WORKING PAPER

Where does the time go?
Auditors' commercial effort, professional
effort, and audit quality

William A. Ciconte III
Justin leiby
Marleen Willekens

KEY TAKE-AWAYS

This study tests the taken-for-granted assumption that auditors' commercial motivation threatens audit quality using internal time reporting data from two Big Four firms in the Netherlands. The research team examined whether auditors' commercial effort is associated with their compensation, total effort on their audit engagements, and audit engagement quality.

The researchers find some evidence of a positive relation between commercial effort and compensation.

They find no evidence that auditors' commercial effort is associated with total audit effort in their portfolio and, most importantly, they find no evidence of a negative relation between auditors' commercial effort and audit quality. This challenges widely held beliefs that commercial effort is necessarily problematic for auditing.

Further, the researchers find that auditors' commercial effort is positively related to their reliance on quality control—proxied as technical consultations—and that there is a positive indirect effect of commercial effort on audit quality via consultations. That is, they identify conditions in which auditors' commercial effort increases audit quality, suggesting that further restrictions on commercial effort are likely unnecessary.

F
AR   Foundation *for*
Auditing Research

Where does the time go? Auditors' commercial effort, professional effort, and audit quality

William A. Ciconte III
University of Illinois at Urbana-Champaign
Gies College of Business
wciconte@illinois.edu

Justin Leiby
University of Illinois at Urbana-Champaign
Gies College of Business
jleiby2@illinois.edu

Marleen Willekens
KU Leuven, BI Norwegian Business School
marleen.willekens@kuleuven.be

April 2024

Where does the time go? Auditors' commercial effort, professional effort, and audit quality

Abstract

Audit theory and regulation assumes that auditors' commercial motivation threatens audit quality. In this registered report, we use data from two Big Four firms in the Netherlands and provide empirical evidence on the relation between auditors' commercial motivation and (1) compensation, (2) total audit effort, and (3) audit quality. We proxy commercial motivation as the time that individual auditors report allocating to commercial activities. We predict that auditors' commercial effort is positively related to compensation and we find mixed support for this hypothesis. Next, we predict that auditors' commercial effort is negatively related to the audit effort but we find no support for this hypothesis. Turning to audit quality, we predict a negative *direct* relation between auditors' commercial effort and audit quality but we find no support for this hypothesis. We also predict a positive *indirect* relation in which auditors' commercial effort increases quality control reliance leading to higher audit quality. We find support for this hypothesis as auditors with greater commercial effort have higher audit quality because they rely more on technical consultations. In sum, our study challenges the assumption that auditors' commercial effort threatens audit quality and questions the need for additional regulation to constrain commercial motivation.

"Time is money." – Benjamin Franklin

1. Introduction

It is an axiom of auditing regulation and theory that auditors' commercial motivation to maximize wealth conflicts with their responsibility to act in society's interest by exercising skepticism, independence, and due care (Carey and Doherty [1966]; Goldman and Barley [1974]; U.S. Supreme Court [1984]; Bazerman et al. [1997]; Suddaby et al. [2009]; AICPA [2021]). Commercial motivation is the desire to maximize auditors' compensation and the profitability of audit engagements, and is associated with activities such as developing sales proposals, attending networking events, or pursuing fee increases to increase profit (Gendron [2002]; Malsch and Gendron [2013]). In theory, auditors with stronger commercial motivation are more likely to accept opportunistic reporting by client management because they are focused on their own financial benefit (AICPA [2021]; Hoang, Jamal, and Tan [2019]). Despite nearly universal agreement that commercial motivation threatens audit quality, we are aware of no direct evidence testing this assertion.

We test this taken-for-granted assumption using a private dataset from the internal systems of two Big Four firms in the Netherlands, which captures how much time auditors allocate to commercial effort. We developed our hypotheses and planned analyses through a registered report process in which we received feedback from editors, reviewers, scholars, and audit professionals. We then submitted a proposal committing to specific hypotheses and planned tests, and this paper explicitly discloses any material departure from these plans.

We focus on audit partners, directors, and senior managers, as commercial motivation is likely strongest for these auditors. Time allocation is a direct measure of effort in auditing and other professional services and is closely monitored by firms (Aobdia [2019]; Hoang et al.

[2019]). Moreover, theory and evidence suggest that, all else equal, allocating more time to commercial activities reflects a belief that these activities are more important and ultimately increases auditors' motivation to perform those activities well (Coffey [1994]; Anderson-Gough et al. [2001]; Suddaby et al. [2009]; Bergeron et al. [2013]). As a result, commercial motivation may lead auditors to budget less time to complete audit engagements and acquiesce to client pressure (Bazerman et al. [1997]; Moore et al. [2006]; Nelson [2006]; Zeff [2003a]; [2003b]; Wyatt [2004]; Guo [2016]). This implies that greater commercial effort will be associated with lower audit engagement effort and lower audit quality. Our study will test this by examining the relation between auditors' commercial effort and (H1) their compensation, (H2) audit effort on their engagements, and (H3) audit quality on their engagements.

We expect a positive association between an auditors' commercial effort and compensation (H1), because audit firms' compensation systems tend to reward individuals who manage more or larger clients (Knechel et al. [2013]; Dekeyser et al. [2021]; Vandenhaute et al. [2020]). Further, we expect that an auditor's commercial effort is negatively associated with effort exerted on engagements in that auditor's portfolio (H2). This is consistent with a large literature that associates auditors' commercialism with efforts to increase audit efficiency (Gendron [2002]; Guo [2016]; Malsch and Gendron [2013]; Suddaby and Greenwood [2005]; Bauer, Estep, and Malsch [2019]; Knechel et al. [2013]).

Turning to audit quality (H3), we draw on the concept of competitive mediation to predict that commercial motivation has a negative *direct* relationship with audit quality and a positive *indirect* relationship with audit quality (Zhao, Lynch, and Chen [2010]). Consistent with conventional wisdom, we predict a negative direct relationship (H3a). However, we also draw on theory about individual auditors' reputational incentives to predict a positive *indirect*

4

relationship: commercial motivation is positively related to quality control reliance and this reliance, in turn, is positively related to audit quality (H3b).

We test our hypotheses using data obtained from two large public accounting firms in the Netherlands, in coordination with the Foundation for Auditing Research (FAR). Our final sample is 931 auditor-years. For H1, we proxy compensation as the sum of an auditor's salary, bonus, and equity distribution each year. For H2, we proxy audit effort as the sum of all audit hours charged by all staff levels to all audit engagements in an auditor's portfolio each year. For H3a and H3b, we use two proxies for quality control: technical consultation hours on an auditor's engagements each year and the proportion of total audit hours billed by partners, directors, and senior managers on an auditor's engagements each year ("engagement leverage"). We use two proxies of audit quality: the total number of modified opinions issued by an auditor each year and the proportion of an auditor's engagements that received satisfactory ratings in internal quality reviews each year. We urge caution interpreting the results for internal review ratings because most auditors had zero reviews during our sample period, thus the measure is unpopulated for most of our sample.

Our analyses depart from our proposal in one important way. We proposed to test H3a and H3b using Hayes' [2018] bootstrapping procedure, but this procedure could not accommodate our planned models. Instead, we use Generalized Structural Equation Modeling (GSEM), which usually yields the same inferences as the Hayes procedure (Hayes et al. [2017]).

For H1, we do not find a relationship between commercial effort and compensation in our main test. However, we also find that the two sample firms reward commercial effort differently. Specifically, one firm rewards *partners* for commercial effort, while the other rewards *directors* and punishes partners for commercial effort. Consistent with recent studies, this suggests there

are differences in reward systems across firms (Knechel et al. [2013]). For H2, we find no association between auditors' commercial effort and the total audit effort on their engagements. Further, we find no evidence of a negative relation between auditors' commercial effort and audit quality, which does not support H3a. This contradicts widely-held beliefs that commercial effort threatens audit production and quality.

However, we do find support for H3b when we use consultation as a proxy for quality control. That is, auditors' commercial effort is associated with more technical consultation hours on their engagements, which in turn is associated with issuing more modified opinions. We find no relation between engagement leverage and our audit quality proxies. To further test the logic of H3b, we conduct planned follow-up tests that classify consultations by topic. Our theory suggests that H3b is most pronounced when consultations concern technical accounting or auditing matters, as opposed to other topics like independence or risk management. Consistent with H3b, we find a positive indirect effect of commercial effort on both audit quality proxies when consultations concern technical accounting and auditing topics, but not other topics.

Our study makes two contributions. First, our novel data allows us to test and challenge the taken-for-granted assumption that auditors' commercial effort threatens audit quality. To date, much of the literature on this topic has been qualitative or theoretical (e.g., Gendron [2002]), with a few studies using surveys to measure the relative strength of commercial motivation (Bamber and Iyer [2002]; Lord and DeZoort [2001]; Suddaby et al. [2009]). However, our study is the first to provide empirical evidence on (1) whether audit firms reward auditors for their commercial activities and (2) whether commercial effort is associated with lower audit engagement effort or quality. We find mixed evidence on whether audit firms reward auditors for commercial effort and no evidence that commercial effort decreases audit effort. We

find no evidence that commercial effort decreases audit quality. Instead, we find conditions in which there is a *positive* relation.

These findings contribute to ongoing policy discussions about auditor independence and incentives (e.g., AFM [2018]; Brown [2021]). For instance, the European Commission [2011] has called for audit firms to weaken auditors' commercial motivations, as have the PCAOB and the Dutch Authority for the Financial Markets (AFM). To increase audit quality, our findings suggest that it is neither necessary nor sufficient to focus on further constraining auditors' commercial motivations, e.g., through more restrictions on non-audit services, as opposed to other efforts like improving firms' systems of quality control.

Second, we contribute to the emerging literature on audit firm quality control (Lennox et al. [2020]; Nagy [2014]) and to regulators considering revisions to quality control standards (PCAOB [2019]). Regulators and others often cite inadequate design or use of quality control as a reason for poor audit quality (AFM [2012]; PCAOB [2021]; SEC [2018]). Our findings suggest that technical consultations are a driver of higher audit quality, and that commercial effort increases auditors' willingness to engage in these consultations. This suggests that it may be beneficial to allow certain partners to specialize in commercial activities and to give these partners some input into decisions to rely on quality control. Finally, a higher proportion of senior personnel hours on an engagement is often cited as an audit quality indicator (PCAOB [2015]). However, we find no evidence that leverage relates to audit quality, complementing evidence that middle, as opposed to upper, firm management drives audit quality (Aobdia et al. [2023]). This calls into question whether engagement leverage is a valid indicator of audit quality.

2. *Theory and Hypotheses*

Commercial Motivation in Auditing

Auditors serve society by providing assurance that their clients' financial reports are fairly stated, with the responsibility to maintain due care, independence, and professional skepticism (AICPA AU Section 220; AICPA AU Section 230; U.S. Supreme Court [1984]; Harris [2017]). However, critics note that auditors work in for-profit firms and are financially dependent on the clients who hire them, pay their fees, and fire them (Hanlon [1996]; Suddaby et al. [2007]). This creates a potential conflict between auditors' commercial motivation and the quality of their professional judgment, as auditors must maintain objectivity towards the clients they are attempting to attract, satisfy, and retain (Bazerman et al. [1997]; Moore et al. [2006]; Nelson [2006]; Zeff [2003a]; [2003b]; Wyatt [2004]; Guo [2016]).

A popular view is that commercial motivation is diametrically opposed to auditors' professional responsibility, or the "calling" that leads a professional to feel obligated to serve society (Hall [1968]; Suddaby et al. [2009]; Carter and Spence [2014]). In this view, auditors' client is society, not management, and activities that focus on satisfying management necessarily weaken the motivation to deliver high-quality audits (Gendron [2002]). In turn, critics frequently cite commercial motivation and its alleged conflict with professional responsibility as the cause of high-profile audit failures (Moore et al. [2006]; Bazerman and Moore [2011]). A second view is that auditors balance commercial motivation and professional responsibilities and are unlikely to fully embrace one while disregarding the other (Malsch and Gendron [2013]; Carter and Spence [2014]). This is consistent with evidence that commercial pressures have long existed (and been managed) in the auditing profession (Walker [1995]; Malsch and Gendron [2013]).[1]

---

[1] The potential issue is not whether commercial motivation is present but rather the relative degree to which it is present (Malsch and Gendron [2013]).

We adopt this more nuanced view of commercial motivation as a separate construct from professional responsibilities, rather than as a continuum with strong commercial motivation on one end and strong professional motivation at the other.

In response to concerns about commercial motivation, laws, professional standards, and audit firm policies have been enacted to prohibit certain commercial activities and financial ties to clients (AICPA [2021]; PCAOB AS 1005). For example, in the early 20th century, the American Institute of Accountants' (1917) first *Rules of Professional Conduct* proposed eight rules, three of which prohibit commercial activities.[2] Similarly, *Ethical Standards of the Accounting Profession* bluntly states that "[t]he professional attitude requires renunciation of the promotional methods of the commercial world" (Carey and Doherty [1966], p. 148). These concerns intensified in the late 20th century as professional standards began to allow auditors to market their services and expand service lines, e.g., prompting four former SEC Chairmen to argue for "preserving the all-important principle of auditor independence from commercial client relationships" (Breeden et al. [2000]). Soon thereafter, the Sarbanes-Oxley Act banned additional commercial activities in the U.S. (U.S. Congress [2002]), and the E.U., U.K., Japan, and others enacted similar bans. Despite this, audit firms continue to expand commercial activities, reigniting claims that commercial motivation threatens audit quality (Bazerman and Moore [2011]; European Commission [2011]; Harris [2017]; Brown [2021]).

Despite the persistent idea that commercial motivation impairs professional judgment and thereby audit quality, we are aware of little, if any, direct evidence supporting this axiom. For example, archival studies examine the association between audit quality and the provision of

---

[2] These rules banned advertising, being paid commissions, and soliciting other accountants' clients. The AICPA relaxed the ban on advertising in 1977 after the U.S. Supreme Court ruled that a similar ban in the legal profession was unconstitutional (Heischmidt and Elfrink [1991]), and removed the ban entirely in 1990 in an agreement with the Federal Trade Commission (Boze and Law [2003]).

non-audit services—a rough proxy for the presence of cross-selling opportunities that could strengthen commercial motivation—but do not find a reliable association (Ashbaugh-Skaife et al. [2003]; Lim and Tan [2008]; Bell et al. [2015]). Other studies, mostly survey and qualitative, have examined how auditors' commercial motivation strengthens in response to the expansion of non-audit services, increasingly close client relationships, audit firm evaluation and monitoring controls, and political activities and public relations by professional bodies (e.g., Covaleski et al. [1998]; Greenwood and Suddaby [2006]; Suddaby et al. [2009]; Guo [2016]).[3] In brief, this research stream finds that auditor attitudes and values are more consistent with commercial ideals than investor protection (Suddaby et al. [2009]).

Hypothesis Development

At the center of this ongoing debate is how auditors allocate their time and effort. Wyatt [2004] and Zeff [2003a; 2003b] argue that focusing time and effort on non-accounting and non-auditing tasks strengthens commercial motivation and erodes professionalism. The opportunity and pressure to engage in such tasks, like marketing and selling services, is quite strong given that audit firms expand their service lines (Bazerman et al. [1997]; Zeff [2003a]; [2003b]; Wyatt [2004]). Suddaby et al. [2009] provide empirical evidence supporting these ideas by surveying 1,300 Canadian public accountants on their commitment to professionalism (i.e., to the profession, to the concept of independence) and to commercial values (i.e., to clients, to their employing organization, to the commercial value of an accountant certification). They find that allocating more than half of one's time outside accounting and auditing tasks—a proxy for work

---

[3] Many of these studies focus on how institutional pressures like expanding non-audit service lines shape commercial and professional motivation over time, and thus assume professional and commercial motivation are continuously shifting with institutional pressures. Suddaby et al. [2009] note that many conclusions from this research would not change if one assumed motivation was a stable construct. In our sample period, no major institutional shifts occur and thus we make no assumptions about the stability of commercial motivation over time.

with "more commercial content"—is associated with stronger commitment to clients and the organization. Expanding this, Bergeron et al. [2013] find that professionals and professional service firms view the time allocated to a task as a reflection of the importance of that task, all else equal.[4]

This reinforces broader ideas about the importance of time in services: firms earn revenue by selling professionals' time, professionals frame their contributions in terms of time allocations, and firms closely monitor billable hours and realization rates (Coffey [1994]; Anderson-Gough et al. [2001]). For instance, in a qualitative study of entry-level U.K. auditors, Coffey [1994] finds that both the auditors and their firm view the time allocated to an activity as a reflection of auditors' commitment to that activity. Extending this idea, Anderson-Gough et al. [2001] interview 154 entry-level auditors at multiple points in time, and find that time management is one of the first "skills" taught to auditors.[5] Kornberger et al. [2011] find that firms train audit managers and assess readiness for partnership in part by monitoring their time management.

Moreover, audit firms often evaluate individual auditor effort, as measured by time, rather than solely on outcomes such as generating new business or conducting more efficient

---

[4] This suggests not only that time spent on one task necessarily involves trading off time that could have been spent on other activities (Bergeron [2007]; Bergeron et al. [2013]), but also that allocating more time to a given task inflates a person's perceptions of the value of that task (Schriber and Gutek [1987]; Lim and Seers [1993]; Shipp and Cole [2015]). This is broadly consistent with traditional psychology theories of motivation, which propose that a person's motivation is a function of 1) the link between their effort and an outcome, and 2) the attractiveness of that outcome (e.g., Vroom [1964]). That is, auditors' commercial motivation is a function of how much they desire commercial success and the degree to which they expect that devoting time to commercial activities will deliver this success.

[5] Auditors sometimes experience pressure to underreport their time as a way to remain underbudget for an engagement. These pressures exist primarily for seniors and lower ranks, as higher-ranking auditors have greater autonomy over their time and, in the case of partners, are owners and thus do not benefit from underreporting time (Agoglia, Hatfield, and Lambert [2015]).

audits.[6] It is desirable to do so, because professionals (including auditors) have significant

control over how they allocate time (von Nordenflycht [2010]) and compensation contracts are

more effective when they are based on measures that the professional controls (Knechel et al.

[2013]).

It is logical that this monitoring setup would encourage commercial effort. As owners,

partners maximize firm profit and thereby their own compensation by attracting clients and

deploying as many junior staff as possible into billable roles (Sherer [1995]). To encourage this,

firms implement controls to strengthen newly-promoted partners' commitment to client service

and increase their effort devoted to selling firms' services (Ricci [2021]). Systems of promotion

and compensation reward investments in these commercial activities by partners, directors, and

senior managers (Gilson and Mnookin [1989]).

As a result, commercial effort is likely to be positively associated with auditor

compensation. In choosing a compensation system, audit firms generally base some of auditors'

compensation on performance, which provides returns on auditors' individual effort and likely

rewards commercial effort (Knechel et al. [2013]; Vandenhaute et al. [2020]). Consistent with

this, prior studies suggest that audit firm compensation systems reward auditors for managing

client portfolios with higher numbers of clients and higher fee revenue (Dekeyser et al. [2021];

Vandenhaute et al. [2020]). This leads to our first hypothesis:

> *H1*:   An auditor's commercial effort is positively associated with the auditor's
>   compensation.

Turning to audit production, theory suggests that information asymmetry between

auditors and clients makes it difficult for clients to assess how much audit effort is necessary to

---

[6] We conducted five semi-structured interviews with audit partners at a large public accounting firm in the
Netherlands. These partners indicated that commercial effort is exerted not only to obtain new business but to
maintain existing client relationships.

achieve reasonable assurance (Causholli and Knechel [2012]; Aobdia, Siddiqui, and Vinelli [2021]). Causholli and Knechel [2012] suggest that these *credence attributes* allow auditors to under- or over-audit across their client portfolio without being detected by clients, within a reasonable range. If auditors engage in under-auditing (over-auditing), then audit effort will be less (more) than would be required to obtain the appropriate level of assurance for audit clients. Because competition over audit fees may constrain over-auditing, we focus on under-auditing.

To the extent that auditors are more commercially motivated, they are likely to seek to increase the profitability of their engagements (Gendron [2002]). Firms evaluate auditors on their ability to deliver audits while using the minimum amount of resources, especially by emphasizing time budgets and applying time pressure to constrain the consumption of audit staff time (McDaniel [1990]). When faced with a greater emphasis on time budgets, auditors are less likely to perform additional testing (Bauer, Estep, and Malsch [2019]), more likely to rely upon internal auditing (Gramling [1999]), and more likely to sign-off on audit procedures without sufficient review (Knechel et al. [2013]). This would suggest that as commercial effort increases, auditors will have lower audit effort on their engagements. Given theory and prior empirical evidence, we predict that:

> *H2*: An auditor's commercial effort is negatively associated with audit team effort in the auditor's client portfolio.

