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How does the type of equity compensation of audit committee affect audit fees?

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ABSTRACT

Based on agency theory, if equity compensation aligns audit committee members' interests with those of shareholders, the audit committee will provide effective oversight and demand more thorough audit coverage and scope. This will result in higher audit fees paid to the external auditor. This study specifically examines the associations between the types of equity compensation of audit committee members and audit fees. Our findings show differential impacts of equity compensation of audit committee in the forms of option grants and stock awards on audit fees. Specifically, equity compensation using stock awards is more effective than using option grants in aligning the interests of audit committee members with the interests of shareholders to provide better oversight of financial reporting.

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1. Introduction

The audit committee and its members are consistently under scrutiny because, in many respects, they serve as guardians of the integrity of a firm's financial statements. Prior studies have examined audit committee effectiveness using measures such as committee independence, committee member expertise, committee size, and committee meeting frequency. For an audit committee to execute its fiduciary responsibility effectively, there has to be an incentive to do so. Undoubtedly, equity is playing a larger role in director compensation structures in recent years. However, mixed views exist as to whether equity compensation provides incentives that better align the interests of audit committee with shareholder's interests or impair the objectivity and effectiveness of the directors. Based on agency theory, if equity compensation aligns audit committee members' interests with those of shareholders, the audit committee will provide effective oversight and demand more thorough audit coverage and scope. This will result in higher audit fees paid to external auditor. This study investigates the effect of different types of equity compensation of audit committee on the level of audit fees, which is a measure of audit quality.

The last decade reveals a substantial shift in director compensation from cash-based to more equity-based compensation.¹ According to a global governance survey of S&P 500 firms by Spencer Stuart, the average total compensation of non-employee directors increased by

approximately 29% from 2005 to 2015, with an additional increase of 8% from 2015 to 2017.² In addition, stock awards and option grants represent the largest share of total director compensation with an increase in stock awards (and a decrease in option grants) in the composition of director compensation in recent years.³ The breakdown of director compensation in 2017 shows that 56% was in the form of stock awards and 4% was in option grants (Spencer Stuart, 2018).

The Sarbanes-Oxley Act (SOX) included significant changes to improve the audit committee's effectiveness and independence, but currently there is no regulation in regards to an appropriate compensation structure for audit committees. Due to the trend of increasing director compensation, many companies have included shareholder-approved limits on annual compensation per director in recent years to provide protection against potential lawsuits. According to a survey of director compensation by FW Cook in 2017, 51% of companies had annual limits on non-employee director compensation, a significant increase in such limits from 32% in 2016 (Krauser & Giaccone, 2017). In addition, 74% of the limits in 2017 were applied to equity compensation only.⁴ These shareholder-approved limits on annual director compensation point out a concern of shareholders regarding the impact of equity

² The average per-director compensation rose from \$277,237 in 2015 to just under \$299,000 in 2017 (Spencer Stuart, 2015, 2018)

³ In 2010, stock awards and option grants represent 43% and 14% of total compensation, respectively. By 2015, the equity component of compensation increased to approximately 59% of total compensation, with 54% represented by stock awards and only 5% represented by option grants. (Spencer Stuart, 2015).

⁴ Such limits can apply to equity compensation only (expressed as a dollar value or number of shares/options) or to total compensation (cash and equity). There is no indication of limits applied to different types of equity compensation, such as stock awards and option grants.

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¹ The 2015 Spencer Stuart Board Index reports that 42% of companies in 2002 paid equity compensation in addition to cash retainers. That number increased to 72% in 2007, 76% in 2012, and 77% in 2015.

compensation on the monitoring role of directors. Further, fewer small-cap firms (38%) are found to have annual limits on director compensation compared to large-cap firms (64%), suggesting a need to raise the awareness and to address the impact of director compensation, especially in smaller firms.

Prior research has investigated whether the type of equity compensation might have the potential to influence the effectiveness of the audit committee using different measures for audit quality. However, findings of prior research are mixed. For instance, several studies examining the relationship between stock options grants and the effectiveness of the audit committee provide inconsistent evidence concerning the effects of short and long-term option grants on the likelihood of restatement, material misstatement, and judgement of the audit committee in an auditor–management disagreement (Archambeault, DeZoort, & Hermanson, 2008; Bierstaker, Cohen, DeZoort, & Hermanson, 2012; Keune & Johnstone, 2010). Examining the associations of financial reporting quality with the types of audit committee compensation, Campbell, Hansen, Simon, and Smith (2011) find that stock option compensation is associated with earnings management, while stock award compensation does not affect audit committee oversight. The only study that examines the relationship between audit committee compensation and audit fees is by Engel, Hayes, and Wang (2010). However, the main focus of the study by Engel et al. (2010) is on total compensation versus cash retainer. An empirical question remains as to how equity compensation in the forms of option grants and stock awards should be used to compensate audit committees for better audit quality.

This study tries to fill the gap. Using a sample of 467 firm observations in the S&P SmallCap 600 Index, this study provides consistent evidence that stock option compensation of audit committee is associated with lower audit quality. This is evident in the negative association between annual option grants of audit committee and audit fees. The study also provides evidence that equity compensation in the form of stock awards, however, is associated with higher audit quality, apparent in the positive association between stock awards and audit fees.

This study contributes to the existing literature in several ways. First, the study extends the emerging line of research by examining the effects of different types of equity compensation of audit committee on audit fees. Second, using a sample of S&P SmallCap 600 firms, this study aims to contribute further evidence to the discussion by focusing particularly on small firms, which lack alternative monitoring mechanisms creating additional impact of audit committee compensation structure on audit quality. Finally, the results of this study have practical implications for regulators and investors by providing additional insight into the impact of compensation structure of audit committee on audit quality. Specifically, these results contribute evidence consistent with the notion that placing restrictions on option grants may improve audit quality. Also, continuing the use of stock awards may in fact increase audit quality.

2. Literature review and hypothesis development

2.1. Audit committee compensation

Over the years, corporate governance practices have remained in the spotlight for investors, regulators and academics. Several studies have investigated multiple facets of audit committee compensation, both because it is unregulated and because it can potentially have an impact on the functioning of the audit committee. The culmination of the papers discussed below suggests that the types of compensation provided to audit committee members may influence their judgements and potentially the quality of financial reporting. However, the results are somewhat mixed.

Archambeault et al. (2008) investigate the association between short-term and long-term incentive compensation of the audit committee and financial restatements. Using a sample of 153 restatement firms and 153 non-restatement firms during the period of 1999–2002, the

authors find a significantly positive relationship between both short and long-term stock option grants and the likelihood of restatement. The authors suggest that the issuance of short-term option grants to audit committee members reduces the quality of oversight because directors are more focused on short-term performance. Additionally, long-term stock options that provide modest, uncertain payoffs may not be enough to motivate diligent oversight by the audit committee.

Examining the relationship between stock option grants of the audit committee and the handling of adjustments for material misstatements, Keune and Johnstone (2010) find that short-term stock option compensation is associated with a greater likelihood of waiving these adjustments, while long-term stock option compensation is not. In fact, long-term stock option compensation and stock ownership of the audit committee decrease the likelihood of waiving such adjustments. In essence, long-term stock option compensation lends preference to conservative reporting more so than short-term stock option compensation.

Magilke, Mayhew, and Pike (2009) and Bierstaker et al. (2012) both use experimental settings to explore the influence of compensation on audit committee members' judgements. Utilizing students to serve as audit committee members, Magilke et al. (2009) show that audit committee members compensated with current stock-based compensation prefer aggressive reporting. This caused the audit committee members to bias their reports in attempt to increase stock prices and earnings of current investors. Audit committee members compensated with future stock-based compensation preferred overly conservative reporting and biased their reports to reduce current stock prices to increase future earnings at the expense of current investors. Those audit committee members who received no stock-based compensation proved to be the most objective. The conclusion of this study that short-term option compensation may weaken objectivity and oversight quality of the audit committee, is consistent with both Archambeault et al. (2008) and Keune and Johnstone (2010).

Bierstaker et al. (2012) examine the effects of different types of audit committee compensation and perceived fairness to shareholders when audit committee members have to make judgements in an auditor–management disagreement. The main results of the study show that audit committee members are more likely to support the auditor in an accounting disagreement when the audit committee compensation includes long-term stock-options and when the members perceive the decision of not recording the adjustment unfair to shareholders. Unlike Magilke et al. (2009), there is no evidence of a difference between cash versus short-term stock-based compensation when the audit committee supports management or auditor. Yet another interesting result of Bierstaker et al. (2012) is that audit committee members who have prior experience with a similar type of disagreement will side with the auditor. The logic is that those with experience with a similar disagreement possess more domain expertise and tend to act more conservatively. However, audit committee members with more years of audit committee service tend to side with management. The authors suggest that most members who have higher years of service are less conservative since they have been members since the pre-Sox era. Overall, this study suggests that long-term stock option compensation better aligns the judgements of the audit committee with shareholders, increasing the effectiveness of the committee.

