

Passive institutional ownership and excessive CEO compensation

Master Thesis

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Abstract

One of today's major corporate governance concerns is the increasing equity ownership by passive institutional investors. It is unclear to what extent passively managed funds have the resources and interests to monitor their large, diversified portfolios. This study examines the effect of passive institutional ownership on excessive CEO compensation. I find statistical significance that passive institutional ownership positively relates to excessive CEO compensation. A 1% increase in passive institutional ownership is associated with a roughly 0.6% increase in excessive CEO compensation. This result suggests that an increase in passive institutional ownership leads to less monitoring, which enables the CEO to extract more rents than justified. The findings of this research are relevant for various key stakeholders. For shareholders, it is crucial to realize that CEOs extract more rents than justified if monitoring decreases. More specifically, passive institutional investors should find ways to improve the monitoring of their large portfolios to counter this.

Keywords: Corporate governance; Institutional ownership; Monitoring; CEO compensation

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Table of Contents

1. Introduction	1
2. Literature Review	2
2.1 <i>CEO compensation design</i>	2
2.2 <i>The role of institutional investors</i>	4
3. Hypothesis development	6
4. Research design and data	7
4.1 <i>Empirical model</i>	7
4.1.1 <i>Regression models</i>	7
4.1.2 <i>Independent variable</i>	8
4.1.3 <i>Control variables</i>	9
4.1.4 <i>Economic determinants of CEO compensation</i>	9
4.2 <i>Data sample</i>	10
4.2.1 <i>Descriptive statistics</i>	11
5. Results	12
5.1 <i>Computation of excessive CEO compensation</i>	12
5.2 <i>Passive institutional ownership and excessive CEO compensation</i>	14
6. Conclusion	17
References	19
Appendix A. Variable Definitions	22

1. Introduction

One of the major corporate governance concerns today is the increasing equity ownership by institutional investors. At the end of 2017, institutional investors held 41% of global market capitalization, making them the major owners of today's publicly listed companies. In advanced economies, institutional investors even show a more substantial presence. In the United States, the United Kingdom, and Canada, institutional investors hold 72%, 63%, and 47% of the total listed equity, respectively (De La Cruz, Medina, & Tang, 2019). Therefore, it is crucial to examine institutional investors' role in firms' corporate governance. More specifically, passive institutional investors' enormous increase in ownership of firms raises important issues. Passive institutional investors have passively managed index funds and ETFs and do not actively influence decision-making. Over the last ten years, the share of passive institutional ownership has grown from 19% in 2010 to 40% in 2020. Accordingly, the share of active institutional ownership decreased from 81% to 60% (Investment Company Institute, 2021). It is uncertain to what extent passively managed funds have the capacity and interests to monitor firms and executives (Schmidt & Fahlenbrach, 2017). Therefore, it is crucial for companies and shareholders to examine if the rise of passive institutional investors weakens corporate governance and potentially hurts the performance of firms. This leads to the following research question:

Does passive institutional ownership lead to excessive CEO compensation?

I follow the method described in Core et al. (2008) to construct a measure for excessive CEO compensation. First, expected compensation is derived by a regression on proxies for standard economic determinants of CEO compensation. After that, expected compensation is subtracted from the actual compensation to obtain excessive CEO compensation per firm-CEO-year. For the classification of a fund as either actively or passively managed, I use the classification as described in Bushee (2001). Institutional investors are classified as active or passive investors based on portfolio turnover, diversification, and trading behavior. After classifying, I compute passive institutional ownership in all S&P 500 firms separately. Finally, I use an OLS regression to examine the effect of passive institutional ownership on excessive CEO compensation. All data is acquired from Execucomp, Compustat, CRSP, Thomson Reuters (13F), and ISS.

I find statistical significance that passive institutional ownership positively relates to excessive CEO compensation. This result suggests that an increase in passive institutional ownership leads to less monitoring, which enables the CEO to extract more rents than justified. The coefficient indicates that a 1% increase in passive institutional ownership leads to a roughly 0.6% increase in excessive CEO compensation. Over the last decade, the magnitude of the coefficient has been economically significant, considering the above-average growth in passive institutional ownership. Additionally, I find that a concentrated ownership structure and more outside directors on the board have a significant negative association with excessive CEO compensation. A larger board size and a longer tenure as CEO have a significant positive relation.

This research contributes to the existing literature in several ways. First, previous research mainly focused on the influence of total institutional ownership on executive compensation (Hartzell & Starks, 2003; Janakiraman, Radhakrishnan, & Tsang, 2010). This research elaborates on those papers by making a distinction between active and passive institutional investors. Prior literature probably ignored this distinction because the share of passive institutional ownership was minimal then. More recent papers that do distinguish between passive and active investors primarily focus on the influence on the overall corporate governance and do not examine the effect on excessive CEO compensation specifically (Appel, Gormley, & Keim, 2016; Schmidt & Fahlenbrach, 2017). My results affirm the findings of Schmidt and Fahlenbrach (2017), who find that passive institutional ownership leads to more powerful CEOs due to reduced monitoring. However, my findings contradict the results of Appel et al. (2016), who conclude that passive institutional investors improve a firm's corporate governance. This contrast in outcomes might be caused by the fact that Schmidt and Fahlenbrach (2017) examine governance activities that require high-cost monitoring, and Appel et al. (2016) study more low-cost monitoring governance activities. My findings are consistent with Schmidt and Fahlenbrach (2017) because excessive CEO compensation also requires high-cost monitoring.

The findings of this research are relevant for various key stakeholders. For shareholders, it is crucial to realize that CEOs extract more rents than justified if monitoring decreases. More specifically, passive institutional investors should find ways to improve the monitoring of their large portfolios to counter this. This can also be outsourced to external parties when they are not interested in or capable of doing this themselves effectively. In addition, my results affirm that weak corporate governance is associated with more excessive CEO compensation. Therefore, it is essential for companies to strengthen their governance by smaller and more independent boards.

