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The effects of direct and indirect executive compensation on long-term firm performance: evidence from US firms.

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Abstract

This research investigates the effects of direct and indirect executive compensation on long-term firm performance using a dataset of publicly traded US companies over a three-year period. Using an OLS regression, the study finds a significant positive relationship between direct compensation and long-term firm performance, supporting the hypothesis that higher direct pay enhances firm performance. Indirect compensation also positively influences firm performance but to a lesser extent. The findings suggest that aligning executive pay with shareholder interests through performance-based compensation can mitigate the principal-agent problem.

Keywords: Executive compensation, Firm performance, Net income, CEO, US.

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1. Introduction

The enormous compensation packages of top executives have always been a subject of public fascination and academic investigation. The pay that executives receive often make headlines and sparks discussions about their fairness and effectiveness. With some CEO's salaries and bonuses reaching up to millions of dollars each year, it is natural to question whether these enormous sums of money translate into better firm performance.

The relationship between executive compensation and firm performance is a subject of importance. This relationship is not only important for shareholders and boards of directors, but also for policymakers and the public in general. As firms operate in markets that become increasingly more complex and competitive, it becomes more essential to understand the dynamics of this relationship. This research aims to explore whether the incentives designed to align the interests of executives with those of shareholders effectively enhances firm performance.

Historically, extensive executive compensation packages have been designed to attract and retain skilled CEOs. Also, the compensation has the aim to align the interests of executives and shareholders. By motivating CEOs financially to make decisions that will maximize firm value, the interests of both align. The financial compensation often consists of a mix of salary, bonuses, stock options and other incentives. The fundamental assumption is that by linking remuneration to firm achievements, top executives will be motivated to act in the best interests of the shareholders. This rationale is related to both the agency theory and the tournament theory.

However, the effectiveness of this way of incentivising executives is a matter of ongoing debate. Critics argue that these remuneration packages could potentially have a negative effect on the teamwork within the company (Lazear, 1989). Furthermore, high executive pay could also be driven by factors unrelated to firm performance, such as company size or power dynamics within the board of directors. On the other hand, others claim that business owners and shareholders should align business strategies based on the well-designed compensation packages to improve firm performance (Kayani & Gan, 2022).

Considering all of this, this research aims to answer the following question: *How does executive compensation affect firm performance in the long term?* This study will explore the different perspectives on the compensation packages by examining both empirical evidence and existing literature on the relationship between executive compensation and firm performance. It will analyse both the effects of direct and indirect compensation on firm performance in the United States (US) between 2020 and 2022. This study takes into account various compensation components, such as salaries, bonuses, stock grants and other incentives. Whereas previous literature only takes into account the effects of total compensation on firm performance, this research will explore the effects of direct and indirect executive compensation packages.

This research on the effects of executive compensation on firm performance covers a crucial part of the accountancy field. The study contributes to the existing scientific research by providing theoretical insights and empirical evidence into the effectiveness of compensation structures. By researching the effects of executive pay on company performance, more precise predictive models of firm performance can be developed. Additionally, this research addresses current gaps in the literature. By splitting up the compensation packages into direct and indirect compensation, a more in-depth understanding can be established on the different ways of remuneration. By improving the existing models, this research contributes to both more accurate predictions and effective governance strategies.

Additionally, the topic of executive compensation reaches beyond the academic world. With the increasing importance of corporate responsibility, income (in)equality and fairness, the topic also has a social relevance. As the levels of CEO pay have reached enormous heights, the resistance by society has intensified. Adverse societal reactions on the ethical and economic implications of such compensation have become more common. Therefore, this research holds social value as it seeks to explore whether these large compensation packages are justified. By investigating whether high executive compensation leads to better firm performance, this research can help policymakers, shareholders, and society make more informed decisions that lead to both more economic efficiency and social equality.

This research consists of four main chapters. The first chapter reviews existing research on executive compensation and firm performance. It covers various theoretical perspectives and empirical findings used in previous studies. This forms the basis for the hypotheses that are stated. The study continues by outlining the research design and methodology. Next, the analysis and results chapter will present the empirical findings of this study. Finally, a conclusion will be reached after discussing the implications of the empirical findings.