The association between commercial effort and audit quality is more complex. We propose that this association differs depending on an intervening variable: reliance on the audit firm's quality controls. That is, commercial effort is associated with higher reliance on quality control and, in turn, this increased reliance is associated with higher audit quality. By contrast, when commercial effort is not associated with higher control reliance, it is likely associated with lower audit quality. In other words, we predict two paths: a *negative direct relationship* between

commercial effort and audit quality and a *positive indirect relationship* (Zhao et al. [2010]).[7] See

Figure 1.

<<<< Insert Figure 1 here >>>>

Our logic is that audit firms develop cultures and internal processes that support the co-

existence of commercial and professional motivation, including investments in quality controls,

training, and technical guidance to assist audit teams with complex matters (Malsch and Gendron

[2013]; Guo [2016]). Consistent with this, evidence suggests that professional motivation

strongly influences decision-making in audit firms despite strong commercial pressures (Aranya

et al. [1981]; Aranya and Ferris [1984]; Gendron [2001], Gendron [2002]; Gendron and Spira

[2009]; [2010]). As a result, it makes sense to conceptualize two competing paths that exist

simultaneously.

We begin with the simpler, direct path. If auditors' commercial motivation is associated

with minimizing audit engagement effort, then it is intuitive that audit quality on their

engagements would decrease, all else equal. Moreover, theory suggests that allocating time to

commercial tasks increases the importance of those tasks in auditors' minds (Coffey [1994];

---

[7] The simultaneous existence of a positive direct relation and negative indirect relation is referred to as *competing mediation*, and is relatively common with survey and archival data in fields such as marketing, management, and operations (Zhao et al. [2010]). For example, Bolton, Cohen, and Bloom [2006] find that smoking cessation programs do not reliably decrease intentions to smoke, because they measurably decrease perceptions of the risk of smoking. Richens, Imrie, and Copas [2000] use similar logic to explain the curious null relationship between condom distribution to overseas U.S. soldiers and the prevalence of sexually transmitted infection (STI). Condoms decrease soldiers' perceptions of the risks of sex with multiple partners, which in turn increases STI prevalence (indirect), but decrease STI prevalence when controlling for deflated risk perceptions. Mitra and Lynch [1995] use competing mediation to examine the economic effects of advertising: they find a positive, market power path in which advertising increases product differentiation and thus decreases price elasticity, and a negative, advertising-as-information path in which ads increase consumers' choice sets and thus increase price elasticity. In brief, the direct effect is the relation between an independent variable (commercial effort) and dependent variable (quality) while controlling for the mediator (quality control reliance). The indirect effect is the product of two relations: the relation between the independent variable and dependent variable and the relation between the mediator and the dependent variable while controlling for the independent variable. The sum of the two effects is the *total relationship*, which also equals the relation between independent and dependent variables *not* controlling for the mediator.

Covaleski et al. [1998]). In turn, commercially motivated auditors may set a "tone at the top" of the audit team that places primary emphasis on commercial values, which is likely to shape the judgments of audit team members (e.g., Peecher [1996]; Aobdia [2019]). Fiolleau et al. [2013] examine a large public company's auditor appointment process—a setting with strong commercial motivation—and find that auditors place greater emphasis on management's preferences than on objectively assessing risk. Further, Hoang et al. [2019] examine an audit firm's national office data and find that client service delivery is a primary determinant of engagement profitability. A stream of experimental papers suggests this is likely to worsen auditor judgment, finding that auditors are less willing to detect or challenge client opportunism when they have greater affinity for their clients (Koch and Salterio [2017]), perform well on client service (Ricci [2021]), or work for a firm that actively monitors client satisfaction (Aghazadeh and Hoang [2020]). These arguments suggest a negative, direct relationship between commercial effort and audit quality:

> *H3a (Direct Relationship)*: An auditor's commercial effort is associated with lower audit quality in the auditor's client portfolio.

By contrast, we argue there is likely to be a measurable, competing positive association when commercial effort influences reliance on quality controls. Our argument centers on two important quality control processes in audit firms: consultation and personnel assignment. These processes are the primary channels to supplement an auditor's expertise with additional, qualified people, reflecting the reality that auditors who invest heavily in commercial effort can still leverage the knowledge, skills, and effort of others (Greenwood and Empson [2003]). Consultation refers to an auditor seeking input on auditing or accounting issues from another person in the firm who is not part of the engagement team, often but not always involving the firm's national office or technical consulting unit (e.g., Knechel and Leiby [2016]; Dodgson et

15

al. [2020]). Personnel assignment refers to the process of staffing engagements with professionals who, as a team, have adequate training and proficiency (PCAOB [2002]). While some consultations and personnel assignments are driven by firm policy, audit engagement leaders maintain significant influence over these decisions on their audits (Aghazadeh, Dodgson, Kang, Peytcheva [2021]).

We argue that these quality controls allow a commercially motivated auditor who exerts more commercial effort to nonetheless have a *team* that is capable of the best judgment, e.g., by staffing their team with top technical talent or engaging in more frequent consultations. Based on prior research, devoting more time to commercial activity leads auditors to value commercial norms and to view commercial attributes as central to their reputation within the firm (Coffey [1994]). That is, an auditor who excels at sales is likely to have a reputation that includes being a good salesperson. There is evidence that a positive reputation increases an auditor's compensation and power within the firm (Greenwood and Empson [2003]; Knechel et al. [2013]), thus auditors are motivated to act in a way that preserves and enhances their reputation. However, theory suggests that a professional's reputation can suffer if they are perceived to be dependent on others in areas central to their reputation, e.g., if they *need* to consult more than peers or *need* a highly skilled team more than others, it is often seen as a signal that they are less competent than their peers (Kanodia et al. [1989]; Levy [2004]).

Even if firm leaders interpreted using quality controls or staffing audit teams with top technical talent as a signal that the auditor lacks technical skill, all else equal, the auditor with a reputation for commercial skill has little to lose by sending this signal. As a result, auditors who exert more commercial effort are likely more willing to consult and more motivated to assign

16

highly-skilled personnel on their engagements. All else equal, this suggests commercial effort

has a positive, indirect relationship with audit quality:

> *H3b (Indirect Relationship)*: An auditor's commercial effort is associated with greater
> reliance on quality controls, which in turn is associated with higher audit quality.

3. Data Collection and Sample Composition

3.1 AUDIT MARKET IN THE NETHERLANDS

The Dutch accounting and auditing services market has many similarities to the markets

in the U.S. and U.K. (Schelleman and Knechel [2010]). The Dutch audit profession has rigorous

standards that auditors must meet to enter the profession and requires ongoing training and

adherence to the profession's code of ethics (Parker [2004]). Each of the Big Four are present in

this market and these firms conduct a large proportion of all audits (Schelleman and Knechel

[2010]). In 2019, the Big Four accounted for almost 98% of all publicly-traded company audits

in the Netherlands (Beaubrun [2020]).[8] Moreover, only six audit firms compete for public

clients, thus clients have expressed their concern about a lack of choice.

Unlike the U.S. audit market, there are relatively few publicly-traded companies in the

Netherlands, with only 83 in 2019 (Beaubrun [2020]), and these clients are subject to mandatory

audit firm rotation. Thus, most audits in the Netherlands are for smaller, private companies.

Competition for these audits is relatively strong, as non-Big Four audit firms in the Netherlands

generate more total revenue than the Big Four (van Buuren, Koch, Amerongen, and Wright

[2014]). The research team spoke with current audit partners at a Big Four audit firm to

understand how audit firms compete for public and private clients. Typically, partners win new

business by attending networking events, participating in firm driven marketing initiatives, or

---

[8] The concentration in this audit market has increased over time, much like in the U.S. In 1998, the then-Big 6 only
audited 85% of all publicly-traded companies (Schelleman and Knechel [2010]).

getting referrals from existing clients. Practitioners view the Dutch market as competitive, especially for smaller clients that are the vast majority of engagements.

3.2 DATA COLLECTION AND MEASURES

We obtain data with the assistance of the FAR, which is a nonprofit organization funded by the nine largest audit firms in the Netherlands in response to a Dutch government directive to improve audit practice and audit quality. The FAR promotes collaboration between audit researchers and practitioners by sponsoring research projects and providing these projects with access to proprietary data. After the FAR decided to support our project, two audit firms contractually agreed to deliver the data necessary to execute this project.

We collaborated closely with the firms to identify measures to test our research questions, holding several meetings with each firm over multiple years to discuss data that is available versus unavailable, with unavailability determined either by the data not existing or the data being unfeasible to collect. The datasets include:

Audit Partners/Directors/Managers' Recorded Time – audit partner/director/manager hours separately recorded for:

(i)   commercial activities including time spent on networking, time spent working on proposals to obtain new business from prospective and current clients, and ongoing client relationship management with existing clients,[9]

(ii)   the conduct of audit engagements including evaluating risk assessments, reviewing audit procedures, making inquiries of client management, and negotiating proposed adjusting entries, and

---

[9] In conversations with current practitioners, time charged for client relationship management includes time spent speaking with client management outside the course of the conduct of the audit. Examples include having lunch or dinner with the client. With respect to networking, practitioners indicate that this includes attending social events and formal conferences with the intent to meet prospective new clients.

(iii)   professional development including attending or delivering learning and

education seminars.

Total Engagement Team Recorded Time – hours recorded in the aggregate by audit staff,

seniors, managers, directors, and partners for each engagement managed by each

partner/director/manager.

Compensation and Profitability – audit partner/director/manager salaries and bonuses,

audit partner equity distributions; audit fees for each engagement, internal overhead rates

by rank.

Audit Quality Measures and Quality Controls - aggregate average ratings of audit

engagements managed by the auditor from internal reviews, external peer reviews, and

regulatory reviews, number of consultations, and audit engagement leverage.

While some auditors encounter pressures to underreport their time (i.e. "eat time")—

which would introduce measurement error into our analysis—we do not believe that eating time

affects audit partner/director/senior manager commercial time for two reasons. First, theory

suggests that higher-ranking auditors, especially partners who are owners of the firm, have

significant autonomy over how they allocate time, experience little pressure to underreport, and

would not benefit from doing so (Agoglia et al. [2015]). Second, we conducted five semi-

structured interviews with current audit partners of a Big Four firm in the Netherlands. The

partners uniformly indicated that they have considerable control over their time, do not feel

pressure to underreport their time, and the tone at the top of the firm establishes the standard that

all individuals at any level within the firm should record all their time. This latter point is also

relevant when considering the measure of time recorded by lower-ranked audit team members in addition to our variable of interest.[10]

To ensure privacy and maintain security over the data provided for this study, all data analysis occurs within a research environment hosted by a third-party data manager, which we access via VPN and remote login. Firms upload raw data directly to this environment, and the data manager ensures the data cannot be linked to firms or individual auditors. This helps ensure the transparency and integrity of the research process. We have signed non-disclosure agreements with FAR, and FAR fully supports our registered report proposal.

To examine our questions, data is organized with a unique anonymous identifier for each auditor (e.g., employee ID multiplied by a common factor). We use this identifier to merge the audit personnel data with audit office and audit firm data.

3.3 SAMPLE COMPOSITION

To conduct our analyses, we require an auditor to be an audit manager, senior manager, director, or partner at the two participating audit firms. The sample spans the period from 2016 through 2019. Table 1 summarizes the sample selection process. We begin with 1,142 auditor-year observations provided by the participating firms. We remove 61 observations that are duplicates and an additional 55 that do not have individual hourly data. We remove another 35 auditor-years that have 0 or negative audit fees and 17 auditor-years with 0 compensation. We exclude two auditor-years where the auditor has a rank below manager, one auditor-year with no risk ratings, and two auditor-years with negative auditor tenure. As a final step, we evaluate whether any remaining observations are outliers, specifically with respect to the amount of audit work they perform. We remove 26 auditor-years where the auditor either records a significantly

---

[10] Dutch law imposes penalties on firms if they do not appropriately compensate employees for the time they incur on behalf of the firm.

small amount of their total time on audit work (less than 9%) or large amount of time on other

tasks outside of auditing (greater than 71%). Our final sample is comprised of 931 auditor-years

with 458 coming from Firm X and 473 coming from Firm Y.

<<< Insert Table 1 about here >>>

4. Research Design and Descriptive Evidence

4.1 EMPIRICAL MODELS

To test our first hypothesis that auditor compensation is positively related to commercial

effort, we use a mixed model that utilizes the restricted maximum likelihood principle, consistent

with Knechel, Niemi, and Zerni [2013]:

$$
\begin{aligned}
LN\_COMP_{ijt} = {} & \alpha_0 + \mu_{ij} + \beta_1 LNPD_{ijt} + \beta_2 LNL\&E_{ijt} + \beta_3 LNQC_{ijt} + \beta_4 LNAH_{ijt} \\
& + \beta_5 LNRECRUIT_{ijt} + \beta_6 LNCONSULT_{ijt} + \beta_7 LNAF_{ijt} + \beta_8 LNNAF_{ijt} \\
& + \beta_9 EVAL_{ijt} + \beta_{10} LNMODOP_{ijt} + \beta_{11} NONCOMP_{ijt} + \beta_{12} LNPUBLIC_{ijt} \\
& + \beta_{13} RISK_{ijt} + \beta_{14} DIRECTOR_{ijt} + \beta_{15} PARTNER_{ijt} + \beta_{16} LNTENURE_{ijt} \\
& + \beta_{17} LNFIRMPFT_{jt} + \beta_{18} LNFIRMAF_{jt} + \beta_{19} LNFIRMNAF_{jt} \\
& + \beta_{20} LNFIRMPUBLIC_{jt} + Industry\ Group\ fixed\ effects \\
& + Year\ fixed\ effects + \varepsilon
\end{aligned}
$$

(1)

Our dependent variable is the natural log of one plus total compensation for auditor i in

year t (*LN_COMP_{ijt}*). Total compensation is the sum of an auditor's salary, bonus, and equity

distributions. *LNPD* is measured as the natural log of one plus total practice development time of

auditor i of firm j in year t.[11] We include several controls for auditor and audit firm

characteristics that are expected to impact auditor compensation. Specifically, we include

measures of non-commercial effort (*LNL&E*, *LNQC*, *LNAH*), quality control (*LNCONSULT*), the

auditor's book of business (*LNAF* and *LNNAF*), auditor quality (*EVAL* and *NONCOMP*), audit

---

[11] These data are aggregated, and we are unable to observe which types of practice development activities, such as sharing meals with existing clients or drafting proposals for a potential new client, a given auditor engaged in for the period.

engagement quality (*LNMODOP*), client complexity (*LNPUBLIC*), client risk (*RISK*), auditor experience (*DIRECTOR*, *PARTNER*, and *LNTENURE*), audit firm financial health (*LNFIRMPFT*, *LNFIRMAF*, and *LNFIRMNAF*) and audit firm client complexity (*LNFIRMPUBLIC*).[12] We include random auditor-specific intercepts and cluster robust standard errors by auditor.[13] All variables are defined in Appendix A.

We note three differences between the planned and actual empirical specification for Equation (1). First, we proposed to use audit engagement quality reviews (*EQ*) to proxy for audit quality. However, the number of auditor-years with at least one audit engagement quality review is much lower than anticipated, i.e., most auditors had zero reviews during the sample period. As a result, the sample size that can utilize the measure *EQ* is significantly lower than expected. To preserve sample and statistical power, we use an alternative proxy for audit engagement quality, *LNMODOP*. Second, we proposed to proxy industry specialization as recording more than 50% of an individual's time for an industry, but we are unable to compute this measure because one firm did not report the hours each auditor recorded in each client industry. However, we do have data regarding which client industry each auditor serves *the most*, thus we instead include indicator variables for the primary client industry that the auditor serves. Third, we include indicator variables for directors and partners, *DIRECTOR* and *PARTNER*, rather than an ordered rank variable. We proposed using an ordered rank variable to preserve degrees of freedom.

---

[12] In supplemental analysis, we conduct subsample analysis so that we can include additional control variables which are available for one, but not the other, participating firm. One of the participating firms provides an additional measure of professional effort, *LNMENTOR*, and two additional measures of auditor experience, *LNAGE* and *LNRTENURE*. The other participating firm provides data such that we can include an indicator for whether an auditor operates within the Ranstad market in the Netherlands. We set the variable *BIG MARKET* equal to one for auditors operating within this market; 0 otherwise. All variables are defined in Appendix A.

[13] We also re-estimate each model with auditor fixed effects as a robustness test following the empirical approach of Knechel et al. [2013]. We note that our findings are not robust to the inclusion of auditor fixed effects rather than random auditor intercepts, most likely because auditor fixed effects consume 270 degrees of freedom in our model and our sample size is relatively small. Thus, we may not have adequate statistical power to draw inferences from models that include auditor fixed effects.

However, the distributions of multiple measures differ for partners, as opposed to directors and senior managers, and an untabulated LR-test indicates that using individual indicators is more appropriate ($p<0.01$).

To test our second hypothesis, we estimate the following mixed model that utilizes the restricted maximum likelihood principle:

$$\begin{aligned}
LNTOTAL\_HOURS_{ijt} = {} & \alpha_0 + \mu_{ij} + \beta_1 LNPD_{ijt} + \beta_2 LNL\&E_{ijt} + \beta_3 LNQC_{ijt} + \\
& \beta_4 LNAH_{ijt} + \beta_5 LNRECRUIT_{ijt} + \beta_6 LNCONSULT_{ijt} + \beta_7 LNAF_{ijt} + \\
& \beta_8 LNNAF_{ijt} + \beta_9 EVAL_{ijt} + \beta_{10} NONCOMP_{ijt} + \\
& \beta_{11} LNPUBLIC_{ijt} + \beta_{12} RISK_{ijt} + \\
& \beta_{13} DIRECTOR_{ijt} + \beta_{14} PARTNER_{ijt} + \beta_{15} LNTENURE_{ijt} + \\
& Industry\ Group\ fixed\ effects + Year\ fixed\ effects + \varepsilon \qquad (2)
\end{aligned}$$

Our dependent variable *LNTOTAL_HOURS* is the natural log of one plus total hours charged to all audit engagements of auditor i of firm j in year t for all staff levels. Our variable of interest is as defined previously. We include controls for client portfolio size (*LNAF*), knowledge-spillovers (*LNNAF*), auditor experience (*DIRECTOR*, *PARTNER* and *LNTENURE*), auditor quality (*EVAL* and *NONCOMP*), client riskiness (*RISK*), and client complexity (*LNPUBLIC*) consistent with prior literature (Duh et al. [2020]; Knechel and Sharma [2012]).[14] We include year and client industry group fixed effects, random auditor-specific intercepts, and estimate robust standard errors clustered by auditor.

To test our third hypothesis, we use Generalized Structural Equation Modeling (GSEM) in Stata, a variation of Structural Equation Modeling that can accommodate auditor-specific random intercepts. GSEM allows the researcher to draw causal inference when testing theoretical

---

[14] In supplemental analysis, we conduct subsample analysis so that we can include additional control variables which are available for one, but not the other participating firm. One of the participating firms provides an additional measure of professional effort, *LNMENTOR*, and two additional measures of auditor experience, *LNAGE* and *LNRTENURE*. The other participating firm provides data such that we can include an indicator for whether an auditor operates with the Ranstad market within the Netherlands. We set the variable *BIG MARKET* equal to one for auditors operating within this market; 0 otherwise. All variables are defined in Appendix A.

predictions and, importantly, it facilitates an examination of direct as well as indirect effects

(Kline [2016]). The use of structural equation modeling also facilitates the estimation of

simultaneous equations and improves estimation efficiency while generating unbiased estimates

(Hinson and Utke [2023]). This technique has been used in prior accounting literature to test

mediation models (Bauer et al. [2020]; Bhattacharya et al. [2012]). We estimate the following

generalized regressions:

$$
\begin{aligned}
QC_{ijt} = \ &\alpha_0 + \mu_{ij} + \beta_1 LNPD_{ijt} + \ \beta_2 LNL\&E_{ijt} + \ \beta_3 LNQC_{ijt} + \\
&\beta_4 LNAH_{ijt} + \beta_5 LNRECRUIT_{ijt} + \ \beta_6 LNAF_{ijt} + \\
&\beta_7 LNNAF_{ijt} + \ \beta_8 EVAL_{ijt} + \ \beta_9 NONCOMP_{ijt} + \\
&\beta_{10} LNPUBLIC_{ijt} + \ \beta_{11} RISK_{ijt} + \\
&\beta_{12} DIRECTOR_{ijt} + \ \beta_{13} PARTNER_{ijt} + \beta_{14} LNTENURE_{ijt} + \\
&Industry\ Group\ fixed\ effects + Year\ fixed\ effects + \varepsilon \qquad (3)
\end{aligned}
$$

$$
\begin{aligned}
QUAL_{ijt} = \ &\alpha_0 + \mu_{ij} + \beta_1 LNPD_{ijt} + \ \beta_2 LNL\&E_{ijt} + \ \beta_3 LNQC_{ijt} + \\
&\beta_4 LNAH_{ijt} + \beta_5 LNRECRUIT_{ijt} + \ \beta_6 QC_{ijt} + \ \beta_7 LNAF_{ijt} + \\
&\beta_8 LNNAF_{ijt} + \ \beta_9 EVAL_{ijt} + \ \beta_{10} NONCOMP_{ijt} + \\
&\beta_{11} LNPUBLIC_{ijt} + \ \beta_{12} RISK_{ijt} + \\
&\beta_{13} DIRECTOR_{ijt} + \ \beta_{14} PARTNER_{ijt} + \beta_{15} LNTENURE_{ijt} + \\
&Industry\ Group\ fixed\ effects + Year\ fixed\ effects + \varepsilon \qquad (4)
\end{aligned}
$$

Our mediator variable is *QC*. We will utilize two alternative measures for reliance on

quality control by a given auditor. The first, *LNCONSULT*, is the natural log of the total number

of hours incurred by technical consultants for clients of auditor i of audit firm j in year t.[15]

Second, *ENGLEV* is the ratio of the aggregate number of partner/director/senior manager hours

on all audit engagements for auditor i of audit firm j divided by the aggregate number of hours

by all other personnel working on audit engagements for auditor i of audit firm j in year t. This

measure will provide some evidence about quality control for the auditor's audit engagements as

---

[15] In addition to providing the total number of hours incurred for consultations, each firm has provided us with the
total number of consultations performed across each auditor's client portfolio. The firms provide disaggregated data
indicating the number of consultations that relate to technical accounting issues, auditing issues, and other issues.
Unfortunately, neither firm reliably tracks whether a consultation is voluntary, thus some consultations will be
driven by firm policy rather than by auditor choice. This adds noise to our analysis.

higher ratios would suggest more skilled and experienced labor which we expect will result in higher audit quality. Additionally, this measure will provide additional evidence about the amount of effort exerted on the auditor's audit engagements.

