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Accounting Expertise on the Compensation Committee and CEO Compensation

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To the Graduate Council:

I am submitting herewith a dissertation written by Steven R. Hawkins entitled "Accounting Expertise on the Compensation Committee and CEO Compensation." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Business Administration.

Bruce K. Behn, Major Professor

We have read this dissertation and recommend its acceptance:

Donald J. Bruce, Linda A. Myers, Terry L. Neal

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Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

**Accounting Expertise on the Compensation Committee and
CEO Compensation**

A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Steven R. Hawkins
May 2018

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Abstract

Executive compensation has long been a hot topic for regulators, investors and the business press, usually because of a misalignment of performance and CEO compensation. CEO compensation is an important topic because it can have a major impact on firms' ability to attract and retain talented CEOs. The Dodd-Frank Act, passed in 2010, and resulting updated compensation committee rules have increased the scrutiny of compensation committees as they set and monitor executive pay. Additionally, Hoitash et al. (2012) and Manchiraju et al. (2016) call for firms to include directors with financial or accounting expertise on their compensation committees to improve performance measurement and executive compensation contracting. Using the presence of a certified public accountant (CPA) on the committee to proxy for accounting expertise, I investigate the association between accounting expertise on the compensation committee and several aspects of CEO compensation. I find that the percentage of firms with accounting expertise on the compensation committee has doubled over my sample period. I find evidence that accounting expertise on the compensation committee is associated with increased pay-for-performance sensitivity when performance is measured using stock returns. However, in areas where accounting expertise should be most beneficial, including pay sensitivity to accounting-based measures of performance, and compensation shielding from misclassified negative special items, I find no evidence of a significant impact. This study contributes to the literature on CEO compensation and the literature on corporate boards and is the first large sample study on the association between accounting expertise on the compensation committee and CEO compensation.

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CHAPTER ONE

INTRODUCTION

Hoitash et al. (2012) and Manchiraju et al. (2016) call for firms to include directors with financial or accounting expertise on their compensation committees to improve performance measurement and executive compensation contracting. While there is some empirical evidence supporting this call, it is limited to very specific settings. For example, using a sample of firms that disclose internal control material weaknesses, Hoitash et al. (2012) find that compensation committee financial expertise is positively associated with the reduction of CFO bonus following an internal control material weakness disclosure. With a sample of oil and gas firms, Manchiraju et al. (2016) find that the asymmetric treatment of gains and losses on non-hedge derivatives (CEOs rewarded for gains, but not held accountable for losses) is lower in firms with an accounting financial expert on the compensation committee. There has yet to be broad study that considers the impact of accounting expertise on the compensation committee. In this study, I seek to fill this void. Using a large sample, I examine whether the presence of accounting expertise on the compensation committee impacts CEO compensation.

CEO compensation continues to be an important topic in the press and among regulators, and academics. “With the possible exception of major accounting frauds (e.g., WorldCom, Enron, etc.), there are few topics that are more pervasive and produce bigger headlines in the business press than executive compensation.” (Core et al. 2008) Consistent with this notion, a Factiva text search of *Wall Street Journal* articles for “executive AND compensation” over the past two years produces more than 240 unique articles, or approximately 2.3 articles per week. A search of the EBSCO Host Business Source Complete database for “Executive compensation”

yields roughly 2,000 peer reviewed articles published in academic journals during the last ten years. Since the passage of the Dodd-Frank act in 2010, the Securities and Exchange Commission (SEC) has implemented or proposed six different rules related to executive compensation, including requiring that firms have a fully independent compensation committee and that firms allow shareholders to have a “Say on Pay” vote at least every three years.¹

Notwithstanding the intense focus on executive compensation, the business press and academics have largely ignored the committee responsible for executive compensation. Daily et al. (1998) point out that much of the research on the impact of corporate governance on executive compensation focuses too broadly on the full board, and not the compensation committee. However, as pointed out in a recent Wall Street Journal Article, “If the CEO is Overpaid, Blame the Compensation Committee” (Prozen and Kothari 2017), it is the compensation committee of the board of directors that is responsible for setting CEO compensation. Hermanson et al. (2012) state that the research on compensation committees is still quite minimal and calls for future research on compensation committees. Consistent with these findings, if “Executive compensation” is replaced with “Compensation committee” in a similar EBSCO Host search fewer than 100 unique article hits are produced.

Most of the prior compensation committee literature examines the impact compensation committee independence has on executive compensation. However, the major exchanges implemented compensation committee independence listing rules in 2003. These rules were strengthened in 2012 in response to the Dodd-Frank Act. As a result, independence can no longer be used as distinguishing characteristic of compensation committees, or as a good proxy for

¹ See <https://www.sec.gov/spotlight/dodd-frank/corporategovernance.shtml>.

compensation committee quality or monitoring. As highlighted by Hoitash et al. (2012) and Manchiraju et al. (2016) accounting expertise is another differentiating characteristic that may be important for compensation committees.

In most public companies, a significant portion of CEO compensation is based on the performance of the CEO or the firm, and performance is usually measured using accounting or accounting related information. Compensation committees with accounting expertise may be better at determining the appropriate measures of performance, as well as how performance measures should be used in determining CEO compensation. Prior research (e.g., Dechow et al. 1994; Joo and Chamberlain 2017) documents that, on average, executives' compensation is shielded from negative special items. Weaker pay sensitivity to negative special items (compensation shielding) used to encourage CEOs to make value-enhancing decisions that may reduce current earnings would be good for shareholders. However, compensation shielding may also be negative in other circumstances; for example, if the compensation committee shields compensation from core expenses that have been misclassified as negative special items (Joo and Chamberlain 2017). Accounting expertise may help the compensation committee use compensation shielding when appropriate while also reducing shielding when it is not in the best interest of shareholders.

In this paper I seek to answer the following research question. Does the presence of accounting expertise on the compensation committee impact CEO compensation? I use the presence of a Certified Public Accountant (CPA) on the compensation committee as a proxy for accounting expertise and consider several different aspects of CEO compensation. For completeness, I begin by testing for an impact of accounting expertise on the level of total compensation, as well as the level of the different compensation components (salary, bonus,

stock grants, and option grants), and then investigate other aspects including the mix of compensation components (ratio of each component to total compensation), performance sensitivity of compensation, and abnormal compensation. Compensation sensitivity can be measured several ways. I follow Lambert and Larcker (1987) and Sloan (1993) in testing pay for accounting performance sensitivity and pay for stock market performance sensitivity. I also follow Joo and Chamberlain (2017) and investigate whether accounting expertise on the compensation committee impacts classification shifting and compensation shielding.

During my sample period (2003 – 2014) I find that the percentage of firms with a CPA on the compensation committee has been steadily increasing. In fact, it has more than doubled from 15.1% in 2003 to 31.0% in 2014. This finding suggests that firms may be heeding the call of Hoitash et al. (2012) and Manchiraju et al. (2016), but also highlights the importance of understanding whether accounting experts on the compensation committee impact CEO compensation.

My tests suggest that accounting expertise on the compensation increases the pay-for-performance sensitivity of CEO compensation when performance is measured as stock returns. However, I find no conclusive evidence that accounting expertise on the compensation committee impacts the level of total compensation or compensation components, the mix of compensation components, accounting-based pay-for-performance sensitivity, compensation shielding, or abnormal compensation. Given the call for firms to include directors with financial or accounting expertise on their compensation committees to improve performance measurement executive compensation contracting by Hoitash et al. (2012) and Manchiraju et al. (2016), and the fact that firms are actually adding CPAs to their compensation committees, these results are

somewhat surprising. While I do find that CPAs do impact executive compensation, it does not appear to be in areas where accounting expertise should matter most.

This study contributes the corporate governance and executive compensation literatures, by examining whether accountants affect firm decisions when they are outside of traditional accounting roles. Prior literature has called for firms to add accounting or financial expertise to compensations committees. My study is the first large-sample study to investigate the impact of accounting expertise on the compensation committees on CEO compensation. It also answers the call from Hermanson et al. (2012) for additional research about compensation committees.

CHAPTER TWO

BACKGROUND, PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT

Compensation Committees and Related Regulation

The compensation committee of the board of directors is responsible for overseeing executive compensation including compliance with regulation and disclosure. This oversight includes approving² executive pay and reviewing and approving the Compensation Discussion and Analysis section of the annual proxy statement. SEC listing standards for compensation committees were last updated in 2012, in response to the Dodd-Frank Act. Listing firms are required to have all members of the compensation committee be independent.³ The updated standards also gave the compensation committee authority to hire compensation consultants and made the committee, not management, directly responsible for appointment, compensation, and oversight of the compensation consultants.

While the Dodd-Frank Act and updated listing standards drew attention to compensation committees and committee independence, there was little actual change to the overall level of compensation committee independence. The mean percentage of compensation committee members classified as independent for my sample is 99%. Prior to the SEC imposing compensation committee independence listing standards in 2012, both the New York Stock Exchange (NYSE) and the National Association of Securities Dealers Automated Quotation System (Nasdaq) had already adopted listing rules related to compensation committee

² Usually formal approval of executive pay packages is by the full board, but the compensation committee is responsible for the work of researching, designing, and recommending the executive pay package to the full board.

³ <https://www.sec.gov/rules/final/2012/33-9330.pdf>

independence. In November 2003 NYSE approved listing rules that required compensation committees to have at least one member, and that all members be independent directors. About the same time, Nasdaq approved listing rules that required compensation committees to be fully independent, if present, but did not require that listing firms had a separate compensation committee. For firms without a compensation committee, executive compensation was to be set by a majority of independent directors. Thus, while there have been regulatory changes related to compensation committees during my sample period, I do not expect these changes to affect my study.

Compensation Committee Literature

The vast majority of the compensation committee literature examines the association between committee independence and various aspects of CEO Compensation including: the level of total compensation, the level or percentage of compensation components, and compensation sensitivity. Daily et al. (1998) find no association between compensation committee independence and CEO cash compensation, contingent pay (bonuses, long-term incentive plans, and stock options), or total CEO compensation. Newman and Mozes (1999) also fail to find an association between compensation committee independence and the level of CEO compensation overall. They do, however, document that when insiders are on the compensation committee CEO compensation is much less sensitive to firm losses. Using a sample of IPO firms, Conyon and He (2004) find that total CEO compensation, and equity incentive structure are not impacted by insiders on the compensation committee. Anderson and Bizjak (2003) find very limited evidence of greater outside representation on the compensation committee being associated with more performance-based pay, but no association with compensation levels, the percentage of option-based compensation, or pay sensitivities. They also find no evidence of higher pay for

CEOs who sit on their own compensation committee. Although these findings do not provide strong evidence supporting the need for independent compensation committees, they do highlight the importance of considering more than just overall levels of CEO compensation.

Vafeas (2003) finds limited evidence of insiders on the compensation committee being associated with higher levels of fixed CEO pay, and less contingent pay, but only during the early part (prior to 1992) of the sample period. Vafeas also finds that the number of insiders on the compensation committee decreased over the sample period but could not conclude that this decrease translated to net benefits for shareholders. While this study also does not provide strong evidence supporting the need for independent compensation committees, it does highlight that independence may no longer be a good distinguishing characteristic of compensation committees.

In more recent work, Bebchuk et al. (2010) and Collins et al. (2009) examine the likelihood of the CEO receiving backdated options and compensation committee independence. They find no evidence of independent compensation committees being associated with a reduced likelihood of receiving backdated option grants. In addition to the fact that compensation committees are now required to be independent, these results also highlight the importance of considering factors other than committee independence when investigating compensation committees.

Lakshmana (2008) does not look at compensation directly, but compensation related disclosures, and finds that compensation committees that are larger and have more meetings provide better compensation disclosure. Compensation committee independence is found to be associated with better disclosure in the 1993 sample, but not in the 2002 sample. In a somewhat

related study, Nelson et al. (2010) find that compensation committee independence is associated with improved disclosure compliance by Australian listed companies.

Given the committee independence listing standards implemented in 2003, Sun and Cahan (2009) and Sun et al. (2009) take a different approach and include characteristics such as director co-option, director tenure, prior CEO experience, and committee size to create a composite measure of compensation committee quality.⁴ Sun and Cahan (2009) find that the association between accounting earnings and cash compensation is stronger for firms with high compensation committee quality. Sun et al. (2009) find that the association between stock option grants and future firm performance is more positive for firms with higher quality compensation committees. In summary, some of the prior studies on compensation committee independence or quality show compensation committee independence can be beneficial to investors, but others do not find significant differences associated with compensation committee independence.

Three prior studies consider financial or accounting expertise on the compensation committee. As an additional analysis, Dechow et al. (2010) consider whether CEO compensation is less sensitive to reported asset securitization gains when there is a financial expert on the compensation committee, but do not find any significant differences. The sample used to perform their compensation committee analysis includes only 303 observations and is limited to firms that reported asset securitization gains. By using a broad cross-section of firms, my study employs a much larger sample with more generalizable findings.

Hoitash et al. (2012) test the association between CFO compensation and the disclosure of an internal control material weakness. Using a sample of about 600 firms that disclose an

⁴ While I do not create a composite measure, I do control for director co-option, director tenure, prior CEO experience, and committee size.

internal control material weakness, they find that CFOs are more penalized when there is a financial expert on the compensation committee. My study differs in that I investigate CEO compensation, not CFO compensation, and I do not limit my sample to firms that have had a material weakness allowing me to use a much larger sample of firms.

Manchiraju et al. (2016) use a sample of 445 firm-year observations for 87 oil and gas firms to test the sensitivity of CEO compensation to derivative gains and losses. They find that, on average, CEOs are rewarded for both hedge and non-hedge derivative gains, but that their compensation is much less sensitive to derivative losses. They also find that financial accounting expertise on the compensation committee, reduces the asymmetric treatment of losses they document in their main tests. Again, my study is different because I use a much larger sample of firms, and do not limit my investigation to a single industry or single accounting issue.

