Advances in Accounting 37 (2017) 30–45

Contents lists available at ScienceDirect

Advances in Accounting

journal homepage: www.elsevier.com/locate/adiac

# Executive tournament incentives and audit fees

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ARTICLE INFO

*Article history:*
Received 22 July 2016
Received in revised form 2 December 2016
Accepted 8 December 2016
Available online 5 January 2017

*Keywords:*
Tournament incentives
Audit fees
Audit risk
Auditor business risk

ABSTRACT

This study investigates whether the incentives for non-CEO executives to become the next CEO, commonly known as "tournament incentives," influence auditor perceptions of risk. We argue that auditors are likely to view tournament incentives as affecting the risk of a material misstatement as well as the risk of litigation arising against the auditor, leading to an impact on audit fees. Using three alternative measures of tournament incentives from prior literature, we provide consistent evidence that stronger tournament incentives are associated with higher audit fees. We also find that the relation between tournament incentives and audit fees is moderated by insider CEO succession, CEO tenure, CEO age, auditor tenure, and abnormal accruals.



## 1. Introduction

Recent research suggests that CEO performance-based compensation affects auditor risk assessments (e.g., Chen, Gul, Veeraraghavan, & Zolotoy, 2015; Fargher, Jiang, & Yu, 2014; Kannan, Skantz, & Higgs, 2014; Kim, Li, & Li, 2015). In this study, we posit that the promotion-based compensation incentives of non-CEO executives impact the auditor as well. Specifically, our study investigates whether the incentives for non-CEO executives to become the next CEO, commonly known as "tournament incentives," influence auditor perceptions of risk.

The increase in compensation that a non-CEO executive would obtain from being promoted to CEO is a powerful incentive that motivates each executive to outperform rival executives in order to increase the likelihood of becoming the firm's next CEO (Haß, Müller, & Vergauwe, 2015; Kale, Reis, & Venkateswaran, 2009; Kini & Williams, 2012; Kubick & Masli, 2016; Lazear & Rosen, 1981; Prendergast, 1999). As the difference in compensation between the CEO and the other executives increases, the incentive to be promoted to CEO becomes stronger (Lazear & Rosen, 1981; Prendergast, 1999). This creates intense competition among non-CEO executives as each hopes to receive the increased compensation associated with "winning" the tournament.

Prior research suggests that executives respond to tournament incentives by putting forth greater effort, which leads to better firm performance (e.g., Kale et al., 2009; Lazear & Rosen, 1981; Prendergast, 1999). However, tournament incentives can have negative effects as well. For example, prior research finds that stronger tournament incentives are associated with greater performance misreporting (Conrads, Irlenbusch, Rilke, Schielke, & Walkowitz, 2014), more sabotage activities (Harbring & Irlenbusch, 2011), and a higher likelihood of fraud (Haß et al., 2015). Existing literature also suggests that stronger tournament incentives are associated with greater risk-taking (e.g., Andersson, Holm, Tyran, & Wengström, 2013; Goel & Thakor, 2008; Kini & Williams, 2012; Kubick & Masli, 2016), which can be detrimental to a firm if executives take excessive risks. In this study, we argue that auditors are likely to view tournament incentives as affecting the risk of a material misstatement as well as the risk of litigation arising against the auditor. Consequently, we expect tournament incentives to influence audit fees.

Consistent with prior literature (e.g., Haß et al., 2015; Kale et al., 2009; Kini & Williams, 2012; Kubick & Masli, 2016), we measure the strength of tournament incentives using the difference in compensation between the CEO and other executives. We utilize three measures: the natural logarithm of the difference between the CEO's total compensation and (1) the mean total compensation of the top five highest paid non-CEO executives, (2) the median total compensation of the top five highest paid non-CEO executives, and (3) the total compensation of the CFO. The results indicate that stronger tournament incentives are associated with higher audit fees, supporting our hypothesis. We also find that the relation between tournament incentives and audit fees is moderated by insider CEO succession, CEO tenure, CEO age, auditor tenure, and abnormal accruals.

This study makes several contributions. First, by showing that firms with stronger tournament incentives incur costlier audits, we add to the literature that identifies negative consequences associated with tournament incentives. Hence, when considering potential executive compensation structures, a costlier audit is one of several drawbacks that should be weighed against the benefits of having stronger tournament incentives. Second, we contribute to the emerging line of literature that investigates how executive compensation incentives affect auditor perceptions of risk. While prior research in this area examines

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http://dx.doi.org/10.1016/j.adiac.2016.12.001
0882-6110/

performance-based compensation incentives, we extend this stream of research by considering the promotion-based compensation incentives of non-CEO executives. Lastly, Auditing Standard No. 12 was modified in 2014 to specify that auditors should consider executive compensation incentives when making risk assessments (PCAOB, 2010b). Regulators should be interested in our study because our results supplement prior research by providing further evidence that auditors take executive compensation incentives into account when assessing risk.

## 2. Hypothesis development

### 2.1. Tournament incentives

Tournament incentives create competition among non-CEO executives as each executive tries to outperform the others in order to increase the likelihood of being promoted to CEO (Haß et al., 2015; Kale et al., 2009; Kini & Williams, 2012; Kubick & Masli, 2016; Lazear & Rosen, 1981; Prendergast, 1999).[1] While this competition among executives leads to greater effort and better firm performance (Kale et al., 2009; Lazear & Rosen, 1981; Prendergast, 1999), it can also increase the risk of a material misstatement if executives resort to manipulating financial information. Recent research provides support for the idea that tournament incentives can potentially threaten the integrity of the financial reports. For example, Conrads et al. (2014) show that stronger tournament incentives are associated with greater dishonesty in performance reporting. Similarly, Haß et al. (2015) find that stronger tournament incentives are associated with an economically significant increase in the likelihood of fraud.

### 2.2. Audit fees

Audit risk is "the risk that the auditor expresses an inappropriate audit opinion when the financial statements are materially misstated" (PCAOB, 2010a), while auditor business risk is the auditor's exposure "to loss of or injury to his or her professional practice from litigation, adverse publicity, or other events arising in connection with financial statements audited and reported on" (AICPA, 2006). Prior research suggests that auditors respond to greater audit risk or auditor business risk by charging higher audit fees (e.g., Bedard & Johnstone, 2004; Bell, Landsman, & Shackelford, 2001; Greiner, Kohlbeck, & Smith, 2013; Gul, Chen, & Tsui, 2003; Lyon & Maher, 2005; Pratt & Stice, 1994; Schelleman & Knechel, 2010; Seetharaman, Gul, & Lynn, 2002; Simunic, 1980; Stanley, 2011).

### 2.3. Audit fees and tournament incentives

Executive tournament incentives are likely to affect auditor perceptions of audit risk and auditor business risk. Auditing standards specify that executive compensation incentives should be taken into account when assessing the risk of material misstatements and fraud (AICPA, 2002; PCAOB, 2010b). Prior research provides evidence that auditors consider performance-based executive compensation incentives when making risk assessments (e.g., Billings, Gao, & Jia, 2014; Chen et al., 2015; Fargher et al., 2014; Kannan et al., 2014; Kim et al., 2015); however, this line of literature does not examine whether promotion-based compensation incentives affect auditor perceptions of risk. Since non-CEO executives are often implicated in cases of financial misconduct (e.g., Feng, Ge, Luo, & Shevlin, 2011; Haß et al., 2015; Karpoff, Lee, & Martin, 2008a; Karpoff, Lee, & Martin, 2008b), auditors have reason to consider the promotion-based compensation incentives of non-CEO executives when making risk assessments. Therefore, based on the prior literature that suggests a positive association between tournament incentives and misreporting (Conrads et al., 2014; Haß et al., 2015), we expect auditors to perceive audit risk as higher when tournament incentives are stronger, implying higher audit fees.

In addition to audit risk, auditors also consider auditor business risk when making risk assessments (AICPA, 2006; Johnstone, 2000). An important component of auditor business risk is the risk of litigation against the auditor. When stakeholders incur losses, auditors are often the target of lawsuits because of their "deep pockets," and prior research finds that the risk of litigation against the auditor is higher when the financial condition of the client is weaker (e.g., Palmrose, 1987; Pratt & Stice, 1994; Stice, 1991; St. Pierre & Anderson, 1984). Thus, factors that tend to improve the financial condition of a firm lessen auditor business risk, while factors that threaten its financial condition increase auditor business risk.

On the one hand, there are reasons to believe that tournament incentives could decrease auditor business risk. For example, prior research suggests that stronger tournament incentives are associated with greater effort and better firm performance (e.g., Kale et al., 2009; Lazear & Rosen, 1981; Prendergast, 1999). This implies lower auditor business risk and lower audit fees. However, other evidence implies that tournament incentives could increase auditor business risk. For instance, existing literature suggests that stronger tournament incentives encourage greater risk-taking (e.g., Andersson et al., 2013; Goel & Thakor, 2008; Kini & Williams, 2012; Kubick & Masli, 2016), which can be harmful to a firm if executives undertake excessive risks. In addition, Harbring and Irlenbusch (2011) find that stronger tournament incentives increase sabotage activities, which also negatively impact the firm. These factors imply greater auditor business risk and higher audit fees. Therefore, as a result of these competing influences, whether tournament incentives increase or decrease auditor business risk is uncertain.

In summary, while we expect stronger tournament incentives to increase audit risk, there are reasons to believe that tournament incentives could either increase or decrease auditor business risk. In light of these competing factors, we do not make a directional prediction regarding the impact of tournament incentives on the auditor's assessed level of risk. However, since prior research finds that auditor perceptions of risk affect audit fees (e.g., Bedard & Johnstone, 2004; Bell et al., 2001; Greiner et al., 2013; Gul et al., 2003; Lyon & Maher, 2005; Pratt & Stice, 1994; Schelleman & Knechel, 2010; Seetharaman et al., 2002; Simunic, 1980; Stanley, 2011), we expect the net effect of these competing influences to be reflected in audit fees. Therefore, our hypothesis, stated in null form, is as follows.

**H1:** Tournament incentives are not associated with audit fees.

## 3. Methodology

### 3.1. Measures of tournament incentives and equity incentives

We use three measures of tournament incentives from the prior literature (e.g., Haß et al., 2015; Kale et al., 2009; Kini & Williams, 2012; Kubick & Masli, 2016). Each measure is based on the difference in compensation between the CEO and other executives, which captures the strength of tournament incentives because it reflects the compensation increase that an executive would realize if promoted to CEO. Our first two measures are calculated as follows: *MEANDIF* (*MEDDIF*) is the natural logarithm of the difference between the total compensation of the CEO and the mean (median) total compensation of the top five highest paid non-CEO executives (with total compensation measured by Execucomp variable TDC1). Our last measure, *CFODIF*, is the natural logarithm of the difference between the total compensation of the CEO and the total compensation of the CFO.

