Political connections and CEO compensation
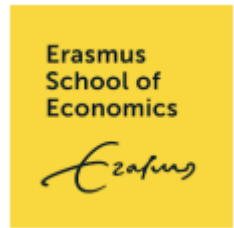

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Abstract / executive summary

This research aims to find a relevant determinant of CEO compensation. This is done by examining the relation between CEO donations to political entities and CEO compensation in the United States. The research employs an ordinary least squares (OLS) regression to explain the relation between both variables. The results show a statistically significant positive correlation at the 1% level between both variables. These results suggest that having stronger political connections positively influences CEO compensation in the United States. These findings are relevant for shareholders and compensation committees when determining the right level of CEO compensation. Furthermore, CEOs can utilise this information to determine if they should invest more in their political connections. These results are also relevant to regulators as this relation is an indicator of influence on themself from CEOs.

Keywords: CEO compensation, political connections, political donations, OLS regression

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1. Introduction

Numerous studies investigate determinants of CEO compensation, but it is still n
which factors drive CEO compensation. The fact that it is unclear how the compe
determined leads to angry shareholders who vote against compensation proposals
against the proposal in the case of Netflix. The percentage of voters who vote aga
proposals has grown significantly in recent years (Walton, 2023). This research therefore aims
to shed light on the subject and find a possible determinant to help explain the level of CEO.

One interesting social determinant could be political connections. Firms spent large amounts
of resources on influencing the government (Choi, 2023; Massoglia & Newell, 2023). This
made me wonder if these political connections could also be useful for CEOs and therefore
influence their pay. The focus of this research therefore is CEO political connections. The
corresponding research question is:

Does CEO compensation increase with increased CEO political connections?

The determinant "political connectedness of CEOs" received little attention in past research.
This variable is not mentioned in the meta-analysis paper of Van Essen et al. (2015) which
looked at 219 different US-based studies regarding CEO compensation. This is interesting,
because various papers have concluded that political connections lead to increased firm
performance in the United States (Goldman et al., 2009; Houston et al., 2014; Tarmizi &
Brahmana, 2022). Therefore, there is a clear gap in the relation between political connections
and top executives pay.

If political connections of top executives lead to better performance, then it would be
expected that these executives would be rewarded with better pay for this performance.
Therefore, this could be an important determinant in explaining the CEO compensation.

The previously mentioned research question is interesting because of several factors. Firstly,
this research could help CEOs in making their donation decisions. If the amount of donations
done by CEOs influences their pay, then they might want to donate more. Secondly, the
research could be interesting for compensation committees. They must assess the CEO on
numerous factors. If political connections explain overall CEO compensation in the market,
then the committee must take this into account as well. Thirdly, the shareholders want to be
able to assess if the amount of compensation promised to the CEO is a fair pay. Knowing that
political connections are or are not a determinant of CEO pay could help them making this
assessment. Finally, this research helps to address a gap in the literature by establishing the
link between the political connections and CEO pay. This research helps in understanding the
height of CEO pay.

1.1 Methodology

For this research, a simple OLS regression research design is used. A regression is run on the
variables CEO political connections and CEO pay. The independent variable, CEO political
connections, is measured as the log of the total political donations in a year. CEO

compensation will be measured as the log of the total CEO compensation in a year. This includes every part of the compensation that a CEO receives.

This research looks at the timeframe of 2010 until 2021. The data for this research will be gathered from a couple different databases. The first database used is the FEC database on political donations. This database includes all the donations to political entities in the United States. The second database is the Execucomp database. This database includes the compensation from the CEOs from top US companies. The third database that is used is the Compustat database, this database includes financial statistics about companies in the United States.

1.2 Findings
This study finds a significant positive effect, at the 1% level, of CEO political connections on CEO compensation. The coefficient is relatively small with a size of 0.016. This means that an increase of donations by 1% leads to an increase of CEO compensation by 0.016%.

1.3 Contribution
Various studies found a positive relation between political connections and firm performance in the United States (Acemoglu et al., 2016) and abnormal returns (Arikan et al., 2022). But, to my knowledge there has been no study that researched the effect of CEO political connections and CEO compensation in the United States. Wu et al. (2018) did study this effect in China, they concluded that political connections positively impacted Firm performance and CEO compensation. They also found that the effect was stronger for less developed regions in China. In their conclusion they also suggested other researchers to examine more developed countries and to research if political connections also drive executive compensation in those countries. This research found that even in a developed country, like the United States, political connections still influence CEO compensation.

1.4 Implications
These results are relevant for compensation committees and shareholders, they must take political connections into account when determining CEO pay. CEOs have to evaluate their own political status and think about how they can strengthen their political connections as this can increase their compensation. Regulators have to examine these results and wonder if the increased CEO compensation is an indication that CEOs can influence them, of which they should be aware if that is the case.

2 Theoretical background and hypothesis development
This chapter explains how political connections could influence the total compensation of a CEO. Concisely put, the CEO will use their political connections to improve firm performance by influencing regulators to grant tax cuts for example. Companies will award the CEO for increased performance and will also recognize the value of the political connection of the CEO. The compensation of the CEO will therefore increase. The supporting research is discussed hereafter.

