with explicit contract. These provisions and situations are more likely to occur when a CEO has an explicit contract. CEO in board of directors and supplemental retirement plan show significant negative relationships with explicit contracts. CEOs that are a member of the board or receive supplemental

retirement benefits are less likely to have an explicit contract. Contract length, external CEO, base salary and target bonus show significant positive relationships with contract duration. This suggest that the longer the contract duration of an explicit contract is, the longer the contract is, the more likely the CEO is from outside the firm, and the higher the salary and target bonus are. There are no significant negative relationships with contract duration.

5. Methodology

In this section the methods used in this research are discussed. Then the structure of the analyses are presented and an explanation of the additional analysis in this research is given; the 2007 financial crisis analysis.

5.1. Methods

To investigate the choice of an implicit or explicit contract with contractual terms and uncertainty, a Linear Probability Model (LPM) is used. The dependent variable explicit contract is a dummy variable that takes values of 1 and 0, and a LPM is a binomial regression model that can work with dummy dependent variables. The results of a LPM estimation are easy to interpret and relatively better understandable than most methods. This is very important, as this research examines a topic that is relatively new. However, a LPM only measures the correlation between variables and the problem of endogeneity is very likely to be present. Other factors that can be present that influence the relationship between having an explicit contract and the contractual terms and uncertainty. Next to that, there are three problems that can arise: (1) non-normality of the error term, (2) heteroscedasticity, and (3) potentially nonsensical predictions. For this reason, the same regressions are performed with a Probit model to check whether the sign and significance are consistent, like the paper of Gillan, Hartzell and Parrino (2009).

To investigate contract duration with contractual terms and uncertainty, Ordinary Least Squares (OLS) regressions are performed. The results of the OLS estimation are also easy to interpret and relatively better understandable. However, in this case the OLS estimation also measures only the correlations of the variables and the problem of endogeneity can be present. Next to that, there are several situations that can influence the reliability of the results, like (1) outliers, (2) non-linearities, (3) too many variables, (4) heteroscedasticity, and (5) too many variables. For this reason, the same regressions are performed with a Tobit model, because the values of contract duration are subjected to left-censoring; they are bounded below at zero. This is in line with the paper of Gillan, Hartzell and Parrino (2009), which also uses a Tobit model to perform the explicit contract duration analysis.

It is important to note that the models in this research have their drawbacks, but they provide very clear and understandable results. This research tries to provide first insights in the choice of an implicit or explicit contract and the relationship of contract duration with contractual terms and uncertainty,

to make way for further research into these topics. For this purpose, the models used in this research are suitable.

5.2. Structure of the analyses

To investigate the relationship of the choice of an implicit or explicit contract with contractual terms and uncertainty, the dependent variable explicit contract is first regressed on the contract and firm characteristics. This gives the following equation,

$$Explicit\ Contract_i = \alpha + \beta * contract\ characteristics_i + \gamma * firm\ characteristics_i + \varepsilon_i \quad \text{(I)}$$

where $contract\ characteristics_i$ includes the variables for the contract characteristics of contract *i*. These variables are employment at will, amendment protection, non-competition clause, confidentiality clause, arbitration clause, change of control agreement, CEO dismissal for cause and CEO resignation for good reason. Contract duration and contract length are not included in the regression, because many implicit contracts did not have a contract duration or the term is not specified. Therefore, there were too little observations. The contract length was only reliable for research in case of an explicit contract, and is thus only used in the contract duration analysis for explicit contracts. $firm\ characteristics_i$ denotes the variables for the firm characteristics of the firm of contract *I*, which are leverage, the log of book assets, industry-adjusted EBIT/Assets, median volatility of sales and the Herfindahl-index. For some variables, including the book assets, it is necessary to use log transformations so that the variable fits better in the model, the coefficients can be interpreted as percentage changes and positively skewed distributions become more normal. The basic regression assumes that CEOs and compensation are similar, while in practice these can differ among contracts. Therefore, the CEO characteristics CEO age, external CEO and CEO in board of directors are included in regression (II). After that, the following full regression is performed,

$$Explicit\ Contract_i = \alpha + \beta * contract\ characteristics_i + \delta * CEO\ characteristics_i + \mu * compensation\ characteristics_i + \gamma * firm\ characteristics_i + \varepsilon_i \quad \text{(III)}$$

with all characteristics including the compensation characteristics log of base salary, target bonus, log of initial option award, log of initial RSU award, log of cash sign-on bonus, retirement, supplemental retirement and perquisites is performed. To see if CEOs receive significant different perquisites for a certain type of contract and if these perquisites are more likely with a higher contract duration, a last regression (IV) is performed that includes the perquisite variables club dues, automobile allowance

and aircraft allowance in place of perquisites. For the robustness check with the Probit model, the same framework of the regressions is used.

To investigate the relationship of explicit contract duration with contractual terms and uncertainty, the same framework of the regressions as above is used for both the OLS regressions and Tobit model. However, now the dependent variable is contract duration and the variable contract length is added to the regressions under the group contract characteristics.

5.3. Additional analysis; the 2007 financial crisis analysis

The sample of this research runs from 2004 till 2013. In this period, the financial crisis of 2007 occurred. As this crisis had a huge impact on the banks and firms in the US, it can be the case that the changing economic environment had an influence on the contracts of CEOs in that time; was there a difference in the choice of an implicit or explicit contract with contractual terms and uncertainty during and after the crisis? Graph 1 shows some interesting results for this period. The percentage of explicit contracts decreased before the 2007 financial crisis, but ceased to decrease during the crisis. It seems the uncertainty in the economy and for firms delayed further decrease in the percentage of explicit contracts. This suggests that CEOs and firms agreed that this type of contract was the better choice. After the crisis, the percentage of explicit contracts declined further to 17 percent in 2013. This brief additional analysis will see if there was a difference in the characteristics of the contracts of CEOs and firms before, during and after the 2007 financial crisis with the help of median values and percentage of provisions of the variables. The total sample period is divided in three groups: (1) before the crisis; 2004 to 2006, (2) during the crisis; 2007 to 2009, and (3) after the crisis; 2010 to 2013, to see the differences in median values and provisions of the contracts over time. The additional analysis only focuses on the choice of an implicit or explicit contract, since the research question of this paper is focused on this topic. The purpose of this brief additional analysis is to find support for the influence of uncertainty on the choice of an implicit or explicit contract, and more importantly, to encourage further research into the relations of these phenomena as it can be of great influence for the establishment of a certain type of contract and the terms in the contract.

6. Results

In this section the results of the main analysis of this research are presented; the relation of the choice of an implicit or explicit contract with contractual terms and uncertainty. The results of both the LPM and Probit model regressions are discussed and the corresponding hypotheses are accepted or rejected. Then the results of the contract duration analysis are presented for both the OLS and Tobit model regressions, which investigate the relationship between contract duration and contractual terms and uncertainty.

6.1. Main results of the choice of an implicit or explicit contract

Table 5 presents the results for the LPM regressions and investigates whether firms in the S&P 500 have explicitly written contracts with their CEOs during the period of 2004 to 2013 and how contractual terms and uncertainty are related to having an explicit contract. The dependent variable is the dummy variable explicit contract that equals 1 if the CEO has an explicit contract and 0 if the CEO has an implicit contract. Regression (I) regresses explicit contract on contract and firm characteristics, as they mainly define uncertainty for the firm and CEO. CEO characteristics and compensation characteristics are added in regression (II) and full regression (III), respectively. In regression (IV) perquisites is further investigated to see if CEOs receive special perquisites compared to normal employees of the firm.