Cullinan, Du, and Jiang (2010) investigate whether firms with a stock option plan for audit committee members are more likely to have internal control material weaknesses. To explore this research question, the authors use a matched sample of firms that report an internal control material weakness with control firms that do not report a material weakness. Their results indicate that firms that report a material weakness are more likely to compensate directors with stock option grants. Their study did not measure the magnitude of stock option compensation, nor did it make a distinction between short-term, long-term stock option compensation and the severity of the internal control material weakness.

Campbell et al. (2011) examine the association of financial reporting quality with the nature of audit committee compensation as well as existing equity holdings. The authors examine cash, stock option grants, and stock awards as well as stock and exercisable option equity holdings of audit committees. The authors provide evidence that audit committee stock option compensation and exercisable option holdings are associated with reduced financial reporting quality, measured by the propensity to meet/beat analyst forecasts and by the level of discretionary accruals. This result is concentrated in firms with a weaker external monitoring environment, indicative of small, young firms with less analyst following. There was no evidence of reduced financial reporting quality when stock awards and non-option equity holdings were used as compensation. Their study highlights that stock option compensation impairs audit committee oversight, while non-option, stock award compensation does not affect oversight. In addition, cash compensation potentially improves oversight effectiveness of the audit committee.

MacGregor (2012) theorizes and tests the notion that the influence of equity holdings on the effectiveness of the audit committee depends upon the risk of reporting problems. When risk is low (high), equity holdings motivate the audit committee to accept more (restrict) managerial discretion. The author uses a set of three risk factors that capture the risk of reporting problems: CEO equity incentives, the level of high-risk assets, and internal control effectiveness. Using these factors, the author tests the relationship between audit committee equity holdings, the risk factors, and the likelihood that a firm meets prior year's earnings level or analyst forecast. Initially, the author presents no evidence of a relationship between audit committee equity holdings and the probability of meeting/beating prior year's earnings forecast or analysts' forecasts. However, when adding the various risk factors the author collectively presents evidence to suggest that equity holdings increase the audit committee's responsiveness to risk factors. The author suggests that if equity motivates the audit committee to be overly responsive to risk factors, it may cause unnecessary conservatism. If equity holdings motivate the audit committee to give too much discretion, it could result in unreliable financial reporting.

Engel et al. (2010) investigate whether firms that face a higher demand for monitoring pay higher audit committee compensation. Audit fee is used to proxy for the demand for monitoring paired with an indicator variable for the post-Sox period. It treats audit fees as a proxy for firm-specific variations in the demand for monitoring. Essentially, higher audit fees represent those forces that cause a higher demand for monitoring such as restatements, complexity of the business, litigation risk, etc. If these items are present, audit fees will be higher, more effort will be required of the audit committee and thus, they will have higher levels of compensation. The main focus of the study by Engel et al. (2010) is on total compensation and the cash component of total compensation. The authors use two main regressions: (1) to examine determinants of the level of audit committee compensation, and (2) to examine the difference between the compensation of the audit committee and compensation committee. The results of their study posit a positive relationship between total compensation of the audit committee and audit fees. There is also a positive relationship between cash retainers paid to the audit committee and audit fees. The authors note that both the demand for monitoring and the quality of the audit committee can be expected to be related to the compensation arrangements of the audit committee. To examine the issues separately, the authors use a measure of audit committee quality operationalized by a classification of the background of the audit committee chair as either a non-financial, financial, or an accounting expert. The overall conclusion made by Engel et al. (2010) is that both audit committee quality and demand for monitoring are positively related to the level of audit committee compensation.

Another recent study by Hayek (2015) investigates whether the compensation paid to the audit committee influences the decision of the committee to purchase non-audit services from the external auditor. The author assumes that non-audit services impair auditor

independence and posits that if compensation can affect the objectivity of the audit committee, this could lead the audit committee to purchase more non-audit services, threatening the independence of the external auditor. Testing different types of compensation, the author concludes that cash compensation is associated with less purchases of non-audit services while stock option compensation is associated with greater purchases of non-audit services. Contrary to prior research, the author also finds that stock award compensation results in a greater purchase of non-audit services, although not as aggressively as stock option compensation.

2.2. Audit fees

Research in audit fees is a well-studied topic in accounting. Although general concepts emerge from such literature, there are a number of anomalies and inconsistencies. The seminal paper by Simunic (1980) models audit fees from a production (supply) view which relates audit fees to a number of work-related factors such as firm size, number of segments, and risk-related variables. The notion is that certain drivers cause an auditor to perform more (less) work during the audit process resulting in higher (lower) audit fees. Since the original Simunic model, researchers have added other explanatory variables to test various theories and hypotheses. Evidence of mixed results suggests that the production view may not be the only explanation of variations in audit fees. Many variations in the level of audit fees may be caused by demand factors that are not necessarily production-oriented. One such instance that this occurs is when the links between corporate governance mechanisms and audit fees are explored.

The audit committee is the main entity within a public company with audit oversight responsibilities, and thus is in a position to demand more or less audit scope/coverage. Assuming the production (supply) view, a good corporate governance mechanism, such as an effective audit committee, should improve the control environment and in turn reduce the need for external auditing, leading to reduced audit fees (Collier & Gregory, 1996; Goddard & Masters, 2000). Also, under the production view, a weak corporate governance structure would weaken the control environment and in turn increase the need for external auditing and increase audit fees. However, these relationships are not overly prevalent in the extant literature. Abbott, Parker, Peters, and Raghunandan (2003a, 2003b) give the best example when their results find that a more effective audit committee, measured by independence and expertise, is positively related to audit fees. Carcello, Hermanson, and Neal (2002) examine the relationships between desirable board characteristics, such as independence, diligence, and expertise, and audit fees. They too find a significantly positive relationship between a "better" board and a higher level of audit fees. Mande and Son (2015) find that high audit fees reflect high audit effort which in turn enhances accruals quality. This positive relationship between audit fees and accruals quality decreases in the post-SOX period. More recently Karim, Robin, and Suh (2016) find that a weak corporate governance structure, proxied by audit and compensation committee overlap, is associated with a lower level of audit fees.

An alternative way to approach audit fees is from a demand perspective whereby directors demand more audit coverage and greater audit assurance to protect certain reputational capital if fraud were to occur (Goodwin-Stewart & Kent, 2006). Directors may also demand more coverage to avoid legal liability, and perhaps promote shareholder interests (Carcello et al., 2002; Goodwin-Stewart & Kent, 2006; Hay, Knechel, & Wong, 2006; Knechel & Willekens, 2006). The demand for more assurance ultimately increases the work and scope of the auditor, resulting in higher audit fees. This in turn produces a higher quality audit (Knechel, Krishnan, Pevzner, Shefchik, & Velury, 2013). A recent paper by Beck, Fuller, Muriel, and Reid (2013) uses an experimental setting to address how audit fees are perceived and whether this coincides with established relationships between audit characteristics and audit fees. Generally, their results prove audit fee disclosures create

perceptions in investors about the audit engagement. Specifically, when comparative information is provided and high (low) audit fees are presented, investors perceive audit quality, auditor effort, and auditor independence as being high (low). Although perception is not reality in many cases, findings of Beck et al. (2013) support the notion that higher audit fees are commensurate with higher audit quality.

2.3. Hypothesis development

The perspective of this study follows the logic of the demand view. This line of audit fee research is further examined in this study using the audit committee as the main corporate governance mechanism. Specifically, a more effective audit committee will be associated with a higher audit quality, proxied by the level of audit fees.

Agency theory assumes that managers are opportunistic. Minimizing unethical financial reporting, public scrutiny and regulation creates pressure on organizations to strengthen their corporate governance mechanisms. SOX is at the core of the efforts made to increase corporate governance quality. The Act aims to ensure management decisions to be in alignment with shareholders' interests. In particular, SOX impacts the audit committee by mandating that committees be composed of at least three members, all of whom are independent, possess financial literacy, and at least one member must be a designated financial expert (SOX 2002, Section 202). Under SOX, the audit committee is charged with a number of responsibilities in an effort to increase its oversight role and enhance auditor independence. Of those responsibilities, the audit committee must approve the hiring of the external auditor, determine the compensation paid to the external auditor, and if circumstances require it, the audit committee has the authority to dismiss the external auditor (SOX 2002, Section 301).