Our dependent variable in Equation (4) is *QUAL* which is defined as either: (i) *EQ* which is the average audit engagement quality of auditor i of firm j in year t or (ii) *LNMODOP* which is the natural log of one plus the total number of modified opinions for auditor i of audit firm j in year t. Our variable of interest is as defined previously.[16] We include controls for client portfolio size (*LNAF*), knowledge-spillovers (*LNNAF*), client complexity (*LNPUBLIC*), client riskiness (*RISK*), and auditor experience (*DIRECTOR*, *PARTNER*, and *LNTENURE*).[17] We include industry group fixed effects, year fixed effects, random auditor-specific intercepts, and estimate robust standard errors clustered by auditor.

The direct relationship between commercial effort and audit quality (H3a) is tested using the coefficient $\beta_1 LNPD_{ijt}$ from Equation (4). The indirect relationship between commercial effort and audit quality through quality control reliance (H3b) is tested by multiplying $\beta_1 LNPD$ from Equation (3) by $\beta_6 QC$ from Equation (4).

We note that in the planned analysis, the research team proposed to use the Hayes [2018] PROCESS procedure to test H3a and H3b. This procedure is widely used in experimental, survey, and archival research in accounting and other fields. Unfortunately, the PROCESS macro cannot accommodate random auditor intercepts and crashes when including our auditor fixed

---

[16] In untabulated supplemental analysis we re-estimate Equation (4) and include the square of *LNPD* to address concerns about the relation between audit quality and practice development being non-linear. We do not find that the square of *LNPD* is associated with audit quality.

[17] In supplemental analysis, we conduct subsample analysis so that we can include additional control variables which are available for one, but not the other, participating firm. One of the participating firms provides an additional measure of professional effort, *LNMENTOR*, and two additional measures of auditor experience, *LNAGE* and *LNRTENURE*. The other participating firm provides data such that we can include an indicator for whether an auditor operates with the Ranstad market within the Netherlands. We set the variable *BIG MARKET* equal to one for auditors operating within this market; 0 otherwise. All variables are defined in Appendix A.

effect parameters. Thus, we use GSEM, which usually yields the same inferences as PROCESS (Hayes et al. [2017]).

4.2 DESCRIPTIVE EVIDENCE

Table 2 reports descriptive statistics for our final sample. Panel A reports the statistics for the pooled sample of 931 auditor-year observations. The average number of practice development (learning and education) hours incurred by auditors in our sample is 146 (100). The average number of hours spent on audit work is 1,090 with an interquartile range of 881 at Q1 and 1,319 at Q3. We note there is substantial variation in our dependent measures for audit engagement team effort, audit consultation hours, and modified opinions, but not for engagement leverage. Of auditor-years with at least one engagement quality review, the majority receive a satisfactory assessment as the average ratio of satisfactory to total engagement reviews is 0.97.

<<< Insert Table 2 about here >>>

In Panel B we report the results of tests of differences in the means across our dependent and independent variables between the two participating firms. We find that average compensation for Firm Y is significantly higher, as is the time that auditors of Firm Y spend on practice development ($p<0.01$). On average, auditors of Firm X appear to consult more, incur more audit engagement team effort on their audit engagements, and issue more modified audit opinions ($p<0.01$). Auditors of Firm Y have higher audit engagement leverage ($p<0.10$). Of auditors that have audit engagement reviews, we do not find a significant difference in satisfactory reviews between the two firms ($p>0.10$). The univariate evidence suggests that there are differences across the two firms, consistent with other recent studies that find significant heterogeneity in compensation policies and other matters across firms (e.g., Knechel et al.

[2013]). This supports our plan to test whether any observed relationships vary between the two firms.

In Panel C we report the results of tests of differences in means between auditors with high as compared to low commercialism where an auditor is deemed to have high commercialism if the amount of practice development time incurred for a given year exceeds the median of all auditor-years. We find that auditors with relatively higher commercial effort have higher compensation, are less likely to consult, have lower audit engagement team effort on their audit engagements, and have lower engagement leverage ($p<0.05$). Interestingly, we do not observe any statistically significant differences with respect to *EQ* or *LNMODOP* ($p>0.10$).

We report the correlations between our dependent and independent variables in Table 3. We find that commercial effort is significant and positively related to compensation and audit engagement quality ($p<0.01$). Commercial effort is significant and negatively related to audit engagement team effort on a given auditor's audit engagements and to engagement leverage ($p<0.05$). Commercial effort is not correlated with either consultations or modified opinions. We do note that there is a significant and negative correlation between our two primary measures of quality control ($p<0.01$) and no significant correlation between our two primary measures of audit quality ($p>0.10$).

<<< Insert Table 3 about here >>>

5. Main Analyses

5.1 AUDITOR COMPENSATION

We report the results of our test of H1 in Table 4. Panel A reports results for the planned specification, while Panel B reports an unplanned analysis that includes interactions between *LNPD* and auditor rank. We include the interaction test given the bimodal distribution we

observe in the compensation data between partners and non-partners. In Column (1) we report the estimation of Equation (1) without our variable of interest, *LNPD*, for the entire pooled sample. In Column (2) we report the results from estimating Equation (1) without any modifications for the entire pooled sample. In Columns (3) and (4) we report the results from estimating Equation (1) for firms X and Y, respectively.

With respect to Panel A, our model performs reasonably well, as the -2 Log Likelihood and BIC statistics are relatively better than those reported in prior literature (Knechel et al. [2013]). Many control variables perform as expected as *EVAL*, *LNPUBLIC, PARTNER*, *DIRECTOR,* and *LNTENURE* all are positive and statistically significant ($p<0.05$). Consistent with prior literature, we find that effort exerted for the benefit of the organization as a whole as measured by *LNRECRUIT* is negatively associated with rewards as measured by compensation *($p<0.10$)* (Bergeron et al. [2013]). With respect to the variable of interest, we do not find support for H1, as auditors' commercial effort is unrelated to compensation in any of the tests.

<<< Insert Table 4 about here >>>

Turning to Panel B, we find that our model performs reasonably well after including the interaction terms *LNPD*PARTNER* and *LNPD*DIRECTOR*, as the -2 Log Likelihood and BIC statistics are similar to those reported in Panel A. Control variables perform similarly to the results reported in Panel A. We find evidence that Firms X and Y reward partners differently for commercial effort, explaining the lack of support for H1. That is, the coefficient on *LNPD*PARTNER* is significantly negative in Column (3) for Firm X ($p<0.05$) but positive and significant in Column (4) for Firm Y ($p<0.01$). *LNPD*DIRECTOR* is significantly positive in Column (3) for Firm X. Collectively, the results support the logic of H1 that audit firms reward

commercial effort, but the incentive to engage in commercial effort appears to be concentrated in the director rank at Firm X and the partner rank at Firm Y.[18]

In Table B1 of Appendix B, we re-analyze Equation 1 with only a *PARTNER* dummy and exclude the *DIRECTOR* dummy, because the distribution of compensation differs for partners, as opposed to directors and senior managers. In Column (2), we find a significantly positive relation between *LNPD* and *LN_COMP* ($p<0.05$), which supports H1. Consistent with our other tests, columns (3) and (4) show a negative relation between compensation and commercial effort for partners in Firm X but a positive relation for partners in Firm Y (both $p<0.01$).

5.2 AUDIT EFFORT

We report the results of our planned test of H2 in Table 5. In Column (1) we report the estimation of Equation (2) without our variable of interest, *LNPD*, for the entire pooled sample. In Column (2) we report the results from estimating Equation (2) without any modifications for the entire pooled sample. In Columns (3) and (4) we report the results from estimating Equation (2) for firms X and Y, respectively. The model of Equation (2) does not perform as well as the estimation of Equation (1). Specifically, the BIC statistics are much higher for this empirical test. Several control variables perform as expected as *LNRECRUIT, LNCOUNSULT*, *LNAF*, *NONCOMP, LNPUBLIC*, and *RISK* are all positive and significant ($p<0.01$) in Columns (1) and (2). In Columns (1) and (2), we find that partners and directors are, on average, likely to have fewer total audit hours incurred for their audit client portfolio ($p<0.01$), but in untabulated tests we find no interactions between these rank indicators and *LNPD*. We do not find that commercial effort is associated with audit engagement effort ($p>0.10$). Thus, H2 is not supported.

---

[18] Our hypothesis test findings are robust to including control variables that are available for one, but not both firms.

<<< Insert Table 5 about here >>>

5.3 AUDIT QUALITY

We report the results of our test of H3a and H3b in Table 6. In Panels A, B, and C the dependent measure *QUAL* is the ratio of satisfactory reviews to total reviews, *EQ*. We caution the reader that most auditors in our sample were never reviewed during our sample period, thus *EQ* is unpopulated for more than half the observations. Due to the small sample size, analyses of *EQ* should be interpreted with caution. In Panels D, E, and F the dependent measure *QUAL* is the natural log of one plus the number of modified opinions for a given auditor-year, *LNMODOP*. In Panels A and D, we report the results using the full sample, while in Panels B and E (C and F) we report the results using only the subsample of auditor-years from Firm X (Y).

Across all panels, we measure *QC* as: (i) the natural log of one plus the total number of consultation hours for a given auditor-year, *LNCONSULT*, in Columns (1) and (2), and (ii) the ratio of experienced auditor effort to total audit effort, *ENGLEV*, in Columns (3) and (4). In all panels, tests of H3a or the direct effect of *LNPD* on *QUAL* are presented in columns (2) and (4). Tests of H3b or the indirect effects are presented in Column (1) and (3) for the indirect effects *LNPD* on *QC*, and in Columns (2) and (4) for the indirect effects of *QC* on *QUAL*.

<<< Insert Table 6 about here >>>

We find no support for H3a—that is, we find no evidence that auditors' commercial effort is negatively associated with audit quality. In fact, we find a positive association between *LNPD* and *LNMODOP* for the pooled sample in panel D Columns (2) *(p<0.10)* and (4) *(p<0.05)* and for Firm X in Panel E Columns (2) and (4) (both *p<0.01*). These results are inconsistent with critics' concerns that audit quality is decreasing in auditors' commercial effort.

By contrast, we find some support for H3b—that is, auditors' commercial effort is positively related to their reliance on quality controls, which in turn increases audit quality. We find no effect of *LNPD* on *QC* in Panels A, B, and C using *EQ* as the measure of audit quality, but we interpret this with caution as the sample size is quite small. In Panel D, we find that *LNPD* is positively related to consultation hours in Column (1) ($p<0.05$) and that consultation hours are positively related to modified opinions in Column (2) ($p<0.05$). To test H3b, we test the significance of the product of *LNPD* from Column (1) and *QC* in Column (2), which is significantly positive ($p<0.10$). We find no support for H3b using *ENGLEV* to proxy for quality controls, and *ENGLEV* is not related to audit quality in any of our planned or unplanned analyses. These results support H3b when we proxy quality controls as consultation hours.

6. Additional Analyses

6.1 PLANNED ANALYSES

6.1.1 Alternative Measures of Quality Control

Our theory for H3b argues that consulting with technical experts signals that auditors are less capable in technical matters, which hurts auditors' reputation within the firm. However, as auditors' commercial effort increases, their reputation depends less on technical skill. Thus, commercially motivated auditors are more willing to consult. We expect this effect to be more pronounced when consultations concern technical accounting or auditing matters, rather than other issues such as going concern, independence, or risk management topics.

Accordingly, we obtain data on the number of consultations for each auditor across all audit clients in each year to construct alternative measures of quality control. We receive the count of consultations related to accounting standards, auditing standards, and other matters,

respectively.[19] We then construct our measures for quality control (*CONSULT_ACC*,

CONSULT_AUD, *CONSULT_OTHER*) by taking the log of one plus the number of consultations

related to accounting standards, auditing standards, or other matters, respectively. We then re-

estimate Equations (3) and (4) using each of these measures of quality control.

We report the results using *CONSULT_ACC* and *CONSULT_AUD* in Table 7. We do not

tabulate the results using *CONSULT_OTHER,* as we fail to find any evidence of a relation

between *LNPD* and *CONSULT_OTHER*. In Panel A (B), we measure audit quality using *EQ*

(*LNMODOP*). Across both panels, our measure of quality control is *CONSULT_ACC* in

Columns (1) and (2) and *CONSULT_AUD* in Columns (3) and (4).

<<< Insert Table 7 about here >>>

With respect to H3a, we find no evidence that commercial effort is negatively related to

audit quality, as *LNPD* is insignificant in Columns (2) and (4) of both panels ($p>0.10$). Turning

to our test of H3b, we find that *LNPD* is positively associated with consultations on accounting

matters and consultations on auditing matters, as the coefficient is positive and significant in

Columns (1) and (3) in both Panels A and B ($p<0.05$). This supports the first step of H3b that

auditors engaging in relatively more commercial effort are more likely to access quality control.

Next, in Columns (2) and (4) in both panels, both types of consultations are positively

related to audit quality ($p<0.01$). To test whether there is an indirect effect of commercial effort

on audit quality through quality control we multiply the coefficient for *LNPD* from Column (1)

or (3) on the coefficient for *QC* from Column (2) or (4), respectively. We find a significant

indirect effect ($p<0.10$) in three of the four specifications, consistent with H3b. This provides

---

[19] We indicated in our proposal that we would obtain data on instances of fraud consultations, but one of the two
firms was unable to identify which consultations were related to fraud. Thus, this measure is unavailable.

additional evidence that auditors engaging in relatively more commercial effort are more likely to consult on technical matters, leading to relatively higher audit quality.

6.1.2 Alternative Measures of Audit(or) Quality

We obtain data related to auditors' performance evaluations from both participating firms, as a potential alternative measure of audit quality. In addition to the audit quality measures we employ in the analysis reported in Sections 5.3 and 6.1.1, we re-estimate Equations (3) and (4) with this measure of auditor quality, *EVAL*, as the measure of *QUAL*. We report the results using *EVAL* in Table 8. In Panel A (B), we measure quality control using *LNCONSULT* (*CONSULT_ACC*) in Columns (1) and (2) and *ENGLEV* (*CONSULT_AUD*) in Columns (3) and (4).

Across both panels, we fail to find support for H3a or H3b using *EVAL* ($p>0.10$). We do note that there is some evidence in Column (2) of Panel A that consultation is associated with lower auditor performance ratings ($p<0.05$). One possible explanation is that auditor performance evaluations are not strictly a reflection of audit quality. The logic of H3b suggests that auditors' evaluations will not improve—indeed, they may decrease—when auditors access quality controls to a greater degree (Bol and Leiby 2018). This suggests that consulting may be perceived as a signal that the auditor is less capable.

6.1.3 Alternative Measures of Commercial Effort

We examine the robustness of our findings by reperforming our tests using three alternative measures of commercial effort. The first measure, *LNPD_DEMEAN*, is *LNPD* for a given auditor in a given year minus the mean *LNPD* for all other auditors in that year. The second measure, *LNPD-L&E*, is the difference between *LNPD* and *LNL&E*. The final measure, *LNCE*, is measured as the total amount of expenses incurred by a given auditor in a given year

related to client entertainment. The third measure is only available for one of the participating firms. Across all our tests, results are unchanged when we use any of these measures.

6.1.4 Audit Engagement-level Analyses

We proposed testing our hypotheses using audit engagement data to examine audit restatements, the propensity to issue a going concern opinion, and audit lag. Unfortunately, due to concerns about revealing the identities of participating firms, we are unable to link audit engagement data with anonymized auditor data to conduct this analysis.

6.2 UNPLANNED ANALYSES

6.2.1 Components of Auditor Compensation

In our examination in Section 5.1 we find that commercial effort is associated with compensation. When computing our measure of compensation, we aggregate *SALARY*, *BONUS*, and *EQUITY* for each auditor. In Table B2 of Appendix B, we explore whether our results are driven by the type of compensation an auditor receives. For each compensation type, we restrict the analysis to include only auditors who could receive that type of compensation, e.g., equity draw analyses include only partners. We find that *LNPD* is not significant in Column (1) or (3). The result in Column (1) is not surprising as auditor salary is likely fixed. The result in Column (3) is surprising but we acknowledge that the coefficient on *LNPD* is marginally insignificant. We do find that *LNPD* is positive and significantly related to auditor bonus ($p<0.01$), suggesting that firms use the discretionary component of compensate to reward auditors for commercial effort.

7. Conclusion

We test the taken-for-granted assumption that auditors' commercial motivation threatens audit quality using internal time reporting data from two Big Four firms in the Netherlands. We

examine whether auditors' commercial effort is associated with their compensation, total effort on their audit engagements, and audit engagement quality. We find some evidence of a positive relation between commercial effort and compensation, although one firm rewards partners for commercial effort and the other rewards directors. We find no evidence that auditors' commercial effort is associated with total audit effort in their portfolio and, most importantly, we find no evidence of a negative relation between auditors' commercial effort and audit quality. This challenges widely-held beliefs that commercial effort is necessarily problematic for auditing.

Further, we find that auditors' commercial effort is positively related to their reliance on quality control—proxied as technical consultations—and that there is a positive indirect effect of commercial effort on audit quality via consultations. That is, we identify conditions in which auditors' commercial effort *increases* audit quality, suggesting that further restrictions on commercial effort are likely unnecessary.

Our study is subject to important limitations. First, we examine our research question in one audit market, thus our results may not generalize to other settings. Future research should explore commercial effort in other markets, and identify the features of audit markets that may influence the relation between commercial effort, auditor compensation, and audit quality. Second, one of our empirical proxies for quality control, engagement leverage, does not perform as expected and one of our measures of audit quality does not have good coverage within our panel data set. Future research should identify and explore alternative measures of quality control and audit quality to probe the robustness of our findings. Third, we are unable to determine whether quality control usage is driven by the auditor or the firm. Future research should obtain

measures that disentangle voluntary from mandatory consultations. Future research should also examine auditors' perceptions and decisions directly to corroborate our archival evidence.

APPENDIX A: VARIABLE DEFINITIONS

Dependent Variables

$SALARY_{ijt}$	Total annual salary for auditor i of firm j in year t.
LN_SALARY_{ijt}	The natural log of one plus $SALARY$.
$BONUS_{ijt}$	Total annual bonus compensation awarded to auditor i of firm j in year t.
LN_BONUS_{ijt}	The natural log of one plus $BONUS$.
$EQUITY_{ijt}$	Total share of equity for auditor i of firm j in year t.
LN_EQUITY_{ijt}	The natural log of one plus $EQUITY$.
$COMP_{ijt}$	The total compensation for auditor i of firm j in year t. Compensation is measured as the sum of $SALARY$ plus $BONUS$ plus $EQUITY$.
LN_COMP_{ijt}	The natural log of one plus $COMP$ for auditor i of firm j in year t.
$LNTOTAL\_HOURS_{ijt}$	The natural log of one plus total hours charged to all audit engagements of auditor i of firm j in year t for all staff levels.
$CONSULT_{ijt}$	The total number of hours incurred by technical consultants for clients of auditor i of audit firm j in year t.
$LNCONSULT_{ijt}$	The natural log of one plus $CONSULT$.
$ENGLEV_{ijt}$	The ratio of the aggregate number of partner/director hours on all audit engagements for auditor i of audit firm j divided by the aggregate number of hours by all other personnel working on audit engagements for auditor i of audit firm j in year t.
EQ_{ijt}	Measure of average audit engagement quality of auditor i of firm j in year t. This measure is computed as the number of engagements that received a satisfactory rating divided by the number of engagements that were subject to a review. Engagement reviews include internal reviews, external peer reviews, and regulatory reviews.
$MODOP_{ijt}$	The total number of audit engagements for auditor i of audit firm j that received a modified audit opinion in year t
$LNMODOP_{ijt}$	The natural log of one plus $MODOP$.