2. Literature Review

This section describes all relevant concepts, theories, and literature. These insights and theories of prior literature will be used to construct the hypothesis. First, this section will discuss the design of CEO compensation. The principal-agent theory, the concept of information asymmetry, and two contrasting views on the link between CEO compensation and the agency problem will be explained in this first section. Lastly, the literature on institutional ownership will be discussed.

2.1 CEO compensation design

Publicly listed companies are characterized by the separation of ownership and control (Fama & Jensen, 1983). This separation can lead to severe agency problems. According to the principal-agent theory, there is good reason to believe that the CEO (agent) will not always act in the best interests of the shareholders (principal), assuming both parties in the relationship are utility maximizers (Jensen & Meckling, 1976). The CEO is primarily interested in maximizing its compensation by executing the minimum level of effort that is needed to achieve this optimal utility. Furthermore, CEOs may be interested in empire-building or gaining more power to exert

more influence on decisions (Shleifer & Vishny, 1989; Bebchuk & Fried, 2003). Shareholders are mainly concerned with the return on their stock. This goal incongruence becomes more severe as both parties have a different risk appetite (Eisenhardt, 1989). CEOs are more risk-averse because they bear the risk of being fired and are generally incapable of mitigating this risk by diversifying employment with multiple jobs. Shareholders do have the possibility to mitigate some risk by diversifying their investments, so it is presumed they are more risk-neutral. This difference in risk appetite influences decision-making. Moreover, when a CEO's goals deviate from those of shareholders, the CEO could make investment decisions that benefit oneself personally but harm the long-term shareholder value (Jensen, 1986). Appropriate incentives should be established in combination with monitoring to limit deviations from shareholders' interests.

Chong and Eggleton (2007) state that information asymmetry occurs when the CEO has more firm-specific information than the shareholders. Consequently, the CEO is better informed regarding their actions. Therefore, information asymmetry can induce moral hazard (Holmström, 1979). This dysfunctional behavior can be alleviated by monitoring and contracts that incentivize the CEO to act in shareholders' interests. According to Fama and Jensen (1983), the board of directors has an essential role in monitoring the CEO's behavior on behalf of the shareholders. The shareholders elect a public company's board of directors, but, in reality, the CEO influences the board candidates that can be nominated (Hermalin & Weisbach, 1998). The board of directors has the power to hire and fire executives, decide on their compensation, and ratify and monitor critical decisions such as mergers and acquisitions, major investments, and dividends. However, directly monitoring all executives' efforts and behavior is almost impossible or very costly (Jensen & Meckling, 1976). Therefore, the board of directors composes remuneration packages to tie executive compensation to the creation of shareholder value. In general, a CEO's total compensation consists of six basic components: (1) base salary; (2) bonus; (3) long-term incentive plan payouts; (4) the value of restricted stock grants; (5) the value of options granted during the year; and (6) any other annual pay. (Core, Guay, & Larcker, 2008). Especially equity-based compensation incentivizes the CEO to act in shareholders' interests.

There are two contrasting theories on how the agency problem and CEO compensation are associated: the "efficient contract theory" and the "managerial power theory" (Murphy, 2013). The efficient contract theory assumes that competitive market forces decide the amount and structure of CEO compensation and that the incentives are arranged efficiently to maximize shareholder value. The managerial power theory assumes that not a competitive equilibrium determines the amount and structure of CEO compensation but powerful CEOs themselves. They do this by misusing their power to influence board members. This weak corporate governance enables the CEO to extract excessive compensation that is not justified, otherwise known as managerial rent-seeking (Bebchuk, Fried, & Walker, 2002). The latter theory considers CEO compensation not only as a possible solution for the agency problem but as part of the agency problem (Bebchuk & Fried, 2003). Some components of the compensation package could incentivize managerial rent-seeking instead of incentivizing the CEO to act in shareholders' interests. For example, Van Essen, Otten, and Carberry (2015) prove that CEOs with more expected power over the compensation setting process acquire significantly more compensation than CEOs in firms where the board of directors is expected to have more power. This indicates

that the managerial power theory holds because powerful CEOs seem to influence their compensation. Furthermore, Yermack (1997) finds that CEOs are awarded stock options shortly before good news announcements by the company. This indicates that CEOs misuse their managerial power to influence the board of directors to make use of information asymmetry.

2.2 The role of institutional investors

The U.S. Securities and Exchange Commission (SEC) defines an institutional investor as an entity that invests on behalf of other natural persons or companies (SEC, 1934). In general, there are six types of institutional investors: pension funds, endowment funds, insurance companies, hedge funds, mutual funds, and commercial banks (De La Cruz et al., 2019). All these entities invest in their way on behalf of others. Institutional investors are characterized by holding and trading large blocks of stocks. If an institutional investor manages at least \$100 million in equity, it is required to file an SEC Form 13F every quarter (SEC, 1934). This quarterly report discloses all equity holdings of the institutional investor. The SEC believes this mandatory filing increases transparency and investor confidence in the integrity of the U.S. stock market.

Each type of institutional investor can be subdivided into active and passive institutional investors (Appel et al., 2016). Active institutional investors have actively managed funds that actively participate in firms' decision-making. Passive institutional investors have passively managed index funds and ETFs that do not actively influence decision-making. These passively managed funds are designed to deliver the returns of a market index (e.g., S&P 500) or investment style (e.g., small-cap value) with low turnover of stocks, diversified portfolios, and low expenses.

Bushee (2001) classifies institutional investors into three categories based on the investment horizon. The first group is the “transient” investors, characterized by high portfolio turnover and a highly diversified portfolio. These traits indicate that transient investors are actively managed institutions whose primary goal is to achieve short-term trading profits. These investors influence decision-making to maximize this short-term profit. The second group, the “dedicated” investors, are characterized by large average investments and extremely low portfolio turnover. These institutions are also actively managed because they aim to receive a long-term dividend income and return on firm growth for a couple of firms. Dedicated investors focus on long-term stable ownership by actively participating in decision-making. The third group is the “quasi-index” investors, which are also characterized by low portfolio turnover but do have highly diversified portfolios. These traits indicate that quasi-index investors are passively managed institutions, aiming to receive long-term dividend income and return on firm growth with highly diversified portfolios. Quasi-index institutions consist mainly of index-tracking funds and ETFs that do not actively influence decision-making.