While SOX aims to strengthen the monitoring of audit committees ensuring that committee members are accountable to shareholders for the audit process and the quality of financial reporting, the compensation provided for executing such responsibilities has not been well addressed. This contrasts with restrictions in regards to the compensation paid to auditors. For example, external auditors are restricted in their ability to own equity and are not permitted to have any financial ties to the client companies they audit (American Institute of Certified Public Accountants (AICPA), 2013). The argument for this restriction is that it is necessary in order to minimize the likelihood of impaired auditor independence. In contrast, current legislation provides no rule for how audit committee members should be compensated. Based on the argument that equity compensation aligns directors' and shareholders' interests, the NACD recommends a threshold of at least 50% of equity compensation for independent directors. However, this threshold is not mandated (National Association of Corporate Directors (NACD), 2001), and no specific structure of equity compensation are given. If being independent is important and the compensation paid may affect directors' independent judgement as discussed in prior studies, then why there is no restriction on the compensation paid to directors on audit committees? This discrepancy between auditor and audit committee regulation provides an interesting avenue for research. Given that equity compensation can take on different types, this study combines the literature on factors that contribute to audit quality and the equity compensation of audit committee. Particularly, the study addresses a research question: Is providing a certain type of equity compensation to audit committee members associated with a higher audit quality?

Since the sample period (2000–2004) of Engel et al. (2010), there have been two Securities and Exchange Commission (SEC) amendments to compensation disclosures. The first was in 2006 when the SEC mandated uniform reporting of directors' compensation. The SEC announced rules to require disclosure in a 'Summary Compensation Table' of the compensation cost of equity awards. The second amendment to compensation disclosure took place in 2009, when the SEC published amendments to the proxy rules requiring additional disclosures. These disclosures include executive compensation and corporate

governance matters, such as the relationship of a company's overall compensation practices to risk management, the independence of compensation consultants, and the reporting the fair value of stock and option awards at grant date (SEC 2009). Analyzing director compensation after such amendments alleviates the difficulties and possible errors that prior research cited as a result of hand collecting subjective and non-uniform data (Campbell et al., 2011; Engel et al., 2010).

Summarizing prior literature on the effects of equity compensation, it is plausible that equity compensation will prevent managerial opportunism and thus increase the effectiveness of the audit committee. Under agency theory, if equity compensation better aligns director's interests with that of shareholders, the audit committee members would be induced to provide more effective oversight, demand more thorough audit coverage and scope, thus resulting in higher audit quality and higher levels of audit fees.

Two of the most debated and most researched types of equity compensation are option grants and stock awards. Both forms have the potential to influence audit committee members monitoring and oversight effectiveness because their value is linked to firm performance. Option grants, however, provide opportunities to receive large gains when stock prices increase without exposing holders to large decreases if the stock price goes down. Thus, option grants are argued to create a short-term focus whereby prior research has suggested managers adopt more aggressive accounting practices to enhance the value of the options at the expense of others (Archambeault et al., 2008; Cullinan et al., 2010; Keune & Johnstone, 2010). If this is the case, and stock option grants are prominent in compensation packages received by audit committees, there would be a negative impact on the audit committee oversight, resulting in a low demand for audit quality. Consistent with this argument, we predict the following:

H1. : Option grants of audit committee members are negatively related to audit fees.

In contrast, stock awards and holdings have been the focus of less research, but these too could incentivize audit committee members to focus on increasing firm performance in order to increase the value of the stock, at the detriment of effective oversight and monitoring (Hayek, 2015). Alternatively, prior research has linked stock awards with long-term value creation and thus, this type of equity compensation would be considered to enhance director's alignment with shareholders' interests over the long term (Campbell et al., 2011; MacGregor, 2012). Consistent with the latter assumption that audit committee with compensation in the form of stock awards will provide effective oversight and demand high audit quality, we predict the following:

H2. : Stock awards of audit committee members are positively related to audit fees.

3. Methodology

3.1. Empirical model

The dependent variable (*LNAF*) in this study is measured as the natural logarithm of total audit and audit-related fees. We use information gathered from the Audit Analytics database for this measure. Consistent with prior research, and the audit fees model, audit fees are an indicator of both audit committee effectiveness and audit quality (Abbott et al., 2003a, 2003b; Abbott et al., 2004; DeZoort, Hermanson, Archambeault, & Reed, 2002; Engel et al., 2010; Hayek, 2015; Naiker, Sharma, & Sharma, 2013). Thus, this study aims to provide evidence of whether the type of equity compensation is associated with the level of audit quality. While Engel et al. (2010) uses audit fees to proxy for environmental factors, we separately account for these factors in the multitude of audit committee, board, CEO, and firm control variables employed in the regression below.

$LNAF = f\{ACcompensation + ACcontrols + BOARDcontrols + EXECUTIVEcontrols + FIRMcontrols\}$, where all variables are measured in year t .

Table 1

Variable Definitions.

Main dependent variable:	
LNAF	Natural logarithm of audit and audit-related fees
Main Independent Variable (Audit Committee Compensation measures):	
Ln_TotEq	Natural logarithm of total audit committee (AC) equity compensation (option grants + stock awards of AC)
Perc_TotEq	Ratio of total equity compensation to total compensation of the audit committee (total equity compensation of AC / total compensation of AC)
LnAvg_TotEq	Natural logarithm of total average audit committee equity compensation (total equity compensation of AC / number of audit committee members)
Ln_StckOpt	Natural logarithm of total option grants for members of audit committee
Perc_StckOpt	Ratio of total option grants to total equity compensation of the audit committee (total option grants of AC / total equity compensation of AC)
StckOpt/TotComp	Total option grants of the audit committee divided by the total compensation of the audit committee
Ln_StckAwa	Natural log of the total value of stock awards of the audit committee
Perc_StckAwa	Ratio of total stock awards to total equity compensation of the audit committee (total stock awards of AC / total equity compensation of AC)
StckAwa/TotComp	Total stock awards of the audit committee divided by the total compensation of the audit committee
EqDum	1 if equity compensation makes up 50% or more of total compensation, zero otherwise
Audit Committee Characteristics Controls:	
Avg_Ten	Number of consecutive years of service of audit committee members on the audit committee / number of audit committee members (hand collected from EDGAR proxy statements)
Expert	Percentage of financial experts on the audit committee (number of experts / number of AC members) – hand collected from EDGAR proxy statements
Mtg	Number of audit committee meetings
Board Characteristics Controls:	
BrdComp	Number of non-employee (outside) directors on the board
BrdMtg	Number of board meetings
Executive Characteristics Controls:	
CEOdual	1 if the CEO is the chair of the board; 0 otherwise.
CEOTen	Number of years of CEO_TEN, or 1 if the tenure is above the sample median, 0 otherwise
CEOComp	Natural logarithm of total CEO compensation as reported by the SEC
CFOComp	Natural logarithm of total CFO compensation as reported by the SEC
Firm Controls:	
LnTA	Natural log of firms total assets
REClInv	(Total inventory + Total A/R) / Total assets
Sqseg	Square root of the number of business segments reported on Compustat
Foreign	1 if foreign segments are reported, 0 otherwise
ROA	Return on assets
LEV	Total liabilities / total assets
GC	1 if audit report is modified for going concern; 0 otherwise
MW	1 if there is a material weakness reported in internal controls; 0 otherwise
BIG4	1 if auditor is one of the Big 4, 0 otherwise
Restate	1 if the firm has a restatement; 0 otherwise
Loss	1 if there is a reported net loss. 0 otherwise
NAF_Ratio	Ratio of non-audit fees to total fees
YrDum	1 if the year is 2011, 0 otherwise
INDUSTRY	Industry dummies

Table 2

Summary of sample selection.

All firms in the S&P smallCap 600 index for period Jan 1, 2011 to Dec 31, 2012	1200
Less: Missing Compustat/Audit Analytics/Execucomp data	(495)
Less: Firms without December 31 fiscal year end	(213)
Less: Missing proxy information	(23)
Less: Firms in the utilities/financial industries	(2)
Total Sample Size	467

The independent variables of interest involve multiple derivations of compensation variables applicable to each hypothesis. Total amount of stock option grants ($Ln_StckOpt$) is derived by taking the natural logarithm of total option grants for audit committee members. The dollar value of option grants is obtained from the Execucomp database. A second and third measure of stock option compensation is also used. The second measure ($LnAvg_StckOpt$) is calculated by taking the natural logarithm of the *average* total option grants for members on the audit committee. Average total option grants equals the ratio of total option grants to the number of audit committee members. The third measure of option grants is the percentage of option grants ($Perc_StckOpt$). This measure is calculated by dividing total option grants by total equity compensation.

Three measures are used to capture stock awards of the audit committee. First, $Ln_StckAwa$ is derived from the natural logarithm of total stock awards for audit committee members. Second, $LnAvg_StckAwa$ is the natural logarithm of *average* stock awards which equals total stock awards divided by the number of audit committee members. Third, $Perc_StckAwa$ is calculated by dividing total stock awards of the audit committee by total equity compensation of the audit committee. The value of stock awards is obtained from the Execucomp database which is in accordance with FASB ASC Topic 718.