Independent Variables

PD_{ijt}	The total number of hours auditor i of firm j incurred attending networking events, preparing proposals to attract new business from either existing or new clients, entertaining existing clients, and building or maintaining client relationships outside the normal conduct of the audit in year t.
$LNPD_{ijt}$	The natural log of one plus PD.
$L\&E_{ijt}$	The total number of hours auditor i of firm j incurred when completing continuing education and training in year t.
$LNL\&E_{ijt}$	The natural log of one plus $L\&E$.
QC_{ijt}	The total number of hours auditor i of firm j incurred conducting engagement quality reviews of other auditors in year t.
$LNQC_{ijt}$	The natural log of one plus QC.
AH_{ijt}	The total number of hours auditor i of firm j incurred when working on audit engagements in year t.
$LNAH_{ijt}$	The natural log of one plus AH.

$RECRUIT_{ijt}$	The total number of hours auditor i of firm j incurred when recruiting new staff for the firm in year t
$LNRECRUIT_{ijt}$	The natural log of one plus $RECRUIT$.
AF_{ijt}	Total audit fees generated by auditor i of audit firm j in year t.
$LNAF_{ijt}$	The natural log of one plus AF.
NAF_{ijt}	Total non-audit fees paid by clients of auditor i of audit firm j in year t
$LNNAF_{ijt}$	The natural log of one plus NAF.
$EVAL_{ijt}$	The annual performance rating of auditor i of firm j in year t. The scale is converted such that a one is the lowest possible score and a five in the highest.
$NONCOMP_{ijt}$	Indicator variable taking a value of one if auditor i of audit firm j is subject to a non-compliance assessment in year t; 0 otherwise. An individual will be deemed non-compliant for violations of policy such as an independence violation or non-compliance with internal procedures.
$PUBLIC_{ijt}$	The total number of audit clients of auditor i of audit firm j that are publicly listed in year t
$LNPUBLIC_{ijt}$	The natural log of one plus $PUBLIC$.
$RISK_{ijt}$	Average aggregate risk of the client portfolio of auditor i of firm j in year t.
$DIRECTOR_{ijt}$	An indicator variable taking a value of one when auditor i of firm j is a director in year t; 0 otherwise.
$PARTNER_{ijt}$	An indicator variable taking a value of one when auditor i of firm j is a director in year t; 0 otherwise.
$TENURE_{ijt}$	The number of years that auditor i has worked at audit firm j as of year t
$LNTENURE_{ijt}$	The natural log of one plus $TENURE$.
$AUTO_{ijt}$	An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing automotive clients; 0 otherwise.
$CONSUMER_{ijt}$	An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing consumer industry clients; 0 otherwise.
$TELECOM_{ijt}$	An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing telecommunications clients; 0 otherwise.
FS_{ijt}	An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing financial services clients; 0 otherwise.
$GOVERNMENT_{ijt}$	An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing government clients; 0 otherwise.
$SERVICES_{ijt}$	An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing service industry clients; 0 otherwise.
$CHEMICAL_{ijt}$	An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing chemical industry clients; 0 otherwise.
$ENERGY_{ijt}$	An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing energy industry clients; 0 otherwise.
$CONSTRUCTION_{ijt}$	An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing construction industry clients; 0 otherwise.
$HEALTHCARE_{ijt}$	An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing healthcare industry clients; 0 otherwise.

TRANSPORTATION$_{ijt}$ An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing transportation industry clients; 0 otherwise.

MANUFACTURING$_{ijt}$ An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing manufacturing industry clients; 0 otherwise.

OTHER$_{ijt}$ An indicator variable taking a value of one if auditor i of audit firm j spends the most time auditing clients in a category other than those previously identified; 0 otherwise.

FIRMPFT$_{jt}$ Total profit generated from all audit clients of audit firm j in year t

LNFIRMPFT$_{jt}$ The natural log of one plus *FIRMPFT*.

FIRMAF$_{jt}$ Total audit fees generated by audit firm j in year t.

LNFIRMAF$_{jt}$ The natural log of one plus *FIRMAF*.

FIRMNAF$_{jt}$ Total non-audit fees generated for all clients of audit firm j in year t.

LNFIRMNAF$_{jt}$ The natural log of one plus *FIRMNAF*.

FIRMPUBLIC$_{jt}$ Total number of publicly listed clients of audit firm j in year t.

LNFIRMPUBLIC$_{jt}$ The natural log of one plus *FIRMPUBLIC*.

Interaction Terms

LNPD*DIRECTOR The interaction of *LNPD* and *DIRECTOR*.

LNPD*PARTNER The interaction of *LNPD* and *PARTNER*.

Alternative Commercial Effort Measures

LNPD_DEMEAN$_{ijt}$ The natural log of one plus the total number of hours auditor i of firm j incurred attending networking events, preparing proposals to attract new business from either existing or new clients, entertaining existing clients, and building or maintaining client relationships outside the normal conduct of the audit in year t less the natural log of one plus the average number of hours all other auditors incurred attending networking events, preparing proposals to attract new business from either existing or new clients, entertaining existing clients, and building or maintaining client relationships outside the normal conduct of the audit in year t.

LNPD-L&E$_{ijt}$ The natural log of one plus the total number of hours auditor i of firm j incurred attending networking events, preparing proposals to attract new business from either existing or new clients, entertaining existing clients, and building or maintaining client relationships outside the normal conduct of the audit in year t less the natural log of one plus total number of hours auditor i of firm j incurred when completing continuing education and training in year t.

LNCE$_{ijt}$ The natural log of one plus the total amount of expenses incurred by auditor i of firm j in year t entertaining existing or new clients. This measure is only available for one of the participating firms.

Alternative Quality Control Measures

CONSULT_ACC$_{ijt}$ The natural log of one plus the number of technical financial accounting consultations recorded across all engagements for a given auditor i in firm j in year t.

CONSULT_AUD_{ijt}   The natural log of one plus the number of auditing standard consultations recorded across all engagements for a given auditor i in firm j in year t.

CONSULT_OTHER_{ijt} The natural log of one plus the number of consultations unrelated to financial accounting standards, auditing standards, or fraud recorded across all engagements for a given auditor i in firm j in year t.

Supplemental Control Variables for Subsample Analysis

LNMENTOR_{ijt}   The natural log of one plus the total number of hours auditor i of firm j incurred mentoring junior staff in year t.

LNAGE_{ijt}   The natural log of one plus the age of auditor i of audit firm j in year t.

LNRTENUREijt   The natural log of one plus the length of time in years that auditor i of audit firm j has held their current rank.

BIG_MKT_{ijt}   An indicator variable taking a value of one if auditor i works in an audit office in the Randstad in year t; 0 otherwise. The Randstad includes Rotterdam, Hague, and Amsterdam.

REFERENCES

Aeon, B., and H. Aguinis. "It's about time: New perspectives and insights on time management." *Academy of Management Perspective* 31 (2017): 309-330.

Aghazadeh, S., and K. Hoang. "How does audit firm emphasis on client relationship quality influence auditors' inferences about and responses to potential persuasion in client communications?" *Accounting, Organizations and Society* 87 (2020): 1 – 13.

Aghazadeh, S., M. Dodgson, Y.J. Kang, and M. Peytcheva. "Revealing oz: Institutional work shaping auditors' national office consultations." *Contemporary Accounting Research* 38 (2) (2021): 974 – 1008.

Agoglia, C., R. Hatfield, and T. Lambert. "Audit team time reporting: An agency theory perspective." *Accounting, Organizations and Society* 44 (2015): 1 – 14.

American Institute of Certified Public Accountants (AICPA). *AU-C Section 220: Quality Control for an Engagement Conducted in Accordance With Generally Accepted Auditing Standards*. Durham, NC: AICPA, 2012.

American Institute of Certified Public Accountants (AICPA). *AU-C Section 230: Audit Documentation*. Durham, NC: AICPA, 2012.

American Institute of Certified Public Accountants (AICPA). *AICPA Code of Professional Conduct*. Durham, NC: AICPA, 2021.

Anderson-Gough, F., C. Grey, and K. Robson. "Tests of time: Organizational time-reckoning and the making of accountants in two multi-national accounting firms." *Accounting, Organizations and Society* 26 (2001): 99 – 122.

Aobdia, D. "Do practitioner assessments agree with academic proxies for audit quality? Evidence from PCAOB and internal inspections." *Journal of Accounting and Economics* 67 (2019): 144-174.

Aobdia, D, P. Choudhary, and N. Newberger. "The economics of audit production: What matters for audit quality? An empirical analysis of the role of midlevel managers within the audit firm." *The Accounting Review* 99 (2) (2023): 1-29.

Aobdia, D., S. Siddiqui, and A. Vinelli. "Heterogeneity in expertise in a credence goods setting: Evidence from audit partners." *Review of Accounting Studies* 26 (2021): 693-729.

Ashbaugh-Skaife, H., R. LaFond, and B. Mayhew. "Do nonaudit services compromise auditor independence? Further evidence." *The Accounting Review* 78(3) (2003): 611 – 639.

Authority for the Financial Markets (AFM). *Incentives for audit quality: An exploratory review*. Dublin, IE: AFM, 2012.

Authority for the Financial Markets (AFM). Vulnerabilities in the structure of the audit sector. https://www.afm.nl/~/profmedia/files/doelgroepen/accountantsorganisaties/2018/engels-rapport-kwaliteit-structuur.pdf, 2018.

Aranya, N., J. Pollock, and J. Amemic. "An examination of professional commitment in public accounting." *Accounting, Organizations and Society* 6(4) (1981): 271-280.

Aranya, N., and K. R. Ferris. "A reexamination of accountants' organizational-professional conflict." *The Accounting Review* 59 (1) (1984): 1-15.

Bamber, E. M., and V. M. Iyer. "Big 5 auditors' professional and organizational identification: Consistency or conflict?" *Auditing: A Journal of Practice & Theory* 21 (2) (2002): 21-38.

Bauer, T. D., C. Estep, and B. Malsch. "One team or two? Investigating relationship quality between auditors and IT specialists: Implications for audit team identity and the audit process." *Contemporary Accounting Research* 36 (2019): 2142-2177.

Bauer, A. M., J. Fang, J. Pittman, Y. Zhang, and Y. Zhao. "How aggressive tax planning facilitates the diversion of corporate resources: Evidence from path analysis." *Contemporary Accounting Research* 37 (3) (2020): 1882-1913.

Bazerman, M. X., and D. Moore. "Is it time for auditor independence yet?" *Accounting, Organizations and Society* 36 (2011): 310-312.

Bazerman, M. H., D. A. Moore, P. E. Tetlock, and L. Tanlu. "Reply: Reports of solving the conflicts of interest in auditing are highly exaggerated." *The Academy of Management Review* 31 (2006): 43 – 49.

Bazerman, M. H., K. P. Morgan, and G. F. Loewenstein. "Opinion: The impossibility of auditor independence." *Sloan Management Review* 38(4) (1997): 89-94.

Beaubrun, K. *Shrinking Auditor Market in the Netherlands*. Audit Analytics: July 30, 2020.

Beck, M. J., and E. G. Mauldin. "Who's really in charge? Audit committee versus CFO Power and Audit Fees." *The Accounting Review* 89 (6) (2014): 2057-2085.

Bell, T. B., M. Causholli, and W. R. Knechel. "Audit firm tenure, non-audit services, and internal assessments of audit quality." *Journal of Accounting Research* 53 (3) (2015): 461-509.

Bell, T. B., R. Doogar, and I. Solomon. "Audit labor usage and fees under business risk auditing." *Journal of Accounting Research* 46 (4) (2008): 729-760.

Bergeron, D. "The potential paradox of organizational citizenship behavior: Good citizens at what cost?" *The Academy of Management Review* 32(4) (2007): 1078 – 1095.

Bergeron, D., A. Shipp, B. Rosen, and S. Furst. "Organizational citizenship behavior and career outcomes: The cost of being a good citizen." *Journal of Management* 39(4) (2013): 958-984.

Bhattacharya, N. F. Ecker, P. Olson, and K. Schipper. "Direct and mediated associations among earnings quality, information asymmetry and the cost of equity." *The Accounting Review* 87 (2) (2012): 449-482.

Bol, J., and J. Leiby. "Subjectivity in Professionals' Incentive Systems: Differences between Promotion- and Performance-Based Incentives." *Contemporary Accounting Research* 35(1) (2018): 31 – 57.

Bolton, L., J. Cohen, and P. Bloom. "Does marketing products as remedies create 'get out of jail free cards'?" *Journal of Consumer Research* 33 (2006): 71 – 81.

Borkowski, S. C., M. J. Welsh, and Q. Zhang. "An analysis of statistical power in behavioral accounting research." *Behavioral Research in Accounting* 13 (2001): 63-84.

Boze, K. M., and J. L. Law. "Impact of the 1990 AICPA-FTC consent decree." *Services Marketing Quarterly* 25 (2003): 55-66.

Breeden, R., R. Hills, D. Ruder, and H. Williams. Accounting for conflicts. *Washington Post* A31, July 21, 2000.

Brown, J. R. The future of audit oversight. *Virtual speech hosted by the PCAOB*. Available at https://pcaobus.org/news-events/speeches/speech-detail/the-future-of-audit-oversight, 2021.

Carcello, J. V., D. R. Hermanson, and H. F. Huss. 2000. "Going concern opinions: The effects of partner compensation plans and client size." *Auditing: A Journal of Practice & Theory* 19 (1) (2000): 67-78.

Carey, J. L., and W. O. Doherty. 1966. "The concept of independence – review and restatement." *Journal of Accountancy* 121 (1) (1966): 38-48.

Carter, C., and C. Spence. "Being a successful professional: An exploration of who makes partner in the Big 4." *Contemporary Accounting Research* 31 (2014): 949-981.

Causholli, M., and W. R. Knechel. "An examination of the credence attributes of an audit." *Accounting Horizons* 26 (2012): 631-656.

Chen, C. and J. Ishida. "Careerist experts and political incorrectness." *Journal of Economic Behavior and Organization* 120 (2015): 1 – 18.

Cohen, J. *Statistical Power Analysis for Behavioral Sciences Second Edition*. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers, 1988.

Cohen, J. "A power primer." *Psychological Bulletin* 112 (1992): 155-159.

Coffey, A. "'Timing is everything:' Graduate accountants, time, and organizational commitment." *Sociology* 28(4) (1994): 943 – 956.

Cornerstone Research. *Accounting Class Action Filings and Settlements – 2020 Review and Analysis*. Available at: https://securities.stanford.edu/research-reports/1996-2020/Accounting-Class-Action-Filings-and-Settlements-2020-Review.pdf, 2021.

Covaleski, M., M. Dirsmith, J. Heian, and S. Samuel. "The calculated and the avowed: Techniques of discipline and struggles over identity in big six public accounting firms." *Administrative Science Quarterly* 43(2) (1998): 293 – 327.

DeAngelo, L. E. "Auditor size and audit quality." *Journal of Accounting and Economics* 3 (1981): 183-199.

Deloitte. *Integrated Annual Report*. Netherlands, 2018.

Dekeyser, S., A. Gaeremynck, W. R. Knechel, and M. Willekens. "The impact of partners' economic incentives on audit quality in Big 4 partnerships." *The Accounting Review*: forthcoming, 2021.

Dodgson, M. K., C. P. Agoglia, G. B. Bennett, and J. R. Cohen. "Managing the auditor-client relationship through partner rotations: The experiences of audit firm partners." *The Accounting Review* 95 (2020): 89-11.

Duh, R., W. R. Knechel, and C. Lin. "The effects of audit firms' knowledge sharing on audit quality and efficiency." *Auditing: A Journal of Practice & Theory* 39 (2020): 51-79.

Empson, L. "Organizational identity change: managerial regulation and member identification in an accounting firm acquisition." *Accounting, Organizations and Society* 29 (2004): 759-781.

European Commission. Summary of responses Green Paper Audit Policy: Lessons from the crisis. Brussels, BE, 2011.

EY. *Transparency Report 2018-2019*. Netherlands, 2019.

Fiolleau, K., K. Hoang, K. Jamal, and S. Sunder. "How do regulatory reforms to enhance auditor independence work in practice?" *Contemporary Accounting Research* 30(3) (2013): 864 – 890.

Franklin, B. F. "Advice to a Young Tradesman." *Founders Online*, National Archives, https://founders.archives.gov/documents/Franklin/01-03-02-0130, 1748.

Gendron, Y. "The difficult client-acceptance decision in Canadian audit firms: a field investigation." *Contemporary Accounting Research* 18 (2001): 283-310.

Gendron, Y. "On the role of the organization in auditors' client-acceptance decisions." *Accounting, Organizations, and Society* 27 (7) (2002): 659-684.

Gendron, Y., and L. F. Spira. "What went wrong? The downfall of Arthur Andersen and the construction of controllability boundaries surrounding financial accounting." *Contemporary Accounting Research* 26(4) (2009): 987-1027.

Gendron, Y., and L. F. Spira. "Identity narratives under threat: A study of former members of Arthur Andersen." *Accounting, Organizations and Society* 35 (2010): 275-300.

Gilson, R. J., and R. H. Mnookin. "Coming of age in a corporate law firm: The economics of associate career patterns." *Stanford Law Review* (1989): 567-595.

Goldman, A., and B. Barley. "Management advisory services and accounting." *ABACUS* 74 (10) (1974): 74-82.

Graham, S., and B. Weiner. "Theories and principles of motivation." *Handbook of educational psychology*, 4 (1) (1996): 63-84.

Gramling, A. A. "External auditors' reliance on work performed by internal auditors: The influence of fee pressure on this reliance decision." *Auditing: A Journal of Practice & Theory* 18 (1999): 117-135.

Greenwood, R., and L. Empson. "The professional partnership: Relic or exemplary form of governance?" *Organization Studies* 24 (2003): 909-933.

Greenwood, R., and R. Suddaby. "Institutional entrepreneurship in mature fields: The Big Five accounting firms." *Academy of Management Journal* 49 (1) (2006): 27-48.

Guo, K. H. "The institutionalization of commercialism in the accounting profession: An identity-experimentation perspective." *Auditing: A Journal of Practice & Theory* 35 (2016): 99-117.

Guth, W. D., and I. C. MacMillan. "Strategy implementation versus middle management self-interest." *Strategic Management Journal* 7 (1986): 313-327.

Hackenbrack, K., and M. W. Nelson. "Auditors' incentives and their application of financial accounting standards." *The Accounting Review* 71 (1996): 43-59.

Hall, R. H. "Professionalization and Bureaucratization." *American Sociological Review* 33 (1968): 92-104.

Hanlon, G. "'Casino capitalism' and the rise of the 'commercialised' service class – an examination of the accountant." *Critical Perspectives on Accounting* 7 (3) (1996): 339-363.

Hayes, A. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach* 2nd Edition. New York, NY: Guilford Press, 2018.

Hayes, A., A. Montoya, and N. Rockwood. "Analysis of mechanisms and their contingencies: PROCESS versus structural equation modeling." *Australasian Marketing Journal* 25(1): 76 – 81.

Harris, S. *The Public Responsibility of a CPA*. Speech at PCAOB student visit, Washington, D.C. 19 May 2017. Available at: https://pcaobus.org/news-events/speeches/speech-detail/the-public-responsibility-of-a-cpa_656 Accessed 1 October 2021.

Heischmidt, K. A., and J. Elfrink. "The changing attitudes of CPAs toward advertising." *Journal of Advertising* 20 (1991): 39-51.

Herrbach, O., and K. Kosmala. "The ambivalence of professional identity: On cynicism and jouissance in audit firms." *Human Relations* 59(10) (2006): 1393-1428.

Hinson, L., and S. Utke. "Structural equation modeling in archival capital markets research: An empirical application to disclosure and cost of capital." *Journal of Financial Reporting* 8 (2) (2023): 87-130.

Hoang, K., K. Jamal, and H. Tan. "Determinants of audit engagement profitability." *The Accounting Review* 94 (2019): 253-283.

Hockey, G. R. J. "Compensatory control in regulation of human performance under stress and high workload: A cognitive-energetical framework." *Biological Psychology* 45 (1997): 73-93.

Holmstrom, B. "Moral hazard and observability." *Bell Journal of Economics* 10 (1979): 74-91.

Hoopes, J. L., K. J. Merkley, J. Parcelli, and J. H. Schroeder. "Audit personnel salaries and audit quality." *Review of Accounting Studies* 23 (2018): 1096-1136.

Humphrey, C., and P. Moizer. "From technique to ideologies: an alternative on the audit function." *Critical Perspectives on Accounting* 1 (3) (1990): 217-238.