As discussed before, the board of directors has an essential role in monitoring the CEO. However, large shareholders, such as institutional investors, can also monitor the CEO themselves through two channels: “voice” and “exit” (Edmans, 2014). By using “voice”, investors influence a firm’s decision-making by direct interventions such as giving advice on strategic choices, dismissing an underperforming executive, or blocking a value-destroying merger or acquisition. This activist investor carries the cost of intervention but all shareholders

benefit. To overcome this free-rider problem, Shleifer and Vishny (1986) state that investors need to possess a significant portion of shares to prevent them from free-riding on other shareholders' monitoring. Edmans and Manso (2011) prove the existence of this free-rider problem for firms with multiple large shareholders, otherwise known as blockholders. Institutional investors can also exercise governance through the threat of "exit". The threat of exit means that large shareholders threaten to sell their stake if they disagree with the decision-making (Edmans, 2014). This threat is credible because the stock price will decline significantly if a large shareholder sells its stake. This will punish the executives ex-post, so the threat of exit encourages executives to act in shareholders' interests ex-ante. Levit (2019) finds that the voice channel is more effective due to the threat of exit.

Without distinguishing between active and passive institutional investors, Hartzell and Starks (2003) find that the concentration of institutional ownership is negatively associated with the level of executive compensation and positively associated with the performance sensitivity of executive compensation. These findings indicate that institutional investors mitigate the agency problem between the CEO and shareholders by fulfilling a monitoring role. However, the recent growth of passive institutional investors raises concerns about how effectively executives are being monitored (Appel et al., 2016; Schmidt & Fahlenbrach, 2017). Some worry that passive investors do not have the motives and resources to monitor their large, diversified portfolios. These large, diversified portfolios are composed to track the performance of a market index. Consequently, passive investors are less interested in improving an individual stock's performance. Moreover, passively managed funds might have insufficient resources to analyze and monitor each company's corporate governance in their large portfolio. To overcome this, organizations such as the Institutional Shareholder Services (ISS) have rapidly grown (Malenko & Shen, 2016). These organizations give vote recommendations to institutional investors at annual general meetings. Malenko and Shen (2016) prove that many institutional investors mechanically follow their advice so that they have complied with their duties.

Schmidt and Fahlenbrach (2017) find that an increase in passive institutional ownership leads to a decrease in monitoring and, therefore, more powerful CEOs. CEOs can obtain more power by accumulating more titles. A one percentage point increase in passive institutional ownership significantly increases the likelihood that the CEO becomes the chairman of the board of directors by 1.7% and the likelihood of becoming the president by 1.38%. The dual role of chief executive and chairman implies that the CEO can direct board initiatives. When the CEO is also the company president, the CEO has not allowed the board to have an in-training successor that they might tap if disagreement with the CEO ensues (Naveen, 2006). Furthermore, relatively fewer new independent directors are appointed after an increase in passive institutional ownership. This indicates that CEOs have more power to influence the composition of the board and keep long-standing independent board members that are on good terms with the CEO (Shivdasani & Yermack, 1999).

In contrast to Schmidt and Fahlenbrach (2017), Appel et al. (2016) find that passive institutional ownership is related to more independent directors on a board, fewer takeover defenses, and more equal voting rights, as the company is less likely to have a two-tiered equity structure. This divergence in corporate governance indicates that passive institutions pay close attention to companies' corporate governance and use their voting blocks to influence decision-making. For instance, Appel et al. (2016) observe that a higher concentration of passive

institutional ownership is related to less support for management proposals and more support for shareholder governance proposals.

3. Hypothesis development

In this section, the expectation regarding the relation between passive institutional ownership and excessive CEO compensation is discussed. The principal-agent theory is central in forming this general expectation.

According to the principal-agent theory, the CEO will not always act in the best interests of shareholders, assuming both parties are utility maximizers (Jensen & Meckling, 1976). Appropriate incentives should be established in combination with monitoring to limit deviations from shareholders' interests. Hartzell and Starks (2003) find that institutional investors as a whole mitigate the agency problem between the CEO and shareholders by fulfilling a monitoring role. However, some raise concerns about how effectively executives are being monitored due to the growth of passive institutional ownership in recent years (Appel et al., 2016; Schmidt & Fahlenbrach, 2017). They state that passive investors do not have the motives and resources to monitor their large, diversified portfolios because these investors are characterized by minimizing costs. Therefore, it is crucial to distinguish between active and passive institutional ownership and examine the influence of both types as separate components.

Shleifer and Vishny (1986) state that investors need to possess a significant portion of shares to prevent them from free-riding on other shareholders' monitoring by "voice" or "exit". Edmans and Manso (2011) prove the existence of this free-rider problem for firms with multiple blockholders. This is primarily a severe problem for U.S. firms because ownership is widely dispersed among blockholders. Although institutional investors as a whole hold more than 70% of the equity of U.S. firms, it is unusual that one institutional investor owns more than 10% of the equity in a single firm (De La Cruz et al., 2019). Furthermore, the threat of exit is less credible for passive institutional investors because passively managed funds are designed to deliver the returns of a market index. Deviations from the index by excluding firms are not a possibility or very costly (Schmidt & Fahlenbrach, 2017). For those reasons, I expect that the monitoring of U.S. firms' CEOs decreases if the concentration of passive institutional ownership increases.