Looking at the table, it appears that contract characteristics are very important for the decision of an implicit or explicit contract. The negative sign and significance at the one percent level for employment at will is consistent for all regressions. The full regression suggests that CEOs are 11.64% less likely to have an explicit contract if their employment is at will. This is logical, as firms with an implicit contract with their CEO want to minimize their legal exposure and clearly state the nature of the relationship. Amendment protection is consistently positive and significant at the one percent level with a very high coefficient, suggesting that CEOs are 75.75% more likely to have an explicit contract when they are protected against amendments in their contract, which is intuitive as the protection often goes hand-in-hand with having an explicit contract. When collecting the data, this form of protection often occurred only for explicit contracts. The positive sign of non-competition clause shows that CEOs are 6.20% more likely to have an explicit contract when this clause is included in the contract. This suggests that not only the CEO is protected with an explicit contract, but the firm is also provided with protection with this type of contract. Arbitration clause is consistently positive and significant at the one percent level, and suggests that CEOs are more likely to have an explicit contract when this clause is included. The arbitration clause protects the firm before any disputes or conflicts occur, and it seems

Table 5 LPM Regressions Results

This table presents the results of the Linear Probability Model regressions. The regressions investigate whether firms in the S&P 500 have explicitly written contracts with their CEOs during the period of 2004 to 2013 and how uncertainty is related to having an explicit contract. Also, the regressions try to uncover the relationships of contract, CEO, compensation and firm characteristics with the choice of having an explicit or implicit contract. The dependent variable, explicit contract, is a dummy variable that equals 1 if the CEO has an explicit contract and 0 if the CEO has an implicit contract. The definitions of the independent variables are given in Table 1. The table reports the coefficient results of the regressions. The standard deviations are given in parentheses. Significance levels are denoted as follows: * p < 0.10, ** p < 0.05, *** p < 0.01.

Dependent variable: Explicit Contract	**I**	**II**	**III**	**IV**
Employment At Will	-0.1028***	-0.1080***	-0.1139***	-0.1164***
	(0.0311)	(0.0307)	(0.0318)	(0.0327)
Amendment Protection	0.7686***	0.7653***	0.7610***	0.7575***
	(0.0338)	(0.0336)	(0.0342)	(0.0351)
Non-competition Clause	0.0471*	0.0462*	0.0570**	0.0620**
	(0.0259)	(0.0251)	(0.0268)	(0.0283)
Confidentiality Clause	-0.0131	-0.0137	-0.0189	-0.0316
	(0.0242)	(0.0238)	(0.0240)	(0.0251)
Arbitration Clause	0.1244***	0.1141***	0.1179***	0.1305***
	(0.0343)	(0.0337)	(0.0341)	(0.0354)
Change of Control Agreement	-0.0921***	-0.0886***	-0.0820***	-0.0932***
	(0.0292)	(0.0286)	(0.0304)	(0.0334)
CEO Dismissal for Cause	-0.0465	-0.0485	-0.0493	-0.0207
	(0.0548)	(0.0531)	(0.0559)	(0.0518)
CEO Resignation for Good Reason	0.0454	0.0522	0.0582	0.0294
	(0.0484)	(0.0471)	(0.0492)	(0.0478)
CEO Age		-0.0010	-0.0009	-0.0009
		(0.0015)	(0.0015)	(0.0015)
External CEO		0.0173	0.0172	0.0198
		(0.0197)	(0.0210)	(0.0208)
CEO in Board of Directors		-0.1590***	-0.1486***	-0.1526***
		(0.0427)	(0.0406)	(0.0469)
Base Salary			-0.0003	0.0005
			(0.0040)	(0.0041)
Target Bonus			-0.0190	-0.0132
			(0.0125)	(0.0132)
Initial Option Award			-0.0004	-0.0011
			(0.0017)	(0.0017)
Initial RSU Award			0.0016	0.0018
			(0.0020)	(0.0020)
Cash Sign-on Bonus			-0.0006	-0.0011
			(0.0024)	(0.0025)
Retirement			-0.0680*	-0.0725*
			(0.0412)	(0.0433)
Supplemental Retirement			-0.0089	-0.0238
			(0.0185)	(0.0196)

Perquisites			-0.0170	
			(0.0347)	
Club Dues				0.0712***
				(0.0201)
Automobile Allowance				-0.0235
				(0.0199)
Aircraft Allowance				-0.0229
				(0.0242)
Leverage	0.0305	0.0336	0.0365	0.0383
	(0.0376)	(0.0374)	(0.0384)	(0.0397)
Book Assets	-0.0006	-0.0003	0.0000	-0.0008
	(0.0026)	(0.0025)	(0.0024)	(0.0025)
Industry-adjusted EBIT/Assets	-0.0063	-0.0139	-0.0219	0.0007
	(0.0476)	(0.0463)	(0.0478)	(0.0479)
Median Volatility of Sales	0.1397	0.1284	0.1231	0.0414
	(0.0987)	(0.0963)	(0.0970)	(0.0967)
Herfindahl-index	-0.1015	-0.0877	-0.0951	-0.1361
	(0.1641)	(0.1638)	(0.1637)	(0.1667)
Constant	*0.0673*	*0.2565**	*0.3253****	*0.3466****
	(0.0466)	*(0.0992*	*(0.1242)*	*(0.1297)*
Number of observations	*733*	*733*	*723*	*684*
R^2	*0.7486*	*0.7561*	*0.7550*	*0.7568*

that firms are well protected when they have an explicit contract with their CEO. Change of control agreement shows a negative and significant coefficient at the one percent level. The results suggest that a change in control agreement is slightly more likely when a CEO has an implicit contract. This is in line with theory, as CEOs with implicit contracts are relatively less protected and a change of control agreement can provide more security for their job and thus reduces uncertainty. The other variables in contract characteristics are not significant and thus not likely to be different from zero. For CEO characteristics, only CEO in board of directors is significant. A CEO that is a member of the board of directors is 15.26% less likely to have an explicit contract. For compensation characteristics, retirement benefits are 7.25% less likely for an explicit contract. The perquisite club dues, however, is 7.12% more likely to be included in the contract for CEOs that have an explicit contract. This can suggest that CEOs that receive additional compensation, prefer an explicit contract in order not to lose this compensation. The signs of leverage, industry-adjusted EBIT/Assets and median volatility of sales are positive, pointing in the direction that CEOs working for firms with higher financial risk are more likely to have an explicit contract. The higher the ratio of the Herfindahl-index, the larger the firm in relation to the industry and the less competition there is in the industry. In line with the theory that CEOs face less uncertainty in this case, the coefficient is negative, suggesting that when there is less competition and the firm is larger within the industry, an implicit contract is more likely. However, none of the firm characteristics are significant in any of the regressions, so no conclusions can be made for uncertainty in this case.

Table 6 reports the results for the Probit model regressions. This model will check if the signs and significance of the regressions are consistent with the signs and significance of the LPM regressions. All the significant variables of the contract characteristics show the same sign and significance in the Probit model and are thus of significant influence in the choice of an implicit or explicit contract. CEO resignation for good reason becomes positively significant in the second and third regression, suggesting that this provision is more likely in an explicit contract, but becomes insignificant again in the fourth regression. CEO in board of directors is consistent in sign and significance. Retirement becomes insignificant in the Probit model, and club dues remains significant at the one percent level with a positive coefficient, suggesting that the perquisite club dues is more likely in an explicit contract.