Kadous, K., S. J. Kennedy, and M. E. Peecher. "The effect of quality assessment and directional goal commitment on auditors' acceptance of client-preferred accounting methods." *The Accounting Review* 78 (2003): 759-778.

Kanodia, C., R. Bushman, and J. Dickhaut. "Escalation errors and the sunk cost effect: An explanation based on reputation and information asymmetries." *Journal of Accounting Research* 27 (1) (1989): 59-77.

Kline, R. B. *Principles and Practice of Structural Equation Modeling* 4th Edition. New York, NY: The Guilford Press, 2016.

Knechel, W. R., and D. S. Sharma. "Auditor-provided nonaudit services and audit effectiveness and efficiency: Evidence from pre- and post-SOX audit report lags." *Auditing: A Journal of Practice & Theory* 31 (2012): 85-114.

Knechel, W. R., and J. Leiby. "If you want my advice: Status motives and audit consultations about accounting estimates." *Journal of Accounting Research* 54 (2016): 1331-1364.

Knechel, W. R., G. V. Krishnan, M. Pevzner, L. B. Shefchik, and U. K. Velury. "Audit quality: Insights from the academic literature." *Auditing: A Journal of Practice & Theory* 32 (2013): 385-421.

Knechel, W. R., L. Niemi, and M. Zerni. "Empirical evidence on the implicit determinants of compensation in Big 4 audit partnerships." *Journal of Accounting Research* 51 (2013): 349-387.

Koch, C., and S. Salterio. "The effects of auditor affinity for client and perceived client pressure on auditor proposed adjustments." *The Accounting Review* 92(5) (2017): 117 – 142.

Kornberger, M., L. Justesen, and J. Mouritsen. "'When you make manager, we put a big mountain in front of you:' An ethnography of managers in a Big 4 accounting firm." *Accounting, Organizations and Society* 36 (2011): 514 – 533.

KPMG. *More than numbers – Integrated Report 2016 – 2017.* Netherlands, 2017.

KPMG. *People driven progress – Integrated Report 2017-2018.* Netherlands, 2018.

Lee, F. "When the going gets tough, do the tough ask for help? Help seeking and power motivation in organizations." *Organizational Behavior and Human Decision Processes* 72(3) (1997): 336 – 363.

Lennox, C., C. Wang, and X. Wu. "Opening up the "black box" of audit firms: The effects of audit partner ownership on audit adjustments." *Journal of Accounting Research* 58 (2020): 1299-1341.

Levy, G. "Anti-herding and strategic consultation." *European Economic Review* 48 (2004): 503-525.

Lim, C. Y., and H. T. Tan. "Non-audit service fees and audit quality: The impact of auditor specialization." *Journal of Accounting Research* 46 (2008): 199-246.

Lim, Y. M., and A. Seers. "Time dimensions of work: Relationships with perceived organizational performance." *Journal of Business and Psychology* 8 (1993): 91 – 102.

Lord, A. T., and F. T. DeZoort. "The impact of commitment and moral reasoning on auditors' responses to social influence pressure." *Accounting, Organizations and Society* 26(3) (2001): 215-235.

Macan, T. H. "Time management: Test of a process model." *Journal of Applied Psychology* 130 (1994): 229-236.

Malsch, B., and Y. Gendron. "Re-theorizing change: Institutional experimentation and the struggle for domination in the field of public accounting." *Journal of Management Studies* 50(5) (2013): 870-899

McDaniel, L. S. "The effects of time pressure and audit program structure on audit performance." *Journal of Accounting Research* 28 (1990): 267-285.

Mitra, A., and J. Lynch. "Toward a reconciliation of market power and information theories of advertising effects on price elasticity." *Journal of Consumer Research* 21 (1995): 644 – 659.

Moore, D. A., P. E. Tetlock, L. Tanlu, and M. H. Bazerman. "Conflicts of interest and the case of auditor independence: Moral seduction and strategic issue cycling." *Academy of Management Review* 31 (1) (2006): 10-29.

Moore, W. E. *Man, time and society*. New York: Wiley, 1963.

Nagy, A. L. "PCAOB quality control inspection reports and auditor reputation." *Auditing: A Journal of Practice & Theory* 33 (2014): 87-104.

Nelson, M. W. "Ameliorating conflicts of interest in auditing: Effects of recent reforms on auditors and their clients." *Academy of Management Review* 31 (2006): 30-42.

Parker, R. Financial reporting in The Netherlands. In *Comparative International Accounting*, edited by Nobes, C., and R. H. Parker, 8th edition, 203-223. Essex, U.K.: Pearson Education Limited, 2004.

Peecher, M. E. "The influence of auditors' justification processes on their decisions: A cognitive model and experimental evidence." *Journal of Accounting Research* 34 (1) (1996): 125-140.

Public Company Accounting Oversight Board (PCAOB). *AS 1005: Independence*, 2002.

Public Company Accounting Oversight Board (PCAOB). *AS 1010: Training and proficiency of the independent auditor*, 2002.

Public Company Accounting Oversight Board (PCAOB). *AS 1015: Due professional care in the performance of work*, 2002.

Public Company Accounting Oversight Board (PCAOB). *Concept Release on Audit Quality Indicators*, 2015.

Public Company Accounting Oversight Board (PCAOB). *Concept Release: Potential Approach to Revisions to PCAOB Quality Control Standards*, 2019.

Public Company Accounting Oversight Board (PCAOB). *PCAOB Release No. 105-2021-014: Order instituting disciplinary proceedings, making findings, and imposing sanctions*, 2021.

Ricci, M. "How better client service performance affects auditors' willingness to challenge management's preferred accounting." *Working paper,* University of Florida, 2021.

Richens, J., J. Imrie, and A. Copas. "Condoms and seat belts: The parallels and the lessons." *The Lancet* 355 (2000): 400 – 403.

Schelleman, C., and W. R. Knechel. "Short-term accruals and the pricing and production of audit services." *Auditing: A Journal of Practice & Theory* 29 (2010): 221-250.

Schmidt, A. M., C. M. Dolis. "Something's got to give: The effects of dual-goal difficulty, goal progress, and expectancies on resource allocation." *Journal of Applied Psychology* 94 (2009): 678-691.

Schriber, J. B., and B. A. Gutek."Some time dimensions of work: Measurement of an underlying aspect of organization culture." *Journal of Applied Psychology* 72 (1987): 642-650.

Securities and Exchange Commission. *Accounting and Auditing Enforcement Release No. 3943: Order instituting public administrative proceedings, pursuant to section 4C of the Securities Exchange Act of 1934 and Rule 102(e) of the commission's rules of practice, making findings, and imposing remedial sanctions*, 2018.

Sharma, N. "Interactions and interrogations: Negotiating and performing value for money reports." *Financial Accountability & Management* 23 (2007): 289-311.

Sherer, P. D. "Leveraging human assets in law firms: Human capital structures and organizational capabilities." *ILR Review* 48 (1995): 671-691.

Shipp, A. J., and M. S. Cole. "Time in individual-level organizational studies: What is it, how is it used, and why isn't it exploited more often?" *Annual Review of Organizational Psychology and Organizational Behavior* 2 (2015): 237-260.

Spence, C., J. Zhu, T. Endo, and S. Matsubara. "Money, honour and duty: Global professional service firms in comparative perspective." *Accounting, Organizations and Society* 62 (2017): 82-97.

Suddaby, R., and R. Greenwood. "Colonizing knowledge: Commodification as a dynamic of jurisdictional expansion in professional service firms." *Human Relations* 54(7) (2001): 933-953.

Suddaby, R., and R. Greenwood. "Rhetorical strategies of legitimacy." *Administrative Science Quarterly* 50(1) (2005): 35-67.

Suddaby, R., D. J. Cooper, and R. Greenwood. "Transnational regulation of professional services: Governance dynamics of field level organizational change." *Accounting, Organizations and Society* 32 (2007): 333-362.

Suddaby, R., Y. Gendron, and H. Lam. "The organizational context of professionalism in accounting." *Accounting, Organizations and Society* 34 (2009): 409-427.

Supreme Court of the United States. *Bates v. State Bar of Arizona* Available at: https://www.oyez.org/cases/1976/76-316 Accessed 19 Oct 2021, 1977.

Supreme Court of the United States. *United States v. Arthur Young & Co.* Available at: https://caselaw.findlaw.com/us-supreme-court/465/805.html, 1984.

United States Congress. *H.R. 3763 – Sarbanes-Oxley Act of 2002*. Available at: https://www.congress.gov/bill/107th-congress/house-bill/3763/text, 2002.

van Buuren, J., C. Koch, N. Amerongen, and A. Wright. "The use of business risk audit perspectives by Non-Big 4 audit firms." *Auditing: A Journal of Practice & Theory* 33 (2014): 105-128.

Vandenhaute, M., K. Hardies, and D. Breesch. "Professional and commercial incentives in audit firms: Evidence on partner compensation." *European Accounting Review* 29 (2020): 521-554.

von Nordenflycht, A. "What is a professional service firm? Toward a theory and taxonomy of knowledge-intensive firms." *Academy of Management Review* 35 (2010): 155-174.

Vroom, V. *Work and Motivation.* New York, NY: John Wiley, 1964.

Walker, S. P. "The genesis of professional organization in Scotland: A contextual analysis." *Accounting, Organizations and Society* 20 (1995): 285-310.

Wowak, A. J., and D. C. Hambrick. "A model of person-pay interaction: How executives vary in their responses to compensation arrangements." *Strategic Management Journal* 31 (2010): 803-821.

Wyatt, A. R. "Accounting professionalism – They just don't get it!" *Accounting Horizons* 18 (1) (2004): 45-53.

Zeff, S. "How the U.S. accounting profession got where it is today: Part I." *Accounting Horizons* 17(3) (2003a): 189 – 205.

Zeff, S. "How the U.S. accounting profession got where it is today: Part II." *Accounting Horizons* 17(4) (2003b): 267 – 286.

Zhao, X., J. Lynch, and Q. Chen. "Reconsidering Baron and Kenny: Myths and trusts about mediation analysis." *Journal of Consumer Research* 37 (2010): 197 – 206.

Zwiebel, J. "Corporate conservatism and relative compensation." *The Journal of Political Economy* 103 (1995): 1-25.38

Figure 1

Hypothesized Relation Between Commercial Motivation and Audit Quality

$Path\ a:(+)$

Quality Control Reliance

$Path\ b:(+)$

$Path\ c':(-)$

Commercial Motivation

Audit Quality

H3a: Path c′
H3b: Path a * Path b
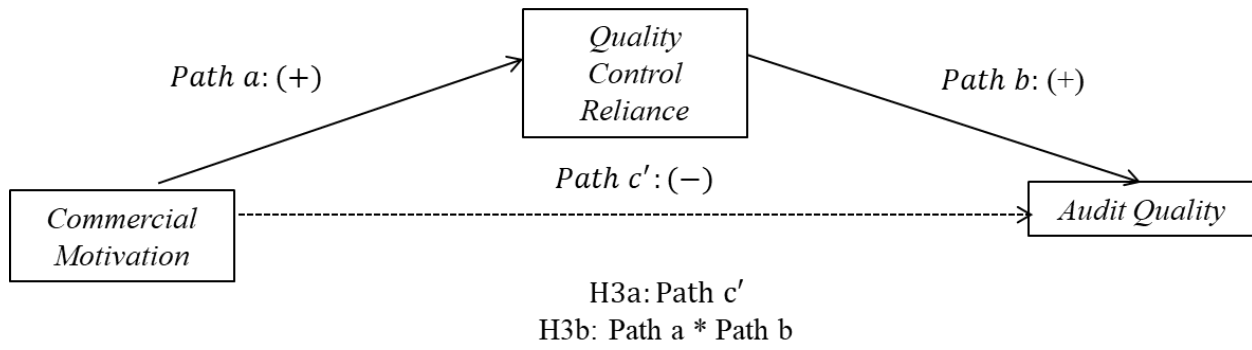
TABLE 1

Sample Selection Process

Panel A: Full Sample	
Sample Selection Criteria	Number of Observations
Initial Sample for period from 2016 – 2019	1,142
Less: Duplicate auditor-years	(61)
Less: Auditor-years missing individual hourly data	(55)
Less: Auditor-years with 0 or negative audit fees	(35)
Less: Auditor-years with 0 compensation	(17)
Less: Auditor-years where auditor is below manager rank	(2)
Less: Auditor-years with no risk scores	(1)
Less: Auditor-years with negative tenure	(2)
Adjusted Sample	969
Less: Auditor-years with insufficient audit hours	(38)
Final Sample	931

Panel B: Firm X	
Sample Selection Criteria	Number of Observations
Initial Sample for period from 2016 – 2019	520
Less: Duplicate auditor-years	0
Less: Auditor-years missing individual hourly data	(25)
Less: Auditor-years with 0 or negative audit fees	(4)
Less: Auditor-years with 0 compensation	(17)
Less: Auditor-years where auditor is below manager rank	(2)
Less: Auditor-years with no risk scores	0
Less: Auditor-years with negative tenure	(2)
Adjusted Sample	470
Less: Auditor-years with insufficient audit hours	(12)
Final Sample	458

Panel C: Firm Y	
Sample Selection Criteria	Number of Observations
Initial Sample for period from 2016 – 2019	622
Less: Duplicate auditor-years	(61)
Less: Auditor-years missing individual hourly data	(30)
Less: Auditor-years with 0 or negative audit fees	(31)
Less: Auditor-years with 0 compensation	0
Less: Auditor-years where auditor is below manager rank	0
Less: Auditor-years with no risk scores	(1)
Less: Auditor-years with negative tenure	0
Adjusted Sample	499
Less: Auditor-years with insufficient audit hours	(26)
Final Sample	473

TABLE 2

TABLE 2

Univariate Statistics

Panel A: Full Auditor Sample

Variable	Mean	Std. Dev.	Q1	Median	Q3	N
COMP[a]	73.58	48.35	33.26	49.13	117.26	931
LN_COMP	17.89	0.67	17.32	17.71	18.58	931
PD	146.54	170.26	26.10	88.00	205.50	931
LNPD	3.97	1.90	3.30	4.49	5.33	931
L&E	100.71	60.60	63.00	87.50	121.40	931
LNL&E	4.46	0.58	4.16	4.48	4.81	931
QC	14.75	40.62	0.00	0.00	0.00	931
LNQC	0.81	1.63	0.00	0.00	0.00	931
AH	1,090.82	324.19	881.00	1,095.50	1,319.00	931
LNAH	6.94	0.35	6.78	7.00	7.19	931
RECRUIT	48.48	88.87	0.00	3.00	50.00	931
LNRECRUIT	1.98	2.12	0.00	1.39	3.93	931
CONSULT	308.23	292.23	83.70	212.00	445.00	931
LNCONSULT	5.15	1.31	4.44	5.36	6.10	931
AF[a]	778.05	723.67	413.17	626.66	873.84	931
LNAF	20.20	0.74	19.84	20.26	20.59	931
NAF[a]	50.73	102.41	2.91	14.74	45.91	931
LNNAF	14.15	6.31	14.88	16.51	17.64	931
EVAL	3.34	0.81	3.00	3.00	4.00	931
EQ	0.97	0.12	1.00	1.00	1.00	304
NONCOMP	0.17	0.51	0.00	0.00	0.00	931
PUBLIC	1.38	2.79	0.00	0.00	2.00	931
LNPUBLIC	0.51	0.74	0.00	0.00	1.10	931
RISK	1.47	0.46	1.11	1.38	1.72	931
DIRECTOR	0.31	0.46	0.00	0.00	1.00	931
PARTNER	0.39	0.49	0.00	0.00	1.00	931
TENURE	18.61	9.23	13.00	18.00	25.00	931
LNTENURE	2.81	0.66	2.64	2.94	3.26	931
AUTO	0.03	0.17	0.00	0.00	0.00	931
CONSUMER	0.13	0.33	0.00	0.00	0.00	931
TELECOM	0.03	0.18	0.00	0.00	0.00	931
FS	0.24	0.42	0.00	0.00	0.00	931
GOVERNMENT	0.10	0.31	0.00	0.00	0.00	931
SERVICES	0.07	0.25	0.00	0.00	0.00	931
CHEMICAL	0.05	0.22	0.00	0.00	0.00	931
ENERGY	0.09	0.29	0.00	0.00	0.00	931
CONSTRUCTION	0.03	0.17	0.00	0.00	0.00	931
HEALTHCARE	0.05	0.21	0.00	0.00	0.00	931
TRANSPORTATION	0.05	0.21	0.00	0.00	0.00	931
MANUFACTURING	0.07	0.26	0.00	0.00	0.00	931

OTHER	0.07	0.25	0.00	0.00	0.00	931
FIRMPFT[a]	26,309.15	6,229.46	21,371.56	29,540.67	33,105.95	931
LNFIRMPFT	23.96	0.25	23.79	24.11	24.22	931
FIRMAF[b]	37,408.03	37,994.06	72.97	76.58	75,390.78	931
LNFIRMAF	28.44	3.47	25.01	25.06	31.95	931
FIRMNAF[b]	38,413.89	39,150.21	3.55	7.00	75,851.88	931
LNFIRMNAF	27.05	4.86	21.99	22.67	31.96	931
FIRMPUBLIC	162.08	29.05	133.00	160.00	188.00	931
LNFIRMPUBLIC	5.08	0.19	4.90	5.08	5.24	931
LNTOTAL_HOURS	10.06	1.02	9.53	10.07	10.74	931
ENGLEV	0.09	0.04	0.06	0.08	0.10	931
MODOP	20.07	26.32	1.00	6.00	33.00	931
LNMODOP	2.10	1.52	0.69	1.95	3.53	931

Table 2 - *Continued*

<table>
<tr><td colspan="6">Panel B: Tests of Differences in Means Between Audit Firms</td></tr>
<tr><td>Variable</td><td>Firm X</td><td>Firm Y</td><td>Diff</td><td><i>t</i>-stat</td><td>N</td></tr>
<tr><td><i>LN_COMP</i></td><td>17.494</td><td>18.280</td><td>-0.786</td><td>-22.10***</td><td>931</td></tr>
<tr><td><i>LNPD</i></td><td>3.796</td><td>4.136</td><td>-0.340</td><td>-2.75***</td><td>931</td></tr>
<tr><td><i>LNL&E</i></td><td>4.478</td><td>4.450</td><td>0.028</td><td>0.75</td><td>931</td></tr>
<tr><td><i>LNQC</i></td><td>0.926</td><td>0.690</td><td>0.236</td><td>2.20**</td><td>931</td></tr>
<tr><td><i>LNAH</i></td><td>7.006</td><td>6.880</td><td>0.126</td><td>5.60***</td><td>931</td></tr>
<tr><td><i>LNRECRUIT</i></td><td>3.570</td><td>0.436</td><td>3.134</td><td>33.45***</td><td>931</td></tr>
<tr><td><i>LNCONSULT</i></td><td>5.875</td><td>4.455</td><td>1.420</td><td>19.65***</td><td>931</td></tr>
<tr><td><i>LNAF</i></td><td>20.375</td><td>20.040</td><td>0.335</td><td>7.05***</td><td>931</td></tr>
<tr><td><i>LNNAF</i></td><td>14.936</td><td>13.394</td><td>1.542</td><td>3.75***</td><td>931</td></tr>
<tr><td><i>EVAL</i></td><td>3.492</td><td>3.184</td><td>0.308</td><td>5.90***</td><td>931</td></tr>
<tr><td><i>EQ</i></td><td>0.965</td><td>0.974</td><td>-0.009</td><td>-0.65</td><td>304</td></tr>
<tr><td><i>NONCOMP</i></td><td>0.278</td><td>0.072</td><td>0.206</td><td>6.25***</td><td>931</td></tr>
<tr><td><i>LNPUBLIC</i></td><td>0.648</td><td>0.385</td><td>0.263</td><td>5.55***</td><td>931</td></tr>
<tr><td><i>RISK</i></td><td>1.792</td><td>1.161</td><td>0.631</td><td>28.45***</td><td>931</td></tr>
<tr><td><i>DIRECTOR</i></td><td>0.229</td><td>0.391</td><td>-0.162</td><td>-5.41***</td><td>931</td></tr>
<tr><td><i>PARTNER</i></td><td>0.168</td><td>0.609</td><td>-0.441</td><td>-15.42***</td><td>931</td></tr>
<tr><td><i>LNTENURE</i></td><td>2.637</td><td>2.986</td><td>-0.349</td><td>-8.40***</td><td>931</td></tr>
<tr><td><i>AUTO</i></td><td>0.035</td><td>0.026</td><td>0.009</td><td>0.85</td><td>931</td></tr>
<tr><td><i>CONSUMER</i></td><td>0.168</td><td>0.085</td><td>0.083</td><td>3.85***</td><td>931</td></tr>
<tr><td><i>TELECOM</i></td><td>0.033</td><td>0.032</td><td>0.001</td><td>0.10</td><td>931</td></tr>
<tr><td><i>FS</i></td><td>0.225</td><td>0.245</td><td>-0.020</td><td>-0.75</td><td>931</td></tr>
<tr><td><i>GOVERNMENT</i></td><td>0.085</td><td>0.122</td><td>-0.037</td><td>-1.85*</td><td>931</td></tr>
<tr><td><i>SERVICES</i></td><td>0.066</td><td>0.070</td><td>-0.004</td><td>-0.25</td><td>931</td></tr>
<tr><td><i>CHEMICAL</i></td><td>0.048</td><td>0.055</td><td>-0.007</td><td>-0.50</td><td>931</td></tr>
<tr><td><i>ENERGY</i></td><td>0.107</td><td>0.074</td><td>0.033</td><td>1.75*</td><td>931</td></tr>
<tr><td><i>CONSTRUCTION</i></td><td>0.033</td><td>0.028</td><td>0.005</td><td>0.45</td><td>931</td></tr>
<tr><td><i>HEALTHCARE</i></td><td>0.083</td><td>0.015</td><td>0.068</td><td>4.90***</td><td>931</td></tr>
<tr><td><i>TRANSPORTATION</i></td><td>0.037</td><td>0.059</td><td>-0.022</td><td>-1.55</td><td>931</td></tr>
<tr><td><i>MANUFACTURING</i></td><td>0.081</td><td>0.061</td><td>0.020</td><td>1.15</td><td>931</td></tr>
<tr><td><i>OTHER</i></td><td>0.000</td><td>0.129</td><td>-0.129</td><td>-8.25***</td><td>931</td></tr>
<tr><td><i>LNFIRMPFT</i></td><td>23.727</td><td>24.192</td><td>-0.465</td><td>-84.70***</td><td>931</td></tr>
<tr><td><i>LNFIRMAF</i></td><td>31.961</td><td>25.022</td><td>6.939</td><td>3,595.05***</td><td>931</td></tr>
<tr><td><i>LNFIRMNAF</i></td><td>31.988</td><td>22.273</td><td>9.715</td><td>699.10***</td><td>931</td></tr>
<tr><td><i>LNFIRMPUBLIC</i></td><td>5.242</td><td>4.917</td><td>0.325</td><td>50.05***</td><td>931</td></tr>
<tr><td><i>LNTOTAL_HOURS</i></td><td>10.782</td><td>9.363</td><td>1.419</td><td>29.40***</td><td>931</td></tr>
<tr><td><i>ENGLEV</i></td><td>0.083</td><td>0.088</td><td>-0.005</td><td>-1.80*</td><td>931</td></tr>
<tr><td><i>LNMODOP</i></td><td>3.490</td><td>0.749</td><td>2.740</td><td>63.00***</td><td>931</td></tr>
</table>