2. Theoretical framework

To be able to comprehend the effects of executive compensation on long-term firm performance, one should understand the concepts and theories that form the basis for this research. This chapter contains the most important definitions and theories that form the foundation for this research. Additionally, this chapter looks at relevant previous literature that adds value to this research. Also, this chapter contains the hypotheses that are used for this study.

2.1 Theory

Firstly, it is important to define the executive compensation concept. According to Bognanno (2010), Chief Executive Officer (CEO) compensation can be defined as the sum of base pay, bonuses, stock grants, stock options, other forms of compensation and benefits. The idea of executive compensation is to align the interests of the CEO with the interests of the shareholders.

These types of remuneration can be divided into direct and indirect compensation. Payment through base pay and bonuses can be considered as direct compensation. This type of compensation results in the immediate availability of cash. However, payment through stock grants, stock options, other forms of compensation and benefits can be considered as indirect compensation. When being given indirect compensation, one does not have the immediate availability of cash. These compensations first must be exchanged for money.

Furthermore, behavioural theories are applicable to the research on executive compensation and firm performance. The behaviour of executives is being influenced by the level of compensation that they are given. Different theories have been erected to explain this behaviour. Therefore, the following two important behavioural theories should be taken into account.

First, the agency theory plays a role in the behaviour of executives. According to Panda and Leepsa (2017), the agency theory looks at the problems that occur in firms due to the separation of owners and management. The agency theory tries to reduce these problems. This idea was first introduced by Adam Smith (1776) and later narrowed down by Berle and

Means (1932). During their study they found that for large US firms, agents were appointed by the owner to carry out the business operations and control the firm. They argued that this might lead to a conflict between the principals and agents, since the agents could potentially use the firm's property to their own benefits.

Jensen and Meckling (1976) added to the agency theory by stating that there is a separation of ownership and control when CEOs manage a company on behalf of the company's shareholders. Due to the fact that shareholders do not have the same information as the executives, it is difficult for the shareholders to monitor the management's actions. Jensen and Meckling continue their work by exploring the conflicts of interests that exist when one party (the principal) delegates work to another (the agent). Hence, they founded the fundamental principal-agent problem concept.

Also, according to Lazear and Rosen (1981) a high CEO pay can have positive effects on a firm's management performance. A high level of CEO pay may result in competition among lower executives for promotion to the top spot. This would increase their motivation to work hard, which ultimately benefits the firm as a whole. This theory is considered the tournament theory. This theory can be seen as a competition in which the prize is being given out to actors based on their ranking within the community. This incentivises the optimal level of effort (Lazear, 1999).

However, Lazear (1989) adds to this that the tournament theory could also have negative effects on firm performance. The use of competition within the company could potentially affect teamwork negatively and result in counter-productive efforts. The internal competition could lead to friction within the company, which results in less streamlined operations and lower firm performance.

2.2 Literature review

To gain a deeper understanding on the effects of executive compensation, one should look at prior research. Much research has been done in order to find a relationship between the (non-) monetary incentives for CEO's and the performance of companies. This has been done

with different approaches and for different countries. The following section will discuss various previous literature on the subject of executive compensation.

Firstly, according to Farooque et al. (2019) a positive significant relationship exists between executive compensation and firm performance in the subsequent period. This study by Farooque et al. was conducted for listed Thai firms in the period from 2000 to 2011 (12 years). The study also found that most corporate governance mechanisms, such as board size, audit committee independence and managerial ownership, also have a positive relationship with firm performance. Furthermore, the authors continue by exploring the effects of CEO compensation on agency costs. By having a just amount of compensation a conflict of interests between majority and minority shareholders (agency costs of type II) can be eradicated (Shleifer & Vishny, 1997).

