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The Impact of Partners' Economic Incentives on Audit Quality in Big 4 Partnerships

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ABSTRACT

Economic incentives are fundamental for understanding auditor behavior. In this paper, we investigate the association between the extent of partners' fee-based compensation, partners' observable net wealth, and audit quality. Using a sample of Belgian Big 4 audit firms and their predominantly private clients, our results suggest a negative association between audit quality and partner fee-based compensation, and a positive association between audit quality and partner observable net wealth. Moreover, our results show that the latter association is most significant when a partner is carrying a lot of debt, which indicates that a partner's financial situation may affect audit quality. The extent of fee-based incentives also varies among partners of the same audit firm. Furthermore, partner and client characteristics differ based on the extent of fee-based compensation. Our findings should be of interest to regulators and audit firms as they suggest that audit partner's economic incentives significantly affect audit quality.

Keywords: Partner incentives, partner compensation and wealth, audit quality, earnings management

Data availability: all data are publicly available from the sources identified in the text

JEL classification: M41, M42, D81

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I. INTRODUCTION

An important management function in any accounting firm is to establish remuneration policies that provide audit partners with sufficient incentives to conduct high quality audits (Article 24a, 1j 2014/56/EU; IOSCO 2009)[1] and to maintain their independence when dealing with client issues (Johnstone, Sutton and Warfield 2001; Liu and Simunic 2005; Bedard, Deis, Curtis, and Jenkins 2008). As Francis (2011) points out: "*Firms are crucial to understanding audit quality because they … incentivize auditors through compensation and other organizational policies*" (p.137). Anecdotal evidence (e.g., Parmalat, Enron) suggests that compensation policies which provide inappropriate incentives to audit partners may contribute to the incidence of audit failures (Zeff 2003a, 2003b; Wyatt 2004). In recent years, the potential effect of audit partner economic incentives—such as fee-based compensation—on audit quality has been the focus of discussions among regulators, academics and audit firms (EC 2011; PCAOB 2012).

Despite its importance, only a few studies exist that address the systematic effect of individual partner economic incentives on audit quality. The little evidence that is available is mixed (Trompeter 1994; Carcello, Hermanson, and Huss 2000; Geiger, Raghunandan, and Rama 2006; Firth, Mo, and Wong 2012; Lennox and Li 2012). We contribute to this literature by investigating the audit quality effect of two specific partner economic incentives that relate to prior theoretical work: (1) the extent of a partner's fee-based compensation and (2) a partner's assets at risk. Prior studies investigating some aspects of compensation examine variable pay at the *firm* level (Trompeter 1994, Carcello et al. 2000, Ernstberger, Koch, Schreiber and Trompeter 2020).

[1] While the European Commission (2011) initially proposed a prohibition of partner compensation based on fees from the statutory audit, the final directive only forbids partner performance evaluation and compensation based on the revenue derived from selling non-assurance services (Title I, Article 6, 1j).

In this study, we investigate the extent of fee-based compensation at the *individual partner* level and its association with audit quality. Further, we analyze whether a partner's personal financial situation (i.e., assets at risk, or observable net wealth, as explained below) affects audit quality. To the best of our knowledge this relationship has not been empirically studied. Audit firms and regulators can control some aspects of an individual auditor's incentives but idiosyncratic partner factors such as personal wealth and ambition could affect how firm and regulatory policies interact with the incentives of an individual to impact their audit decisions.

We use the Belgian setting for our study because most Big 4 audit partners establish a personal management company with limited liability (hereafter called a *legal entity*) that files publicly available financial statements that include the income and financial status of the individual auditor. The partner's legal entity establishes a contractual relationship with the audit firm through which the partner is compensated. Since all Belgian companies with limited liability are required to publish their financial statements, information about an entity's assets, liabilities, revenues and costs is publicly available. The disclosure of financial information about the partner provides us data on their observable net wealth as reflected in the net equity of the legal entity. Further, since the audit partner personally signs the audit opinion, the information contained in the legal entity disclosures can be linked to the individual auditor's performance and client portfolio.

We first hypothesize that there is an association between the extent of an *individual* auditor's fee-based compensation and audit quality. Fee-based compensation can increase economic bonding with a client (Trompeter 1994), increase the partner's focus on attracting clients at the expense of conducting high-quality audits (Holmstrom and Milgrom 1991; Baker 1992), and limit mutual monitoring of other partners (Huddart and Liang 2005). However, Liu and Simunic (2005) show that different audit firms can set different compensation contracts to specialize in

different types of clients to incentivize partner cooperation when appropriate (i.e., for complex clients). Hence, differences in compensation plans across firms may reflect differences in their client base such that an appropriate level of audit quality is obtained. Knechel, Niemi and Zerni (2013) and Bik, Bouwens, Knechel and Zou (2020) show that the compensation models for auditors vary across firms. In addition, audit firms are aware of the potential detrimental effect of fee-based incentives and have quality control systems in place to monitor partner behavior and audit quality across engagements. Further, fee-based compensation might increase audit quality since an audit failure at the individual partner level could cause significant loss of reputation, status, or clients (Weber et al. 2008, Skinner and Srinivasan 2012) or termination from the firm (Knechel et al. 2013; Bik et al. 2020).

Second, we expect an association between a partner's observable net wealth (measured by the net equity in his or her legal entity) and audit quality. One potential threat to an auditor's net wealth would normally be litigation risk (Lennox and Li 2012); however, Belgium is a low litigation setting. Nevertheless, the financial position of a partner is likely to have an impact on his/her incentives. If a partner has little equity in the entity because the entity possesses few assets (and little debt), usually because the partner is relatively new to the firm, the partner may have incentives to grow the entity by increasing compensation from the audit firm that then flows to the legal entity.[2] As a result, an auditor may be more accommodating to clients if the auditor receives fee-based compensation. However, the entity might have sizable assets but still have low equity because of borrowed funds. Here the incentive effect is less clear.[3] The partner may allow clients to be aggressive in order to maximize compensation so as to cover the entity's debt service; or,

[2] As explained in more detail below, the legal entity, at a minimum, will have a financial asset that represents the partner's buy-in investment in the audit firm.
[3] As discussed below, auditors have an incentive to place their personal debt in the legal entity along with many of their personal assets that secure the debt.

they may be conservative in order to avoid a career shock that could jeopardize *future* earnings if they were to be censured by regulators or terminated by the firm because of low quality.

We use a unique sample of 368 partner-year observations from the legal entities of audit partners in Belgium for the years 2007 to 2012. We link the partner information to client financial data, resulting in 12,504 client-year observations for the analysis of audit quality, mostly in private companies. We estimate the extent of fee-based compensation at both the audit *firm* and *partner* level using a modified version of the model developed by Knechel et al. (2013).[4] We then test for differences in partner and client characteristics based on partner fee-based incentives. Finally, we test the association of different audit quality proxies with the implicit fee-based compensation derived from this model, as well as the partner's equity held in the legal entity. We proxy for audit quality using three earnings management measures from previous studies of private companies.

Our main results indicate that audit firms differ in the extent of fee-based incentives used to compensate individual audit partners. This is in line with prior literature. However, we also find that the extent of fee-based compensation varies among *individual partners of the same firm*. Within audit firms where compensation is not associated with audit fees at the firm level, we find that some partners receive fee-based incentives, while the opposite is also true, i.e., firms that exhibit an association between compensation and fees can have partners who do not receive fee-based incentives. After controlling for differences between audit firms, we find that partners with higher fee-based incentives are earlier in their career, less likely to have executive positions, receive lower overall compensation, are male, and work in Brussels. Furthermore, we find that auditors that have larger fee-based incentives are also likely to audit larger clients. Finally, we find

[4] Note, Knechel et al. (2013) conduct their tests at the firm level which assumes that all partners are essentially treated the same within a firm. Our analysis assumes that audit partners are compensated on different dimensions within a firm, i.e., some have high fee-based incentives while others may not, depending on their role within the firm. As is discussed below, we also conduct a firm level analysis for comparison purposes.

that fee-based incentives in compensation are negatively associated with audit quality, while partner observable net wealth in the legal entity (i.e., the entity's equity) is positively associated with audit quality. Further analysis reveals that the latter result is driven mainly by the level of liabilities in the legal entity of a partner, which suggests that the steady stream of income required for debt service may lead the audit partner to make more aggressive audit judgments that may undermine audit quality. These findings are robust to alternative model specifications (e.g., entropy balancing). The addition of partner-level control variables does not change the overall results, but the statistical significance weakens in some cases due to loss of statistical power.

We make numerous contributions to the literature: First, we show that fee-based compensation incentives vary among partners within the same audit firm. Hence, failure to consider within-firm heterogeneity in fee-based incentives may over- or under-estimate quality effects for individual partners, i.e., economic incentives are not equal across auditors in a firm. Second, we obtain results that are consistent with the argument in Liu and Simunic (2005) that different compensation schemes in a firm are associated with different types of clients, i.e., partner-firm-client groupings may be endogenous. Third, we respond to calls for research on partner incentives (Bedard et al. 2008, Francis 2011) by providing evidence that audit quality is lower when audit partners have a compensation structure that implicitly links partner compensation to client audit fees. Fourth, we also examine the incentives resulting from a partner's personal financial situation and find that the observable net wealth of a partner is positively related to audit quality and that low quality is more likely when the partner carries extensive debt.

Finally, these results suggest that regulations and firm policies may not always have the intended effect on auditor decision-making due to idiosyncratic partner incentives. Our conclusion is *not* that fee-based incentives should be removed from compensation contracts, mainly because

we cannot observe the benefits of such arrangements, but when such incentives exist, a firm (and by implication regulators and inspectors) should be aware of the potential for a negative impact on audit quality and adjust their approach to quality control to reflect this possibility. Given that observable net wealth can also influence audit quality, such information might be relevant to the audit firm (and regulators) when trying to monitor the quality of individual audit partners.[5] Much as a partner is required to disclose any potential independence problems to the firm, understanding their idiosyncratic financial situation may assist the firm with its quality control process. Overall, our results make it clear that individual partner incentives can influence audit quality.

The remainder of the paper is as follows. Section 2 provides some background on the Belgian setting. In section 3, we develop our hypotheses while Section 4 presents the research design. Section 5 discusses the sample selection procedure, while section 6 presents the results. The supplementary and sensitivity analyses are reported in Section 7. Section 8 concludes.

II. INSTITUTIONAL SETTING

The supply side of the audit market in Belgium is regulated by the government. Only members of the *'Instituut van de Bedrijfsrevisoren (IBR)'* may offer statutory audit services. Belgium requires statutory audits for public companies and limited liability private companies meeting certain size criteria.[6] Since these size criteria are low, the financial statements of most private firms contain an audit report which discloses the name of the audit partner in charge. This feature means we can identify almost all of the clients audited by an individual partner. Since there are only a few listed firms in Belgium, the portfolio of the average audit partner contains many small private firms (Hardies, Breesch and Branson 2013; Vandenhaute, Hardies and Breesch

[5] Our results do not necessarily support making such information publicly available; however, such disclosures may be a reasonable requirement given the tax and risk benefits obtained by an auditor who sets up a legal entity.
[6] The criteria are (1) at least 100 employees (on average) or (2) if they exceed more than one of the following criteria: (2a) total assets of 3.65 million Euro, (2b) sales of 7.3 million Euro or (2c) 50 employees.

2020). This setting is similar to other countries with statutory audit requirements for private companies. Lennox and Li (2012), for example, find that public company audits account for less than 1% of all audits performed in the U.K.