[1] As noted by Haß et al. (2015), the possibility of outsider succession does not affect the predictions of tournament theory. That is, as the difference in compensation between the CEO and other executives increases, an executive's desire to be promoted to CEO strengthens, regardless of the potential for outsider succession (Haß et al., 2015).

We control for executive equity incentives in our model because prior research finds that equity incentives are associated with audit fees (e.g., Billings et al., 2014; Chen et al., 2015; Fargher et al., 2014; Kannan et al., 2014; Kim et al., 2015). We control for delta, which is the dollar change in an executive's wealth given a 1% change in the firm's stock price, as well as vega, which is the dollar change in an executive's wealth given a 0.01 change in the standard deviation of the firm's stock returns (Coles, Daniel, & Naveen, 2006; Coles, Daniel, & Naveen, 2013; Core & Guay, 2002).[2] Our delta variables include *CEODELTA*, *MEANDELTA*, *MEDDELTA*, and *CFODELTA*, which are calculated as the natural logarithm of: the CEO's delta, the mean delta of the top five highest paid non-CEO executives, the median delta of the top five highest paid non-CEO executives, and the CFO's delta, respectively. Similarly, our vega variables include *CEOVEGA*, *MEANVEGA*, *MEDVEGA*, and *CFOVEGA*, which are calculated as the natural logarithm of: the CEO's vega, the mean vega of the top five highest paid non-CEO executives, the median vega of the top five highest paid non-CEO executives, and the CFO's vega, respectively.

### 3.2. Empirical model

We test our hypothesis by regressing the natural logarithm of total audit fees on our measures of tournament incentives as well as a set of control variables chosen based on prior literature (e.g., Ball, Jayaraman, & Shivakumar, 2012; Francis, Reichelt, & Wang, 2005; Hay, Knechel, & Wong, 2006; Simunic, 1980). We utilize OLS regression and cluster standard errors by firm. All continuous variables are winsorized at the 1st and 99th percentiles. We estimate the following model:

$$\begin{aligned} FEES = {} & \alpha + \beta_1 PAYDIF + \beta_2 CEODELTA + \beta_3 CEOVEGA \\ & + \beta_4 \text{EXECDELTA} + \beta_5 \text{EXECVEGA} + \beta_6 SIZE + \beta_7 ROA \\ & + \beta_8 ACCRUALS + \beta_9 \text{CA} + \beta_{10} ABACC + \beta_{11} FOREIGN \\ & + \beta_{12} BSEGS + \beta_{13} LEV + \beta_{14} LOSS + \beta_{15} \text{DECFYE} + \beta_{16} ARLAG \\ & + \beta_{17} TENURE + \beta_{18} \text{ACQ} + \beta_{19} \text{HIGHLIT} + \beta_{20} \text{GCO} + \beta_{21} \text{AGE} \\ & + \beta_{22} \text{SPEC} + \beta_{23} \text{BIG} + \beta_{24} \text{SECTIER} + \beta_{25} \text{MATWEAK} \\ & + \beta_i \text{INDUSTRY} + \beta_j \text{YEAR} + \varepsilon \end{aligned} \quad (1)$$

where:

*FEES* = natural logarithm of total audit fees

*PAYDIF* = *MEANDIF*, *MEDDIF*, or *CFODIF*

*CEODELTA* = natural logarithm of the CEO's delta

*CEOVEGA* = natural logarithm of the CEO's vega

EXECDELTA = *MEANDELTA*, *MEDDELTA*, or *CFODELTA*

EXECVEGA = *MEANVEGA*, *MEDVEGA*, or *CFOVEGA*

*SIZE* = natural logarithm of total assets (in millions)

*ROA* = net income scaled by average total assets

*ACCRUALS* = unsigned total accruals divided by total assets

*CA* = current assets scaled by total assets

*ABACC* = performance-adjusted abnormal accruals estimated by industry (2-digit SIC) and year (Kothari, Leone, & Wasley, 2005)[3]

*FOREIGN* = foreign sales divided by total sales

*BSEGS* = number of business segments

*LEV* = total liabilities divided by total assets

*LOSS* = an indicator variable that takes the value of 1 if income before extraordinary items is negative, and 0 otherwise

*DECFYE* = an indicator variable that takes the value of 1 if a firm has a December fiscal year-end, and 0 otherwise

*ARLAG* = number of days in between the end of a firm's fiscal year and the date the audit report is filed

*TENURE* = number of years the auditor has audited a firm

*ACQ* = an indicator variable that takes the value of 1 if a firm engages in an acquisition, and 0 otherwise

*HIGHLIT* = an indicator variable that takes the value of 1 if a firm is in a high litigation risk industry (SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, 7370-7374, 8731-8734), and 0 otherwise

*GCO* = an indicator variable that takes the value of 1 if a firm received a going-concern audit opinion, and 0 otherwise

*AGE* = number of years a firm has been on Compustat

*SPEC* = an indicator variable that takes the value of 1 if a firm is audited by an industry specialist auditor, with specialization identified at the city-level, using the approach used by Francis et al. (2005), and 0 otherwise

*BIG* = an indicator variable that takes the value of 1 if a firm is audited by a Big 4 auditor, and 0 otherwise

*SECTIER* = an indicator variable that takes the value of 1 if a firm is audited by Grant Thornton or BDO Seidman, and 0 otherwise

*MATWEAK* = an indicator variable that takes the value of 1 if a firm reports a material weakness in internal control over financial reporting, and 0 otherwise

*INDUSTRY* = industry fixed effects, with industry defined by 2-digit SIC codes

*YEAR* = year fixed effects

We control for firm size by including the natural logarithm of total assets as a control variable. We account for a firm's financial condition by controlling for return on assets, leverage, negative earnings, and the issuance of a going-concern audit opinion. We capture the complexity of the audit by controlling for total accruals, current assets, foreign sales, the number of business segments, and acquisitions. Abnormal accruals are included in the regression to control for earnings management, and the December fiscal year-end indicator variable controls for audits that take place during the auditor's busy season, which may be costlier. We control for audit report lag because a longer delay between the firm's fiscal year-end and the issuance of the audit report may indicate complications with the audit.

We account for changes in audit fees occurring over the course of the auditor-client relationship by controlling for auditor tenure. We control for firms in high litigation risk industries because these firms may present more risk to the auditor. Firm age is included as a control variable to capture differences between younger and more mature firms. We control for auditor characteristics, including auditor size and auditor industry specialization, to account for variation in audit fees attributable to auditor type. We control for material weaknesses in internal control because the audit risk model implies that weaker internal control increases control risk, which should increase audit fees because the auditor has to conduct greater substantive testing in order to lower detection risk, and thus audit risk (PCAOB, 2010a). Lastly, we include industry and year fixed effects to capture the influence of industry characteristics and different time periods.

## 4. Sample and results

### 4.1. Sample description

We use the Compustat, Audit Analytics, and Execucomp databases to form our sample. The sample period for our analyses of the *MEANDIF* and *MEDDIF* measures of tournament incentives is 2004–2014. Our sample for these analyses includes 8604 firm-year observations from 1432 unique firms. Our analysis using the *CFODIF* measure of tournament incentives uses a sample period of 2006–2014 because disclosure of the CFO's compensation was not required until 2006 (SEC, 2006).[4]

[2] We thank Professor Lalitha Naveen for graciously providing delta and vega data on her website.

[3] We estimate performance-adjusted abnormal accruals by industry and year using the following model. $TA = \beta_0(1 / AT) + \beta_1 \Delta REV + \beta_2 PPE + \beta_3 ROA + \varepsilon$. Where TA is total accruals in year t scaled by total assets at the end of year t − 1; AT is total assets at the end of year t − 1; ΔREV is the change in total revenue from year t − 1 to year t minus the change in accounts receivable from year t − 1 to year t, scaled by total assets at the end of year t − 1; PPE is gross property, plant, and equipment at the end of year t scaled by total assets at the end of year t − 1; and ROA is return on assets during year t.

[4] Some studies identify CFOs prior to 2006 using Execucomp's "annual title" variable. We find that our results continue to hold when including the years 2004 and 2005 and identifying CFOs using the "annual title" variable for those years.

This reduces the sample size to 6866 firm-year observations from 1292 unique firms. To construct our sample, we exclude financial and utility firms, foreign firms, and firms that have total assets of less than one million dollars. We also delete firm-years that do not have required data. In addition, following prior research (e.g., Kini & Williams, 2012; Kubick & Masli, 2016), we delete observations where the CEO is not the highest paid executive.

Panel A of Table 1 presents descriptive statistics for the sample. Similar to other studies, the distribution of total assets is skewed, with a mean value that is 268% larger than the median. However, when total assets is log transformed, the mean value of 7.39 is similar to the median value of 7.27. Comparing our sample to two other studies examining tournament incentives, the mean firm-year in our sample is smaller than Kini and Williams (2012), but larger than Kubick and Masli (2016). The mean difference between the total compensation of the CEO and the mean (median) total compensation of the top five highest paid non-CEO executives amounts to $3,669,840 ($3,756,990), while the mean difference between the total compensation of the CEO and the total compensation of the CFO is $3,692,180. The mean audit fee in our sample is $3,093,721, which is more than 80% larger than the median audit fee of $1,685,275, suggesting that the distribution of audit fees is fairly skewed. However, when audit fees are log transformed, the mean value of 14.45 is much closer to the median value of 14.34. Panel A of Table 1 also reveals that 93% of the firm-years in our sample are audited by a Big 4 auditor, and 42% are audited by an industry specialist auditor.

Panel B of Table 1 presents Pearson Correlations of select variables. The correlations between our variables of interest, *MEANDIF*, *MEDDIF*, and *CFODIF*, are all large and positive, as expected.[5] Panel B also shows that the variables of interest are positively correlated with executive equity incentives (*CEODELTA*, *CEOVEGA*, *MEANDELTA*, *MEANVEGA*, *MEDDELTA*, *MEDVEGA*, *CFODELTA*, and *CFOVEGA*). Furthermore, the correlation matrix indicates that the variables of interest are positively associated with *FEES*, *SIZE*, *ROA*, *LEV*, and *TENURE*, and negatively associated with *ACCRUALS*, *LOSS*, and *ARLAG*. In addition, Panel C of Table 1 tabulates the frequency of industries in the sample, while Panel D of Table 1 tabulates the frequency of years in the sample.

### 4.2. Main results

The results from estimating Eq. (1) are presented in Table 2. Consistent with prior research, in all three columns, the models have high explanatory power (adjusted $R^2 = 80.55\%$, 80.55%, and 81.89% in columns 1, 2, and 3, respectively). Consistent with expectations, the results indicate positive and significant coefficients on *SIZE*, *FOREIGN*, *BSEGS*, and *LEV*, and a negative and significant coefficient on *ROA*. Consistent with prior research, the results also provide evidence of audit fee premiums for industry specialist auditors and Big 4 auditors. The results also show a positive and significant association between abnormal accruals and audit fees, which is consistent with prior literature. The other statistically significant control variables load in the expected direction.

