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**Does the cultural background of CEOs influence the design of the
compensation contracts?**

Master thesis

in

Accounting, Auditing, and Control

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Abstract

This research examines the relation between the cultural background of CEOs and the design of their compensation package. The cultural background of the CEO is proxied for with the nationality of the CEO and measured with the framework of Hofstede (2005). The compensation design is measured with the ratio of variable compensation to the total compensation of the CEO and the ratio of stock options to the total compensation of the CEO. This study finds a significant effect of the measurements of nationality on the ratio of variable to total compensation and on the ratio of stock options to total compensation. This shows that the cultural background of CEOs influences the design of the compensation contract of CEOs. This research contributes to the literature as it is the first examining the effect of nationality of the CEO on the compensation design and gives a better understanding in what defines the compensation design of CEOs. This also has implications for companies as it emphasizes the relevance of considering cultural background of executives in the design of compensation contracts and implications for the public as it may help better understand why CEOs are compensated the way they are.

Key words: CEO, compensation design, culture, nationality

Inhoud

1. Introduction	1
1.1 Research question	2
1.2 Theoretical and scientific relevance	2
2. Theoretical background and hypothesis development	4
2.1 Theoretical background	4
2.2 Hypothesis development.....	5
3. Data	8
4. Method	10
5. Results	12
5.1 Descriptive statistics.....	12
5.2 Linear regression results variable compensation to total compensation.....	18
5.3 Linear regression stock options to total compensation.....	21
6. Robustness tests	25
6.1 Robustness test variable compensation to total compensation	25
6.2 Robustness test stock options to total compensation.....	26
7. Conclusion & Discussion	27
7.1 Conclusion.....	27
7.2 Discussion.....	28
8. References	29
Appendix	33

1. Introduction

Culture plays a vital role in a wide variety of economic and corporate aspects. One dimension is the cultural background of executives. This paper focuses on the cultural background of executives by examining the influence that CEOs have on their compensation design. Herein, measurements of the properties of Hofstede (2005) that define nationality proxy for cultural background that reflects the personal preferences of the CEO that drives the efforts in influencing the compensation design.

The separation of ownership and control gives CEOs freedom whether to act or not to act in the interest of the shareholders. In both these outcomes CEOs are free in to what use they put their freedom and enables CEOs to base corporate policies significantly on their personal preferences (Jensen and Meckling, 1976; Eisenhardt,1989). As the literature shows, this phenomenon results in different policies across corporations (e.g., Brochet, Miller, Naranjo and Yu, 2019; Gao, Han, Pan and Zhang, 2021; Grinblatt and Keloharju, 2001; Hagendorff, Liu and Nguyen, 2021; Jalbert, Chan, Jalbert and Landry, 2007; Loi, Chen and Qiao, 2022; Naeem, Ullah and Tirmizi, 2021; Pham, Pham and Truong, 2022)

As CEOs seem to have effect on the company policies and they have the freedom to choose to whether act or act not in the interests of the shareholders, CEOs need to be governed to make sure they act in the best interest of the shareholders. Herein, firms have the freedom to design their governance mechanisms in their own way to optimize efficiency (Rediker and Seth, 1995). As the management styles of CEOs differ (Bertrand and Schoar, 2003), the optimal company governance policies are expected to differ and hence incentives for interest alignment are expected to differ. Incentives can be provided with compensation contract designed to align the interests. As suggested by Adithipyangkul and Zhang (2011), cultural background may be the most important factor in determining the optimal compensation contract. It is therefore not unexpected that cultural background of the CEO is considered in designing the contract. Besides the former, it is also possible that cultural background affects compensation design by CEOs having different characteristics or preferences resulting in different management styles which are valued differently (Graham, Li and Qiu, 2012) or CEOs negotiating about the terms of compensation (Jalbert, Chan, Jalbert and Landry, 2007; Ellahie, Tahoum and Tuna, 2017).

Managers have influence on their compensation through their different management styles (Graham, Li and Qiu, 2012) and more specific, as is shown by Jalbert et al. (2007), the total compensation of CEOs is dependent on the nationality of the CEO. However, in both studies no evidence on the design of this compensation is provided; Graham et al. (2012) does not measure these differences and Jalbert et al. (2007) uses nationalities as measures instead of the properties that define nationalities. The effect of cultural background is more deeply explored by Tosi and Greckhamer (2004) who map the effect of properties that define nationalities on total CEO pay and the ratio of variable pay to total compensation. However, a drawback of the study of Tosi and Greckhamer (2004) is that cultural background is taken from the country of establishment of the company, which leaves the effect of CEO cultural background unexplored.

1.1 Research question

Further research on the effect of CEO's cultural background on the compensation design is limited. One of the few papers coming close in discussing this matter is the paper of Ellahie, Tahoum and Tuna (2017). The researchers use ethnicity as proxy for personal preferences of CEOs in determining the proportion of variable pay to total compensation and find that CEOs with specific preferences prefer specific compensation designs. However, as ethnicity may cover a significant part of the variation in nationality, these two proxies differ in definition.

Remarkably, the effect of cultural influences on compensation design from the perspective of the company, or the country where the company is based is more numerous, for example: Segalla, Rouziès, Besson and Weitz (2006) who examine the effect of the cultural background of the working area of managers on the use of incentive versus fixed compensation; Bryan, Nash and Patel (2015) who investigate the extent to which the differences between cultures of countries of establishment of companies contribute to differences in compensation contracts. This gap in the existing literature surrounding the effect of cultural background is ought to be filled with examining the following research question:

Does the cultural background of CEOs influence the design of the compensation contracts?

This research question is examined using linear regression models wherein compensation contract characteristics are regressed on variables that measure the cultural background of the CEO. The data is taken from U.S. firms that are in the S&P 1500, or once were and still are active and trading on the stock market and consists of 16,092 observations from the years 1999 until 2021.

The results of this research provide evidence that determinants of nationality, which proxy for cultural background, of CEOs are related with the ratio of variable to total compensation and the ratio of stock options to total compensation. This shows that the cultural background of CEOs influences the design of the compensation contracts.

1.2 Theoretical and scientific relevance

The insights this research provides fills the gap in the current literature as the influence of culture, operationalized with nationality, on compensation contract design is yet unexplored. Some studies come close but remain different as no nationality, but ethnicity is used (Tahoum and Tuna, 2017) or the effect on total compensation is examined (Jalbert, Chan, Jalbert and Landry, 2007) or the effect of the nationality of the country of establishment on the design of the compensation contract (Bryan et al., 2015; Segalla et al., 2006; Tosi and Greckhammer, 2004).

The results of this research provide a more complete understanding about the factors that determine compensation design and provides valuable information to future researchers. As I show that the compensation design is dependent on the cultural background of the CEO, future researchers can make more reasoned decisions on why to, or not to incorporate cultural background in research concerning the compensation design of CEOs. The results also may provide ground for further deepening into this subject.

The results of this examination also have implications for the companies as it emphasizes the relevance of considering the cultural background of executives in the design of the contracts. Especially compensation committees and third parties that support compensation committees that do not (actively) take cultural background of CEOs into account in designing compensation contracts. The insights of this research can help making future compensation contracts fairer and more competitive with respect to current practice.

The remainder of this research proceeds with chapter 2 in which the relevant theoretical concepts are discussed, followed with the development of the hypotheses. Chapter 3 discusses the data collection and the data used in this research. Chapter 4 describes the methodology followed with chapter 5 discussing the descriptive statistics and found results. Chapter 6 presents the robustness checks on the found results and lastly, chapter 7 presents the conclusion and discusses the implications and limitations of this research.

2. Theoretical background and hypothesis development

2.1 Theoretical background

For establishing testable hypothesis, a theory on how CEOs influence their compensation packages needs to be established. Graham, Li and Qiu (2012) provide the basis for this relation. According to Graham et al. (2012) most of prior studies only incorporate firm or manager heterogeneities which fails to optimally explain the contract design. Therefore, Graham et al. (2012) include both firm and manager heterogeneities in their models, concluding that the manager heterogeneities account for a large proportion of the variation in compensation besides the firm heterogeneities. These heterogeneities are positively related to R&D, investment, leverage and dividend payouts and are negative related to cash holdings. Graham et al. (2012) interpret this result as that managers have different preferences which are reflected in their management style. These differences result in different corporate outcomes which are priced differently. This leads to compensation packages being dependent on the preferences of the managers.