Total audit committee equity compensation (Ln_TotEq) is measured by taking the natural logarithm of the sum of total option grants and stock awards for audit committee members. This compensation data are obtained from the Execucomp database. A second measure, $Perc_TotEq$, is the percentage of total equity compensation which is derived from the ratio of total equity compensation to total compensation (the sum of cash, option grants, and stock awards). Lastly, average total equity compensation ($LnAvg_TotEq$) equals the natural logarithm of total equity compensation divided by the number of audit committee members. The compensation variables used in this study are consistent

Table 3

Industry distribution.

Fama-French industry classification	Number of observations	Percent
Consumer Nondurables	15	3.21
Consumer Durables	16	3.43
Manufacturing	77	16.49
Oil, Gas and Coal Extraction	16	3.43
Chemicals and Allied Products	21	4.50
Business Equipment	97	20.77
Telephone and Television Transmission	12	2.57
Wholesale, Retail, and Services	55	11.78
Healthcare, Medical Equipment, Drugs	72	14.99
Other	88	18.84
TOTAL	467	100

with prior research on audit committee compensation (Archambeault et al., 2008; Cullinan et al., 2010; Engel et al., 2010; Hayek, 2015).

Three groups of control variables (Audit Committee Characteristics Controls - *ACcontrols*, Board characteristics Controls - *BOARDcontrols*, Executive Characteristics Controls - *EXECUTIVEcontrols* and Firm Controls - *FIRMcontrols*) are included in the model. They are variables conventionally used in both audit fees (see Hay et al., 2006; Whisenant, Sankaraguruswamy, & Raghunandan, 2003) and audit committee literature (Abbott et al., 2003a, 2003b; Abbott, Parker, & Peters, 2010; Raghunandan & Rama, 2007; Sharma, Naiker, & Lee, 2009). The control variables for audit committee characteristics are average tenure of audit committee (*Avg_Ten*), percentage of financial experts on audit committee (*Expert*) and number of audit committee meetings (*Mtg*). All three variables are expected to have a positive association with audit fees. Board characteristics controls include board composition (*BrdComp*) and board meetings (*BrdMtg*). Executive characteristics controls are CEO duality (*CEODual*), CEO tenure (*CEOTen*), CEO compensation (*CEOComp*) and CFO compensation (*CFOComp*). We do not make prediction on the relationships between audit fees and board characteristic controls or executive characteristics controls.

Several firm control variables are included in the model. The natural logarithm of total assets, (*LnTA*), represents size, which is expected to have a positive relationship with audit fees. *RECLnv* represents the inherent risk in an engagement, and is expected to have a positive relationship with audit fees because inventory and receivables are cited as being difficult to audit, have a higher risk of errors, and may require specialized audit procedures (Simunic,

1980). A more complex client may be harder and more time-consuming to audit which could result in higher fees. The square root of the number of business segments, *SQSEG*, and *FOREIGN*, an indicator variable for whether the company has foreign business segments, capture complexity. Client characteristics such as profitability and leverage may also affect the audit process. *ROA*, *LOSS*, and *LEV* each represent firm characteristics. Generally, the worse the performance of the organization, the more risk to the auditor and the higher the audit fees, so a negative relationship is expected with *ROA*. A positive relationship is expected with *LOSS* and *LEV*. *BIG4* represents auditor quality in which extant literature strongly supports that higher audit fees are expected when the auditor is recognized to be of superior quality (Hay et al., 2006). *RESTATE* and *MW* are each expected to be positively associated with audit fees based on prior literature (Huang, Raghunandan, & Rama, 2009).

We also include industry and year fixed effects in the regression models. The industry fixed effect is based on the two-digit SIC codes. Definitions of variables are provided in Table 1.

3.2. Sample and data

The sample selection for this study follows guidelines presented in prior literature (Campbell et al., 2011; Engel et al., 2010). The focus of this study is aimed at firms where the importance of the audit committee is higher. We thus chose smaller firms where alternative monitoring mechanisms, such as analysts following or institutional investors, would be less likely to provide the setting for this study (Campbell et al., 2011).

Table 4
Descriptive statistics.

Panel A: descriptive statistics for continuous variables					
Variable name	Mean	Median	Standard deviation	25th percentile	75th percentile
Total_Comp (in thousands)	581.050	529.120	300.340	363.500	741.360
Cash_Comp (in thousands)	253.770	238.950	128.890	163.750	324.750
Total_EQ (in thousands)	306.480	270.000	202.160	170.030	400.080
Total_StckOpt (in thousands)	57.730	0.000	122.960	0.000	63.500
Total_StckAwa (in thousands)	248.750	225.000	195.730	122.890	342.330
Perc_TotEq	50.610	50.990	18.610	42.090	61.470
Perc_StckOpt	19.070	0.000	33.130	0.000	36.210
Perc_StckAwa	76.640	100.000	36.670	52.820	100.000
Avg_TotEq (in thousands)	84.760	76.010	57.060	45.580	107.660
Avg_StckOpt (in thousands)	16.810	0.000	36.030	0.000	16.800
Avg_StckAwa (in thousands)	67.950	63.330	53.880	33.330	90.060
Audit Fees (in millions)	1.380	1.154	1.026	0.684	1.700
Avg_Ten	7.300	6.750	3.080	5.000	9.250
Expert	0.520	0.330	0.330	0.330	0.670
Mtg	6.980	6.000	2.580	5.000	9.000
BrdComp	7.160	7.000	1.890	6.000	8.000
BrdMtg	7.790	7.000	3.670	5.000	9.000
CEOTen	8.440	6.000	7.670	3.000	12.000
CEOComp (in thousands)	2948.580	2502.530	2440.980	1549.420	3653.640
CFOComp (in thousands)	1110.500	1000.020	670.180	655.230	1362.270
Total Assets (in millions)	940.590	650.580	937.190	350.060	1156.700
Reclnv	0.270	0.250	0.160	0.150	0.350
SqSeg	2.150	2.000	0.790	1.730	2.650
ROA	0.050	0.050	0.090	0.020	0.090
LEV	0.430	0.430	0.210	0.260	0.570
Naf_Ratio	0.150	0.110	0.140	0.040	0.220

Panel B: mean, median, and frequencies for dichotomous variables				
Variable name	Mean	Standard deviation	Number of firms coded "1"	Number of firms coded "0"
CEODual	0.435	0.496	203	264
FOREIGN	0.345	0.476	161	306
GC	0.101	0.301	47	420
MW	0.036	0.187	17	450
BIG4	0.833	0.373	389	78
RESTATE	0.101	0.301	47	420
LOSS	0.139	0.347	65	402

In addition, we chose firms with identical fiscal year-ends for two reasons. First, the post-SOX environment experienced increasing trends in the use of equity compensation. Second, new compensation disclosure rules were enacted by the SEC after 2009. Based on the criteria above, our sample includes all firms with a December 31 fiscal year-

end in the S&P SmallCap 600 index. The rationale is that December FYE firms and non-December FYE firms differ in size, risk characteristics, and business cycle (Oyer, 1998; Smith & Pourciau, 1988). In addition, auditing is seasonal because the majority of U.S. public firms have a December FYE. A recent study by Ng, Per, and Wong (2018) find that audit