Both Hoitash et al. (2012) and Manchiraju et al. (2016) suggest that firms should include directors with financial or accounting expertise on their compensation committees to improve executive compensation contracting, but the empirical evidence they provide is from limited samples with very specific firm situations (internal control material weakness, and derivative gains and losses, respectively). My study is the first to investigate the impact of accounting expertise on the compensation committee in a general setting with a large sample.

Executive Compensation Literature

In contrast to literature focusing on compensation committees, the executive compensation literature is quite large. Executive compensation is one of the most important contracting areas in the firm, because attracting and retaining a talented CEO can be critical to a firm's success (Anderson and Bizjak 2003). Because of the importance of executive

compensation, researchers in several different business fields including accounting, finance, management, and economics have made significant contributions to the executive compensation literature.⁵ Edmans et al. (2017) identify two competing yet non-exclusive explanations for what drives executive pay – shareholder value maximization by boards (optimal contracting), and rent extraction by executives (managerial power). While optimal contracting has been used almost since the introduction of agency theory (Jensen and Meckling 1976), the managerial power explanation started receiving attention in the early 2000s as in Bebchuk et al. (2002).

The empirical evidence from Hoitash et al. (2012) and Manchiraju et al. (2016) is most consistent with the managerial power explanation. They find evidence that compensation committees with accounting expertise better monitor CEOs. These findings would lead me to predict that accounting expertise on the compensation committee be associated with lower, more sensitive CEO compensation. However, Dechow et al. (2010) find no evidence that accounting expertise on the compensation committee improves monitoring. Additionally, Edmans et al. (2017), observe that the shareholder value or optimal contracting explanation is most consistent with the available evidence. Given the limited empirical evidence, and the lack of clear directional prediction from available theories, my formal hypothesis is started in the null as follows.

H1: The presence of accounting expertise on the compensation committee has no impact on CEO compensation.

⁵ Please see Core et al. (2003); Edmans and Gabaix (2009, 2016); Edmans et al. (2017); and Frydman and Jenter (2010) for extensive literature reviews.

CHAPTER THREE

SAMPLE SELECTION AND RESEARCH DESIGN

Sample

To perform my analysis, I use data from several sources. I obtain CEO compensation and ownership data from Execucomp, board and director data from Boardex, firm financial data from Compustat, returns from CRSP, and institutional ownership from Thomson Reuters. I restrict the sample to the years 2003-2014 based on Boardex data availability. To remove the potential impact of CEOs taking little or no salary, I delete observations where annual salary is less than \$1,000 or with missing CEO compensation data giving me 22,168 firm-year observations from Execucomp. After merging with Compustat and removing observations with total assets less than one million dollars or with missing Compustat control variables, the sample is reduced to 12,590. Finally, I merge with Boardex and remove observations with missing Boardex control variables leaving me with a sample of 9,065 firm-year observations. Following prior literature, I drop financial firms and firms from regulated industries,⁶ reducing the sample to 8,245.

Figure 1 shows the percentage of firms with a CPA on the compensation committee by year.⁷ At the beginning of the sample period, in 2003, 15.1% of firms had a CPA on the compensation committee. Except for 2012 where there was a slight decrease, the percentage of firms with a CPA on the compensation committee increased each year of the sample. By the end of the sample period, in 2014, 31% of firms had a CPA on the compensation committee. This

⁶ 2-digit SIC codes 49, 60-67.

⁷ All Figures are included in Appendix B.

trend of firms adding CPAs to their compensation committee adds to the relevance of my research question.

Table 1 presents the industry breakdown of firms, and the percentage of firms within each industry that have a CPA on the board as well as the percentage that have a CPA on the compensation committee.⁸ Over half the sample comes from five industries. However, 43 industries are represented in the sample and several industries have more than 100 observations. About 60% of firms have at least one CPA on the board and of these firms, 40% have CPA on the compensation committee.

As can be seen in Table 1, the presence of a CPA on the board, as well as on the compensation committee, varies across industries. The percentage of firms within the industry with a CPA on the board or with a CPA on the compensation committee in the top or bottom quartiles are denoted with a plus (+) or minus (–), respectively. Industries in the top quartile based on percentage of firms with a CPA on the board include Wholesale Trade - Durable Goods (76.4%), Apparel and Accessory Stores (77.1%), Health Services (71.6%), Eating and Drinking Places (69.9%), Primary Metal Industries (75.7%), and Educational Services (81.9%). Interestingly, none of these industries are also in the top quartile based on percentage of firms with a CPA compensation committee, and surprisingly, two of these industries, Educational Services, and Eating and Drinking Places, are in the bottom quartile with only 11.9% and 27%, of firms with a CPA on the board that have a CPA on the compensation committee, respectively. The industries with the highest percentage of firms with a CPA on the board that have a CPA on the compensation committee include Measuring, Photographic, Medical, & Optical Goods, &

⁸ All tables are included in Appendix C.

Clocks (44.7%); Oil and Gas Extraction (52.5%); Miscellaneous Retail (44.6%); Fabricated Metal Products (67.0%); Wholesale Trade – Nondurable Goods (51.7%); and Petroleum Refining and Related Industries (63.5%).

The variation across industries in both the percentage of firms with a CPA on the board and the percentage of these firms that have a CPA on the compensation committee highlights that the generalizability of studies that employ samples from only one industry may be limited. It also highlights the potential contribution of a study that uses a sample from a broad cross-section of firms. This variation also suggests that, while correlated by construction, having a CPA on the compensation committee is not simply a function of having a CPA on the board. Firms that do not have a CPA on the board are not able to have a CPA on the compensation committee. Therefore, I only include firms with at least one CPA on the Board in my multivariate tests which gives me a final sample of 4,980 firm-year observations.⁹

Methodology

To test my hypothesis and answer my research question, I consider several different CEO compensation outcomes examined in prior literature that may be impacted by a firm having a CPA on the compensation committee. For completeness, I first examine level of total compensation and compensation components,¹⁰ and the incentive structure or mix of compensation components (Brockman et al. 2016; Humphery-Jenner et al. 2016). Although CPAs have a reputation of being more conservative, and CPA Comp Committees may award lower overall levels of compensation or alter the mix of compensation components, there is no

⁹ My results are robust to including firms that do not have a CPA on the board in my final sample.

¹⁰ (Black et al. 2014; Bradley et al. 2017; Brockman et al. 2016; Brunarski et al. 2015; Cai and Walkling 2011; Campbell and Thompson 2015; Carter et al. 2016; Chen et al. 2015; Core et al. 2008; Core et al. 1999; Gao and Li 2015; Gillan and Nguyen 2016; Song and Wan 2017; Zhi and Lingling 2016)

strong theoretical prediction as to how a CPA on the compensation committee may impact the overall level or mix of compensation components.

A significant portion of CEO compensation is based on the performance of the CEO or the firm, and performance is measured using accounting or accounting-related information. I expect compensation committees with accounting expertise to be better at determining the appropriate measures of performance, as well as how performance measures are used in determining CEO compensation. Unfortunately, I do not have detailed information about the actual measures or calculations used in determining CEO compensation. However, prior literature has identified methods to measure pay-for-performance sensitivity. Differences in pay-for-performance sensitivity can provide evidence that the actual performance measures or formulas used to determine compensation have changed. I investigate compensation sensitivity to firm accounting and market performance following Lambert and Larcker (1987) and Sloan (1993). I also investigate Classification shifting and compensation shielding following Joo and Chamberlain (2017) and abnormal or excess compensation (Cai and Walkling 2011; Carter et al. 2016; Core et al. 2008) as additional methods to test for evidence of a CPA on the compensation committee impacting CEO compensation.

Compensation levels and component mix

Following prior literature, I use the following model to test for an association between the presence of a CPA on the compensation committee and the level of total compensation as well as the level and mix of compensation components ¹¹:

$$\text{COMP}_{it} = \beta_0 + \beta_1\text{CPA}_{it} + \beta_2\text{ROA}_{it} + \beta_3\text{RET}_{it} + \beta_4\text{LN_TENURE}_{it} + \beta_5\text{CEO_AGE}_{it} + \beta_6\text{CEO_OWN_PCNT}_{it} + \beta_7\text{CEO_CHAIR}_{it} +$$

¹¹ Please see Appendix A for detailed variable definitions.

$$\begin{aligned} & \beta_8 \text{PCNT_CO_OPTED}_{it} + \beta_9 \text{COMP_SIZE}_{it} + \beta_{10} \text{PCNT_COMP_CEO_EXP}_{it} + \\ & \beta_{11} \text{AVG_COMP_TENURE}_{it} + \beta_{12} \text{BD_SIZE}_{it} + \beta_{13} \text{INST_OWN}_{it} + \\ & \beta_{14} \text{PCNT_IND}_{it} + \beta_{15} \text{LN_ASSETS}_{it} + \beta_{16} \text{LEVERAGE}_{it} + \beta_{17} \text{CAPX}_{it} + \\ & \beta_{18} \text{BOOK_TO_MARKET}_{it} + \beta_{19} \text{SEGMENTS}_{it} + \beta_{21} \text{STD_RET}_{it} + \beta_{22} \text{LOSS}_{it} + \varepsilon_{it} \end{aligned} \quad (1)$$

COMP is one of several dependent variables including the level of total compensation (LN_TOTAL_COMP), the level of the individual compensation components of salary, bonus, and equity-based compensation (LN_SALARY, LN_BONUS, and LN_EQUITY_COMP, respectively) and a measure of the level of total incentive-based compensation (LN_INCENTIVE_COMP) which is the sum of bonus and equity-based compensation.

To test if accounting expertise on the compensation committee impacts compensation structure or the mix of compensation components, I also use the ratio of salary to total compensation (SALARY_TO_TOTAL), the ratio of bonus to total compensation (BONUS_TO_TOTAL), the ratio of equity based compensation to total compensation (EQUITY_TO_TOTAL), and the ratio of incentive based compensation to total compensation (INVENTIVE_TO_TOTAL) as dependent variables. The variable of interest, CPA, is an indicator variable set equal to 1 if a member of the compensation committee is a certified public accountant.

Following prior literature, I also include several CEO and firm characteristic control variables that have been shown to be correlated with CEO compensation and could also be correlated with having accounting expertise on the compensation committee. I include return on assets (ROA) and annual stock returns (RET) as measures of firm performance. I control for several CEO characteristics as measures of the CEO's power or potential to influence compensation. I include the natural log of CEO tenure (LN_TENURE), the age of the CEO (CEO_AGE), and the CEO's stock ownership (CEO_OWN_PCNT). I also include an indicator

for if the CEO is also the chairman of the board (CEO_CHAIR), and the percentage of compensation committee members that joined the board after the CEO took office (PCNT_CO_OPTED).

As other governance related controls, I include the size of the compensation committee (COMP_SIZE), the percentage of compensation committee members with prior experience as a CEO (PCNT_COMP_CEO_EXP), the average tenure of members of the compensation committee (AVG_COMP_TENURE), board size (BD_SIZE), the percentage of shares held by institutions (INST_OWN), and the percentage of independent directors on the full board (PCNT_IND). Unlike much of the prior compensation committee literature, controlling for compensation committee independence is not necessary. While my descriptive statistics show that not all firms in my sample have fully independent compensation committees, the mean percentage of independent compensation committee members (PCNT_IND_COMP) is 99.0%. Over 95% of the sample has a compensation committee that is fully independent, and at the minimum, two-thirds of directors on the compensation committee are independent.

Firm characteristics including size complexity, and uncertainty can also be important determinants in CEO compensation, and firm governance. Therefore, I include the natural log of assets (LN_ASSETS), firm financial leverage (LEVERAGE), capital expenditures (CAPEX), the book to market ratio (BOOK_TO_MARKET), the number of business segments (SEGMENTS), returns volatility (STD_RET), and an indicator variable equal to 1 if the firm experienced a loss for the year (LOSS). To remove the influence of outliers, continuous variables are winsorized at 1st and 99th percentiles. For robustness I include firm- and year-fixed effects with heteroskedasticity-robust adjusted standard errors. All tests of significance are two-tailed.

Pay-for-performance sensitivity

According to a study by Ernst & Young,¹² pay-for-performance misalignment is a top driver of opposition in say-on-pay votes. I follow Lambert and Larcker (1987) and Sloan (1993) in testing pay for accounting performance sensitivity and pay for stock market performance sensitivity. The estimated coefficients on my measures of accounting performance (ROA or ROE) and market performance (RET) from equation (1) capture the sensitivity of compensation to accounting and market performance respectively. To see if having accounting expertise on the compensation committee impacts the sensitivities of CEO compensation to performance I interact the performance measures with CPA.

Significant interaction term coefficients would indicate that the sensitivity is different for firms with accounting expertise on the compensation committee. Assuming a positive association between performance and compensation, a positive interaction coefficient would indicate pay is more sensitive to performance, or stronger pay-for-performance alignment when there is accounting expertise on the compensation committee. I use the following model to perform my test:

$$\begin{aligned} \text{COMP}_{it} = & \beta_0 + \beta_1\text{CPA}_{it} + \beta_2\text{ROA(ROE)}_{it} + \beta_3\text{RET}_{it} + \beta_4\text{CPA}_{it}*\text{ROA(ROE)}_{it} + \\ & \beta_5\text{CPA}_{it}*\text{RET}_{it} + \beta_6\text{LN_TENURE}_{it} + \beta_7\text{CEO_AGE}_{it} + \beta_8\text{CEO_OWN_PCNT}_{it} + \\ & \beta_9\text{CEO_CHAIR}_{it} + \beta_{10}\text{PCNT_CO_OPTED}_{it} + \beta_{11}\text{COMP_SIZE}_{it} + \\ & \beta_{12}\text{PCNT_COMP_CEO_EXP}_{it} + \beta_{13}\text{AVG_COMP_TENURE}_{it} + \beta_{14}\text{BD_SIZE}_{it} + \quad (2) \\ & \beta_{15}\text{INST_OWN}_{it} + \beta_{16}\text{PCNT_IND}_{it} + \beta_{17}\text{LN_ASSETS}_{it} + \beta_{18}\text{LEVERAGE}_{it} + \\ & \beta_{19}\text{CAPX}_{it} + \beta_{20}\text{BOOK_TO_MARKET}_{it} + \beta_{21}\text{SEGMENTS}_{it} + \beta_{22}\text{STD_RET}_{it} + \\ & \beta_{23}\text{LOSS}_{it} + \varepsilon_{it} \end{aligned}$$

¹² <http://www.ey.com/us/en/issues/governance-and-reporting/ey-five-things-compensation-committee-members-need-to-know#To-enhance-company-investor-dialogue>

For my pay-for-performance sensitivity tests COMP represents one of several different dependent variables. I use the level of total compensation (LN_TOTAL_COMP), as well as the levels of performance-based individual compensation components bonus, and equity-based compensation (LN_BONUS, and LN_EQUITY_COMP, respectively). I also use total incentive-based compensation (LN_INCENTIVE_COMP) as a dependent variable. For each dependent variable the model is run once using ROA as the measure for accounting performance, and again replacing ROA with ROE. Control variables and model specifications are as described for equation (1).