This interpretation only holds when CEOs have an effect on company policies. Prior literature supports this interpretation by arguing that managers have influence on corporate policies. For example, Brochet, Miller, Naranjo and Yu (2019) argue that the cultural background of managers affects how information is communicated to investors. For performance policies, Jalbert, Chan, Jalbert and Landry (2007) show that company policies and performance of firms differ in CEO's nationalities. In addition, as culture is found to provide sources for CEO overconfidence, the risk-taking behaviour of company policies also differs by (cultural) preferences (Hagendorff, Liu and Nguyen, 2021). Furthermore, cultural preferences to risk taking behaviour are also associated with firm's misreporting, internal control weaknesses and accounting conservatism. These effects are found to be such pronounced that auditors consider the cultural background of the CEO in determining the prices of audit services (Pham, Pham and Truong, 2022). Also, the policies concerning cash holdings (Loi, Chen and Qiao, 2022), stockholdings and share trades (Grinblatt and Keloharju, 2001), R&D (Gao, Han, Pan and Zhang, 2021) and corporate social responsibility (Naeem, Ullah and Tirmizi, 2021) are found to be affected by the cultural background of CEOs.

As CEOs have an effect on the company policies it is also possible that the compensation design differs due to different incentives for alignment. Because of the separation of ownership and control, CEOs have the discretion to whether act or not act in the interest of the shareholders (Jensen and Meckling, 1976; Eisenhardt, 1989). To make sure the CEO acts in favour of the shareholders, the interests of the CEO and the shareholders needs to be aligned. This interest alignment is designed and implemented by firms in their own way, optimizing their efficiency in interest alignment (Rediker and Seth, 1995). However, as the preferences of CEOs differ and thus their management styles differ (Bertrand and Schoar, 2003), it is expected that the incentives to align the interests and therewith the design of the compensation packages differs.

The design of the compensation packages also seems to be directly dependent on common inherited beliefs and values (Ellahie, Tahoum and Tuna (2017). Ellahie et al. (2017) use the ethnicity of CEOs as proxy for beliefs that guide the behaviour of managers and find that they do matter for the design of the compensation packages. However, in addition to the reasoning

in previous paragraphs, Ellahie et al. (2017) argues that CEOs are in the position to directly negotiate about their compensation and able to assert their preferences resulting in compensation packages reflecting the individual preferences of the CEO.

Kato and Rockel (1992) conclude that differences in behaviour can be explained by differences in culture. Following the discussion of prior literature, it is expected that the preferences of the CEO influences compensation design through their behaviour. As differences in culture can be detected with comparing nationalities (Kato and Rockel, 1992; Morrison and Milliken, 2004) quantifications for nationality developed by Hofstede (2005) are used as measure for cultural background that proxies for preferences. The hypotheses are developed based on the evidence presented in prior literature regarding the relation between the quantifications and compensation design. These quantifications are empirically validated and one of the most widely used as measure of culture of nationalities in psychology, organisational and social studies (Bryan, Nash and Patel, 2015; Khatri, 2009). This is reflected in the methods used by literature studying topics related to culture. For example, Bryan et al. (2015), Hagendorf et al. (2021), Loi et al. (2022) and Naeem et al. (2021) use these quantifications as proxy for culture, while Pham et al. (2022) as proxy for managers' attitude towards risk and uncertainty and Tosi and Greckhamer (2004) as proxy for CEO's views of money and other forms of compensation. These quantifications include Power Distance, Individualism, Uncertainty Avoidance, Long Term Orientation, Masculinity and indulgence (Hofstede, 2005).

2.2 Hypothesis development

The first hypothesis is related to Power Distance. Power Distance is a measure of differences in status (for example the distance between the lower-level employee and the executive). According to Khatri (2009) boards perceive negative consequences of high-power distance. Power Distance between managers and employees gives managers unlimited power and lots of decision rights and lack of input from lower-level employees resulting in poorer quality of decisions and a higher chance on unethical practices Higher power distance also seems to lead to managers tending to micromanage and therefore waste effort on minor decisions. This is very likely to affect performance of firms negatively. Boards try to prevent this by making compensation more dependent on performance. Based on this theory the following hypothesis is formulated:

H1: Power Distance is positively related to the proportion of variable compensation to total compensation in CEO compensation packages

Individualistic people tend to prefer personal accomplishment, independence, control over own destiny and involvement based on contract rather than moral commitment (Gomez-Mejia and Welbourne, 1991). Herein individualists rely on external equity to compare their success. Individualistic preferences of employees may therefore lead to compensation policies that put emphasis on short term goals that reward the individual and that do not tie the individual to the organisation in the long term. To satisfy these needs, it can be expected that more individualistic CEOs negotiate contracts focussing on short term goals and on compensation that they can maximize immediately. As individual performance is perceived more important, it is very likely that performance-based pay is preferred resulting in relative more variable compensation in line

with the findings of Tosi and Greckhamer (2004). This theoretical relation provides the basis for the second hypothesis:

H2: Individualism is positively related to the proportion of variable compensation to total compensation in CEO compensation packages

Also, uncertainty avoidance, otherwise stated as risk aversity, is found to be related to compensation design. This is emphasized by Carter, Lynch and Tuna (2007), who include risk aversity in their study. They expect that risk-averse CEOs prefer fixed compensation as this lowers their risk in compensation. CEOs can negotiate this in their contracts (Ellahie et al.,2017). However, boards may want to make the compensation more dependent on firm performance to incentivize CEOs to enhance the performance of the firm (Grant, Markarian and Parbonetti, 2009). Even with compensation dependent on firm performance, risk-averse CEOs will want to reduce their risk by reducing the firm risk. Boards respond to this by taking risk taking incentives into account (Dittmann, Yu and Zhang, 2017). Based on this theory the net effect on the use of variable compensation remains unclear. However, following Ellahie et al. (2017), it is expected that CEOs assert their preferences. This will be tested and therefore, the third hypothesis is formulated as follows:

H3: Uncertainty Avoidance is negatively related to the proportion of variable compensation to total compensation in CEO compensation packages

Flammer and Bansal (2017), argue that long term focus of companies leads to an increase in operating performance and a higher firm value. However, on the short run, the operating performance experiences a decrease. Starting from this conclusion, one can infer that CEOs with a long-term orientation are aware of this and focus on long term gains, with paying less attention for short term decreases in performance. Compensation preferences for such CEOs are therefore more likely to be stock based, as the gains are expected to materialize in the future. However, as short-term performance is likely to decrease, CEOs are likely to prefer a relatively small variable compensation in short term, but on the other hand a relatively large variable compensation in the future. Therefore, the expected relation between long term orientation and compensation design is debatable. However, given that the long-term oriented CEOs account for their compensation in the long term, they are more likely to negotiate a relative larger variable compensation as this is likely to pay out more on the long run. Therefore, the fourth hypothesis that is tested, is formulated as:

H4: Long Term Orientation is positively related to the proportion of variable compensation to total compensation in CEO compensation packages

Higher masculine individuals are associated with higher allocation of financial assets to risky assets (Iliyanova, 2016). This can be explained as masculinity refers to values like aggressiveness and dominance (Tosi and Greckhamer, 2004). The emphasis herein is placed on achievement, growth and challenges in employment. These achievements, growth and challenges are recognized in terms of wealth (Hofstede, 1980). As risk taking may result in a higher payoff, it is likely that more masculine managers are riskier. As the use of stock options can be used by shareholders to induce CEOs to take more risk (Cohen, Hall and Viceira, 2000) it is not expected that these masculine CEOs receive more stock options. This suggests a

negative relation between masculinity and the use of stock options in compensation, what poses the fifth hypothesis:

H5: Masculinity is negatively related to the proportion of stock options to total compensation in CEO compensation packages

Stock options can be used by shareholders to induce CEOs to take more risk (Cohen, Hall and Viceira, 2000). As the value of the options is positively related with increased volatility of the stock, CEOs are incentivized to take more risky decisions. However, as CEOs are expected to act in their own interest and have influence on their compensation, it is expected that risk-averse CEOs negotiate more or other forms of compensation. This is shown by Hall and Murphy (2002) and Chen and Ma (2011) who argue that the value to cost ratio of stock options is lower for risk-averse CEOs. Even if the relative costs of stock options are ignored it happens to be that greater proportions of stock options in compensation eventually discourage risk-averse managers in acting more riskier (Billings, Moon, Morton and Wallace, 2020). This is earlier argued by Baixauli-Soler, Belda-Ruiz and Sanchez-Marin (2015), who argue that the attitude of managers towards risk worsens from a certain level of compensation. CEOs increase their risk up to a certain point on which such much wealth is at stake that the CEOs gradually reduce their risk.

As more stock options are needed to incentivize risk-averse CEOs and the value to cost ratio of stock options is lower for risk averse CEO's, it is expected that risk-averse CEOs have a lower proportion of stock options to total compensation than non-risk-averse CEOs. Ignoring the relative costs of stock options, it could be possible that CEOs are compensated with higher value of stock options to compensate for their risk-aversity. However, such incentives miss their mark as greater proportions of stock options also discourage CEOs in their risk-taking behaviour. The sixth hypothesis is formulated as follows:

H6: Uncertainty Avoidance is negatively related to the proportion of stock options to total compensation in CEO compensation packages

The remaining undiscussed quantification is Indulgence. Indulgence defined as “relatively free gratification of basic and natural human drives related to enjoying life and having fun” (Hofstede Insights, 2022), stresses the importance of the board in controlling CEOs and aligning CEOs interest with the interest of shareholders. No clear theoretical relation to the design of compensation can be found, hence no hypothesis can be established.

