

# **Auditing Fair Value: Security-Level Evidence**

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## I. INTRODUCTION

In this paper, I study the economic forces that shape audit firms' effectiveness as monitors of their clients' fair value (FV) measurements. Audit reports mitigate information asymmetries that arise between firm insiders and outsiders by reducing uncertainty regarding whether management has fairly represented the underlying performance of the firm in the financial statements (e.g. Jensen and Meckling 1976, Watts and Zimmerman 1983). Audit firms' role in mitigating information asymmetry frictions is particularly important when managers have more discretion over the values they report, as is the case with FV measurements, which typically require subjective and complex model assumptions, leaving them more open to manipulation.

Even as FV measurements have become an increasingly important facet of financial reporting (e.g. Barth 2006, Christensen and Nikolaev 2013), how audit firms develop and use the expertise required to be effective monitors of their clients' FV reporting outcomes is unresolved in the literature (e.g., Christensen et al. 2012; Bratten et al. 2013). Indeed, the audit firms' regulator, the PCAOB, has repeatedly cited audit firms for deficiencies in FV auditing, leading to questions regarding their FV competencies.<sup>1</sup> Further, the extent to which auditors assert their influence on clients' FVs may depend on interactions with other monitors of FV measurement, such as the PCAOB and various financial regulators. Ultimately, audit firms' role as monitors of their clients' FV measurements is an empirical question I aim to study in this paper.

An important challenge in studying audit firms' role in reporting outcomes is that the audit process is fundamentally unobservable, with the empiricist seeing only the end product of the

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<sup>1</sup> For example, in May 2020 the PCAOB noted that their "oversight activities have revealed a recurring pattern of deficiencies in this (FV) area" (link in comment above). The PCAOB considered 32 percent of the audits for annually inspected firms to be deficient in 2015.

interaction between the auditor and the client. Moreover, it is empirically difficult to separate outcome differences stemming from the auditing process from those stemming from the underlying economics of the entity being audited (DeFond and Zhang 2014). This difficulty is even greater in the FV reporting context, because of the heavy reliance on subjective assumptions inherent in the process. To overcome these challenges, I use security-level FV valuations that insurance companies (henceforth ‘clients’) report in annual regulatory filings for their fixed income securities.<sup>2</sup> This setting, which has recently been used to show that insurers take advantage of the discretion permitted in FV reporting (e.g. Hanley et al. 2018, Sen and Sharma 2020), allows me to control for the underlying economic construct by comparing audit outcomes across auditors and clients *for the same security in the same period*.

Security holding decisions are made by insurer clients independently of their auditors, such that audit firms are exposed to different securities at different times based on the individual portfolio decisions of their clients. Prior research suggests that task-specific expertise is valuable in developing auditor competencies, particularly in more complex areas such as tax and R&D (e.g. Bonner and Lewis 1990, Godfrey and Hamilton 2005, McGuire et al. 2012, Cannon et al. 2014). In addition, many audit firms have invested in establishing internal centralized pricing desks employing dedicated, finance-trained, staff to support the audit teams in evaluating the appropriateness of reported FVs (PCAOB 2017). These pricing desks act as central clearing houses through which the auditing for the most complex FV measurements flows, and in which security-level competencies can develop.<sup>3</sup> Thus, I hypothesize that audit firms’ security-specific experience

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<sup>2</sup> Insurers must report annually the dollar FV of each fixed income security in their portfolio. Fixed income assets constitute a large part of insurers’ portfolios: they make up roughly 64% of about \$5 trillion assets in my sample. They also make up a significant share of the fixed income market: insurers own an estimated 20% of all corporate bonds in the US, making them an important investor in the bond market (Paulson and Rosen 2016).

<sup>3</sup> Throughout this paper, I use the word auditor and audit firms interchangeably. As I explain in further detail below, the documented effects are more likely to flow through centralized financial professionals at the audit firm rather

strengthens their views on appropriate FVs, leading to increased precision in allowable valuations of the same security across an audit firm's different clients.<sup>4</sup>

Moreover, I expect the external monitoring environment to play a role in how audit firms apply their security-specific expertise. On the one hand, auditors have incentives to retain their clients and maintain a positive relationship with them. The opaque and subjective nature of FV measurements can provide auditors with an opportunity to do so by allowing hard-to-detect within-GAAP discretion in valuations. On the other hand, auditors face regulatory, litigation, and reputational pressure to ensure the quality of FVs. Therefore, I hypothesize that audit firms apply their FV capabilities strategically when audit risk is highest. In particular, I expect that the degree to which audit firms' security-specific experience influences valuations varies with the external regulatory environment that audit firms face from the PCAOB and state level client regulators.