Related to accounting performance, there is a significant stream of accounting research that decomposes earnings into its different components (e.g. Bernard and Stober 1989; Bowen et al. 1987; Dechow 1994; Dechow et al. 2008; Hribar and Yehuda 2015; Rayburn 1986; Sloan 1996; Wilson 1986). While the majority of this research is concerned with how accounting information is compounded into stock prices, Natarajan (1996) takes a different approach and investigates earnings components as determinants of CEO compensation. He finds that earnings components provide incremental information for performance evaluation relative to aggregated earnings.

Following Sloan (1996), Dechow et al. (2008), and Hribar and Yehuda (2015) I decompose earnings into cash flows (CASH) and accruals (ACC). I then replace ROA in my model with the components of earning and include interactions with CPA to test whether accounting expertise on the compensation committee impacts the relations between earnings components and CEO compensation. I use the following model to perform my test:

$$\begin{aligned}
\text{COMP}_{it} = & \beta_0 + \beta_1\text{CPA}_{it} + \beta_2\text{ACC}_{it} + \beta_3\text{CASH}_{it} + \beta_4\text{CPA}_{it}*\text{ACC}_{it} + \\
& \beta_5\text{CPA}_{it}*\text{CASH}_{it} + \beta_6\text{RET}_{it} + \beta_7\text{LN_TENURE}_{it} + \beta_8\text{CEO_AGE}_{it} + \\
& \beta_9\text{CEO_OWN_PCNT}_{it} + \beta_{10}\text{CEO_CHAIR}_{it} + \beta_{11}\text{PCNT_CO_OPTED}_{it} + \\
& \beta_{12}\text{COMP_SIZE}_{it} + \beta_{13}\text{PCNT_COMP_CEO_EXP}_{it} + \\
& \beta_{14}\text{AVG_COMP_TENURE}_{it} + \beta_{15}\text{BD_SIZE}_{it} + \beta_{16}\text{INST_OWN}_{it} + \beta_{17}\text{PCNT_IND}_{it} + \\
& \beta_{18}\text{LN_ASSETS}_{it} + \beta_{19}\text{LEVERAGE}_{it} + \beta_{20}\text{CAPX}_{it} + \beta_{21}\text{BOOK_TO_MARKET}_{it} + \\
& \beta_{22}\text{SEGMENTS}_{it} + \beta_{23}\text{STD_RET}_{it} + \beta_{24}\text{LOSS}_{it} + \varepsilon_{it}
\end{aligned} \tag{3}$$

COMP is one of several dependent variables, as described in equation (2) and control variables and model specifications are as described for equation (1). The coefficients of interest are β_4 and β_5 , with significant coefficients indicating that the cash and accruals components of earnings impact CEO compensation differently when the compensation committee has accounting expertise.

Compensation shielding and classification shifting

Prior research documents that, on average, executives' compensation is shielded from negative special items (Adut et al. 2003; Dechow et al. 1994; Joo and Chamberlain 2017). Compensation shielding or weaker pay sensitivity to negative special items may be used to encourage CEOs to make value enhancing decisions that may reduce current earnings but be positive for shareholders in the longer-term. However, prior research has also documented that CEOs manage core earnings by shifting core expenses into negative special items (Behn et al. 2013; McVay 2006; Yun et al. 2010). Joo and Chamberlain (2017) find that, on average, compensation committees shield CEO compensation from correctly classified negative special items as well as negative special items that are the result of classification shifting. While some compensation shielding may be appropriate, it is unlikely that weaker pay sensitivity to classification shifted expenses is in the best interest of shareholders. If there is accounting expertise on the compensation committee, CEOs may be less likely to use classification shifting.

Additionally, compensation committees with accounting expertise should be better at identifying classification shifted expenses and not shield CEO compensation for such items.

Following (McVay 2006) and (Joo and Chamberlain 2017), I use the following predictive model of core earnings (operating income before depreciation expense and before special items, CE).

$$CE_{it} = \alpha_0 + \alpha_1 CE_{it-1} + \alpha_2 ATO_{it} + \alpha_3 ACCRUALS_{it-1} + \alpha_4 ACCRUALS_{it} + \alpha_5 \Delta SALES_{it} + \alpha_6 NEG \Delta SALES_{it} + \varepsilon_{it} \quad (4)$$

The residual from industry-year regressions is used as a measure of unexpected core earnings (UE_CE).¹³ If unexpected core earnings (UE_CE) is positive and the firm also recorded negative special items (NSI), then the unexpected core earnings are considered classification shifted expenses (CS). Negative special items (NSI) is either positive or zero. NSI is equal to $(-1) \times SPI / SALE$ (where SPI and SALE come from Compustat) if SPI is positive and zero otherwise. If both UE_CE and NSI are positive CS is equal to UN_CE, otherwise CS is equal to zero.

Prior to testing if the presence of a CPA on the compensation committee impacts classification shielding or compensation shifting, I validate the classification shifting measure. As in prior studies, I validate the classification shifting measure by regressing unexpected core earnings (UE_CE) on negative special items and firm- and year-fixed effects.

$$UE_CE_{it} = \beta_1 NSI_{it} + FE + \varepsilon_{it} \quad (5)$$

¹³ Regressions are run using all firm-years with necessary data. I require a minimum of 15 observations for each industry-year regression.

A positive and significant β_1 coefficient is evidence of classification shifting, while a zero β_1 coefficient would suggest that expenses have not been classification-shifted and that unexpected core earnings are not related to negative special items.

To test if having accounting expertise on the compensation committee impacts classification shifting, I add CPA to the model in equation (5) and interact it with NSI.

$$UE_CE_{it} = \beta_1 NSI_{it} + \beta_2 CPA_{it} + \beta_3 CPA * NSI_{it} + FE + \varepsilon_{it} \quad (6)$$

A negative and significant β_3 coefficient would suggest that classification is reduced when there is accounting expertise on the compensation committee. If the joint test of $\beta_1 + \beta_3$ is equal to zero, this would suggest that expenses have not been classification-shifted and that unexpected core earnings are not related to negative special items when there is a CPA on the compensation committee.

To test if accounting expertise on the compensation committee impacts compensation shielding, I follow Joo and Chamberlain (2017) and measure the pay-for-performance sensitivity of CEO compensation to earnings before negative special items (EBNSI), and negative special items (NSI) decomposed into the classification shifted and non-classification shifted components. NSI is decomposed by subtracting classification shifted core expenses (CS) from NSI to identify the portion of negative special items that are not classification shifted (NSI_NCS). I add CPA to the model and interact it with each component of negative special items.

$$COMP_{it} = \beta_0 + \beta_1 EBNSI_{it} + \beta_2 NSI_NCS_{it} + \beta_3 CS_t + \beta_4 CPA_{it} + \beta_5 CPA_X_NSI_NCS_{it} + \beta_6 CPA_X_CS_{it} + CONTROLS + \varepsilon_{it} \quad (7)$$

Negative and significant β_5 and β_6 coefficients would suggest that compensation shielding is reduced when there is accounting expertise on the compensation committee. Joo and Chamberlain (2017) only use one measure of CEO compensation (LN_INCENTIVE_COMP), but as in my other pay-for-performance sensitivity tests, COMP is one of several dependent variables, as described in equation (2). Controls are the same as in Joo and Chamberlain (2017) and include stock returns (RET) and negative stock returns (NEG_RET) as market-based performance measures. To control for operating performance risk, the standard deviation of earnings before negative special items (STDEBNSI) and the standard deviation of returns (STDRET5) are estimated using the past five years and included as controls. Investment opportunities (INVOPP) are controlled for using the average of the past five years market-to-book ratios. To control for firm size, the natural log of beginning of the year total assets (LN_AT_{t-1}) is included. As with the previous models, firm- and year-fixed effects are also included.

Abnormal compensation

While the level of CEO compensation can be quite high, it is the excess or over-compensation that is particularly concerning to regulators and shareholders. Some of the more recent CEO compensation studies have begun to consider measures of abnormal or excess compensation. Following Cai and Walkling (2011); Carter et al. (2016); and Core et al. (2008), I use the following prediction model to measure abnormal compensation:

$$\begin{aligned} \text{LN_TOTAL_COMP}_{it} = & \alpha_0 + \alpha_1\text{RET}_{it} + \alpha_2\text{RET}_{it-1} + \alpha_3\text{LN_MVE}_{it-1} + \\ & \alpha_4\text{ROA}_{it} + \alpha_5\text{ROA}_{it-1} + \alpha_6\text{LN_SALES}_{it-1} + \alpha_7\text{BOOK_TO_MARKET}_{it} + \\ & \alpha_8\text{LN_TENURE}_{it} + \alpha_9\text{LEVERAGE}_{it} + \varepsilon_{it} \end{aligned} \quad (8)$$

For the prediction model, regressions are run annually using all firm-years with necessary data and include 2-digit SIC industry-fixed effects. Abnormal compensation (ABNORMAL_COMP) is equal to the residuals from these regressions. Once I have obtained abnormal compensation, I use pooled regression to see if accounting expertise on the compensation committee has an impact on abnormal compensation. I include my variable of interest (CPA) as well as other CEO and governance characteristics that may be associated with abnormal compensation in the following model:

$$\text{ABNORMAL_COMP}_{it} = \beta_0 + \beta_1\text{CPA}_{it} + \beta_2\text{CEO_AGE}_{it} + \beta_3\text{CEO_OWN_PCNT}_{it} + \beta_4\text{CEO_CHAIR}_{it} + \beta_5\text{PCNT_CO_OPTED}_{it} + \beta_6\text{BD_SIZE}_{it} + \beta_7\text{INST_OWN}_{it} + \beta_8\text{PCNT_IND}_{it} + \varepsilon_{it} \quad (9)$$

Because abnormal compensation is calculated using annual regressions that include industry-fixed effects, it is not necessary to include them in this model specification. I do cluster standard errors by firm to correct for potential non-independence of the error terms caused by having multiple observation of the same firm in the sample.

CHAPTER FOUR

EMPRICAL RESULTS

Descriptive Statistics

As discussed in the sample section, the percentage of boards with a CPA on the compensation committee had been increasing over time. Additionally, as shown in Table 1, there is significant variation across industries in the percentage of firms that have CPAs on the compensation committee. To exploit this variation, I perform some industry-specific trend analysis. For brevity, I only present the results for six of the industries represented in my sample. I include the two industries with the most sample observations (Business Services and Electronic & Other Electrical Equipment and Components), and the top two and bottom two industries based on percentage of firms with a CPA on the board that have a CPA on the compensation committee (Fabricated Metal Products and Petroleum Refining and Related Industries, and Educational Services and Paper and Allied Products, respectively).

Figures 2-7 present the percentage of firms with a CPA on the board that have a CPA on the compensation committee by year as well as the average level of total compensation, salary, bonus, and equity-based compensation for the industry-year. As can be seen in Figures 2-7, and consistent with the other industries not presented, there are two clear trends in CEO compensation that are consistent across industries. First, the level of salary is very stable across industries and over the sample period. Second, the level of, and variation in, total compensation is primarily driven by equity-based compensation. Additionally, equity-based and total compensation are generally increasing over the sample period, but not consistently from year to year.

The percentage of percentage of firms with a CPA on the board that have a CPA on the compensation committee is generally increasing over the sample for the industries with the most observations in the sample but is much more variable for the other industries. Electronic & Other Electrical equipment & components (Figure 3), and Petroleum Refining and Related Industries (Figure 5) are the industries where the percentage of compensation committees with a CPA trend is most similar to the trend of total compensation. However, there are no clear trends in compensation levels that appear to be associated with trends in the percentage industry firms with CPAs on the compensation committee across the industries included in my sample.

Summary statistics of the variables relevant to my analysis are presented in Table 2. The mean (median) compensation for CEOs in my sample was \$4.9 (\$3.4) million, with a max of \$29.5 million in total compensation. On average, salary is the smallest component of compensation with a mean of \$739 thousand, and a max of \$2 million. The largest component of compensation, on average, is equity-based compensation with a mean (median) of \$2.8 (\$1.7) million and a max of \$20 million.

The average CEO tenure during my sample is approximately 7.5 years while the median is 5 years. The average CEO age is approximately 54 years old with the oldest being 84 and the youngest 30. The CEOs is also Chairman of the Board (CEO_CHAIR) for 47 percent of observations in my sample. CEO ownership percentage (CEO_OWN_PCNT) is very right skewed with a mean of 1.8%, but only 1.1% at the 75th percentile and a max of over 26%.

As mentioned earlier, 40% of the sample observations have a CPA on the compensation committee. The median size of the compensation committee (COMP_SIZE) is 4 members with about half being appointed to the board subsequent to the CEO taking office (PCNT_CO_OPTED). Consistent with independence rules enacted by the exchanges, the mean

percentage of independent directors on the compensation committee is 99%, while the minimum is 67%. About 12% of compensation committee members have prior experience as a CEO and the average tenure of compensation committee members is almost 8 years.