3. Data

The data is taken only from U.S. based firms because of several reasons. Firstly, the effect of the company culture and other country-specific variables on the hypothesized relation will very likely be reduced as the companies established in the U.S. are likely to be relatively more homogeneous than firms from different countries. Secondly, requiring holding the country of establishment constant creates smaller samples for non-U.S. data, reducing the external validity of the results. With taking the sample from the U.S. this threat to validity will likely not occur as the U.S. accommodates a high number of established companies.

The data needed for the examination of the research question is deducted from different databases covering the years of 1994 until 2021. This period is chosen because the main database on CEO compensation, Execucomp, starts with observations in the year 1992, where in the period before 1994 the database only captures firms in the S&P 500. Starting with 1994, the database covers all S&P 500 firms and firms that once have been in the S&P 500 and are still trading. The sample ends with observations in the year 2021, as the data in the year 2022 may not be complete yet. Execucomp includes compensation items for executives and data for tracking the executives and is used for constructing the dependent variables.

The dependent variable: variable compensation to total compensation is constructed following Tosi and Greckhamer (2004) as the sum of annual bonus plus long-term incentives. Therefore, the variable compensation for the construction of the variable compensation to total compensation is measured as the sum of: Bonus, Total value of restricted stock granted, Total value of stock options granted (estimated with Black-scholes) and Long term incentive payouts. Total compensation provided by Execucomp is used to compute the ratio of variable compensation to total compensation. Due to changes in regulations for the estimation methods and definitions of executive compensation in 2006, the measure of the variable compensation changed to the sum of: Bonus, Grant date fair value of stock awards, Grant date fair value of Option awards and Non-equity incentive plan compensation. To measure the dependent variable: stock options to total compensation, the Total value of stock options granted (Black-scholes) is used for observations before 2006 and the Grant date fair value of Option awards for the observations from 2006 and divided by Total compensation. Removing all observations that are not related to CEOs and dropping observations with missing information, a sample of 51,736 CEO compensation observations obtained from Execucomp remain.

To track the nationalities of the CEOs, the observations from Execucomp are linked to data from the database Boardex. Boardex contains biographical information and board and committee memberships. The keys to link these databases are first name, last name and the gender of the CEO. 21,704 CEO compensation observations are linked to their nationalities. For missing data on nationalities, the former employment of the CEOs is used to capture the cultural background. 9,653 CEO compensation observations are linked with the “nationality” through prior employment, resulting in a sample that consists of 31,358 CEO compensation observations across 3,063 unique firms with 42 unique CEO nationalities with the years of observation ranging from 1994 to 2021.

Cultural background needs to be operationalized before it can be measured. IGI Global (2023) defines cultural background as “all beliefs, values, stereotypes, and rules, characterizing the members of a society and differentiating it from other societies”. Another definition IGI Global gives is “The context of one’s life experience as shaped by membership in groups.” Using these definitions as a starting point, one can infer that the place of birth is one of the determinants of the cultural background. Therefore, nationality of the CEO is used as a proxy for cultural background.

Nationality is operationalized following prior research using the breakdown of the determination of nationality into six different properties, as done by Hofstede (2005). Hofstede (2005) states that cultural values that determine nationality can be modelled into six different properties: Power Distance, Individualism, Masculinity, Uncertainty Avoidance, Long Term Orientation and indulgence. Hofstede developed models to quantify cultural dimension based on these properties and can therewith be used as indices that can be used for distinguishing nationalities. This framework proves to be used easily and easily integrable into academic research (Soares, Farhangmehr and Shoham, 2007) but also seems to have limitations (Tsakumis, Curatola and Porcano, 2007; Orij, 2010; Baskerville, 2003; McSweeney, 2002).

An alternative for the properties of Hofstede (2005) is used by Hagendorff and Nguyen (2021), who implement the cultural dimension proxies developed by Schwartz (1994) into their method. However, the frameworks from Hofstede and Schwartz are no substitutes nor complements as they both have their drawbacks (Baack and Singh, 2007). Both proxies capture the same amount of variation in cross cultural values, and both capture unique variation in data which is not captured by other frameworks (Steenkamp, 2001). As the properties of Hofstede (2005) are easy to use and easy to integrate in academic research, these properties will be used for measuring the personal preferences of the CEO that drives the efforts of CEOs in influencing the compensation design.

The data on the properties of Hofstede (2005) that is used to measure the nationalities of CEOs is manually deducted from the website of Hofstede-insights.com. This source contains the scores of the indices for the six dimensions that can be used to distinguish 120 nationalities. The scores are in a range of minus one to 100 and the data is primarily focussed on comparing countries. Remarkably, the data of CEO compensation includes the nationality Cyprian (Cyprus), which does not exist in the database from Hofstede insights.com. Therefore, an estimation from a third source is used to complete this dataset (Epaminonda, 2021).

Data concerning the controls for the firms at which the CEOs are employed are collected from Compustat. This database contains financial data from companies around the world. Data for the controls for the CEO characteristics are collected from Execucomp. 15,258 observations are dropped because of missing values. Lastly, all duplicates have been removed resulting in a final sample of 16,092 observations across 1,726 unique firms with 35 unique CEO nationalities with the years of observation ranging from 1999 to 2021.

4. Method

The relation between cultural background and the composition of the CEO's compensation package is tested with the use of the linear regression analysis. The regression formula takes the following form:

$$Y_i = \alpha + \beta_1 * PowerDistance + \beta_2 * Individualism + \beta_3 * Uncertainty avoidance + \beta_4 * Long term orientation + \beta_5 * Masculinity + \beta_6 * Indulgence + Controls + Fixed effects + \varepsilon$$

This regression is used for the estimation of two dependent variables (Y_i in the regression formula), which both capture the composition of the CEO's compensation contract. The first dependent variable is measured as the proportion of variable compensation to total compensation which is based on the operationalization of Tosi and Greckhamer (2004). This variable is presented in the results as *VarComp_TotalComp*. The second dependent variable is measured as the proportion of stock options to total compensation and is presented in the results as *StockOptions_TotalComp*. The construction of both variables is discussed in detail in the chapter 3 which discusses the data.

The six indices of Hofstede (2005), used as the independent variables, are: *Power Distance*, *Individualism*, *Uncertainty Avoidance*, *Long Term Orientation*, *Masculinity* and *Indulgence*. The effect of these variables on the dependent variable are reflected by the estimate regression coefficients, marked as β_x in the regression formula. Following the established hypotheses, I expect that the variables for *Power Distance*, *Individualism* and *Long Term Orientation* have a positive regression coefficient and *Uncertainty Avoidance* a negative regression coefficient in the estimation of *VarComp_TotalComp*. *Masculinity* and *Uncertainty Avoidance* are expected to have a negative regression coefficient in the estimation of the *StockOptions_TotalComp*. α reflects the constant in the estimated regression.

To alleviate biases affecting the results, I include control variables capturing firm and CEO characteristics that may influence the relation between the indices and the composition of compensation. Those are selected and constructed following prior literature. Following Bryan, Nash and Patel (2015) it is relevant to control for the firm's *Growth Options*, *Size* and *Leverage*. *Growth Options* are proxied for by a ratio of the market to book value of the firm's assets. This control is relevant as firms with growth options have larger information asymmetries what induces opportunistic behaviour by CEOs Bryan, Hwang and Lilien, 2000; Kole, 1997). Such firms use more equity or variable compensation (Bryan et al., 2015). *Size* is proxied for by the natural logarithm of firm's total assets. This control is relevant as larger firms have lots of different operations what induces less effective external monitoring and CEO opportunism (Bryan et al., 2015) what results in higher amounts of compensation linked to equity (Yermack, 1995). *Leverage* is measured by dividing the firm's book value of debt by firm's book value of total assets. This control is relevant as higher levels of leverage result in more conflicts with the providers of capital. Compensation based more on equity would alleviate these conflicts, therefore I expect that higher leveraged firms use more equity related compensation (Bryan, Nash and Patel, 2006).

Following Ellahie, Tahoun and Tuna (2017), I also include control variables for current firm *performance*, firm specific *Risk* and the influence the CEO has within the firm. Current firm *performance* is measured as return on assets. This is a relevant control as with performance pay, the variable compensation increases with performance (Veliyath and Bishop, 1995). Firm specific *risk* is measured by the standard deviation of stock market returns adjusted for stock splits over the past 5 years. This is also a relevant control as firms with higher firm specific risk are required to provide more stock-based compensation to keep their CEOs motivated (Demsetz and Lehn, 1985). As proxy for the influence of the CEO, the natural logarithm of the *tenure* of the CEO at the firm in years is used. This is a relevant control as the incentive value of option is found to decline with longer tenure of the CEO. This likely leads to compensation structure being changed as alternatives of compensation are available (Hou, Priem and Goranova, 2017). It is possible that the tenure of the CEO equals zero. This poses a problem as the natural logarithm of zero is minus infinity. Winsoring these values is not a good solution, as this does not concern outliers and may remove important variation. Therefore, I take the natural logarithm of *tenure* + 1. A more detailed description of the variable measurements is shown in appendix, table 1.