I use security level FVs of fixed income securities reported in annual insurance company statutory filings from 2012 to 2017.<sup>5,6</sup> I define audit firm-level imprecision as the extent to which the average within-audit firm security value in an audit firm's portfolio deviates from that security's sample mean value excluding this audit firm's securities.<sup>7</sup> This security-level measure

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than the client audit team itself. In this paper, I consider whether the audit firm's audit is able to ascertain the quality of clients' FVs.

<sup>4</sup> I base my expertise measure on both a cross-sectional and time-series measure. The cross-sectional measure is particularly relevant in this context because manipulations are more likely in the most volatile and unpredictable assumptions, which vary year-to-year.

<sup>5</sup> I follow Hanley et al. (2018) and start my sample in 2012 to capture a period during which there were no regulatory changes with respect to the reporting requirements.

<sup>6</sup> These make up the building blocks of aggregate FVs reported in GAAP financials. The definitions and methodologies of FVs are very similar between GAAP and statutory financials. According to conversation with a partner at a top audit firm, auditing these securities is important for both GAAP and statutory audit purposes.

<sup>7</sup> For example, if an auditor audits three instances of the same security, I calculate the audit firm-level measure for each of these securities by taking the mean of the two other securities audited by the same audit firm and subtracting the mean FV for all instances of this security in my sample excluding all three instances audited by this audit firm.

uses the economy-wide mean as a proxy for the true economic value.<sup>8</sup> I study how auditor-level precision is related to an audit firm's experience with that security.

I find that audit firm precision increases as the number of security instances in its portfolios grows, and that the effect is concentrated in the most complex securities that are most likely to flow through the audit firm's pricing desk.<sup>9</sup> In particular, an additional instance of a security at an audit firm is associated with an increase in precision of about 7.4%.<sup>10</sup> Interestingly, I find that the amount of historical (i.e. time-series) experience an audit firm has with a particular security is less relevant to the degree of precision than cross-sectional experience. My research design compares differences across auditors in the FV measurement of the same security, in the same year. Because my analyses control for security-year and audit firm-year fixed effects, my results cannot be explained by security characteristics such as different liquidity or credit risk, or by audit firm-level attributes such as size or reputation, or by audit firm-client matching (e.g., Cook et al. 2020).

The above result is consistent with two non-mutually exclusive channels. First, audit firms may be better able to assess the appropriateness of a given client's methodology when they have more data on the range of possible assumptions for a given security through comparison across different clients at the same time.<sup>11</sup> Second, audit firms may face stronger external pressure to align valuations across different clients as the number of holders grows, for example through an increased likelihood of these securities being included in an eventual PCAOB inspection or litigation risk. To help disentangle these two channels, I take advantage of differences in the degree

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<sup>8</sup> In robustness tests, I redo my main tests with an alternative within-audit firm measure that avoids this assumption but does not allow me to draw cross-audit firm inferences. I discuss these results in the robustness section.

<sup>9</sup> As I describe further in Section 3, I perform my analysis on a subsample of security-years that are ever self-estimated and ever designated as level 3 in an effort to highlight the securities most likely to flow through the pricing desk.

<sup>10</sup> Coefficient of 0.135 divided by mean dependent variable measure of 1.82

<sup>11</sup> E.g. Clor-Proell and Nelson (2007) find that audit firms are apt to rely on examples in their work

to which individual audit engagements of an audit firm are subject to regulatory scrutiny. Because the mandate of the PCAOB is to inspect only public clients' audit, I contrast the documented effect in public and private clients. These tests are feasible because, while private firms are generally not required to publically disclose financial statements in the U.S, private insurers are required by the regulator to submit statutory financial statements. Thus, they are included in my data.