Table 5
Pearson (Spearman) correlation matrix, N = 467.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
LnAF(1)		0.339	0.114	0.337	-0.141	-0.252	-0.141	0.402	0.341	0.414	0.137	0.172	0.217	0.251	0.128	
Ln_TotEq (2)	0.338		0.746	0.652	0.151	0.024	0.162	0.653	0.458	0.653	<i>-0.088</i>	0.062	0.172	0.098	0.050	
Perc_TotEq. (3)	0.039	0.646		0.665	0.256	0.121	0.279	0.422	0.209	0.453	<i>-0.086</i>	0.133	0.055	<i>-0.037</i>	0.027	
LnAvg_TotEq. (4)	0.315	0.924	0.726		0.216	0.034	0.242	0.429	0.143	0.496	0.027	0.314	0.104	0.039	0.130	
Ln_StockOpt (5)	-0.136	0.135	0.236	0.183		0.882	0.996	-0.403	-0.720	-0.404	<i>-0.003</i>	0.049	<i>0.077</i>	-0.116	0.121	
Perc_StockOp (6)	-0.180	0.016	0.142	0.063	0.974		0.882	-0.660	-0.836	-0.656	0.007	0.014	0.060	-0.141	0.060	
LnAvg_StockOpt (7)	-0.140	0.130	0.243	0.186	0.999	0.973		-0.402	-0.722	-0.400	<i>-0.009</i>	0.057	0.074	-0.120	0.122	
Ln_StockAwa (8)	0.412	0.783	0.411	0.690	-0.412	-0.492	-0.415		0.872	0.990	<i>-0.064</i>	0.016	0.102	0.156	0.014	
Perc_StockAwa (9)	0.264	0.166	0.047	0.122	-0.840	-0.869	-0.840	-0.625		0.863	<i>-0.023</i>	<i>-0.018</i>	0.022	0.149	<i>-0.064</i>	
LnAvg_StockAwa (10)	0.403	0.733	0.474	0.763	-0.388	-0.470	-0.387	0.945	0.605		<i>-0.038</i>	0.066	0.103	0.139	0.021	
Avg_Ten (11)	0.094	-0.141	-0.138	-0.115	<i>-0.005</i>	0.019	<i>-0.003</i>	-0.108	<i>-0.041</i>	<i>-0.087</i>		0.115	<i>-0.023</i>	-0.102	-0.100	
Expert (12)	0.117	0.108	0.145	0.191	<i>0.079</i>	0.055	<i>0.082</i>	0.025	<i>-0.052</i>	0.094	<i>-0.050</i>		0.013	0.115	0.067	
Mtg (13)	0.221	0.195	0.035	0.175	0.100	<i>0.085</i>	0.097	0.130	<i>-0.005</i>	0.124	0.006	0.061		0.141	0.180	
BrdComp (14)	0.263	0.131	<i>-0.040</i>	0.055	-0.108	-0.129	-0.115	0.170	0.144	0.108	-0.117	0.108	0.172		-0.094	
BrdMtg (15)	0.209	0.225	0.091	0.215	0.106	0.068	0.107	0.150	<i>-0.040</i>	0.142	-0.109	0.058	0.183	<i>-0.033</i>		
CEODual (16)	-0.125	<i>-0.068</i>	0.061	<i>-0.060</i>	<i>-0.030</i>	0.002	<i>-0.029</i>	<i>-0.038</i>	<i>-0.051</i>	<i>-0.028</i>	0.063	-0.101	-0.096	-0.254	<i>-0.064</i>	
CEOTen (17)	-0.162	-0.148	0.052	-0.132	<i>0.081</i>	<i>0.106</i>	<i>0.081</i>	-0.209	-0.115	-0.193	0.232	-0.115	-0.200	-0.250	-0.195	
CEOComp (18)	0.384	0.403	0.162	0.384	<i>0.028</i>	<i>-0.035</i>	<i>0.025</i>	0.327	0.092	0.316	-0.091	0.119	0.105	0.182	0.149	
CFOComp (19)	0.396	0.413	0.106	0.378	<i>-0.087</i>	-0.147	-0.092	0.404	0.216	0.390	<i>-0.036</i>	0.099	0.139	0.131	0.119	
LnTA (20)	0.658	0.364	<i>-0.017</i>	0.326	-0.195	-0.236	-0.199	0.452	0.295	0.433	<i>0.076</i>	0.099	0.146	0.232	0.124	
RECIInv (21)	0.164	0.001	-0.123	<i>-0.062</i>	-0.140	-0.116	-0.145	0.135	0.107	0.086	0.132	<i>-0.059</i>	0.024	<i>-0.022</i>	<i>-0.052</i>	
SQSEG (22)	0.478	0.134	0.036	0.140	<i>-0.062</i>	<i>-0.077</i>	<i>-0.067</i>	0.204	0.130	0.206	0.097	0.019	0.031	0.124	0.153	
FOREIGN (23)	0.154	0.123	<i>0.085</i>	0.137	0.042	0.034	0.043	<i>0.080</i>	<i>-0.022</i>	0.095	<i>-0.013</i>	0.015	0.074	<i>-0.030</i>	<i>0.088</i>	
ROA (24)	-0.273	<i>-0.017</i>	0.133	<i>-0.012</i>	0.095	<i>0.086</i>	0.093	<i>-0.079</i>	<i>-0.085</i>	<i>-0.084</i>	0.006	0.019	-0.131	-0.155	-0.151	
LEV (25)	0.330	0.093	-0.134	0.034	-0.192	-0.204	-0.196	0.188	0.199	0.148	<i>-0.055</i>	<i>0.080</i>	0.028	0.255	0.061	
GC (26)	0.042	0.017	0.013	0.039	0.047	0.048	0.050	<i>-0.012</i>	<i>-0.044</i>	0.007	<i>-0.011</i>	<i>0.082</i>	0.037	0.065	0.009	
MW (27)	<i>0.081</i>	<i>0.083</i>	0.117	<i>0.080</i>	0.069	0.052	0.072	0.037	<i>-0.026</i>	0.031	0.050	<i>-0.033</i>	0.022	<i>-0.037</i>	0.058	
BIG4 (28)	0.285	0.172	<i>-0.014</i>	0.150	<i>-0.016</i>	<i>-0.070</i>	<i>-0.016</i>	0.176	0.108	0.168	0.039	0.112	0.292	0.228	0.140	
RESTATE (29)	0.116	<i>-0.006</i>	0.011	0.015	<i>0.087</i>	0.092	<i>0.087</i>	<i>-0.026</i>	<i>-0.068</i>	<i>-0.009</i>	<i>-0.012</i>	<i>0.079</i>	0.006	0.049	0.052	
LOSS (30)	0.037	<i>-0.051</i>	-0.118	<i>-0.060</i>	0.003	0.028	0.005	<i>-0.056</i>	<i>-0.077</i>	<i>-0.063</i>	-0.105	<i>-0.014</i>	0.019	0.070	0.106	
NAF_RATIO (31)	0.112	<i>0.087</i>	0.050	0.075	0.153	0.149	0.146	<i>-0.020</i>	-0.095	<i>-0.022</i>	<i>-0.006</i>	0.033	<i>0.077</i>	0.040	<i>-0.079</i>	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
LnAF(1)	-0.125	-0.139	0.303	0.369	0.665	0.155	0.455	0.163	-0.209	0.318	0.022	0.097	0.316	0.092	0.017	0.047
Ln_TotEq. (2)	-0.112	-0.147	0.214	0.276	0.296	0.007	0.144	0.069	<i>-0.003</i>	0.066	0.007	0.078	0.164	0.021	-0.102	0.089
Perc_TotEq. (3)	0.026	<i>-0.010</i>	0.107	0.108	0.027	<i>-0.082</i>	0.055	<i>0.087</i>	0.106	-0.112	0.013	0.114	0.003	<i>-0.002</i>	-0.122	0.061
LnAvg_TotEq. (4)	<i>-0.031</i>	-0.134	0.315	0.360	0.317	<i>-0.069</i>	0.109	0.125	0.021	<i>-0.021</i>	0.024	0.062	0.143	<i>-0.006</i>	<i>-0.077</i>	0.050
Ln_StockOpt (5)	<i>-0.039</i>	0.095	0.067	<i>-0.030</i>	-0.203	-0.150	<i>-0.061</i>	0.040	0.038	-0.192	0.050	0.070	<i>-0.015</i>	<i>0.088</i>	0.007	0.172
Perc_StockOp (6)	0.042	0.177	0.011	-0.105	-0.276	-0.131	-0.099	0.035	0.031	-0.205	0.044	0.021	-0.118	0.05	0.031	0.166
LnAvg_StockOpt (7)	<i>-0.031</i>	0.099	0.078	<i>-0.024</i>	-0.200	-0.166	<i>-0.066</i>	0.045	0.043	-0.196	0.051	0.071	<i>-0.010</i>	<i>0.086</i>	0.001	0.170
Ln_StockAwa (8)	-0.120	-0.230	0.129	0.254	0.379	0.099	0.172	0.015	<i>-0.027</i>	0.162	<i>-0.022</i>	0.056	0.221	<i>-0.027</i>	-0.102	<i>-0.027</i>
Perc_StockAwa (9)	<i>-0.088</i>	-0.199	0.032	0.160	0.318	0.127	0.146	<i>-0.020</i>	<i>-0.025</i>	0.199	<i>-0.040</i>	0.004	0.149	<i>-0.048</i>	<i>-0.083</i>	-0.101
LnAvg_StockAwa (10)	-0.105	-0.229	0.140	0.264	0.386	<i>0.080</i>	0.177	0.025	<i>-0.027</i>	0.147	<i>-0.014</i>	0.049	0.219	<i>-0.022</i>	-0.103	<i>-0.032</i>
Avg_Ten (11)	0.110	0.275	<i>-0.022</i>	0.006	<i>0.080</i>	0.106	<i>0.079</i>	<i>-0.019</i>	0.027	<i>-0.072</i>	<i>-0.033</i>	0.049	0.035	<i>-0.012</i>	-0.104	0.004
Expert (12)	<i>-0.046</i>	-0.155	0.155	0.134	0.121	<i>-0.032</i>	0.012	<i>-0.021</i>	0.071	0.053	0.050	<i>-0.021</i>	0.126	0.061	<i>-0.035</i>	<i>-0.004</i>
Mtg (13)	<i>-0.088</i>	-0.202	0.002	0.046	0.149	0.034	0.036	0.073	-0.139	0.027	0.033	0.041	0.251	0.002	0.017	0.071
BrdComp (14)	-0.241	-0.239	0.146	<i>0.087</i>	0.23	0.008	0.130	<i>-0.012</i>	-0.103	0.243	0.062	<i>-0.017</i>	0.220	0.051	0.067	0.042
BrdMtg (15)	<i>-0.036</i>	-0.133	0.057	0.057	0.103	<i>-0.058</i>	0.114	0.059	-0.181	0.097	0.009	0.036	0.097	0.074	0.133	<i>-0.066</i>
CEODual (16)		0.398	0.035	<i>-0.008</i>	<i>-0.078</i>	<i>-0.004</i>	0.047	0.018	0.069	-0.112	0.023	0.014	<i>-0.024</i>	<i>-0.064</i>	<i>-0.014</i>	0.062
CEOTen (17)	0.368		<i>-0.047</i>	-0.094	-0.120	<i>-0.404</i>	<i>-0.068</i>	<i>-0.058</i>	0.003	-0.113	-0.100	0.031	-0.102	<i>-0.059</i>	<i>-0.036</i>	<i>-0.003</i>
CEOComp (18)	<i>-0.041</i>	-0.099		0.453	0.359	<i>-0.026</i>	0.110	<i>0.082</i>	0.019	0.278	0.015	0.040	0.114	<i>-0.036</i>	<i>-0.001</i>	0.183
CFOComp (19)	<i>-0.036</i>	-0.139	0.599		0.426	<i>-0.031</i>	0.087	0.075	<i>-0.014</i>	0.203	<i>-0.013</i>	0.030	0.150	0.000	<i>-0.082</i>	0.069
LnTA (20)	<i>-0.085</i>	-0.158	0.455	0.499		0.037										