Culture is expected to influence the compensation design during the drafting and/or negotiations of the compensation design, what happens in the year prior to the year this contract is effective. The estimated effects of culture are controlled for by variables that are measured with balance sheet data which are available at the moment of drafting and/or negotiation. However, at the moment of negotiation, it is very likely that besides the annual figures, also the internally known figures of the previous period in the current year are known. To control for this potential influence, I take the measurements of the controls from the year prior to the compensation contract is effective (T-1).

Following Ellahie, Tahoun and Tuna (2017) I also controlled the estimation with year and industry *fixed effects*. The industry is measured with the first two digits of the industry SIC-Code. Year fixed effects are included to control for unobservable changes over the years and industry fixed effects are included to control for differences between industries. Lastly, ϵ is the error term.

5. Results

5.1 Descriptive statistics

Table 1 which is presented below shows the descriptive statistics of the variables used in the empirical models. The total sample consist of 16,092 observations over 1,726 unique firms. The variables size and tenure are log-transformed. Size is transformed as these values, measured with total assets, consists of relatively large and relatively small values. Taking the natural logarithm, these large values are “compressed” and small values are “spreaded”. Tenure is transformed because this variable has a skewed distribution. Taking the natural logarithm, this distribution reduces this skewness. The variables leverage, performance and risk are winsorized at 1% and 99%. This is done because these variables had unexpected minimum and maximum value. The variable growth options kept unexpected extreme minimum and maximum values despite being winsorized at 1% and 99%. Therefore, the variable growth options is winsorized at 5% and 95%.

Table 1: Descriptive statistics

Variable	N	Mean	Std. Dev.	Min.	Median	Max.
VarComp_TotalComp	16,092	0.6943	0.2439	0.0000	0.7818	1.0000
StockOptions_TotalComp	16,092	0.2015	0.2491	0.0000	0.1102	1.0000
Power Distance	16,092	40.2924	4.4380	11	40	94
Individualism	16,092	89.8284	6.5536	17	91	91
Masculinity	16,092	61.5989	4.0403	5	62	95
Uncertianty Avoidance	16,092	46.3956	4.9837	8	46	100
Long Term Orientation	16,092	27.1407	6.4165	0	26	93
Indulgence	16,092	67.1398	6.1107	-1	68	90
Growth Options	16,092	1.3574	1.0765	0.1959	1.0158	4.2234
Leverage	16,092	0.2366	0.1980	0.0000	0.2175	0.8957
Performance	16,092	0.0422	0.0983	-0.4384	0.0488	0.2784
Size	16,092	7.7092	1.7356	1.0181	7.5944	15.0692
Tenure	16,092	1.4904	1.0771	0.0000	1.5766	4.1109
Risk	16,092	0.0281	0.0125	0.0108	0.0253	0.0770

Table 1 shows that the average proportion of variable compensation to total compensation is 0.6943 and the average proportion of stock options to total compensation is 0.2015. Remarkably, there are observations that consist solely of fixed compensation or variable compensation as for *VarComp_TotalComp* the minimum value is zero and the maximum value is one. Also compensations packages that do not consist of stock options or completely consist of stock options are observed as for *StockOptions_TotalComp* the minimum value is zero and the maximum value is one.

Looking at the variables that measure the nationality in table 1, one can see that the mean score on *Individualism* is the highest. This shows that the average CEO-year observation in the sample is relatively individualistic. On the other hand, *Long Term Orientation* is relatively low, what shows that the average CEO-year observation in the sample is relatively not long term oriented. All other variables’ mean values that measure nationality lie in between those means.

The control variable *Growth Options* has an average of 1.3574 which means that on average the market value is bigger than the book value for the firm-year observations. *Leverage* has a mean value of 0.2366, which means that for the average firm-year observation, the ratio of debt to total asset is 23.66%. The mean value for *Performance* is 0.0422, which means that the average return on assets for firm-year observations is 4.22%. The min value of *Performance* is -0.4384. This means that some firm-year observations have a negative ROA (loss) of 43.84%. The average *Risk* of the sample is 0.0281. This shows that the standard deviation of the stock market return of the firm-year observations over the past five years is 2.81%. The mean natural logarithm value for *Size* is 7.7092. This reflects an average total asset of firms in the sample of 2,228.76 thousand U.S. Dollars. Lastly, *Tenure* has a mean natural logarithm of 1.4904. This value reflects an average CEO observation tenure of 4.4389 years as CEO at the firm at which they currently are employed.

Table 2, presented on page 14, shows the *VarComp_TotalComp* per nationality. The observations are sorted from high to low for the ratio of variable to total compensation. The table shows that CEO observations from Croatia have on average the highest relative variable compensation with an average ratio of 0.9074. Comparing this mean with the mean of Georgia (0.3247) or even with Hungary (0.0000), one can see that the mean values are different. This confirms the expectations that the ratio of variable compensation is influenced by nationality.

Table 3, presented at page 15, shows the *StockOptions_TotalComp* per Nationality. Herein, the observations are also sorted from high to low for the ratio of stock options to total compensation. The table shows that observations with CEOs from Croatia have also the highest relative value of stock options in their compensation with a mean value of 0.8330. Looking further, CEOs from Japan have a ratio of zero, along with CEOs from Poland, Taiwan, Czech Republic, Georgia and Hungary. This also confirms the expectation that the ratio of stock options to total compensation is influenced by nationality. Lastly, all observations of CEOs from Hungary seem to have no variable compensation (table 2). This implies that their compensation does only exist of fixed compensation, and thus no stock options. This is confirmed by table 3 which shows that observed CEOs from Hungary do not have any stock options.

Table 2: variable compensation to total compensation per nationality

Nationality	N	VarComp_TotalComp	
		Mean	Std. Dev.
Croatia	2	0.9074	0.0504
Japan	1	0.8877	0.0000
China	3	0.8782	0.0335
Turkey	14	0.8639	0.0456
Spain	11	0.8626	0.0567
Puerto Rico	4	0.8573	0.0508
Poland	1	0.8522	0.0000
Netherlands	30	0.8423	0.1650
Brazil	14	0.8254	0.0996
France	34	0.8232	0.1803
India	90	0.8156	0.2058
Taiwan	2	0.8145	0.0052
Sweden	17	0.8005	0.1211
Philippines	3	0.7967	0.0073
Canada	71	0.7894	0.1545
Italy	43	0.7832	0.2382
Germany	66	0.7654	0.1574
United Kingdom	131	0.7649	0.1925
Singapore	13	0.7610	0.1067
Argentina	8	0.7511	0.3192
South Africa	25	0.7439	0.2038
Austria	10	0.7254	0.1114
Israel	37	0.7163	0.2159
Australia	45	0.6948	0.1927
United States	15,292	0.6913	0.2453
New Zealand	5	0.6865	0.1442
Iran	26	0.6695	0.2158
Ireland	22	0.6373	0.3060
Belgium	11	0.6341	0.3121
Denmark	33	0.6233	0.1469
Cyprus	17	0.5517	0.1734
Greece	3	0.5258	0.2910
Czech Republic	2	0.3562	0.2435
Georgia	1	0.3247	0.0000
Hungary	5	0.0000	0.0000

Table 3: stock options to total compensation per nationality

Nationality	StockOptions_TotalComp		
	N	Mean	Std. Dev.
Croatia	2	0.8830	0.0159
Greece	3	0.4298	0.3796
Netherlands	30	0.4269	0.3182
China	3	0.3661	0.3521
South Africa	25	0.3610	0.2772
Israel	37	0.3388	0.2866
Iran	26	0.2915	0.2466
Sweden	17	0.2689	0.3123
United Kingdom	131	0.2522	0.2494
Philippines	3	0.2406	0.0605
Italy	43	0.2386	0.2548
Germany	66	0.2200	0.2299
Canada	71	0.2085	0.2223
Turkey	14	0.2059	0.2657
United States	15292	0.2007	0.2489
India	90	0.1992	0.3002
Singapore	13	0.1830	0.1492
Denmark	33	0.1759	0.1776
Austria	10	0.1599	0.2112
Brazil	14	0.1583	0.1751
Spain	11	0.1398	0.1211
France	34	0.1251	0.2225
Australia	45	0.1166	0.1689
Cyprus	17	0.1149	0.1198
New Zealand	5	0.0974	0.1334
Argentina	8	0.0917	0.1699
Ireland	22	0.0883	0.1562
Belgium	11	0.0644	0.0762
Puerto Rico	4	0.0238	0.0476
Japan	1	0.0000	0.0000
Poland	1	0.0000	0.0000
Taiwan	2	0.0000	0.0000
Czech Republic	2	0.0000	0.0000
Georgia	1	0.0000	0.0000
Hungary	5	0.0000	0.0000

Table 4, presented at page 17, shows the correlation matrix of all the dependent, independent and control variables. The table shows that the variable *VarComp_TotalComp* is significant positively correlated with *Power Distance* and *Long Term orientation*. This is in line with the hypothesized relations in hypotheses 1 and 4. *VarComp_TotalComp* and *Uncertainty Avoidance* are not significant correlated while *VarComp_TotalComp* and *Individualism* are negatively correlated. The latter contradicts the hypothesized relation in hypothesis 2 and 3. *StockOptions_TotalComp* is significant negatively correlated with *Masculinity*, what is in line with hypothesis 5. However, no significant correlation is found between *StockOptions_TotalComp* and *Uncertainty avoidance*, what contradicts hypothesis 6.