Table 3 presents univariate difference in means tests for firms without (CPA =0) and with (CPA=1) a certified public accountant on the compensation committee. On average, total compensation is about 12% lower for firms that have a CPA on the compensation committee and each of the components of CEO compensation is also lower for firms that have a CPA on the compensation committee. At only 7.2% lower, salary is the most similar while equity-based compensation (15.2% lower) is the most different. When looking at the mix of compensation components (ratios of the compensation components to total compensation), I also find significant differences between firms with and without a CPA on the compensation committee. Salary and bonus make up a larger portion of total CEO compensation, while equity-based compensation makes up a smaller portion of total compensation at firms with a CPA on the compensation committee. Though interesting, these univariate differences in CEO compensation and compensation components cannot simply be attributed to the presence of a CPA on the compensation committee. These relations will be tested with the multivariate testing that follows.

The univariate statistics also show significant differences in governance and other firm characteristics which also could cause CEO compensation to differ between the two groups of firms. CEOs are slightly older and hold a larger percentage of company stock at firms with a CPA on the compensation committee. Compensation committees tend to be larger and have a higher percentage of members that were appointed to the board after the CEO took office at firms with a CPA on the compensation committee. However, boards tend to have fewer total members, and a lower percentage of independent directors and institutional ownership. On

average, firms with a CPA on the compensation committee are significantly smaller in terms of sales, assets, and income. They are also less leveraged.

Multivariate Results

Compensation levels and component mix results

Table 4 presents the results of my initial tests for evidence of accounting expertise on the compensation committee impacting CEO compensation (Equation 1). The dependent variables in Table 4 include the level of total compensation (column 1), the levels of individual compensation components (columns 2-4), and a combined measure of total incentive-based compensation (column 5). The coefficient on CPA is only significant in column 3. This suggests that accounting expertise on the compensation committee is associated with higher CEO bonus compensation. However, the impact is not large enough to cause a statistically significant association between CPA and the level of total compensation, or even the level of incentive-based compensation, so I am hesitant to accept this as sufficient evidence that accounting expertise on the compensation committee impacts CEO compensation. As expected, firm size (LN_ASSETS) is positive and significant in each of the models. Interestingly, CEO ownership percentage (CEO_OWN_PCNT) has a negative and significant coefficient in four of the five columns.

Table 5 presents the results of OLS regressions of the compensation component ratios on accounting expertise on the compensation committee (CPA) and control variables (Equation 1). The coefficient on CPA is not statistically significant for any of the dependent variables. Thus, there is no evidence that accounting expertise on the compensation committee impacts the structure or component mix of CEO compensation. Interestingly, CEO age and ownership

percentage are positively associated with the ratio of salary to total compensation (columns 1) but negatively associated with the ratios of equity-based and incentive-based to total compensation. This is consistent with more powerful CEOs having a larger proportion of their salary fixed.

Pay-for-performance sensitivity results

Table 6 (7) present the results of OLS regressions of the levels CEO compensation and compensation component on the interactions of accounting expertise on the compensation committee and accounting performance measured as ROA (ROE) and market performance plus control variables (Equation 2). Surprisingly, the coefficient on ROA (Table 6) is only positive when the dependent variable is bonus compensation (column 2), the coefficient on ROE (Table 7) is not significant for any of the dependent variables. This suggest that neither return on assets nor return on equity are important determinants of total, equity-based, or total incentive-based CEO compensation for firms that do not have a CPA on the compensation committee. The coefficients on CPA*ROA (Table 6) and CPA*ROE (Table 7) are also not significant for any of the dependent variables. Thus, there is no evidence that firms with accounting expertise on the compensation committee use accounting-based performance measures differently than other firms when determining CEO compensation.

Interestingly, the coefficient on market performance (RET) is only significant when the dependent variable is bonus (column 2) in both Table 6 and Table 7. This suggest that market performance is not an important determinant of total, equity-based, or total incentive-based CEO compensation for firms that do not have a CPA on the compensation committee. However, the coefficient on CPA*RET is positive and significant for each of the dependent variables total, equity-based, or total incentive-based CEO compensation in both Table 6 and Table 7. This is

evidence that total, equity-based, and total incentive-based CEO compensation are more sensitive to firm market performance when there is accounting expertise on the compensation committee. Joint tests of $\beta_3 + \beta_5$ (RET+CPA*RET) are also positive and significant providing evidence that stock returns is an important determinate of CEO compensation for firms with accounting expertise on the compensation committee.

Table 8 presents the results of OLS regressions of CEO compensation and Compensation Components on the interactions of accounting expertise on the compensation committee (CPA) and components of accounting earnings (ACC and CASH) plus control variables (Equation 3). The coefficients on the interaction terms are not significant for any of the dependent variables. There is no evidence that the cash and accruals components of earnings impact CEO compensation differently when the compensation committee has accounting expertise.

Compensation shielding and classification shifting results

Following prior studies on classification shifting, I validate the measure by regressing unexpected core earnings (UE_CE) on negative special items and firm- and year-fixed effects (Equation 5). Results presented in Table 9 column 1 confirm that the coefficient on negative special items (NSI) is positive and highly significant, suggesting that classification shifting is very likely and that the measure of classification shifting is valid. Column 2 of Table 9 present the results for my test of accounting expertise on the compensation committee impacting classification shifting (Equation 6). The coefficient on the interaction term CPA*NSI is not significant. There is no evidence that having accounting expertise on the compensation committee impacts classification shifting.

Table 10 presents the results for compensation shielding tests (Equation 7). To test for evidence of accounting expertise on the compensation committee impacting compensation

shielding, I interact CPA with the classification shifted (CS) and remaining portion (NSI_NCS) of negative special items (NSI). Using a sample period of 1995-2012, Joo and Chamberlain (2017) find evidence of compensation shielding with total incentive compensation as the only measure of CEO compensation. For my sample, I find evidence of compensation shielding occurring with respect to bonus compensation, but not total incentive compensation, or my other measures of CEO compensation. Joo and Chamberlain (2017) find that compensation shielding has decreased over time. As my sample period is from 2003-2014 this may explain why I only find evidence of bonus compensation being shielded but not total incentive-based compensation. The coefficients on both of the interaction terms are not significant for any of the dependent variables. This suggests that accounting expertise on the compensation committee does not eliminate or curtail the practice of shielding CEO compensation from negative special items in general or from the portion of negative special items that are likely the result of core expenses being misclassified as negative special items.

Abnormal compensation results

In Table 11, I present the results of OLS regressions of abnormal CEO compensation on accounting expertise on the compensation committee (CPA) and control variables (Equation 8). The coefficient on the variable of interest (CPA) is not significant. I find no evidence of accounting expertise on the compensation committee having any impact on abnormal CEO compensation. I do, however, find significant results for some of the other governance control variables. CEO ownership percentage is negatively associated with abnormal compensation, while compensation committee size and the percentage of institutional ownership are positively associated with abnormal compensation.

Robustness

While each member of the compensation committee should be a valuable contributor, it is also possible that the chair on the compensation has more influence than the other committee members. As a measure of robustness, I explore this possibility. I create an indicator variable (CPA_CHAIR) that is set equal to one if the chair of the compensation committee is a CPA. I replace my original measure of accounting expertise on the compensation committee (CPA) with this new CPA_CHAIR variable and re-perform all my multivariate tests. In general, the results are very consistent with my primary tests and for brevity I do not tabulate the results.

In my tests of compensation levels (Table 4 column 3), the coefficient on CPE is positive and significant. When CPA is replaced with CPA_CHAIR the coefficient is no longer significant. As mentioned in discussion of these results, the estimated impact of accounting expertise on CEO bonus compensation is not large enough to cause a statistically significant association between CPA and the level of total compensation, or even the level of incentive-based compensation. As I did not consider this sufficient evidence, the fact that the results do not hold with CPA_CHAIR as the measure of accounting expertise do not change my inferences or conclusions. In all other tests replacing CPA with CPA chair did not affect whether my variables or interest were statistically significant or not.

It is possible that CEO compensation and the decision to have a CPA on the compensation committee is endogenous. If the source of endogeneity is time-invariant, any potential bias will be eliminated by the firm fixed-effects in my models (Lennox et al. 2012). Another common approach to addressing endogeneity concerns is through instrumental variable (IV) methods (Larcker and Rusticus 2010). To implement an IV method, it is necessary to identify at least one instrumental variable that is correlated with the endogenous variable (having

a CPA on the compensation committee in my study) but is exogenous or uncorrelated with the error term in my equations.

As discussed previously, a firm cannot have a CPA on the compensation committee if there is not at least one CPA on the board. Additionally, the more CPAs there are on the board, the higher the likelihood of having at least one CPA on the compensation committee. As the board delegates responsibility over executive compensation to the compensation committee, CPAs on the board should be directly influencing executive compensation unless they are also members of the compensation committee. Therefore, I consider the lagged number of CPAs on the board as an instrument for having a CPA on the compensation committee and implement two-staged least squares (2SLS).

2SLS results are presented in Table 12. Column 1 presents the first stage where CPA is regressed on the lagged number of CPAs on the board as well as all the control variables from equation 1. The F-statistic of 20.93 compared to critical values from (Stock and Yogo 2005) suggests that I have a valid instrumental variable. Columns 2-6 present the second stage results where the dependent variables are total compensation (LN_TOTAL), salary (LN_SALARY), bonus (LN_BONUS), equity-based compensation (LN_EQUITY) and total incentive-based compensation (LN_INCENTIVE). Different from the OLS results presented in Table 4, using IV estimation I find a negative and significant association between CPA on the compensation committee and the level of total compensation, but no significant association with bonus compensation. Similar to the OLS results the coefficient on CPA is not significant for the other dependent variables. In unablated results I also perform 2SLS estimation with the mix of compensation components and results continue to be not significant as in Table 5.

Unfortunately, using 2SLS is more complicated in the context of my other tests where my variable of interest (CPA) is included in interaction terms. Taking fitted values from a first-stage and use them to calculate interaction terms included in the second-stage is considered a “forbidden regression.” All regressors, including interaction terms, in the second stage should be included in the first stage. It is technically possible to use the instrumental variable to calculate interaction terms that can be included as additional instruments in the first stage. However, this approach does not provide valid instruments for the interaction terms used in my models, so I do not use an IV approach as robustness for any of my pay-for-performance sensitivity related tests.

CHAPTER FIVE

CONCLUSION

Executive compensation has long been a hot topic for regulators, investors and the business press. Often this is because of a misalignment of firm performance, which is frequently evaluated based on accounting information, and CEO compensation. Since the passage of the Dodd-Frank act in 2010, the SEC has implemented or proposed six different rules related to executive compensation and increased the scrutiny of compensation committees. Hoitash et al. (2012) and Manchiraju et al. (2016) call for firms to include directors with financial or accounting expertise on their compensation committees to improve performance measurement and executive compensation contracting.

The prior research on compensation committees is somewhat limited and the predominant focus has been on committee independence. There has yet to be a broad study that considers the impact of accounting expertise on the compensation committee on CEO compensation. In this study, I seek to fill this void. Using a large sample, I examine whether the presence of accounting expertise on the compensation committee impacts CEO compensation in various ways. In answering my research question, I also answer a call by Hermanson et al. (2012) for more research on compensation committees.

Adding additional relevance to my research question, I find that the percentage of firms with a CPA on the compensation committee has been steadily increasing for more than a decade. In fact, it has more than doubled from 15.1% of firms in 2003 to 31.0% of firms in 2014. Further investigation reveals that the use of CPAs on boards in general, and on compensation committees specifically, is not consistent across industries. Interestingly, the industries with the highest

percentage of boards with a CPA are not the same industries with the highest percentage of compensation committees with a CPA.

My multivariate tests suggest that accounting expertise on the compensation committee increases the pay-for-performance sensitivity of CEO compensation when performance is measured as stock returns. However, I find no conclusive evidence that accounting expertise on the compensation committee impacts the level of total compensation or compensation components, the mix of compensation components, accounting-based pay-for-performance sensitivity, compensation shielding, or abnormal compensation. Given the call for firms to include directors with financial or accounting expertise on their compensation committees to improve performance measurement executive compensation contracting by Hoitash et al. (2012) and Manchiraju et al. (2016), and the fact that firms are actually adding CPAs to their compensation committees, these results are somewhat surprising. While I do find that CPAs do impact executive compensation, it does not appear to be in areas where accounting expertise should matter most.

Future research could investigate the impact of additional compensation committee characteristics on CEO compensation or consider additional compensation-related outcomes including disclosure quality or say on pay votes that may be influenced by accounting expertise on the compensation committee. It is possible that the relation between accounting expertise on the compensation committee and CEO compensation is more nuanced than I am able to detect using my measures. It is also possible that significant relations are more present in specific cross-sections of firms such as material weakness firms as in Hoitash et al. (2012) or oil and gas firms as in Manchiraju et al. (2016).