In column 1 of Table 2, using the *MEANDIF* measure of tournament incentives, we find that the coefficient on *PAYDIF* is positive ($\beta = 0.042$) and significant at the 1% level. Next, we interpret the economic significance of the coefficient on *PAYDIF*. We find that an increase from the median to the 75th percentile of *PAYDIF* is associated with a 3.90% increase in audit fees. The results in columns 2 and 3 of Table 2 provide similar inferences when using the *MEDDIF* and *CFODIF* measures of tournament incentives, respectively. Thus, consistent with H1, the results in Table 2 indicate that there is a positive and significant association between the strength of tournament incentives and audit fees using all three of our measures of tournament incentives.

[5] The correlation between *MEANDIF* and *MEDDIF* of 1.00 is rounded.

### 4.3. Further analyses

#### 4.3.1. Alternative explanation

In a related study, Kannan, Pissaris, and Gleason (2012) argue that CEO dominance is a source of audit risk. The authors use the natural logarithm of the difference between the total compensation of the CEO and the mean total compensation of the top five highest paid non-CEO executives as a proxy for CEO domination, and find a positive association between CEO domination and audit fees. In light of this study, we conduct three tests to provide support for the notion that tournament incentives explain the association between executive pay disparity and audit fees.

First, we examine whether insider CEO succession moderates the relation between executive pay disparity and audit fees. When a firm's CEO was promoted from within the firm, the non-CEO executives are likely to perceive a higher chance of becoming the firm's next CEO since the firm has demonstrated an inclination for insider CEO succession (Kale et al., 2009). As a result, the non-CEO executives may compete more intensely, leading to a stronger effect for a given level of executive pay disparity. To conduct this test, we create a new variable, *INSIDE*, which takes the value of 1 if a firm's CEO was a non-CEO executive at the firm prior to becoming CEO, and 0 otherwise. We then interact *PAYDIF* with *INSIDE* and regress these additional variables in our audit fee model from Eq. (1). We anticipate a positive coefficient on *PAYDIF* * *INSIDE*.

The results of this analysis are presented in Table 3. In column 1 of Table 3, using the *MEANDIF* measure, the coefficient on *PAYDIF* * *INSIDE* is positive ($\beta = 0.047$) and significant at the 1% level. This suggests that the impact of executive pay disparity on audit fees is stronger when the most recent CEO succession was an insider succession. Furthermore, the coefficient on *PAYDIF* ($\beta = 0.019$) indicates that there is only a marginally significant ($p = 0.089$) association between executive pay disparity and audit fees when the most recent CEO succession was an outsider succession.[6] In contrast, the sum of the coefficients on *PAYDIF* and *PAYDIF* * *INSIDE* ($\beta = 0.066$) is highly significant ($p < 0.01$), indicating a strong relation between executive pay disparity and audit fees when the most recent CEO succession was an insider succession. The results in columns 2 and 3 of Table 3 provide similar inferences when using the *MEDDIF* and *CFODIF* measures, respectively. Hence, consistent with our prediction, the results in all three columns of Table 3 indicate that insider CEO succession strengthens the relation between executive pay disparity and audit fees.

As a second test to support the tournament incentives explanation, we examine the influence of CEO tenure on the association between executive pay disparity and audit fees. When there is a new CEO, the previous tournament has recently ended. When this occurs, we expect the influence of tournament incentives to be diminished because a CEO succession decision is less imminent. Therefore, we predict a negative coefficient on the interaction between executive pay disparity and short CEO tenure. To perform this analysis, we create a new variable, *SHORTTEN*, short CEO tenure, which is a dichotomous variable that takes the value of 1 if the CEO's tenure is less than 3 years, and 0 otherwise.[7] We then interact *PAYDIF* with *SHORTTEN* and regress these additional variables in our audit fee model from Eq. (1).

In column 1 of Table 4, using the *MEANDIF* measure, the coefficient on *PAYDIF* * *SHORTTEN* is negative ($\beta = -0.034$) and significant at the 1% level. The results in columns 2 and 3 of Table 4 provide similar inferences when using the *MEDDIF* and *CFODIF* measures, respectively. Thus, consistent with our prediction, the results in all three columns of Table 4 suggest that short CEO tenure weakens the relation between executive pay disparity and audit fees.

[6] Because of the interaction term, in this specification the interpretation of *PAYDIF* is the influence of executive pay disparity on audit fees when *INSIDE* is equal to zero.

[7] The median CEO tenure is 5 years. Our results continue to hold when defining short CEO tenure as being less than the median.

**Table 1**
Descriptive statistics.

| Panel A: summary statistics | | | | | |
|---|---|---|---|---|---|
| Sample (N = 8604) | | | | | |
| | Mean | Median | Std dev | 25% | 75% |
| *MEANDIF* | 7.72 | 7.79 | 1.04 | 7.03 | 8.45 |
| Exp(*MEANDIF*) | 3669.84 | 2418.70 | 3895.28 | 1125.78 | 4682.01 |
| *MEDDIF* | 7.74 | 7.82 | 1.05 | 7.05 | 8.48 |
| Exp(*MEDDIF*) | 3756.99 | 2486.18 | 4012.32 | 1156.70 | 4803.80 |
| *CFODIF* | 7.70 | 7.81 | 1.09 | 7.01 | 8.47 |
| Exp(*CFODIF*) | 3692.18 | 2453.98 | 3950.43 | 1108.17 | 4748.32 |
| *CEODELTA* | 5.33 | 5.33 | 1.41 | 4.42 | 6.28 |
| Exp(*CEODELTA*) | 532.36 | 207.03 | 1011.78 | 82.84 | 534.61 |
| *CEOVEGA* | 3.81 | 4.09 | 1.80 | 2.88 | 5.09 |
| Exp(*CEOVEGA*) | 140.43 | 59.58 | 218.71 | 17.76 | 161.70 |
| *MEANDELTA* | 3.58 | 3.61 | 1.18 | 2.77 | 4.38 |
| Exp(*MEANDELTA*) | 69.15 | 36.84 | 93.34 | 15.92 | 80.01 |
| *MEDDELTA* | 3.56 | 3.59 | 1.21 | 2.76 | 4.39 |
| Exp(*MEDDELTA*) | 69.75 | 36.13 | 96.64 | 15.79 | 80.45 |
| *CFODELTA* | 3.58 | 3.64 | 1.29 | 2.74 | 4.49 |
| Exp(*CFODELTA*) | 76.24 | 38.08 | 109.30 | 15.44 | 89.47 |
| *MEANVEGA* | 2.54 | 2.64 | 1.40 | 1.57 | 3.51 |
| Exp(*MEANVEGA*) | 30.44 | 13.98 | 46.51 | 4.82 | 33.37 |
| *MEDVEGA* | 2.56 | 2.68 | 1.43 | 1.59 | 3.55 |
| Exp(*MEDVEGA*) | 31.52 | 14.51 | 48.15 | 4.92 | 34.65 |
| *CFOVEGA* | 2.54 | 2.70 | 1.51 | 1.50 | 3.65 |
| Exp(*CFOVEGA*) | 32.71 | 14.83 | 48.93 | 4.46 | 38.61 |
| *FEES* | 14.45 | 14.34 | 0.95 | 13.77 | 15.08 |
| Exp(*FEES*) | 3,093,721 | 1,685,275 | 3,819,405 | 959,000 | 3,529,720 |
| *SIZE* | 7.39 | 7.27 | 1.50 | 6.32 | 8.35 |
| Exp(*SIZE*) | 5283.21 | 1433.28 | 10,742.93 | 556.26 | 4243.30 |
| *ROA* | 0.05 | 0.06 | 0.11 | 0.02 | 0.10 |
| *ACCRUALS* | 0.07 | 0.05 | 0.08 | 0.03 | 0.09 |
| CA | 0.47 | 0.46 | 0.21 | 0.32 | 0.61 |
| *ABACC* | −0.02 | −0.02 | 0.08 | −0.05 | 0.02 |
| *FOREIGN* | 0.28 | 0.22 | 0.28 | 0.00 | 0.49 |
| *BSEGS* | 2.70 | 3.00 | 1.71 | 1.00 | 4.00 |
| *LEV* | 0.50 | 0.49 | 0.23 | 0.34 | 0.63 |
| *LOSS* | 0.16 | 0.00 | 0.37 | 0.00 | 0.00 |
| DECFYE | 0.66 | 1.00 | 0.47 | 0.00 | 1.00 |
| *ARLAG* | 94.50 | 92.00 | 22.55 | 81.00 | 105.00 |
| *TENURE* | 14.46 | 11.00 | 10.53 | 6.00 | 20.00 |
| ACQ | 0.13 | 0.00 | 0.34 | 0.00 | 0.00 |
| HIGHLIT | 0.36 | 0.00 | 0.48 | 0.00 | 1.00 |
| GCO | 0.005 | 0.00 | 0.07 | 0.00 | 0.00 |
| AGE | 27.63 | 22.00 | 16.71 | 15.00 | 41.00 |
| SPEC | 0.42 | 0.00 | 0.49 | 0.00 | 1.00 |
| BIG | 0.93 | 1.00 | 0.25 | 1.00 | 1.00 |
| SECTIER | 0.06 | 0.00 | 0.23 | 0.00 | 0.00 |
| MATWEAK | 0.04 | 0.00 | 0.20 | 0.00 | 0.00 |

(*continued on next page*)