Farooque et al. continue by stating that an appropriate executive compensation is linked with improved future firm performance and that it motivates executives to align the interests of majority and minority shareholders. Additionally, the authors argue that an optimal number of executive rewards motivates executives to perform better. Therefore, one can conclude that a significant positive relationship is present between executive compensation and future firm performance.

Secondly, Kayani and Gan (2022) also found a positive relationship between CEO compensation and firm performance. Kayani and Gan studied publicly listed firms in five developed markets in the Asia Pacific region throughout 2007-2019. In their research, both an accounting measure and a market measure were used to identify firm performance. The accounting measure consists of the Return On Assets (ROA), whereas the market measure used is Tobin's Q. The authors conclude that the total compensation paid to CEOs and equivalents have a significant positive relationship in these Asian markets. Equivalently, the same relationship was found for total CEO salary and bonuses. However, total CEO salaries paid and equivalents alone do not have the same significant relationship. Kayani and Gan suggest that policymakers, business owners and shareholders should align business strategies based on the given compensation to executives to achieve the best firm performance.

Elsayed and Elbardan (2018) extended on this by finding evidence in their research on different remuneration models. The authors find evidence from the FTSE 350 companies in the period from 2010 to 2014. Firstly, with the use of a fixed-effect regression model, they found a positive and significant relationship between executive compensation and firm performance. Additionally, Elsayed and Elbardan researched the effects of a pay-performance framework aligned with the agency theory approach. They found evidence for a stronger influence of executive compensation compared to the pay-performance framework.

Moreover, Sinclair (2004) researched the effects of payment through stocks or stock options on firm performance. This way of incentivising is different since the reward is not a direct cash inflow. Therefore, exploring the effects of equity payments as executive compensation should also be considered. Sinclair found that payment through stock-options is more effective if the executive is also a stockholder. In this situation, stock-option compensation has a positive relationship with future firm performance. However, payment in stocks generally has a negative effect on firm performance. This negative relationship will turn positive once executives are given enough of it. Contrarily, stock-options compensation has the opposite effect. The relationship will turn negative when given too many stock-options. Sinclair suggests that executives should be paid in at least some form of equity. Sinclair continues by emphasising that it is still unclear how much equity compensation is needed for the best future firm performance and in which form.

Also, a nonlinear inverted-U-shaped relationship exists between executive compensation and firm performance (Pareek et al., 2023). The authors studied 182 National Stock Exchange listed non-financial Indian firms over a period of 7 years. According to Pareek et al. an increase in compensation motivates executives to work in favour of the firm's financial performance. The study reveals that the U-shaped-relationship is consistent with the diminishing marginal utility theory. When the compensation reaches a certain threshold, an extra increase in the compensation level does not have the same effects in terms of financial performance. This study found that the level of executive compensation affects the firm value positively up until the level of 2.6% of net profit. After reaching this threshold, the

effect of compensation turns negative. Furthermore, the authors state that the outcome of their research is consistent with the tournament theory as well.

However, Ozkan (2011) argues that the link between CEO pay and firm performance is not totally effective in practice. Ozkan studied 390 UK non-financial firms from the FTSE Allshare index in the period between 1999 and 2005. In his studies he looked at both cash and equity-based compensation. Additionally, CEO wealth based on shareholdings were considered in the analysis. The empirical result of the study shows that the pay-performance elasticity is lower for UK CEOs compared to US CEOs. For every 10% increase in shareholder return, CEOs would be compensated by an additional 0.95% of cash compensation. Additionally, the median share holdings and stock-based pay-performance sensitivity are also lower for UK CEOs. Therefore, Ozkan argues that the relationship between executive pay and firm performance in the UK is lower than in the US.

Also, according to Carpenter and Sanders (2002) previous research failed to include top management team (TMT) compensation in their research. In their studies, a positive significant relationship was also found between the CEO pay and firm performance. However, Carpenter and Sanders also take into account the compensation that the TMT receives. The study found that whilst TMT pay was influenced by CEO pay, it was the TMT pay that predicted future firm performance. Additionally, Carpenter and Sanders found that CEO pay was mediated or even augmented by TMT pay once the effects of top management team pay get stronger. This is only the case when the TMT objectives are aligned with shareholder interests and internal factors. This suggests that CEO pay, and the top management team compensation are equally important.