The used estimation method to estimate the dependent variables is the linear regression. However, for this method to be unbiased and precise in estimating, a few assumptions need to be satisfied. An important assumption is that no perfect linear relation may exist among the explanatory variables. Looking at the correlations of the variables in table 4 it is observable that there are no variables that are perfectly correlated (e.g., correlation of 1 or -1). However, using a cut-off value of 0.7, the variables *Indulgence* and *Individualism* may cause multicollinearity issues in the linear regression estimate. Therefore, in addition to the linear regression estimates, the Variance Inflating Factor (VIF) is also calculated to measure the amount of multicollinearity. In case of severe multicollinearity, variables are removed from the estimations.

Another important assumption of the linear regression is the conditional mean of the error term assumption. This assumption is threatened by endogeneity caused by omitted variables or reverse causality. Reverse causality is ruled out, as the nationality of the CEOs are known and set a long time before the compensation contract is even thought of by the CEO. No possibility exists that the design of the compensation packages could influence the nationality. Omitted variables are dealt with by controlling with control variables that are identified in prior literature, which are: *Growth options*, *Leverage*, *Performance*, *Size*, *Tenure* and *Risk*. To prevent understated estimates of the standard errors caused by unknown omitted variables or heteroskedasticity, the regressions are estimated with robust standard errors.

Table 4: Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) VarComp_TotalComp	1													
(2) StockOptions_TotalComp	0.3217 ***	1												
(3) Power Distance	0.0349 ***	-0.012	1											
(4) Individualism	-0.0459 ***	-0.0096	-0.5734 ***	1										
(5) Masculinity	-0.0334 ***	-0.0245 ***	-0.0638 ***	0.4129 ***	1									
(6) Uncertainty Avoidance	0.0103	-0.0032	0.2495 ***	-0.4193 ***	-0.0561 ***	1								
(7) Long Term Orientation	0.0529 ***	0.0161 **	0.3091 ***	-0.6214 ***	-0.2775 ***	0.3993 ***	1							
(8) Indulgence	-0.0279 ***	-0.0135 *	-0.4449 ***	0.7766 ***	0.1644 ***	-0.5880 ***	-0.6056 ***	1						
(9) Growth Options	0.0661 ***	0.1761 ***	0.0371 ***	-0.0347 ***	-0.0120	0.0229 ***	0.0175 **	-0.0498 ***	1					
(10) Leverage	0.0993 ***	-0.0715 ***	-0.0261 ***	0.0349 ***	0.0154 *	-0.0132 *	-0.0059	0.0476 ***	-0.3001 ***	1				
(11) Performance	0.1050 ***	0.012	0.0377* **	-0.0254 ***	-0.0125	0.0060	0.0094	-0.0234 ***	0.4101 ***	-0.1575 ***	1			
(12) Size	0.4073 ***	0.0311 ***	0.0352 ***	-0.0422 ***	-0.0196 **	0.0382 ***	0.0807 ***	-0.0157 **	-0.2310 ***	0.2388 ***	0.0806 ***	1		
(13) Tenure	-0.1128 ***	-0.012	-0.0142 *	0.0143 *	-0.0094	-0.0060	-0.0312 ***	-0.0096	0.0722 ***	-0.0019	0.0919 ***	-0.0373 ***	1	
(14) Risk	-0.1834 ***	0.1172 ***	-0.0102	0.0366 ***	0.0153 *	-0.0300 ***	-0.0573 ***	0.0146 *	-0.0413 ***	-0.0604 **	-0.3126 ***	-0.4031 ***	-0.0316 ***	1

* p<10%, ** p< 5%, *** p<1% level

5.2 Linear regression results variable compensation to total compensation

First, I test whether the ratio of variable compensation to total compensation in compensation contracts is dependent on nationality. Table 5 on page 19 shows the results of this estimation. In column 1 the ratio of variable compensation to total compensation is regressed only on the control variables. As can be seen from the table, the *Constant* and the control variables *Growth Options*, *Leverage*, *Size* and *Tenure* are significant at 1% level of significance. However, *Performance* and *risk* are not significant. This estimation has an explanatory power of 20.74%. In column 2, I add year and industry fixed effects. This does increase the explanatory power of the estimation to 24.75%. However, it does also affect the control variables *Performance* and the *Constant*, as *Performance* becomes significant and the *Constant* becomes insignificant. In column 3, I add the independent variables which have a hypothesized relation with the ratio of variable compensation to total compensation to the estimation. This does increase the explanatory power of the model with 0.07%. In column 4, I add all the independent variables to the estimation, which results in an explanatory power of 24.85%. Thus, the addition of the independent variables to the estimation causes the explanatory power of the model to increase with 0.10% which is relatively low. Remarkably, *Risk* remains insignificantly different from zero.

Table 6, column 1 (page 20) shows the Variance Inflating Factors in the regression estimation of table 5 column 4. A VIF equal to 1 means that a variable does not cause multicollinearity. The table shows that the variables which are highly correlated (*Individualism* and *Indulgence*) have a relatively high VIF: 4.50 and 3.65 respectively. Therefore, the estimation of table 5, column 4 is estimated again without the independent variable *Indulgence*. Despite *Individualism* having the highest VIF, *Indulgence* is dropped because this independent variable has no hypothesized relation with the variable compensation to total compensation, while *Individualism* has. Table 5, column 5 shows the estimation without *Indulgence*. Estimated coefficients slightly changed due the removal of *Indulgence* (e.g., the coefficient of *Individualism* and *Uncertainty Avoidance*), but no changes in significance and explanatory power are observed. Additionally, table 6, column 2 shows that the highest VIF is now 2.89 which is a substantial improvement. This suggests that the estimated model without *Indulgence* (table 5, column 5) gives the most accurate estimation.

Hypothesis 1 states that *Power Distance* is positively related to the proportion of variable compensation to total compensation in CEO compensation packages. From the regression results of the estimation of the linear model it appears that the estimated coefficient of *Power distance* is 0.0003 for the estimation wherein only the independent variables with a hypothesized relation are included (table 5, column 3) and 0.0005 for the estimation including all the independent variables (Table 5, column 4) and the estimation without independent variable *Indulgence* (Table 5, column 4). However, all these estimations are insignificantly different from zero. Based on this, I have enough evidence to reject hypotheses 1, which means that *Power Distance* is not related to the proportion of variable compensation to total compensation in CEO compensation packages.

Table 5: Regression results variable compensation to total compensation

Variabele	(1)	(2)	(3)	(4)	(5)
Power Distance			0.0002 (0.0004)	0.0005 (0.0004)	0.0005 (0.0004)
Individualism			-0.0010*** (0.0003)	-0.0002 (0.0004)	-0.0006 (0.0004)
Uncertainty Avoidance			-0.0011*** (0.0004)	-0.0012*** (0.0004)	-0.0010*** (0.0004)
Long Term Orientation			-0.0002 (0.0003)	-0.0004 (0.0003)	-0.0003 (0.0003)
Masculinity				-0.0013*** (0.0005)	-0.0012*** (0.0004)
Indulgence				-0.0007 (0.0004)	
Growth Options	0.0418*** (0.0021)	0.0399*** (0.0022)	0.0400*** (0.0022)	0.0399*** (0.0022)	0.0399*** (0.0022)
Leverage	0.0658*** (0.0098)	0.0685*** (0.0113)	0.0691*** (0.0113)	0.0699*** (0.0114)	0.0694*** (0.0113)
Performance	0.0345 (0.0237)	0.0600** (0.0242)	0.0579** (0.0242)	0.0578** (0.0242)	0.0574** (0.0242)
Size	0.0609*** (0.0013)	0.0599*** (0.0014)	0.0598*** (0.0014)	0.0598*** (0.0014)	0.0598*** (0.0014)
Tenure	-0.0252*** (0.0017)	-0.0283*** (0.0017)	-0.0282*** (0.0017)	-0.0284*** (0.0017)	-0.0283*** (0.0017)
Risk	0.0553 (0.1869)	-0.0335 (0.2066)	-0.0464 (0.2067)	-0.0561 (0.2067)	-0.0481 (0.2066)
Constant	0.1872*** (0.0148)	0.1135 (0.1071)	0.2640** (0.1209)	0.3099** (0.1279)	0.2776** (0.1216)
Fixed effects	No	Yes	Yes	Yes	Yes
R2	0.2074	0.2475	0.2482	0.2485	0.2485
Observations	16,092	16,092	16,092	16,092	16,092