From the results of the investigation into the choice of an implicit or explicit contract, it can be concluded that CEOs that have an employment at will are indeed more likely to have an implicit contract as the coefficient was significantly negative and hypothesis one is accepted. Because of the insignificant firm characteristics, it seems that uncertainty regarding financial risk, competition and size of the firm does not influence the choice of having an implicit or explicit contract and therefore hypotheses two and three are rejected. External CEO was not significant in this analysis, and thus it cannot be concluded that CEOs from outside the firm are more likely to have an explicit contract. Hypothesis four is rejected. Regarding hypothesis five, retirement benefits were more likely for implicit contracts, but club dues were more likely for explicit contracts. As these results are contradicting, it cannot be concluded with certainty that an explicit contract is more likely in case of relatively more compensation and hypothesis five is rejected.

The provisions in a contract can show some whether the CEO and firm both have bargaining power when establishing a contract. The results of the amendment protection and change of control agreement showed that the CEO was well protected against harmful actions of the firm. The results of the non-competition clause and arbitration clause showed that the firm was also protected against harmful actions of the CEO. Both the CEO and firm seem to be able to demand some forms of protection when establishing their contract and thus, in line with Schwab and Thomas (2006), both parties seem to have bargaining power. As both explicit and implicit contracts contained protection provisions for the CEO and firm[8], the bargaining power is present regardless of the type of contract.

[8] See *Table 3; Descriptive Statistics of the dummy variables*, on page 24.

Table 6 Probit Model Regressions Results

This table presents the results of the Probit Model regressions. The regressions investigate whether firms in the S&P 500 have explicitly written contracts with their CEOs during the period of 2004 to 2013 and how uncertainty is related to having an explicit contract. Also, the regressions try to uncover the relationships of contract, CEO, compensation and firm characteristics with the choice of having an explicit or implicit contract. The dependent variable, explicit contract, is a dummy variable that equals 1 if the CEO has an explicit contract and 0 if the CEO has an implicit contract. The definitions of the independent variables are given in Table 1. The table reports the coefficient results of the regressions. The standard deviations are given in parentheses. Significance levels are denoted as follows: * p < 0.10, ** p < 0.05, *** p < 0.01.

Dependent variable: Explicit Contract	**I**	**II**	**III**	**IV**
Employment At Will	-0.6326***	-0.7284***	-0.7909***	-0.7787***
	(0.2015)	(0.2120)	(0.2214)	(0.2306)
Amendment Protection	2.9811***	3.2553***	3.2927***	3.5816***
	(0.2082)	(0.2475)	(0.2570)	(0.3057)
Non-competition Clause	0.4988*	0.5433*	0.6811**	0.7267**
	(0.2554)	(0.2794)	(0.2945)	(0.3154)
Confidentiality Clause	-0.0482	-0.0522	-0.0949	-0.3224
	(0.2708)	(0.2990)	(0.3086)	(0.3299)
Arbitration Clause	0.6994***	0.6370***	0.6617***	0.7438***
	(0.1815)	(0.1917)	(0.1979)	(0.2130)
Change of Control Agreement	-1.0226***	-1.1248***	-1.0920***	-1.3271***
	(0.3321)	(0.3696)	(0.3849)	(0.4128)
CEO Dismissal for Cause	-0.3281	-0.5776	-0.6397	-0.0281
	(0.4310)	(0.4577)	(0.4682)	(0.5411)
CEO Resignation for Good Reason	0.4941	0.7729*	0.8827**	0.4541
	(0.3878)	(0.4186)	(0.4329)	(0.4838)
CEO Age		-0.0108	-0.0098	-0.0090
		(0.0131)	(0.0137)	(0.0144)
External CEO		0.1499	0.1543	0.2100
		(0.1796)	(0.2013)	(0.2152)
CEO in Board of Directors		-1.5018***	-1.3662***	-1.4838***
		(0.3265)	(0.3425)	(0.3786)
Base Salary			0.0065	-0.0032
			(0.0680)	(0.0722)
Target Bonus			-0.1375	-0.0617
			(0.1635)	(0.1769)
Initial Option Award			0.0004	-0.0064
			(0.0158)	(0.0168)
Initial RSU Award			0.0202	0.0232
			(0.0182)	(0.0193)
Cash Sign-on Bonus			-0.0167	-0.0224
			(0.0187)	(0.0198)
Retirement			-0.5147	-0.5526
			(0.3314)	(0.3521)
Supplemental Retirement			-0.1479	-0.2597
			(0.2037)	(0.2196)

Perquisites			-0.1464	
			(0.2666)	
Club Dues				0.8341***
				(0.2702)
Automobile Allowance				-0.2400
				(0.2103)
Aircraft Allowance				-0.3017
				(0.2316)
Leverage	0.1064	0.1349	0.1419	0.3162
	(0.3523)	(0.3765)	(0.3861)	(0.4180)
Book Assets	-0.0194	-0.0158	-0.0094	-0.0207
	(0.0250)	(0.0273)	(0.0286)	(0.0301)
Industry-adjusted EBIT/Assets	0.0419	-0.0733	-0.1450	0.2092
	(0.3993)	(0.4303)	(0.4479)	(0.4790)
Median Volatility of Sales	1.6974	1.7551	1.4174	0.6698
	(1.1053)	(1.1874)	(1.2484)	(1.3362)
Herfindahl-index	-0.4586	-0.6094	-0.7346	-1.4263
	(1.3027)	(1.3766)	(1.4161)	(1.5330)
Constant	*-1.7703****	*-0.0535*	*0.2436*	*0.5459*
	(0.5385)	*(0.9477)*	*(1.3189)*	*(1.4060)*
Number of observations	*733*	*733*	*723*	*684*
Pseudo R²	*0.6953*	*0.7207*	*0.7253*	*0.7409*

6.2. Results of the contract duration analysis

Table 7 presents the results of the OLS regressions regarding contract duration analysis. The regression tries to uncover the relationships between explicit contract duration and contractual terms and uncertainty for the CEOs and firms of the S&P 500 during the period of 2004 to 2013. The same regressions are performed as in the main analysis of this research, only the dependent variable is now contract duration in years and the contract length of the explicit contracts is added to the regressions. The interpretations in this part of the research are thus only applicable to explicit contracts.

Contract length shows a consistent positive and significant coefficient at the one percent level. This suggests that an increase in the explicit contract length with one page, increases the explicit contract duration with 2%. CEOs and firms are more willing to establish longer explicit contracts when the CEO is employed for a longer period of time. Non-competition clause has a consistent positive and significant coefficient. The longer a CEO with an explicit contract works in a firm, the more likely it will be that the CEO has to sign a non-competition clause. The other contract characteristics are not significant and thus not likely to be different from zero. None of the CEO characteristics are significant. For the compensation characteristics, target bonus shows a positive and significant relationship with explicit contract duration in regression (III), but this becomes insignificant in regression (IV). Initial option award shows a positive and significant relationship with explicit contract duration in regression

Table 7 Contract Duration Analysis OLS Regressions Results

This table presents the results of the Ordinary Least Squares Model regressions for the contract duration analysis. The regressions investigate how the contract duration of explicit contracts of CEOs and firms in the S&P 500 during the period of 2004 to 2013 relates to uncertainty. Also, the regressions try to uncover the relationships of contract, CEO, compensation and firm characteristics with explicit contract duration. The dependent variable is contract duration, denoted in years. The definitions of the independent variables are given in Table 1. The table reports the coefficient results of the regressions. The standard deviations are given in parentheses. Significance levels are denoted as follows: * p < 0.10, ** p < 0.05, *** p < 0.01.