For this study, we leverage a unique institutional feature of the Belgian audit market: An audit partner can create a management company that is separate from the audit firm and the individual auditor, hereafter, a legal entity. In such arrangements, the audit partner is not considered to be a direct owner or employee of the audit firm; rather, the legal entity is an independent company with the partner as the only shareholder that enters into a contractual relationship with the audit firm. The legal entity "charges" the audit firm for the services rendered by the partner. Expenses related to the activity of the partner flow through the legal entity.[7] A partner's profit allocation from the audit firm is paid to the legal entity. The legal entity can then retain the earnings, increasing the net equity of the entity, or pay dividends to the controlling partner. The partner obtains significant tax benefits from this structure.[8] The entity's balance sheet shows the assets owned by the legal entity, including the entity's investment in the audit firm attributable to the individual auditor, tangible assets (e.g., cars, office building, home), and current assets (e.g., cash and receivables). The legal entity can take out loans, often secured by individual assets within the entity (i.e., mortgage). Since these entities have limited liability, they are required to publish their financial statements.

It is important to note that Belgian law assigns full responsibility for the quality of the audit to the partner in charge of an engagement (as a natural person) and to the legal entity. Any litigation

[7] Since audit staff are employees of the audit firm, their costs are recognized in the income statement of the *audit firm*, not the partner legal entity.

[8] While Belgian legal entities are established under Belgian law, similar tax-privileged structures exist in many countries, e.g., subchapter S corporations in the US or off-shore trust companies in countries such as New Zealand and Australia. There are a number of tax benefits of establishing a legal entity: (1) reduction in the income tax rate applied to the partner's earnings from the personal rate of 50% to the corporate rate of 33.99%, (2) deductibility of depreciation of property or other assets owned by the entity (e.g., the auditor's house and cars), and (3) significant reduction in social security contributions by the partner. All expenses related to the activity of the audit partner flow through the legal entity and are deductible against the earnings of the entity. At the end of his or her professional career, the legal entity can be liquidated by the partner (Van Boven, Buysse, Volckaerts and Debrucykere 2015).

risk associated with the audit firm stops at the boundaries of the legal entity, i.e., the assets in a legal entity are vulnerable but an auditor's personal assets outside the legal entity are not. One exception to this general rule is when the auditor is *personally* responsible for an audit failure. In this case, liability is potentially unlimited and covers both the audit partners' assets in and out of the legal entity (Wyckaert 2012). Hence, establishment of a legal entity cannot protect an auditor from *personal* professional misconduct. The partner's personal wealth outside the legal entity is protected from litigation that might arise from an audit failure by another partner within the audit firm if the owner of the legal entity is not personally involved.

In spite of the low litigation risk in Belgium (Aerts 2002; Wingate 1997; Gaeremynck and Willekens 2003), audit partners are subject to potentially severe reputation risk as providing low audit quality can result in disciplinary action by the Disciplinary Committee of the Belgian Institute of Registered Auditors (IBR).[9] Being sanctioned by the disciplinary committee of the IBR can lead to loss of income, termination from the audit firm, or loss of license to practice. Any of these negative outcomes can undermine a partner's career prospects and future earnings potential, which also have the effect of weakening the financial status of the individual related to the legal entity. In the extreme, the reputation risk could lead to financial failure and loss of lifestyle for the individual auditor. If the auditor's legal entity fails, the audit partner risks losing control over a significant portion of his or her observable net wealth.

III. HYPOTHESES

Extent of Fee-based Compensation Incentives

[9] During our sample period, the IBR conducted peer reviews of audit engagements. The annual reports of the Belgian Institute of Registered Auditors over the period 2007-2011 report the following sanctions against auditors in Belgium over that time frame: (1) 10 auditors lost their license, (2) 39 auditors were subject to a suspension, (3) 9 auditors were prohibited from accepting or continuing certain assignments, (4) 17 auditors were reprimanded, and (5) 11 auditors received a warning. After 2016 disciplinary enforcement was reformed and became part of public oversight by the Financial Services and Markets Authority of Belgium.

Big 4 audit firms are organized as large profit-sharing partnerships, where the audit partner's income depends on the partner's own risk-taking behavior and performance, as well as that of the other partners (Burrows and Black 1998, Weber et al. 2008, Lennox and Li 2012, Skinner and Srinivasan 2012, Knechel et al. 2013). Setting the right incentives is challenging in a partnership as the partner is both a principal (as a residual owner of firm profits) and an agent (as a producer of effort and customer service). As a principal, the audit partner has an interest in maximizing the partnership's profits, reducing litigation or reputation costs, and properly incentivizing fellow partners and professional staff. As an agent, an audit partner has the incentive to minimize personal effort and to maximize his or her compensation within the existing remuneration policy without necessarily considering the potential adverse effect on other partners.

Given these dual roles, there are two extreme forms of profit sharing that can be used in a partnership: (1) collective equal sharing and (2) individual performance-based sharing. In the equal sharing scheme, an equal share of the partnership's profits are awarded to all partners (full equal sharing) or a readily identified subsets of partners (equal sharing within classes of partners), independent of partner performance (Bik et al., 2020). In a performance-based plan, compensation can be linked to *individual* performance and quality assessments, generation of fees, and client relationship management. There is a wide range of possible compensation schemes between these two extremes and most audit firms tend to use a mix of equal and performance-based profit-sharing (Burrows and Black 1998, Knechel et al. 2013, Bik et al. 2020; Ernstberger et al. 2020; Vandenhaute et al. 2020).[10]

[10] Results of Burrows and Black (1998) are based on telephone interviews with audit partners from the Melbourne offices of the Big 6. Knechel et al. (2013) estimates an empirical model based on tax data of Swedish Big 4 audit partners to identify implicit determinants of partner compensation. Bik et al. (2020) report the results of interviews with several firms in The Netherlands. Ernstberger et al. (2020) uses mandatory disclosures about compensation policies in Germany to analyze the extent of variable compensation. Vandenhaute et al. (2020) examines the determinants of partner compensation in Belgium grouped by size of audit firm (Big 4, second tier, small firms).

In this paper, we study one specific form of performance-based compensation: fee-based incentives, i.e., the extent to which an audit partner's generated audit fees affect the individual's compensation. In the model of Liu and Simunic (2005), compensation schemes and client portfolios are endogenous to a firm and partner behavior may depend on the alignment of the goals and incentives of the firm given the clientele.[11] An efficient audit of a complex company may require extensive cooperation across partners, but partners may be less willing to cooperate on audits if they perceive that they are not sufficiently compensated for their effort. As a result, a compensation scheme that puts a high emphasis on rewarding partners for the fees paid by their *own* clients may provide little incentive for audit partners to cooperate with each other on complex audits. Hence, a firm with relatively complex clients may be better off with an equal profit sharing amongst partners, while a firm with relatively simple audits may require less partner cooperation and the compensation scheme can increase the rewards for servicing a partner's own clients (i.e., fee-based compensation).[12] However, to date, there is no empirical evidence as to why audit firms choose a specific compensation scheme (Burrows and Black 1998; Ernstberger et al. 2020).

While incentives are likely to differ under fee-based and equal-sharing compensation regimes, it is less obvious whether audit quality is differentially affected. There is a general belief among many scholars and regulators that a fee-based compensation scheme can increase the risk of low-quality audits. First, if there is a direct link between a partner's compensation and their realized fees, the bargaining position of the client may be stronger in negotiating difficult matters

[11] Liu and Simunic (2005) present a linear contracting framework. They assume that an efficient audit requires some degree of cooperation between partners, that different types of clients require different types of partner cooperation, and that client type cannot be contracted upon. An efficient audit is an engagement that maximizes the audit's value (i.e., pareto efficient). Value is measured by the sum of the shareholders' surplus of purchasing the audit and the audit firm's profit from producing the audit. In this model, specializing does not imply that the partners/firm provide superior quality for the clients but that their effort is an optimal fit to the needs of the client.

[12] For our sample, univariate results comparing client characteristics of audit firms with and without fee-based compensation seems to confirm this proposition. As discussed in detail below, the clients of firms with fee-based compensation are larger, more profitable, have a higher sales turnover and a larger growth in operational revenues.

with the partner, who may then be more inclined to agree with management in a dispute (DeAngelo 1981). Second, time and effort conflicts may arise under fee-based compensation (Holmstrom and Milgrom 1991; Baker 1992). Audit partners may devote too much effort to attracting clients at the expense of conducting high-quality audits within the existing portfolio. Activities for which an individual can directly observe a compensation effect (i.e., attracting new clients) may take precedence over activities that have an indirect or hard-to-observe link to compensation (i.e., ensuring a high-quality audit or cooperating with other partners). Finally, fee-based compensation may decrease incentives for mutual monitoring as partner compensation becomes less dependent on the fees of other partners (Huddart and Liang 2005).

There are also counterarguments that suggest that fee-based compensation may not have a negative impact on audit quality. First, based on Liu and Simunic (2005), endogenous differences in firm compensation schemes may provide incentives such that different fee-based compensation contracts may have a minimal effect on audit quality. Second, even if incentives are not properly aligned, most audit firms have other safeguards and quality control processes in place to monitor partner behavior and ensure audit quality.[13] Third, fee-based compensation may not negatively influence audit quality if an audit failure can have an adverse effect on a partner's career due to reputation loss, a loss of clients/potential future revenue, or a loss of income (Weber et al. 2008, Skinner and Srinivasan 2012). This is consistent with research that shows that audit partners with subpar performance are more likely to leave the profession (Bik et al. 2020).[14] Given these counter

[13] Quality control systems are required under international standards (International Standard on quality control 1 ISQC 1; ISA 220)

[14] There are very few examples of high-profile audit failures in Belgium. Aerts (2002) notes that only eight legal cases have been brought against auditors in Belgium since 1831. The best known was the technology firm Lernout and Hauspie (LH) which fraudulently manipulated its revenue by licensing software to related parties. The audit partner was convicted of non-intentional professional mistakes and assessed a fine of €2,500. However, the auditor also left the profession, suggesting that are reputation risks associated with audit failures. Prior to 2016, the IBR had the authority to discipline auditors with (a) a warning, (b) a reprimand, (c) the prohibition to accept or continue certain assignments, (d) suspension for a maximum of one year; or (e) revocation of their professional license.

arguments, we express our first hypothesis in the alternative (non-directional) form as follows:

> ***Partner Compensation Hypothesis (H1)****: The extent of fee-based compensation is associated with audit quality.*

Partner Observable Net Wealth

As previously discussed, most audit partners in Belgium operate through legal entities which are obliged to publish financial statements. The legal entity may be financed by a partner's personal assets or debt from third parties. In general, the partner is the sole residual equity holder of the legal entity. The partner invests in his or her own career by making a capital contribution to the audit firm partnership through his/her legal entity which is then held as a financial asset in the partner's legal entity.[15] In general, a partner can build up a sizable net equity in the legal entity which is visible to outside parties because of the disclosure requirements that accompany the tax benefits of the entity structure. A major source of equity in the entity is retention of the partner's earnings (i.e., profit distributions) from the audit firm. In many cases, the legal entity also takes out debt from third parties. Some of this debt may be secured by personal or other assets held in the entity (e.g., a personal residence and related mortgage). Although a partner can also hold assets outside the entity, given the obvious tax incentives, the assets of the entity are likely to be a significant proportion of a partner's total assets. We posit that the amount of net equity (i.e., total assets minus debt) held in the legal entity may affect the quality of the partner's audit work.