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APPENDICES

Appendix A: Variable Definitions

Variable Definitions		
Variable Name	Definition (Calculation)	Source
<i>Compensation Components</i>		
TOTAL COMPENSATION	CEO's total annual compensation (= TDC1)	Execucomp
SALARY	Annual Salary (= SALARY)	Execucomp
BONUS	Annual Bonus (= Sum of BONUS and NONEQ_INCENT if reported under 2006 (post FAS 123R) SEC reporting rules, or = Sum of BONUS, NONEQ_INCENT, and LTIP if reported under 1992 SEC reporting rules)	Execucomp
OPTION_AWARDS	Fair value of annual stock option awards (= OPTIONS_AWARDS_FV if reported under 2006 (post FAS 123R) SEC reporting rules, or = OPTION_AWARDS_BLK_VALUE if reported under 1992 SEC reporting rules)	Execucomp
STOCK_AWARDS	Fair value of annual stock grants (=STOCK_AWARDS_FV if reported under 2006 (post FAS 123R) SEC reporting rules, or = RSTKGRNT if reported under 1992 SEC reporting rules)	Execucomp
EQUITY_COMP	Equity based compensation (Sum of OPTION_AWARDS and STOCK_AWARDS)	Execucomp
INCENTIVE_COMP	Total incentive-based compensation (= Sum of BONUS and EQUITY_COMP)	Execucomp
<i>Dependent Variables</i>		
LN_TOTAL_COMP	The natural log of total compensation (log 1+TDC1)	Execucomp
LN_SALARY	The natural log of Salary (log 1+SALARY)	Execucomp
LN_BONUS	The natural log Bonus (log 1+BONUS)	Execucomp
LN_EQUITY_COMP	The natural log of equity-based compensation (log 1+EQUITY_COMP)	Execucomp
LN_INCENTIVE_COMP	The natural log of total incentive-based compensation (log 1+INCENTIVE_COMP)	Execucomp
SALARY_TO_TOTAL	Ratio of salary to total compensation (SALARY / TDC1)	Execucomp
BONUS_TO_TOTAL	Ratio of Bonus to total compensation (BONUS / TDC1)	Execucomp
EQUITY_TO_TOTAL	Ratio of equity-based compensation to total compensation (EQUITY_BASED_COMP / TDC1)	Execucomp
INCENT_TO_TOTAL	Ratio of incentive-based compensation to total compensation (INCENTIVE_COMP / TDC1)	Execucomp

Variable Name	Definition (Calculation)	Source
ABN_COMP	Residual from annual regressions of LN_TOTAL_COMP on returns in year t and t-1, ROA in year t and t-1 the natural log of market value of equity, the natural log of sales, the book to market ratio, the natural log of CEO tenure, and leverage (See equation 8)	Multiple
<i><u>Governance Variables</u></i>		
CPA	Indicator variable equal to 1 if there is a CPA on the compensation committee (CPA designation is identified using Boardex director education file)	Boardex
CPA_CHAIR	Indicator variable equal to 1 if the chair of the compensation committee is a CPA (CPA designation is identified using Boardex director education file)	
CEO_TENURE	Number of complete years the CEO has been in office	Execucomp
CEO_AGE	Age of CEO in years	Execucomp
CEO_OWN_PCNT	Percentage of shares outstanding owned by the CEO	Execucomp
CEO_CHAIR	Indicator variable equal to 1 if the CEO is also the Chairman of the board	Boardex
COMP_SIZE	Number of directors on the compensation committee	Boardex
PCNT_IND_COMP	Percentage of directors on the compensation committee that are independent	Boardex
PCNT_CO_OPTED	Parentage of directors on the compensation committee that joined the board after the CEO took office	Boardex & Execucomp
PCNT_COMP_CEO_EXP	Percentage of directors on the compensation committee that have prior experience as a CEO	Boardex
AVG_COMP_TENURE	The average tenure of the directors on the compensation committee	Boardex
BD_SIZE	Number of directors on the board	Boardex
INST_OWN	Percentage of shares outstanding held by institutional owners	Thomson Reuters
PCNT_IND	Percentage of directors on the board that are independent	Boardex
<i><u>Firm Characteristics</u></i>		
SALE	Annual Sales (SALE)	Compustat
ASSETS	Total Assets (AT)	Compustat
LN_ASSETS	The natural log of total assets (log AT)	Compustat
INCOME	Income before extraordinary items (IB)	Compustat
ROE	Return on Equity (NI / CEQ)	Compustat

Variable Name	Definition (Calculation)	Source
ROA	Return on Assets (IB / AT)	Compustat
LEVERAGE	Leverage (DEBT / AT)	Compustat
CAPX_AT	Capital expenditures scaled by total assets (CAPX / AT)	Compustat
BOOK_TO_MARKET	Book to Market Ratio (AT / (LT+MVE))	Compustat
SEGMENTS	Number of Business segments	Compustat
RET	Annual Returns from CRSP daily file	CRSP
STD_RET	Standard deviation of daily returns over prior 12 months	CRSP
LOSS	Indicator variable equal to one if income is < 0	Compustat
MVE	Market value of Equity (CSHO * PRCC_F)	Compustat
LN_MVE	The natural log of the market value of Equity (log MVE)	Compustat
DEBT	Total Debt (Sum of DLTT and DLC)	Compustat
<i>Components of Earnings</i>		
ACC	Total accruals, defined as the sum of the change in working capital and the change in noncurrent operating assets scaled by average assets (CHG_WC + CHG_NCO / ((AT - At _{t-1})/2))	Compustat
CASH	Free cash flows, defined as the change in the cash balance and the distributions to debt and equity holders (CHG_CASH + DIST_EQ + DIST_D / ((AT - At _{t-1}) / 2))	Compustat
CHG_WC	Change in Working Capital (WC - WC _{t-1})	Compustat
CHG_NCO	Change in net noncurrent operating assets (NCO - LAG_NCO _{t-1})	Compustat
CHG_CASH	Change in Cash (CHE - CHE _{t-1})	Compustat
DIST_EQ	Net distributions to equity holders (EQUITY _{t-1} - EQUITY + IB)	Compustat
DIST_D	Net distributions to debt holders (NET_DEBT _{t-1} - NET_DEBT)	Compustat
COA	Current operating assets (ACT - CHE)	Compustat
COL	Current operating liabilities (LCT - DLC)	Compustat
WC	Working capital (COA - COL)	Compustat
NCOA	Noncurrent operating assets (AT - ACT - IVAO)	Compustat
NCOL	Noncurrent operating liabilities (LT - LCT - DLTT)	Compustat
NCO	Net noncurrent operating assets (NCOA - NCOL)	Compustat
NET_DEBT	Net debt (DLTT + DLC - IVAO)	Compustat
EQUITY	Book value of Stockholders equity (AT-LT)	Compustat

Variable Name	Definition (Calculation)	Source
<i>Compensation shielding</i>		
CE	Operating income before depreciation expense and before special items deflated by sales (OIBDP/SALE)	Compustat
ACCRUALS	Total accruals ((IB-(OANCF-XIDOC))/SALE)	Compustat
ATO	Net operating asset (NOA) turnover measured as sales divided by average net operating assets (NOA = [(AT-CHE_IVAO) - (AT-DLTT-DLC-CEQ-PSTK-MIB)], ATO=[SALE/((NAO _t +NAO _{t-1})/2)])	Compustat
ΔSALES	Sales growth ((SALE _t - SALE _{t-1})/SALE _{t-1})	Compustat
NEGΔSALES	ΔSALES if less than zero and zero otherwise	Compustat
UE_CE	Unexpected core earnings. The residual from industry-year regressions of CE on CE _{t-1} , ATO ACCRUALS _{t-1} , ACCRUALS _t , ΔSALES and NEGΔSALES. See equation 4)	Compustat
EBNSI	Income before extraordinary items and results of discontinued operations plus negative special items deflated by sales ((IB+(NSI*sale))/sale)	
NSI	Negative special items deflated by sales measured as positive values ((-1) x SPI / SALE if SPI is positive and zero otherwise)	Compustat
CS	Estimated core expenses misclassified as NSI. (=UE_CE if both UE_CE and NSI are positive and zero otherwise)	Compustat
NSI_NCS	The portion of NSI which is not classification shifted (NSI-CS)	Compustat
NEG_RET	Annual stock returns if returns are negative and zero otherwise	CRSP
STDEBNSI	Standard deviation of EBNSI over prior five years	Compustat
STDRET5	Standard deviation of annual returns over prior five years	CRSP
INVOPP	Investment Opportunities (average of prior five-year market to book ratios where market to book is calculated as ((AT-CEQ+(CSHO*PRCC_F))/(AT)))	Compustat