Dependent variable: Contract Duration	**I**	**II**	**III**	**IV**
Contract Length	0.0203***	0.0185***	0.0186***	0.0201***
	(0.0067)	(0.0069)	(0.0069)	(0.0076)
Employment At Will	-0.2808	-0.2780	-0.2643	-0.2936
	(0.2242)	(0.2269)	(0.2249)	(0.2500)
Amendment Protection	0.4320	0.4585	0.5195	0.3516
	(0.3898)	(0.4040)	(0.3954)	(0.4512)
Non-competition Clause	0.8243**	0.8065**	1.2056***	1.0982**
	(0.3572)	(0.3603)	(0.3900)	(0.4542)
Confidentiality Clause	-0.2168	-0.2590	-0.3605	-0.3148
	(0.4488)	(0.4542)	(0.4499)	(0.4861)
Arbitration Clause	-0.3399	-0.3377	-0.2895	-0.3286
	(0.2083)	(0.2098)	(0.2091)	(0.2392)
Change of Control Agreement	-0.1900	-0.1792	-0.2854	-0.3862
	(0.3060)	(0.3080)	(0.3163)	(0.3806)
CEO Dismissal for Cause	0.0635	0.0908	-0.0870	-0.6237
	(0.6185)	(0.6304)	(0.6664)	(0.8490)
CEO Resignation for Good Reason	0.3652	0.3339	0.5379	0.7847
	(0.3718)	(0.3800)	(0.4049)	(0.4912)
CEO Age		-0.0089	-0.0118	-0.0103
		(0.0124)	(0.0123)	(0.0134)
External CEO		0.1550	-0.0127	-0.1067
		(0.1673)	(0.1806)	(0.2027)
CEO in Board of Directors		-0.0556	-0.2283	-0.2929
		(0.2605)	(0.2624)	(0.3399)
Base Salary			-0.0752	-0.0505
			(0.0634)	(0.0703)
Target Bonus			0.2856*	0.3002
			(0.1530)	(0.1866)
Initial Option Award			0.0155	0.0241*
			(0.0141)	(0.0160)
Initial RSU Award			0.0065	0.0015
			(0.0159)	(0.0178)
Cash Sign-on Bonus			-0.0010	0.0091
			(0.0159)	(0.0170)
Retirement			0.2973	0.3133
			(0.2972)	(0.3344)
Supplemental Retirement			-0.0493	-0.0047
			(0.1878)	(0.2060)

Perquisites			-0.6481**	
			(0.2705)	
Club Dues				0.0343
				(0.2169)
Automobile Allowance				-0.3492*
				(0.1958)
Aircraft Allowance				-0.1522
				(0.2309)
Leverage	0.0783	0.0815	0.1950	0.2942
	(0.3240)	(0.3255)	(0.3215)	(0.3517)
Book Assets	-0.0007	0.0027	0.0128	-0.0004
	(0.0258)	(0.0261)	(0.0268)	(0.0301)
Industry-adjusted EBIT/Assets	0.1944	0.1766	-0.1454	-0.0635
	(0.4032)	(0.4061)	(0.4104)	(0.4602)
Median Volatility of Sales	1.4147	1.2838	1.0808	1.4844
	(1.0688)	(1.0922)	(1.0981)	(1.2324)
Herfindahl-index	0.4889	0.4559	-0.0424	0.1057
	(1.2955)	(1.3045)	(1.2867)	(1.3762)
Constant	*1.3383*	*1.8058**	*2.7015***	*2.5855**
	(0.8274)	*(1.0788)*	*(1.2057)*	*(1.3337)*
Number of observations	*180*	*180*	*175*	*160*
R^2	*0.1177*	*0.1259*	*0.2232*	*0.2063*

(IV), suggesting that the longer the explicit term of employment of the CEO with the firm is, the higher the initial option award in shares will be upon commencement of the employment. Perquisites shows a significant negative relationship with explicit contract duration. This suggests that the longer the term of a CEO with an explicit contract will be at a firm, the fewer perquisites he receives. It seems that CEOs that have a longer explicit employment term attach less value to perquisites. The significant and negative coefficient of automobile allowance is in accordance with this intuition. None of the firm characteristics are significant, hence no conclusions can be made for uncertainty in this case.

Table 8 presents the results of the Tobit model regressions. This model will check if the findings of table 7 are consistent with this model. The same regression framework is performed. Contract length remains positive and significant at the one percent level for all regressions; the longer an explicit contract, the longer the explicit contract duration. Non-competition clause is also positive and significant, suggesting that a non-competition clause is more likely when the term of an explicit contract is longer. Arbitration clause shows a significantly negative coefficient for the first and second regression, but this coefficient becomes insignificant in the full regression. CEO resignation for good reason became significantly positive in regression (IV), suggesting that this provision is more likely if the explicit contract duration increases. Target bonus shows a positive and significant coefficient for both regressions (III) and (IV) in this table, suggesting that CEOs have a higher target bonus the longer their explicit contract duration is. They receive relatively more incentive-based compensation. Initial

Table 8 Contract Duration Analysis Tobit Model Regressions Results

This table presents the results of the Tobit Model regressions for the contract duration analysis. The regressions investigate how the contract duration of explicit contracts of CEOs and firms in the S&P 500 during the period of 2004 to 2013 relates to uncertainty. Also, the regressions try to uncover the relationships of contract, CEO, compensation and firm characteristics with explicit contract duration. The dependent variable is contract duration, denoted in years. The definitions of the independent variables are given in Table 1. The table reports the coefficient results of the regressions. The standard deviations are given in parentheses. Significance levels are denoted as follows: * p < 0.10, ** p < 0.05, *** p < 0.01.

Dependent variable: Contract Duration	**I**	**II**	**III**	**IV**
Contract Length	0.0203***	0.0185***	0.0186***	0.0201***
	(0.0064)	(0.0066)	(0.0063)	(0.0069)
Employment At Will	-0.2808	-0.2780	-0.2643	-0.2936
	(0.2147)	(0.2153)	(0.2075)	(0.2271)
Amendment Protection	0.4320	0.4585	0.5195	0.3516
	(0.3732)	(0.3833)	(0.3648)	(0.4099)
Non-competition Clause	0.8243**	0.8065**	1.2056***	1.0982***
	(0.3420)	(0.3418)	(0.3599)	(0.4126)
Confidentiality Clause	-0.2168	-0.2590	-0.3605	-0.3148
	(0.4297)	(0.4309)	(0.4151)	(0.4415)
Arbitration Clause	-0.3399*	-0.3377*	-0.2895	-0.3286
	(0.1994)	(0.1990)	(0.1930)	(0.2173)
Change of Control Agreement	-0.1900	-0.1792	-0.2854	-0.3862
	(0.2930)	(0.2922)	(0.2918)	(0.3457)
CEO Dismissal for Cause	0.0635	0.0908	-0.0870	-0.6237
	(0.5922)	(0.5980)	(0.6149)	(0.7712)
CEO Resignation for Good Reason	0.3652	0.3339	0.5379	0.7847*
	(0.3560)	(0.3605)	(0.3736)	(0.4462)
CEO Age		-0.0089	-0.0118	-0.0103
		(0.0117)	(0.0113)	(0.0122)
External CEO		0.1550	-0.0127	-0.1067
		(0.1588)	(0.1666)	(0.1841)
CEO in Board of Directors		-0.0556	-0.2283	-0.2929
		(0.2471)	(0.2421)	(0.3087)
Base Salary			-0.0752	-0.0505
			(0.0585)	(0.0638)
Target Bonus			0.2856**	0.3002*
			(0.1412)	(0.1694)
Initial Option Award			0.0155	0.0241*
			(0.0130)	(0.0145)
Initial RSU Award			0.0065	0.0015
			(0.0147)	(0.0162)
Cash Sign-on Bonus			-0.0010	0.0091
			(0.0147)	(0.0154)
Retirement			0.2973	0.3133
			(0.2742)	(0.3037)
Supplemental Retirement			-0.0493	-0.0047
			(0.1733)	(0.1871)