The net equity of the legal entity (i.e., the partner's observable net wealth), serves as an implicit bond on the auditor's behavior (Dye 1993, Lennox and Li 2012).[16] More importantly, there are other arguments for predicting a positive link between observable net wealth and audit

[15] Note that the partner's capital contribution to the audit firm, which is a financial asset in the legal entity's balance sheet, may be financed by either equity or debt obtained by the legal entity.
[16] Further, since the equity in the legal entity is observable by other parties, it also serves as an implicit source for a capital call if the audit firm itself requires financial resources for reasons other than litigation.

quality which arise because of the funds borrowed by the legal entity and the potential co-mingling of personal assets and debt within the legal entity. One possibility is that the entity has only limited assets at a point in time and the partner may have a relatively high utility for future earnings with which to "grow" the entity. This might be done by increasing its revenue stream through his or her compensation from the audit firm by increasing the audit firm's total profit pool (in an equal profit-sharing arrangement) or the partner's total generated audit fees (in a fee-based compensation arrangement). This could result in a partner being more accommodating to clients and undertaking riskier (i.e., low quality) audit decisions to maximize the firm's revenue, the partner's compensation, and the legal entity's growth.

Another possibility is that a partner has a sizable asset position in the entity, but the observable net wealth may be low because of a sizable amount of third-party debt held by the entity. For example, this could be because the auditor finances the initial capital investment in the audit firm (which is a financial asset in the legal entity) through debt in the legal entity, or if the legal entity holds mortgage debt that is secured by a personal residence. This situation creates potentially mixed incentives. Since debt and interest payments require a steady stream of income, the audit partner may have incentives to focus on the generation of fees to maintain his or her current and future earnings in order to cover the debt service. Furthermore, the holders of an entity's debt may also require a personal guarantee for payment that would be covered with assets held outside the entity. The lower the net equity of the entity, the more likely it is that creditors will try to recover from the personal assets of the auditor in the event of default.[17] Consequently,

[17] The auditor who owns the entity and its creditors may have asymmetric risk tolerance. Debt repayments and interest expenses are fixed and do not vary based on the performance of the legal entity, which primarily depends on the auditor's compensation from the audit firm. As a result, the audit partner in theory can realize increased upside gain by focusing on growing realized audit fees which lead to greater compensation, taking on more client risk. Since liability rules limit the downside risk of the auditor, he or she may have an incentive to maximize future earnings from the audit firm by making aggressive audit judgments.

an audit partner may be motivated to boost compensation to cover debt service, causing the individual to make more *aggressive* audit judgments that threaten audit quality.

On the other hand, the auditor also faces the risk that low audit quality could draw the attention of the audit firm, or even regulators, which could have a serious impact on the auditor's reputation and future earnings potential. If low quality were to lead to sanctions or cause the audit firm to demote or terminate the individual (Bik et al. 2020), a loss of reputation by the auditor could change his or her expected career path and future earnings potential. With a loss of future compensation, the auditor might not be able to cover future debt service. Although the partner may have limited liability related to the entity, the loss of the net equity of the entity could still be significant. If the entity contains the auditor's personal assets, his or her lifestyle could also be severely affected by the bankruptcy of the entity, possibly compounded by a personal guarantee of the debt. In this case, low equity in the entity that is due to high debt may make an auditor be more *conservative* in their audit judgments to avoid default or bankruptcy. The conflicting possibilities lead us to state our second hypothesis in the alternative (non-directional) form:

> ***Partner Observable Net Wealth Hypothesis (H2)****: The partner's observable net wealth (net equity) within the legal entity is associated with audit quality.*

IV. RESEARCH DESIGN

Model Specification

Building on previous studies on audit quality (Kwon, Lim, and Tan 2007; Francis, Michas, and Seavey 2013), we use the following model for our analysis:

$$AQ_{it} = \alpha_0 + \alpha_1 * FBC_x + \alpha_2 * ONWEALTH_{xt} + controls + \varepsilon_{it} \quad (1)$$

This model estimates the audit quality (AQ)[18] of client i in period t as a function of the implicit

[18] Note that subscripts on variables are suppressed in the text unless needed for clarity.

fee-based compensation (*FBC*) and relative wealth (*ONWEALTH*) of partner x in period t. As discussed below, *FBC* is calculated in two ways (*FBC1*, *FBC2*). This model uses ordinary least squares (OLS) with industry, year, and audit firm fixed effects and clustering of error terms by client firm to control for heteroscedasticity. The audit firm fixed effects allow us to rule out that results are driven by unobservable audit firm characteristics (such as audit firm culture or quality control systems). Given the hypotheses, we expect significant coefficients for α_1 and α_2.

Measurement of Audit Quality (AQ_{it})

Consistent with prior research, we use the overall financial reporting quality of the audit client to infer audit quality (Knechel, Krishnan, Pevzner, Shefchik, and Velury 2012). Since the majority of the audit clients in our sample are privately held companies, we use three earnings management measures that have been used in studies of private sector audits (Burgstahler, Hail, and Leuz 2006, Hope, Thomas, and Vyas 2013): (1) performance-adjusted abnormal accruals, |*DA*| (Kothari, Leone, and Wasley 2005, Hope et al. 2013); (2) discretionary revenues, |*DISCREV*| (McNichols and Stubben 2008, Stubben 2010, Hope et al. 2013), and (3) abnormal working capital accruals, |*AWCA*| (Defond and Park 2001). See the Appendix for details.

Extent of Fee Based Compensation (FBC1* and *FBC2)

To test the first hypothesis, we first estimate the implicit fee-based compensation (*FBC1* and *FBC2*) for each partner. For comparison purposes, we first estimate a model to determine an audit firm measure of fee-based compensation (Burrows and Black 1998, Liu and Simunic 2005, Knechel et al. 2013). We then estimate the partner measures. For each of the Big 4 audit firms, we develop a compensation model based on Knechel et al. (2013) with three modifications. First, we use the natural logarithm of audit fees instead of the natural logarithm of total assets. Second, we omit risk forecasts issued by external credit agencies, payment remarks, and some information

about audit clients that we lack.[19] Finally, we omit the number of clients due to the high correlation with the partner's audit fees.

Our general compensation model takes the following form where the dependent variable *LN_COMPE* is regressed on *LN_TOTAL_FEE_PX.*[20] *LN_COMPE* is measured as the natural logarithm of the audit partner's compensation, proxied by the gross sales margin as reported in the annual account of the audit partner's legal entity. The construction of *LN_TOTAL_FEE_PX* is partner-specific and equals the natural logarithm of the sum of all audit fees generated by partner x in period t. We drop audit partners with less than four years of compensation data and estimate the following model:

$$LN\_COMPE_{xt} = \alpha_0 + \sum_{x=1}^{n} \alpha_{1x} * LN\_TOTAL\_FEE\_PX_{xt} + controls + year\ fixed\ effects + \varepsilon \quad (2)$$

The coefficient α_{1x} reflects the extent of fee-based compensation (incentives) for audit partner x within a given Big 4 firm. We define *FBC1* as the coefficient of α_{1x} if this coefficient is significantly greater than zero, otherwise *FBC1* equals zero. Second, we define *FBC2* as the coefficient of α_{1x} regardless of whether it is statistically significant.

We add control variables for partner and client characteristics: experience (*CAREER*), whether the partner's office is located in Brussels (*BIG_MARKET)*, whether the partner is specialized in an economically significant industry (*INDSPEC*), the number of publicly listed clients the partner audits (*PUBSPEC*), gender (*FEMALE*), whether the partner has a firm leadership position (TOP), and the within-partner variance in audit fees (*STD_AUDIT_FEE*).[21]

[19] While these variables were included in the original Knechel et al. (2013) model, they were generally not significant in the estimation of implicit compensation.
[20] The reported number for *COMPE* pertains to the time period of the entity's fiscal year (i.e., 12 months). We require that the fiscal year-end of the client be before the fiscal-year end of the partner for its fees to be counted in the total of a partner's generated audit fees (*LN_TOTAL_FEE*). The total fee measure (*LN_TOTAL_FEE*) consists only of audit fees. We do not include non-audit fees as partners are unlikely to perform such services themselves given the structure of Big 4 audit firms in Belgium.
[21] Knechel et al. (2013) elaborate on the specific reasons to include these variables in the compensation model.

The latter variable measures whether within-partner variation in fees paid by clients affects compensation. Based on Knechel et al. (2013), we expect positive coefficients for *CAREER, TOP, PUBSPEC, INDPEC* and *BIG_MARKET* and a negative coefficient for *FEMALE.*[22] We do not predict an expected sign for *STD_AUDIT_FEE* consistent with Knechel et al. (2013).

Partner Observable Net Wealth

To test the second hypothesis, we define *ONWEALTH* as the partner's observable net wealth which equals the equity of a partner's legal entity divided by the total assets of the partner's legal entity. This represents the net wealth the partner has at stake within the legal entity. The assets of the legal entity include the amount of capital invested by the partner in the legal entity plus any retained earnings not yet distributed as dividends to the partner. Note that the variable *ONWEALTH* only reflects the net wealth within the legal entity (i.e., observable) and not on the partner's personal wealth held outside the legal entity (i.e., not observable).

Control Variables for the Audit Quality Analysis

We add the following client control variables (Dutillieux 2009; Reichelt and Wang 2010): size (*LN_ASSETS*), leverage (*FIRMLEV)*, cash flow of operations scaled by total assets (*CFO*), return on assets (*ROA*), ratio of sales over total assets (*SALES_TURN*), a dummy variable for loss firms (*LOSS*), a proxy for growth opportunities (*OR_GROWTH)* (Ball and Shivakumar 2005), prior year accruals (*ACCRUALS*) and *LAGTAX,* a dummy variable to proxy for tax driven earnings management (Vander Bauwhede and Willekens 2004; Dutillieux 2009). Based on prior literature

CAREER is included because end of career concerns alter the incentives of audit partners, *BIG_MARKET* because of wages and cost of living is typically higher in a capital city, *INDSPEC* and *PUBSPEC* because of the partner's expertise and knowledge may affect his compensation, *TOP* because compensation may vary depending on the position of the partner, *FEMALE* because of a possible gender gap in wages, and *STD_AUDIT_FEE* to test whether partners with a more heterogeneous portfolio of clients have different compensation than other partners.

[22] Note that we use the total fees that an audit partner generates rather than the total assets audited. This may change the association of some of the other variables with compensation when compared to the results in Knechel et al. (2013).

we expect a negative sign for *LN_ASSETS, CFO*, *LOSS* and a positive sign for *FIRMLEV, OR_GROWTH, ACCRUALS*. We make no prediction for *LAGTAX*. Table 1 provides more details about the measurement of each of the control variables.

[Insert Table 1 about here]

V. DATA

Table 2 Panel A shows our sample selection for the partner compensation model. We start with a publicly available list of members of the Institute of CPAs in Belgium (*Instituut van de Bedrijfsrevisoren)*.[23] From the list, we identify 143 partners of Big 4 accounting firms. Of these, 33 partners do not organize their activities in the form of a legal entity, resulting in 110 audit partners in our sample for which we gather the financial statements of their legal entities over the period 2007-2012 using the Belfirst database.[24] This yields 502 partner-year observations. We eliminate 100 partner-year observations where there are no observable audit clients. We remove 34 partner-years for partners who do not have at least four years of compensation data. The final sample used to estimate *FBC1* and *FBC2* consists of 368 observations. We merge the partner information with financial information from each audit partner's clients. This results in an initial sample of 21,440 client-year observations (panel B). We remove 3,470 financial industry audits since their financial reporting is substantially different from other industries. We lose 1,060 clients where no audit fees are reported. Furthermore, we eliminate 3,993 observations because we lack data to calculate abnormal discretionary accruals, while 413 observations have missing data for some control variables. The final sample for Model 1 is 12,504 observations.[25]

[23] http://www.ibr-ire.be/nl/register_lijsten/belgie/Pages/Kantoren.aspx, retrieved on 5th November, 2012

[24] A partner has an incentive to set up a legal entity for tax reasons as noted above. The 33 partners who do not have a legal entity are not equally spread over the different audit firms: Firm A has 1, Firm B has 0, Firm C has 23, and Firm D has 9. The potential problem of selection bias is covered in the sensitivity analysis.