2.1 Political connectedness

The definition of political connections as given by Faccio (2006) is the institutional relationships between a firm and the (local) government. The firms can use this privileged access to their benefit in various ways. It uses these connections to reduce costs, allow the firm to enter new markets, and in turn become more profitable (Canen & Wantchekon, 2022).

These political connections are present worldwide, but especially in emerging markets. This is the case because of different characteristics of these markets. The government has more influence and the firms operate in an environment with rapid economic expansion (Bliss & Gul, 2012; Chen et al., 2017).

These political connections can be obtained in various ways. Some examples include supporting political parties with donations (direct), employing (ex-)politicians (indirect), or networking by the personnel of the firm (indirect) (Papadimitri, 2019). Various countries impose restrictions for these political connections. One example is to limit donations to political parties and politicians. Other ways to reduce the influence that firms have on politics are banning corporate campaign contributions, using referenda, and randomized audits of the behaviour of politicians (Canen & Wantchekon, 2022).

These policies increase the welfare of the countries in which they are imposed (Prat, 2002; Coate, 2004; Ashworth, 2006). The United States do not impose these limitations by my knowledge.

Lobbying agencies and companies aim to achieve one or several outcomes of the following outcomes by using political connections (Grossman & Helpman, 2001). The first outcome that they try to achieve is to buy access. They want to make sure that the politician knows what the company wants. The second outcome is to buy credibility. This is the case when the company first expresses their interest in a particular topic and spends money to support their interest by donating to campaigns for example. This signals that the company really cares about this specific legislation or topic. The third outcome is to buy influence. The firms hope to directly influence politicians to approve favourable legislation by making contribution to political entities.

2.2 Political connectedness and firm performance

This study is partially built upon resource-dependence theory which Pfeffer and Salancik (2003) wrote about in their seminal work. The theory explains how organizations are affected and can reduce their exposure to risks in their environment. By doing this they can improve their competitive advantages. One of the five environments in which they can reduce risks is the political environment (Hillman et al., 2009). For most firms, the government has a considerable influence on the firms and pose a lot of external uncertainty (Wu et al., 2018).

Most of the times, firms must deal with the government that imposes legislation on them. Moving out of their influence is almost impossible or very costly. They therefore try to influence the social system that they are operating in instead of trying to move out of its influence. By doing this they aim to reduce the uncertainty and interdependence on these systems and in turn the risk associated with this (Hillman et al., 2009). These Firms try to create an environment that is favourable to them through these political mechanisms and in

this way adjust their environment (Pfeffer & Salancik, 2003, p. 190). These political connections enable firms to influence policies to benefit themselves (Hillman et al., 1999).

Prior research has shown that political connections have significant impact on firms' performance in different aspects. These benefits can come in various forms influencing most aspects of business. The political connections can help to achieve easier access to debt financing (Faccio, 2006), receive more government subsidies (Johnson & Mitton, 2003), increase tax benefits (Faccio, 2006; Wu et al., 2012), grant earlier and easier access to loans/bailouts from the government (Li et al., 2008; Blau et al., 2013) and less regulatory enforcement action (44,7%) against politically connected banks (Lambert, 2018).

Al these benefits taken together result into significant deviations in areas like total market valuation, abnormal returns, and ROA. Gropper et al. (2015) have shown that political connected entities in the banking industry have a significant higher return on assets (ROA) when they have political connections. Another example of political connections influencing firm performance is the research of Wu et al. (2018) in China. They find that political connections significantly influence the ROA of Chinese firms with political connections.

Not much research has been conducted on political connections and firm performance in the United States. Acemoglu et al. (2016) did however research the nominee for state secretary for Timothy Geithner and found that financial firms connected to him had a 12% abnormal return after 10 days. But, after news came through that his appointment might be derailed by tax issues the connected firms suffered negative abnormal returns. Chaney et al. (2011) investigated the quality of accounting information together with the cost of debt and political connections. They found that inferior quality accounting information increased the cost of debt, except for political connected firms in which case it had little influence if the accounting information was of inferior quality or not.

These examples show that political connections can significantly influence firm performance. All these benefits together lead to higher market valuations (Fisman, 2001; Johnson & Mitton, 2003; Hillman, 2005; Faccio, 2006).

Although most researchers find political connections to be beneficial to the firm, some papers do document a negative relation. Wu et al. (2012) find that political connections not only influence the government to do beneficial things for the firm, but that the firm also is of use to the government at its own cost. They found that politically connected firms in China overinvest free cash flow to help increase GDP and reduce unemployment. This negatively influences firm performance. This shows that managers are more concerned with fulfilling the government's objective than achieving profit maximization (Wu et al., 2012).