**Table 1** (*continued*)

Panel B: Pearson correlation matrix

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) *MEANDIF* | **1.00** | | | | | | | | | | | | | | | |
| (2) *MEDDIF* | **1.00** | **1.00** | | | | | | | | | | | | | | |
| (3) *CFODIF* | **0.96** | **0.96** | **1.00** | | | | | | | | | | | | | |
| (4) *CEODELTA* | **0.47** | **0.47** | **0.47** | **1.00** | | | | | | | | | | | | |
| (5) *CEOVEGA* | **0.45** | **0.45** | **0.43** | **0.58** | **1.00** | | | | | | | | | | | |
| (6) *MEANDELTA* | **0.50** | **0.49** | **0.50** | **0.75** | **0.62** | **1.00** | | | | | | | | | | |
| (7) *MEANVEGA* | **0.42** | **0.41** | **0.40** | **0.56** | **0.88** | **0.75** | **1.00** | | | | | | | | | |
| (8) *MEDDELTA* | **0.50** | **0.50** | **0.50** | **0.74** | **0.62** | **0.98** | **0.75** | **1.00** | | | | | | | | |
| (9) *MEDVEGA* | **0.41** | **0.41** | **0.40** | **0.55** | **0.87** | **0.74** | **0.99** | **0.75** | **1.00** | | | | | | | |
| (10) *CFODELTA* | **0.47** | **0.46** | **0.41** | **0.65** | **0.53** | **0.85** | **0.62** | **0.84** | **0.61** | **1.00** | | | | | | |
| (11) *CFOVEGA* | **0.37** | **0.37** | **0.34** | **0.50** | **0.83** | **0.67** | **0.92** | **0.67** | **0.92** | **0.72** | **1.00** | | | | | |
| (12) *FEES* | **0.61** | **0.61** | **0.61** | **0.35** | **0.41** | **0.42** | **0.42** | **0.42** | **0.41** | **0.39** | **0.38** | **1.00** | | | | |
| (13) *SIZE* | **0.70** | **0.70** | **0.69** | **0.48** | **0.44** | **0.55** | **0.48** | **0.56** | **0.47** | **0.49** | **0.42** | **0.81** | **1.00** | | | |
| (14) *ROA* | **0.16** | **0.16** | **0.15** | **0.33** | **0.14** | **0.34** | **0.17** | **0.33** | **0.17** | **0.29** | **0.14** | **0.03** | **0.13** | **1.00** | | |
| (15) *ACCRUALS* | **−0.13** | **−0.12** | **−0.13** | **−0.21** | **−0.14** | **−0.22** | **−0.15** | **−0.22** | **−0.15** | **−0.21** | **−0.13** | **−0.15** | **−0.17** | **−0.53** | **1.00** | |
| (16) CA | **−0.20** | **−0.21** | **−0.20** | **−0.14** | **−0.09** | **−0.15** | **−0.09** | **−0.15** | **−0.09** | **−0.15** | **−0.08** | **−0.18** | **−0.40** | **0.03** | **−0.04** | **1.00** |
| (17) *ABACC* | −0.02 | −0.02 | −0.01 | −0.01 | **−0.04** | **−0.02** | **−0.06** | **−0.02** | **−0.06** | −0.02 | **−0.06** | 0.01 | **0.03** | **0.33** | **−0.49** | **−0.04** |
| (18) *FOREIGN* | **0.14** | **0.14** | **0.15** | **0.02** | **0.14** | **0.07** | **0.15** | **0.08** | **0.14** | **0.07** | **0.16** | **0.35** | **0.14** | 0.02 | **−0.10** | **0.24** |
| (19) *BSEGS* | **0.24** | **0.24** | **0.25** | **0.11** | **0.13** | **0.13** | **0.12** | **0.14** | **0.11** | **0.13** | **0.11** | **0.44** | **0.35** | 0.02 | **−0.14** | **−0.15** |
| (20) *LEV* | **0.24** | **0.24** | **0.24** | −0.02 | **0.03** | 0.01 | 0.00 | 0.01 | 0.00 | **0.03** | 0.00 | **0.33** | **0.35** | **−0.20** | **0.08** | **−0.27** |
| (21) *LOSS* | **−0.17** | **−0.17** | **−0.17** | **−0.33** | **−0.16** | **−0.33** | **−0.19** | **−0.32** | **−0.18** | **−0.28** | **−0.16** | **−0.07** | **−0.17** | **−0.66** | **0.46** | **0.03** |
| (22) DECFYE | **0.05** | **0.05** | **0.03** | **0.04** | −0.01 | **0.04** | −0.01 | **0.05** | −0.01 | **0.06** | 0.01 | **0.07** | **0.08** | −0.01 | **0.04** | **−0.16** |
| (23) *ARLAG* | **−0.16** | **−0.15** | **−0.16** | **−0.11** | **−0.12** | **−0.16** | **−0.13** | **−0.16** | **−0.13** | **−0.14** | **−0.12** | **−0.15** | **−0.23** | **−0.13** | **0.10** | **0.04** |
| (24) *TENURE* | **0.19** | **0.19** | **0.19** | **0.08** | **0.15** | **0.13** | **0.17** | **0.14** | **0.16** | **0.15** | **0.17** | **0.28** | **0.28** | **0.06** | **−0.10** | **−0.03** |
| (25) ACQ | 0.00 | 0.00 | −0.01 | **0.03** | 0.00 | **0.03** | 0.00 | **0.03** | 0.00 | **0.03** | 0.00 | **0.03** | 0.01 | −0.02 | **−0.05** | **−0.12** |
| (26) HIGHLIT | −0.02 | −0.02 | −0.01 | **0.05** | **0.09** | **0.06** | **0.10** | **0.06** | **0.10** | 0.02 | **0.07** | **−0.11** | **−0.12** | −0.01 | **0.07** | **0.19** |
| (27) GCO | **−0.04** | **−0.04** | **−0.03** | **−0.10** | **−0.05** | **−0.10** | **−0.06** | **−0.09** | **−0.05** | **−0.09** | **−0.05** | 0.01 | **−0.02** | **−0.13** | **0.09** | −0.01 |
| (28) AGE | **0.26** | **0.27** | **0.27** | **0.09** | **0.17** | **0.13** | **0.17** | **0.13** | **0.17** | **0.13** | **0.16** | **0.43** | **0.41** | **0.04** | **−0.15** | **−0.07** |
| (29) SPEC | **0.17** | **0.17** | **0.18** | **0.12** | **0.16** | **0.15** | **0.16** | **0.15** | **0.15** | **0.13** | **0.14** | **0.23** | **0.20** | **0.03** | **−0.05** | **−0.08** |
| (30) BIG | **0.21** | **0.21** | **0.20** | **0.09** | **0.17** | **0.16** | **0.18** | **0.16** | **0.17** | **0.16** | **0.17** | **0.25** | **0.27** | 0.02 | −0.02 | **−0.14** |
| (31) SECTIER | **−0.19** | **−0.19** | **−0.19** | **−0.08** | **−0.15** | **−0.15** | **−0.16** | **−0.16** | **−0.16** | **−0.16** | **−0.16** | **−0.21** | **−0.24** | **−0.03** | 0.02 | **0.12** |
| (32) MATWEAK | **−0.07** | **−0.07** | **−0.04** | **−0.07** | **−0.04** | **−0.09** | **−0.06** | **−0.09** | **−0.05** | **−0.09** | **−0.06** | **0.04** | **−0.08** | **−0.10** | **0.04** | 0.01 |

Panel C: sample industry distribution

| 1-digit SIC | Observations | % of sample |
|---|---|---|
| 1 | 393 | 4.57% |
| 2 | 1624 | 18.87% |
| 3 | 3334 | 38.75% |
| 4 | 488 | 5.67% |
| 5 | 1114 | 12.95% |
| 7 | 1160 | 13.48% |
| 8 | 487 | 5.66% |
| 9 | 4 | 0.05% |

Panel D: sample year distribution

| Year | Observations | % of sample |
|---|---|---|
| 2004 | 462 | 5.37% |
| 2005 | 777 | 9.03% |
| 2006 | 800 | 9.30% |
| 2007 | 881 | 10.24% |
| 2008 | 885 | 10.29% |
| 2009 | 858 | 9.97% |
| 2010 | 876 | 10.18% |
| 2011 | 847 | 9.84% |
| 2012 | 822 | 9.55% |
| 2013 | 807 | 9.38% |
| 2014 | 589 | 6.85% |

(*continued on next page*)

**Table 1** (*continued*)

| (17) | (18) | (19) | (20) | (21) | (22) | (23) | (24) | (25) | (26) | (27) | (28) | (29) | (30) | (31) | (32) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.00** | | | | | | | | | | | | | | | |
| **−0.03** | **1.00** | | | | | | | | | | | | | | |
| **0.05** | **0.09** | **1.00** | | | | | | | | | | | | | |
| **0.06** | **−0.10** | **0.16** | **1.00** | | | | | | | | | | | | |
| **−0.23** | 0.00 | **−0.06** | **0.13** | **1.00** | | | | | | | | | | | |
| 0.01 | **−0.03** | **0.02** | **0.10** | 0.02 | **1.00** | | | | | | | | | | |
| **−0.07** | **−0.05** | **−0.15** | **−0.08** | **0.13** | 0.01 | **1.00** | | | | | | | | | |
| **0.04** | **0.15** | **0.20** | **0.09** | **−0.07** | **−0.02** | **−0.18** | **1.00** | | | | | | | | |
| **−0.07** | 0.00 | **0.03** | −0.02 | −0.01 | 0.02 | **0.04** | **−0.03** | **1.00** | | | | | | | |
| **−0.11** | **0.06** | **−0.24** | **−0.17** | **0.03** | **−0.16** | **0.11** | **−0.06** | 0.01 | **1.00** | | | | | | |
| 0.00 | 0.01 | 0.00 | **0.13** | **0.11** | **0.02** | **0.08** | −0.01 | −0.02 | **−0.04** | **1.00** | | | | | |
| **0.11** | **0.16** | **0.37** | **0.21** | **−0.06** | **−0.04** | **−0.26** | **0.50** | **−0.06** | **−0.17** | 0.02 | **1.00** | | | | |
| 0.02 | **0.09** | **0.11** | **0.05** | **−0.03** | **0.04** | −0.02 | **0.09** | 0.02 | 0.01 | −0.01 | **0.07** | **1.00** | | | |
| 0.00 | **0.05** | **0.09** | **0.16** | **−0.04** | 0.01 | **−0.09** | **0.22** | 0.01 | **−0.02** | 0.02 | **0.05** | **0.16** | **1.00** | | |
| 0.01 | **−0.04** | **−0.09** | **−0.14** | **0.04** | −0.01 | **0.08** | **−0.19** | 0.00 | 0.02 | −0.02 | **−0.04** | **−0.14** | **−0.92** | **1.00** | |
| −0.02 | 0.01 | −0.01 | **0.04** | **0.12** | −0.01 | **0.18** | **−0.06** | 0.00 | 0.02 | **0.05** | **−0.04** | −0.01 | −0.02 | **0.03** | **1.00** |

As a final test to support the tournament incentives explanation, we investigate the impact of CEO age on the association between executive pay disparity and audit fees. As the CEO gets older, tournament incentives should be more influential because, all else equal, the non-CEO executives should expect that the current CEO will be replaced sooner. Therefore, we predict a positive coefficient on the interaction between executive pay disparity and high CEO age. To perform this analysis, we construct a new variable, *HIGHAGE*, which is a dichotomous variable that takes the value of 1 if the CEO's age is greater than 55, which is the median age of the CEOs in our sample, and 0 otherwise. We then interact *PAYDIF* with *HIGHAGE* and regress these additional variables in our audit fee model from Eq. (1).