[25] Our data suggests that the average partner has about 58 audit clients per year, which is consistent with prior studies in Belgium and Sweden. The mean number of clients per partner in prior studies is 45.5 (Vandenhaute et al. 2020); 67.03 (Hardies et al. 2013); 59.14 (Sundgren and Svanström 2014; for Big 4 partners) and 57.65 (Zerni

[Insert Table 2 about here]

VI. RESULTS

Partner Compensation Model

Panel A of Table 3 presents summary statistics for the partner sample used to estimate the compensation model (N = 402). Partner compensation before taking the natural log ranges from €8,218 to €1,671,322 with a median (mean) of €306,810 (€366,611), while the total fees generated by the audit partner varies between €4,946 and €3,809,971. The median ratio of compensation over total audit fees is 0.373. For some audit partners, this ratio exceeds one, implying that their compensation is larger than the fees they generate.[26] The median experience of a partner is 16.5 years. About 60.7% of partners work in the capital, while 65% are specialized in at least one economically important industry. Panel B of Table 3 presents the correlation table for the variables used in the compensation model. The positive and significant correlation between partner compensation (*LN_COMPE)* and audit fees (*LN_TOTAL_FEE)* (0.3035) provides initial evidence of the presence of fee-based incentives in our sample. Partner compensation is positively correlated with partner career (0.4600), the number of listed companies that are audited (0.1780), partner industry specialization (0.1580), and the heterogeneity of fees for audit partners (0.2065).

Panel C of Table 3 present the regression results for the compensation model for each Big 4 firm (Model 2). The adjusted R^2 for the models ranges from 34.8% to 58.6%. Results indicate that the average extent of fee-based compensation differs across audit firms. The coefficient of *LN_TOTAL_FEE* is significant for Firm B (0.183, p=0.016) and Firm C (0.333, p=0.001), while

2012). It is difficult to compare the number of clients per partner with most other settings, including the U.S., since partner data in those settings are typically only available for public firm audits.

[26] Untabulated results show that partners having a ratio of compensation over fee exceeding one have generally lower audit fees (median fee of € 135,768 versus € 1,070,487 for partner with a compe/fee ratio below one), and perform relatively more management tasks within the firm (*TOP*: 0.188 vs 0.0567).

the coefficients for Firm A (0.145, p=0.134) and Firm D (0.369, p=0.190) are not significant, albeit positive in both cases. This shows that, on average, a 1% increase in generated audit fees increases partner compensation by about 0.183 percent in firm B and 0.333 percent in firm C.

Further, there are other differences in the compensation arrangements across firms. We find a positive association of *CAREER* with compensation in three firms, a positive association of *TOP* in one of the firms (we have no executives in our sample for two firms), and gender is negatively associated with compensation in Firm A (one firm has no female partner in our sample). Working in Brussels has a positive association with compensation in Firm D only. Finally, a high variance in the client portfolio of auditors in Firm B explains some of the differences in partner compensation (*STD_AUDIT_FEE*, 6.099, p=0.027). These results suggest that partners of Firms B and C are compensated to some extent based on their individually generated audit fees while we are unable to document the same effect for Firms A and D.

Table 3, Panel D presents the results of the estimation of the partner-specific fee-based compensation model (Model 3). Note that the explanatory power of the models increases dramatically over the firm level models, with the adjusted R^2 ranging increasing to a range of 67.1% and 89.0% despite a decline in the degrees of freedom. We find that there are differences in the implicit fee-based incentives across individual partners within the same audit firm. For firm A, where compensation is not associated with audit fees at the firm level, we find that 26% of individual partners have a significantly positive association between compensation and audit fees (α_{1x}).[27] Firm D, which also does not manifest a firm-level fee incentive, has no partners that exhibit

[27] There are two partners in Firm A who have a negative coefficient for *LN_TOTAL_FEE* (P5, P14). These partners have an average *CAREER* of 23.64 years which is well above the 75th percentile in the sample. We find that these partners have years in which their audit fees decrease while their compensation remains stable or increases slightly. The position of these individuals in the firm may be based mostly on seniority. The ability to raise compensation for good performance may not be symmetrical with the ability to reduce compensation when productivity begins to decline for senior partners (or when senior partners take on other roles within the firm, i.e., *TOP*).

a significant relationship with audit fees, i.e., the small sample for Firm D suggests it is closer to "pure" equal sharing. For audit firms in which compensation is positively associated with partner fees, we find that 34.6% of partners in Firm B do *not* have a significant positive coefficient for *LN_TOTAL_FEE*, while 66.7% are *not* significant in Firm C. Based on the results of Panel D we construct two variables for our subsequent analysis: (1) *FBC1* which equals the α_{1x} coefficient if the partner-level coefficient is statistically positive, zero otherwise, and (2) *FBC2* which equals the partner-level coefficient regardless of its significance.[28]

[Insert Table 3 about here]

Influence of fee-based compensation partner and client attributes

We next consider differences in the attributes of individual partners and their clients based on the extent of their fee-based incentives. To evaluate whether the results are driven by differences between audit firms, we de-mean each variable per audit firm and examine within-audit firm differences. Table 4, Panel A reports the results of the t-test that examines differences in *partner* characteristics between partners for which *FBC1* equals zero and partners for which *FBC1* does not equal zero. The results show that partner characteristics vary with the extent of fee-based compensation, i.e., there may be clustering of certain types of auditors conditional on the nature of compensation. We find that partners with fee-based compensation are younger, have lower compensation, are less likely to be female or have an executive function, are more likely to work in Brussels, and have more variation of audit fees within their portfolio.[29]

Table 4, Panel B shows the differences in *client* characteristics based on fee-based compensation to test whether different compensation schemes are associated with differences in

[28] In sensitivity analysis, we report the results using a dummy variable for *FBC1* instead of a continuous variable and truncate negative values of *FBC2* at zero. Results remain qualitatively the same.
[29] We also calculated Pearson correlations between *FBC1*, *FBC2* and the continuous control variables. The inferences are the same.

types of clients audited by a firm. We find that *partners* with fee-based compensation have clients that are larger, less leveraged, and have a lower ratio of sales to total assets. This is consistent with the expectation that partners for which compensation is more dependent on the audit fees are more likely to target larger clients which pay higher fees. While this result may appear to contradict the arguments of Liu and Simunic (2005), two points should be highlighted: First, our setting consists of primarily unlisted firms (98%) which are less complex, in general, and are likely to require less partner cooperation than publicly-listed clients. Second, our results apply to individual partners, not the firm. Table 6 shows a negative correlation between client size and *FBC1* (not significant) and *FBC2* (significant) when client size is not de-meaned at the audit firm level. At the firm level, untabulated t-tests show that audit firms which have fee-based compensation schemes (Firms B and C) have smaller clients, which is in line with Liu and Simunic (2005).

[Insert Table 4 about here]

Audit Quality Model

Descriptive Results

We run Model 1 for the full sample of 12,504 firm year observations (reported in Table 7). The descriptive statistics for these models are presented in Table 5 and the correlation table in Table 6. All continuous variables are winsorized at 1%. Table 5 shows that in the full sample, absolute discretionary accruals range from 0.001 to 0.087 with a mean (median) of 0.145 (0.088), discretionary revenues vary between 0.001 and 0.616 with a mean (median) of 0.84 (0.042), and abnormal working capital accruals range from 0.001 to 1.000 with a mean (median) of 0.16 (0.087). There is substantial variation for *ONWEALTH,* from a minimum of 1.8% to a maximum of 99.8%, and an average of 41.9%. We also observe substantial variation in the size of clients across audit partners. The median client has total assets of €100,181,000 while the total assets of

the smallest client is only €183,700. About 25% of all clients report a loss and the average debt level is 45.9%. About 72.9% of all clients paid corporate taxes in the prior year.

Table 6 presents the correlation matrix of the variables used in the audit quality model. The correlations hint at a relationship between some of the proxies used to measure audit quality, the extent of fee-based compensation, and partner wealth. Partner fee-based compensation is positively and significantly associated with the two accrual proxies (*FBC1*: 0.0255 and 0.0415; *FBC2*: 0.0193 and 0.0334) but not with the discretionary revenue measure. We observe that partner net equity is not significantly associated with the accrual proxies but significantly and negatively correlated with the discretionary revenue measure (-0.0271).

[Insert Tables 5 and 6 about here]

Tests of Hypotheses

Table 7, Panels A (*FBC1*) and B (*FBC2*), present the regression results. The signs of the control variables are generally in line with expectations. Panel A shows that *FBC1* is positive and significantly associated with both accrual-based proxies of audit quality *(|DA|:* 0.015; p=0.003; |*AWCA*|: 0.028, p=0.000). However, *FBC1* is not associated with the discretionary revenues (0.004; p=0.318). Table 7, Panel B shows that *FBC2* is significant and positive for all measures of audit quality (|*DA*|*:* 0.011; p=0.019; |DA|: 0.006, p=0.051; |*AWCA*|: 0.019, p=0.003). Overall, these results suggest that audit partners with higher fee-based incentives are associated with clients with higher accruals, i.e., the quality of an audit partner's decisions is negatively influenced by their fee-based compensation.

As previously noted, a large portion of clients in our sample are small and privately owned. Such firms might have a lower demand for high quality financial reporting (Hope and Langli 2010; Ball and Shivakumar 2005) which could allow an audit partner to be susceptible to inappropriate

incentives in the firm's compensation scheme.[30] It is unclear how an individual, fee-based incentive would extend to other settings where the incentives for high audit quality might be stronger. However, the companies in our sample voluntarily selected a Big 4 (i.e., high quality) auditor so it seems they are somewhat sensitive to the quality of their auditor. If that is the case, then the effect of individual fee-based incentives may be more important than previously realized despite audit firm and regulatory policies promoting high audit quality. While our results support the Partner Compensation Hypothesis (H1), we are unable to distinguish whether lower audit quality associated with fee-based incentives is driven by decreased independence, time and effort management conflicts, or decreased mutual monitoring.

For the Partner Observable Net Wealth Hypothesis (H2), the results show a strong negative association between a partner's observable net wealth (i.e., legal entity's equity) and two out of three quality proxies in both Panel A and Panel B of Table 7. More observable wealth in a legal entity is negatively associated with discretionary revenues (-0.013, p=0.003; -0.013, p=0.002) and abnormal working capital accruals (-0.020, p=0.011; -0.23, p=0.004) but not with total discretionary accruals, even though the sign is negative in both panels. This suggests that more observable net wealth in a legal entity is associated with higher audit quality, i.e., the incentives to "protect" the net equity through higher audit quality are stronger on average than the potential incentives to deliver lower audit quality to grow the entity's equity.

We use net equity as a proxy for observable "wealth" in our primary analysis because the underlying theory primarily builds on an auditor's wealth (Dye 1993).[31] We now examine the

[30] Our sample predominantly consists of private clients (>98%). As these clients may be substantially different from public clients, we rerun our analyses using the private client subsample only (12,356 firm-year observations). Our inferences remain unchanged. As the number of public clients is limited, we cannot run a separate analysis for the publicly listed companies. In addition, we rerun our analysis using a sample of partners with non-listed clients only (7,820 firm-year observations). The results are qualitatively similar to the main results.