Schmidt and Fahlenbrach (2017) also find that an increase in passive institutional ownership leads to a reduction in monitoring. Consequently, they prove that the CEO can obtain more power by accumulating more titles, fewer new independent directors are appointed, and companies execute worse mergers and acquisitions. In contrast, Appel et al. (2016) find that passive institutional ownership is related to more independent directors on a board, fewer takeover defenses, and more equal voting rights. The authors state that these basic corporate governance characteristics require low-cost monitoring. Schmidt and Fahlenbrach (2017) study more high-cost monitoring governance activities that require continuous monitoring and usually do not take place at annual general meetings, for example, the monitoring of mergers and acquisitions, the selection of directors, or the accumulation of titles by the CEO. Overall, low-cost monitoring governance characteristics improve, and high-cost monitoring governance

activities worsen when passive institutional ownership increases. Assuming that passive investors monitor less than active investors, I expect CEOs to extract more rents than justified when the concentration of passive institutional ownership increases because this requires high-cost monitoring.

Taking into consideration all of the above, my hypothesis will be:

H₁: Passive institutional ownership is positively related to excessive CEO compensation.

If the concentration of passive institutional ownership increases, I expect the monitoring to decrease. Consequently, I expect the CEO to extract excessive compensation because the CEO can skim rents from the company that are not justified. Excessive CEO compensation is calculated as actual compensation minus expected compensation derived from economic determinants (Core et al., 2008).

4. Research design and data

This section explains how the hypothesis is tested. The empirical model that is used throughout this research is discussed first. Subsequently, the collection of data and its origin is described, followed by the descriptive statistics of the variables.

4.1 Empirical model

In this research, I examine the effect of passive institutional ownership on excessive CEO compensation. The first three regression models combined measure excessive CEO compensation. The main hypothesis is tested in the fourth regression model. This section ends with a description of the independent and control variables used in the main regression model and a description of the economic determinants used to compute expected CEO compensation.

4.1.1 Regression models

I follow the method described in Core et al. (2008) to construct a measure for excessive CEO compensation. Total compensation consists of: (1) base salary; (2) bonus; (3) long-term incentive plan payouts; (4) the value of restricted stock grants; (5) the value of options granted during the year; and (6) any other annual pay. To calculate excessive compensation, I subtract expected compensation from the actual total compensation. Following the method in Core et al. (2008), the measure for expected compensation is derived by a regression of the natural logarithm (Ln) of compensation on proxies for standard economic determinants of CEO compensation. These economic determinants are CEO tenure, firm size, growth opportunities, stock return, accounting return, industry controls, and year-fixed effects. Eq. (1) is estimated by using an OLS regression:

$$\begin{aligned}
 \ln(\text{Comp})_{it} = & \beta_0 + \beta_1 \ln(\text{Tenure})_{it} + \beta_2 \ln(\text{Revenue})_{it-1} + \beta_3 \text{BTM}_{it-1} + \beta_4 \text{RET}_{it} \\
 & + \beta_5 \text{RET}_{it-1} + \beta_6 \text{ROA}_{it} + \beta_7 \text{ROA}_{it-1} + \text{Industry controls}_{it} \\
 & + \text{Year fixed effects}
 \end{aligned}
 \tag{1}$$

Expected compensation is estimated by exponentiating the expected value of Eq. (1). After that, I calculate excessive compensation by subtracting expected compensation from the actual total compensation:

$$ExcessComp_{it} = Comp_{it} - ExpectComp_{it} \quad (2)$$

To scale excessive compensation, I compute percentage excessive compensation by:

$$\%ExcessComp_{it} = \left(\frac{Comp_{it}}{ExpectComp_{it}} \right) - 1 \quad (3)$$

After calculating excessive CEO compensation, I can start by testing the main hypothesis. I use an OLS regression to examine the effect of passive institutional ownership on excessive CEO compensation. Using multiple papers, I compose the following regression model:

$$\begin{aligned} ExcessComp_{it} = & \beta_0 + \beta_1 PIO_{it-1} + \beta_2 OwnS_{it-1} + \beta_3 BSize_{it-1} + \beta_4 OutD_{it-1} + \beta_5 Dual_{it-1} \\ & + \beta_6 Ln(Tenure)_{it} + \beta_7 Ln(Revenue)_{it-1} + \beta_8 BTM_{it-1} + \beta_9 RET_{it} \\ & + \beta_{10} ROA_{it} + Industry\ controls_{it} + Year\ fixed\ effects \end{aligned} \quad (4)$$

To make the regression results of Eq. (1) and Eq. (4) more comparable, I also estimate Eq. (4) on the following dependent variable:

$$Ln(ExcessComp_{it}) = Ln(Comp_{it}) - Ln(ExpectComp_{it}) \quad (5)$$

The choice of independent and control variables of main Eq. (4) is explained in the following two sections. After that, the choice of proxies for economic determinants of CEO compensation in Eq. (1) is discussed.

4.1.2 Independent variable

For the classification of a fund as either actively or passively managed, I use the classification as described in Bushee (2001). Based on the investment horizon and diversification of the portfolio, institutional investors are either classified as “transient” investors, which are short-term focused with a high portfolio turnover and a highly diversified portfolio, or “dedicated” investors, which are long-term focused with a low portfolio turnover and a highly concentrated portfolio, or “quasi-index” investors with a low portfolio turnover and a highly diversified portfolio. Following Appel et al. (2016), transient and dedicated investors are considered active institutional investors, and quasi-index investors are considered passive institutional investors. Quasi-index investors are classified as passive institutional investors because they aim to receive long-term dividend income and return on firm growth with highly diversified portfolios. Also, quasi-index institutions consist mainly of index-tracking funds and ETFs that do not actively influence decision-making.

4.1.3 Control variables

Several control variables are used to separate the effect of passive institutional ownership on excessive compensation. Core, Holthausen, and Larcker (1999) state that the ownership structure and board characteristics also affect the excessive compensation a CEO can extract.

Previous research shows that large shareholders improve monitoring (Shleifer & Vishny, 1986; Admati, Pfleiderer, & Zechner, 1994). Following previous literature, I use the Herfindahl-Hirschman Index of ownership concentration as one of my control variables to control for the ownership structure of firms (Goergen & Renneboog, 2001; Hartzell & Starks, 2003). It is calculated as the sum of the squared percentages of all blockholders' holdings. The value of ownership concentration ranges from zero (dispersed ownership) to one (concentrated ownership).