In column 1 of Table 5, using the *MEANDIF* measure, the coefficient on *PAYDIF* ∗ *HIGHAGE* is positive ($\beta = 0.034$) and significant at the 5% level. Similar inferences are obtained from the results in columns 2 and 3 of Table 5 when using the *MEDDIF* and *CFODIF* measures, respectively. These results are consistent with our prediction and suggest that high CEO age strengthens the association between executive pay disparity and audit fees.[8]

#### 4.3.2. Auditor tenure

We also investigate the influence of auditor tenure on the association between tournament incentives and audit fees. On the one hand, regulators have suggested that longer auditor tenure has the potential to impair auditor independence and lower audit quality (e.g., GAO, 2003; PCAOB, 2011; SEC, 1994). However, longer auditor tenure also reduces information asymmetry between the auditor and client, which can improve audit quality. While there are exceptions, prior studies generally find that longer auditor tenure is beneficial to audit quality. For example, several studies find a negative association between auditor tenure and abnormal accruals (e.g., Chen, Lin, & Lin, 2008; Chi, Huang, Liao, & Xie, 2009; Johnson, Khurana, & Reynolds, 2002; Myers, Myers, & Omer, 2003). In addition, prior research suggests that auditor tenure is positively associated with earnings conservatism (Jenkins & Velury, 2008) and negatively associated with fraud (Carcello & Nagy, 2004).

As auditor tenure lengthens, information asymmetry between the auditor and client is reduced, which facilitates the production of higher quality audits. As a result, as auditor tenure lengthens and the auditor's knowledge of the client increases, the impact of tournament incentives on audit risk and auditor business risk may become more salient to the auditor, suggesting a stronger reaction to tournament incentives as auditor tenure increases. This implies a positive coefficient on the interaction between tournament incentives and auditor tenure. To perform this analysis, we interact *PAYDIF* with *TENURE* and regress this additional variable in our audit fee model from Eq. (1).[9]

In column 1 of Table 6, using the *MEANDIF* measure of tournament incentives, the coefficient on *PAYDIF* ∗ *TENURE* is positive ($\beta = 0.002$) and significant at the 5% level. Similar inferences are obtained from the results in columns 2 and 3 of Table 6 when using the *MEDDIF* and *CFODIF* measures of tournament incentives, respectively. Thus, the results in Table 6 support our prediction that auditor tenure strengthens the association between tournament incentives and audit fees.

#### 4.3.3. Abnormal accruals

We also investigate whether there is an interaction between abnormal accruals and tournament incentives. Gul et al. (2003) as well as Krishnan, Sun, Wang, and Yang (2013) argue that abnormal accruals increase inherent risk because they are characterized by uncertainty and are susceptible to managerial manipulation. Gul et al. (2003) find that auditors respond to greater abnormal accruals by charging higher audit fees, while Krishnan et al. (2013) suggest that auditors react to acceptably high levels of abnormal accruals by charging higher audit fees, but react to more severe levels of abnormal accruals by resigning.

Prior research suggests that stronger tournament incentives are associated with greater performance misreporting (Conrads et al., 2014) and a higher likelihood of fraud (Haß et al., 2015). Given that tournament incentives are associated with misreporting, and given that abnormal accruals are susceptible to manipulation, auditors may infer a greater risk that abnormal accruals are attributable to managerial manipulation in firms with stronger tournament incentives. In turn, auditors may respond to abnormal accruals with heightened alarm and greater scrutiny when auditing firms with stronger tournament incentives. This suggests that auditors will respond to a given level of abnormal accruals more thoroughly when tournament incentives are stronger.

To perform this analysis, we interact *PAYDIF* with *ABACC* and regress this additional variable in our audit fee model from Eq. (1).[10] The results in column 1 (column 2) of Table 7, using the *MEANDIF (MEDDIF)* measure of tournament incentives, reveal a positive and significant coefficient on *PAYDIF* ∗ *ABACC*. However, in column 3, using the *CFODIF* measure of tournament incentives, the coefficient on *PAYDIF* ∗ *ABACC*

[8] Our tests concerning CEO tenure and CEO age are conceptually similar because they both examine time-based CEO characteristics that capture the stage of the tournament's progression. Empirically, the correlation between *SHORTTEN* and *HIGHAGE* is negative and significant ($p < 0.01$). However, the correlation coefficient is −0.198, which is lower than might be anticipated and suggests that these variables are fairly distinct. Finding consistent results using two measures that are conceptually similar, yet empirically distinct, provides triangulation, which helps build confidence in the results. As noted by Abdel-Khalik and Ajinkya (1979), "multiplicity of methods, or 'triangulation,' is a desirable feature of research… The extent to which triangulation produces similar results can be used as a measure of confidence in the findings and validity of the underlying theory."

[9] Auditor tenure (*TENURE*) is already controlled for in Eq. (1).

[10] Abnormal accruals (*ABACC*) are already controlled for in Eq. (1).

Notes to Table 1:
Table 1, Panel A provides descriptive statistics for our sample of 8604 firm-year observations from the period 2004–2014. All continuous variables are winsorized at the 1st and 99th percentiles. In Panel A, "Exp" signifies the exponential function. In Panel B, bolded values indicate statistical significance at the $p < 0.05$ level using a 2-tailed test. *MEANDIF* (*MEDDIF*) is the natural logarithm of the difference between the total compensation of the CEO and the mean (median) total compensation of the top five highest paid non-CEO executives (with total compensation measured by Execucomp variable TDC1). *CFODIF* is the natural logarithm of the difference between the total compensation of the CEO and the total compensation of the CFO. Delta is the dollar change in an executive's wealth given a 1% change in the firm's stock price, while vega is the dollar change in an executive's wealth given a 0.01 change in the standard deviation of the firm's stock returns (Coles et al., 2006; Coles et al., 2013; Core & Guay, 2002). *CEODELTA* is the natural logarithm of the CEO's delta. *CEOVEGA* is the natural logarithm of the CEO's vega. *MEANDELTA* (*MEDDELTA*) is the natural logarithm of the mean (median) delta of the top 5 highest paid non-CEO executives. *CFODELTA* is the natural logarithm of the CFO's delta. *MEANVEGA* (*MEDVEGA*) is the natural logarithm of the mean (median) vega of the top 5 highest paid non-CEO executives. *CFOVEGA* is the natural logarithm of the CFO's vega. *FEES* is the natural logarithm of total audit fees. *SIZE* is the natural logarithm of total assets (in millions). *ROA* is net income scaled by average total assets. *ACCRUALS* is unsigned total accruals divided by total assets. *CA* is current assets scaled by total assets. *ABACC* is performance-adjusted abnormal accruals estimated by industry (2-digit SIC) and year (Kothari et al., 2005). *FOREIGN* is foreign sales divided by total sales. *BSEGS* is the number of business segments. *LEV* is total liabilities divided by total assets. *LOSS* is an indicator variable that takes the value of 1 if income before extraordinary items is negative, and 0 otherwise. *DECFYE* is an indicator variable that takes the value of 1 if a firm has a December fiscal year-end, and 0 otherwise. *ARLAG* is the number of days in between the end of a firm's fiscal year and the date the audit report is filed. *TENURE* is the number of years the auditor has audited a firm. *ACQ* is an indicator variable that takes the value of 1 if a firm engages in an acquisition, and 0 otherwise. *HIGHLIT* is an indicator variable that takes the value of 1 if a firm is in a high litigation risk industry (SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, 7370-7374, 8731-8734), and 0 otherwise. *GCO* is an indicator variable that takes the value of 1 if a firm received a going-concern audit opinion, and 0 otherwise. *AGE* is the number of years a firm has been on Compustat. *SPEC* an indicator variable that takes the value of 1 if a firm is audited by an industry specialist auditor, with specialization identified at the city-level, using the approach used by Francis et al. (2005), and 0 otherwise. *BIG* is an indicator variable that takes the value of 1 if a firm is audited by a Big 4 auditor, and 0 otherwise. *SECTIER* is an indicator variable that takes the value of 1 if a firm is audited by Grant Thornton or BDO Seidman, and 0 otherwise. *MATWEAK* is an indicator variable that takes the value of 1 if a firm reports a material weakness in internal control over financial reporting, and 0 otherwise.

is not statistically significant. Therefore, the results in two of the three columns of Table 7 support our prediction.

#### 4.3.4. Firm size

Panel B of Table 1 indicates that *SIZE* is highly correlated with our three measures of tournament incentives, and *SIZE* is also highly correlated with audit fees. Although *SIZE* is included as a control variable in Eq. (1), the strong correlations among *SIZE, FEES,* and our measures of tournament incentives could potentially give rise to concerns that the results are driven by the effects of firm size. As a result, we conduct three analyses to investigate the impact of firm size on our results.

First, we examine whether the influence of tournament incentives on audit fees depends on firm size. Specifically, we examine the association between tournament incentives and audit fees at the 10th, 30th, 50th, 70th, and 90th percentiles of *SIZE*. To conduct this analysis, we create a variable, *SIZE10*, which is calculated as *SIZE* minus the 10th