Taking this into account, one cannot clearly draw a conclusion on the relationship between executive pay and firm performance. Different studies have shown different results. Farooque et al. (2019) and Kayani and Gan (2022) agreed that a significant positive relationship exists between executive compensation and firm performance. Even though the studies were performed in different countries, the outcomes were similar.

Additionally, Sinclair (2004) found that the effects of compensation in stock-options or stocks have a different effect on firm performance. Both ways of compensating CEOs will either turn negative when given too much of it (in the case of stock-options) or turn positive when given enough of it (in the case of stocks). This outcome is in line with the study performed by Pareek et al. (2023). The U-shaped relationship between executive compensation and firm performance that was found seems to confirm Sinclair's findings.

However, the positive relationship that is found between compensation and performance is not equally strong everywhere. According to Ozkan (2011), the pay performance elasticity is lower for UK firms compared to US firms. This means that the positive relationship cannot be considered as equally strong between different countries. Carpenter and Sanders (2002) also did not deem the previously researched positive relationship between CEO pay and firm performance as valid. According to them, top management team compensation also played a crucial role in determining future firm performance. Their research puts forward the idea that TMT pay influences performance. Hence, Carpenter and Sanders showed that CEO pay is not the sole determinant of firm performance.

2.3 Hypotheses

Previous literature generally shows a trend of a significant positive relationship between executive pay and firm performance. As Farooque et al. (2019) and Kayani and Gan (2022) studied before, companies should align their business strategies with executive compensation, in order to achieve the best firm performance. Therefore, one would expect this relationship to be consistent among US firms as well.

This study splits up executive compensation into two parts. First, this research will analyse the effects of direct compensation on firm performance. This considers direct payment through salary and bonuses. Taking the general trend of a positive relationship between pay and performance into consideration, one would expect the same for this research. Therefore, this research hypothesizes:

H₁: CEO pay through direct compensation has a positive significant relationship with long-term firm performance.

Also, this study investigates the indirect financial compensation given to executives. These include stocks, options and other long-term incentive plans. Previous literature by Sinclair (2004) has touched on this subject before but did not take into account the full package of indirect financial compensation. Therefore, this research expects a positive relationship between indirect compensation and firm performance:

H₂: CEO pay through indirect compensation has a positive significant relationship with long-term firm performance.

Finally, this research compares the effects of direct and indirect financial compensation on firm performance. According to Rothbard (1990) people prefer 'present goods' (goods available for use at present) over 'future goods' (present expectations of goods becoming available at some date in the future). This suspects that direct compensation through salary and bonuses has a greater effect on firm performance compared compensation through stocks, options and other long-term incentive plans. Therefore, a stronger relationship between direct executive pay and firm performance compared to indirect compensation is expected. This study proposes the following hypothesis:

H₃: CEO pay through direct compensation has a stronger effect on firm performance in the long term than through indirect compensation.

3. Methodology

The methodology chapter outlines the research design and methods that are used to investigate the relationship between executive compensation and firm performance. This chapter includes a description of the data sources, sampling techniques and analytical methods. Furthermore, this section describes the procedures that were followed to ensure the reliability and validity of this research.

3.1 Research design

Firstly, this study uses a quantitative research design to explore the relationship between executive compensation and firm performance. It provides clear empirical evidence of the potential relationship between executive pay and firm performance and ensures that the findings can be generalized to a larger population of firms. Also, with the use of this approach, the effects of executive compensation can effectively be measured.

3.2 Data sources

Secondly, all the data used in this research can be retrieved from public databases. This research obtained data from Wharton Research Data Services (WRDS). The data used for the net income of firms is retrieved from Compustat North America Fundamentals Annual database, which contains information on the financials of 80,000 publicly held firms in North America.

Executive compensation data are acquired from the Compustat Execucomp Annual Compensation database. This data is collected directly from the company's annual proxy (DEF14A SEC form).