Table 6
The effect of option grants of audit committee on audit fees.

		Model 1		Model 2		Model 3	
		Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Ln_StckOpt	–	–0.018	–1.89**				
Perc_StckOpt	–			–0.002	–3.16***		
StckOpt/TotComp	–					–0.025	–2.39***
<i>Control Variables</i>							
Avg_Ten	+	0.016	2.34**	0.016	2.35**	0.016	2.18**
Expert	+	0.157	2.49***	0.163	2.60***	0.158	2.64***
Mtg	+	0.021	2.46***	0.022	2.69***	0.021	2.49**
BrdComp	?	0.017	1.43	0.016	1.40	0.017	1.40
BrdMtg	?	0.003	0.55	0.003	0.56	0.003	0.51
CEOdual	?	–0.096	–2.14**	–0.095	–2.15**	–0.097	–2.15**
CEOTen	?	–0.001	–0.32	0.000	0.00	–0.001	–0.09
CEOComp	?	0.000	1.24	0.000	1.32	0.000	1.38
CFOComp	?	0.000	2.49***	0.000	2.42**	0.000	2.35***
LnTA	+	0.338	10.40***	0.329	10.16***	0.338	10.40***
RECIInv	+	0.705	4.64***	0.691	4.58***	0.701	4.48***
Sqseg	+	0.194	6.51***	0.192	6.50***	0.194	6.49***
Foreign	+	–0.001	–0.03	0.005	0.11	0.000	0.16
ROA	–	–0.182	–0.61	–0.200	–0.67	–0.180	–0.57
LEV	+	0.130	1.09	0.125	1.06	0.128	1.06
GC	?	0.021	0.31	0.028	0.43	0.021	0.32
MW	+	0.392	3.70***	0.380	3.61***	0.393	3.72***
BIG4	+	0.226	3.81***	0.210	3.54***	0.227	3.56***
Restate	+	0.121	1.82*	0.128	1.94**	0.122	1.82*
Loss	+	0.029	0.38	0.030	0.40	0.028	0.37
NAF_Ratio	?	0.048	0.32	0.079	0.54	0.049	0.37
<i>Fixed Effects</i>							
Model F, p-value		25.39	<i>p</i> < .0001	25.96	<i>p</i> < .0001	25.58	<i>p</i> < .0001
Adjusted R ²			0.6262		0.6315		0.6280

Two sided *p* values are reported. Variable definitions can be found in Table 1. *Ln_StckOpt* represents the natural log of the total value of option grants of the audit committee. *Perc_StckOpt* is the ratio of total option grants to total equity compensation of the audit committee. *StckOpt/TotComp* is total option grants of the audit committee divided by the total compensation of the audit committee.

* Represent statistical significance at *p* < .10 respectively.
 ** Represent statistical significance at *p* < .05 respectively.
 *** Represent statistical significance at *p* < .01, respectively.

seasonality affects both the magnitude and the price elasticity of audit demand and audit supply. As a result, the audit busy season is associated with an audit fee premium. To control for factors which might affect audit fees, we choose only December FYE firms in our sample.

Table 2 summarizes the sample selection procedure. We begin with merging Compustat data and Audit Analytics data for all firms in the S&P SmallCap 600 index for the years 2011 and 2012. We then focus on firms with a December fiscal year end. We hand-collect audit committee data from each of the firm's proxy statements (DEF14A) available from the SEC EDGAR website.

Table 3 presents the industry distribution of the sample firms based on the Fama-French industry classification. Most observations (20.77%) are from firms within the business equipment industry. Approximately 18.84% of observations are from firms within specific mining, construction, transportation, hotel, and business services industries. The manufacturing and healthcare, medical equipment, and drug industries have the third and fourth highest representation of 16.49 and 14.99% of observations, respectively.

4. Results

4.1. Summary statistics

Table 4 provides descriptive statistics for the sample. Total compensation is the sum of all components of audit committee compensation (cash and equity). The mean (median) of the sample is \$581.05 (\$529.12) thousand. The mean (median) of the cash component of total compensation is approximately \$253.77 (\$238.95) thousand. Total equity compensation for the sample averages \$306.48 thousand.

The average equity component of total compensation is approximately 50.61%, consistent with the threshold of "at least half" suggested by the NACD. Option grants represent approximately 19.07% of total equity compensation, while stock awards represent approximately 76.64%.⁵ The average total option grants is \$57.73 thousand, while the average total stock awards is \$248.75 thousand. This is also representative of the notion that option grants are losing popularity as a major component of equity compensation. Nonetheless, they do still represent almost 20% of compensation used in this sample of firms.

The mean (median) of the main dependent variable, audit fees, is \$1.38 (\$1.15) million. With respect to the other control variables, the mean (median) of the tenure of audit committee members is 7.3 (6.75) years of service on audit committee. The mean (median) percentage of financial experts on audit committee is 52% (33%). The mean (median) of the number of audit committee meetings held is 6.98 (6.00) times per year, and the mean (median) of the number of board meetings is slightly higher at 7.79 (7.00) times per year. The mean (median) number of non-employee directors is 7.16 (7.00). Average CEO tenure is approximately 8 years, and average CEO compensation as reported in SEC filings is \$2.95 million. There are 203 cases (43%) where the CEO is also chairperson of the board. An auditor that is part of the Big 4 audits approximately 83% of the observations. Frequencies of firms that have a going concern, material weakness, or

⁵ In addition to option grants and stock awards, there is a third type of equity compensation, which is categorized as 'other.' A common 'other' type of equity compensation is performance shares which are awarded only if certain specified measure are met. These could include metrics, such as an earnings per share (EPS) target, return on equity (ROE) or the total return of the company's stock in relation to an index. Typically, performance periods are over a multi-year time horizon.

Table 7
The Effect of Stock Awards of Audit Committee on Audit Fees.