Perquisites			-0.6481***	
			(0.2496)	
Club Dues				0.0343
				(0.1970)
Automobile Allowance				-0.3492*
				(0.1778)
Aircraft Allowance				-0.1522
				(0.2098)
Leverage	0.0783	0.0815	0.1950	0.2942
	(0.3102)	(0.3088)	(0.2967)	(0.3195)
Book Assets	-0.0007	0.0027	0.0128	-0.0004
	(0.0247)	(0.0248)	(0.0247)	(0.0273)
Industry-adjusted EBIT/Assets	0.1944	0.1766	-0.1454	-0.0635
	(0.3860)	(0.3852)	(0.3787)	(0.4180)
Median Volatility of Sales	1.4147	1.2838	1.0808	1.4844
	(1.0233)	(1.0361)	(1.0132)	(1.1194)
Herfindahl-index	0.4889	0.4559	-0.0424	0.1057
	(1.2403)	(1.2375)	(1.1873)	(1.2500)
Constant	*1.3383**	*1.8058**	*2.7015***	*2.5855***
	(0.7922)	*(1.0234)*	*(1.1125)*	*(1.2114)*
Number of observations	*180*	*180*	*175*	*160*
Pseudo R²	*0.0423*	*0.0454*	*0.0857*	*0.0773*

option award is still positive and significant; the higher the initial option award, the longer the explicit contract duration. Perquisites and automobile allowance still show a significant negative relationship with explicit contract duration, suggesting that CEOs that have a longer explicit employment term attach less value to perquisites. The CEO and firm characteristics remain insignificant.

From the results of the investigation into the explicit contract duration, it is hard to draw a conclusion about the relation of contract duration and uncertainty. None of the variables that reflect uncertainty were significant. Therefore, it cannot be concluded that CEOs that face more uncertainty have longer contract durations and hypothesis six is rejected. For compensation, a longer explicit contract duration was more likely when the CEO had a higher target bonus; and thus received more incentive-based compensation, and a higher initial option award. This suggests that CEOs that have more to lose in the event the firm does not adhere to the contract, have a longer explicit contract duration. Hence, hypothesis seven is accepted.

7. Results additional analysis; the 2007 financial crisis analysis

In this section the results of the additional analysis are presented. The summary statistics are presented of the variables in this research for the periods before, during and after the 2007 financial crisis. In this manner, differences in provisions and other contractual terms over time can be observed to find support for the influence of uncertainty on the choice of an implicit or explicit contract and to encourage further research into the relations of the choice of an implicit or explicit contract and economic conditions.

Table 9 presents the summary of the variables in three groups; before, during and after the 2007 financial crisis. In this manner, it is possible to see if there is a difference in contractual terms before, during and after the crisis for the contracts of CEOs and firms in the S&P 500. The variables are again grouped in contract, CEO, compensation and firm characteristics. The percentage of explicit contracts has decreased by almost half from 45.10% before the crisis to 25.27% after the crisis, and implicit contracts have increased from 54.90% before the crisis to 74.73% after the crisis. This is in line with the findings of graph 1, which suggested a decrease in the percentage of explicit contracts over time. It seems that the financial crisis was of great influence on the type of contracts that CEOs and firms entered into; implicit contracts became more popular. Contract duration has a median value of 3 years for all three periods. It seems that the financial crisis had no influence on contract duration. The contract length has decreased from 10 pages before the crisis to 5 pages during and after the crisis. This is intuitive, as there were less long explicit contracts and more short implicit contracts over time.

The age of CEOs increased slightly; 52 years before the crisis to 53 years after the crisis. The median value of base salary increased with almost 100,000 dollars from 650,002 dollars to 750,001 dollars after the crisis. It seems that the crisis together with a shift to implicit contracts had a positive influence on the base salary, but to conclude this, further research into this is required. The target bonus increased slightly to 1 during the crisis. The initial option award become less popular to distribute as the median number of shares decreased from 37,417 to zero shares. Initial RSU award and cash sign-on bonus remained zero over time. The leverage ratio decreased during and after the crisis. It seems that firms that became aware of the risks in the market, became more careful with their debt and tried to reduce their financial risk. Book assets increased a lot during the crisis and then decreased to 90 million dollars after the crisis. A possible explanation for this can be that firms experienced a hard time with selling their products or services and this increased the assets. The industry-adjusted EBIT/Assets remained zero over time. The median volatility of sales increased from 0.19 to 0.20 during the crisis,

Table 9 2007 Financial Crisis Analysis Descriptive Statistics

The table reports the descriptive statistics for the 2007 financial crisis analysis. The period of 2004 to 2013 is divided in three groups: (1) before the crisis; 2004 to 2006, (2) during the crisis; 2007 to 2009, and (3) after the crisis; 2010 to 2013, to see the difference in contractual terms before, during and after the crisis. The number of observations, sample percentage of the observations, mean and median of the variables are given for the three different periods. The periods include the contracts of CEOs for firms of the S&P 500 and are grouped in contract, CEO, compensation and firm characteristics. The definition of the variables are given in Table 1. The standard deviations are given in parentheses.

	Before the crisis; 2004-2006				During the crisis; 2007-2009				After the crisis; 2010-2013			
	N	% of Total Sample	Mean	Median	N	% of Total Explicit Contracts	Mean	Median	N	% of Total Implicit Contracts	Mean	Median
Contract Characteristics												
Sample	**286**	**27,58%**			**379**	**36,55%**			**372**	**35,87%**		
Explicit Contract	**129**	**45,10%**			**127**	**33,51%**			**94**	**25,27%**		
Implicit Contract	**157**	**54,90%**			**252**	**66,49%**			**278**	**74,73%**		
Contract Duration	109	38,11%	3.0023	3	123	32,45%	2.8482	3	104	27,96%	2.9423	3
In years			(1.0003)				(1.0732)				(1.0271)	
Contract Length	286	100%	21.5734	10	379	100%	10.7203	5	372	100%	13.0242	5
In pages			(27.9749)				(12.9713)				(35.8320)	
CEO Characteristics												
CEO Age	286	100%	51.6539	52	379	100%	52.2929	52	372	100%	52.9328	53
In years			(6.5230)				(6.3384)				(6.3639)	
Compensation Characteristics												
Base Salary	284	99,30%	610,424.5636	650,001.5328	378	99,74%	582,532.3504	675,001.3703	371	99,73%	667,930.8973	750,001.1359
In dollars			(2.4565)				(5.5881)				(2.9473)	
Target Bonus	284	99,30%	0.8504	0.9250	378	99,74%	0.9110	1	371	99,73%	1.0120	1
Percentage/100			(0.6939)				(0.5403)				(0.6764)	
Initial Option Award	286	100%	801.8712	37,416.6099	377	99,47%	566.9584	7,259.9992	372	100%	38.5573	0
In shares			(515.4370)				(572.3742)				(311.2001)	
Initial RSU Award	282	98,60%	52.2743	0	379	100%	40.2673	0	372	100%	21.5005	0
In shares			(229.8314)				(214.7529)				(169.6046)	
Cash Sign-on Bonus	286	100%	5.7337	0	379	100%	8.8274	0	372	100%	8.4742	0
In dollars			(83.5734)				(128.7718)				(128.3254)	
Firm Characteristics												
Leverage	245	85,66%	0.2449	0.1700	326	86,02%	0.2207	0.1550	293	78,76%	0.2345	0.1600
Ratio			(0.2477)				(0.2322)				(0.2466)	
Book Assets	245	85,66%	40,614.4828	70,452.2180	326	86,02%	77,416.0963	136.332,2227	296	79,57%	44,370.4950	90,340.3967
In dollars, x 1000			(40.1005)				(30.8453)				(52.9218)	
Industry-adjusted EBIT/Assets	245	85,66%	-0.0462	0	326	86,02%	-0.0541	0	293	78,76%	-0.0553	0
Ratio			(0.2074)				(0.2128)				(0.2273)	
Median Volatility of Sales	252	88,11%	0.1990	0.1946	341	89,97%	0.2055	0.1978	333	89,52%	0.1759	0.1566
Ratio			(0.0801)				(0.0825)				(0.0793)	
Herfindahl-index	252	88,11%	0.0657	0.0450	341	89,97%	0.0658	0.0463	333	89,52%	0.0718	0.0506
Ratio			(0.0562)				(0.0635)				(0.0673)	

and then decreased to 0.16 after the crisis. After the crisis, the risk firms faced because of volatile sales decreased. The Herfindahl-index increased slowly from 0.045 before the crisis to 0.051 after the crisis. The firms in the S&P 500 became larger in relation to their industry and faced less competition in their industry. This seems plausible, as a lot of firms went bankrupt and firms merged during and after the crisis.