Table 2 - *Continued*

Panel C: Tests of Differences in Means Between High and Low Auditor Commercialism					
Variable	High	Low	Diff	*t*-stat	N
LN_COMP	17.966	17.822	0.144	3.30***	931
LNL&E	4.542	4.386	0.156	4.20***	931
LNQC	0.862	0.751	0.111	1.05	931
LNAH	6.895	6.989	-0.094	-4.15***	931
LNRECRUIT	1.995	1.961	0.034	0.25	931
LNCONSULT	5.066	5.240	-0.174	-2.05**	931
LNAF	20.133	20.276	-0.143	-2.95***	931
LNNAF	14.758	13.548	1.210	2.95***	931
EVAL	3.301	3.369	-0.068	-1.30	931
EQ	0.973	0.965	0.008	0.65	304
NONCOMP	0.200	0.146	0.054	1.60	931
LNPUBLIC	0.423	0.606	-0.183	-3.80***	931
RISK	1.413	1.530	-0.117	-3.85***	931
DIRECTOR	0.379	0.245	0.134	4.45***	931
PARTNER	0.428	0.356	0.072	2.25**	931
LNTENURE	2.880	2.750	0.130	3.05***	931
AUTO	0.036	0.024	0.012	1.15	931
CONSUMER	0.122	0.129	-0.007	-0.30	931
TELECOM	0.045	0.019	0.026	2.25**	931
FS	0.213	0.258	-0.045	-1.60	931
GOVERNMENT	0.142	0.067	0.075	3.80***	931
SERVICES	0.067	0.069	-0.002	-0.10	931
CHEMICAL	0.026	0.077	-0.051	-3.55***	931
ENERGY	0.077	0.103	-0.026	-1.35	931
CONSTRUCTION	0.026	0.035	-0.009	-0.75	931
HEALTHCARE	0.063	0.035	0.028	2.00**	931
TRANSPORTATION	0.048	0.050	-0.002	-0.15	931
MANUFACTURING	0.048	0.095	-0.047	-2.80***	931
OTHER	0.088	0.043	0.045	2.80***	931
LNFIRMPFT	23.980	23.947	0.033	2.10**	931
LNFIRMAF	28.155	28.716	-0.561	-2.45**	931
LNFIRMNAF	26.645	27.458	-0.813	-2.55**	931
LNFIRMPUBLIC	5.069	5.085	-0.016	-1.35	931
LNTOTAL_HOURS	9.954	10.168	-0.214	-3.25***	931
ENGLEV	0.083	0.088	-0.005	-2.45**	931
LNMODOP	2.061	2.134	-0.073	0.75	931

In Panel A we report descriptive statistics for our variables used in our main analysis. In Panel B we report the means and tests of significant differences between auditors in Firm X as compared to Firm Y. In Panel C we report the means and tests of significant differences between auditors that are more or less commercial where auditors are split into high (low) if *LNPD* is above (below) the median for all auditors in the sample. All variables are defined in Appendix A. [a] denotes variables reported in millions. [b] denotes variables reported in billions. [c] denotes variables reported in thousands.

TABLE 3

Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) *LN_COMP*	1.000								
(2) *LNPD*	0.118***	1.000							
(3) *LNL&E*	-0.160***	0.180***	1.000						
(4) *LNQC*	0.272***	0.050	0.069**	1.000					
(5) *LNAH*	-0.210***	-0.053*	0.156***	0.029	1.000				
(6) *LNRECRUIT*	-0.459***	0.015	0.105***	0.062*	0.195***	1.000			
(7) *LNCONSULT*	-0.285***	-0.045	0.121***	0.041	0.429***	0.415***	1.000		
(8) *LNAF*	0.062*	-0.082**	0.029	0.200***	0.318***	0.137***	0.463***	1.000	
(9) *LNNAF*	0.025	0.070**	0.003	0.072**	-0.012	0.089***	0.177***	0.195***	1.000
(10) *EVAL*	-0.116***	-0.054*	0.080**	-0.052	0.096***	0.220***	0.150***	0.074**	-0.010
(11) *EQ*	0.144***	0.094***	0.031	0.119***	0.016	-0.007	0.016	0.073**	0.095***
(12) *NONCOMP*	0.051	0.007	-0.011	0.147***	-0.033	0.162***	0.099***	0.131***	0.095***
(13) *LNPUBLIC*	0.133***	-0.068**	-0.014	0.142***	0.132***	0.128***	0.198***	0.290***	0.044
(14) *RISK*	-0.258***	-0.163***	0.011	0.159***	0.166***	0.445***	0.426***	0.293***	0.072**
(15) *DIRECTOR*	-0.219***	0.154***	0.284***	0.111***	-0.031	-0.051	-0.130***	-0.021	0.003
(16) *PARTNER*	0.900***	0.075**	-0.225***	0.194***	-0.196***	-0.366***	-0.203***	0.043	0.024
(17) *LNTENURE*	0.466***	0.107***	-0.154***	0.188***	-0.028	-0.190***	-0.079**	0.073**	0.125***
(18) *AUTO*	0.005	0.034	0.019	-0.014	0.031	0.093***	0.074**	0.049	-0.014
(19) *CONSUMER*	-0.079**	-0.007	0.037	-0.016	0.060*	0.134***	0.110***	0.082**	-0.044
(20) *TELECOM*	0.006	0.078**	0.029	0.063*	-0.037	0.014	-0.054*	0.056*	-0.016
(21) *FS*	0.025	-0.062*	-0.028	0.041	0.097***	-0.044	-0.046	0.013	0.056*
(22) *GOVERNMENT*	0.006	0.064**	-0.007	0.001	-0.172***	-0.113***	-0.102***	-0.147***	0.104***
(23) *SERVICES*	-0.050	0.000	0.035	0.025	-0.036	0.016	-0.010	-0.035	-0.019
(24) *CHEMICAL*	-0.053*	-0.090***	-0.031	-0.095***	0.014	-0.034	0.017	0.036	-0.042
(25) *ENERGY*	0.067**	-0.025	-0.036	0.062*	0.133***	0.100***	0.100***	0.079**	-0.066**
(26) *CONSTRUCTION*	-0.045	-0.005	0.038	-0.014	0.091***	-0.018	0.065**	-0.010	-0.045
(27) *HEALTHCARE*	-0.142***	0.057*	0.026	-0.084**	-0.026	0.136***	0.114***	-0.023	0.092***
(28) *TRANSPORTATION*	0.056*	-0.015	-0.044	0.008	-0.029	-0.034	0.041	0.027	-0.002
(29) *MANUFACTURING*	-0.022	-0.051	0.038	0.051	-0.002	0.006	0.027	0.067**	-0.020
(30) *OTHER*	0.197***	0.085***	-0.042	-0.077**	-0.172***	-0.224***	-0.286***	-0.177***	-0.037
(31) *LNFIRMPFT*	0.570***	0.077**	-0.054*	-0.057*	-0.163***	-0.685***	-0.542***	-0.199***	-0.110***
(32) *LNFIRMAF*	-0.587***	-0.090***	0.024	0.072**	0.181***	0.739***	0.539***	0.225***	0.122***
(33) *LNFIRMNAF*	-0.586***	-0.092***	0.021	0.075**	0.179***	0.738***	0.525***	0.226***	0.118***
(34) *LNFIRMPUBLIC*	-0.491***	-0.070**	0.009	0.066**	0.191***	0.630***	0.484***	0.199***	0.108***
(35) *LNTOTAL_HOURS*	-0.282***	-0.108***	0.076**	0.155***	0.373***	0.509***	0.743***	0.741***	0.222***
(36) *ENGLEV*	0.024	-0.078**	0.058*	0.115***	0.080**	-0.059*	-0.181***	-0.001	-0.079**
(37) *LNMODOP*	-0.460***	-0.016	0.022	0.130***	0.195***	0.683***	0.513***	0.323***	0.227***

Table 3 – *Continued*

Variables	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) *LN_COMP*									
(2) *LNPD*									
(3) *LNL&E*									
(4) *LNQC*									
(5) *LNAH*									
(6) *LNRECRUIT*									
(7) *LNCONSULT*									
(8) *LNAF*									
(9) *LNNAF*									
(10) *EVAL*	1.000								
(11) *EQ*	-0.011	1.000							
(12) *NONCOMP*	-0.015	0.036	1.000						
(13) *LNPUBLIC*	0.058*	0.007	0.116***	1.000					
(14) *RISK*	0.173***	-0.005	0.107***	0.366***	1.000				
(15) *DIRECTOR*	-0.086***	0.060*	0.121***	-0.204***	-0.225***	1.000			
(16) *PARTNER*	-0.109***	0.104***	0.012	0.175***	-0.178***	-0.540***	1.000		
(17) *LNTENURE*	-0.144***	0.112***	0.066**	-0.037	-0.227***	0.047	0.340***	1.000	
(18) *AUTO*	0.013	-0.012	0.014	-0.051	-0.082**	-0.023	0.013	-0.001	1.000
(19) *CONSUMER*	0.091***	-0.028	-0.077**	0.026	0.064*	-0.003	-0.072**	-0.044	-0.067**
(20) *TELECOM*	0.007	0.013	0.021	-0.022	0.035	-0.031	0.015	-0.046	-0.032
(21) *FS*	-0.017	-0.043	0.065**	0.236***	0.118***	-0.023	0.037	-0.119***	-0.098***
(22) *GOVERNMENT*	-0.089***	0.088***	0.002	-0.188***	-0.137***	0.089***	-0.029	0.114***	-0.060*
(23) *SERVICES*	-0.006	-0.004	-0.007	-0.023	-0.046	0.022	-0.050	0.006	-0.047
(24) *CHEMICAL*	0.041	0.014	-0.050	0.029	0.013	-0.052	-0.028	0.038	-0.041
(25) *ENERGY*	0.069**	-0.021	0.033	0.117***	0.061*	-0.042	0.070**	0.008	-0.055*
(26) *CONSTRUCTION*	0.013	0.016	-0.010	-0.030	0.014	0.004	-0.025	-0.016	-0.031
(27) *HEALTHCARE*	-0.068**	0.019	0.070**	-0.128***	0.091***	0.000	-0.109***	-0.031	-0.040
(28) *TRANSPORTATION*	0.018	-0.014	0.012	-0.091***	-0.088***	-0.011	0.055*	0.056*	-0.040
(29) *MANUFACTURING*	0.010	-0.017	-0.012	0.034	0.025	0.058*	-0.059*	0.025	-0.049
(30) *OTHER*	-0.083**	0.020	-0.072**	-0.119***	-0.160***	-0.009	0.170***	0.068**	-0.047
(31) *LNFIRMPFT*	-0.189***	0.043	-0.174***	-0.169***	-0.633***	0.178***	0.419***	0.254***	-0.025
(32) *LNFIRMAF*	0.189***	-0.037	0.199***	0.179***	0.682***	-0.175***	-0.451***	-0.265***	0.028
(33) *LNFIRMNAF*	0.190***	-0.038	0.201***	0.180***	0.684***	-0.173***	-0.452***	-0.265***	0.028
(34) *LNFIRMPUBLIC*	0.143***	-0.009	0.154***	0.151***	0.567***	-0.157***	-0.381***	-0.225***	0.026
(35) *LNTOTAL_HOURS*	0.164***	0.044	0.206***	0.321***	0.569***	-0.104***	-0.224***	-0.105***	0.053*
(36) *ENGLEV*	-0.005	0.018	-0.088***	0.190***	0.214***	0.168***	-0.053*	-0.051	-0.074**
(37) *LNMODOP*	0.148***	-0.006	0.263***	0.223***	0.541***	-0.100***	-0.356***	-0.138***	0.024

Table 3 – *Continued*

Variables	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
(1) LN_COMP									
(2) LNPD									
(3) LNL&E									
(4) LNQC									
(5) LNAH									
(6) LNRECRUIT									
(7) LNCONSULT									
(8) LNAF									
(9) LNNAF									
(10) EVAL									
(11) EQ									
(12) NONCOMP									
(13) LNPUBLIC									
(14) RISK									
(15) DIRECTOR									
(16) PARTNER									
(17) LNTENURE									
(18) AUTO									
(19) CONSUMER	1.000								
(20) TELECOM	-0.069**	1.000							
(21) FS	-0.210***	-0.101***	1.000						
(22) GOVERNMENT	-0.129***	-0.062*	-0.189***	1.000					
(23) SERVICES	-0.102***	-0.049	-0.149***	-0.092***	1.000				
(24) CHEMICAL	-0.088***	0.043	-0.129***	-0.080**	-0.063*	1.000			
(25) ENERGY	-0.119***	-0.057*	-0.175***	-0.107***	-0.085***	-0.073**	1.000		
(26) CONSTRUCTION	-0.067**	-0.032	-0.098***	-0.060*	-0.047	-0.041	-0.055*	1.000	
(27) HEALTHCARE	-0.085***	-0.041	-0.125***	-0.077**	-0.061*	-0.053*	-0.071**	-0.04	1.000
(28) TRANSPORTATION	-0.085***	-0.041	-0.125***	-0.077**	-0.061*	-0.053*	-0.071**	-0.04	-0.051
(29) MANUFACTURING	-0.105***	-0.050	-0.153***	-0.094***	-0.074**	-0.064**	-0.087***	-0.049	-0.062*
(30) OTHER	-0.100***	-0.048	-0.147***	-0.090***	-0.071**	-0.062*	-0.083**	-0.047	-0.060*
(31) LNFIRMPFT	-0.116***	-0.005	0.034	0.044	0.019	0.013	-0.060*	-0.052	-0.155***
(32) LNFIRMAF	0.126***	0.003	-0.024	-0.061*	-0.009	-0.016	0.057*	0.016	0.159***
(33) LNFIRMNAF	0.125***	0.002	-0.022	-0.062*	-0.008	-0.016	0.056*	0.013	0.158***
(34) LNFIRMPUBLIC	0.105***	0.016	-0.020	-0.048	0.002	-0.028	0.039	0.015	0.143***
(35) LNTOTAL_HOURS	0.134***	0.006	0.019	-0.107***	-0.033	0.015	0.091***	0.001	0.090***
(36) ENGLEV	0.005	-0.034	0.057*	-0.132***	-0.001	-0.053*	0.113***	0.023	-0.122***
(37) LNMODOP	0.089***	-0.011	0.059*	-0.038	-0.045	-0.035	0.043	0.009	0.142***

Table 3 – *Continued*

Variables	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)
(1) *LN_COMP*										
(2) *LNPD*										
(3) *LNL&E*										
(4) *LNQC*										
(5) *LNAH*										
(6) *LNRECRUIT*										
(7) *LNCONSULT*										
(8) *LNAF*										
(9) *LNNAF*										
(10) *EVAL*										
(11) *EQ*										
(12) *NONCOMP*										
(13) *LNPUBLIC*										
(14) *RISK*										
(15) *DIRECTOR*										
(16) *PARTNER*										
(17) *LNTENURE*										
(18) *AUTO*										
(19) *CONSUMER*										
(20) *TELECOM*										
(21) *FS*										
(22) *GOVERNMENT*										
(23) *SERVICES*										
(24) *CHEMICAL*										
(25) *ENERGY*										
(26) *CONSTRUCTION*										
(27) *HEALTHCARE*										
(28) *TRANSPORTATION*	1.000									
(29) *MANUFACTURING*	-0.062*	1.000								
(30) *OTHER*	-0.060*	-0.073**	1.000							
(31) *LNFIRMPFT*	0.046	-0.022	0.253***	1.000						
(32) *LNFIRMAF*	-0.052	0.038	-0.260***	-0.941***	1.000					
(33) *LNFIRMNAF*	-0.054*	0.041	-0.258***	-0.933***	0.999***	1.000				
(34) *LNFIRMPUBLIC*	-0.051	0.034	-0.222***	-0.768***	0.856***	0.855***	1.000			
(35) *LNTOTAL_HOURS*	0.012	0.060*	-0.356***	-0.652***	0.693***	0.689***	0.605***	1.000		
(36) *ENGLEV*	-0.046	0.063*	0.114***	0.099***	-0.058*	-0.050	-0.049	-0.109***	1.000	
(37) *LNMODOP*	-0.043	-0.005	-0.241***	-0.854***	0.900***	0.898***	0.753***	0.701***	-0.106***	1.000

This table presents Pearson's correlations below the diagonal. We indicate if correlations are statistically significant at the 0.10, 0.05, and 0.01 levels with *, **, and ***, respectively. All variables are defined in Appendix A.