	Model 1		Model 2		Model 3		
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	
Perc_StckAwa	+		0.003	4.48***			
StckAwa/TotComp	+				0.063	4.00***	
<i>Control Variables</i>							
Avg_Ten	+	0.020	2.84***	0.018	2.59***	0.019	2.76***
Expert	+	0.165	2.66***	0.168	2.72***	0.151	2.32**
Mtg	+	0.019	2.35**	0.021	2.57***	0.019	2.40**
BrdComp	?	0.018	1.53	0.017	1.43	0.019	1.45*
BrdMtg	?	0.003	0.47	0.004	0.73	0.003	0.52
CEOdual	?	-0.081	-1.85*	-0.089	-2.02**	-0.084	-2.28**
CEOTen	?	0.000	0.09	0.000	0.14	0.000	-0.08
CEOComp	?	0.000	1.11	0.000	1.35	0.000	1.34
CFOComp	?	0.000	2.18**	0.000	2.31**	0.000	2.36**
LnTA	+	0.312	9.57***	0.320	9.93***	0.309	10.04***
REClnv	+	0.653	4.35***	0.650	4.34***	0.664	4.46***
Sqseg	+	0.187	6.36***	0.187	6.37***	0.186	6.33***
Foreign	+	0.005	0.11	0.008	0.17	0.002	-0.06
ROA	-	-0.182	-0.62	-0.191	-0.65	-0.174	-0.74
LEV	+	0.165	1.42	0.126	1.08	0.175	1.35
GC	?	0.031	0.47	0.033	0.50	0.030	0.43
MW	+	0.341	3.26***	0.364	3.50***	0.342	3.31***
BIG4	+	0.196	3.33***	0.201	3.43***	0.199	3.76***
Restate	+	0.122	1.87*	0.128	1.96**	0.121	1.86*
Loss	+	0.058	0.77	0.047	0.62	0.060	0.62
NAF_Ratio	?	0.023	0.16	0.075	0.52	0.029	0.23
<i>Fixed Effects</i>							
Model F, p-value		26.70	p < .0001	26.86	p < .0001	26.50	p < .0001
Adjusted R ²			.6383		.6397		.6365

*, **, *** represent statistical significance at p < .10, p < .05, and p < .01, respectively. Two sided p values are reported. Variable definitions can be found in Table 1. Ln_StckAwa represents the natural log of the total value of stock awards of the audit committee. Perc_StckAwa is the ratio of total stock awards to total equity compensation of the audit committee. StckAwa/TotComp is total stock awards of the audit committee divided by the total compensation of the audit committee.

restatement are 47 (10%), 17 (3.6%) and 47 (10%), respectively. There are only 65 observations (14%) where a net loss is reported.

Table 5 provides information on the Pearson (Spearman) correlations between the explanatory variables. All correlations are considerably below the 0.80 threshold for multicollinearity, with the exception of some of the compensation variables (Gujarati, 2003), which are to be expected since they are simply derivations of the same compensation variable. All explanatory variables, with the exception of GC, Loss, and NAF_Ratio, are correlated with the natural log of audit fees. The highest variance inflation factor (VIF) among all variables is <2.47, which is substantially lower than the threshold of 10.00 where multicollinearity becomes a concern.

4.2. Regression results

Regression results of audit committee compensation on audit fees are presented in Tables 6–8. In Table 6, the natural log of audit fees (LnAF) is regressed on the natural log of option grants (Ln_StckOpt), the percentage of option grants (Perc_StckOpt), and the natural log average option grants (LnAvg_StckOpt). Consistent with our Hypothesis 1, Table 7 show that equity compensation with option grants has a negative and statistically significant relationship with audit fees across all three models (Ln_StckOpt, t = -1.89, model 1; Perc_StckOpt, t = -3.16, model 2; and LnAvg_StckOpt, t = -1.96, model 3). The findings here suggest that stock option compensation, as a form of equity compensation, reduces the level of audit fees, resulting in a lower level of audit quality. In addition, most control variables in the models have the expected predictions. Consistently across all three models, Avg_Ten, Expert, LnTA, REClnv, SqSeg, MW, Big4, and Mtg are positively and significantly associated with audit fees at the 1% and 5% level. Also, CEOdual

Table 8
The Effect of Total Equity Compensation of Audit Committee on Audit Fees.

	Model 1		Model 2		Model 3		
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	
Ln_TotEq	+	0.054	3.16***				
Perc_TotEq	+			0.003	2.47**		
EqDum					0.062	1.46	
<i>Control Variables</i>							
Avg_Ten	+	0.020	2.89***	0.020	2.78***	0.018	2.52**
Expert	+	0.144	2.31**	0.126	1.99**	0.134	2.10**
Mtg	+	0.016	1.95**	0.018	2.11**	0.018	2.14**
BrdComp	?	0.020	1.70*	0.020	1.71*	0.020	1.69*
BrdMtg	?	0.002	0.36	0.002	0.32	0.002	0.27
CEOdual	?	-0.075	-1.70*	-0.088	-1.98**	-0.090	-2.00**
CEOTen	?	-0.001	-0.42	-0.002	-0.61	-0.002	-0.55
CEOComp	?	0.000	0.85	0.000	0.94	0.000	1.02
CFOComp	?	0.000	2.27**	0.000	2.55**	0.000	2.57***
LnTA	+	0.322	9.83***	0.336	10.38***	0.340	10.44***
REClnv	+	0.690	4.58***	0.737	4.89***	0.744	4.91***
Sqseg	+	0.187	6.32***	0.188	6.31***	0.191	6.38***
Foreign	+	-0.011	-0.24	-0.018	-0.39	-0.009	-0.19
ROA	-	-0.191	-0.64	-0.222	-0.74	-0.197	-0.66
LEV	+	0.173	1.46	0.176	1.47	0.162	1.36
GC	?	0.017	0.25	0.016	0.24	0.016	0.24
MW	+	0.347	3.29***	0.345	3.23***	0.366	3.43***
BIG4	+	0.220	3.72***	0.236	3.97***	0.232	3.90***
Restate	+	0.105	1.60	0.106	1.60	0.106	1.59
Loss	+	0.058	0.76	0.051	0.66	0.042	0.55
NAF_Ratio	?	-0.040	-0.28	-0.036	-0.25	-0.010	-0.07
<i>Fixed Effects</i>							
Model F, p-value		25.96	p < .0001	25.62	p < .0001	25.26	p < .0001
Adjusted R ²			0.6315		0.6283		0.6249

Two sided p values are reported. Variable definitions can be found in Table 1. Ln_TotEq represents the natural log of total audit committee equity compensation. Perc_TotEq is the ratio of total equity compensation to total compensation of the audit committee. EqDum is equal to 1 if equity compensation makes up 50% or more of total compensation, zero otherwise.

* Represent statistical significance at p < .10 respectively.
** Represent statistical significance at p < .05 respectively.
*** Represent statistical significance at p < .01, respectively.

(CFOComp) is negatively (positively) and significantly associated with audit fees.

Table 7 presents results of the effect of stock awards of audit committee on audit fees. Consistent with the prediction of Hypothesis 2 that equity compensation with stock awards is positively associated with audit fees, the results of all three regressions present a positive and statistically significant relationship between each of the alternative measures of stock awards and audit fees (Ln_StckAwa, t = 4.28, model 1; Perc_StckAwa, t = 4.48, model 2; LnAvg_StckAwa, t = 4.51, model 3). Ultimately, this supports the idea that equity compensation with stock awards, given its uniqueness in enhancing director's alignment with shareholder interests over the long term, actually increases the audit quality.

The results of the effect of total equity compensation of audit committee on audit fees are presented in Table 8. We find a positive and significant relationship between each of the alternative measures of total equity compensation and audit fees in models 1 and 2 (Ln_TotEq, t = 3.16, model 1; Perc_TotEq, t = 2.47, model 2). Given that compensation with stock awards is the larger component of total equity compensation in our sample, our findings are as expected. In addition, a dummy variable EqDum with a value of 1 if equity compensation makes up 50% or more of total compensation is used to measure the effect of equity compensation in model 3. A positive coefficient is found but it is not statistically significant (0.062, t = 1.46, model 3). In each regression reported in Tables 7–9, the overall model is statistically significant with F-values ranging from 25.39 to 26.88 each with p-value < 0001. All regression models are statistically significant with an explanatory power (adjusted R²) ranging from 0.6262 to 0.6400.

Table 9
The Effect of Option grants of Audit Committee on Restatement.