Core et al. (1999) find that CEOs are able to extract more rents when the board size is larger, the board is composed of fewer outside directors, and the CEO is also chairman of the board. Therefore, I use three variables to control for the effectiveness of monitoring by the board of directors. The first control variable for board size is computed by the natural logarithm of the number of directors. It is expected that larger boards are related to less effective monitoring because they make decisions less effective and are more prone to the influence of the CEO (Yermack, 1996). The second control variable, board independence, is captured by dividing the number of independent directors by the total number of directors. Core et al. (1999) suggest that CEOs can influence internal directors more because they are more loyal to the management. Last, the duality of the CEO is measured through a dummy variable which is one when the CEO is also the chairman of the board, and zero if the CEO is not. Yermack (1996) and Core et al. (1999) state that the board of directors is monitored less effectively when the CEO is also the board's chairman.

Following Core et al. (2008), multiple control variables are included to control for CEO tenure, firm size, growth opportunities, and firm performance. Those control variables are proxies for economic determinants in the measure for expected compensation in Eq. (1) and are discussed in the next section. Lastly, industry controls and year-fixed effects are included to control for differences in compensation between industries and years.

4.1.4 Economic determinants of CEO compensation

Following Core et al. (2008), several proxies for economic determinants of CEO compensation are used to compute expected CEO compensation. The first variable that might influence CEO compensation is CEO tenure. Prior research proves that CEOs with a longer tenure have more power over the board because they have more status and experience (Bebchuk & Fried, 2003). Consequently, they can extract more compensation.

The second determinant of CEO compensation is firm size and complexity. Large firms are characterized by having more resources and more complex operations. This demands a high-quality CEO with higher wage requirements (Core et al. 1999). Tosi, Werner, Katz, and Gomez-Mejia (2000) find that more than 40% of the variance in total CEO compensation is explained by firm size. The natural logarithm of revenue is used as a proxy for firm size.

Growth opportunities are the third determinant of CEO compensation because firms in high-growth environments are exposed to uncertainty and complexity (Bushman, Indjejikian, & Smith, 1996). The book-to-market ratio is used as a proxy for growth opportunities (Core et al., 2008). It is calculated by dividing net book value by market capitalization.

The fourth determinant is firm performance. Core et al. (1999) suggest that recent firm performance is associated with the level of CEO compensation because a well-performing CEO should be awarded. Following Core et al. (2008), recent firm performance is measured by RET and ROA. RET are contemporaneous and lagged annual stock returns, and ROA is an accounting performance measure calculated by dividing net income by end-of-year total assets. Lastly, industry controls and year-fixed effects are included to control for the dissimilarity between industry characteristics and differences between years.

4.2 Data sample

The period for my sample is 2010-2018 because in the last decade, the share of passive institutional ownership increased drastically, and data on institutional ownership is not complete after 2018. My research sample consists of S&P 500 companies because the most data and information are available for U.S.-based firms. Since May 2004, all institutional investors holding stocks that are traded on U.S. exchanges are required to report those holdings every quarter to the Securities and Exchange Commission (SEC) (Appel et al., 2016). This data is available in the Institutional (13F) Holdings file compiled by Thomson Reuters. The dataset is accessible from Wharton Research Data Services (WRDS). For the classification of a fund as either actively or passively managed, I use the classification as described in Bushee (2001) and Appel et al. (2016). “Transient” and “dedicated” investors are considered to be active institutional investors, and “quasi-index” investors are considered to be passive institutional investors. I merge the Institutional Investor Classification Database¹ by Brian Bushee with the Institutional (13F) Holdings dataset to classify institutional investors. After classifying, I calculate the ownership in S&P 500 firms for each institutional investor by dividing shares held by the total shares outstanding. Finally, I can calculate the percentage of passive institutional ownership in each S&P 500 firm.

Several sources are used to compute excessive CEO compensation. For CEO compensation and tenure, I use the Execucomp database from Compustat. Total revenue and ROA are acquired from Compustat Fundamentals Annual. For the book-to-market ratio, I combine the Compustat dataset with CRSP. Data on annual returns are also obtained from CRSP. Lastly, I use multiple sources to compute the control variables of the main regression. The Herfindahl-Hirschman Index of ownership concentration is acquired from the Thomson Reuters (13F) dataset. Data on board size, outside directors, and duality is collected from ISS. Industry-fixed effects are controlled by using two-digit SIC codes. After collecting and cleaning the data, I merge all datasets. The final sample consists of 2,789 firm-CEO-year observations. Table 1 shows the procedure of the sample selection.

¹ <https://accounting-faculty.wharton.upenn.edu/bushee/>

Table 1. Sample selection procedure

Sampling procedure	Number of observations
Execucomp	3,753
Merge with Compustat	(352)
Merge with CRSP	(134)
Merge with Thomson Reuters (13F)	(444)
Merge with ISS	(34)
Total observations final sample	2,789

Notes: This table presents the sample selection procedure. The values in parentheses are lost observations due to merging and missing values.

4.2.1 Descriptive statistics

Table 2 reports the descriptive statistics for institutional ownership relative to the total shares outstanding of S&P 500 companies. From 2010 to 2018, institutional investors hold 79% of all equity on average. This percentage is higher than the 72% stated in De La Cruz et al. (2019) because their research comprises all listed U.S. firms and S&P 500 companies are more interesting for institutional investors (Aghion, Van Reenen, & Zingales, 2013). Institutional ownership is subdivided into passive and active institutional ownership. In my sample, passive institutional investors hold almost 61% of total equity and active institutional investors nearly 20%. This indicates that the share of passive institutional ownership is somewhat overstated in my sample compared to the report by the Investment Company Institute (2021), which states that the share of active institutional investors is larger than passive investors. Different classification requirements can explain this discrepancy.