* p<10%, ** p< 5%, *** p< 1% (2-tailed)

Table 6: Variance Inflating Factor in regression variable compensation to total compensation

Variable	(1)	(2)
Power Distance	1.63	1.63
Individualism	4.50	2.89
Uncertainty Avoidance	1.60	1.32
Long Term Orientation	1.84	1.77
Masculinity	1.46	1.37
Indulgence	3.65	NA
Growth Options	1.64	1.64
Leverage	1.51	1.51
Performance	1.46	1.46
Size	1.68	1.68
Tenure	1.05	1.05
Risk	1.72	1.72

Hypothesis 2 states that *Individualism* is positively related to the proportion of variable compensation to total compensation in CEO compensation packages. In the estimation where only the hypothesized independent variables are included (table 5, column 3), is the estimated coefficient -0.0010 and significant at the 1 % level of significance. In the estimation where all independent variables are included (table 5, column 4) and the estimation wherein only *Indulgence* is removed (table 5, column 5), the estimated coefficient is -0.0002 and -0.006 respectively. All estimations do not support hypothesis 2 as the sign of the coefficient is reverted or the estimated coefficient is not significantly different from zero. Based on this, I have enough evidence to reject hypothesis 2, which means that *Individualism* is not positively related to the proportion of variable compensation to total compensation in CEO compensation packages.

Hypothesis 3 states that *Uncertainty Avoidance* is negatively related to the proportion of variable compensation to total compensation in CEO compensation packages. In all estimations wherein this variable is included is the estimated coefficient negative and significantly different from zero at the 1% level of significance (table 5, column 3/4/5). Following the most accurate estimation in column 5, the estimated coefficient is -0.0010. This coefficient can be interpreted as following: on average, holding all other variables constant, a 1 point increase in the quantification measuring *Uncertainty Avoidance* results in a 0.10% decrease of variable compensation relative to the total compensation in CEO compensation packages. Based on this I have not enough evidence to reject the third hypothesis, which means that *Uncertainty Avoidance* is negatively related to the proportion of variable compensation to total compensation in CEO compensation packages. Regarding the economic significance of this finding, given that the average total compensation of CEOs in the sample is on average \approx 6,641.32 thousand U.S. Dollars. A 1 point increase in the quantification measuring *Uncertainty Avoidance* results in a decrease in fixed compensation of \approx 6.64 thousand U.S. Dollars and for the same amount an increase in variable compensation.

The last hypothesis, hypothesis 4, states that *Long Term Orientation* is positively related to the proportion of variable compensation to total compensation in CEO compensation packages. In all estimations with independent variables (Table 5, column 3/4/5) the sign of the coefficient is negative and insignificantly different from zero. Based on this I have enough evidence to reject hypothesis 4, which means that *Long Term Orientation* is not related to the proportion of variable compensation to total compensation in CEO compensation packages.

Remarkably, the estimated coefficient of *Masculinity* is significant different from zero at the 1% level of significance (table 5, column 5). The estimated coefficient is -0.0012 which can be interpret as follows: on average, holding all other variables constant, a 1 point increase in the quantification measuring Masculinity results in a 0.12% decrease in variable compensation relative to the total compensation in CEO compensation packages. This means that a 1 point increase in the quantification measuring Masculinity results in a decrease in fixed compensation of ≈ 7.97 thousand U.S. Dollars (given average total CEO compensation in sample of 6,641.32 thousand U.S. Dollars) However, theoretical underpinnings for this finding are missing what makes it impossible to draw meaningful conclusions based on this finding.

5.3 Linear regression stock options to total compensation

Next, I test whether the ratio of stock options to total compensation in compensation contracts is dependent on nationality. Table 7 at page 22 shows the results of this estimation. In column 1 the ratio of stock options to total compensation is regressed only on the control variables. In column 2 the fixed effects are added to the estimation, causing an increase in explanatory power from 6.90% to 23.01% and control variable *Leverage* and the *Constant* become insignificant. In column 3 the independent variables which have a hypothesized relation are added, and in column 4 all other independent variables are added to the equation. The inclusion of all independent variables in the estimation causes the explanatory power to increase to 23.18%. Concerning the control variables, the coefficient of *Leverage* remained insignificant in the estimations made in columns 2-4, while the other control variables remained significant.

As mentioned in the descriptive statistics, 2 variables which are highly correlated may cause multicollinearity. Therefore, for the estimated model in table 7 column 4, the Variance Inflating Factors (VIF) are also calculated and shown in table 8 column 1 (page 23), and yields the same results as presented in table 6 column 1. Therefore, also the estimation of table 7 column 4 is estimated again. However, in this re-estimation the variable *Individualism* is removed, as this variable causes the most multicollinearity and does not have a hypothesized relation with the ratio of stock options to total compensation. The results of this estimation are presented in table 7 column 5. Remarkably, the removal of *Individualism* caused *Masculinity* to become significantly different from zero at the 5% level of significance. Further, some slight changes occurred in the estimated coefficients of independent variables. Table 8 column 2 shows the VIF calculations for the estimation in table 7 column 5. This table shows that the highest VIF dropped to 2.35 while the explanatory power of the estimate remains the same (24.85%) which is an overall improvement over the estimation in table 7 column 4. This suggests that the estimated model without *Individualism* (table 7, column 5) gives the most accurate estimation.

Table 7: Regression results stock options to total compensation

Variabele	(1)	(2)	(3)	(4)	(5)
Uncertainty Avoidance			0.0001 (0.0003)	-0.0007* (0.0004)	-0.0008* (0.0004)
Masculinity			-0.0014*** (0.0005)	-0.0008 (0.0005)	-0.0010** (0.0005)
Power Distance				-0.0018*** (0.0005)	-0.0016*** (0.0004)
Individualism				-0.0005 (0.0005)	
Long Term Orientation				0.0004 (0.0004)	0.0005 (0.0003)
Indulgence				-0.0011** (0.0005)	-0.0014*** (0.0004)
Growth Options	0.0533*** (0.0024)	0.0500*** (0.0023)	0.0500*** (0.0023)	0.0500*** (0.0023)	0.0500*** (0.0023)
Leverage	-0.0493*** (0.0102)	0.0092 (0.0109)	0.0105 (0.0109)	0.0125 (0.0109)	0.0125 (0.0109)
Performance	-0.1160*** (0.0245)	-0.1648*** (0.0226)	-0.1650*** (0.0226)	-0.1637*** (0.0225)	-0.1637*** (0.0225)
Size	0.0242*** (0.0013)	0.0310*** (0.0014)	0.0308*** (0.0014)	0.0308*** (0.0014)	0.0308*** (0.0014)
Tenure	-0.0030* (0.0018)	0.0055*** (0.0017)	0.0054*** (0.0017)	0.0053*** (0.0017)	0.0053*** (0.0017)
Risk	3.5282*** (0.2006)	1.8407*** (0.2000)	1.8352*** (0.1999)	1.8355*** (0.2001)	1.8337*** (0.2001)
Constant	-0.1354*** (0.0146)	-0,0565 (0.0983)	0.02380 (0.1047)	0.2146** (0.1186)	0.1919 (0.1167)
Year fixed effects	No	Yes	Yes	Yes	Yes
R2	0.0690	0.2301	0.2306	0.2318	0.2318
Observations	16,092	16,092	16,092	16,092	16,092

* p<10%, ** p< 5%, *** p< 1% (2-tailed)

Table 8: Variance Inflating Factor in regression stock options to total compensation

Variable	(1)	(2)
Uncertainty Avoidance	1.60	1.59
Masculinity	1.46	1.13
Power Distance	1.63	1.28
Individualism	4.50	NA
Long Term Orientation	1.84	1.75
Indulgence	3.65	2.35
Growth Options	1.64	1.64
Leverage	1.51	1.51
Performance	1.46	1.46
Size	1.68	1.68
Tenure	1.05	1.05
Risk	1.72	1.72

The fifth hypothesis states that *Masculinity* is negatively related to the proportion of stock options to total compensation in CEO compensation packages. Table 7 column 4 shows that the estimated coefficient for *Masculinity* is -0.0008 and is insignificantly different from zero. However, reducing multicollinearity with removing *Individualism* results into *Masculinity* being significantly different from zero at the 5% level of significance with an estimated coefficient of -0.0010 (table 7 column 5). Based on this, I have not enough evidence to reject the fifth hypothesis, which means that *Masculinity* is negatively related to the proportion of stock options to total compensation in CEO compensation packages. The coefficient of *Masculinity* can be interpreted as: on average, holding all other variables constant, a 1 point increase in the quantification measuring *Masculinity* results in a 0.10% decrease of stock options relative to the total compensation in CEO compensation packages. Regarding the economic significance: Given that the average total compensation of CEOs in the sample is on average $\approx 6,641.32$ thousand U.S. Dollars, a 1 point increase in the quantification measuring *Masculinity* results in a decrease in value of stock options of ≈ 6.64 thousand U.S. Dollars.