**Table 2**
Tournament incentives and audit fees.

| DV = *FEES* | Predicted sign | (1) *MEANDIF* | (2) *MEDDIF* | (3) *CFODIF* |
|---|---|---|---|---|
| *PAYDIF* | ? | 0.042 | 0.040 | 0.036 |
| | | (3.51)*** | (3.43)*** | (3.02)*** |
| *CEODELTA* | ? | −0.007 | −0.010 | −0.017 |
| | | (−0.59) | (−0.83) | (−1.40) |
| *CEOVEGA* | ? | 0.010 | 0.014 | 0.015 |
| | | (0.94) | (1.39) | (1.56) |
| EXECDELTA | ? | −0.025 | −0.017 | −0.004 |
| | | (−1.52) | (−1.09) | (−0.29) |
| EXECVEGA | ? | 0.003 | −0.005 | −0.004 |
| | | (0.18) | (−0.34) | (−0.32) |
| *SIZE* | + | 0.482 | 0.482 | 0.480 |
| | | (35.08)*** | (35.00)*** | (34.53)*** |
| *ROA* | − | −0.474 | −0.478 | −0.528 |
| | | (−4.29)*** | (−4.32)*** | (−4.17)*** |
| *ACCRUALS* | + | 0.057 | 0.057 | −0.084 |
| | | (0.47) | (0.47) | (−0.62) |
| CA | + | 0.399 | 0.401 | 0.440 |
| | | (5.34)*** | (5.36)*** | (5.70)*** |
| *ABACC* | + | 0.275 | 0.278 | 0.217 |
| | | (2.77)*** | (2.80)*** | (1.94)** |
| *FOREIGN* | + | 0.526 | 0.527 | 0.508 |
| | | (9.56)*** | (9.58)*** | (9.07)*** |
| *BSEGS* | + | 0.066 | 0.065 | 0.064 |
| | | (8.54)*** | (8.53)*** | (8.11)*** |
| *LEV* | + | 0.338 | 0.337 | 0.324 |
| | | (5.83)*** | (5.82)*** | (5.56)*** |
| *LOSS* | + | 0.033 | 0.034 | 0.040 |
| | | (1.60)* | (1.63)* | (1.75)** |
| DECFYE | + | 0.045 | 0.045 | 0.051 |
| | | (1.73)** | (1.73)** | 1.88** |
| *ARLAG* | + | 0.002 | 0.002 | 0.002 |
| | | (4.90)*** | (4.90)*** | (4.15)*** |
| *TENURE* | ? | −0.002 | −0.002 | −0.002 |
| | | (−1.29) | (−1.28) | (−1.77)* |
| ACQ | + | 0.040 | 0.040 | 0.051 |
| | | (2.24)** | (2.23)** | (2.63)*** |
| HIGHLIT | + | −0.042 | −0.042 | −0.056 |
| | | (−1.08) | (−1.09) | (−1.41) |
| GCO | + | −0.016 | −0.014 | −0.004 |
| | | (−0.23) | (−0.20) | (−0.05) |
| AGE | ? | 0.004 | 0.004 | 0.004 |
| | | (4.80)*** | (4.81)*** | (4.88)*** |
| SPEC | + | 0.063 | 0.062 | 0.065 |
| | | (3.52)*** | (3.51)*** | (3.44)*** |
| BIG | + | 0.210 | 0.208 | 0.210 |
| | | (2.37)*** | (2.34)*** | (2.27)** |
| SECTIER | + | 0.135 | 0.133 | 0.144 |
| | | (1.41)* | (1.39)* | (1.44)* |
| MATWEAK | + | 0.334 | 0.334 | 0.313 |
| | | (10.55)*** | (10.56)*** | (7.63)*** |
| INTERCEPT | ? | 8.978 | 8.985 | 8.948 |
| | | (65.11)*** | (65.14)*** | (59.89)*** |
| Industry fixed effects | | Included | Included | Included |
| Year fixed effects | | Included | Included | Included |
| Adjusted $R^2$ | | 80.55% | 80.55% | 81.89% |
| N | | 8604 | 8604 | 6866 |

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. T-statistics are in parentheses. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. In column (1), *PAYDIF* is *MEANDIF*, *EXECDELTA* is *MEANDELTA*, and *EXECVEGA* is *MEANVEGA*. In column (2), *PAYDIF* is *MEDDIF*, *EXECDELA* is *MEDDELTA*, and *EXECVEGA* is *MEDVEGA*. In column (3), *PAYDIF* is *CFODIF*, *EXECDELTA* is *CFODELTA*, and *EXECVEGA* is *CFOVEGA*. Refer to Table 1 for a detailed description of each variable.

**Table 3**
Insider CEO succession and tournament incentives.

| DV = *FEES* | Predicted sign | (1) *MEANDIF* | (2) *MEDDIF* | (3) *CFODIF* |
|---|---|---|---|---|
| *PAYDIF* | + | 0.019 | 0.019 | 0.013 |
| | | (1.35)* | (1.35)* | (0.93) |
| *INSIDE* | ? | −0.368 | −0.354 | −0.385 |
| | | (−2.70)*** | (−2.60)*** | (−2.81)*** |
| *PAYDIF * INSIDE* | + | 0.047 | 0.045 | 0.049 |
| | | (2.66)*** | (2.56)*** | (2.77)*** |
| *CEODELTA* | ? | −0.010 | −0.012 | −0.019 |
| | | (−0.77) | (−1.01) | (−1.57) |
| *CEOVEGA* | ? | 0.011 | 0.015 | 0.015 |
| | | (1.00) | (1.44) | (1.54) |
| EXECDELTA | ? | −0.026 | −0.018 | −0.005 |
| | | (−1.58) | (−1.17) | (−0.35) |
| EXECVEGA | ? | 0.003 | −0.005 | −0.003 |
| | | (0.17) | (−0.35) | (−0.27) |
| *SIZE* | + | 0.481 | 0.481 | 0.478 |
| | | (34.35)*** | (34.29)*** | (33.85)*** |
| *ROA* | − | −0.475 | −0.479 | −0.531 |
| | | (−4.32)*** | (−4.35)*** | (−4.24)*** |
| *ACCRUALS* | + | 0.068 | 0.068 | −0.078 |
| | | (0.56) | (0.56) | (−0.58) |
| CA | + | 0.395 | 0.396 | 0.435 |
| | | (5.31)*** | (5.32)*** | (5.64)*** |
| *ABACC* | + | 0.281 | 0.284 | 0.222 |
| | | (2.84)*** | (2.87)*** | (2.01)** |
| *FOREIGN* | + | 0.526 | 0.527 | 0.507 |
| | | (9.60)*** | (9.61)*** | (9.10)*** |
| *BSEGS* | + | 0.065 | 0.065 | 0.064 |
| | | (8.51)*** | (8.51)*** | (8.07)*** |
| *LEV* | + | 0.340 | 0.339 | 0.328 |
| | | (5.87)*** | (5.86)*** | (5.64)*** |
| *LOSS* | + | 0.033 | 0.034 | 0.041 |
| | | (1.59)* | (1.62)* | (1.80)** |
| DECFYE | + | 0.042 | 0.042 | 0.048 |
| | | (1.61)* | (1.62)* | (1.77)** |
| *ARLAG* | + | 0.002 | 0.002 | 0.002 |
| | | (4.88)*** | (4.87)*** | (4.10)*** |
| *TENURE* | ? | −0.002 | −0.002 | −0.002 |
| | | (−1.33) | (−1.32) | (−1.82)* |
| ACQ | + | 0.043 | 0.042 | 0.054 |
| | | (2.36)*** | (2.34)*** | (2.76)*** |
| HIGHLIT | + | −0.044 | −0.044 | −0.060 |
| | | (−1.14) | (−1.14) | (−1.50) |
| GCO | + | −0.015 | −0.013 | −0.001 |
| | | (−0.21) | (−0.19) | (−0.01) |
| AGE | ? | 0.004 | 0.004 | 0.004 |
| | | (4.72)*** | (4.73)*** | (4.76)*** |
| SPEC | + | 0.063 | 0.063 | 0.066 |
| | | (3.56)*** | (3.55)*** | (3.52)*** |
| BIG | + | 0.214 | 0.212 | 0.218 |
| | | (2.44)*** | (2.41)*** | (2.38)*** |
| SECTIER | + | 0.138 | 0.136 | 0.151 |
| | | (1.45)* | (1.43)* | (1.53)* |
| MATWEAK | + | 0.336 | 0.337 | 0.317 |
| | | (10.60)*** | (10.61)*** | (7.72)*** |
| INTERCEPT | ? | 9.162 | 9.160 | 9.147 |
| | | (60.98)*** | (61.13)*** | (55.73)*** |
| Industry fixed effects | | Included | Included | Included |
| Year fixed effects | | Included | Included | Included |
| Adjusted $R^2$ | | 80.61% | 80.60% | 81.96% |
| N | | 8604 | 8604 | 6866 |

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. T-statistics are in parentheses. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. In column (1), *PAYDIF* is *MEANDIF*, *EXECDELTA* is *MEANDELTA*, and *EXECVEGA* is *MEANVEGA*. In column (2), *PAYDIF* is *MEDDIF*, *EXECDELA* is *MEDDELTA*, and *EXECVEGA* is *MEDVEGA*. In column (3), *PAYDIF* is *CFODIF*, *EXECDELTA* is *CFODELTA*, and *EXECVEGA* is *CFOVEGA*. *INSIDE* is a dichotomous variable that takes the value of 1 if a firm's CEO was a non-CEO executive at the firm prior to becoming CEO, and 0 otherwise. Refer to Table 1 for a detailed description of the other variables.

percentile of *SIZE*. Hence, when *SIZE10* takes the value of zero, it corresponds to the 10th percentile of *SIZE*. Then, when we estimate Eq. (1), including the variable *SIZE10* instead of *SIZE* and also including *PAYDIF * SIZE10*, the interpretation of *PAYDIF* is the influence of tournament incentives on audit fees when *SIZE10* is equal to zero. This captures the influence of tournament incentives on audit fees at the 10th percentile of *SIZE*. We analogously generate the variables *SIZE30*, *SIZE50*, *SIZE70*, and *SIZE90* to examine the influence of tournament

**Table 4**
CEO tenure and tournament incentives.

| DV = *FEES* | Predicted sign | (1) *MEANDIF* | (2) *MEDDIF* | (3) *CFODIF* |
|---|---|---|---|---|
| *PAYDIF* | + | 0.052 | 0.051 | 0.048 |
| | | (3.94)*** | (3.92)*** | (3.55)*** |
| *SHORTTEN* | ? | 0.304 | 0.315 | 0.323 |
| | | (3.30)*** | (3.47)*** | (3.30)*** |
| *PAYDIF * SHORTTEN* | − | −0.034 | −0.035 | −0.038 |
| | | (−2.80)*** | (−2.98)*** | (−2.95)*** |
| *CEODELTA* | ? | −0.002 | −0.005 | −0.014 |
| | | (−0.16) | (−0.41) | (−1.12) |
| *CEOVEGA* | ? | 0.011 | 0.016 | 0.016 |
| | | (1.05) | (1.49) | (1.61) |
| EXECDELTA | ? | −0.028 | −0.020 | −0.004 |
| | | (−1.70)* | (−1.26) | (−0.32) |
| EXECVEGA | ? | 0.002 | −0.006 | −0.005 |
| | | (0.11) | (−0.43) | (−0.38) |
| *SIZE* | + | 0.480 | 0.480 | 0.478 |
| | | (34.97)*** | (34.89)*** | (34.32)*** |
| *ROA* | − | −0.488 | −0.492 | −0.537 |
| | | (−4.39)*** | (−4.43)*** | (−4.20)*** |
| *ACCRUALS* | + | 0.043 | 0.043 | −0.100 |
| | | (0.36) | (0.35) | (−0.74) |
| CA | + | 0.395 | 0.397 | 0.439 |
| | | (5.30)*** | (5.32)*** | (5.69)*** |
| *ABACC* | + | 0.273 | 0.276 | 0.209 |
| | | (2.74)*** | (2.77)*** | (1.87)** |
| *FOREIGN* | + | 0.527 | 0.528 | 0.507 |
| | | (9.61)*** | (9.62)*** | (9.07)*** |
| *BSEGS* | + | 0.066 | 0.065 | 0.064 |
| | | (8.55)*** | (8.54)*** | (8.13)*** |
| *LEV* | + | 0.335 | 0.335 | 0.321 |
| | | (5.81)*** | (5.80)*** | (5.53)*** |
| *LOSS* | + | 0.034 | 0.034 | 0.041 |
| | | (1.61)* | (1.64)* | (1.79)** |
| DECFYE | + | 0.044 | 0.044 | 0.051 |
| | | (1.67)** | (1.68)** | (1.87)** |
| *ARLAG* | + | 0.002 | 0.002 | 0.002 |
| | | (4.86)*** | (4.86)*** | (4.14)*** |
| *TENURE* | ? | −0.002 | −0.002 | −0.002 |
| | | (−1.24) | (−1.22) | (−1.73)* |
| ACQ | + | 0.039 | 0.039 | 0.050 |
| | | (2.20)** | (2.18)** | (2.57)*** |
| HIGHLIT | + | −0.046 | −0.046 | −0.061 |
| | | (−1.17) | (−1.18) | (−1.53) |
| GCO | + | −0.013 | −0.011 | −0.003 |
| | | (−0.19) | (−0.15) | (−0.03) |
| AGE | ? | 0.004 | 0.004 | 0.004 |
| | | (4.88)*** | (4.88)*** | (4.94)*** |
| SPEC | + | 0.062 | 0.062 | 0.065 |
| | | (3.49)*** | (3.48)*** | (3.42)*** |
| BIG | + | 0.208 | 0.205 | 0.209 |
| | | (2.32)** | (2.28)** | (2.24)** |
| SECTIER | + | 0.134 | 0.131 | 0.144 |
| | | (1.39)* | (1.36)* | (1.44)* |
| MATWEAK | + | 0.334 | 0.334 | 0.314 |
| | | (10.61)*** | (10.63)*** | (7.72)*** |
| INTERCEPT | ? | 8.914 | 8.919 | 8.866 |
| | | (63.05)*** | (63.06)*** | (56.96)*** |
| Industry fixed effects | | Included | Included | Included |
| Year fixed effects | | Included | Included | Included |
| Adjusted $R^2$ | | 80.62% | 80.61% | 81.95% |
| N | | 8604 | 8604 | 6866 |