[31] Dye (1993) bases his analysis on the wealth of the audit firm and not individual partners. In our analysis, we focus on audit partners and their wealth outside the firm. However, the arguments in Dye (1993) would likely still

components of wealth (assets, liabilities) and explicitly consider the level of debt in association with net equity. Specifically, we first replace the ratio value, *ONWEALTH,* with *LN_PTR_NETWEALTH*, the natural log of net equity. The results are reported in Panel C of Table 7, which indicates that the coefficient for *LN_PTR_ NETWEALTH* is not significant in any of our tests. We then decompose *LN_PTR_NETWEALTH* into its two components, *LN_PTR_ASSETS* and *LN_PTR_LIABILITIES*.[32] This analysis is reported in Panel D. We find that the coefficient for *LN_PTR_ASSETS* is not significant in any of the models but the coefficient for *LN_PTR_LIABILITIES* is significant and negative for |*DISCREV*| and |*AWCA*|. These results suggest that the significant effect for *ONWEALTH* is driven by the level of liabilities in the legal entity. That is, partner observable net wealth incentives are associated with audit quality due to pressure arising from significant debt. Hence, these results support the argument that the steady stream of income required for debt service may lead the an audit partner to make more aggressive judgments that undermine audit quality.

[Insert Tables 7 about here]

VII. SUPPLEMENTARY AND SENSITIVITY ANALYSES

Unobservable partner characteristics

Our results may be affected by endogeneity if audit partners can influence the nature of their compensation scheme, possibly through negotiations with the firm or because the auditor has a leadership position in the firm.[33] Anecdotal and limited research suggest that compensation policies are institutional and set by the firm. Bik et al. (2020) find that audit firms assign partners

apply because the biggest piece of partner wealth in our analysis is their investment in the firm itself which, collectively, comprises the wealth of the firm. Further, partners are potentially subject to a capital call from the firm which would transfer partner wealth to the audit firm.

[32] In order to assure the proper relative signs for the effect of assets and liabilities, the natural log of liabilities is multiplied by -1. That is, while more assets increase partner wealth, more liabilities have the opposite effect.

[33] Executive partners may have some power in determining their own compensation. Therefore, we reran all our analyses without auditors coded as *TOP*=1. Our inferences remain unchanged.

to different performance classes based on their competencies which determines their compensation. German audit firm transparency reports (Ernstberger et al. 2019) indicate that compensation policies are set at the audit firm level.[34] Transparency reports for the Belgian Big 4 firms are consistent with compensation policies being institutional. Thus, it is unlikely that audit partners can influence their compensation scheme. However, it is still possible that an auditor self-selects into a specific audit firm *because* of their compensation scheme. In this case, audit firm fixed effects would control for unobservable partner characteristics across audit firms. We cannot analyze partner fixed effects in our test of H1 because *FBC1* and *FBC2* are partner specific and time invariant. However, we can introduce partner fixed effects in a model that omits *FBC1/FBC2* but includes *ONWEALTH*, which is time variant and clearly influenced by the audit partner. The results (untabulated) show that *ONWEALTH* remains negatively associated with discretionary revenue and abnormal working capital accruals ($p < 0.05$). In addition, *ONWEALTH* is significantly negative in the discretionary accruals analysis (-0.019; p=0.073). As a result, our findings for H2 are less likely to be dependent on unobservable partner characteristics.

Entropy balancing and additional partner controls

Table 4 in Section VI shows that partner and client attributes vary based on the extent of fee-based compensation. To test whether our results are driven by differences in *client* characteristics, we use entropy balancing applied to client characteristics.[35] We split the clients into two groups based on whether *FBC1* is greater than zero or not. We then balance the sample based on the differences in client characteristics between these two groups (see also Table 4, panel B) and rerun our models (see Table 8).[36] Overall, the results are similar to the main analysis

[34] Note, if an audit partner receives higher fee-based compensation because of higher audit quality, as evaluated by their audit firm, this would bias against our findings.
[35] As an untabulated check, we also perform Propensity Score Matching and the results are qualitatively similar.
[36] We also performed entropy balancing based on the median value of *ONWEALTH*. The untabulated results

suggesting that our results are not driven by differences in the client portfolio of partners

To investigate whether results are driven by other observable *partner* characteristics, we add partner-level variables which are significantly associated with the extent of fee-based incentives in Table 4, Panel A to the entropy balanced analysis. Table 8, Panel B reports results that are generally consistent with our primary analysis. Specifically, *ONWEALTH* is significant and negative in five out of six accrual models supporting H2. With respect to H1, we find that *FBC1* is still significantly associated with abnormal working capital accruals but not significant for discretionary accruals. As a result, we are unable to completely rule out that the association between fee-based compensation and audit quality is at least partially driven by unobservable partner characteristics. However, the small sample size for this analysis has low statistical power, i.e., the analysis utilizes eight independent variables, but the sample only contains 67 partners.[37] Future research could investigate this issue using larger samples and more audit quality proxies.

[Insert Table 8 about here]

Small and Large Clients

Large clients may be able to influence partners who are fee-sensitive more than small clients, which could also influence the relationship between fee-based incentives and audit quality. We run two separate tests (untabulated) to examine this possibility. First, we interact *LN_ASSETS* with *FBC1* and *FBC2*. We find a significant positive association between *FBC1*LN_ASSETS* in the abnormal accruals model but not in the other models. We find no significant interactions when using *FBC2*. Second, we construct a measure indicating the relative importance of a client to an audit partner's client portfolio. *REL_IMP* is computed by dividing client's audit fees by the

continue to provide similar results as the main analyses.

[37] The results in Table 8 do not change if we use the same entropy balancing and partner controls in the models that include *LN_PTR_ONWEALTH* or *LN_PTR_ASSETS* and *LN_PTR_ LIABILITIES*.

partner's total audit fees. We interact this measure with *FBC1* and *FBC2*. We find that *REL_IMP* itself is not significant in any model. However, we find that *FBC1*REL_IMP* is significantly positive for absolute abnormal accruals while *FBC2*REL_IMP* is significantly positive for absolute discretionary accruals and discretionary revenues. This indicates that the extent of fee-based incentives may have a larger impact on audit quality for more important clients.

Alternative Measures of Fee-Based Compensation

We conduct several sensitivity tests (untabulated) related to the fee-based compensation model: First, we redefine *FBC1* to include partners that have a significant coefficient for α_{1x} that is less than zero (we previously defined those partners as *FBC1*=0). Our primary results are unchanged. Second, we drop the partners with a significant negative α_{1x} from the sample. Results do not change. Third, we replace *FBC2* with a dummy variable equal to 1 if the value of *FBC2* for an individual partner exceeds the median, i.e., indicating individuals likely to be most sensitive to fee-based incentives. This dummy is significant in all three audit quality models ($p<0.05$). Fourth, we construct a measure which equals the quartile rank of *FBC2*. This variable is significant in all three audit quality models ($p<0.01$).

In addition, we run two alternative compensation models to obtain an alternative value of α_{1x}. First, similar to Knechel et al. (2013) we run a pooled compensation determinants model. While this model makes the strong assumption that all the independent variables have the same effect on partner compensation across audit firms, our inferences still hold. Second, we replace our measure of absolute compensation (*LN_COMPE*) by a measure of relative compensation (*REL_COMPE*). This measure is constructed by dividing the partner's compensation by the compensation of all the partners in an audit firm in a given year. This measure reflects that the size of the profit pool may vary per firm per year. The results for *FBC1* are unaffected. However, *FBC2*

becomes insignificant in these tests. This is likely due to the large number of partners where α_{1x} is not significant. On balance, we interpret these results as indicating that our primary results are not overly sensitive to how we measure fee-based incentives.

VIII. CONCLUSION

Our study should be of interest to regulators, practitioners, and academics given the recent calls for more research on partner incentives (Bedard et al. 2008, Francis 2011) and increasing interest in establishing incentives for high quality audits (EC 2011; PCAOB 2012). We contribute to this debate by investigating the impact of (1) individual fee-based incentives within a firm and (2) a partner's observable net wealth external to the audit firm. For the former, we find that different partners can have different levels of fee-based compensation, even within the same firm. We also observe that the extent of fee-based incentives varies with partner and client characteristics. Importantly, we find that increased use of fee-based incentives is associated with lower audit quality. Since compensation is within the control of the audit firm, this knowledge can be used to develop compensation schemes to foster audit quality (Bik et al. 2020).

For a partner's observable net wealth (measured as equity in a partner's legal entity), we observe that more observable wealth is associated with higher audit quality, and that high levels of partner debt are associated with lower audit quality. Since wealth and debt are idiosyncratic to the partner, they are not likely to be controllable by the audit firm or regulators. However, knowledge that such wealth-based incentives exist and vary across partners can be considered in the quality control and monitoring system of the audit firm, and possibly during regulatory oversight of individual auditors. For example, the level of appropriate performance or surety bonding for partners,[38] an economic feature implicit in the buy-in to a partnership, can be evaluated

[38] A surety bond guarantees performance of a contract. It assures that an individual will behave in a desired manner or lose the bond to a party harmed by their inappropriate behavior. Bik et. al (2020) discuss how audit firms in the

within the context of an individual's wealth. It might be desirable to make this information available to audit committees in addition to regulators. Finally, knowledge of these economic incentives should be of interest to auditing researchers who wish to develop a richer understanding of how economic incentives may affect the audit quality of individual partners.

Our study is subject to some limitations. First, we do not have information about the actual profit-sharing agreements of the audit firms, so we estimate implicit fee-based compensation by firm and by partner. Hence, results may be subject to measurement error although various sensitivity analyses yield consistent results. Second, we only focus on the partner's wealth in their legal entity (i.e., those that are nominally at risk if an auditor delivers low audit quality) because we cannot observe a partner's personal assets outside their legal entity. The extent to which partners transfer wealth from their legal entity to their personal wealth (or even to others, such as a spouse), could be an interesting topic for future research. Third, the institutional environment has low litigation risk so these incentives may manifest differently in a high litigation risk environment. Fourth, our setting consists mostly of privately held firms. However, we expect that our results would be stronger in an environment where there are more publicly traded clients. The extent to which litigation and listing status affects the relationship between our test variables may be an interesting avenue for future research. Fifth, audit partners can choose not to form a legal entity so our results might be subject to some unobservable selection bias. However, partners have strong tax incentives to form such an entity and most partners in Belgium do so. Sixth, we cannot completely differentiate between the extent of a partner's fee-based compensation and unobservable partner characteristics. Despite these limitations, we believe that the results provide interesting insights into how economic incentives can impact audit quality.

Netherlands withhold part of a partner's compensation for up to seven years to be used in the case that low audit quality is revealed after the completion of the audit. This type of provision is often referred to as a "clawback".

APPENDIX

Proxies for Audit Quality

First, we consider the absolute value of performance-adjusted abnormal accruals, |DA| (Kothari et al. 2005, Hope et al. 2013), estimated at the industry level for all industries with at least 20 observations in a given year using the following model:

$$TA_{it} = \beta_0 * \left(\frac{1}{A_{it-1}}\right) + \beta_1 * \Delta REV_{it} + \beta_2 * PPE_{it} + \beta_3 * ROA_{it-1} + \varepsilon_{it}$$

where *TA* is the total accruals scaled by lagged total assets for an audit client i in year t, A_{t-1} is the lagged total assets for the audit client i in period t, ΔREV equals the change in revenues for firm i between period t and period t-1 scaled by lagged total assets, *PPE* equals the gross plant, property and equipment for the audit client *i* at the end of year t scaled by lagged total assets, and ROA_{t-1} is the return on assets for the audit client *i* at the end of year t-1 calculated as net income for year t-1 divided by total assets for year t-1. Finally, ε is the residual error term and the absolute value of ε is used to proxy for the performance adjusted discretionary accruals $|DA|$.