Table 4

Auditor Compensation as a Function of Commercial Effort and Controls (H1)

Panel A: Planned Analysis of *LNPD*

Variable	(1)		(2)		(3)		(4)	
					LN_COMP			
LNPD (H1)			0.002		-0.003		-0.002	
			0.53		-0.67		-0.45	
LNL&E	-0.004		-0.005		0.003		-0.002	
	-0.36		-0.42		0.19		-0.16	
LNQC	0.004		0.004		0.004		-0.006	
	0.76		0.77		0.51		-1.25	
LNAH	0.008		0.008		0.014		-0.010	
	0.47		0.47		0.62		-0.45	
LNRECRUIT	-0.008	*	-0.009	*	-0.005		-0.006	
	-1.69		-1.71		-1.04		-0.73	
LNCONSULT	-0.002		-0.002		0.000		-0.008	
	-0.44		-0.47		0.06		-0.95	
LNAF	0.008		0.009		0.025		0.008	
	0.76		0.83		1.62		0.54	
LNNAF	0.000		0.000		0.001		0.000	
	0.09		0.07		0.59		0.05	
EVAL	0.057	***	0.057	***	0.010	**	0.194	***
	5.73		5.73		2.00		7.25	
LNMODOP	0.005		0.005		-0.020		0.018	**
	0.56		0.52		-0.91		2.01	
NONCOMP	0.019		0.019		0.021		0.025	
	1.58		1.61		1.47		1.03	
LNPUBLIC	0.028	**	0.028	**	0.028	**	0.017	
	2.52		2.53		2.36		1.24	
RISK	0.074	***	0.075	***	0.049	*	0.023	
	2.77		2.80		1.79		0.61	
DIRECTOR	0.367	***	0.365	***	0.312	***		
	12.32		12.19		8.85			
PARTNER	1.263	***	1.260	***	1.208	***	0.849	***
	32.63		32.62		9.77		36.85	
LNTENURE	0.117	***	0.116	***	0.155	***	0.066	***
	7.30		7.31		4.99		3.96	
LNFIRMPFT	0.303		0.290					
	0.87		0.83					
LNFIRMAF	-0.084		-0.092					
	-0.41		-0.45					
LNFIRMNAF	0.054		0.059					
	0.40		0.44					
LNFIRMPUBLIC	0.058		0.053					
	0.46		0.42					
Constant	9.856		10.270		16.087	***	16.929	***
	0.90		0.93		61.72		68.19	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	
Power			0.00		0.32		0.29	

LR-test for random effects	267.33	267.44	152.45	70.38
Hausman test	23.29	46.37	1,684.57	1,066.31
- 2 Log Likelihood	-431.21	-431.37	-257.89	-282.79
BIC	-609.47	-602.96	-313.59	-362.34
Observations	931	931	458	473

Table 4 - *Continued*

Panel B: Unplanned Analysis of *LNPD* interacted with Auditor Rank

Variable	(1)		(2)		(3)		(4)	
					LN_COMP			
LNPD			0.000		-0.001		-0.024	**
			0.06		-0.11		-2.39	
*LNPD*DIRECTOR (H1)*			0.000		0.041	**		
			0.01		2.11			
*LNPD*PARTNER (H1)*			0.004		-0.043	**	0.030	***
			0.40		-2.13		2.80	
LNL&E	-0.004		-0.005		0.003		-0.005	
	-0.36		-0.45		0.18		-0.40	
LNQC	0.004		0.004		0.002		-0.006	
	0.76		0.78		0.30		-1.26	
LNAH	0.008		0.008		0.016		-0.015	
	0.47		0.47		0.75		-0.75	
LNRECRUIT	-0.008	*	-0.008	*	-0.004		-0.003	
	-1.69		-1.69		-0.81		-0.42	
LNCONSULT	-0.002		-0.002		0.000		-0.004	
	-0.44		-0.42		0.07		-0.49	
LNAF	0.008		0.009		0.017		0.006	
	0.76		0.85		1.26		0.45	
LNNAF	0.000		0.000		0.001		0.003	
	0.09		0.11		0.83		0.28	
EVAL	0.057	***	0.057	***	0.009	*	0.195	***
	5.73		5.70		1.94		7.21	
LNMODOP	0.005		0.005		-0.018		0.019	**
	0.56		0.54		-0.85		2.17	
NONCOMP	0.019		0.019		0.023	*	0.024	
	1.58		1.56		1.79		1.01	
LNPUBLIC	0.028	**	0.028	**	0.034	***	0.016	
	2.52		2.48		2.87		1.20	
RISK	0.074	***	0.075	***	0.055	**	0.022	
	2.77		2.83		2.25		0.61	
DIRECTOR	0.367	***	0.366	***	0.110			
	12.32		6.31		1.39			
PARTNER	1.263	***	1.246	***	1.384	***	0.717	***
	32.63		23.94		13.89		15.38	
LNTENURE	0.117	***	0.117	***	0.156	***	0.064	***
	7.30		7.32		4.99		3.74	
LNFIRMPFT	0.303		0.291					
	0.87		0.81					
LNFIRMAF	-0.084		-0.092					
	-0.41		-0.44					
LNFIRMNAF	0.054		0.059					
	0.40		0.43					
LNFIRMPUBLIC	0.058		0.053					
	0.46		0.41					
Constant	9.856		10.234		16.187	***	17.079	***
	0.90		0.91		65.70		70.28	
Year Fixed Effects	YES		YES		YES		YES	

Industry Fixed Effects	YES	YES	YES	YES
Random Auditor Intercept	YES	YES	YES	YES
Power		0.51	0.99	0.99
LR-test for random effects	267.33	258.17	167.19	57.11
Hausman test	23.29	14.55	2,205.59	1,948.86
- 2 Log Likelihood	-431.21	-431.48	-266.65	-287.66
BIC	-609.47	-589.52	-318.86	-365.90
Observations	931	931	458	473

This table presents the results from our mixed model of auditor compensation. In Panel A we report the results of our estimation of Equation (1) while in Panel B we modify Equation (1) and include interactions between *LPND* and our rank measures, *DIRECTOR* and *PARTNER*. The dependent variable in both panels is *LN_COMP*. Across both panels, Column (1) reports the results excluding the variable of interest *LNPD* while Column (2) reports the results including all variables. For both panels Column (3) reports the results using only observations from Firm X and Column (4) reports the results using observations only from Firm Y. The LR-test statistic tests for the significance of auditor-specific random effects. The Hausman (1978) specification test tests if the explanatory variables and the combined random terms in the equation are orthogonal. The BIC (Bayesian Information Criterion) provides an indication of the fit of the model. All *t*-statistics are estimated with robust standard errors clustered by auditor. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are defined in Appendix A.

Table 5

Audit Team Effort as a function of Auditor Commercial Effort and Controls (H2)

Planned Analysis of *LNPD*

Variable	(1)		(2)		(3)		(4)	
			LNTOTAL_HOURS					
LNPD (H2)			-0.002		-0.000		-0.014	
			-0.19		-0.04		-1.03	
LNL&E	0.007		0.008		0.053		0.044	
	0.25		0.27		1.50		1.34	
LNQC	0.018		0.018		0.007		-0.004	
	1.53		1.52		0.53		-0.32	
LNAH	-0.029		-0.029		0.063		0.275	***
	-0.46		-0.47		1.16		3.00	
LNRECRUIT	0.067	***	0.067	***	-0.007		-0.010	
	6.75		6.69		-0.78		-0.68	
LNCONSULT	0.210	***	0.210	***	0.044	***	0.393	***
	5.91		5.89		3.14		7.94	
LNAF	0.654	***	0.654	***	0.568	***	0.550	***
	13.35		13.22		12.22		7.73	
LNNAF	0.006	***	0.006	***	0.003		0.003	
	2.94		2.97		1.38		1.27	
EVAL	-0.003		-0.003		0.010		0.039	**
	-0.18		-0.19		0.81		1.98	
NONCOMP	0.088	***	0.088	***	0.009		-0.017	
	4.46		4.40		0.67		-0.46	
LNPUBLIC	0.088	***	0.087	***	0.121	***	0.027	
	3.35		3.35		5.11		0.96	
RISK	0.224	***	0.223	***	0.072	*	0.095	
	4.59		4.67		1.77		0.73	
DIRECTOR	-0.210	***	-0.208	***	0.059			
	-2.93		-2.75		1.08			
PARTNER	-0.331	***	-0.329	***	0.134	*	0.005	
	-4.75		-4.52		1.79		0.11	
LNTENURE	-0.027		-0.027		-0.020		-0.050	
	-0.64		-0.63		-0.61		-0.81	
CONSTANT	-4.722	***	-4.710	***	-2.082	***	-5.797	***
	-5.46		-5.35		-2.62		-5.77	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	
Power			0.00		0.19		0.17	
LR-test for random effects	130.79		130.85		49.25		39.12	
Hausman test	236.92		682.87		2,048.66		116.62	
- 2 Log Likelihood	333.89		333.86		-29.23		108.71	
BIC	893.38		900.16		137.60		414.51	
Observations	931		931		458		473	

64

This table presents the results from our mixed model of audit engagement team effort, *LNTOTAL_HOURS*. Column (1) reports the results excluding the variable of interest *LNPD* while Column (2) reports the results including all variables. Column (3) reports the results using only observations from Firm X and Column (4) reports the results using observations only from Firm Y. The LR-test statistic tests for the significance of auditor-specific random effects. The Hausman [1978] specification test tests if the explanatory variables and the combined random terms in the equation are orthogonal. The BIC (Bayesian Information Criterion) provides an indication of the fit of the model. All *t*-statistics are estimated with robust standard errors. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are defined in Appendix A.

Table 6

Audit Quality as a Function of Auditor Commercial Effort, Quality Control and Controls (H3a and H3b)

Panel A: Planned test of *QUAL* defined as *EQ* and *QC* defined as *LNCONSULT* and *ENGLEV* respectively

Variable	(1) LNCONSULT		(2) EQ		(3) ENGLEV		(4) EQ	
LNPD	(H3b) 0.027		(H3a) 0.004		(H3b) -0.001		(H3a) 0.004	
	1.01		0.35		-1.05		0.38	
LNL&E	0.047		0.053		0.004		0.051	
	0.52		1.28		1.58		1.21	
LNQC	-0.028		0.010		-0.000		0.010	
	-0.88		0.83		-0.24		0.86	
LNAH	0.478	*	0.156	*	0.034	***	0.130	
	1.81		1.95		3.21		1.57	
LNRECRUIT	0.045		0.013		-0.002		0.014	
	1.51		1.04		-1.65		1.03	
QC			(H3b) -0.018				(H3b) 0.502	
			-0.80				0.88	
LNAF	0.576	***	-0.052		-0.016	***	-0.053	
	3.81		-1.17		-3.31		-1.31	
LNNAF	0.005		0.006		0.000		0.006	
	0.63		1.35		1.25		1.32	
EVAL	0.074		0.001		0.002		-0.001	
	1.33		0.03		0.94		-0.03	
NONCOMP	0.035		-0.135	***	-0.008	***	-0.129	***
	0.60		-3.32		-4.12		-3.20	
LNPUBLIC	0.047		0.010		0.006	**	0.007	
	0.71		0.37		2.12		0.25	
RISK	0.431	***	0.018		0.026	***	-0.010	
	2.92		0.27		4.65		-0.15	
DIRECTOR	-0.380	*	0.107		0.038	***	0.096	
	-1.86		1.37		6.98		1.25	
PARTNER	-0.464	*	0.214	**	0.027	***	0.209	**
	-1.96		2.57		3.90		2.59	
LNTENURE	0.177	*	-0.031		-0.007	*	-0.031	
	1.73		-0.66		-1.67		-0.67	
CONSTANT	-11.393	***	0.462		0.101		0.607	
	-4.43		0.55		1.16		0.80	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	
Indirect Effect			-0.000				-0.001	
			-0.73				-0.62	
90% Confidence Interval			[-0.002 – 0.001]				[-0.002 – 0.001]	
Power			0.30				0.00	
LR-test for random effects			27.75				63.09	
Hausman test			0.46				2.02	
- 2 Log Likelihood			575.61				-670.30	
BIC			1,536.82				-943.15	
Observations			377				377	

Table 6 - *Continued*

	(1)		(2)		(3)		(4)	
	LNCONSULT		EQ		ENGLEV		EQ	
Variable								
LNPD	(H3b) -0.010		(H3a) 0.002		(H3b) -0.001		(H3a) 0.002	
	-0.28		0.08		-0.66		0.13	
LNL&E	0.46		0.095		0.004		0.091	
	0.24		1.13		0.90		1.08	
LNQC	0.016		0.007		-0.004	***	0.008	
	0.48		0.29		-2.80		0.33	
LNAH	1.735	***	0.227		0.018	**	0.175	
	4.93		1.46		2.32		1.22	
LNRECRUIT	-0.081	**	-0.000		-0.001		0.002	
	-2.36		-0.00		-0.96		0.14	
QC			(H3b) -0.021				(H3b) 0.530	
			-0.44				0.38	
LNAF	-0.227	*	-0.079		-0.007	*	-0.068	
	-1.86		-1.09		-1.69		-0.94	
LNNAF	0.001		0.002		0.000		0.002	
	0.16		0.27		0.75		0.28	
EVAL	0.204	***	0.001		0.002		-0.005	
	3.47		0.02		0.86		-0.11	
NONCOMP	-0.015		-0.145	***	-0.008	***	-0.140	***
	-0.29		-2.85		-4.30		-2.67	
LNPUBLIC	0.017		-0.077	*	0.016	***	-0.084	*
	0.21		-1.74		4.59		-1.80	
RISK	0.667	***	0.094		0.019	***	0.063	
	3.25		0.84		3.00		0.55	
DIRECTOR	0.332		0.164		0.032	***	0.140	
	1.36		1.57		5.88		1.36	
PARTNER	0.524		0.163		0.040	***	0.130	
	1.58		1.11		5.14		0.87	
LNTENURE	-0.012		0.065		-0.010		0.067	
	-0.08		0.67		-1.56		0.70	
CONSTANT	-3.363		0.063		0.051		0.118	
	-1.13		0.04		0.54		0.07	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	
Indirect Effect			0.000				-0.000	
			0.19				-0.31	
90% Confidence Interval			[-0.002 – 0.002]				[-0.003 – 0.002]	
Power			0.05				0.00	
LR-test for random effects			2.99				0.00	
Hausman test			0.09				0.01	
- 2 Log Likelihood			253.41				-371.90	
BIC			824.61				-410.39	
Observations			183				183	

Table 6 - *Continued*

Panel C: Planned test of *QUAL* defined as *EQ* and *QC* defined a*s LNCONSULT* and *ENGLEV* respectively for Firm Y

Variable	(1) LNCONSULT		(2) EQ		(3) ENGLEV		(4) EQ	
LNPD	(H3b) -0.002		(H3a) -0.001		(H3b) -0.002		(H3a) 0.001	
	-0.06		-0.05		-1.38		0.05	
LNL&E	0.052		0.037		0.007	*	0.029	
	0.64		0.79		1.92		0.63	
LNQC	-0.065		0.022		0.001		0.025	
	-1.33		1.33		0.31		1.47	
LNAH	0.107		0.129		0.040	**	0.103	
	0.28		1.28		2.34		0.98	
LNRECRUIT	0.019		0.045		-0.005	**	0.049	
	0.43		1.47		-2.02		1.59	
QC			(H3b) -0.054	**			(H3b) 0.913	
			-2.05				1.60	
LNAF	0.675	***	-0.003		-0.022	***	-0.030	
	3.54		-0.06		-3.63		-0.57	
LNNAF	0.012		0.006		0.000		0.005	
	1.35		1.09		0.69		0.91	
EVAL	-0.085		-0.009		0.002		-0.007	
	-1.27		-0.23		0.66		-0.16	
NONCOMP	0.122		0.057		-0.009	**	0.058	
	1.51		0.54		-2.02		0.55	
LNPUBLIC	0.049		0.074	**	-0.003		0.077	**
	0.50		2.22		-0.74		2.25	
RISK	-0.548	*	-0.175		0.009		-0.154	
	-1.83		-1.30		0.80		-1.12	
DIRECTOR								
PARTNER	-0.002		0.125	***	-0.009		0.136	**
	-0.01		2.16		-1.09		2.26	
LNTENURE	0.181		-0.031		-0.010	*	-0.030	
	1.62		-0.62		-1.89		-0.60	
CONSTANT	-9.408	***	0.312		0.255	**	0.686	
	-2.78		0.28		2.03		0.68	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	
Indirect Effect			0.000				-0.002	
			0.06				-0.94	
90% Confidence Interval			[-0.003 – 0.003]				[-0.005 – 0.001]	
Power			0.08				0.00	
LR-test for random effects			0.00				0.00	
Hausman test			0.92				0.63	
- 2 Log Likelihood			241.35				-350.92	
BIC			809.31				-375.24	
Observations			194				194	

Table 6 - *Continued*

Panel D: Planned test of *QUAL* defined as *LNMODOP* and *QC* defined a*s LNCONSULT* and *ENGLEV* respectively estimated using all observations

Variable	(1) LNCONSULT		(2) LNMODOP		(3) ENGLEV		(4) LNMODOP	
LNPD	(H3b) 0.038	**	(H3a) 0.029	*	(H3b) -0.002	**	(H3a) 0.033	**
	2.09		1.75		-2.03		2.01	
LNL&E	0.106	*	0.016		0.003		0.022	
	1.74		0.28		1.43		0.39	
LNQC	-0.005		0.020		-0.000		0.020	
	-0.24		0.75		-0.55		0.78	
LNAH	0.831	***	-0.076		0.007		-0.009	
	6.96		-0.71		1.31		-0.09	
LNRECRUIT	0.055	***	0.179	***	-0.001	*	0.179	***
	2.88		4.89		-1.74		4.69	
QC			(H3b) 0.067	**			(H3b) 0.723	
			2.56				0.86	
LNAF	0.405	***	0.260	***	-0.005	**	0.279	***
	6.40		5.11		-1.97		5.44	
LNNAF	0.009	**	0.010	***	0.000		0.011	***
	2.09		2.61		0.30		2.62	
EVAL	-0.021		-0.012		0.001		-0.014	
	-0.66		-0.45		0.49		-0.54	
NONCOMP	0.077	*	0.116	***	-0.005	***	0.120	***
	1.85		2.83		-2.90		2.93	
LNPUBLIC	0.079	*	0.125	***	0.007	***	0.126	**
	1.64		2.56		2.89		2.50	
RISK	0.305	***	0.130		0.024	***	0.121	
	3.70		1.31		5.13		1.18	
DIRECTOR	-0.372	***	-0.480	**	0.027	***	-0.504	**
	-2.65		-2.50		6.79		-2.54	
PARTNER	-0.371	***	-0.729	***	0.010	**	-0.740	***
	-2.67		-3.59		2.25		-3.54	
LNTENURE	0.088		0.090		-0.003		0.096	
	0.99		1.08		-1.17		1.15	
CONSTANT	-10.199	***	-3.631	***	0.095	*	-4.267	***
	-7.32		-3.56		1.76		-4.35	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	
Indirect Effect			0.003	*			-0.001	
			1.69				-0.76	
90% Confidence Interval			[< 0.001 – 0.005]				[-0.004 – 0.001]	
Power			0.25				0.00	
LR-test for random effects			545.67				588.17	
Hausman test			69.86				4.92	
- 2 Log Likelihood			1,987.14				-1,045.91	
BIC			4,432.30				-1,633.79	
Observations			931				931	

Table 6 - *Continued*

Panel E: Planned test of *QUAL* defined as *LNMODOP* and *QC* defined a*s LNCONSULT* and *ENGLEV* respectively estimated using all observations for Firm X

Variable	(1) LNCONSULT		(2) LNMODOP		(3) ENGLEV		(4) LNMODOP	
LNPD	(H3b) 0.004		(H3a) 0.041	***	(H3b) -0.001		(H3a) 0.038	***
	0.17		2.94		-1.05		2.78	
LNL&E	0.290	**	0.084		0.005		0.091	*
	2.57		1.53		1.38		1.70	
LNQC	-0.022		0.031	*	-0.003	**	0.027	
	-0.83		1.71		-1.99		1.41	
LNAH	1.478	***	0.224	***	0.002		0.181	**
	9.81		2.65		0.29		2.36	
LNRECRUIT	-0.035		0.016		-0.001		0.015	
	-1.43		1.05		-1.14		1.04	
QC			(H3b) -0.020				(H3b) -1.913	*
			-1.06				-1.93	
LNAF	0.207	**	0.189	***	0.000		0.195	***
	2.50		3.77		0.03		3.69	
LNNAF	0.001		0.010	***	0.000	*	0.012	***
	0.25		4.18		1.81		4.43	
EVAL	0.014		0.018		0.001		0.020	
	0.33		0.89		1.17		1.03	
NONCOMP	-0.059		0.018		-0.004	***	0.013	
	-1.06		0.83		-2.74		0.61	
LNPUBLIC	0.021		0.068	**	0.009	***	0.082	**
	0.31		2.03		2.99		2.27	
RISK	0.473	***	-0.484	***	0.024	***	-0.464	***
	4.75		-7.42		4.29		-7.46	
DIRECTOR	0.148		0.263	***	0.020	***	0.308	***
	1.01		3.51		3.67		3.82	
PARTNER	0.233		0.286	**	0.023	***	0.318	**
	1.13		2.08		2.62		2.28	
LNTENURE	0.006		0.184	***	-0.003		0.172	***
	0.05		3.05		-0.95		2.89	
CONSTANT	-11.064	***	-2.433	***	-0.007		-2.298	**
	-4.55		-2.64		-0.10		-2.41	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	
Indirect Effect			-0.000				0.002	
			-0.17				0.93	
90% Confidence Interval			[-0.001 – 0.001]				[-0.002 – 0.006]	
Power			0.48				0.00	
LR-test for random effects			198.43				215.34	
Hausman test			22.18				91.33	
- 2 Log Likelihood			635.44				-947.42	
BIC			1,656.87				-1,508.84	
Observations			458				458	

Table 6 - *Continued*

Panel F: Planned test of *QUAL* defined as *LNMODOP* and *QC* defined a*s LNCONSULT* and *ENGLEV* respectively estimated using all observations for Firm Y

Variable	(1) LNCONSULT		(2) LNMODOP		(3) ENGLEV		(4) LNMODOP	
LNPD	(H3b) 0.021		(H3a) 0.014		(H3b) -0.002	*	(H3a) 0.015	
	1.13		0.79		-1.73		0.84	
LNL&E	-0.009		-0.034		0.002		-0.033	
	-0.14		-0.56		0.51		-0.55	
LNQC	-0.022		0.001		-0.000		-0.000	
	-0.88		0.05		-0.06		-0.02	
LNAH	0.444	***	0.215	*	0.016	*	0.213	*
	2.87		1.92		1.81		1.91	
LNRECRUIT	0.046	*	-0.017		-0.002		-0.015	
	1.95		-0.47		-1.07		-0.41	
QC			(H3b) 0.021				(H3b) 0.426	
			0.55				0.54	
LNAF	0.507	***	0.136	**	-0.012	***	0.155	***
	5.82		2.53		-3.18		3.19	
LNNAF	0.010	**	0.008	*	-0.000		0.008	*
	2.10		1.79		-0.59		1.90	
EVAL	0.028		-0.052		-0.004		-0.049	
	0.59		-1.09		-1.33		-1.03	
NONCOMP	0.050		0.035		-0.006		0.041	
	1.04		0.34		-1.39		0.40	
LNPUBLIC	0.014		0.145	**	0.005		0.143	**
	0.24		2.49		1.53		2.40	
RISK	-0.547	**	-0.572	***	0.001		-0.587	***
	-2.07		-3.64		0.07		-3.82	
DIRECTOR								
PARTNER	0.090		0.058		-0.020	***	0.070	
	0.88		0.66		-3.82		0.76	
LNTENURE	0.133		0.086		-0.005		0.090	
	1.50		1.43		-1.03		1.48	
CONSTANT	-8.435	***	-3.081	***	0.261	***	-3.406	***
	-4.89		-3.05		3.12		-3.60	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	
Indirect Effect			0.000				-0.001	
			0.51				-0.49	
90% Confidence Interval			[-0.001 – 0.002]				[-0.004 – 0.002]	
Power			0.19				0.00	
LR-test for random effects			94.15				119.86	
Hausman test			72.80				390.20	
- 2 Log Likelihood			816.63				-567.95	
BIC			2,021.28				-747.87	
Observations			473				473	

This table presents the results from our mixed model of audit engagement quality, *QUAL*. In Panels A, B, and C we define *QUAL* using *EQ* while in Panels D, E, and F we measure *QUAL* using *LNMODOP*. In Panels B and E we only include observations from Firm X while in Panels C and F we only include observations from Firm Y. In Columns (1) and (2) of all panels *QC* is measured using *LNCONSULT* while in Columns (3) and (4) *QC* is measured using *ENGLEV*, respectively. The LR-test statistic tests for the significance of auditor-specific random effects. The Hausman [1978] specification test tests if the explanatory variables and the combined random terms in the equation are orthogonal. The BIC (Bayesian Information Criterion) provides an indication of the fit of the model. All *t*-statistics are estimated with robust standard errors. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are defined in Appendix A.