Table 10 presents the summary of the dummy variables for the three groups before, during and after the 2007 financial crisis for CEOs and firms in the S&P 500. The variables are divided in contract, CEO and compensation characteristics. As mentioned earlier, the share of explicit contracts decreased and the share of implicit contracts increased a lot. For the contract characteristics, change of control agreement, CEO dismissal for cause and CEO resignation for good reason remain the most common provisions for the contracts over time. These provisions became more important as they were included in the contracts more often than before the crisis. For the CEO characteristics, external CEO increased during the crisis, but then decreased to an even lower percentage than before the crisis. Appointing a CEO from outside the firm became less popular. Simultaneously, firms appointed their CEO more often as a member of the board of directors after the crisis. A possible explanation can be cost reduction, as it was often observed during the data collection that CEOs did not receive any additional compensation for their services as a director of the board. For the compensation characteristics, perquisites was the most common provision with inclusion in 87% of the contract. During and after the crisis, however, the most common provision was retirement benefits. There was a shift in importance from additional compensation to compensation for the future. It seems CEOs became more careful with compensation and attached more value to future compensation. Retirement benefits were included slightly more after the crisis and supplemental retirement benefits became less popular. The percentage of perquisites in the contracts remained the same over time; roughly 87% of the contracts included perquisites offered to the CEO. For these perquisites, club dues and automobile allowance were offered less frequently, while aircraft allowance experienced a small decrease during the crisis and then increased again after the crisis to 28% of the contracts in the S&P 500. Most of the time, CEOs were permitted to use the company aircraft for safety reasons. As safety is always important, this can explain the increase and provision of this additional perquisite during and after the crisis. For the other perquisites of the CEOs, it seems that these are more aligned with the perquisites normal employees of the firm receive after the crisis.

From the tables and graph 1, it is clear that the choice of an implicit or explicit contract and certain terms in the contracts changed during the 2007 financial crisis. The uncertainty during and after the crisis seemed to have an influence on this choice and the contractual terms. However, these

Table 10 2007 Financial Crisis Analysis Descriptive Statistics of the dummy variables

The table reports the summary statistics of the dummy variables for the 2007 financial crisis analysis. The period of 2004 to 2013 is divided in three groups: (1) before the crisis; 2004 to 2006, (2) during the crisis; 2007 to 2009, and (3) after the crisis; 2010 to 2013, to see the difference in contractual terms before, during and after the crisis. The total number of observations for each variable is given together with the number and percentage of contracts containing the provision for the three different periods. For all three groups, the percentage of contracts containing the provision is based on the number of total observations of each variable separately. In this way missing observations are not included in the percentages. The periods include the contracts of CEOs for firms of the S&P 500 and are grouped in contract, CEO and compensation characteristics. The definition of the variables are given in Table 1.

	Before the crisis; 2004-2006			During the crisis; 2007-2009			After the crisis; 2010-2013		
	Total observations	Number of Contracts Containing Provision	% of Contracts Containing Provision	Total observations	Number of Contracts Containing Provision	% of Contracts Containing Provision	Total observations	Number of Contracts Containing Provision	% of Contracts Containing Provision
Contract Characteristics									
Sample	**286**		**27,58%**	**379**		**36,55%**	**372**		**35,87%**
Explicit Contract	**129**		**45,10%**	**127**		**33,51%**	**94**		**25,27%**
Implicit Contract	**157**		**54,90%**	**252**		**66,49%**	**278**		**74,73%**
Employment At Will *Yes = 1*	286	56	19,58%	379	60	15,83%	372	69	18,55%
Amendment Protection *Yes = 1*	286	132	46,15%	379	137	36,15%	372	117	31,45%
Non-competition Clause *Yes = 1*	286	179	62,59%	372	263	70,70%	365	265	72,60%
Confidentiality Clause *Yes = 1*	281	184	65,48%	372	242	65,05%	365	260	71,23%
Arbitration Clause *Yes = 1*	274	103	37,59%	371	134	36,12%	365	115	31,51%
Change of Control Agreement *Yes = 1*	285	245	85,96%	371	348	93,80%	366	336	91,80%
CEO Dismissal for Cause *Yes = 1*	281	222	79,00%	373	344	92,23%	367	323	88,01%
CEO Resignation for Good Reason *Yes = 1*	277	199	71,84%	372	335	90,05%	367	318	86,65%
CEO Characteristics									
External CEO *Yes = 1*	286	124	43,36%	379	187	49,34%	372	142	38,17%
CEO in Board of Directors *Yes = 1*	286	238	83,22%	379	368	97,10%	372	356	95,70%
Compensation Characteristics									
Retirement *Yes = 1*	286	245	85,66%	379	358	94,46%	372	348	93,55%
Supplemental Retirement *Yes = 1*	283	123	43,46%	379	150	39,58%	370	142	38,38%
Perquisites *Yes = 1*	286	250	87,41%	379	330	87,07%	372	324	87,10%
Club Dues *Yes = 1*	240	75	31,25%	373	88	23,59%	367	70	19,07%
Automobile Allowance *Yes = 1*	240	125	52,08%	373	160	42,90%	367	146	39,78%
Aircraft Allowance *Yes = 1*	240	70	29,17%	373	83	22,25%	367	103	28,07%

suggestions were drawn from the summary of the variables. To conclude with certainty that the 2007 financial crisis has an influence on these variables, further research is much-needed. In this manner, more clarity about the effect of economic conditions on the contracting process between CEOs and firms can be gained. This is very important, as the contractual terms of CEOs are much-discussed nowadays, in particular the high compensation of CEOs.

The increase in the provisions change of control agreement CEO resignation for good reason show that CEOs were still able to protect themselves for harmful actions of the firm. The drop in amendment protection is logical, as this form of protection mostly occurred together with an explicit contract and the percentage of explicit contracts decreased significantly during and after the crisis. The increase in the provisions non-competition clause, confidentiality clause and CEO dismissal for cause suggest that firms too were able to protect themselves for harmful actions of the CEO. Once more, in line with Schwab and Thomas (2006), the table suggests that both parties seem to have bargaining power during the establishment of a contract, regardless of the type of contract.

8. Discussion

In this section a brief discussion of the robustness of the results is given. Then the limitations of this research are discussed to stimulate the much needed further research in this relatively new topic.

8.1. Robustness of the results

When looking at the R-squared, the regressions of the choice of an implicit or explicit contract show high values for both the LMP and Probit model. The regressions of the contract duration analysis show relatively lower values for the R-squared. It seems the data for the regressions of the choice of an implicit or explicit contract fit the model relatively better, as a higher R-squared means that the data fits the model better. Nonetheless, this does not mean that the results for the contract duration regressions are not important, as a significant relationship can show the mean change if the independent variable changes with one unit. The results of the regression can still be of great value, especially for a relatively new topic like this.