Hypothesis 6 states that *Uncertainty Avoidance* is negatively related to the proportion of stock options to total compensation in CEO compensation packages. Table 6 column 5 shows that the estimated coefficient of *Uncertainty Avoidance* is -0.0008 and significantly different from zero at the 10% level of significance. Even in the estimated model with multicollinearity (Table 6, column 4) *Uncertainty Avoidance* is negative and significantly different from zero. Therefore, I have not enough evidence to reject hypothesis 6 which means that *Uncertainty Avoidance* is negatively related to the proportion of stock options to total compensation in CEO compensation packages. The coefficient of *Uncertainty Avoidance* can therefore be interpreted

as: on average, holding all other variables constant, a 1 point increase in the quantification measuring *Uncertainty Avoidance* results in a 0.08% decrease of stock options relative to the total compensation in CEO compensation packages. This finding is also economic significant as a 1 point increase in the quantification measuring *Uncertainty Avoidance* results in a decrease in value of stock options of ≈ 5.31 thousand U.S. Dollars. (Given that the average total compensation of CEOs in the sample is on average $\approx 6,641.32$ thousand U.S. Dollars)

Lastly, the estimated coefficients of *Power Distance* and *Indulgence* are also both significantly different from zero at the 1% level of significance (Table 7, column 5) However, theoretical underpinnings for this finding are missing what makes it impossible to draw meaningful conclusions based on these findings.

6. Robustness tests

I test the results described in the previous paragraph on robustness. Therefore, I remove the observations from which Nationality was proxied for by the former employment resulting in a sample of 11,262 observations. Hereafter, I use this “clean” sample to re-estimate the regression of variable compensation to total compensation on the independent variables and control variables and the regression of stock options to total compensation on the independent variables and control variables.

6.1 Robustness test variable compensation to total compensation

Appendix table 2 shows the estimations of the models explaining variable compensation to total compensation. Column 1 shows the estimate wherein only the control variables are included, column 2 adds the year and industry fixed effects, column 3 adds the independent variables with a hypothesized relation, column 4 shows the estimation wherein all variables are included and column 5 the estimation wherein *Indulgence* is dropped to resolve multicollinearity. Appendix table 2 shows the Variance Inflating Factors (VIF), wherein comparing column 1 shows the VIF of the estimation of the full model and column 2 shows the VIF of the estimation wherein the variable *Indulgence* is dropped. Table 2 column 2 suggests that the multicollinearity has decreased with removing *Indulgence* from the estimates as the VIF decreases. Even while, the explanatory power (23.86%) of the model remained the same. This suggests that the estimation without *Indulgence* gives the most accurate estimations, which is in line with the suggestion in chapter 5.2.

Appendix table 2, column 5 shows that *Power Distance* and *Uncertainty Avoidance* are significantly different from zero at the respectively 5% and 10% level of significance. The estimation of *Power Distance* is in line with hypothesis 1; *Power Distance* is positively related to the proportion of variable compensation to total compensation, as the estimated coefficient is 0.0010 (positive) and significantly different from zero. However, this does not correspond with the finding in chapter 5.2 which suggests that *Power Distance* is not related to the proportion of variable compensation to total compensation. The estimation of *Uncertainty Avoidance* is in line with hypothesis 3; *Uncertainty Avoidance* is negatively related to the proportion of variable consumption to total compensation, as the estimated coefficient is -0.0007 and significantly different from zero at the 10% level of significance. This corresponds with the finding in chapter 5.2, what suggests that the finding on hypothesis 3 in chapter 5.2 is robust to capturing culture with former employment instead of birthplace for missing values.

The estimations of *Individualism* and *Long Term Orientation* are insignificantly different from zero (Appendix table 2, column 5). This is not in line with hypothesis 2 which states that *Individualism* is positively related to the proportion of variable compensation and not in line with hypothesis 4 which states that *Long Term Orientation* is positively related to the proportion of variable compensation, as the results suggest enough evidence to reject those hypotheses. These findings correspond with the finding on these hypotheses in chapter 5.2 concerning hypothesis 2 and 4, what confirms the robustness of these findings in chapter 5.2.

6.2 Robustness test stock options to total compensation

Appendix table 4 shows the estimations of the models explaining stock options to total compensation. The columns reflect estimations with the same included variables as discussed in the first paragraph of chapter 6.2 except for the estimation shown in column 5. This column shows the estimation without the variable *Individualism*. The table shows that the explanatory power of the full model estimation (column 4) and the estimation without *Individualism* (column 5) remains the same at 23.54%. Appendix table 5 shows the VIF of the estimate of the full model (column 1) and the estimate of the model excluding *Individualism* (column 2). Column 2 shows that the multicollinearity decreased with dropping *Individualism* from the estimation. This suggests that the estimation without *Individualism* gives the most accurate estimations, which is in line with the suggestion in chapter 5.3.

Appendix table 4, column 5 shows that the estimated coefficient of *Masculinity* is -0.0012 and significantly different from zero at the 5% level of significance. This is in line with hypothesis 5 which states that *Masculinity* is negatively related to the proportion of stock options to total compensation and corresponds with the finding in chapter 5.3. This suggest that the finding in chapter 5.3 regarding hypothesis 5 is robust to capturing culture with former employment instead of birthplace for missing values. Appendix table 4 column 5 also shows that the estimated coefficient of *Uncertainty Avoidance* is -0.0005, however not significantly different from zero. This is not in line with hypothesis 6 which states that *Uncertainty Avoidance* is negatively related to the proportion of stock options tot total compensation. This does not correspond with the findings in chapter 5.3 as these suggest that *Uncertainty Avoidance* is negatively related to the proportion of stock options. This suggests that the finding in chapter 5.3 regarding hypothesis 6 is not robust.

7. Conclusion & Discussion

7.1 Conclusion

This study examined whether the cultural background of CEOs influences the design of the compensation contracts. Herein, the cultural background was proxied for by nationality and measured with the quantifications by Hofstede (2005) that are *Power Distance*, *Individualism*, *Uncertainty Avoidance*, *Long Term Orientation*, *Masculinity* and *Indulgence*. The research question is examined with testing hypotheses that hypothesize that *Power Distance*, *Individualism* and *Long Term Orientation* are positively and *Uncertainty Avoidance* negatively related with the proportion of variable compensation to total compensation. Further, I also hypothesize that *Masculinity* and *Uncertainty Avoidance* are negatively related to the proportion of stock options to total compensation. These hypotheses are tested with the use of a linear regression model. The sample consists of panel data consisting of compensation data of CEOs employed at firms in the United States and contains 16,092 observations.

The results provide evidence that the quantification *Uncertainty Avoidance* is negatively related to the ratio of variable compensation to total compensation and the quantifications *Masculinity* and *Uncertainty Avoidance* are negatively related to the proportion of stock options to total compensation. This means that CEOs from countries with higher *Uncertainty Avoidance* have on average relative lower variable compensation than CEOs from countries with lower *Uncertainty Avoidance* and CEOs from more Masculine or *Uncertainty Avoiding* countries have relative less stock options in their compensation than CEOs from countries with high *Masculinity*. However, the finding that *Uncertainty Avoidance* is negatively related to the proportion of stock options to total compensation is not robust. Not all hypothesized relations have significant and robust estimates. However, as some hypothesized relations have significant and robust estimates, I conclude that the cultural background of CEOs influences the design of the compensation contracts of CEOs.

This examination contributes to the literature as it is the first paper that examines the effect of the nationality of the CEO on the compensation package designs. Previous research focussed on the ethnicity of CEOs or used the country of establishment of the firm as measure for culture. Other related literature also used nationality but limited their research to the effect on total compensation instead of the design of the compensation. The results give a better understanding in what defines the compensation design of CEOs. Herewith, future research can actively and reasoned choose to, or not to include nationality.

The results of this examination also have implications for the companies as it emphasizes the relevance of considering the cultural background of executives in the design of the contracts. Herewith, I would like to refer directly to compensation committees and third parties that help the compensation committees in drafting the compensation design who do not actively incorporate the nationality of the CEO in their drafting. It may also have implications for the perception of the public on the CEO compensations as the public may better understand why CEOs are compensated the way they are compensated.