The second measure, $|DISCREV|$, measures discretionary revenues and the extent to which the change in accounts receivable cannot be explained by changes in revenues (McNichols and Stubben 2008, Stubben 2010, Hope et al. 2013). We estimate discretionary revenues for all industries with at least 20 observations in a given year t using the following model (Reichelt and Wang 2010, Hope et al. 2013):

$$\Delta AR_{it} = \alpha_0 + \alpha_1 \Delta REV_{it} + \varepsilon_{it}$$

where the dependent variable ΔAR represents the change of accounts receivable over the year and ΔREV represents the change of revenues. Both measures are scaled by lagged total assets for audit client i. The variable $|DISCREV|$ is measured by taking the absolute value of the error residual ε.

The last measure, $|AWCA|$, represents abnormal working capital accruals as in Defond and

Park (2001). We focus separately on working capital accruals as management has more discretion over such accruals. This proxy measures the difference between the realized working capital and a proxy for the market's expectations of the level of working capital needed to support current sales levels (Defond and Park 2001). We estimate the discretionary working capital accruals using the following model:

$$AWCA_{it} = WC_{it} - \left[\left(\frac{WC_{it-1}}{Sales_{it-1}} \right) * Sales_{it} \right]$$

where sales are the sales realized by the audit client i in period t and *WC* are the non-cash working capital accruals for the audit client i in period t. Non-cash working capital accruals are computed as (current assets less cash and short term investments) minus (current liabilities less short term debt). The abnormal working capital accruals are scaled by prior year total assets and winsorized at -1 and +1 to deal with outliers.

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TABLE 1
Variable definitions

	Variable definition
Partner remuneration model	
LN_COMPE_{xt}	The natural logarithm of the audit partner's compensation, proxied by the gross sales margin as reported in the annual account of the audit partner x's legal entity in year t;
$LN\_TOTAL\_FEE_{xt}$	The natural logarithm of the sum of all fees paid by all clients of the partner x in period t;
$LN\_TOTAL\_FEE\_PX_{xt}$	The natural logarithm of the sum of all fees paid by all clients of the partner x in period t for observations related to partner x; zero otherwise;
$STD\_AUDIT\_FEE_{xt}$	The standard deviation of the audit fees paid by all client of an audit partner x in year t;
$INDSPEC_{xt}$	Dummy variable equal to one if the audit partner x is an industry specialist in at least one economically significant industry in year t. An industry (two-digit SIC code) is considered economically important if it represents at least one percent of total sales of all industries nationwide. An audit partner is designated as an industry specialist if the size of his or her within-industry clientele in terms of audited total assets belongs to the highest decile of its annual distribution; zero otherwise;
$PUBSPEC_{xt}$	Number of publicly traded clients of partner x in year t;
BIG_MARKET_{xt}	Dummy variable equal to one if partner x works in an audit office located in the capital in year t, zero otherwise;
$CAREER_{xt}$	The natural logarithm of the number of years since the partner x became a certified public accountant;
$FEMALE_{x}$	Dummy variable equal to one when the audit partner x is female, zero otherwise;
TOP_{xt}	Dummy variable equal to one when the audit partner x has an executive position at the audit firm in period t, zero otherwise;
Audit quality models	
$\|DA\|_{it}$	Performance adjusted absolute discretionary accruals for audit client i in period t;
$\|DISCREV\|_{it}$	Discretionary revenues of audit client i in period t;
$\|AWCA\|_{it}$	Abnormal working capital accruals of audit client i in period t;
$FBC1_{x}$	The estimated coefficient of the extent of fee-based compensation measured for audit partner x if the coefficient is significantly (positive) different from zero; zero otherwise;
$FBC2_{x}$	The estimated coefficient of the extent of fee-based compensation measured for audit partner x regardless of the significance of the coefficient;
$ONWEALTH_{xt}$	The ratio of equity to total assets of audit partner x in period t in the legal entity;
$LN\_PTR\_NETWEALTH_{xt}$	The natural logarithm of equity in the legal entity of audit partner x in period t;
$LN\_PTR\_LIABILITIES_{xt}$	The natural logarithm of total liabilities in the legal entity of audit partner x in period t multiplied by -1;

$LN\_PTR\_ASSETS_{xt}$	The natural logarithm of total assets in the legal entity of audit partner x in period t;
LN_ASSETS_{it}	The natural logarithm of the total assets of audit client i in period t;
CFO_{it}	Cash flow from operations of audit client i in period t;
$FIRMLEV_{it}$	The ratio of debt over total assets of audit client i in period t;
$LOSS_{it}$	Dummy variable equal to one when audit client i reports a loss in period t, zero otherwise;
ROA_{it}	Return on assets of audit client i in period t;
$SALES\_TURN_{it}$	The ratio of sales to total assets for audit client i in period t;
OR_GROWTH_{it}	The growth in operating revenue from year t to year t-1 divided by operating revenue in year t for audit client i in period t;
$LAGTAX_{it}$	Dummy variable equal to one if audit client i paid taxes in the previous year, zero otherwise;
$ACCRUALS_{i, t-1}$	The prior year accruals of audit client i scaled by the total assets in period t-1.

TABLE 2
Sample selection

Panel A : Partner compensation sample		
Number of Big 4 certified public accountants retrieved from the IBR-IRE membership list for the years 2007-2012 with shares in their audit firms and for which clients can be identified.	143	
Less number of partners which do not publish financial statements	-33	
Number of partners	110	
Partner-year observations for the years 2007-2012		502
Less partner-years for which no clients could be identified.		-100
Number of partner- year observations for firm-specific FBC		**402**
Less partner-years of partners with less than 4 years of compensation data		-34
Number of partner-year observations for partner-specific FBC		**368**
Panel B : Earnings management compensation sample		
Number of client-year observations of clients for the 368 partner-year observations.	21,440	
Less client-year observations of clients in the financial industry (2 digit SIC code 60-69)	-3,470	
Less client-year observations with reported audit fee of zero	-1,060	
Less client-year observations with insufficient data to calculate abnormal accruals	-3,993	
Less client-year observations with insufficient data for some control variables	-413	
Number of client-year observations accrual models		**12,504**

TABLE 3
Partner Compensation Model

Panel A: Descriptive statistics

	N	Mean	StdDev	Min	P25	Median	P75	Max
COMPE (€1.000)	402	366,611	249,376	8,218	187,306	306,810	497,975	1671,322
LN_COMPE	402	12.554	0.795	9.014	12.140	12.634	13.118	14.329
TOTAL_FEE (€1.000)	402	923,754	600,647	4,946	499,815	880,687	1,321,954	3,809,971
LN_TOTAL_FEE	402	13.368	1.098	8.506	13.122	13.688	14.095	15.153
COMPE/FEE	402	0.993	2.126	0.038	0.202	0.373	0.856	15.020
STD_AUDIT_FEE	402	0.034	0.029	0.000	0.014	0.026	0.045	0.151
INDSPEC	402	0.649	0.478	0.000	0.000	1.000	1.000	1.000
PUBSPEC	402	0.657	1.069	0.000	0.000	0.000	1.000	7.000
BIG_MARKET	402	0.607	0.489	0.000	0.000	1.000	1.000	1.000
CAREER	402	16.552	5.759	4.000	12.000	16.500	21.000	34.000
FEMALE	402	0.114	0.319	0.000	0.000	0.000	0.000	1.000
TOP	402	0.085	0.279	0.000	0.000	0.000	0.000	1.000

Descriptive statistics for the partner compensation sample (N=402). Column 1 provides variable name, Column 2 shows the number of observations. The third column reports the mean, while in the fourth column the standard deviation is reported. Columns 5 to 9 present the minimum, first quartile, mean, third quartile and the maximum, respectively. Variable definitions can be found in Table 1.

Panel B: Correlations

	1	2	3	4	5	6	7	8	9
1 LN_COMPE		0.1997*	0.1845*	0.1241*	0.1478*	0.2241*	0.4653*	-0.2383*	0.4266*
2 LN_TOTAL_FEE	0.3035*		0.4927*	0.5847*	0.1659*	-0.0315	-0.0099	-0.1834*	-0.0026
3 STD_AUDIT_FEE	0.2065*	0.3751*		0.5089*	0.2745*	0.3141*	-0.1225*	-0.1489*	0.0018
4 INDSPEC	0.1580*	0.5731*	0.4158*		0.1855*	0.1236*	-0.0313	-0.0961	-0.0763
5 PUBSPEC	0.1780*	0.2042*	0.2026*	0.1981*		-0.0628	0.0186	-0.0204	0.1554*
6 BIG_MARKET	0.2389*	-0.0294	0.3017*	0.1236*	0.0179		-0.0623	0.0173	0.1348*
7 CAREER	0.4600*	-0.0403	-0.0941	-0.0427	0.0183	-0.0591		-0.0702	0.2525*
8 FEMALE	-0.1643*	-0.2100*	-0.1203*	-0.0961	-0.0747	0.0173	-0.0685		-0.1093*
9 TOP	0.3914*	0.0363	0.0895	-0.0763	0.1144*	0.1348*	0.2833*	-0.1093*	

This panel presents correlations based on the 402 observations of the partner compensation sample. Pearson correlations are reported below the diagonal, while Spearman correlations are reported above the diagonal. Variables significant at the 5% level are indicated with an asterix. All variable definition can be found in Table 1.

Panel C: Determinants of partner compensation – firm specific fee-based compensation

Sample	**FIRM A**			**Firm B**			**Firm C**			**Firm D**		
Dependent variable	**LN_COMPE**			**LN_COMPE**			**LN_COMPE**			**LN_COMPE**		
	coeff	t-stat	p-value	Coeff	t-stat	p-value	coeff	t-stat	p-value	coeff	t-stat	p-value
Intercept	9.288***	7.49	0.000	8.004***	7.19	0.000	10.234***	6.65	0.000	7.967**	2.43	0.035
LN_TOTAL_FEE	0.145	1.54	0.134	0.183**	2.57	0.016	0.333***	4.15	0.001	0.369	1.40	0.190
STD_AUDIT_FEE	1.829	1.44	0.160	6.099**	2.34	0.027	8.743	0.97	0.345	3.678	0.61	0.557
INDSPEC	-0.209	-1.15	0.258	0.124	0.70	0.491	-0.269	-1.02	0.324	-0.828*	-2.03	0.070
PUBSPEC	0.025	0.79	0.435	-0.055	-0.73	0.472	0.038	0.36	0.722	0.021	0.09	0.933
BIG_MARKET	0.262	1.50	0.144	0.605***	3.62	0.001	-0.362	-1.17	0.260	-0.125	-0.29	0.781
CAREER	0.073***	4.30	0.000	0.088***	6.09	0.000	0.024	0.73	0.476	0.092***	3.39	0.007
FEMALE	-0.410*	-1.90	0.067	-0.039	-0.23	0.820	0.013	0.04	0.969			
TOP	0.435**	2.73	0.010	0.297	0.93	0.359						
Year fixed effects		**Yes**			**Yes**			**Yes**			**Yes**	
N		162			152			41			47	
Adjusted R^2		0.502			0.586			0.501			0.348	

This panel presents the results of a regression of partner-specific control variables on partner compensation for each audit firm separately. The first column shows the variable names. The remaining columns show the results for each audit firm separately. Standard errors are clustered on individual audit partners. Year fixed effects included. Significance (based on two-tailed tests) is indicated as follows: p<0.10 (*), p<0.05 (**), p<0.01 (***). Variable definitions can be found in Table 1.