APPENDIX B: Figures

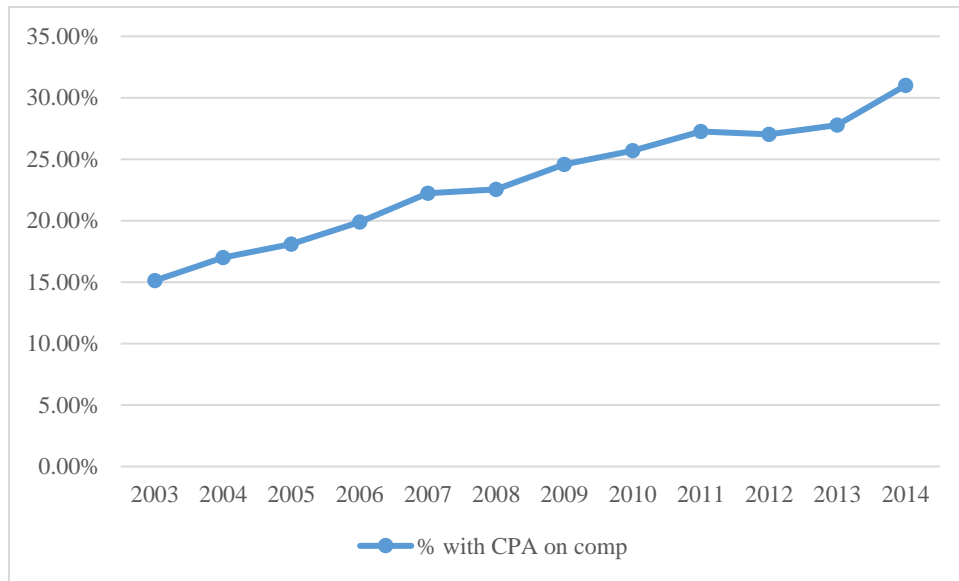


Figure 1. Firms with a CPA on Compensation Committee by Year

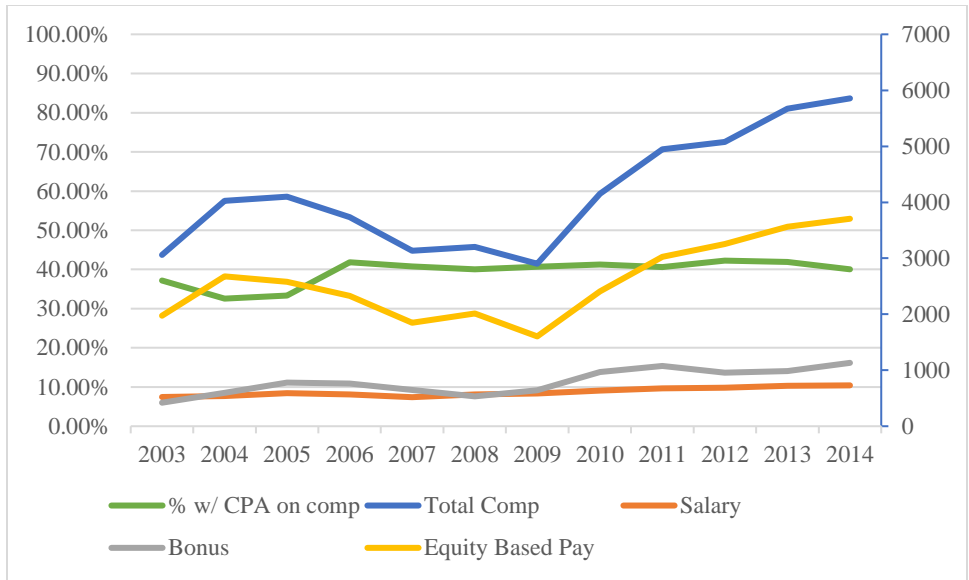


Figure 2. Business Services – SIC 73

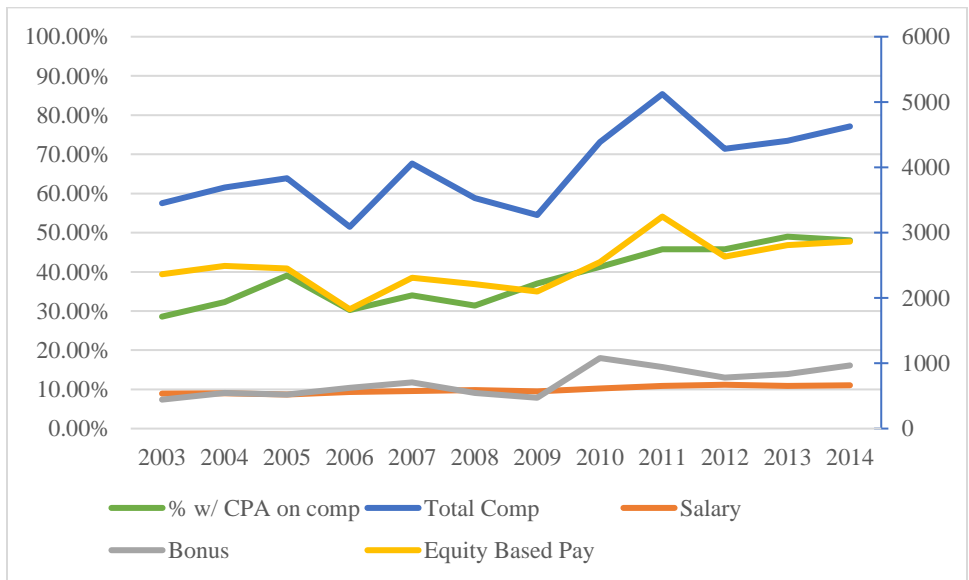


Figure 3. Electronic & Other Electrical Equipment and Components – SIC 36

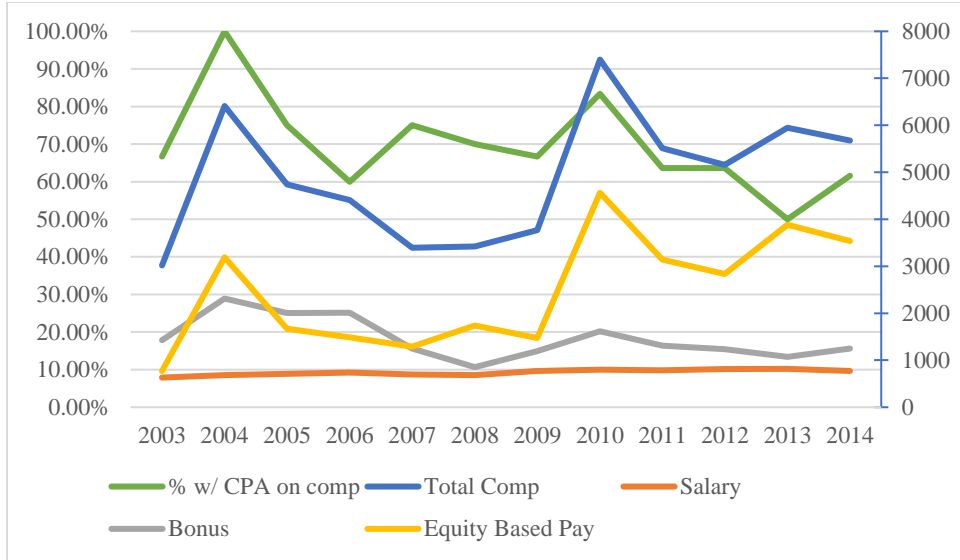


Figure 4. Fabricated Metal Products – SIC 34

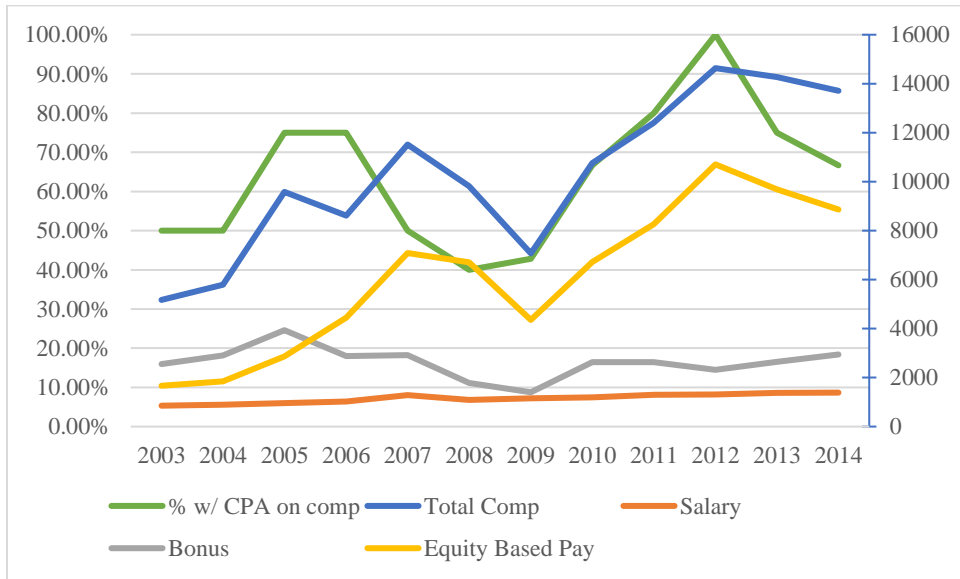


Figure 5. Petroleum Refining and Related Industries – SIC 29

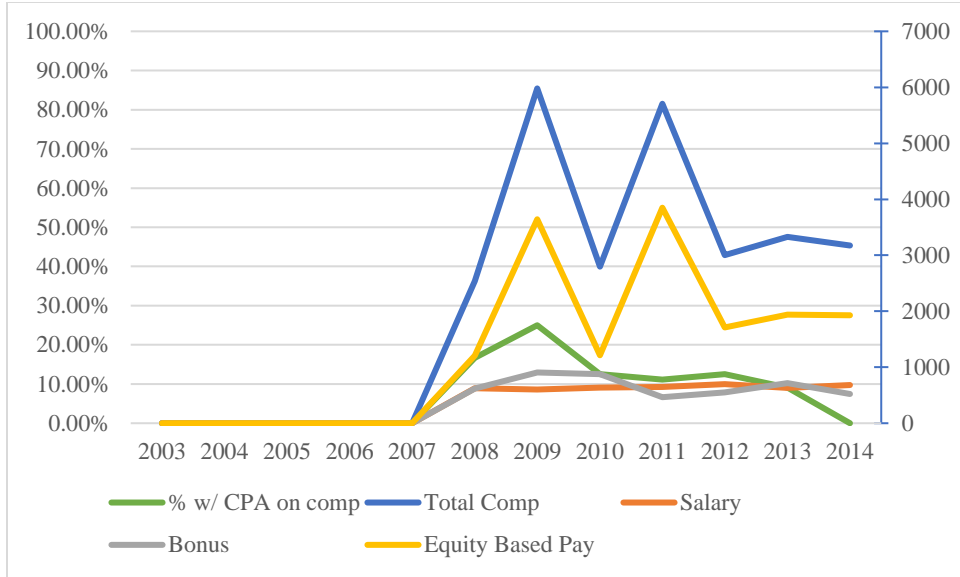


Figure 6. Educational Services – SIC 82

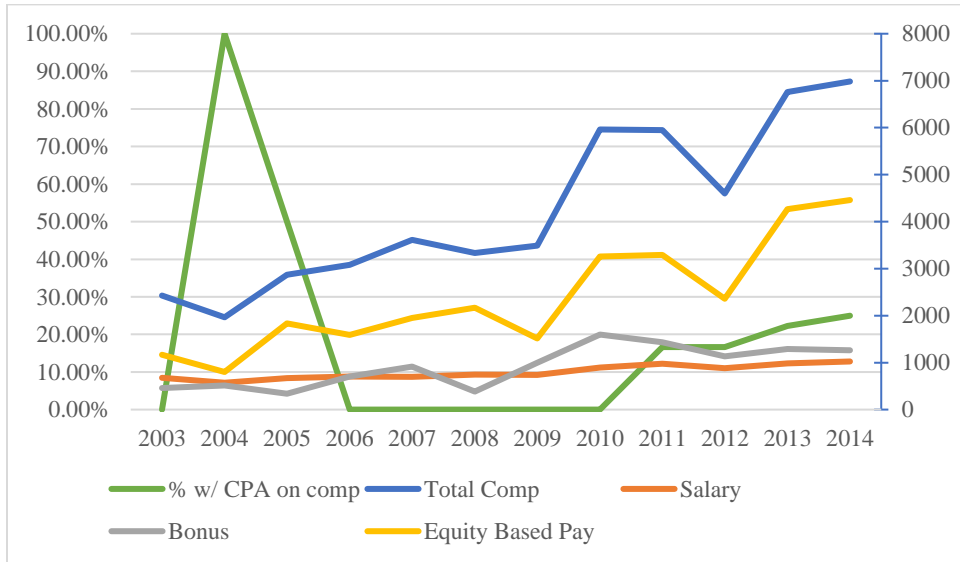


Figure 7. Paper and Allied Products – SIC 26

APPENDIX C: Tables

Table 1
Boards and Compensation Committees with CPAs by Industry

SIC	Description	<u>Total Obs.</u>		<u>Firms w/ CPA on Board</u>		<u>Firms w/ CPA on Comp. Comm.</u>	
		N	N	As % of Total Obs.	N	As % of Boards w/ a CPA	
73	Business Services	1,154	694	60.1%	276	39.8%	
36	Electronic & Other Electrical Equipment & Components	955	583	61.0%	230	39.5%	
28	Chemicals and Allied Products	773	433	56.0%	176	40.6%	
35	Industrial and Commercial Machinery and Computer Equipment	721	460	63.8%	185	40.2%	
38	Measuring, Photographic, Medical, & Optical Goods, & Clocks	659	380	57.7%	170	44.7%	+
13	Oil and Gas Extraction	375	259	69.1%	136	52.5%	+
37	Transportation Equipment	245	138	56.3%	49	35.5%	
20	Food and Kindred Products	243	108	44.4%	44	40.7%	-
48	Communications	238	103	43.3%	32	31.1%	-
50	Wholesale Trade - Durable Goods	225	172	76.4%	75	43.6%	+
56	Apparel and Accessory Stores	223	172	77.1%	48	27.9%	+
80	Health Services	204	146	71.6%	61	41.8%	+
59	Miscellaneous Retail	194	112	57.7%	50	44.6%	+
87	Engineering, Accounting, Research, and Management Services	192	101	52.6%	38	37.6%	
34	Fabricated Metal Products	149	100	67.1%	67	67.0%	+
58	Eating and Drinking Places	143	100	69.9%	27	27.0%	-
33	Primary Metal Industries	136	103	75.7%	37	35.9%	+
45	Transportation by Air	100	48	48.0%	9	18.8%	-
51	Wholesale Trade - Nondurable Goods	100	60	60.0%	31	51.7%	+
26	Paper and Allied Products	99	50	50.5%	8	16.0%	-
23	Apparel, Finished Products from Fabrics & Similar Materials	98	44	44.9%	15	34.1%	-
42	Motor Freight Transportation	96	66	68.8%	24	36.4%	
29	Petroleum Refining and Related Industries	95	52	54.7%	33	63.5%	+
25	Furniture and Fixtures	92	56	60.9%	22	39.3%	

Table 1 (Continued)

SIC	Description	<u>Total Obs.</u>		<u>Firms w/ CPA on Board</u>		<u>Firms w/ CPA on Comp. Comm.</u>		
		N	N	As % of Total Obs.		N	As % of Boards w/ a CPA	
82	Educational Services	72	59	81.9%	+	7	11.9%	-
27	Printing, Publishing and Allied Industries	70	24	34.3%	-	4	16.7%	-
	Industries with less than 70 observations	594	357	60.1%		127	35.6%	
Total		8,245	4,980	60.4%		1,981	39.8%	

+ (-) denotes percentage of firms in the industry with a CPA on the board or compensation committee is in the top (bottom) quartile.

Table 1 presents the industry breakdown of firms including the number and percentage of firms that have a CPA on the full board, as well as the number and percentage of firms that have a CPA on the compensation committee.

Table 2
Summary Statistics

Variable	N	Mean	Std Dev	Min	P25	Median	P75	Max
<i>Compensation Components</i>								
TOTAL_COMP ⁺	4,980	4,915.20	4,841.13	339.62	1,697.86	3,405.43	6,350.86	29,545.27
SALARY ⁺	4,980	739.80	316.35	211.31	500.00	690.30	939.80	2,000.00
BONUS ⁺	4,980	1,064.46	1,341.46	0.00	225.00	645.00	1,385.40	8,881.50
EQUITY_COMP ⁺	4,980	2,844.67	3,487.15	0.00	522.78	1,679.44	3,847.47	20,050.39
INCENTIVE_COMP ⁺	4,980	3,943.89	4,367.57	0.00	1,022.23	2,553.32	5,226.09	25,250.39
<i>Dependent Variables</i>								
LN_TOTAL_COMP	4,980	8.09	0.94	5.83	7.44	8.13	8.76	10.29
LN_SALARY	4,980	6.52	0.43	5.36	6.22	6.54	6.85	7.60
LN_BONUS	4,980	5.70	2.50	0.00	5.42	6.47	7.23	9.09
LN_EQUITY_COMP	4,980	6.44	2.92	0.00	6.26	7.43	8.26	9.91
LN_INCENTIVE_COMP	4,980	7.45	1.91	0.00	6.93	7.85	8.56	10.14
SALARY_TO_TOTAL	4,980	0.27	0.21	0.03	0.13	0.20	0.33	0.98
BONUS_TO_TOTAL	4,980	0.22	0.17	0.00	0.09	0.20	0.31	0.74
EQUITY_TO_TOTAL	4,980	0.47	0.26	0.00	0.30	0.53	0.67	0.92
INCENTIVE_TO_TOTAL	4,980	0.69	0.23	0.00	0.61	0.76	0.85	0.96
ABNORMAL_COMP	4,980	0.00	0.60	-1.80	-0.32	0.05	0.35	1.56
<i>Governance Variables</i>								
CPA	4,980	0.40	0.49	0.00	0.00	0.00	1.00	1.00
CEO_TENURE	4,980	7.55	7.38	0.00	3.00	5.00	10.00	52.00
CEO_AGE	4,980	54.17	7.19	30.00	49.00	54.00	59.00	84.00
CEO_OWN_PCNT	4,980	1.80	4.36	0.00	0.13	0.36	1.14	26.40
CEO_CHAIR	4,980	0.47	0.50	0.00	0.00	0.00	1.00	1.00
PCNT_CO_OPTED_COMP	4,980	0.51	0.38	0.00	0.20	0.50	1.00	1.00
COMP_SIZE	4,980	3.70	1.03	1.00	3.00	4.00	4.00	11.00
PCNT_IND_COMP	4,980	0.99	0.05	0.67	1.00	1.00	1.00	1.00
PCNT_COMP_CEO_EXP	4,980	0.12	0.17	0.00	0.00	0.00	0.25	0.67
AVG_COMP_TENURE	4,980	7.99	4.08	0.00	5.10	7.43	10.13	33.43

Table 2 (Continued)

Variable	N	Mean	Std Dev	Min	P25	Median	P75	Max
BD_SIZE	4,980	8.93	2.07	4.00	7.00	9.00	10.00	18.00
INST_OWN	4,980	0.76	0.20	0.00	0.66	0.80	0.91	1.00
PCNT_IND	4,980	0.79	0.11	0.50	0.73	0.83	0.88	0.92
<i><u>Firm Characteristics</u></i>								
ASSETS ⁺⁺	4,980	5,063.40	12,496.14	59.52	522.59	1,321.02	4,055.30	106,685.00
SALE ⁺⁺	4,980	4,454.86	9,924.72	36.98	474.14	1,272.70	3,595.01	73,723.00
INCOME ⁺⁺	4,980	278.98	876.65	-974.39	10.51	58.77	199.98	7,426.00
ROA	4,980	0.04	0.11	-0.51	0.02	0.05	0.09	0.27
ROE	4,980	0.08	0.40	-2.22	0.04	0.11	0.18	1.62
RET	4,980	0.17	0.48	-0.72	-0.12	0.11	0.37	2.24
EBNSI	4,980	0.07	0.11	-0.50	0.03	0.07	0.11	0.38
NSI	4,980	0.02	0.07	0.00	0.00	0.00	0.02	0.47
CS	4,980	0.11	0.42	0.00	0.00	0.00	0.03	3.28
NSI_NCS	4,980	-0.08	0.39	-3.00	-0.01	0.00	0.00	0.28
LEVERAGE	4,980	0.20	0.18	0.00	0.02	0.17	0.30	0.80
CAPX	4,980	0.05	0.06	0.00	0.02	0.03	0.06	0.30
SEGMENTS	4,980	6.13	4.76	1.00	3.00	3.00	9.00	27.00
BOOK_TO_MARKET	4,980	0.64	0.26	0.15	0.44	0.62	0.82	1.34
CASH	4,980	0.00	7.83	-42.43	-1.36	0.02	1.64	36.12
ACC	4,980	1.00	4.57	-21.86	0.01	1.04	1.85	24.76
INVOPP	4,980	2.12	1.22	0.88	1.31	1.74	2.48	7.54
STDEBNSI	4,980	0.07	0.13	0.00	0.01	0.02	0.06	1.05
STD_RET	4,980	0.03	0.01	0.01	0.02	0.02	0.03	0.07
STDRET5	4,980	0.53	0.44	0.08	0.27	0.40	0.63	2.66
NEG_RET	4,980	-0.09	0.17	-0.96	-0.12	0.00	0.00	0.00
LOSS	4,980	0.18	0.39	0.00	0.00	0.00	0.00	1.00

+ and ++ indicate '000s and '000,000s respectively.