3.3 Sampling techniques

The sample for this study consists of publicly traded companies in the United States. The companies used in this study operate in a wide variety of industries. Companies from different types of industries, such as legal services, communications and constructions are all included in the data to make sure that the sample is representative. The scope of the research consists of the time frame 2020-2022. The Compustat database also contains information on inactive companies. These have been filtered out of this research since

inactive firms do not have predictable power over the future. In addition, executives are defined as the CEOs of companies. Therefore, only the data on the compensation of CEOs were taken into account. Also, not all firms in the dataset had datapoints for each year. These firms with incomplete data have been removed to enhance the quality and reliability of the dataset.

3.4 Analytical methods

This research uses an Ordinary Least Squares (OLS) regression and defines the year 2020 as short-term, 2021 as medium-term and 2022 as long-term. The effects of compensation in year T on the financial performance of firms can only be found in the next year (T+1). Therefore, a lag is used for the compensation part of the equation. Since the research uses a lag, for the financial performance of the year 2020 the compensation information of 2019 is needed for example. For that reason, the data used for the compensation aspect ranges from 2019 until 2021.

The formulas for the three hypotheses are defined as followed:

$$H_1: \text{Net income}_t = \alpha + \beta_1 * \text{Total direct compensation}_{t-1} + \varepsilon$$

$$H_2: \text{Net income}_t = \alpha + \beta_1 * \text{Total indirect compensation}_{t-1} + \varepsilon$$

$$H_3: \text{Net income}_t = \alpha + \beta_1 * \text{Total direct compensation}_{t-1} + \beta_2 * \text{Total indirect compensation}_{t-1} + \varepsilon$$

For the first hypothesis, this research focusses on the direct compensation that is given to executives. Direct compensation is defined as the sum of monthly salaries and bonuses per year. To be able to determine the firm performance of firms, the variable net income is used throughout this research. The net income consists of all the income of firms minus the taxes and all other costs paid. This is an appropriate indicator for firm performance, since when companies are doing well, the net income increases and when companies perform poorly the net income decreases. Therefore, the net income will serve as a suitable proxy for firm performance. The net income is measured in millions of dollars and the compensation is measured in thousands of dollars.

The second hypothesis consists of all indirect compensation given to CEOs. The indirect compensation is defined as the sum of the restricted stock grants, long-term incentive plan payouts, the value of option grants and all other annual compensation. Furthermore, the third hypothesis considers all compensation given to executives. In this research this is defined as the sum of the direct- and indirect compensation. Finally, the α represents the constant of the equation and the ϵ the standard error.

3.5 Reliability and validity

Ensuring the reliability and validity of research findings is of the utmost importance for empirical studies. Therefore, it is important to outline the measures that were taken to guarantee that the research results are credible. The reliability of the data is ensured by sourcing information from a reputable and widely recognized database. The data used in this research comes from WRDS, which can be considered as a reputable database. In addition, the data in Compustat is based on audited information directly from the financial statements of publicly traded companies. Therefore, this data serves as detailed and accurate information on firm performance. Also, the use of specialized databases such as Execucomp ensures consistency and comparability due to the comprehensive and standardized data on the compensation of executives. Therefore, one can conclude that the data is reliable and valid.

Furthermore, this research has a high external validity. The external validity concerns the degree in which the research findings can be generalized beyond the specific sample studied. To enhance external validity, this study includes a diverse sample of publicly traded companies in the US across various industries. Since the US can be considered as a developed country, the findings of this study are applicable to rest of the modernised western world. This diversity ensures that the findings are not limited to a particular sector or region and can be applied to a broader context. Additionally, the three-year time frame (2020-2022) used in this study is recent. Therefore, it allows for the analysis of trends and patterns over time in the near future. This further supports the generalizability of the results.

4. Analysis and results

The analysis and results chapter presents the findings of this study on the relationship between executive compensation and firm performance. This section includes the results of the statistical analyses and an interpretation of these findings.