Bertrand et al. (2018) also performed an investigation into political connections in France where they also found negative side effects. The CEOs of French firms used firm resources to help secure wins for local politicians. They found that this effect was stronger in the case of close elections. The firms in this case invested more money into new plant openings before elections and postponed plant closures to after the elections. The firms also hired more personnel before elections and postponed firing personnel to after the elections. Bertrand et al. (2018) theorise that the reason for this could be either to secure personal benefits for the CEO

or because they found it hard to withstand pressure from these local politicians. Besides all these negative effects they also found no significant relation between political connections and tax benefits or subsidies.

2.3 Principal agency problem & Information asymmetry

Another underlying theory for this paper is the agency problem theory. There are of course a lot of different stakeholders that want something from the CEO, a couple are shareholders, debtholders, and employees. For this research we focus on the agency problem between shareholders and the CEO.

One way to mitigate the shareholder-CEO agency problem and reduce agency costs for the firm is to align the incentives of shareholders to the incentives of a CEO (John et al., 2010). A common way to do this is by increasing the pay-for-performance sensitivity of the CEO (Hallman et al., 2011). Jensen and Murphy (1998) claim that increasing the pay-for-performance incentive would lead to increased company performance. Jensen and Meckling (1976) also state that the agency theory suggests that shareholder wealth is maximized if the CEO's wealth also strongly depends on firm performance. Research also suggest that this would be the case. Cai et al. (2015) found this to be true in practice as well. If a firm has a greater amount of information asymmetry, then they do not increase corporate governance but do increase the pay-for-performance sensitivity. Abdalkrim (2019) also found a significant positive link between firm performance and the compensation of a CEO. The correlation between both variables is even stronger when a firm has better corporate governance (Abdalkrim, 2019; Kanapathippillai et al., 2019). This shows that firms try give CEO's compensation packages that are related to firm performance. Corporate governance therefore helps to reduce agency problems by aligning CEO and shareholder incentives (Kanapathippillai et al., 2019).

The reason that the agency problem is relevant in this context is because CEOs of companies need to invest time, money and/or effort to achieve the political connections. The agency theory poses that the agent does not want to increase his effort if this does not lead to increased compensation. The CEO therefore would not try to increase the amount and strength of political connections if he is not compensated for his efforts. This is also described as the "quiet life" agency problem. Bertrand and Mullainathan (2003) find that managers are reluctant to undertake cognitively difficult activities when their incentive to do so is taken away. Management is often incentivized by shares or options on the companies' shares. Although this is supposed to reduce agency problems, it can possibly lead to issues according to Morck et al. (1988). They theorize that after CEOs receive too much ownership that they will use their power to receive excessive benefits. Antounian et al. (2021) find that managerial entrenchment negatively affects CEO turnover-performance sensitivity, and firm performance. In their research they also found a form of rent extraction by the CEO, managerial entrenchment and CEO compensation had a positive relationship. An increase in the entrenchment also negatively affected firm performance and firm value. Song and Wan (2019) however conclude that the effect of managerial entrenchment on CEO compensation is not because of rent extraction. The results in their research suggest that this difference is instead because of a difference in managerial talent. The results therefore are mixed

2.4 CEO compensation

The compensation of the CEO is defined as the total of salary, bonusses, stock grants, the value of stock options and all other remunerations. This is in accordance with prior research regarding CEO compensation (Cao et al., 2019; Kayani & Gan, 2022; Kweh et al., 2022).

2.5 Firm performance and CEO compensation

The previously mentioned resource dependency theory poses that the CEOs' political connections is only useful if the firm profits from these connections in terms of firm value. There are two ways in which political connections can increase the total CEO compensation. The first way to add value to the firm is that the CEO uses the political connections to protect the firm from negative impacts tax penalties or instead gain subsidies from the government. Political connections and the value that they provide will therefore be considered when determining the amount of compensation for the CEO (Wu et al., 2018). The second way that political connections influence the compensation is that board of directors compare social statuses of CEOs and reward CEOs accordingly to those statuses. The political connections are an indicator for the political resources that the CEO has. A CEO gets higher compensation with a higher social status, this is after controlling for firm size, industry, firm performance and human capital (Belliveau et al., 1996). Wu et al. (2018) also theorise that the political connections of a firm can show the social status that the CEO has which can benefit firms further.

2.6 Hypothesis development

This chapter discusses the following research question:
Does CEO compensation increase with increased CEO political connections?

A political connection is the institutional relationship between a firm and the (local) government, firms try to benefit from this connection in various ways Faccio (2006). Political connections are more present in emerging markets but are present worldwide (Bliss & Gul, 2012; Chen et al., 2017). Policies that restrict political connections have an increase in welfare in the countries in which they are imposed (Prat, 2002; Coate, 2004; Ashworth, 2006). This suggests that firms benefit from these connections.

2.6.1 Agency problem theory

The first theory that implies a positive relation between CEO political connections and CEO compensation is the agency theory. The agency theory implies that a CEO will slack off if he/she is not awarded for his performance. This issue can be reduced by tying the CEO compensation to the firm performance by increasing the pay-for-performance sensitivity (Hallman et al., 2011). If political connections influence firm performance, then it is therefore expected that the CEO compensation will rise with increasing political connections.