8.2. Limitations of the research

This research provides one of the first and a good foundation for investigating the choice of an implicit or explicit contract and the explicit contract duration. Nevertheless, there are some points that limited this research. The problem of endogeneity is very likely to be present in this research. Unobserved factors can be present that influence the effect of having an explicit contract on the contractual terms and uncertainty. The same is likely for the explicit contract duration analysis. This problem can be solved by including as many variables as possible that can influence the effects for both analyses. However, it is impossible to include all factors that can influence these effects, as it will negatively influence the clearness of this paper. Next to that, it is very hard to know all the variables that influence the effects, and some might be hard to measure. This research tried to account for some part of the problem of endogeneity by performing the regressions with others models; the Probit and Tobit models. The paper of Gillan, Hartzell and Parrino (2009) included variables in the regression that checked if the prior CEO in the firm was fired, the percentage of stock ownership the CEO had and abnormal compensation at risk to see if the CEO faced more uncertainty regarding alterations of his contract and had relatively more compensation to lose. However, this research included other variables that were not present in the paper of Gillan, Hartzell and Parrino (2009), like whether the CEO was in the board of directors or the initial option and RSU awards, as this had a better fit with the other variables. Also, this information was standardly included in the CEO contracts and therefore seemed more important for research into the choice of an implicit or explicit contract.

Contract duration had a lot of missing observations for implicit contracts. For this reason, contract duration was not included in the main analysis and the relationship between having an explicit contract and contract duration was not investigated. This, however, will be very interesting. The implicit contracts did not mention the term of the employment for the CEO, or they stated that the employment would continue till one of the parties terminated the employment; this reflects an infinite term. An infinite contract term occurred in 87 implicit contracts. The number of observations for the regressions, however, dropped significantly when contract duration was added to the regressions. To ensure the reliability of the variable contract duration and the results of the analysis, contract duration was left out, but used in the contract duration analysis to still make sure investigation regarding this variable was possible. It will be interesting to see how contractual terms and uncertainty relate to infinite contract duration terms or contract renewals, and this might be an interesting point for future research. Contract length was included for the contract duration analysis only, as the length of the contract was only reliable for explicit contracts. Implicit contracts are hard to measure, as they are not written down.

The final dataset of this research included 1,037 contracts for firms of the S&P 500 index. When performing the regressions, the number of observations dropped significantly to 684 contracts. For statistical analysis, more observations are necessary to draw more accurate and reliable conclusions about the choice of an implicit or explicit contract. This means, however, that more contracts have to be read and processed into a dataset. This was not possible for this research as it had a time limit, but this is an interesting addition for future research.

When taking a step back and looking at the reliability of the results, it is necessary to note that this research did not account for differences in industry. Some variables were calculated for firms within the industry for the primary two-digit SIC industry in which the firm competes, but it is highly likely that other contractual terms will differ between firms of other industries. The base salary can be dependent on the turnover of the industry of a firm. Next to that, it is hard to draw conclusions about the process of CEO contracting based on terms in the contract, as these terms are the outcome of the process. The best way to investigate the choice of an implicit or explicit contract, is to observe the contracting process itself. Be present at the negotiations of the contract and follow whole process of establishing the contract, from the first negotiations till the contract is explicitly written down or, in case of an implicit contract, the official acceptance of employment. This is, unfortunately, impossible, as this will violate the privacy rights of both parties and proprietary information can leak.

9. Conclusion

9.1. Answer on the research question

It is very important to investigate the choice of an implicit or explicit contract, as much-discussed outcomes of contracting processes like CEO turnover and CEO compensation are likely to be affected by this choice. Next to that, it is observed that less than half of the CEOs and firm of the S&P 500 have explicitly written contracts, yet it is not clear why this is the case. This research tried to provide some first insights into the choice of an implicit or explicit contract and the relation of contractual terms and uncertainty with this choice and explicit contract duration. The main analysis, with explicit contract as dependent variable, showed that hypothesis one that CEOs that have an employment at will are more likely to have an implicit contract, is accepted. The other hypotheses were rejected as the analysis did not find significant or clear relationships for uncertainty, competition, size of the firm, CEOs from outside the firm and compensation with having an explicit contract. It seems that these determinants do not influence the choice of an implicit or explicit contract. The additional analysis of the 2007 financial crisis, however, suggested that uncertainty seemed to have an influence on the choice of an implicit or explicit contract and the contractual terms. There was a significant change in the share of explicit contracts after the crisis. Before the crisis this share was decreasing. During the crisis, the decline in the share of explicit contracts ceased. CEOs and firms seemed to agree to explicit contracts in times of uncertainty. However, this relation was suggested by patterns. Further research is needed to provide evidence for these patterns. Reconciling the results, the choice between an implicit or explicit contract for CEOs of firms in the S&P 500 index thus seems to be affected by the nature of the relationship; whether the employment is at will. There are some first suggestions that uncertainty influences the choice of an implicit or explicit contracts for the CEOs too, but further research into this is needed to draw a conclusion about this relationship.

The analysis of the contract duration of explicit contracts showed that hypothesis seven of CEOs that have more to lose in the event the firm does not adhere to the contract, indeed have a longer explicit contract duration; CEOs that receive more incentive-based compensation and shares upon commencement of their employment, are more likely to have a longer explicit contract duration. No clear relationship was found for explicit contract duration and uncertainty. In line with Schwab and Thomas (2006), the provisions of both explicit and implicit contracts suggest that both the CEO and firm have bargaining power when establishing a contract.

9.2. Recommendations

This research investigates a relatively new topic in the literature of the contracting process with CEOs. As it attempts to provide some first insights in the choice of an implicit or explicit contract, it is obvious that this research has its limitations and, more importantly, interesting points for future research. First, it will be interesting to see if the current results will hold if the number of contracts will increase. This research includes 1,037 contracts for CEOs of firms in the S&P 500 in the years 2004 to 2013. When performing regressions, it is common that the number of observations drop because of missing variables. More observations will mean relatively more accurate and reliable results. Also, with more observations other significant relationships might be found. If there is no constraint on time, this could have useful insights. Second, it will be nice to include some additional variables that can be very important for the choice of an implicit or explicit contract. Control variables for industries will be very useful, as differences in industries will be very likely to influence the choice of an implicit or explicit contract and the terms of the contract. More innovative industries can require flexibility, which is provided with an implicit contract. Finally, as this topic is very new, future research in the choice of implicit or explicit contract in general is very important to understand what factors influence this choice. The same holds for analysis in the contract duration of explicit contracts and the influence of economic conditions on the contracting process between CEOs and firms, as this will help in understanding the terms and structure of contracts.