	Coeff	Chi-square	Coeff	Chi-square	Coeff	Chi-square
Intercept	-14.774	0.006	-15.121	0.006	-23.925	0.015
Ln_StockOpt	0.146	3.522*				
Perc_StockOpt			0.009	2.904*		
StockOpt/TotComp					1.538	2.483
<i>Control Variables</i>						
Avg_Ten	-0.024	0.162	-0.024	0.155	-0.031	0.267
Expert	0.561	1.265	0.554	1.256	0.380	0.562
Mtg	-0.007	0.011	-0.006	0.006	-0.026	0.119
BrdComp	0.093	0.818	0.085	0.705	0.063	0.381
BrdMtg	0.051	1.391	0.055	1.642	0.054	1.421
CEOdual	-0.058	0.020	-0.137	0.116	-0.059	0.021
CEOTen	-0.018	0.366	-0.019	0.417	-0.020	0.413
CEOComp	-0.000	0.612	-0.000	0.522	-0.000	1.031
CFOComp	0.000	0.032	0.000	0.060	-0.000	0.007
LnTA	0.110	0.138	0.142	0.230	-0.279	0.649
RECIInv	2.272	3.176*	2.266	3.205*	1.689	1.614
Sqseg	-0.020	0.006	-0.008	0.001	-0.162	0.352
Foreign	-0.743	3.312**	-0.779	3.614**	-0.826	4.011**
ROA	-5.296	3.801**	-5.083	3.552**	-5.656	4.257**
LEV	-0.389	0.132	-0.432	0.163	-0.518	0.230
GC	0.690	1.671	0.632	1.396	0.796	2.151
MW	-11.348	0.005	-11.304	0.005	-11.948	0.006
BIG4	-0.317	0.325	-0.215	0.152	-0.430	0.598
Loss	-0.910	1.781	-0.943	1.912	-1.047	2.302
NAF_Ratio	0.739	0.309	0.759	0.326	0.746	0.310
<i>Fixed Effects</i>		Yes		Yes		Yes

Variable definitions can be found in Table 1. The dependent variable in this test is *RESTATE* which equals 1 if there was a restatement in the year, 0 otherwise. *Ln_StockOpt* represents the natural log of the total value of stock option compensation of the audit committee. *Perc_StockOpt* is the ratio of total stock option compensation to total equity compensation of the audit committee. *StockOpt/TotComp* is total stock option compensation of the audit committee divided by the total compensation of the audit committee. *, **, *** represent statistical significance at $p < .10$, $p < .05$, and $p < .01$, respectively.

Table 10
The Effect of Stock Awards of Audit Committee on Restatement.

	Coeff	Chi-square	Coeff	Chi-square	Coeff	Chi-square
Intercept	-14.540	0.006	-14.431	0.006	-14.400	0.006
Ln_StockAwa	-0.079	0.647				
Perc_StockAwa			-0.006	1.318		
StockAwa/TotComp					-0.638	0.538
<i>Control Variables</i>						
Avg_Ten	-0.031	0.263	-0.028	0.210	-0.031	0.270
Expert	0.604	1.496	0.589	1.418	0.650	1.732
Mtg	0.009	0.018	0.005	0.005	0.007	0.010
BrdComp	0.075	0.562	0.082	0.658	0.072	0.529
BrdMtg	0.056	1.642	0.052	1.450	0.055	1.630
CEOdual	-0.191	0.230	-0.157	0.154	-0.156	0.152
CEOTen	-0.015	0.248	-0.016	0.299	-0.015	0.245
CEOComp	-0.000	0.460	-0.000	0.521	-0.000	0.491
CFOComp	0.000	0.090	0.000	0.075	0.000	0.069
LnTA	0.133	0.189	0.136	0.205	0.104	0.122
RECIInv	2.214	3.026*	2.239	3.108*	2.166	2.915*
Sqseg	0.005	0.000	0.003	0.000	0.010	0.002
Foreign	-0.762	3.455*	-0.756	3.436*	-0.721	3.142*
ROA	-5.447	4.102**	-5.420	3.400**	-5.382	3.978**
LEV	-0.633	0.347	-0.554	0.267	-0.610	0.323
GC	0.666	1.535	0.662	1.536	0.692	1.682
MW	-11.291	0.005	-11.289	0.005	-11.281	0.005
BIG4	-0.235	0.181	-0.234	0.178	-0.271	0.243
Loss	-1.065	2.433	-1.042	2.324	-1.029	2.304
NAF_Ratio	1.100	0.709	0.965	0.539	1.045	0.637
<i>Fixed Effects</i>		Yes		Yes		Yes

Variable definitions can be found in Table 1. The dependent variable in this test is *RESTATE* which equals 1 if there was a restatement in the year, 0 otherwise. *Ln_StockAwa* represents the natural log of the total value of stock awards of the audit committee. *Perc_StockAwa* is the ratio of total stock awards to total equity compensation of the audit committee. *StockAwa/TotComp* is total stock awards of the audit committee divided by the total compensation of the audit committee. *, **, *** represent statistical significance at $p < .10$, $p < .05$, and $p < .01$, respectively.

Table 11
The effect of total equity compensation of audit committee on restatement.

	Coeff	Chi-square	Coeff	Chi-square
Intercept	-14.426	0.005	-14.407	0.005
Ln_TotEq	0.077	0.189		
Perc_TotEq			0.011	0.291
<i>Control Variables</i>				
Avg_Ten	-0.022	0.130	-0.020	0.102
Expert	0.612	1.520	0.574	1.285
Mtg	0.003	0.002	0.004	0.003
BrdComp	0.068	0.462	0.072	0.524
BrdMtg	0.061	1.960	0.060	1.904
CEOdual	-0.185	0.219	-0.199	0.251
CEOTen	-0.014	0.226	-0.015	0.247
CEOCComp	-0.000	0.572	-0.000	0.596
CFOComp	0.000	0.024	0.000	0.034
LnTA	0.017	0.003	0.030	0.010
RECIInv	2.086	2.665*	2.139	2.799*
Sqseg	0.0030	0.000	-0.004	0.000
Foreign	-0.731	3.218*	-0.753	3.372*
ROA	-5.460	4.234**	-5.626	4.435**
LEV	-0.472	0.192	-0.440	0.167
GC	0.754	1.994	0.745	1.963
MW	-11.373	0.005	-11.393	0.005
BIG4	-0.284	0.267	-0.264	0.231
Loss	-0.973	2.057	-0.993	2.165
NAF_Ratio	1.102	0.712	1.125	0.745
<i>Fixed Effects</i>		Yes		Yes

Two sided p values are reported. Variable definitions can be found in Table 1. The dependent variable in this test is *RESTATE* which equals 1 if there was a restatement in the year, 0 otherwise. *Ln_TotEq* represents the natural log of total audit committee equity compensation. *Perc_TotEq* is the ratio of total equity compensation to total compensation of the audit committee. *LnAvg_TotEq* is the natural log of total audit committee equity compensation divided by the number of audit committee members. *, **, *** represent statistical significance at $p < .10$, $p < .05$, and $p < .01$, respectively.

Our findings are consistent with the predictions of agency theory. If equity compensation aligns audit committee members' interest with that of shareholders, the audit committee will provide effective oversight and demand more thorough audit coverage and scope, thus resulting in higher audit fees paid to external auditor. However, we find a different impact of option grants versus stock awards of audit committee on audit fees. Specifically, stock awards are more effective than option grants in aligning the interest of audit committee members with shareholders to provide better oversight of financial reporting.

5. Sensitivity analysis

Additional analysis is employed using alternative measures of audit quality. In addition to using audit fees as a measure of audit quality, we use whether or not the firm has a restatement as the dependent variable in the regression model for sensitivity analysis. Results of sensitivity analysis are reported in Tables 9–11. Table 9 presents the results for option grants, Table 10 presents results for stock awards, and Table 11 presents results for total equity compensation. Generally the results of sensitivity analysis confirm the main results of the study that option grants and stock awards of audit committee have a different impact on the audit quality. Results of Table 9 suggest that option grants decrease the effectiveness of audit committee and audit quality, thus increasing the likelihood of restatement ($Ln_StckOpt$, $t = 4.036$; $Perc_StckOpt$, $t = 3.999$; $LnAvg_StckOpt$, $t = 4.036$). While some results are not statistically significant, all measures of stock awards have negative coefficients as expected in the regression models in Table 10. Lastly, we do not find a significant relationship between any measure of total equity compensation of audit committee and restatement. This may be partly due to a small number of firms (65, 10.1%) that reported restatements in our sample.⁶

⁶ In addition, the effect of using alternative measure of board composition in the regression is analyzed. The main results remain statistically the same when board composition is measured by the proportion of independent board members.

6. Conclusions

Prior studies on executive compensation find that stock options are associated with executives' opportunistic behavior such as earnings management and financial restatements (Carter, Lynch, & Tuna, 2007). Similar results are found on director equity compensation. For example, Persons (2012) finds a significantly positive association between director stock-option compensation and the fraud likelihood. On the other hand, there is no association between the fraud likelihood, and independent directors' cash compensation and stock ownership. After the financial frauds in early 2000 which resulted in the creation of SOX, firms are found to use less stock options and more stock awards in compensating their executives and directors.

This paper examines the relationship between the types of equity compensation of audit committee and audit fees. Total equity compensation as well as different components of equity compensation, namely stock awards and option grants are analyzed. If the audit committee is acting in the best interest of shareholders, they should demand higher audit assurance and thus higher audit quality, reflected by higher audit fees. Alternatively, if the audit committee is incentivized to be less effective in its oversight responsibilities, a lower quality audit, reflected in lower audit fees would be expected. Results of this study reveal that option grants as a form of equity incentive reduce the audit quality. This is apparent in the significantly negative relationship between option grants and audit fees. Stock awards on the other hand, exhibit a positive and statistically significant relationship with audit fees, suggesting this type of equity compensation increases the effectiveness of audit committee and audit quality.

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