2.6.2 Resource-dependency theory

The second theory that implies a positive relation between CEO political connections and CEO compensation is the resource-dependency theory. The government has a considerable influence on firms and give a lot of external uncertainty (Wu et al., 2018). These political connections enable firms to influence policies to benefit themselves and, in this way, manage

the uncertainty (Hillman et al., 1999). These resources of the CEO can therefore protect the firm from adverse influence and bring resources to the firm and in this way provide value to the firm. Companies will consider this value when determining the compensation of the CEO (Wu et al., 2018).

2.6.3 Empirical evidence

There are numerous studies on the effect of political connections and benefits for firms. Political connections provide easier access to debt financing (Faccio, 2006), more government subsidies (Johnson & Mitton, 2003), tax benefits (Faccio, 2006; Wu et al., 2012), government loans/bailouts (Li et al., 2008; Blau et al., 2013), and reduce enforcement action against banks (Lambert, 2018).

These benefits result in a higher ROA (Gropper et al., 2015; Wu et al., 2018), higher abnormal returns (Acemoglu et al., 2016), reduced cost of debt (Chaney et al., 2011) and higher market valuations (Fisman, 2001; Johnson & Mitton, 2003; Hillman, 2005; Faccio, 2006).

However political connections can also negatively influence the firm. Politically connected firms overinvest free cash flow to increase GDP and reduce unemployment (Wu et al., 2012; Bertrand et al., 2018). Bertrand et al. (2018) also find no significant benefit in the form of higher subsidies or lower (local) taxes.

Both theories therefore predict a positive relation between political connections and firm performance.

H1 There is a positive relation between CEO political connectiveness and CEO total compensation.

This hypothesis will be evaluated by running an OLS regression on political connectiveness and CEO total compensation.

3 Research design

3.1 Methodology

This chapter describes the methodology used in this thesis focusing on the effect of political donations made by CEOs on their compensation. In the following order the methodology is discussed: First, this research uses Libby boxes to describe the operationalisation of these variables (Libby, 1981). After, the control variables included are discussed. Followed by the regression model and expected sign of the coefficient. Finally, an overview of the Sample and data used in the study is provided.

3.2 Theoretical relations

The theoretical relation between the independent variable and the dependent variable is depicted in the Libby boxes included below. Hereafter I will delve deeper into each different operationalisation of the conceptual variables.
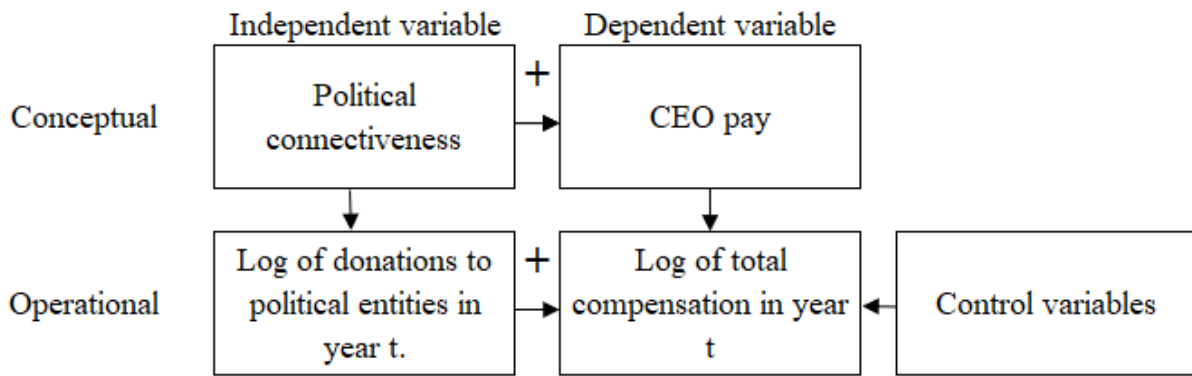
Figure 1 : Libby boxes

3.3 Regression model

The hypothesis previously mentioned which is the basis for our regression model is the following:

H1 There is a positive relation between CEO political connectiveness and CEO total compensation.

The regression to test this hypothesis is the following regression:

$$CEOTC_t = \beta0 + \beta1 * CEOPC_t + \beta2 * CV + \beta3 * IFE + \beta4 * YFE + \varepsilon$$

The dependent variable in this regression is CEOTCt which is equal to the natural logarithm of total compensation of a CEO in a given year. The independent variable in this regression is CEOPC which is equal to the natural logarithm of the CEO contribution in a given year. The control variables in this regression are depicted as "CV". All variables are further described below. The industry and year fixed effects are depicted as "IFE" and "YFE" in the regression.

The hypothesis states that total compensation is higher when the amount of donations is higher. The expected sign of the coefficient $\beta1$ is therefore expected to be positive according to our hypothesis.

3.4 Dependent variable

The dependent variable in this study is total CEO compensation. This is calculated as the natural log of the total CEO compensation. The total compensation of the CEO consists of the following elements: CEO Salary, bonusses, stock grants, the value of stock options and all other remunerations which the CEO received in a specific year (Cao et al., 2019; Kayani & Gan, 2022; Kweh et al., 2022). This measure is in accordance with previous research.