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Appendix

Table 4 Correlation table

The table reports the correlations of the variables used in this research. The variables include the contracts of CEOs for firms of the S&P 500 from 2004 till 2013. The table also reports the significance of the correlations. Significance levels are denoted as follows: * p < 0.10, ** p < 0.05, *** p < 0.01. The definition of the variables are given in Table 1.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Explicit/Implicit Contract	1														
2. Employment At Will	0.0829***	1													
3. Contract Duration	0.0237	-0.0646	1												
4. Contract Length	0.1196***	0.0185	0.1199**	1											
5. Amendment Protection	0.8637***	0.1570***	0.0697	0.1247***	1										
6. Non-competition Clause	0.3483***	-0.0154	-0.0167	0.0264	0.3633***	1									
7. Confidentiality Clause	0.4009***	0.0566*	-0.0554	0.0575*	0.4432***	0.6746***	1								
8. Arbitration Clause	0.5628***	0.1576***	-0.0324	0.1407***	0.5914***	0.3272***	0.4273***	1							
9. Change of Control Agreement	0.0270	-0.0128	0.0128	-0.0298	0.0763**	0.1593***	0.1457***	0.0772**	1						
10. CEO Dismissal for Cause	0.1860***	-0.0330	-0.0296	-0.0068	0.2155***	0.2987***	0.2838***	0.1779***	0.3464***	1					
11. CEO Resignation for Good Reason	0.1484***	-0.0171	0.0137	-0.0196	0.1765***	0.2890***	0.2431***	0.1346***	0.3664***	0.8251***	1				
12. CEO Age	-0.0398	0.0051	-0.0975	-0.0309	-0.0310	-0.0403	-0.0124	-0.0219	-0.0385	0.0048	-0.0301	1			
13. External CEO	0.2389***	0.1330***	0.1354**	0.1038***	0.2630***	0.1466***	0.2073***	0.2127***	-0.0010	0.1260***	0.1435***	-0.0330	1		
14. CEO in Board of Directors	-0.1078***	-0.0060	0.0066	-0.0575*	-0.0545*	0.0149	-0.0013	-0.0786**	0.0284	0.0404	0.0873***	0.0232	0.0583*	1	
15. Base Salary	0.0352	-0.0275	0.1162**	0.0134	0.0297	0.0334	-0.0145	-0.0236	-0.0032	0.0346	0.0363	0.0037	-0.0351	-0.0044	1
16. Target Bonus	0.0396	-0.0073	0.1161**	0.0027	0.0651**	0.1257***	0.0644**	0.0578*	0.0629**	0.0696**	0.1060***	0.0121	0.0786**	0.0599*	0.2054***
17. Initial Option Award	0.1540***	0.1091***	0.0649	0.0104	0.1614***	0.0011	0.0646**	0.1351***	-0.0084	-0.0042	0.0166	-0.0417	0.2906***	-0.0191	-0.0119
18. Initial RSU Award	0.0854***	0.0782**	0.0750	0.0596*	0.0858***	0.0255	0.0631**	0.0721**	0.0837***	0.0722**	0.1169***	-0.0498	0.2221***	-0.0102	0.0639**
19. Cash Sign-on Bonus	0.1520***	0.0875***	0.0838	0.0859***	0.1837***	0.0991***	0.1129***	0.1349***	0.0627**	0.1188***	0.1072***	-0.0087	0.3592***	0.0684**	0.0622**
20. Retirement	-0.0072	-0.0517*	0.0488	0.0301	0.0146	0.0547*	0.0694**	0.0119	0.1087***	0.1010***	0.1352***	0.0010	0.0040	0.0510	0.0049
21. Supplemental Retirement	-0.1136***	-0.1239***	-0.0511	-0.0404	-0.1114***	0.0198	-0.0544*	-0.0919***	0.0042	-0.0443	-0.0322	0.0741**	-0.1329***	0.0441	0.0940***
22. Perquisites	0.0176	-0.1000***	-0.0453	0.0261	0.0388	0.1181***	0.0775**	0.0163	0.1563***	0.0995***	0.0657**	0.0068	0.0122	0.0488	0.0680**
23. Club Dues	0.0444	-0.0650**	-0.0595	0.0466	0.0070	-0.0153	0.0246	0.0289	0.0364	0.0287	0.0276	-0.0104	-0.0628**	-0.0367	0.0472
24. Automobile Allowance	0.0352	-0.0728**	-0.0414	0.0204	0.0626*	0.0599*	0.0257	0.0242	0.0370	0.0733**	0.0307	0.0572*	-0.0194	-0.0321	0.1271***
25. Aircraft Allowance	-0.0291	-0.0696**	0.0489	0.0162	-0.0147	0.0241	-0.0094	-0.0670**	-0.0268	-0.0333	-0.0333	0.0597*	-0.0705**	0.0162	0.1051***
26. Leverage	0.0420	-0.0151	0.0639	-0.0101	0.0417	0.0314	0.0469	0.0222	0.0228	-0.0002	-0.0250	0.0179	-0.0193	-0.0066	0.0580*
27. Book Assets	0.0041	0.0437	0.0479	0.0040	0.0049	-0.0391	-0.0095	0.0490	-0.0468	-0.0056	-0.0188	0.0672**	-0.0389	-0.0299	-0.0178
28. Industry-adjusted EBIT/Assets	-0.0085	0.0453	-0.0437	0.0235	-0.0073	0.0335	-0.0056	0.0496	-0.0491	0.0328	0.0321	0.0012	-0.0039	-0.0452	-0.0281
29. Median Volatility of Sales	-0.0193	0.0160	-0.0260	0.0180	-0.0408	-0.0665**	-0.0114	-0.0231	-0.0122	-0.0082	-0.0022	-0.0351	-0.0358	-0.0599*	-0.0051
30. Herfindahl-index	0.0118	-0.0461	-0.0009	-0.0201	0.0099	0.0959***	0.0869***	0.0504	-0.0883***	0.0095	0.0113	-0.0455	0.0093	0.0325	-0.0117

Table 4 - *Continued*

	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
1. Explicit/Implicit Contract															
2. Employment At Will															
3. Contract Duration															
4. Contract Length															
5. Amendment Protection															
6. Non-competition Clause															
7. Confidentiality Clause															
8. Arbitration Clause															
9. Change of Control Agreement															
10. CEO Dismissal for Cause															
11. CEO Resignation for Good Reason															
12. CEO Age															
13. External CEO															
14. CEO in Board of Directors															
15. Base Salary															
16. Target Bonus	1														
17. Initial Option Award	0.0510	1													
18. Initial RSU Award	0.0868***	0.3381***	1												
19. Cash Sign-on Bonus	0.1081***	0.1860***	0.2178***	1											
20. Retirement	0.0339	-0.0419	0.0108	0.0267	1										
21. Supplemental Retirement	-0.0246	-0.1590***	-0.0927***	-0.0731**	0.2115***	1									
22. Perquisites	0.0527*	-0.0680**	-0.0003	0.0007	0.2507***	0.1821***	1								
23. Club Dues	-0.0299	-0.0800**	-0.0765**	-0.0093	0.0706**	0.1758***	0.2213***	1							
24. Automobile Allowance	0.0240	-0.0144	0.0124	0.0144	0.0849***	0.1031***	0.3451***	0.2585***	1						
25. Aircraft Allowance	0.2694***	-0.0592*	-0.0165	0.0116	0.0663**	0.1240***	0.2289***	0.1208***	0.1610***	1					
26. Leverage	-0.0068	0.0033	0.0385	-0.0136	0.0182	0.0695**	0.0300	0.0514	0.0286	0.0303	1				
27. Book Assets	-0.0532	-0.0169	0.0132	0.0267	0.0402	0.0293	0.0013	0.0757**	0.0053	0.0025	-0.1523***	1			
28. Industry-adjusted EBIT/Assets	0.0020	-0.0556	0.0568*	-0.0057	-0.0174	0.0524	-0.0516	0.0181	0.0128	0.0326	-0.1354***	0.4014***	1		
29. Median Volatility of Sales	-0.0004	-0.0247	-0.0204	-0.0548*	0.0209	-0.0593*	-0.0279	0.0872***	-0.0764**	-0.0729**	-0.1129***	-0.0556	-0.0317	1	
30. Herfindahl-index	0.0202	-0.0630*	-0.0263	0.0111	0.0037	-0.0043	0.0240	0.0072	0.0553	0.0840**	0.0721**	0.0261	0.0186	-0.2539***	1