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. T-statistics are in parentheses. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. In column (1), *PAYDIF* is *MEANDIF*, *EXECDELTA* is *MEANDELTA*, and *EXECVEGA* is *MEANVEGA*. In column (2), *PAYDIF* is *MEDDIF*, *EXECDELA* is *MEDDELTA*, and *EXECVEGA* is *MEDVEGA*. In column (3), *PAYDIF* is *CFODIF*, *EXECDELTA* is *CFODELTA*, and *EXECVEGA* is *CFOVEGA*. *SHORTTEN* is a dichotomous variable that takes the value of 1 if the CEO's tenure is less than 3 years, and 0 otherwise. Refer to Table 1 for a detailed description of the other variables.

incentives on audit fees at the 30th, 50th, 70th, and 90th percentiles of *SIZE*, respectively.[11]

When estimating Eq. (1), including *SIZE10* instead of *SIZE* and including *PAYDIF * SIZE10*, the results (untabulated) reveal a statistically insignificant coefficient on *PAYDIF* for all three of our measures of tournament incentives. This suggests that for very small firms, the strength of tournament incentives does not affect audit fees. However, when conducting analogous analyses to investigate the influence of tournament incentives on audit fees at the 30th, 50th, 70th, and 90th

[11] This technique offers two main advantages compared to estimating separate regressions by quintiles of *SIZE*. First, it retains the statistical power of the entire sample, and, second, it is not subject to the possibility that splitting the sample into quintiles changes the composition of the subsamples on dimensions other than just *SIZE*.

**Table 5**
CEO age and tournament incentives.

| DV = *FEES* | Predicted sign | (1) *MEANDIF* | (2) *MEDDIF* | (3) *CFODIF* |
|---|---|---|---|---|
| *PAYDIF* | + | 0.026 | 0.024 | 0.019 |
| | | (1.93)** | (1.83)** | (1.43)* |
| *HIGHAGE* | ? | −0.259 | −0.258 | −0.250 |
| | | (−2.20)** | (−2.21)** | (−2.12)** |
| *PAYDIF * HIGHAGE* | + | 0.034 | 0.034 | 0.035 |
| | | (2.27)** | (2.29)** | (2.27)** |
| *CEODELTA* | ? | −0.007 | −0.009 | −0.017 |
| | | (−0.52) | (−0.77) | (−1.43) |
| *CEOVEGA* | ? | 0.009 | 0.014 | 0.015 |
| | | (0.87) | (1.32) | (1.56) |
| EXECDELTA | ? | −0.027 | −0.019 | −0.004 |
| | | (−1.66)* | (−1.22) | (−0.30) |
| EXECVEGA | ? | 0.004 | −0.004 | −0.004 |
| | | (0.26) | (−0.26) | (−0.32) |
| *SIZE* | + | 0.481 | 0.481 | 0.478 |
| | | (34.98)*** | (34.91)*** | (34.48)*** |
| *ROA* | − | −0.477 | −0.481 | −0.529 |
| | | (−4.32)*** | (−4.35)*** | (−4.19)*** |
| *ACCRUALS* | + | 0.060 | 0.060 | −0.082 |
| | | (0.50) | (0.50) | (−0.61) |
| CA | + | 0.397 | 0.398 | 0.438 |
| | | (5.31)*** | (5.33)*** | (5.69)*** |
| *ABACC* | + | 0.277 | 0.280 | 0.220 |
| | | (2.80)*** | (2.82)*** | (1.98)** |
| *FOREIGN* | + | 0.528 | 0.530 | 0.510 |
| | | (9.60)*** | (9.62)*** | (9.11)*** |
| *BSEGS* | + | 0.065 | 0.065 | 0.064 |
| | | (8.55)*** | (8.54)*** | (8.12)*** |
| *LEV* | + | 0.339 | 0.338 | 0.326 |
| | | (5.88)*** | (5.87)*** | (5.62)*** |
| *LOSS* | + | 0.032 | 0.033 | 0.040 |
| | | (1.55)* | (1.59)* | (1.73)** |
| DECFYE | + | 0.044 | 0.044 | 0.050 |
| | | (1.67)** | (1.68)** | (1.84)** |
| *ARLAG* | + | 0.002 | 0.002 | 0.002 |
| | | (4.92)*** | (4.92)*** | (4.20)*** |
| *TENURE* | ? | −0.002 | −0.002 | −0.002 |
| | | (−1.28) | (−1.26) | (−1.75)* |
| ACQ | + | 0.041 | 0.041 | 0.053 |
| | | (2.28)** | (2.27)** | (2.69)*** |
| HIGHLIT | + | −0.041 | −0.042 | −0.057 |
| | | (−1.07) | (−1.08) | (−1.43) |
| GCO | + | −0.011 | −0.009 | −0.000 |
| | | (−0.16) | (−0.13) | (−0.00) |
| AGE | ? | 0.004 | 0.004 | 0.004 |
| | | (4.75)*** | (4.75)*** | (4.81)*** |
| SPEC | + | 0.064 | 0.064 | 0.066 |
| | | (3.58)*** | (3.57)*** | (3.51)*** |
| BIG | + | 0.212 | 0.209 | 0.213 |
| | | (2.40)*** | (2.37)*** | (2.31)** |
| SECTIER | + | 0.138 | 0.137 | 0.148 |
| | | (1.46)* | (1.44)* | (1.49)* |
| MATWEAK | + | 0.335 | 0.336 | 0.315 |
| | | (10.61)*** | (10.62)*** | (7.69)*** |
| INTERCEPT | ? | 9.113 | 9.119 | 9.061 |
| | | (59.25)*** | (59.22)*** | (56.53)*** |
| Industry fixed effects | | Included | Included | Included |
| Year fixed effects | | Included | Included | Included |
| Adjusted $R^2$ | | 80.58% | 80.58% | 81.93% |
| N | | 8604 | 8604 | 6866 |

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. T-statistics are in parentheses. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. In column (1), *PAYDIF* is *MEANDIF*, *EXECDELTA* is *MEANDELTA*, and *EXECVEGA* is *MEANVEGA*. In column (2), *PAYDIF* is *MEDDIF*, *EXECDELA* is *MEDDELTA*, and *EXECVEGA* is *MEDVEGA*. In column (3), *PAYDIF* is *CFODIF*, *EXECDELTA* is *CFODELTA*, and *EXECVEGA* is *CFOVEGA*. *HIGHAGE* is a dichotomous variable that takes the value of 1 if the CEO's age is greater than the median CEO age of 55, and 0 otherwise. Refer to Table 1 for a detailed description of the other variables.

percentiles of firm size, the results (untabulated) consistently reveal a positive and significant coefficient on *PAYDIF* for all three of our measures of tournament incentives. Therefore, we find that, with the exception of very small firms, firm size does not affect our results.

Second, we estimate Eq. (1) after removing the correlation between our measures of tournament incentives and firm size. To conduct this analysis, we first regress *PAYDIF* on *SIZE*. The residuals of this regression isolate the portion of *PAYDIF* that is not correlated with *SIZE*. Then, we