Table 2 presents Summary Statistics. For variable descriptions please see Appendix. The sample period is 2003 - 2014. All continuous variables are winsorized at the 1st and 99th percentile.

Table 3
Univariate Statistics

Variable	CPA = 0 Mean (N=2,999)	CPA = 1 Mean (N=1,981)	Difference	
<i>Compensation Components</i>				
TOTAL COMP ⁺	5,164.101	4,538.385	625.716	***
SALARY ⁺	761.515	706.917	54.598	***
BONUS ⁺	1,103.240	1,005.742	97.497	**
EQUITY_COMP ⁺	3,028.334	2,566.619	461.715	***
INCENTIVE_COMP ⁺	4,163.825	3,610.925	552.900	***
<i>Dependent Variables</i>				
LN_TOTAL_COMP	8.159	7.974	0.186	***
LN_SALARY	6.549	6.474	0.074	***
LN_BONUS	5.760	5.598	0.162	**
LN_EQUITY_COMP	6.605	6.187	0.418	***
LN_INCENTIVE_COMP	7.560	7.285	0.275	***
SALARY_TO_TOT	0.257	0.287	-0.030	***
BONUS_TO_TOTAL	0.214	0.226	-0.012	**
EQUITY_TO_TOTAL	0.485	0.441	0.044	***
INCENTIVE_TO_TOTAL	0.700	0.669	0.031	***
ABNORMAL_COMP	0.016	-0.015	0.031	*
<i>Governance Variables</i>				
CEO_TENURE	7.495	7.628	-0.133	
CEO_AGE	53.811	54.718	-0.908	***
CEO_OWN_PCNT	1.562	2.165	-0.603	***
CEO_CHAIR	0.483	0.460	0.023	
PCNT_CO_OPTED_COMP	0.498	0.532	-0.034	***
COMP_SIZE	3.549	3.935	-0.386	***
PCNT_IND_COMP	0.991	0.988	0.003	**
PCNT_COMP_CEO_EXP	0.130	0.117	0.013	***
AVG_COMP_TENURE	8.035	7.914	0.120	
BD_SIZE	9.261	8.418	0.843	***
INST_OWN	0.766	0.748	0.018	***
PCNT_IND	0.806	0.775	0.031	***
<i>Firm Characteristics</i>				
ASSETS ⁺⁺	5,812.180	3,929.844	1,882.336	***
SALE ⁺⁺	5,030.309	3,583.709	1,446.599	***
INCOME ⁺⁺	309.343	233.013	76.329	***
ROA	0.040	0.042	-0.002	
ROE	0.085	0.073	0.012	
RET	0.166	0.173	-0.007	
EBNSI	0.069	0.068	0.001	
NSI	0.024	0.023	0.001	

Table 3 (Continued)

Variable	CPA = 0	CPA = 1	Difference	
	Mean (N=2,999)	Mean (N=1,981)		
CS	0.118	0.104	0.014	
NSI_NCS	-0.088	-0.079	-0.009	
LEVERAGE	0.203	0.187	0.016	***
CAPX	0.050	0.051	-0.001	
SEGMENTS	5.983	6.341	-0.358	***
BOOK_TO_MARKET	0.631	0.650	-0.019	**
CASH	-0.074	0.115	-0.189	
ACC	0.948	1.075	-0.127	
INVOPP	2.141	2.079	0.062	*
STDEBNSI	0.066	0.064	0.002	
STD_RET	0.026	0.027	-0.001	***
STDRET5	0.512	0.552	-0.040	***
NEG_RET	-0.093	-0.091	-0.003	
LOSS	0.186	0.180	0.007	

*** p<0.01, ** p<0.05, * p<0.1; + and ++ indicate '000s and '000,000s respectively.

Table 3 presents difference in means tests for firms without (CPA =0) and with (CPA=1) a certified public accountant on the compensation committee. For variable descriptions please see Appendix. The sample period is 2003 - 2014. All continuous variables are winsorized at the 1st and 99th percentile.

Table 4
CEO Compensation and Compensation Components

VARIABLES	PRED.	(1) LN_TOTAL	(2) LN_SALARY	(3) LN_BONUS	(4) LN_EQUITY	(5) LN_INCENTIVE
CPA	?	0.043 (0.162)	0.014 (0.197)	0.268** (0.030)	0.032 (0.811)	0.075 (0.355)
ROA	+	0.117 (0.413)	-0.008 (0.867)	2.945*** (0.000)	-1.052* (0.084)	0.661 (0.157)
RET	+	0.012 (0.594)	-0.025*** (0.000)	0.847*** (0.000)	0.039 (0.706)	0.134** (0.034)
CEO_TENURE	+	0.059** (0.037)	0.074*** (0.000)	-0.141 (0.174)	0.082 (0.501)	-0.008 (0.919)
CEO_AGE	?	-0.000 (0.950)	0.003** (0.014)	0.005 (0.672)	-0.028** (0.022)	-0.012 (0.154)
CEO_OWN_PCNT	?	-0.014*** (0.005)	-0.008*** (0.000)	-0.009 (0.595)	-0.065*** (0.001)	-0.051*** (0.002)
CEO_CHAIR	+	-0.010 (0.757)	0.033*** (0.009)	0.138 (0.286)	-0.145 (0.320)	0.087 (0.375)
PCNT_CO_OPTED_COMP	+	-0.151** (0.027)	-0.031 (0.201)	-0.089 (0.717)	-0.565* (0.073)	-0.219 (0.245)
COMP_SIZE	-	0.030** (0.048)	0.001 (0.902)	0.096 (0.125)	0.117* (0.099)	0.049 (0.205)
PCNT_COMP_CEO_EXP	?	-0.072 (0.368)	-0.038 (0.170)	-0.206 (0.513)	-0.310 (0.392)	-0.206 (0.356)
AVG_COMP_TENURE	?	-0.006 (0.195)	0.001 (0.599)	0.004 (0.826)	-0.036* (0.072)	-0.010 (0.428)
BD_SIZE	?	-0.006 (0.596)	-0.004 (0.265)	0.000 (0.992)	-0.020 (0.683)	-0.001 (0.967)
INST_OWN	?	0.144 (0.135)	0.064** (0.028)	-0.143 (0.683)	0.282 (0.509)	0.300 (0.281)
PCNT_IND	-	0.148 (0.418)	0.114* (0.051)	0.465 (0.496)	0.685 (0.425)	0.386 (0.432)
LN_ASSETS	+	0.418*** (0.000)	0.135*** (0.000)	0.530*** (0.000)	0.971*** (0.000)	0.610*** (0.000)
LEVERAGE	?	-0.358*** (0.002)	-0.065* (0.083)	-0.173 (0.681)	-0.431 (0.391)	-0.430 (0.184)

Table 4 (continued)

VARIABLES	PRED.	(1) LN_TOTAL	(2) LN_SALARY	(3) LN_BONUS	(4) LN_EQUITY	(5) LN_INCENTIVE
CAPX	+	1.191*** (0.001)	0.105 (0.363)	0.035 (0.981)	4.979*** (0.003)	2.535** (0.019)
BOOK_TO_MARKET	?	-0.574*** (0.000)	-0.006 (0.805)	-1.218*** (0.000)	-1.274*** (0.000)	-1.175*** (0.000)
SEGMENTS	+	-0.003 (0.522)	-0.000 (0.911)	0.019 (0.232)	0.012 (0.534)	0.005 (0.641)
STD_RET	?	1.155 (0.391)	-0.755* (0.082)	-11.857** (0.025)	3.859 (0.540)	1.078 (0.798)
LOSS	+	-0.027 (0.433)	-0.021* (0.068)	-0.820*** (0.000)	0.006 (0.969)	-0.234** (0.024)
Year FE		Yes	Yes	Yes	Yes	Yes
Firm FE		Yes	Yes	Yes	Yes	Yes
Observations		4,980	4,980	4,980	4,980	4,980
R-squared		0.805	0.904	0.578	0.567	0.635

*** p<0.01, ** p<0.05, * p<0.1 (Robust pval in parentheses)

Table 4 Presents the results of OLS regressions of CEO compensation and compensation components on accounting expertise on the compensation committee (CPA) and control variables (Equation 1). All continuous variables are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix.

Table 5
 Mix of Compensation Components

VARIABLES	(1) SALARY_TO_TOT	(2) BONUS_TO_TOTAL	(3) EQUITY_TO_TOTAL	(4) INCENTIVE_TO_TOTAL
CPA	-0.012 (0.162)	0.009 (0.272)	0.003 (0.820)	0.013 (0.215)
ROA	-0.031 (0.527)	0.208*** (0.000)	-0.119** (0.033)	0.096* (0.068)
RET	-0.019*** (0.008)	0.058*** (0.000)	-0.040*** (0.000)	0.018** (0.023)
CEO_TENURE	-0.006 (0.465)	-0.001 (0.881)	-0.012 (0.274)	-0.013 (0.157)
CEO_AGE	0.002* (0.051)	0.001 (0.151)	-0.003** (0.014)	-0.002* (0.084)
CEO_OWN_PCNT	0.003** (0.038)	-0.001 (0.478)	-0.004** (0.017)	-0.005*** (0.003)
CEO_CHAIR	0.011 (0.244)	0.018** (0.047)	-0.008 (0.536)	0.010 (0.390)
PCNT_CO_OPTED_COMP	0.038* (0.061)	-0.003 (0.862)	-0.031 (0.276)	-0.035 (0.138)
COMP_SIZE	-0.006 (0.188)	-0.001 (0.900)	0.004 (0.524)	0.004 (0.408)
PCNT_COMP_CEO_EXP	0.023 (0.322)	0.014 (0.546)	-0.050 (0.127)	-0.034 (0.208)
AVG_COMP_TENURE	0.003* (0.091)	0.001 (0.310)	-0.003* (0.097)	-0.002 (0.226)
BD_SIZE	0.001 (0.871)	-0.001 (0.675)	0.002 (0.695)	0.001 (0.851)
INST_OWN	-0.058* (0.059)	-0.035 (0.157)	0.101** (0.014)	0.068* (0.065)
PCNT_IND	-0.069 (0.205)	0.021 (0.681)	0.012 (0.877)	0.025 (0.683)
LN_ASSETS	-0.071*** (0.000)	0.000 (0.989)	0.072*** (0.000)	0.071*** (0.000)
LEVERAGE	0.067* (0.050)	0.002 (0.953)	-0.029 (0.538)	-0.024 (0.526)

Table 5 (Continued)

VARIABLES	(1) SALARY_TO_TOT	(2) BONUS_TO_TOTAL	(3) EQUITY_TO_TOTAL	(4) INCENTIVE_TO_TOTAL
CAPX	-0.338*** (0.004)	-0.156 (0.137)	0.530*** (0.000)	0.379*** (0.003)
BOOK_TO_MARKET	0.141*** (0.000)	-0.039** (0.047)	-0.136*** (0.000)	-0.176*** (0.000)
SEGMENTS	-0.000 (0.766)	0.001 (0.412)	-0.000 (0.942)	0.001 (0.485)
STD_RET	-0.105 (0.812)	-0.574 (0.128)	0.626 (0.289)	0.040 (0.935)
LOSS	0.015 (0.194)	-0.047*** (0.000)	0.026* (0.080)	-0.020 (0.116)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	4,980	4,980	4,980	4,980
R-squared	0.635	0.527	0.551	0.622

*** p<0.01, ** p<0.05, * p<0.1 (Robust pval in parentheses)

Table 4 Presents the results of OLS regressions of the ratios of the different components of CEO compensation to total compensation on accounting expertise on the compensation committee (CPA) and control variables (Equation 1). All continuous variables are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix.