Table 3 presents the descriptive statistics for the variables used in this research. All numerical variables are winsorized to the 0.5 and 99.5 percentiles to diminish the effect of the most extreme outliers. The average total CEO compensation of sample firms is nearly \$11 million. The mean of the Herfindahl-Hirschman Index of ownership concentration suggests that the ownership structure is rather dispersed as the value is close to zero. On average, the board consists of eleven directors, of whom 83% are independent outside directors. In more than half of the sample firms is the CEO also chairman of the board, and the average tenure for a CEO is 6.5 years. Furthermore, the average revenue is close to \$22 billion, with a standard deviation of \$36.6 billion. This high standard deviation indicates that the observations in the sample are highly spread regarding the revenue variable. On average, the book-to-market ratio is 0.44, which means that the market value is more than twice the sample firms' net book value. Lastly, the average annual stock return is 13%, and the return on assets 6.6%. Considering the high standard deviation of annual stock returns, this variable's observations are also highly spread.

Table 2. Descriptive statistics institutional ownership

Variable	Mean	Std. Dev	Q1	Median	Q3
Institutional ownership	79.0%	12.0%	71.3%	80.8%	88.0%
Passive institutional ownership	60.9%	10.6%	54.4%	61.0%	67.7%
Active institutional ownership	19.7%	6.6%	15.0%	18.6%	23.1%
Observations	2,789				

Notes: This table presents descriptive statistics for institutional ownership relative to the total shares outstanding of S&P 500 companies from 2010 to 2018. Total institutional ownership is subdivided into passive and active institutional ownership.

Table 3. Descriptive statistics variables

Variable	Mean	Std. Dev	Q1	Median	Q3
$Comp_t$	10,865,895	6,566,187	6,421,510	9,542,856	13,732,047
PIO_{t-1}	60.9%	10.6%	54.4%	61.0%	67.7%
$OwnS_{t-1}$	0.037	0.012	0.029	0.035	0.043
$BSize_{t-1}$	10.8	2.0	9.0	11.0	12.0
$OutD_{t-1}$	83.0%	9.1%	77.8%	85.7%	90.9%
$Dual_{t-1}$	0.53	0.50	0.00	1.00	1.00
$Tenure_t$	6.5	5.6	2.0	5.0	9.0
$Revenue_{t-1}$ (in millions \$)	21,960	36,596	4,386	9,634	19,884
BTM_{t-1}	0.44	0.34	0.21	0.35	0.59
RET_t	13.0%	24.9%	-0.2%	14.0%	27.5%
ROA_t	6.6%	6.6%	2.6%	6.0%	10.0%
Observations	2,789				

Notes: This table presents descriptive statistics for the variables used in this research. All numerical variables are winsorized to the 0.5 and 99.5 percentiles. Detailed variable definitions are provided in *Appendix A*.

5. Results

This section presents the empirical results of the regressions and interpretation of the findings. First, the computation of excessive CEO compensation is presented. After that, the effect of passive institutional ownership on excessive CEO compensation is discussed in detail. This section ends with a discussion of the limitations of this research.

5.1 Computation of excessive CEO compensation

To compute the amount of excessive compensation, the expected compensation is calculated first. The measure for expected compensation is derived by a regression of the natural logarithm (Ln) of compensation on proxies for standard economic determinants of CEO compensation. Table 4 presents the results from estimating Eq. (1) using an OLS regression.

The results in table 4 indicate that total CEO compensation is significantly related to variables that proxy for tenure, firm size, growth opportunities, and firm performance. Tenure

Table 4. Economic determinants of CEO compensation

Independent variable	Dependent variable
	$Ln(Comp)_t$
$LnTenure_t$	0.052*** (4.68)
$LnRevenue_{t-1}$	0.256*** (28.38)
BTM_{t-1}	-0.263*** (-6.24)
RET_t	0.002*** (3.83)
RET_{t-1}	0.002*** (4.05)
ROA_t	0.001 (0.21)
ROA_{t-1}	-0.005** (-2.30)
Constant	13.808*** (138.68)
Observations	2,789
R ²	0.28

Notes: This table presents the results from estimating Eq. (1) using an OLS regression. Detailed variable definitions are provided in *Appendix A*. Industry controls and year-fixed effects are included in the regression but not tabulated. Estimated t-statistics are reported in parentheses below the coefficients. *, **, and *** indicate statistical significance at 10%, 5% and 1% levels, respectively.

has a significant positive relation (at the 1% level) with compensation, indicating that a CEO with a longer tenure receives more compensation on average. Revenue, as a proxy for firm size, is also positively and significantly (at the 1% level) associated with compensation. This is in line with the argument by Core et al. (1999) that large firms have more resources and more complex operations, which demands a high-quality CEO with higher wage requirements. Furthermore, the book-to-market ratio has a significant negative effect (at the 1% level) on compensation. The negative coefficient means that CEOs of firms with a lower market capitalization relative to net book value earn less. This suggests that firms in high-growth environments pay their CEO more compensation to compensate for the higher risk. Lastly, the proxies on firm performance are partly a significant economic determinant of CEO compensation. Contemporaneous and lagged annual stock returns are positively related to compensation at the 1% significance level. The positive coefficient for both time-varying variables indicates that well-performing CEOs are awarded more compensation. In contrast, the lagged variable of ROA has a significant negative effect (at the 5% level) on compensation. This contradicts the direction of the coefficients on annual stock returns. The contemporaneous

Table 5. Descriptive statistics excessive CEO compensation

Variable	Mean	Std. Dev	Q1	Median	Q3
<i>ExpectComp_t</i>	9,626,829	3,281,282	7,368,698	8,914,383	11,386,286
<i>ExcessComp_t</i>	1,239,067	5,633,787	-1,678,639	390,009	3,159,818
<i>Ln(ExcessComp_t)</i>	0.0%	52.7%	-21.4%	4.3%	28.4%
<i>%ExcessComp_t</i>	13.3%	52.7%	-19.2%	4.4%	32.9%
Observations	2,789				

Notes: This table presents the descriptive statistics for the variables estimated using the coefficients of Eq. (1). Detailed variable definitions are provided in *Appendix A*.

variable of ROA is not significantly related to compensation. The results are consistent with Core et al. (2008) findings except for two differences. The first difference is that CEO tenure is significantly related in my sample. The second difference is that Core et al. (2008) find a significant negative coefficient (at the 1% level) for contemporaneous ROA. A possible explanation for this difference is that I use end-of-year total assets, whereas they use average total assets.