**Table 6**
Auditor tenure and tournament incentives.

| DV = *FEES* | Predicted sign | (1) *MEANDIF* | (2) *MEDDIF* | (3) *CFODIF* |
|---|---|---|---|---|
| *PAYDIF* | + | 0.020 | 0.019 | 0.014 |
| | | (1.29) | (1.23) | (0.86) |
| *PAYDIF * TENURE* | + | 0.002 | 0.002 | 0.002 |
| | | (2.03)** | (2.04)** | (1.98)** |
| *CEODELTA* | ? | −0.008 | −0.011 | −0.017 |
| | | (−0.61) | (−0.86) | (−1.46) |
| *CEOVEGA* | ? | 0.010 | 0.014 | 0.015 |
| | | (0.88) | (1.33) | (1.51) |
| EXECDELTA | ? | −0.026 | −0.018 | −0.003 |
| | | (−1.56) | (−1.12) | (−0.24) |
| EXECVEGA | ? | 0.003 | −0.005 | −0.004 |
| | | (0.19) | (−0.34) | (−0.34) |
| *SIZE* | + | 0.480 | 0.480 | 0.477 |
| | | (34.91)*** | (34.81)*** | (34.19)*** |
| *ROA* | − | −0.475 | −0.479 | −0.527 |
| | | (−4.31)*** | (−4.35)*** | (−4.18)*** |
| *ACCRUALS* | + | 0.047 | 0.047 | −0.092 |
| | | (0.39) | (0.39) | (−0.68) |
| CA | + | 0.396 | 0.398 | 0.439 |
| | | (5.29)*** | (5.31)*** | (5.68)*** |
| *ABACC* | + | 0.273 | 0.277 | 0.217 |
| | | (2.76)*** | (2.79)*** | (1.95)** |
| *FOREIGN* | + | 0.525 | 0.526 | 0.507 |
| | | (9.54)*** | (9.55)*** | (9.04)*** |
| *BSEGS* | + | 0.065 | 0.065 | 0.064 |
| | | (8.43)*** | (8.42)*** | (8.03)*** |
| *LEV* | + | 0.337 | 0.337 | 0.324 |
| | | (5.84)*** | (5.83)*** | (5.58)*** |
| *LOSS* | + | 0.035 | 0.035 | 0.043 |
| | | (1.67)** | (1.70)** | (1.84)** |
| DECFYE | + | 0.043 | 0.043 | 0.049 |
| | | (1.63)* | (1.63)* | (1.81)** |
| *ARLAG* | + | 0.002 | 0.002 | 0.002 |
| | | (4.89)*** | (4.89)*** | (4.09)*** |
| *TENURE* | ? | −0.015 | −0.002 | −0.002 |
| | | (−2.24)** | (−2.25)** | (−2.27)** |
| ACQ | + | 0.042 | 0.042 | 0.053 |
| | | (2.34)*** | (2.33)*** | (2.74)*** |
| HIGHLIT | + | −0.044 | −0.045 | −0.058 |
| | | (−1.14) | (−1.15) | (−1.46) |
| GCO | + | −0.029 | −0.027 | −0.017 |
| | | (−0.41) | (−0.38) | (−0.21) |
| AGE | ? | 0.004 | 0.004 | 0.004 |
| | | (4.74)*** | (4.75)*** | (4.84)*** |
| SPEC | + | 0.063 | 0.063 | 0.066 |
| | | (3.55)*** | (3.55)*** | (3.49)*** |
| BIG | + | 0.228 | 0.226 | 0.228 |
| | | (2.59)*** | (2.57)*** | (2.49)*** |
| SECTIER | + | 0.139 | 0.137 | 0.148 |
| | | (1.47)* | (1.45)* | (1.50)* |
| MATWEAK | + | 0.333 | 0.334 | 0.314 |
| | | (10.55)*** | (10.56)*** | (7.67)*** |
| INTERCEPT | ? | 9.145 | 9.153 | 9.129 |
| | | (56.21)*** | (56.21)*** | (51.84)*** |
| Industry fixed effects | | Included | Included | Included |
| Year fixed effects | | Included | Included | Included |
| Adjusted $R^2$ | | 80.59% | 80.58% | 81.93% |
| N | | 8604 | 8604 | 6866 |

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. T-statistics are in parentheses. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. In column (1), *PAYDIF* is *MEANDIF*, *EXECDELTA* is *MEANDELTA*, and *EXECVEGA* is *MEANVEGA*. In column (2), *PAYDIF* is *MEDDIF*, *EXECDELA* is *MEDDELTA*, and *EXECVEGA* is *MEDVEGA*. In column (3), *PAYDIF* is *CFODIF*, *EXECDELTA* is *CFODELTA*, and *EXECVEGA* is *CFOVEGA*. Refer to Table 1 for a detailed description of the variables.

use the residuals from that regression as our measure of tournament incentives when estimating Eq. (1). Using this approach, for all three measures of tournament incentives, we continue to find (untabulated) a positive and significant association between the strength of tournament incentives and audit fees.

Lastly, to reduce the correlations between *SIZE* and our measures of tournament incentives, we use indicator variables that signify firm-year observations with relatively high levels of tournament incentives. Specifically, we create the variables *HIGHMEANDIF*, *HIGHMEDDIF*, and *HIGHCFODIF*, which are indicator variables that take the value of 1 if a firm-year is above the median value of *MEANDIF*, *MEDDIF*, and *CFODIF*, respectively, and 0 otherwise. We then estimate Eq. (1) while using *HIGHMEANDIF*, *HIGHMEDDIF*, and *HIGHCFODIF* as our three measures of tournament incentives. Consistent with our previous results, for all

**Table 7**
Abnormal accruals and tournament incentives.

| DV = *FEES* | Predicted sign | (1) *MEANDIF* | (2) *MEDDIF* | (3) *CFODIF* |
|---|---|---|---|---|
| *PAYDIF* | + | 0.044 | 0.043 | 0.038 |
| | | (3.69)*** | (3.60)*** | (3.09)*** |
| *PAYDIF * ABACC* | + | 0.138 | 0.131 | 0.074 |
| | | (1.92)** | (1.85)** | (1.01) |
| *CEODELTA* | ? | −0.007 | −0.010 | −0.017 |
| | | (−0.58) | (−0.82) | (−1.40) |
| *CEOVEGA* | ? | 0.010 | 0.014 | 0.015 |
| | | (0.93) | (1.37) | (1.54) |
| EXECDELTA | ? | −0.026 | −0.018 | −0.004 |
| | | (−1.55) | (−1.12) | (−0.31) |
| EXECVEGA | ? | 0.003 | −0.005 | −0.004 |
| | | (0.21) | (−0.32) | (−0.31) |
| *SIZE* | + | 0.481 | 0.482 | 0.480 |
| | | (35.08)*** | (35.00)*** | (34.48)*** |
| *ROA* | − | −0.463 | −0.468 | −0.520 |
| | | (−4.20)*** | (−4.24)*** | (−4.10)*** |
| *ACCRUALS* | + | 0.048 | 0.049 | −0.092 |
| | | (0.40) | (0.41) | (−0.68) |
| CA | + | 0.400 | 0.401 | 0.440 |
| | | (5.35)*** | (5.37)*** | (5.71)*** |
| *ABACC* | + | −0.759 | −0.707 | −0.336 |
| | | (−1.40) | (−1.32) | (−0.60) |
| *FOREIGN* | + | 0.526 | 0.527 | 0.508 |
| | | (9.58)*** | (9.59)*** | (9.07)*** |
| *BSEGS* | + | 0.066 | 0.065 | 0.064 |
| | | (8.55)*** | (8.54)*** | (8.12)*** |
| *LEV* | + | 0.338 | 0.337 | 0.324 |
| | | (5.84)*** | (5.82)*** | (5.56)*** |
| *LOSS* | + | 0.036 | 0.036 | 0.042 |
| | | (1.72)** | (1.74)** | (1.82)** |
| DECFYE | + | 0.045 | 0.045 | 0.051 |
| | | (1.71)** | (1.71)** | (1.86)** |
| *ARLAG* | + | 0.002 | 0.002 | 0.002 |
| | | (4.90)*** | (4.90)*** | (4.15)*** |
| *TENURE* | ? | −0.002 | −0.002 | −0.002 |
| | | (−1.29) | (−1.28) | (−1.77)* |
| ACQ | + | 0.041 | 0.041 | 0.052 |
| | | (2.28)** | (2.27)** | (2.65)*** |
| HIGHLIT | + | −0.040 | −0.040 | −0.055 |
| | | (−1.02) | (−1.03) | (−1.37) |
| GCO | + | −0.016 | −0.014 | −0.006 |
| | | (−0.22) | (−0.19) | (−0.07) |
| AGE | ? | 0.004 | 0.004 | 0.004 |
| | | (4.78)*** | (4.79)*** | (4.87)*** |
| SPEC | + | 0.063 | 0.063 | 0.065 |
| | | (3.52)*** | (3.52)*** | (3.44)*** |
| BIG | + | 0.214 | 0.212 | 0.212 |
| | | (2.40)*** | (2.37)*** | (2.29)** |
| SECTIER | + | 0.139 | 0.137 | 0.146 |
| | | (1.45)* | (1.43)* | (1.46)* |
| MATWEAK | + | 0.334 | 0.335 | 0.313 |
| | | (10.56)*** | (10.57)*** | (7.63)*** |
| INTERCEPT | ? | 8.960 | 8.968 | 8.934 |
| | | (64.48)*** | (64.49)*** | (59.17)*** |
| Industry fixed effects | | Included | Included | Included |
| Year fixed effects | | Included | Included | Included |
| Adjusted $R^2$ | | 80.57% | 80.56% | 81.90% |
| N | | 8604 | 8604 | 6866 |

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. T-statistics are in parentheses. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. In column (1), *PAYDIF* is *MEANDIF*, *EXECDELTA* is *MEANDELTA*, and *EXECVEGA* is *MEANVEGA*. In column (2), *PAYDIF* is *MEDDIF*, *EXECDELA* is *MEDDELTA*, and *EXECVEGA* is *MEDVEGA*. In column (3), *PAYDIF* is *CFODIF*, *EXECDELTA* is *CFODELTA*, and *EXECVEGA* is *CFOVEGA*. Refer to Table 1 for a detailed description of the variables.

three measures of tournament incentives we continue to find (untabulated) a positive and significant association between the strength of tournament incentives and audit fees.

## 5. Conclusion

This study investigates whether executive tournament incentives influence auditor perceptions of risk. Prior research suggests that executives respond to tournament incentives by putting forth greater effort, which leads to better performance (e.g. Kale et al., 2009; Lazear & Rosen, 1981; Prendergast, 1999). However, prior research also finds that stronger tournament incentives are associated with greater performance misreporting (Conrads et al., 2014), more sabotage activities (Harbring & Irlenbusch, 2011), and a higher likelihood of fraud (Haß et al., 2015). We argue that auditors are likely to view tournament incentives as affecting audit risk and auditor business risk, leading to an impact on audit fees.

Our main sample consists of 8604 firm-year observations from the period of 2004–2014. We follow prior research (Haß et al., 2015; Kale et al., 2009; Kini & Williams, 2012; Kubick & Masli, 2016) to obtain three measures of executive tournament incentives. The results suggest that stronger tournament incentives are associated with higher audit fees. Specifically, the results indicate that audit fees are 3.90% higher when the strength of tournament incentives increases from the median to the 75th percentile. In addition, we find results suggesting that the relation between tournament incentives and audit fees is moderated by insider CEO succession, CEO tenure, CEO age, auditor tenure, and abnormal accruals.

This study contributes to the stream of prior research that identifies negative consequences associated with tournament incentives by showing that firms with stronger tournament incentives incur costlier audits. We also contribute to the emerging line of literature that investigates how executive compensation incentives affect auditor perceptions of risk. While prior research in this area examines performance-based compensation incentives, we extend this stream of research by considering the promotion-based compensation incentives of non-CEO executives. Finally, our study should be of interest to regulators because, consistent with recent modifications to Auditing Standard No. 12 that specified that auditors should consider executive compensation incentives, we provide further evidence that auditors take executive compensation incentives into account when assessing risk.

We recognize that this study has some limitations. First, since this study uses the archival methodology, we are restricted on inferences involving causality. That is, we can only observe an association between tournament incentives and audit fees. Another limitation is that we use the Execucomp database, which only tracks executive compensation for firms in the S&P 1500. However, despite the limitations noted above, the findings in this study provide unique insights by considering how promotion-based compensation incentives of non-CEO executives affect auditor perceptions of risk.

## Acknowledgements

The second author would like to acknowledge the financial support from a summer research grant from the College of Business at Kansas State University.

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