First, since the likelihood of PCAOB inspection increases with the number of *public* clients that own a security only, I check whether audit firm precision improves in the number of *private* clients or only public clients.<sup>12</sup> I find that both public and private client holdings matter for improved precision, with similar magnitudes, suggesting that PCAOB pressure does not explain my main results. Second, public firms are typically audited before private firms, as public holders report GAAP financial statements which include these FVs soon after year-end, whereas the NAIC deadline for submitting audited statutory financial statements is not until June the following year. If audit firms develop security-specific expertise through experience with the same security, the effect should be strongest for private clients because audit firms have the benefit of seeing more securities when they audit them. On the other hand, if external pressure drives the result, I would expect the effect to be weaker for private clients. Using a client-security level measure of deviation, I find that as the number of private holders of a security at an audit firm increases, precision improves, but only for private, rather than public, clients. Collectively, these results point to auditor expertise development, and not external pressure, explaining my main results.

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<sup>12</sup> Similarly, the litigation risk is increasing in the number of public clients moreso than the number of private clients (e.g., Bell et al. 2002; Johnstone and Bedard 2003; Venkataraman et al. 2008; Badertscher et al. 2014). To the extent that these differences are large enough to influence audit quality, I also expect precision to be more affected by public holders than private ones

I next study how reporting outcomes vary for client firms domiciled in states with less (more) strict statutory regulators that are likely to have more (less) leeway in reporting FVs. In states with strict regulators, audit firms may need to push back less because client firms may already be motivated to have higher quality FV valuations to avoid regulatory action. Consistent with this hypothesis, I find that audit firms use their expertise to curb firm level deviations more when regulators have lower staff per insurer, lower budget per insurer, and a lower number of discretionary exams per insurer.<sup>13</sup> This evidence suggests that audit firms and financial regulators act as substitutes in ensuring FV reporting quality.

I perform several additional tests to support my inferences. First, I confirm that there is a positive correlation between firm-level overstatement and audit firm-level overstatement at the security level after controlling for audit firm-level, client-level, and security-level attributes, as well as audit firm-client matching (e.g., Cook et al. 2019). I interpret these findings as consistent with audit firms developing particular views on security-level valuations and passing on these views to their clients. Moreover, I show that these effects do not cancel out when aggregated to the firm portfolio level. Indeed, par-weighted firm portfolios show, if anything, a stronger correlation between audit firm and client valuations, supporting the economic significance of my findings. In addition, I present evidence that my inferences remain the same with an alternative dependent variable that reflects client firm-level deviations from the within-audit firm mean. This variable avoids the assumption that the mean value in the rest of the economy is a good proxy for the true value.

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<sup>13</sup> These measures have recently been used in Sen and Sharma (2020).

My study contributes new evidence on the role of audit firms as monitors of FV measurements, and their interaction with audit firm and client regulators. I show security-level evidence that audit firms improve as monitors not only in response to direct external regulatory pressure, but through internal FV expertise building as well. These results add to a growing literature, largely experimental and survey-based, showing that audit firms develop FV expertise (e.g. Ahn et al. 2020; Cannon et al. 2014; Barr-Pulliam et al. 2018). A notable exception is Ahn et al. (2020), who present archival evidence that clients of auditors with more expertise in auditing complex FV estimates are less likely to egregiously misstate values. In contrast to their paper, I study audit firms' role in monitoring more subtle, within-GAAP discretion that client firms have in setting FVs. This subtle discretion has been shown to be used by firms, in the same setting as in my paper, to strategically manipulate their FV measurements to overvalue securities when they have greater incentives to do so (Hanley et al. 2018).

Moreover, I provide evidence on the interaction between audit firms and other players within the FV audit quality monitoring ecosystem that affect both audit firm and client incentives. In particular, I present evidence of a FV monitoring substitution effect in this setting between audit firms and regulators where audit firms constrain managerial incentives more the less that regulators are able to constrain them. Together, this evidence contributes to our understanding of the opaque and challenging FV auditing process by providing evidence on audit firms' role in assessing hard-to-detect, security-level manipulations, and the influence of external regulatory players on audit firms' work. This research answers a call by DeFond and Zhang (2014) for research into audit firm competencies beyond industry specialization.



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