3.5 Independent variables

The independent variable of this study is the political connections of CEO's. We operationalise this variable as the natural logarithm of the total donations from CEOs to political entities in the United States. In accordance with prior studies, we do not use a dummy variable for the donations. The amount of the contribution generally matters for the intensity of the contribution and therefore a significant effect is not expected if a dummy variable is used (Halari et al., 2023).

3.6 Control variables

The control variables defined have all been used in similar papers with a similar research question covering various countries. The control variables in this paper can be divided into firm specific, CEO related and corporate governance control variables.

In accordance with prior literature, we also included industry and year dummies. The industry dummies are based upon the GICS industry group classification, by using industry dummies we control for variation across industries and in this way for omitted industry specific effects (Wang & Xiao, 2011; Kweh et al., 2022).

We included year dummies for the different years in the timeframe included in this research (2010-2021). These year dummies are included to control for time-specific macro-economic effects (Kweh et al., 2022).

3.6.1 Firm specific variables

The first firm specific variable used is return on assets (ROA) which is calculated as the profit/loss divided by assets. The market-to-book ratio (MTB) is calculated as the market cap divided by total stockholder equity. Both these measures are included because we expect a positive correlation if CEO compensation is correlated with firm performance (Conyon, 2014). Previous research has confirmed this relation (Hoi et al., 2019; Dai et al., 2020). Firm size is also included in the regression and is calculated with the natural logarithm of the total assets of the firm. CEO's get higher compensation in larger firms for several reasons. Large firms can pay more, the job is more complex, and more skills and expertise are required (Wu et al., 2018). The leverage of a firm is also included and is calculated as total liabilities divided by total liabilities + total equity (debt ratio). The compensation of a manager can serve as a way to prevent conflict of interest between managers and debtholders and in this way reduce agency costs of debt (John & John, 1993; Wu et al., 2018).

3.6.2 CEO specific variables

The first CEO specific variable included is CEO age. Prior research found that age and CEO compensation have a positive correlation (Conyon & He, 2012). This could be because older CEOs are more risk-averse and therefore want lower long-term incentives (David et al., 1998). The second variable is CEO_tenure and is calculated by the years as CEO at firm i. A positive correlation is expected between tenure and compensation because the CEO has more valuable experience managing the firm. A second reason is that over time CEOs will obtain power over their boards which helps them obtain more compensation (Hill & Phan, 1991; David et al., 1998). The third variable is CEO gender which is 1 if the CEO is female and 0 for a male CEO. Research by Gayle et al. (2012) has shown that female CEOs get paid more. A reason for this could be that women acquire more nonmarket human capital throughout their lives (Gayle et al., 2012).

3.6.3 Corporate governance variable

Two control variables regarding corporate governance are included. The first one is CEO Ownership, defined as percentage of total shares owned by the CEO. A substitution effect is

established by prior research, CEOs with a higher percentage of shares owned get less compensation (Core et al., 1999). Therefore, this variable is included

3.7 Sample selection
3.7.1 Data
The scope of this research will be limited to the CEOs working for top companies in the United States of America (USA) as included in the Compustat database. The reason to choose these companies is the fact that the data related to political donations is readily available in contrast to some other countries. Another reason why the USA is especially interesting is because it is the biggest economy when measured in GDP in the world (Silver, 2022). On top of this not much research has been conducted in the US regarding this subject.

Several datasets from different sources will have to be merged. The CEO compensation data will be retrieved from the "Execucomp" dataset. The data for donations to political parties is published for the United States and will be gathered from the Federal Election Commission (FEC) website. The FEC database records all donations above two hundred dollars yearly made by individuals, therefore we can assume that all significant donations are included (Arikan et al., 2022; FEC, n.d.).

Besides these data sets the data from the dataset "Compustat North America Fundamental Annual" is used. This data set is needed for the control variables used in the research.

All the variables are defined in appendix A. This Appendix also includes all the original names of the variables in the database for reproducibility purposes.

3.7.2 Time period of research
The research excludes the period of the economic crisis because this crisis could significantly affect compensation and donations. The uncertainty related to a crisis could influence CEOs to donate less money to political parties. Therefore, the timeframe for this research is from 2010-2021 as the S&P 500 index was at its lowest in 2009 (Google Finance, n.d.). Which indicates that the crisis was finished after 2009.

Table 1 Sample selection

	Year-CEO combinations	CEOS
Start (Execucomp 2010-2021)	25.694	4.980
Removed : No information compustat	-364	-63
Removed : Observations with missing information in columns : market value, total liabilities, total equity, total assets, CEO age (years), CEO totalcomp ($ thousands)	-1.996	-151
Removed : Observations with equity value <0	-944	-143
Final sample	22.390	4.623

Notes : This table shows the sampling procedure, removed observations and the reason why they were removed.