After estimating the coefficients of the economic determinants of CEO compensation, I compute the expected compensation for each firm-CEO-year. Table 5 presents the descriptive statistics for the variables estimated using the coefficients of Eq. (1). The average expected total CEO compensation of sample firms is \$9.6 million. This means that CEOs in my sample receive, on average, \$1.2 million excessive compensation. This implies that approximately 13% of their total compensation is excessive. However, these results should be interpreted carefully because positive values of excessive compensation are overstated by calculating the percentual difference between actual and expected compensation in Eq. (3). An alternative to calculate this is by using log differences. The advantage is that percentual differences in positive and negative values of excessive compensation are treated symmetrically. Therefore, the mean of the natural logarithm on excessive compensation is zero because Eq. (5) is such a log difference. In addition, the percentage is zero since I use the same sample for estimating the coefficients of economic determinants and the computation of excessive compensation.

5.2 Passive institutional ownership and excessive CEO compensation

After calculating excessive CEO compensation for each firm-CEO-year, I can start testing the main hypothesis. Table 6 presents the OLS regression results from estimating Eq. (4). This regression model examines the effect of passive institutional ownership on excessive CEO compensation.

In column 1, I find statistical significance at the 1% level that passive institutional ownership is positively related to excessive CEO compensation. This means that CEOs extract more rents than justified when the concentration of passive institutional ownership increases. Therefore, there is statistical proof that supports my hypothesis. The magnitude of the coefficient suggests that a one percentage point increase in passive institutional ownership leads, on average, to an increase in excessive CEO compensation of \$67,548. Assuming that the total share of passive institutional investors increased by approximately 15% from 2010 to

Table 6. Effect of passive institutional ownership on excessive CEO compensation

Independent variable	Dependent variable	
	<i>ExcessComp_t</i>	<i>Ln(ExcessComp_t)</i>
	(1)	(2)
<i>PIO_{t-1}</i>	67,548*** (5.99)	0.006*** (5.81)
<i>OwnS_{t-1}</i>	-15,980,556* (-1.65)	-0.894 (-0.98)
<i>BSize_{t-1}</i>	332,756*** (5.51)	0.034*** (5.98)
<i>OutD_{t-1}</i>	-47,448*** (-3.70)	0.001 (0.89)
<i>Dual_{t-1}</i>	278,697 (1.19)	0.027 (1.23)
<i>LnTenure_t</i>	308,049** (2.57)	-0.001 (-0.09)
<i>LnRevenue_{t-1}</i>	182,814 (1.61)	-0.008 (-0.75)
<i>BTM_{t-1}</i>	-237,885 (-0.54)	0.026 (0.63)
<i>RET_t</i>	4,116 (0.83)	-0.001 (-0.09)
<i>ROA_t</i>	27,791 (1.37)	0.002 (1.15)
Constant	-4,612,252** (-2.50)	-0.781*** (-4.51)
Observations	2,789	2,789
R ²	0.03	0.02

Notes: This table presents the results from estimating Eq. (4) using an OLS regression. Detailed variable definitions are provided in *Appendix A*. Industry controls and year-fixed effects are included in the regression but not tabulated. Estimated t-statistics are reported in parentheses below the coefficients. *, **, and *** indicate statistical significance at 10%, 5% and 1% levels, respectively.

2020 (Investment Company Institute, 2021), this would mean an increase of more than \$1 million in excessive CEO compensation. This is almost 10% relative to the average total CEO compensation. Therefore, the result is economically significant over a more extended period. However, considering a shorter period and the fact that passive institutional ownership increased above average in the last decade, the economic significance diminishes. In column 2, I also find a significant positive relation (at the 1% level) between passive institutional ownership and the natural logarithm of excessive compensation. The coefficient implies that a 1% increase in passive institutional ownership is associated with a roughly 0.6% increase in excessive CEO compensation. This effect is stronger compared to the magnitude of all the

coefficients in table 4, except for the book-to-market ratio. However, an increase of one in the book-to-market ratio equals an increase of hundred percentage points, so an increase of one percentage point in the book-to-market ratio results in a decrease of approximately 0.3% in total CEO compensation. Therefore, the coefficient's effect is also stronger than the coefficient of the book-to-market ratio.

The results indicate that an increase in passive institutional ownership leads to less monitoring. There are several possible explanations for this effect to occur. The primary reason is that passive investors do not have the motives and resources to monitor their large, diversified portfolios (Appel et al., 2016; Schmidt & Fahlenbrach, 2017). In addition, it is unusual for one passive institutional investor to own a significant portion of equity in a single firm (De La Cruz et al., 2019). Therefore, it is tempting to free-ride on other shareholders' monitoring (Shleifer & Vishny, 1986). The reduction in monitoring makes it possible for the CEO to extract excessive compensation. My results are generally consistent with the findings of Schmidt and Fahlenbrach (2017), who find that passive institutional ownership leads to more powerful CEOs due to reduced monitoring.

The results in table 6 show that some control variables are also significantly related to excessive CEO compensation. In column 1, the Herfindahl-Hirschman Index of ownership concentration has a marginally significant negative relation (at the 10% level) with excessive compensation. This indicates that excessive compensation decreases if the ownership structure is more concentrated. This is consistent with previous research that shows that large shareholders improve monitoring (Shleifer & Vishny, 1986; Admati et al., 1994). The magnitude of the coefficient implies that an increase of 0.012 (standard deviation of ownership concentration) causes a decrease of \$191,767 in excessive compensation. Therefore, the result is economically insignificant because such an increase is unreasonable.