4.1 Descriptive statistics

Table 1: *Descriptive statistics.*

Variables:	Observations	Mean	Std. Dev.	Minimum	Maximum
Total direct compensation	2038	1243.673	1066.883	0	15100
Total indirect compensation	2038	8828.052	9327.243	0	180866.9
Net income	2038	1711.76	6096.227	-22819	99803

Note: This table shows the descriptive statistics for each variable used in the research. The statistics estimate the number of observations, mean, standard deviation (Std. Dev.), minimum and maximum. The total direct and indirect compensation are measured in thousands of dollars. The net income is measured in millions of dollars.

To start, table 1 shows the descriptive statistics of the variables used for this study. The descriptive statistics reveal that the executive compensation packages are highly variable, with significant differences in direct and indirect compensation. This right-skewed distribution for the compensation variables suggest that a few executives receive exceptionally high compensation, which potentially influences the overall averages. In addition, the positive mean value for the net income suggests that, on average, the firms in the sample are performing well. However, taking into consideration the high standard deviation, there are notable outliers.

Understanding these distributions and their implications is important for the regression analysis, as they provide context for how executive compensation might influence long-term firm performance. This understanding provides a basis for a more detailed statistical analysis. This allows the study to interpret how executive compensation relates to firm performance.

4.2 The effects of total direct compensation on net income

Firstly, this study examines the relationship between the total direct compensation given to executives and the net income of firms. The research uses an OLS regression to test the first hypothesis (H_1). H_1 is tested with the total direct compensation (the sum of monthly salaries and bonuses) as the independent variable and with the net income as the dependent variable. Table 2 shows the results of the regression between the total direct compensation and the short-term-, medium-term- and long-term net income.

Table 2: *The effects of total direct compensation on net income.*

Dependent variable:	Short-term net income (1)	Medium-term net income (2)	Long-term net income (3)
Independent variable:			
Total direct compensation	0.951 *** (0.208)	1.876*** (0.309)	1.536*** (0.243)
Constant	-201.563 (323.763)	8.836 (478.437)	26.971 (419.999)
Number of observations	511	510	506
R-squared	0.040	0.068	0.074
F-statistic	20.92***	36.89***	40.11***

Note: The results of this regression are based on OLS, in which the total direct compensation is the independent variable. The total direct compensation is measured in thousands of dollars. The significance is displayed as * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The standard errors are in brackets.

The results indicate a significant positive relationship between the direct compensation and net income. This relationship is consistently present in the short-term, medium-term and long-term. The constants have large standard errors and are not significant. This is in line with expectations, since the constant can only be significant when it is close to zero in case the dependent variables are zero. The net income of a firm is not likely to be zero when executives are not paid any direct compensation. Focusing on the long term, which is the

main scope of this research, the results show that when a CEO is given €100,000 in extra direct compensation this will result in €153,600 extra net income for the firm.

4.3 The effects of total indirect compensation on net income

Secondly, this research explores the relationship between the total indirect compensation and the net income of firms. The research uses an OLS regression, with the total indirect compensation (the sum of the restricted stock grants, long-term incentive plan payouts, the value of option grants and all other annual compensation) as the independent variable and the net income as dependent variable, to test the second hypothesis (H_2). The results of the corresponding regression are displayed in table 3.

Table 3: *The effects of total indirect compensation on net income.*

Dependent variable:	Short-term net income (1)	Medium-term net income (2)	Long-term net income (3)
Independent variable:			
Total indirect compensation	0.148*** (0.029)	0.249*** (0.046)	0.282*** (0.023)
Constant	-217.548 (304.064)	250.226 (481.244)	-769.312 ** (342.141)
Number of observations	511	510	506
R-squared	0.049	0.054	0.229
F-statistic	26.43***	29.02***	149.74***

Note: The results of this regression are based on OLS, in which the total indirect compensation is the independent variable. The total indirect compensation is measured in thousands of dollars. The significance is displayed as * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The standard errors are in brackets.