3.7.3 Sample construction

The sample was constructed by merging the described databases, Campaign finance data from individual contributions (FEC), annual company data (Compustat) and the Execucomp dataset (Compustat). The Compustat and Execucomp database were merged first using the company ticker and the fiscal year. Not all lines for Execucomp were matched and therefore these observations were dropped. After merging these databases, the data was matched in excel with the FEC data. The FEC data unfortunately was pretty messy (misspelled names, reversing first and last name, etc.) and there was no ticker or another identifier included, this was therefore quite hard. The FEC data was merged with the other databases by using the fuzzy match extension included in excel. The data for each executive and year combination was combined with the donation data using this fuzzy match function. All data with more dan 50% similarity was looked at with a maximum of ten matches per executive and determined if it was the right person based on all information included. After matching the data, the analysis of the data was conducted in R. Several observations were removed because of missing data in one (or more) of the following columns: market value, total liabilities, total equity, total assets, CEO age (years), CEO totalcomp ($ thousands). The observations where total equity was negative were also removed because the research focuses on stable companies, which companies with negative equity are not.

There are 25.694 (CEO-year) observations for the years 2010-2021 included in the Execucomp database. 3.304 observations were dropped leaving 22.390 observations (executive-year combinations) in the database. The number of CEOs included were 4.980 at the start after which 357 were dropped leaving 4.623 different CEOs.

Table 2 Descriptive statistics						
	N	Mean	Median	St. Dev.	Min	Max
ROA	22.390	0.03	0.04	0.13	−5.20	3.60
MTB	22.390	5.22	2.20	38.03	0.002	3,399.45
Firm size	22.390	19,897.90	2,882.48	122,314.60	1.34	4,229,166.00
Leverage	22.390	0.57	0.57	0.22	0.004	1.00
CEO shares owned %	22.390	1.99	0.45	5.39	0.00	100.00
CEO age (years)	22.390	56.94	57	7.35	27	96
CEO totalcomp ($ thousands)	22.390	6,436.55	4,498.40	8,676.59	0.00	377,996.50
Genderdummy 1 = female	22.390	0.05	0	0.21	0	1
Tenure (years)	22.390	7.46	5	7.48	0	61
Amountdonated ($)	22.390	7,804.10	0	319,073.80	0.00	44,756,200.00

Notes : This table presents the descriptive statistic of all variables used in this paper. All variable definitions are included in appendix A. In the regression the natural log of Amountdonated, CEO totalcomp and Firm size is used.

4 Empirical results and analysis

4.1 Descriptive statistics

The descriptive statistics are the first item discussed in the empirical results. The descriptive statistics are included in table 2. The total sample consists of 22.390 observations with 4.623 unique CEOs. The statistics are shown for each independent, dependent and control variable. The table shows that the mean of the CEO compensation is 6.436 million dollar per year and that the mean donation is 7.805 dollar per year. The mean size (total assets) of firms in the sample is 19,898 million dollars. The standard deviation for the variables firm size, CEO total comp and amount donated is quite large. This is resolved by log transforming these variables in the regressions. There do not seem to be other variables with large outliers that could negatively influence the regression.

The dollar amount of donations in comparison to the CEO compensation is quite low. The risk of reverse causality (CEO compensation driving donations) therefore is a lot smaller. The median salary is 4.5 million the median CEO can therefore easily afford to donate 7.8k dollars each year.

	ROA	MTB	Firm size	Leverage	CEO shares owned %	CEO age (years)	logTotalcompensation	Genderdummy 1 = female	Tenure (years)	logAmountdonated
ROA	1.00									
MTB	0.04	1.00								
Firm size	0.14	-	1.00							
Leverage	-0.10	0.10	0.50**	1.00						
CEO shares owned %	0.01	-	-0.22**	-0.13	1.00					
CEO age (years)	0.02	0.01	0.09	0.04	0.16	1.00				
logTotalcompensation	0.15	0.03	0.53**	0.18	-0.22**	0.030	1.00			
Genderdummy 1 = female	0.01	-	-	0.02	-0.02	-0.040	0.03	1.00		
Tenure (years)	0.04	-	-0.07	-0.09	0.38***	0.440**	-0.06	-0.07	1.00	
logAmountdonated	0.05	-	0.30	0.14	0.04	0.120	0.21	0.01	0.12	1.00

Notes : This table is the correlation table with the correlation between the most important variables. The significance levels are depicted by the number of * where * = 10% ** = 5% *** = 1%, significant numbers are bold. All variable definitions are included in appendix A.

4.2 Correlation matrix

The correlation matrix is included in table 3. The Pearson correlation coefficient is calculated for each different variable. There are a number of variables that have a decently high correlation with another one. The three with the highest absolute values are logTotalcompensation and firm size (0.53), Tenure and CEO age (0.44) and Tenure and CEO shares owned % (0.38). All these combinations are significant. The VIF test is performed to check for multicollinearity, the highest value found was equal to 2.29. This means that the variable is "moderately corelated". This is no issue for the regressions performed (Daoud, 2017). The results of the VIF test are presented in appendix B.