Panel D: Determinants of partner compensation – partner specific fee-based compensation

Sample	FIRM A			Firm B			Firm C			Firm D		
Dependent var.	LN_COMPE			LN_COMPE			LN_COMPE			LN_COMPE		
	coeff	t-stat	p-value	Coeff	t-stat	p-value	coeff	t-stat	p-value	coeff	t-stat	p-value
Intercept	2.482	0.29	0.772	-3.955	-0.70	0.488	8.104***	5.95	0.002	30.634**	2.42	0.046
LN_TOTAL_FEE_P1	0.315*	1.84	0.078	-0.073	-0.58	0.567	1.013	0.58	0.590	0.040	0.12	0.907
LN_TOTAL_FEE_P2	0.274*	1.92	0.066	0.513**	2.45	0.022	0.496***	4.11	0.009	-0.440	-0.78	0.461
LN_TOTAL_FEE_P3	0.266*	1.84	0.078	0.164	0.70	0.489	0.256	1.03	0.350	-0.825	-0.71	0.501
LN_TOTAL_FEE_P4	0.447*	1.91	0.068	0.529***	3.87	0.001	-1.210	-0.38	0.721	-1.232	-1.61	0.151
LN_TOTAL_FEE_P5	-0.208**	-2.23	0.035	0.113	0.71	0.482	0.380	1.60	0.171	-0.429	-0.77	0.468
LN_TOTAL_FEE_P6	0.120	0.22	0.831	0.174	0.75	0.460	0.463***	5.16	0.004	-1.158	-0.76	0.474
LN_TOTAL_FEE_P7	0.077	1.16	0.256	0.520***	3.62	0.001				-0.977	-1.58	0.158
LN_TOTAL_FEE_P8	-0.313*	-1.73	0.096	0.530***	3.66	0.001				-0.994	-1.57	0.160
LN_TOTAL_FEE_P9	-0.016	-0.35	0.726	0.302***	2.90	0.008						
LN_TOTAL_FEE_P10	0.584	0.95	0.351	0.365***	3.34	0.003						
LN_TOTAL_FEE_P11	0.307	0.53	0.602	0.786***	3.94	0.001						
LN_TOTAL_FEE_P12	0.006	0.12	0.903	-0.191	-1.13	0.271						
LN_TOTAL_FEE_P13	0.188	0.35	0.726	0.531***	3.57	0.001						
LN_TOTAL_FEE_P14	2.086***	5.04	0.000	0.508*	1.91	0.067						
LN_TOTAL_FEE_P15	0.224	0.39	0.697	0.248	1.03	0.312						
LN_TOTAL_FEE_P16	-0.065	-1.14	0.264	0.347	1.46	0.156						
LN_TOTAL_FEE_P17	0.271**	2.09	0.047	0.668***	3.24	0.003						
LN_TOTAL_FEE_P18	0.045	0.94	0.354	0.329***	3.01	0.006						
LN_TOTAL_FEE_P19	0.239*	1.95	0.062	0.520*	1.85	0.077						
LN_TOTAL_FEE_P20	0.487	0.84	0.410	0.469*	1.76	0.091						
LN_TOTAL_FEE_P21	0.467	0.80	0.430	0.739***	3.49	0.002						
LN_TOTAL_FEE_P22	0.221	0.40	0.692	0.338***	3.08	0.005						
LN_TOTAL_FEE_P23	0.214	1.68	0.106	0.592***	3.49	0.002						
LN_TOTAL_FEE_P24	-0.147	-1.49	0.148	-0.020	-0.11	0.914						
LN_TOTAL_FEE_P25	0.055	1.26	0.220	0.267	1.40	0.174						
LN_TOTAL_FEE_P26	0.484	0.82	0.418	0.702***	3.61	0.001						
LN_TOTAL_FEE_P27	-0.021	-0.41	0.686									
STD_AUDIT_FEE	-1.778*	-1.99	0.057	-4.277*	-1.72	0.099	19.113**	2.98	0.031	10.876	1.09	0.313
INDSPEC	-0.051	-0.64	0.531	-0.005	-0.04	0.967	23.438	0.52	0.623	-1.157	-0.85	0.422
PUBSPEC	0.052***	3.08	0.005	-0.030	-0.52	0.608	0.130	0.18	0.867	0.418	0.98	0.362
BIG_MARKET	3.087	0.41	0.684	-0.153	-0.05	0.962	-32.000	-1.59	0.173	-10.406	-1.60	0.154
CAREER	0.658**	2.13	0.042	0.482***	3.72	0.001	-0.140	-0.49	0.648	-1.150	-0.72	0.498
FEMALE	-25.489***	-5.10	0.000	3.407	1.42	0.167						
TOP	0.109	0.76	0.455	0.431*	1.97	0.059						
Year fixed effects	Yes			Yes			Yes			Yes		
N/adjusted R^2	154/0.819			147/0.834			27/0.890			40/0.671		

This panel presents the results of a regression of partner-specific control variables on partner compensation for each audit firm separately where we estimate a partner-specific coefficient for *LN_TOTAL_FEE_PX*. The first column shows the variable names. The remaining columns show the results for each audit firm separately. Standard errors are clustered on individual audit partners. Year fixed effects included. Significance (based on two-tailed tests) is indicated as follows: $p<0.10$ (*), $p<0.05$ (**), $p<0.01$ (***). Variable definitions can be found in Table 1.

TABLE 4
Differences in client and partner attributes between partners with and without a fee-based compensation

PANEL A: Differences in partner characteristics

	Independent t-tests		
	FBC1 =0	FBC1 >0	p-value t-test
	Mean (Demeaned by audit firm)	Mean (Demeaned by audit firm)	
LN_COMPE	0.064	-0.100	0.026**
STD_AUDIT_FEE	-0.005	0.007	0.000***
INDSPEC	0.001	-0.002	0.940
PUBSPEC	0.064	-0.100	0.136
BIG_MARKET	-0.126	0.196	0.000***
CAREER	1.868	-2.905	0.000***
FEMALE	0.040	-0.062	0.001***
TOP	0.042	-0.065	0.000***

This table presents a t-test of differences in partner characteristics based on the extent of fee-based compensation. Column two presents the mean of the audit firm demeaned partner characteristics if *FBC1* equals zero for that partner, column three presents the mean of the audit firm demeaned partner characteristics if *FBC1* is greater than zero for that partner. Column four presents the p-value that tests whether the means reported in columns two and three are statistically different. Significance in column four is indicated as follows: p<0.10 (*), p<0.05 (**), p<0.01 (***).

PANEL B: Differences in client characteristics

	Independent t-tests		
	FBC1 =0	FBC1 >0	p-value t-test
	Mean (Demeaned by audit firm)	Mean (Demeaned by audit firm)	
LN_ASSETS	-0.051	0.095	0.000***
CFO	0.001	-0.003	0.342
FIRMLEV	0.012	-0.023	0.000***
LOSS	0.000	-0.001	0.880
ROA	0.000	0.000	0.956
SALES_TURN	0.022	-0.041	0.018**
OR_GROWTH	-0.002	0.003	0.672
LAGTAX	0.001	-0.001	0.856
ACCRUALS	-0.001	0.003	0.333

This table presents a t-test of differences in client characteristics based on the partner's extent of fee-based compensation. Column two presents the mean of the audit firm demeaned client characteristics if *FBC1* equals zero for that partner, column three presents the mean of the audit firm demeaned client characteristics if *FBC1* is greater than zero. Column four presents the p-value that tests whether the means reported in columns two and three are statistically different. Significance in column four is indicated as follows: p<0.10 (*), p<0.05 (**), p<0.01 (***).

TABLE 5

Descriptive statistics for audit quality models

	N	Mean	StdDev	Min	P25	Median	P75	Max
Accruals analyses								
|DA|	12,504	0.145	0.166	0.001	0.037	0.088	0.186	0.870
|DISCREV|	12,504	0.084	0.113	0.001	0.016	0.042	0.102	0.616
|AWCA|	12,504	0.160	0.206	0.001	0.034	0.087	0.195	1.000
FBC1	12,504	0.185	0.326	0.000	0.000	0.000	0.329	2.086
FBC2	12,504	0.176	0.548	-1.232	0.077	0.271	0.487	2.086
ONWEALTH	12,504	0.419	0.278	0.018	0.173	0.385	0.629	0.998
SIZE (€100,000)	12,504	713.919	2,301.532	1.837	30.976	100.181	351.683	17,809.982
LN_ASSETS	12,504	16.216	1.859	12.121	14.946	16.120	17.376	21.300
CFO	12,504	0.073	0.239	-0.811	-0.016	0.066	0.177	0.873
FIRMLEV	12,504	0.459	0.404	0.000	0.079	0.422	0.741	2.194
LOSS	12,504	0.250	0.433	0.000	0.000	0.000	1.000	1.000
ROA	12,504	0.045	0.149	-0.631	0.001	0.041	0.106	0.492
SALES_TURN	12,504	1.701	1.430	0.002	0.646	1.450	2.328	7.615
OR_GROWTH	12,504	0.093	0.553	-0.880	-0.084	0.022	0.134	3.896
LAGTAX	12,504	0.729	0.444	0.000	0.000	1.000	1.000	1.000
ACCRUALS	12,504	-0.012	0.232	-0.720	-0.114	-0.014	0.073	0.851

Descriptive statistics. All continuous variables are winsorized at the top and bottom 1%. Column 1 provides variable name, Column 2 shows the number of observations. The third column reports the mean, while in the fourth column the standard deviation is reported. Columns 5 to 9 present the minimum, first quartile, mean, third quartile and the maximum, respectively. Variable definitions can be found in Table 1.

TABLE 6

Correlation tables (N=12,504)

		1	2	3	4	5	6	7	8	9	10
1	|DA|		0.1807*	0.4635*	0.0339*	0.0310*	-0.0039	-0.2119*	0.0166	0.0353*	0.0527*
2	|DISCREV|	0.1905*		0.2152*	-0.0051	0.0113	-0.0340*	-0.2566*	-0.0159	0.0830*	0.0436*
3	|AWCA|	0.5443*	0.2224*		0.0513*	0.0408*	-0.0162	-0.2148*	-0.0445*	0.0522*	0.0199*
4	FBC1	0.0255*	-0.0017	0.0415*		0.6977*	0.0461*	-0.0261*	-0.0188*	-0.0441*	-0.0037
5	FBC2	0.0193*	0.0052	0.0334*	0.6038*		0.0730*	-0.0701*	-0.0210*	-0.0228*	0.0174
6	ONWEALTH	-0.0007	-0.0270*	-0.0137	-0.0158	0.0539*		-0.0146	0.0079	0.0783*	0.0020
7	LN_ASSETS	-0.1721*	-0.2352*	-0.1701*	-0.0155	-0.0728*	-0.0113		-0.0729*	0.0111	-0.0544*
8	CFO	-0.0566*	-0.0548*	-0.0894*	-0.0251*	-0.0298*	0.0045	-0.0510*		0.0091	-0.2292*
9	FIRMLEV	0.0918*	0.1351*	0.1140*	-0.0469*	-0.0097	0.0635*	-0.0726*	-0.0468*		0.1421*
10	LOSS	0.0631*	0.0502*	0.0533*	0.0022	0.0265*	0.0050	-0.0613*	-0.2156*	0.1878*	
11	ROA	-0.0549*	-0.0548*	-0.0310*	0.0071	-0.0167	0.0079	0.0050	0.4287*	-0.1357*	-0.5860*
12	SALES_TURN	0.0500*	0.2363*	0.0136	-0.0261*	-0.0346*	0.0090	-0.2825*	0.1163*	0.1201*	-0.0328*
13	OR_GROWTH	0.0877*	0.1238*	0.3047*	-0.0031	0.0104	-0.0078	0.0372*	-0.0499*	0.0258*	-0.0433*
14	LAGTAX	-0.0525*	-0.0154	-0.0786*	0.0109	0.0122	-0.0215*	0.0395*	0.1018*	-0.1292*	-0.2622*
15	ACCRUALS	0.0338*	0.0092	0.0271*	0.0246*	0.0136	-0.0022	0.0303*	0.0748*	-0.0614*	-0.0777*