Table 7

Additional Analyses of Audit Quality as a Function of Auditor Commercial Effort, Quality Control and Controls

Panel A: Planned test of *QUAL* defined as *EQ* and *QC* defined as *CONSULT_ACC* and *CONSULT_AUD* respectively estimated using all observations

Variable	(1) CONSULT_ACC		(2) EQ		(3) CONSULT_AUD		(4) EQ	
LNPD	(H3b) 0.040	**	(H3a) 0.001		(H3b) 0.036	**	(H3a) 0.000	
	2.20		0.14		2.25		0.02	
LNL&E	0.009		0.051		0.057		0.050	
	0.14		1.26		0.81		1.21	
LNQC	0.025		0.009		-0.057	***	0.016	
	1.19		0.74		-3.21		1.30	
LNAH	0.269	*	0.133		0.426	***	0.110	
	1.84		1.63		4.11		1.28	
LNRECRUIT	0.027		0.011		-0.028	*	0.015	
	1.13		0.84		-1.69		1.17	
QC			(H3b) 0.069	**			(H3b) 0.087	***
			2.24				2.63	
LNAF	0.094	*	-0.068	*	-0.024		-0.063	
	1.66		-1.75		-0.45		-1.62	
LNNAF	-0.001		0.006		0.010	**	0.005	
	-0.20		1.42		2.31		1.18	
EVAL	0.047		-0.004		-0.036		0.001	
	0.96		-0.12		-0.96		0.03	
NONCOMP	0.024		-0.138	***	-0.072	**	-0.125	***
	0.73		-3.32		-2.26		-3.09	
LNPUBLIC	0.052		0.006		0.113	**	0.000	
	0.96		0.21		2.59		0.01	
RISK	0.049		0.004		-0.274	***	0.032	
	0.52		0.07		-3.85		0.52	
DIRECTOR	0.265	**	0.097		0.379	***	0.078	
	2.34		1.30		4.34		1.02	
PARTNER	0.436	***	0.197	**	0.708	***	0.159	*
	3.31		2.48		6.61		1.93	
LNTENURE	0.068		-0.038		0.013		0.034	
	0.94		-0.81		0.25		-0.73	
CONSTANT	-3.925	***	0.895		-2.258	**	0.909	
	-2.90		1.17		-2.28		1.16	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	
Indirect Effect			0.003				0.003	*
			1.50				1.82	
90% Confidence Interval			[-0.000 – 0.006]				[0.003 – 0.006]	
Power			0.66				0.67	
LR-test for random effects			97.96				23.97	
Hausman test			2.16				0.03	
- 2 Log Likelihood			453.48				428.75	
BIC			1,292.56				1,254.97	
Observations			377				377	

Table 7 - *Continued*

Panel B: Planned test of *QUAL* defined as *LNMODOP* and *QC* defined a*s CONSULT_ACC* and *CONSULT_AUD*
respectively estimated using all observations

Variable	(1) CONSULT_ACC		(2) LNMODOP		(3) CONSULT_AUD		(4) LNMODOP	
LNPD	(H3b) 0.030	**	(H3a) 0.026		(H3b) 0.031	***	(H3a) 0.016	
	2.15		1.62		2.59		1.26	
LNL&E	0.012		0.021		-0.013		0.048	
	0.32		0.38		-0.37		1.12	
LNQC	0.018		0.016		-0.020		0.023	
	1.25		0.62		-1.49		1.35	
LNAH	0.267	***	-0.065		0.187	***	0.048	
	3.72		-0.64		2.96		0.57	
LNRECRUIT	0.006		0.180	***	0.001		0.102	***
	0.33		4.84		0.08		3.61	
QC			(H3b) 0.210	***			(H3b) 0.666	***
			3.25				13.88	
LNAF	0.100	***	0.256	***	0.116	***	0.136	***
	3.23		4.99		3.31		3.50	
LNNAF	0.000		0.011	***	0.005	**	0.004	
	0.13		2.75		2.04		1.48	
EVAL	-0.016		-0.011		-0.021		0.011	
	-0.84		-0.43		-1.26		0.53	
NONCOMP	0.026		0.113	***	-0.017		0.067	**
	1.11		2.83		-0.77		2.05	
LNPUBLIC	0.009		0.129	***	0.096	***	0.036	
	0.28		2.60		2.86		0.97	
RISK	0.087		0.121		-0.171	***	-0.032	
	1.39		1.25		-3.51		-0.36	
DIRECTOR	0.110		-0.509	**	0.122	*	-0.172	
	1.35		-2.54		1.77		-1.07	
PARTNER	0.293	***	-0.793	***	0.333	***	-0.402	*
	3.07		-3.72		3.75		-1.72	
LNTENURE	0.097	*	0.073		0.048		-0.056	
	1.88		0.89		1.27		-0.52	
CONSTANT	-3.835	***	-3.393	***	-2.983	***	-1.739	**
	-5.39		-3.41		-4.40		-2.23	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	
Indirect Effect			0.006	*			0.021	**
			1.84				2.50	
90% Confidence Interval			[0.001 – 0.012]				[0.007 – 0.034]	
Power			0.30				0.44	
LR-test for random effects			806.24				808.69	
Hausman test			4.43				137.14	
- 2 Log Likelihood			1,645.75				1,446.00	
BIC			3,756.37				3,356.86	
Observations			931				931	

This table presents the results from our mixed model of audit engagement quality, *QUAL*. In Panels A and B, all auditor observations with non-missing data are included. In Panel A audit quality is measured using *EQ* while in Panel B audit quality is measured using *LNMODOP*. In Columns (1) and (2) of both panels *QC* is measured using *CONSULT_ACC* while in Columns (3) and (4) *QC* is measured using *CONSULT_AUD*, respectively. The LR-test statistic tests for the significance of auditor-specific random effects. The Hausman [1978] specification test tests if the explanatory variables and the combined random terms in the equation are orthogonal. The BIC (Bayesian Information Criterion) provides an indication of the fit of the model. All *t*-statistics are estimated with robust standard errors. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are defined in Appendix A.

Table 8

Additional Analyses of Audit Quality as a Function of Auditor Commercial Effort, Quality Control and Controls

Panel A: Planned test of *QUAL* defined as *EVAL* and *QC* defined a*s LNCONSULT* and *ENGLVE* respectively estimated using all observations

Variable	(1) LNCONSULT		(2) EVAL		(3) ENGLEV		(4) EVAL	
LNPD	(H3b) 0.036	*	(H3a) 0.003		(H3b) -0.002	**	(H3a) -0.001	
	1.99		0.16		-1.98		-0.06	
QC			(H3b) -0.140	**			(H3b) 2.583	
			-2.39				1.52	
CONSTANT	YES		YES		YES		YES	
Controls?	YES		YES		YES		YES	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	
Indirect Effect			-0.005				-0.004	
			-1.50				-1.23	
90% Confidence Interval			[-0.011 – 0.000]				[-0.010 – 0.001]	
Power			0.00				0.00	
LR-test for random effects			220.96				267.41	
Hausman test			79.53				21.00	
- 2 Log Likelihood			2,103.64				-929.82	
BIC			4,651.63				-1,415.29	
Observations			931				931	

Panel B: Planned test of *QUAL* defined as *EVAL* and *QC* defined a*s CONSULT_ACC* and *CONSULT_AUD* respectively estimated using all observations

Variable	(1) CONSULT_ACC		(2) EVAL		(3) CONSULT_AUD		(4) EVAL
LNPD	(H3b) 0.031	**	(H3a) -0.005		(H3b) 0.028	**	(H3a) -0.009
	2.21		-0.31		2.30		-0.52
QC			(H3b) -0.018				(H3b) -0.031
			-0.23				-0.71
CONSTANT	YES		YES		YES		YES
Controls?	YES		YES		YES		YES
Year Fixed Effects	YES		YES		YES		YES
Industry Fixed Effects	YES		YES		YES		YES
Random Auditor Intercept	YES		YES		YES		YES
Indirect Effect			-0.001				-0.001
			-0.23				-0.69
90% Confidence Interval			[-0.005 – 0.003]				[-0.003 – 0.001]
Power			0.00				0.24
LR-test for random effects			469.07				232.17
Hausman test			87.13				35.32
- 2 Log Likelihood			1,776.66				1,671.87
BIC			3,997.68				3,788.09
Observations			931				931

This table presents the results from our mixed model of audit engagement quality, *QUAL*. In Panels A and B, all auditor observations are included and the dependent variable is *EVAL*. In Panel A Columns (1) and (2) *QC* is measured using *LNCONSULT* and in Columns (3) and (4) *QC* is measured using *ENGLEV*. In Panel B Columns (1) and (2) *QC* is measured using *CONSULT_ACC* while in Columns (3) and (4) *QC* is measured using *CONSULT_AUD*, respectively. The LR-test statistic tests for the significance of auditor-specific random effects. The Hausman [1978] specification test tests if the explanatory variables and the combined random terms in the equation are orthogonal. The BIC (Bayesian Information Criterion) provides an indication of the fit of the model. All *t*-statistics are estimated with robust standard errors. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are defined in Appendix A.

Table B1

*Auditor Compensation as a Function of Commercial Effort – With Partner Dummy and
No Director Dummy*

Panel A: Partner Main Effect

Variable	(1)		(2)		(3)		(4)	
					LN_COMP			
LNPD (H1)			0.010	**	0.004		-0.002	
			2.06		0.74		-0.45	
LNL&E	0.015		0.011		0.022		-0.002	
	1.24		0.92		1.27		-0.16	
LNQC	0.016	***	0.016	***	0.017	*	-0.006	
	2.83		2.85		1.94		-1.25	
LNAH	-0.052	***	-0.051	***	-0.082	***	-0.010	
	-2.78		-2.74		-3.05		-0.45	
LNRECRUIT	-0.004		-0.004		-0.003		-0.006	
	-0.70		-0.83		-0.53		-0.73	
LNCONSULT	-0.003		-0.004		0.005		-0.008	
	-0.49		-0.63		0.71		-0.95	
LNAF	0.015		0.017		0.021		0.008	
	1.17		1.37		1.15		0.54	
LNNAF	0.000		0.000		0.001		0.000	
	0.40		0.28		1.23		0.05	
EVAL	0.047	***	0.048	***	-0.001		0.194	***
	4.11		4.17		-0.10		7.25	
LNMODOP	0.023	**	0.021	**	0.027		0.018	**
	2.44		2.23		1.04		2.01	
NONCOMP	0.041	***	0.042	***	0.037	**	0.025	
	3.04		3.17		2.38		1.03	
LNPUBLIC	0.036	***	0.036	***	0.036	***	0.017	
	2.95		2.95		2.74		1.24	
RISK	0.049		0.054	*	0.024		0.023	
	1.58		1.73		0.78		0.61	
PARTNER	0.918	***	0.918	***	0.837	***	0.849	***
	22.60		22.75		4.37		36.85	
LNTENURE	0.159	***	0.156	***	0.200	***	0.066	***
	7.75		7.70		4.63		3.96	
LNFIRMPFT	0.504		0.438					
	1.35		1.16					
LNFIRMAF	-0.033		-0.072					
	-0.15		-0.33					
LNFIRMNAF	-0.001		0.025					
	-0.01		0.17					
LNFIRMPUBLIC	0.142		0.117					
	1.06		0.86					
Constant	4.975		7.028		16.582	***	16.929	***
	0.42		0.59		52.21		68.19	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	

Power		0.86	0.50	0.29
LR-test for random effects	382.47	379.90	201.14	70.38
Hausman test	475.66	550.73	1,732.58	1,066.31
- 2 Log Likelihood	-346.33	-348.83	-203.25	-282.79
BIC	-446.55	-444.71	-210.43	-362.34
Observations	931	931	458	473

Panel B: Partner Interaction

Variable	(1)		(2)		(3)		(4)	
					LN_COMP			
LNPD			0.015	***	0.014	**	-0.024	**
			2.70		2.02		-2.39	
LNPD*PARTNER (H1)			-0.012		-0.064	***	0.030	***
			-1.10		-2.75		2.80	
LNL&E	0.015		0.012		0.019		-0.005	
	1.24		0.96		1.10		-0.40	
LNQC	0.016	***	0.016	***	0.015	*	-0.006	
	2.83		2.78		1.67		-1.26	
LNAH	-0.052	***	-0.050	***	-0.083	***	-0.015	
	-2.78		-2.74		-3.18		-0.75	
LNRECRUIT	-0.004		-0.005		-0.002		-0.003	
	-0.70		-0.93		-0.33		-0.42	
LNCONSULT	-0.003		-0.004		0.005		-0.004	
	-0.49		-0.71		0.62		-0.49	
LNAF	0.015		0.016		0.012		0.006	
	1.17		1.32		0.72		0.45	
LNNAF	0.000		0.000		0.001		0.003	
	0.40		0.18		0.85		0.28	
EVAL	0.047	***	0.048	***	-0.001		0.195	***
	4.11		4.21		-0.10		7.21	
LNMODOP	0.023	**	0.020	**	0.027		0.019	**
	2.44		2.12		1.09		2.17	
NONCOMP	0.041	***	0.042	***	0.037	**	0.024	
	3.04		3.24		2.48		1.01	
LNPUBLIC	0.036	***	0.037	***	0.040	***	0.016	
	2.95		3.01		3.06		1.20	
RISK	0.049		0.055	*	0.028		0.022	
	1.58		1.79		0.98		0.61	
PARTNER	0.918	***	0.969	***	1.135	***	0.717	***
	22.60		19.62		7.49		15.38	
LNTENURE	0.159	***	0.153	***	0.194	***	0.064	***
	7.75		7.75		4.62		3.74	
LNFIRMPFT	0.504		0.430					
	1.35		1.13					
LNFIRMAF	-0.033		-0.073					
	-0.15		-0.33					
LNFIRMNAF	-0.001		0.026					
	-0.01		0.18					
LNFIRMPUBLIC	0.142		0.114					
	1.06		0.83					
Constant	4.975		7.221		16.759	***	17.079	***
	0.42		0.60		56.16		70.28	
Year Fixed Effects	YES		YES		YES		YES	
Industry Fixed Effects	YES		YES		YES		YES	
Random Auditor Intercept	YES		YES		YES		YES	
Power			0.86		0.98		0.99	
LR-test for random effects	382.47		381.74		214.71		57.11	

80

Hausman test	475.66	672.51	399.15	1,894.56
- 2 Log Likelihood	-346.33	-349.78	-210.71	-287.66
BIC	-446.55	-439.78	-219.24	-365.90
Observations	931	931	458	473

This table presents the results from our mixed model of auditor compensation. In Panel A we modify Equation (1) such that we only include the rank variable *PARTNER* and in Panel B we include the interaction between *LNPD* and *PARTNER*. The dependent variable in both panels is *LN_COMP*. Across both panels, Column (1) reports the results from estimating Equation (1) excluding the variable of interest *LNPD*. For both panels, Column (2) reports the results of the estimation of Equation (1) including all variables. Across both panels, Column (3) reports the results of estimating Equation (1) using only observations from Firm X and Column (4) reports the results from estimating Equation (1) using observations only from Firm Y. The LR-test statistic tests for the significance of auditor-specific random effects. The Hausman (1978) specification test tests if the explanatory variables and the combined random terms in the equation are orthogonal. The BIC (Bayesian Information Criterion) provides an indication of the fit of the model. All *t*-statistics are estimated with robust standard errors clustered by auditor. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are defined in Appendix A.

Table B2

Auditor Compensation by Compensation Type as a Function of Commercial Effort and Controls

	(1)		(2)		(3)	
	LN_SALARY		LN_BONUS		LN_EQUITY	
LNPD (H1)	0.001		0.314	***	0.005	
	0.39		2.64		1.60	
LNL&E	0.010		0.726	**	-0.005	
	1.39		2.32		-0.58	
LNQC	0.005	*	0.053		-0.002	
	1.69		0.75		-0.43	
LNAH	-0.055	***	1.779	***	-0.023	
	-3.89		2.74		-1.29	
LNRECRUIT	-0.002		0.212	**	-0.008	
	-0.51		2.03		-1.21	
LNCONSULT	0.006		0.403	*	-0.002	
	1.31		1.81		-0.21	
LNAF	0.003		0.043		-0.011	
	0.33		0.15		-1.10	
LNNAF	0.000		0.007		-0.000	
	0.51		0.24		-0.09	
EVAL	0.003		0.043		0.244	***
	0.56		0.21		7.61	
LNMODOP	0.019	***	0.828	***	-0.009	
	2.82		2.90		-1.05	
NONCOMP	0.009	*	0.176		0.011	
	1.82		0.93		0.46	
LNPUBLIC	0.014		0.620	**	-0.011	
	1.52		2.31		-1.25	
RISK	0.019		-1.305	**	-0.011	
	1.11		-2.31		-1.25	
LNTENURE	0.112	***	0.582		-0.001	
	4.78		1.60		-0.20	
LNFIRMPFT	0.337	*	-5.109		-0.816	
	1.86		-0.73		-1.15	
LNFIRMAF	-0.201	**	-5.682		-3.464	***
	-2.09		-1.31		-8.27	
LNFIRMNAF	0.140	**	3.387		0.524	*
	2.21		1.21		1.89	
LNFIRMPUBLIC	-0.413	***	-3.147		0.001	
	-6.25		-1.12		0.00	
Constant	13.140	**	200.641		112.98	***
	2.34		0.89		4.94	
Year Fixed Effects	YES		YES		YES	
Industry Fixed Effects	YES		YES		YES	
Random Auditor Intercept	YES		YES		YES	
Power	0.08		0.85		0.16	
LR-test for random effects	754.79		28.23		3.49	
Hausman test	4,594.44		5.32		3.25	
- 2 Log Likelihood	-626.09		1,371.55		-314.75	
BIC	-1,024.00		2,971.28		-417.10	

Observations	566	566	365

This table presents the results from unplanned analysis of auditor compensation. We extend the analysis reported in Table 4 by disaggregating *LN_COMP* into its components. In Column (1) the dependent variable is *LN_SALARY* which is the natural log of *SALARY*. In Column (2) the dependent variable is *LN_BONUS* which is the natural log of *BONUS*. In Column (3) the dependent variable is *LN_EQUITY* which is the natural log of *EQUITY*. We only include observations that would receive a particular type of compensation in the analysis. The LR-test statistic tests for the significance of auditor-specific random effects. The Hausman (1978) specification test tests if the explanatory variables and the combined random terms in the equation are orthogonal. The BIC (Bayesian Information Criterion) provides an indication of the fit of the model. All *t*-statistics are estimated with robust standard errors clustered by auditor. The symbols *, **, and *** denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are defined in Appendix A.