Table 4 Regression results

Dependent variable :	logTotalcompensation	
	(1)	**(2)**
logAmountdonated	0.061***	0.016***
	(0.002)	(0.002)
ROA		0.513***
		(0.049)
MTB		0.0004**
		(0.002)
Firm size		0.385***
		(0.005)
Leverage		0.087**
		(0.038)
CEO shares owned %		-0.028***
		(0.001)
CEO age (years)		-0.003***
		(0.001)
Genderdummy 1 = female		0.102***
		(0.030)
Tenure (years)		0.006***
		(0.001)
Constant	8.094***	5.170***
	(0.009)	(0.067)
Industry fixed effects	No	Yes
Year fixed effects	No	Yes
Observations	22390	22390
R2	0.043	0.393
Adjusted R2	0.043	0.392
Residual Std. Error	1.165 (df =22388)	0.929 (df = 22343)
F Statistic	1,003.18*** (df = 1 ; 22388)	314.18*** (df = 46;22343)

Notes : This table includes all the outcomes of the following regressions:

1 : $CEOTC(t) = \beta0 + \beta1* CEOPC(t) + \varepsilon$

2 : $CEOTC(t) = \beta0 + \beta1* CEOPC(t) + \beta2*CV + \beta3*IFE + \beta4*YFE + \varepsilon$

The dependent variable logTotalcompensation is equal to the natural logarithm of the total compensation of a CEO. The independent variable logAmountdonated is equal to the natural logarithm of the total amount donated by a CEO. All other variable definitions are included in appendix A. Industry and year fixed effects are included in the regression. The standard error is included in parentheses below each outcome. The significance levels are depicted by the number of asterisks where * = 10% ** = 5% *** = 1%.

4.3 Main results and analysis

The result of the regression is presented in table 4. First the hypothesis is discussed as described earlier in the paper. The hypothesis is the following:

H1 There is a positive relation between CEO political connectiveness and CEO total compensation.

The results of the regression support this hypothesis. When looking at the first regression (without the control variables) then the results show a value for $\beta 1$ of 0.061 for the variable logAmountdonated which is statistically significant at the 1% level. The t statistic is equal to 30,5 which is far higher than the required 2,576. A $\beta 1$ of 0.061 means that an increase of 1% in the logAmountdonated results in an increase in the compensation of the CEO by 0.061%. This effect shrinks significantly when including the control variables. This can be seen in the second regression. In the second regression the value for $\beta 1$ is only 0.016 which is an increase of 0.016% for each % extra donated. The t statistic is equal to 8 which is far higher than the required 2,576. Because the coefficient is positive and significant the null hypothesis is rejected. For both regressions. Therefore, the conclusion is that there is a positive relation between CEO political connectiveness and CEO total compensation. An explanation could be that political connections increase performance, and that firms try to tie performance to compensation (Hallman et al., 2011). An increase of political donations would therefore lead to increased compensation. Another possible explanation is that firms recognize the value of political connections of CEOs and reward them for this resource (Wu et al., 2018). The political donations would be an indicator of their social status in this case. The overinvesting of free cash flow as documented by Bertrand et al. (2018) and Wu et al. (2012) appear to have no significant influence.

The adjusted R^2 for the first regression is 43%, the adjusted R^2 for the second regression is 39%. The adjusted R^2 is approximately the same as in previous papers researching CEO compensation by Core et al. (1999) and Conyon (2014). The number of observations for both regressions are equal to 22.390.

The control variables included are all significant at 5% or 1% level, but some do have very little effect on total compensation. All variables have a positive effect on the CEO compensation except for the variables "CEO shares owned %" and "CEO age".

The coefficient of ROA was 0.513, this is accordance with prior research by Conyon (2014) and (Farooque et al., 2019). The market to book ratio has a very low positive coefficient of 0.0004, this is in accordance with prior research by Farooque et al. (2019). The variable firm size has a positive coefficient of 0.385 which is in accordance with prior research by Cook et al. (2018) and Farooque et al. (2019). The variable leverage has a coefficient of 0.087, prior research by Farooque et al. (2019) saw an insignificant effect on CEO compensation contrary to our findings. The variable CEO shares owned % has a negative coefficient of -0.028 which is in accordance with research by Core et al. (1999). The variable CEO age has a negative coefficient of -0.003. Prior research by Cook et al. (2018) found no significant effect and prior research by Conyon (2014) found a positive effect. The results are therefore contradicting each other. The gender dummy has a coefficient of 0.102, this contradicts earlier research by

Conyon (2014) that found a negative relation. The last variable "Tenure" has a positive coefficient of 0.006 in accordance with prior research by Farooque et al. (2019).

5 Conclusion and discussion

This research aimed to find a variable to helps to explain the total compensation that a CEO receives. A variable that deserved more attention than that it got so far is the political connectiveness of a CEO). This variable has not been mentioned in one of 219 different US-based studies regarding CEO compensation looked at by Van Essen et al. (2015). This is strange considering that various papers have concluded that political connections increase firm performance (Gropper et al., 2015; Acemoglu et al., 2016; Wu et al., 2018). And firms try to tie CEO compensation to firm performance (Hallman et al., 2011). Therefore, this variable could be a decent predictor for CEO compensation. Thus, the following research question was formulated:

Does CEO compensation increase with increased CEO political connections?