Board size and percentage of outside directors are significantly associated with excessive CEO compensation at the 1% significance level in column 1. The positive coefficient of board size indicates that a one director increase leads to \$332,756 more excessive compensation. The significant positive coefficient in column 2 suggests this results in an increase of roughly 3.4% in excessive compensation. This finding is consistent with the reasoning that larger boards monitor less effectively because of inefficient decision-making and proneness to the influence of the CEO (Yermack, 1996). The percentage of outside directors is negatively related to excessive compensation. The magnitude of the coefficient implies that a 1% increase in board independence results in a decrease in excessive compensation of \$47,448. An increase of approximately 9% in board independence equals one more outside director. This translates into a reduction of \$427,032 in excessive compensation. This is in line with Core et al. (1999) arguing that outside directors improve monitoring. I consider both variables economically significant because the effect is nearly 3% and 4% relative to average total CEO compensation, and a change in board size or independence is feasible. The dummy variable for duality is not significant.

The natural logarithm of CEO tenure is the last significant (at the 5% level) control variable in column 1. The coefficient's positive direction indicates that a 1% increase in tenure results in a \$3,080 increase in excessive compensation. It is difficult to assess the economic significance of the logarithmic variable. However, the positive direction is consistent with prior

research, which proves that CEOs with a longer tenure can extract more compensation because they have more power over the board (Bebchuk & Fried, 2003).

6. Conclusion

One of today's major corporate governance concerns is the increasing equity ownership by institutional investors. In particular, the enormous increase in passive institutional ownership raises important issues. It is unclear to what extent passively managed funds have the resources and interests to monitor their large, diversified portfolios because these funds are characterized by minimizing costs. The assumed reduction in monitoring enables the CEO to skim rents from the company that are not justified. The following research question is formulated to examine this:

Does passive institutional ownership lead to excessive CEO compensation?

I find statistical significance that passive institutional ownership positively relates to excessive CEO compensation. This result suggests that an increase in passive institutional ownership leads to less monitoring, which enables the CEO to extract more rents than justified. The coefficient implies that a 1% increase in passive institutional ownership is associated with a roughly 0.6% increase in excessive CEO compensation. Considering the above-average growth of passive institutional ownership over the last decade, the magnitude of the coefficient is economically significant over a more extended period. In addition, I find that a concentrated ownership structure and more outside directors on the board have a significant negative association with excessive CEO compensation. A larger board size and a longer tenure as CEO have a significant positive relation.

The findings of this research contribute to the existing literature in several ways. Firstly, previous research mainly focused on the influence of total institutional ownership on executive compensation (Hartzell & Starks, 2003; Janakiraman et al., 2010). The outcomes of this research elaborate on those papers by distinguishing between active and passive institutional investors. Furthermore, my findings contribute to the existing literature on passive institutional ownership by investigating the effect on excessive CEO compensation. Prior research generally concentrated on the influence on overall corporate governance (Appel et al., 2016; Schmidt & Fahlenbrach, 2017). Lastly, my results affirm the findings of Schmidt and Fahlenbrach (2017), who find that passive institutional ownership leads to more powerful CEOs due to reduced monitoring. The findings of this research are also relevant for various key stakeholders. For shareholders, it is crucial to realize that CEOs extract more rents than justified if monitoring decreases. More specifically, passive institutional investors should find ways to improve the monitoring of their large portfolios to counter this. This can also be outsourced to external parties when they are not interested in or capable of doing this themselves effectively. Furthermore, my results affirm that weak corporate governance is associated with more excessive CEO compensation. Therefore, it is essential for companies to strengthen their governance by smaller and more independent boards.

Although this research is based on established methodologies for statistical analysis, several limitations still have to be discussed. First, I use the classification as described in Bushee

(2001). This classification is based on portfolio turnover, diversification, and trading behavior. However, it is uncertain whether these factors categorize each institution correctly. Moreover, there is a high probability that my regression models suffer endogeneity problems due to the presence of omitted correlated variables. For example, a CEO's characteristics and capabilities may be an important determinant for (excessive) CEO compensation. However, I only include tenure to control for CEO characteristics because it is very complicated to measure. Therefore, an alternative explanation that could be consistent with my research findings is that passive institutional investors rather invest in companies with talented CEOs. High-quality CEOs earn excessive compensation compared to their counterparts to compensate for their capabilities, but this is not included in my model. It would be interesting for future research to somehow control for this too. Another interesting question to examine in future research is the effect of active institutional investors on excessive compensation.

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Appendix A. Variable Definitions

Variable	Definition
<i>Ln(Comp)</i>	The natural logarithm of actual total CEO compensation (source: Execucomp).
<i>PIO</i>	Percentage of total shares held by passive institutional investors (source: Thomson Reuters (13F) & Bushee).
<i>OwnS</i>	The sum of the squared percentages of all holdings by blockholders (Herfindahl-Hirschman Index of ownership concentration) (source: Thomson Reuters (13F)).
<i>Bsize</i>	The size of the board of directors (source: ISS).
<i>OutD</i>	The number of independent directors over total directors (source: ISS).
<i>Dual</i>	Dummy variable that equals one when the CEO is also the chairman of the board, and zero otherwise (source: ISS).
<i>Ln(Tenure)</i>	The natural logarithm of CEO tenure (source: Execucomp).
<i>Ln(Revenue)</i>	The natural logarithm of total revenue (source: Compustat).
<i>BTM</i>	The end-of-year book value of total assets minus total liabilities relative to the market value of equity (source: Compustat & CRSP).
<i>RET</i>	Annual stock returns (source: CRSP).
<i>ROA</i>	Net income over end-of-year total assets (source: Compustat).
<i>ExpectComp</i>	Derived by a regression of <i>Ln(Comp)</i> on proxies for standard economic determinants of CEO compensation (source: Compustat, Execucomp, & CRSP).
<i>ExcessComp</i>	Actual total CEO compensation subtracted by expected total CEO compensation (source: Compustat, Execucomp, & CRSP).
<i>Ln(ExcessComp)</i>	The natural logarithm of actual total CEO compensation subtracted by the natural logarithm of expected total CEO compensation (source: Compustat, Execucomp, & CRSP).
<i>%ExcessComp</i>	Actual total CEO compensation relative to expected total CEO compensation (source: Compustat, Execucomp, & CRSP).