The results displayed in table 3 indicate a significant positive relationship between the total indirect compensation and the net income in the short-term, medium-term and long-term at the 0.01 significance level. However, the coefficients for indirect compensation in table 3 are noticeably lower compared to the coefficients of the direct compensation for executives in

table 2. The results show that when a CEO is given €100,000 in extra indirect compensation this will result in €28,200 extra net income for the firm in the long term. This suggests that the effects of indirect compensation on (long-term) firm performance are lower than direct compensation.

4.4 The effects of total compensation on net income

Thirdly, this study investigates the effects of total compensation on the net income of firms (H_3). The following OLS regression uses total direct- and total indirect compensation as the independent variables and the net income as dependent variable. Table 4 therefore shows the total effects of executive compensation on firm performance in the short-term, medium-term and long-term.

Table 4: *The effects of total compensation on net income.*

Dependent variable:	Short-term net income (1)	Medium-term net income (2)	Long-term net income (3)
Independent variable:			
Total direct compensation	0.673*** (0.217)	1.510*** (0.319)	0.757*** (0.231)
Total indirect compensation	0.117 *** (0.030)	0.182*** (0.047)	0.257*** (0.024)
Constant	-729.268** (353.994)	-1003.375* (481.244)	-1498.538*** (405.474)
Number of observations	511	510	506
R-squared	0.067	0.094	0.245
F-statistic	18.24***	26.30***	81.68***

Note: The results of this regression are based on OLS, in which total direct and indirect compensation are the independent variables. The total direct and indirect compensations are measured in thousands of dollars. The significance is displayed as * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The standard errors are in brackets.

The results in table 4 show a significant positive relationship between both the total direct and indirect compensation on firm performance at the 0.01 significance level. The effects of total direct compensation on firm performance are the largest at the medium term (T+2). In addition, the effects of total indirect compensation are the largest at the long term. However, the effect of total direct compensation on the net income is still higher in the long term compared to the indirect compensation.

5. Conclusion

This research set out to understand the effects of direct and indirect executive compensation on firm performance. It focuses on the various components of executive pay such as salary, bonuses, stock grants, and long-term incentive plan payouts. Using a comprehensive dataset of publicly traded companies in the US over a three-year period, the study employed an OLS regression to investigate these relationships.

The analysis reveals several important insights. Firstly, the analysis shows that there is a significant positive relationship between the direct compensation given to executives and the long-term firm performance. The regression estimates a strong positive impact of the direct compensation on the long-term net income, suggesting that by paying an executive a higher amount of salary and bonuses, firm performance can be improved. This is in line with the findings of Kayani and Gan (2022). Therefore, the outcome of this study supports H_1 .

Secondly, the outcome of this research shows that the impact of indirect compensation on long-term firm performance is smaller compared to direct remuneration. This effect in the long term however is positive and significant, but to a lesser extent than direct compensation. The effect of direct compensation on the performance of firms is approximately three times as high compared to through indirect compensation. Therefore, one can conclude that paying CEOs a higher amount of direct compensation results in a larger effect on the firm performance. Taking this into consideration, it seems to be more appropriate to give executives a higher amount of direct remuneration to benefit the firm the most. These findings are in line with both H_2 and H_3 .

Therefore, it is possible to answer the main research question of this study: *How does executive compensation affect firm performance in the long term?* Long-term firm performance is influenced by both the direct and indirect payments made to CEOs. The positive effects of the direct compensation are larger than the positive effects of indirect compensation. Therefore, executive compensation through either direct or indirect pay enhances long-term firm performance. This implicates that by aligning executive pay with shareholder interests through performance-based compensation, both direct and indirect, the principal-agent problem can be mitigated.

Even though this study provides valuable insights, it also has its limitations. The focus on publicly traded companies in the US may limit the generalizability of the findings to for example privately held firms or companies in different regions. Also, the three-year period can be considered as a short timeframe. Studies with a longer time frame could offer additional insights into the impact of executive compensation on firm performance. Additionally, future research could also enhance this research by exploring different industries to understand how executive compensation impacts firms in different sectors.

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