7.2 Discussion

This research also has limitations. The first limitation is that there might be bias caused by omitted variables. However, as control variables identified by prior literature are used to alleviate biases, it still may be a problem. For example, the culture of the board (or more specific the compensation committee members) could also have influenced the composition of the compensation contract. Secondly, in this research the observations with missing variables are dropped. Herewith, some important variation could have been lost or could have caused a self-selection bias. The latter could be the case if for example firms with unjustifiable compensation do not disclose their granted compensation. Because of this, only firms who granted justifiable compensation and/or firms that are not afraid for the public opinion could be remaining in the sample. This bias is expected to not occur in the data from the year 2006, as from this year U.S. firms are forced to publish all elements of CEO compensation. However, as this research uses data form before 2006, self-selection bias may have occurred in this research. Thirdly, the sample contained very little variation in nationalities. Some countries were underrepresented, and some were not represented at all. This may have caused bias in the results. Fourthly, as only firms in the United States are included in the sample, the external validity might be lacking.

Also, the framework of Hofstede (2005) which measures nationalities with properties that define nationalities could be causing bias in the research. Criticism mentions that the properties in the framework are outdated as they are developed in the previous century (Tsakumis, Curatola and Porcano, 2007) and have not been developed over time (Orij, 2010). These properties also assume ethnic homogeneity in a country as it neglects multicultural countries and cross-border cultures, what makes the concept of culture more debatable than insightful (Baskerville, 2003). Also, some properties are heavily biased by social, political and economic measures. This makes the measurement of national culture very noisy. Fourth, not all countries are (representatively) covered in the development of property scores. Some countries are not included, and some countries are represented with only a few observations in the framework (McSweeney, 2002). Lastly, not all the properties are perceived to be applicable to all countries as other samples of properties can be used (Schwartz, 1994). This suggest that the used measure of nationality is imprecise and could have caused bias in the found results.

For future research I suggest to include more countries in the sample. Herewith, it is more likely to get more variation in nationalities what enables the researcher to capture more variation in the data what might give more accurate results. Including more countries in the sample might also improve the external validity of the results. Secondly, I suggest to look beyond the framework of Hofstede (2005) for measuring nationality as criticism suggests that this framework has limitations and alternatives are available. Lastly, I suggest to control for the culture of the board, as the board may influence the composition of the compensation contract. This control variable could also be operationalized with nationality of the members of the board, or more specific the nationality of the compensation committee members as they are expected to have a direct influence on the compensation contract design.

8. References

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Appendix

Table 1: Description of measurement of variables

<i>VarComp_TotalComp</i>	(Bonus + Total value of restricted stock granted + Total value of stock options granted (Black-scholes) + Long term incentive payouts)/ Total compensation (Bonus + Grant date fair value of stock awards + Grant date fair value of Option awards + Non-equity incentive plan compensation)/ Total compensation	Applies to data prior to 2006* Applies to data from 2006*
<i>StockOptions_TotalComp</i>	Total value of stock options granted (Black-scholes) / Total compensation Grant date fair value of Option awards / Total compensation	Applies to data prior to 2006* Applies to data from 2006*
<i>Growth Options</i>	Total market value / Total assets	
<i>Leverage</i>	Total debt/ Total assets	
<i>Performance</i>	Net income/ Total assets	
<i>Size</i>	Ln (Total assets)	
<i>Tenure</i>	Ln (First day of year of observation - Date became CEO (Execucomp))	
<i>Daily returns</i>	((Daily close price of stock(t) / Adjustment factor for stock splits (t)) * Daily total return factor (t)/ (Daily close price of stock(t-1) / Adjustment factor for stock splits (t-1)) * Daily total return factor (t-1)) -1	
<i>Risk</i>	Standard deviation of <i>Daily returns</i> over the last 5 years before the year of observation	

*Due to change in regulations

**Table 2: Regression results variable compensation to total compensation
(Robustness test)**

Variabele	(1)	(2)	(3)	(4)	(5)
Power Distance			0.0007 (0.0004)	0.0010** (0.0004)	0.0010** (0.0004)
Individualism			-0.0006 (0.0004)	0.0001 (0.0005)	-0.0001 (0.0004)
Uncertainty Avoidance			-0.0009** (0.0004)	-0.0008* (0.0004)	-0.0007* (0.0004)
Long Term Orientation			0.0002 (0.0003)	0.0001 (0.0003)	0.0001 (0.0003)
Masculinity				-0.0013*** (0.0004)	-0.0012*** (0.0004)
Indulgence				-0.0003 (0.005)	
Growth Options	0.0379*** (0.0024)	0.0364*** (0.0026)	0.0364*** (0.0026)	0.0364*** (0.0026)	0.0364*** (0.0026)
Leverage	0.0470*** (0.0124)	0.0504*** (0.0143)	0.0514*** (0.0143)	0.0521*** (0.0144)	0.0518*** (0.0143)
Performance	0.0269 (0.0314)	0.0373 (0.0317)	0.0333 (0.0318)	0.0329 (0.0318)	0.0330 (0.0318)
Size	0.0574*** (0.0015)	0.0563*** (0.0017)	0.0563*** (0.0017)	0.0562*** (0.0017)	0.0562*** (0.0017)
Tenure	-0.0229*** (0.0020)	-0.0280*** (0.0021)	-0.0278*** (0.0021)	-0.0280*** (0.0021)	-0.0279*** (0.0021)
Risk	0.1135 (0.2288)	0.1625 (0.2602)	0.1469 (0.2604)	0.1358 (0.2604)	0.1405 (0.2604)
Constant	0.2193*** (0.0180)	-0.0117 (0.1357)	0.0516 (0.1537)	0.0766 (0.1569)	0.0620 (0.1541)
Fixed effects	No	Yes	Yes	Yes	Yes
R2	0.1943	0.2374	0.2381	0.2386	0.2386
Observations	11,262	11,262	11,262	11,262	11,262

* p<10%, ** p< 5%, *** p< 1% (2-tailed)

Table 3: Variance Inflating Factor in regression variable compensation to total compensation (Robustness test)

Variable	VIF (column 4)	VIF (column 5)
Power Distance	1.63	1.63
Individualism	4.54	2.98
Uncertainty Avoidance	1.67	1.46
Long Term Orientation	1.86	1.76
Masculinity	1.48	1.38
Indulgence	3.77	NA
Growth Options	1.74	1.74
Leverage	1.54	1.54
Performance	1.51	1.51
Size	1.75	1.75
Tenure	1.08	1.08
Risk	1.78	1.78

Table 4: Regression results Stock options to Total Compensation (Robustness test)

Variabele	(1)	(2)	(3)	(4)	(5)
Uncertainty Avoidance			0.0002 (0.0004)	-0.0005 (0.0004)	-0.0005 (0.0004)
Masculinity			-0.0016*** (0.0005)	-0.0009* (0.0005)	-0.0012** (0.0005)
Power Distance				-0,0020*** (0.0005)	-0,0018*** (0.0005)
Individualism				-0.0007 (0.0005)	
Long Term Orientation				0.0006 (0.0004)	0.0007* (0.0004)
Indulgence				-0.0007 (0.0005)	-0.0011** (0.0005)
Growth Options	0.0533*** (0.0029)	0.0513*** (0.0029)	0.0514*** (0.0029)	0.0515*** (0.0029)	0.0515*** (0.0029)
Leverage	-0.0257* (0.0134)	0.0132 (0.0145)	0.0153 (0.0145)	0.0177 (0.0145)	0.0177 (0.0145)
Performance	-0.1426*** (0.0329)	-0.1687*** (0.0307)	-0.1694*** (0.0307)	-0.1659*** (0.0306)	-0.1659*** (0.0306)
Size	0.0194*** (0.0016)	0.0303*** (0.0017)	0.0301*** (0.0017)	0.0301*** (0.0017)	0.0301*** (0.0017)
Tenure	-0.0074*** (0.0022)	0.0060*** (0.0021)	0.0059*** (0.0021)	0.0059*** (0.0021)	0.0058*** (0.0021)
Risk	3.9262*** (0.2555)	2.2968*** (0.2584)	2.2805*** (0.2585)	2.2953*** (0.2589)	2.2914*** (0.2589)
Constant	-0.0925*** (0.0181)	-0,0619 (0.1463)	0.0196 (0.1536)	0.20260 (0.1665)	0.1705 (0.1650)
Year fixed effects	No	Yes	Yes	Yes	Yes
R2	0.0706	0.2330	0.2338	0.2353	0.2353
Observations	11,262	11,262	11,262	11,262	11,262

* p<10%, ** p< 5%, *** p< 1% (2-tailed)

Table 5: Variance Inflating Factor in regression Stock Options to Total Compensation (Robustness test)

Variable	VIF (column 4)	VIF (column 5)
Uncertainty Avoidance	1.67	1.67
Masculinity	1.48	1.14
Power Distance	1.63	1.34
Individualism	4.54	NA
Long Term Orientation	1.86	1.79
Indulgence	3.77	2.47
Growth Options	1.74	1.74
Leverage	1.54	1.54
Performance	1.51	1.51
Size	1.75	1.75
Tenure	1.08	1.08
Risk	1.78	1.78