This paper hypothesise that this is the case, with the explanation given before. Therefore, the hypothesis is the following:

H1 There is a positive relation between CEO political connectiveness and CEO total compensation.

The regression in this research found a significantly (1% level) positive coefficient of 0.016, the null hypothesis is therefore rejected.

These findings give researchers another determinant that help to explain the total compensation of a CEO. And in this way, this research helps the search for non-financial determinants of CEO pay. Key stakeholders like compensation committees, CEOs, regulators and the public have to take these results into account. Compensation committees will have to look at the value that the CEO's political connection bring to the table. CEOs on the other hand have to evaluate if it could be beneficial for them to strengthen their political connections, not necessarily by donation more as there are numerous other options. These results are also interesting for regulators as they could wonder in what ways they get influenced. Regulators have to serve the greater good, if firms manage to influence them then it could lead to corruption. The increased CEO compensation is in indicator that this influence exists.

5.1 Limitations

This research has a number of limitations. The first limitation is that the data is of subpar quality. The database provided by the SEC has several shortcomings which could undermine the accuracy of research done. The data must be checked manually by the researcher which leads to errors in the data. A substantial improvement would be if they included ticker codes in the database and standardize name formatting. The second limitation is the possibility that the results are the effect of reverse causality. A CEO that earns more has more spending power and therefore might donate more to political causes. Although this effect is probably limited as the average yearly CEO donation is very small compared to the total compensation (average of 0,12%). The third limitation is the possibility that there are other characteristics of CEOs that are hard to measure but still effect the CEO compensation. It could be that a more generous person is generally more likeable and therefore is awarded a larger compensation

amount. The last limitation is the generalisability of the study. This study focuses on the United States and is therefore not generalisable to other countries because of differences in culture and regulatory environment.

These limitations reveal interesting new avenues to examine in further research. It would be interesting to research if the results are the same with a different measure of political connectedness like having an ex-politician on the board. Another interesting subject could be the donations of CEOs in countries with more corruption. If these donations matter, then the effect in compensation would be higher.

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Appendix A variables

Variable	Definition	Source	Variable(s) from source
ROA	Profit/loss divided by assets, measured in dollars.	Compustat	"Net Income (Loss)", "Assets - Total"
MTB	Market cap divided by total stockholder equity.	Compustat	"Market Value - Total - Fiscal", "Stockholders Equity - Total"
Firm size	Natural logarithm of the total assets of the firm.	Compustat	"Assets - Total"
Leverage	Total liabilities divided by total liabilities + total equity (debt ratio).	Compustat	"Liabilities - Total", "Stockholders Equity - Total"
CEO shares owned %	The percentage of total shares owned by the CEO.	Execucomp	"Percentage of Total Shares Owned - As Reported"
CEO age	Age of ceo, measured in years.	Execucomp	"Executive's Age"
Genderdummy	The gender dummy, where 1 is equal to female and 0 is equal to male.	Execucomp	"Gender"
Tenure	Years as CEO by at firm i.	Execucomp	"Date Became CEO", "Fiscal Year"
logAmountdonated	The natural logarithm of the total donations of a CEO in year x.	FEC	"contribution_receipt_amount"
logTotalcompensation	The natural logarithm of the total compensation of a CEO in year x.	Execucomp	"Total Compensation (Salary + Bonus + Other Annual + Restriced Stock Grants + LTIP Payouts + All Other + Value of Option Grants)"

Notes : This appendix gives the definition of all variables used and lists the source and original name of the variable in the source database.

Appendix B Multicollinearity analysis

Variable	VIF score
Industry_2010	2,29
Industry_4010	2,26
Industry_3510	2,07
Industry_1510	1,92
Year_2014	1,85
Year_2011	1,85
Year_2012	1,85
Year_2015	1,84
Year_2013	1,83
Industry_4520	1,82
Year_2016	1,81
Industry_2550	1,80
Year_2017	1,79
Leverage	1,79
Year_2018	1,78
Industry_4510	1,78
Year_2019	1,76
Firm size	1,76
Year_2020	1,75
Industry_3520	1,74
Year_2021	1,66
Industry_2020	1,66
Industry_6010	1,64
Industry_2530	1,61
Industry_5510	1,61
Industry_2520	1,60
Industry_4530	1,59
Industry_4020	1,58
CEO tenure	1,49
Industry_3020	1,45
Industry_5020	1,39
Industry_2030	1,36
Industry_4030	1,35
Age	1,30
Industry_2510	1,27
CEO shares owned	1,25
logAmountdonated	1,24
Industry_3030	1,18
Industry_3010	1,17
Industry_5010	1,15
ROA	1,13
Industry_2540	1,05
Industry_6020	1,05
MTB	1,04
Genderdummy	1,03
Industry_4040	1,02

Notes : This table contains all the VIF scores for each variable in the regression. The highest value found was equal to 2.29. This means that the variable is "moderately corelated". This is no issue for the regressions performed (Daoud, 2017).