Table 6
Accounting (ROA) and Market Performance Sensitivities

VARIABLES	PRED.	(1) LN_TOTAL	(2) LN_BONUS	(3) LN_EQUITY	(4) LN_INCENTIVE
CPA	?	0.036 (0.269)	0.282** (0.035)	-0.022 (0.877)	0.048 (0.604)
ROA	+	0.230 (0.144)	2.992*** (0.000)	-0.856 (0.231)	0.780 (0.140)
RET	+	-0.023 (0.402)	0.866*** (0.000)	-0.108 (0.406)	0.054 (0.486)
CPA*ROA	?	-0.249 (0.228)	-0.142 (0.869)	-0.338 (0.697)	-0.216 (0.738)
CPA*RET	?	0.083** (0.012)	-0.046 (0.722)	0.344** (0.024)	0.187** (0.037)
Controls		Yes	Yes	Yes	Yes
Year FE		Yes	Yes	Yes	Yes
Firm FE		Yes	Yes	Yes	Yes
Observations		4,980	4,980	4,980	4,980
R-squared		0.805	0.578	0.568	0.636
Joint Test $\beta_2 + \beta_4 = 0$		-0.019 0.923	2.850*** 0.000	-1.195 0.127	0.564 0.360
Joint Test $\beta_3 + \beta_5 = 0$		0.06** 0.031	0.820*** 0.000	0.236* 0.062	0.241*** 0.002

*** p<0.01, ** p<0.05, * p<0.1 (Robust pval in parentheses)

Table 6 Presents the results of OLS regressions of CEO compensation and compensation components on the interactions of accounting expertise on the compensation committee (CPA) and accounting (ROA) and market (RET) performance plus control variables (Equation 2). All continuous variables are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix.

Table 7
Accounting (ROE) and Market Performance Sensitivities

VARIABLES	PRED.	(1) LN_TOTAL	(2) LN_BONUS	(3) LN_EQUITY	(4) LN_INCENTIVE
CPA	?	0.031 (0.337)	0.297** (0.023)	-0.038 (0.782)	0.049 (0.584)
ROE	+	-0.012 (0.680)	0.182 (0.122)	-0.065 (0.608)	0.117 (0.191)
RET	+	-0.018 (0.515)	0.916*** (0.000)	-0.120 (0.356)	0.067 (0.397)
CPA*ROE	?	-0.021 (0.717)	-0.057 (0.779)	0.012 (0.957)	-0.063 (0.720)
CPA*RET	?	0.076** (0.022)	-0.090 (0.486)	0.347** (0.023)	0.172* (0.059)
Controls		Yes	Yes	Yes	Yes
Year FE		Yes	Yes	Yes	Yes
Firm FE		Yes	Yes	Yes	Yes
Observations		4,980	4,980	4,980	4,980
R-squared		0.805	0.575	0.568	0.636
Joint Test b2+b4=0		-0.033 0.535	0.126 0.470	-0.054 0.780	0.054 0.740
Joint Test b3+b5=0		0.058** 0.037	0.826*** 0.000	0.228* 0.072	0.240*** 0.002

*** p<0.01, ** p<0.05, * p<0.1 (Robust pval in parentheses)

Table 7 Presents the results of OLS regressions of CEO compensation and compensation components on the interactions of accounting expertise on the compensation committee (CPA) and accounting (ROE) and market (RET) performance plus control variables (Equation 2). All continuous variables are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix.

Table 8
Earnings Components Sensitivities

VARIABLES	PRED.	(1) LN_TOTAL	(2) LN_BONUS	(3) LN_EQUITY	(4) LN_INCENTIVE
CPA	?	0.044 (0.153)	0.265** (0.034)	0.032 (0.811)	0.070 (0.397)
ACC	?	0.003 (0.289)	0.002 (0.816)	0.007 (0.586)	0.001 (0.841)
CASH	+	0.001 (0.589)	0.007 (0.242)	-0.000 (0.965)	0.002 (0.528)
CPA*ACC	?	-0.002 (0.697)	0.012 (0.446)	-0.007 (0.677)	0.006 (0.590)
CPA*CASH	?	-0.001 (0.746)	-0.005 (0.577)	0.006 (0.577)	0.003 (0.648)
Controls		Yes	Yes	Yes	Yes
Year FE		Yes	Yes	Yes	Yes
Firm FE		Yes	Yes	Yes	Yes
Observations		4,980	4,980	4,980	4,980
R-squared		0.805	0.574	0.567	0.635

*** p<0.01, ** p<0.05, * p<0.1 (Robust pval in parentheses)

Table 8 Presents the results of OLS regressions of CEO compensation and compensation components on the interactions of accounting expertise on the compensation committee (CPA) and components of accounting earnings (ACC and CASH) plus control variables (Equation 3). All continuous variables are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix.

Table 9
Classification Shifting

VARIABLES	PRED.	(1) UE_CE	(2) UE_CE
NSI	+	1.592*** (0.000)	1.765*** (0.000)
CPA	?		0.018 (0.635)
CPA*NSI	-		-0.391 (0.503)
Year FE		Yes	Yes
Observations		4,980	4,980
R-squared		0.294	0.295

*** p<0.01, ** p<0.05, * p<0.1 (Robust pval in parentheses)

Table 9 Presents the results of OLS regressions of unexpected core earnings (UE_CE) on negative special items (NSI) in column 1 (Equation 5), and on the interaction of accounting expertise on the compensation committee (CPA) and NSI in column 2 (Equation 6). All continuous variables are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix.

Table 10
Compensation Shielding

VARIABLES	PRED.	(1) LN_TOTAL	(2) LN_BONUS	(3) LN_EQUITY	(4) LN_INCENTIVE
EBNSI	+	0.254** (0.029)	3.324*** (0.000)	-0.115 (0.817)	0.857** (0.010)
NSI_NCS	?	-0.047 (0.792)	-1.809*** (0.001)	0.457 (0.519)	-0.373 (0.432)
CS	-	-0.039 (0.814)	-1.685*** (0.001)	0.498 (0.449)	-0.421 (0.338)
CPA	?	0.058* (0.061)	0.322*** (0.007)	0.112 (0.395)	0.102 (0.195)
CPA*NSI_NCS	?	0.444 (0.104)	0.214 (0.838)	1.130 (0.306)	0.598 (0.446)
CPA*CS	-	0.390 (0.126)	-0.004 (0.996)	0.907 (0.381)	0.563 (0.455)
RET	+	0.069*** (0.009)	0.648*** (0.000)	0.162 (0.160)	0.167** (0.020)
NEG_RET	?	0.188** (0.021)	2.156*** (0.000)	0.171 (0.641)	0.803*** (0.001)
STDEBNSI	-	-0.225* (0.094)	0.190 (0.698)	-0.448 (0.439)	-0.284 (0.504)
STDRET5	+	0.040 (0.230)	0.145 (0.234)	-0.029 (0.846)	0.119 (0.198)
INVOPP	+	0.071*** (0.000)	-0.036 (0.496)	0.179*** (0.009)	0.087** (0.047)
LN_AT	+	0.367*** (0.000)	0.536*** (0.000)	0.850*** (0.000)	0.562*** (0.000)
Year FE		Yes	Yes	Yes	Yes
Firm FE		Yes	Yes	Yes	Yes
Observations		4,980	4,980	4,980	4,980
R-squared		0.798	0.564	0.557	0.622

*** p<0.01, ** p<0.05, * p<0.1 (Robust pval in parentheses)

Table 10 Presents the results of OLS regressions of CEO compensation and compensation components on the interactions of accounting expertise on the compensation committee (CPA) and components of negative special items (NSI_NCS and CS) plus control variables (Equation 7). All continuous variables are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix.

Table 11
Abnormal Compensation

VARIABLES	ABNORMAL_COMP
CPA	0.042 (0.150)
CEO_AGE	0.001 (0.789)
CEO_OWN_PCNT	-0.011** (0.017)
CEO_CHAIR	0.020 (0.516)
PCNT_CO_OPTED_COMP	-0.032 (0.493)
COMP_SIZE	0.028* (0.056)
PCNT_COMP_CEO_EXP	-0.084 (0.280)
AVG_COMP_TENURE	-0.004 (0.380)
BD_SIZE	0.001 (0.953)
INST_OWN	0.239*** (0.007)
PCNT_IND	0.158 (0.376)
Year FE	Yes
Observations	4,980
R-squared	0.537

*** p<0.01, ** p<0.05, * p<0.1 (Robust pval in parentheses)

Table 8 Presents the results of OLS regressions of abnormal CEO compensation on accounting expertise on the compensation committee (CPA) and control variables (Equation 9). All continuous variables are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix.

Table 12
2SLS CEO Compensation and Compensation Components

VARIABLES	(1) CPA	(2) LN_TOTAL	(3) LN_SALARY	(4) LN_BONUS	(5) LN_EQUITY	(6) LN_INCENTIVE
LAG_NUM_CPA_BD	0.056*** (0.000)					
CPA		-0.788* (0.058)	0.156 (0.239)	-0.417 (0.789)	-2.023 (0.206)	-0.783 (0.459)
ROA	-0.022 (0.750)	0.214 (0.194)	0.006 (0.900)	3.029*** (0.000)	-0.780 (0.224)	0.903* (0.070)
RET	0.003 (0.782)	0.014 (0.558)	-0.021*** (0.001)	0.864*** (0.000)	-0.014 (0.893)	0.128*** (0.047)
CEO_TENURE	0.050*** (0.001)	0.100*** (0.010)	0.067*** (0.000)	-0.084 (0.524)	0.185 (0.235)	0.060 (0.527)
CEO_AGE	0.001 (0.290)	0.000 (0.895)	0.002** (0.026)	0.001 (0.905)	-0.025* (0.050)	-0.013 (0.140)
CEO_OWN_PCNT	-0.001 (0.754)	-0.016*** (0.004)	-0.008*** (0.000)	-0.011 (0.524)	-0.068*** (0.001)	-0.057*** (0.001)
CEO_CHAIR	-0.014 (0.406)	-0.016 (0.654)	0.042*** (0.001)	0.154 (0.245)	-0.195 (0.200)	0.060 (0.547)
PCNT_CO_OPTED_COMP	-0.175*** (0.000)	-0.285*** (0.009)	-0.003 (0.935)	-0.224 (0.547)	-0.896** (0.043)	-0.379 (0.185)
COMP_SIZE	0.118*** (0.000)	0.128** (0.015)	-0.014 (0.383)	0.137 (0.484)	0.366* (0.072)	0.144 (0.282)
PCNT_COMP_CEO_EXP	-0.001 (0.978)	-0.014 (0.876)	-0.038 (0.178)	-0.142 (0.655)	-0.142 (0.705)	-0.111 (0.628)
AVG_COMP_TENURE	-0.014*** (0.000)	-0.018** (0.022)	0.003 (0.231)	-0.001 (0.971)	-0.065** (0.035)	-0.024 (0.239)
BD_SIZE	-0.048*** (0.000)	-0.043* (0.056)	0.003 (0.662)	-0.029 (0.735)	-0.113 (0.202)	-0.032 (0.584)
INST_OWN	0.011 (0.812)	0.115 (0.280)	0.046 (0.106)	-0.155 (0.661)	0.169 (0.701)	0.246 (0.384)
PCNT_IND	-0.189** (-0.046)	-0.116 (0.589)	0.121* (0.073)	0.329 (0.666)	-0.408 (0.664)	-0.013 (0.981)

Table 12 (Continued)

VARIABLES	(1) CPA	(2) LN_TOTAL	(3) LN_SALARY	(4) LN_BONUS	(5) LN_EQUITY	(6) LN_INCENTIVE
LN_ASSETS	0.031* (0.063)	0.425*** (0.000)	0.127*** (0.000)	0.509*** (0.000)	0.999*** (0.000)	0.591*** (0.000)
LEVERAGE	0.032 (0.586)	-0.255** (0.048)	-0.063 (0.101)	-0.153 (0.719)	-0.116 (0.824)	-0.201 (0.534)
CAPX	-0.050 (0.778)	1.081*** (0.007)	0.076 (0.507)	-0.472 (0.755)	4.838*** (0.006)	2.390** (0.038)
BOOK_TO_MARKET	-0.016 (0.651)	-0.604*** (0.000)	0.004 (0.878)	-1.222*** (0.000)	-1.494*** (0.000)	-1.195*** (0.000)
SEGMENTS	-0.006*** (0.014)	-0.007 (0.141)	0.001 (0.736)	0.006 (0.749)	0.001 (0.951)	-0.002 (0.900)
STD_RET	-0.514 (0.452)	0.869 (0.556)	-0.523 (0.237)	-10.162* (0.062)	3.303 (0.609)	1.801 (0.673)
LOSS	-0.006 (0.694)	-0.027 (0.462)	-0.020* (0.087)	-0.842*** (0.000)	0.046 (0.770)	-0.226** (0.032)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,605	4,606	4,606	4,606	4,606	4,606
F-Stat	20.93 (0.000)					
R-squared		0.026	0.305	0.163	0.009	0.074

*** p<0.01, ** p<0.05, * p<0.1 (Robust pval in parentheses)

Table 12 Presents the results of 2SLS regressions where the lagged number of CPAs on the board is used as an instrument for the presence of a CPA on the compensation committee. Column 1 presents the results for the first-stage regression and columns 2-6 present the results of second-stage regressions where DVs and control variables are as in equation 1. All continuous variables are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix.

VITA

Steven Reeves Hawkins was born in Othello, Washington to loving parents Barton and Susan Hawkins. The second of eleven children, Steven was raised on a fruit farm in Basin City, Washington. After graduating from Connell High School, Steven served a mission for The Church of Jesus Christ of Latter-day Saints in Las Vegas, Nevada where he learned and taught full-time in Spanish. Steven then attended Brigham Young University (BYU) where he met his wife, Neisha, studied accounting, and welcomed two daughters, Kinzie and Jazlyn into his life. Steven graduated with his Bachelor of Science and Master of Accountancy degrees in 2011. Following graduation, Steven worked as an auditor for Ernst & Young in Salt Lake City, Utah. Steven became a CPA while working for Ernst & Young and in 2013 welcomed a third daughter, Lexi, into the family. In 2014, he left public accounting practice and began his doctoral studies at the University of Tennessee, Knoxville. During the doctoral program a son, Knox, joined the family. Following graduation in May 2018, Steven will begin his career as a tenure track assistant professor at Central Washington University.