The table present correlations based on the 12,504 observations of the audit quality analysis. Pearson correlations are reported below the diagonal, while Spearman correlations are reported above the diagonal. Variables significant at the 5% level are indicated with an asterisk. All continuous variables are winsorized at the one percent level. All variable definition can be found in Table 1

TABLE 6, CONTINUED
Correlation Tables (N=12,504)

		11	12	13	14	15
1	|DA|	0.0313*	0.1065*	0.0145	-0.0345*	-0.0075
2	|DISCREV|	0.0130	0.3529*	0.0318*	0.0132	0.0106
3	|AWCA|	0.0648*	0.0846*	0.0570*	-0.0282*	0.0292*
4	FBC1	0.0187*	-0.0126	0.0091	0.0052	0.0252*
5	FBC2	0.0061	-0.0227*	-0.0021	0.0132	0.0147
6	ONWEALTH	0.0115	0.0067	-0.0068	-0.0190*	-0.0016
7	LN_ASSETS	-0.1050*	-0.3041*	0.0729*	0.0381*	0.0149
8	CFO	0.4192*	0.1518*	-0.0129	0.1142*	0.0340*
9	FIRMLEV	-0.0490*	0.0776*	0.0103	-0.0921*	-0.0680*
10	LOSS	-0.6778*	-0.0499*	-0.1416*	-0.2622*	-0.1027*
11	ROA		0.2200*	0.1697*	0.2748*	0.1051*
12	SALES_TURN	0.0991*		0.0889*	0.1163*	0.0046
13	OR_GROWTH	0.0578*	-0.0001		0.0057	0.0537*
14	LAGTAX	0.2360*	0.0670*	-0.0556*		0.0811*
15	ACCRUALS	0.0894*	0.0048	0.0480*	0.0565*	

The table present correlations based on the 12,504 observations of the audit quality analysis. Pearson correlations are reported below the diagonal, while Spearman correlations are reported above the diagonal. Variables significant at the 5% level are indicated with an asterisk. All continuous variables are winsorized at the one percent level. All variable definition can be found in Table 1.

TABLE 7
Multivariate audit quality models

Panel A: Analysis with FBC1

Dependent variable	**|DA|**				**|DISCREV|**				**|AWCA|**			
	coeff		t-stat	p-value	coeff		t-stat	p-value	coeff		t-stat	p-value
intercept	0.387	***	6.60	0.000	0.208	***	9.61	0.000	0.530	***	8.86	0.000
FBC1	0.015	***	2.94	0.003	0.004		1.00	0.318	0.028	***	3.81	0.000
ONWEALTH	-0.006		-0.85	0.397	-0.013	***	-2.99	0.003	-0.020	**	-2.53	0.011
LN_ASSETS	-0.014	***	-13.42	0.000	-0.011	***	-16.47	0.000	-0.021	***	-14.79	0.000
CFO	-0.034	***	-2.84	0.004	-0.025	***	-3.53	0.000	-0.066	***	-4.34	0.000
FIRMLEV	0.037	***	5.57	0.000	0.041	***	10.21	0.000	0.050	***	5.39	0.000
LOSS	0.007		1.46	0.145	-0.001		-0.41	0.684	0.012	**	2.00	0.045
ROA	-0.014		-0.70	0.483	-0.029	***	-2.60	0.009	0.033		1.32	0.188
SALES_TURN	0.001		0.95	0.342	0.013	***	12.22	0.000	-0.004	**	-2.14	0.033
OR_GROWTH	0.026	***	6.44	0.000	0.026	***	8.53	0.000	0.112	***	19.07	0.000
LAGTAX	-0.008	**	-2.10	0.036	0.002		0.82	0.413	-0.014	***	-2.92	0.004
ACCRUALS	0.032	***	3.27	0.001	0.007		1.39	0.165	0.024	**	2.38	0.018
N	12,504				12,504				12,504			
Adjusted R^2	0.060				0.142				0.153			
Fixed effects	Year, Industry, Audit firm				Year, Industry, Audit firm				Year, Industry, Audit firm			

This table presents the results of an ordinary least square regression with discretionary accruals, discretionary revenues and abnormal working capital accruals as dependent variables and several partner-specific and client-specific variables. The first column presents the variable names. The second column present the results of the discretionary accruals. The third column presents the results of the discretionary revenues, while the fourth column presents the results of the abnormal working capital analysis. All continuous variables are winsorized at the 1% level. Standard errors are adjusted for heteroscedasticity and clustered on audit partners. Year and industry fixed effects are included. Significance (based on two-tailed tests) is indicated as follows: $p<0.10$ (*), $p<0.05$ (**), $p<0.01$ (***). Variable definitions can be found in Table 1.

TABLE 7 CONTINUED

Panel B: Analyses with FBC2

Dependent variable	|DA|				|DISCREV|				|AWCA|			
	coeff		t-stat	p-value	coeff		t-stat	p-value	coeff		t-stat	p-value
intercept	0.383	***	6.58	0.000	0.207	***	9.51	0.000	0.523	***	8.86	0.000
FBC2	0.011	**	2.34	0.019	0.006	*	1.96	0.051	0.019	***	3.00	0.003
ONWEALTH	-0.007		-1.07	0.285	-0.013	***	-3.08	0.002	-0.023	***	-2.88	0.004
LN_ASSETS	-0.014	***	-13.28	0.000	-0.011	***	-16.37	0.000	-0.020	***	-14.63	0.000
CFO	-0.034	***	-2.85	0.004	-0.025	***	-3.52	0.000	-0.066	***	-4.36	0.000
FIRMLEV	0.036	***	5.48	0.000	0.041	***	10.16	0.000	0.049	***	5.28	0.000
LOSS	0.007		1.43	0.152	-0.001		-0.45	0.654	0.011	**	1.97	0.049
ROA	-0.014		-0.71	0.475	-0.029	***	-2.61	0.009	0.033		1.30	0.193
SALES_TURN	0.001		0.99	0.322	0.013	***	12.26	0.000	-0.004	**	-2.08	0.038
OR_GROWTH	0.026	***	6.43	0.000	0.026	***	8.54	0.000	0.112	***	19.09	0.000
LAGTAX	-0.009	**	-2.17	0.030	0.002		0.77	0.444	-0.015	***	-3.02	0.003
ACCRUALS	0.032	***	3.27	0.001	0.007		1.36	0.173	0.024	**	2.37	0.018
N	12,504				12,504				12,504			
Adjusted R^2	0.060				0.142				0.153			
Fixed effects	Year, Industry, Audit firm				Year, Industry, Audit firm				Year, Industry, Audit firm			

This table presents the results of an ordinary least square regression with discretionary accruals, discretionary revenues and abnormal working capital accruals as dependent variables and several partner-specific and client-specific variables. The first column presents the variable names. The second column present the results of the discretionary accruals. The third column presents the results of the discretionary revenues, while the fourth column presents the results of the abnormal working capital analysis. All continuous variables are winsorized at the 1% level. Standard errors are adjusted for heteroscedasticity and clustered on audit partners. Year and industry fixed effects are included. Significance (based on two-tailed tests) is indicated as follows: $p<0.10$ (*), $p<0.05$ (**), $p<0.01$ (***). Variable definitions can be found in Table 1.

TABLE 7 CONTINUED

Dependent	|DA|				|DISCREV|				|AWCA|			
	coeff		t-stat	p-value	coeff		t-stat	p-value	coeff		t-stat	p-value
Panel C: LN_PTR_NETWEALTH												
intercept	0.383	***	6.40	0.000	0.221	***	8.92	0.000	0.542	***	8.70	0.000
FBC1	0.016	***	3.04	0.002	0.004		1.14	0.255	0.029	***	3.95	0.000
LN_PTR_NETWEALTH	0.000		0.11	0.910	-0.001		-1.44	0.149	-0.002		-0.89	0.373
N	12,504				12,504				12,504			
Adjusted R^2	0.060				0.141				0.153			
Fixed effects	Year, Industry, Audit firm				Year, Industry, Audit firm				Year, Industry, Audit firm			
Panel D: LN_PTR_LIABILITIES and LN_PTR_ASSETS												
intercept	0.317	***	4.87	0.000	0.164	***	5.29	0.000	0.440	***	6.12	0.000
FBC1	0.016	***	3.15	0.002	0.004		1.14	0.256	0.029	***	3.97	0.000
LN_PTR_LIABILITIES	-0.002		-0.88	0.377	-0.004	***	-3.12	0.002	-0.007	**	-2.45	0.014
LN_PTR_ASSETS	0.003		1.02	0.306	-0.001		-0.68	0.500	-0.000		-0.09	0.931
N	12,504				12,504				12,504			
Adjusted R^2	0.061				0.142				0.153			
Fixed effects	Year, Industry, Audit firm				Year, Industry, Audit firm				Year, Industry, Audit firm			

This table presents the results of an ordinary least squares regression with discretionary accruals, discretionary revenues and abnormal working capital accruals as dependent variables. The first column presents the variable names. The second column present the results of the discretionary accruals. The third column presents the results of the discretionary revenues, while the fourth column presents the results of the abnormal working capital analysis. All continuous variables are winsorized at the 1% level. Standard errors are adjusted for heteroscedasticity and clustered on audit partners. Year and industry fixed effects are included. Significance (based on two-tailed tests) is indicated as follows: $p<0.10$ (*), $p<0.05$ (**), $p<0.01$ (***). Variable definitions can be found in Table 1.

TABLE 8: Entropy Balanced sample

Dependent	|DA|				|DISCREV|				|AWCA|			
	coeff		t-stat	p-value	coeff		t-stat	p-value	coeff		t-stat	p-value
Panel A: Entropy Balanced Sample												
intercept	0.380	***	6.11	0.000	0.208	***	8.88	0.000	0.527	***	8.27	0.000
FBC1	0.014	***	2.69	0.007	0.003		0.73	0.465	0.027	***	3.64	0.000
ONWEALTH	-0.011		-1.59	0.113	-0.012	***	-2.70	0.007	-0.027	***	-3.36	0.001
N	12,504				12,504				12,504			
Adjusted R^2	0.057				0.144				0.151			
Fixed effects	Year, Industry, Audit firm				Year, Industry, Audit firm				Year, Industry, Audit firm			
Panel B: Entropy Balanced Sample with additional partner controls												
intercept	0.391	***	6.27	0.000	0.214	***	8.93	0.000	0.529	***	8.32	0.000
FBC1	0.007		1.03	0.303	-0.002		-0.41	0.683	0.024	**	2.53	0.012
ONWEALTH	-0.011		-1.56	0.118	-0.013	***	-2.87	0.004	-0.028	***	-3.34	0.001
N	12,504				12,504				12,504			
Adjusted R^2	0.058				0.146				0.151			
Fixed effects	Year, Industry, Audit firm				Year, Industry, Audit firm				Year, Industry, Audit firm			

This table presents the results of an entropy balanced ordinary least squares regression with discretionary accruals, discretionary revenues and abnormal working capital accruals as dependent variables. In Panel B the following partner controls are added: *STD_AUDIT_FEE*, *PUBSPEC*, *BIG_MARKET*, *CAREER*, *FEMALE* and *TOP*. The first column presents the variable names. The second column present the results of the discretionary accruals. The third column presents the results of the discretionary revenues, while the fourth column presents the results of the abnormal working capital analysis. All continuous variables are winsorized at the 1% level. Standard errors are adjusted for heteroscedasticity and clustered on audit partners. Year and industry fixed effects are included. Significance (based on two-tailed tests) is indicated as follows: $p<0.10$ (*), $p<0.05$ (**), $p<0.01$ (***). Variable definitions can be found in Table 1.