Do High-Quality Auditors Improve Non-GAAP Reporting?

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ABSTRACT

Prior research finds that clients of high-quality auditors report higher quality GAAP earnings. We extend this research to investigate whether auditor quality is associated with the quality of voluntarily disclosed non-GAAP earnings measures. Using a sample of Australian firms disclosing annual non-GAAP metrics, we find that clients of high-quality auditors are more likely to voluntarily disclose non-GAAP earnings numbers. However, clients of high-quality auditors make adjustments in calculating non-GAAP earnings (non-GAAP exclusions) that are less predictive of future earnings and less value relevant than those of other firms. These results indicate that their adjustments are of higher quality. We also find similar results for US firms using a sample of quarterly non-GAAP earnings disclosures. Overall, our evidence indicates that commonly used indicators of audit quality for GAAP reporting are positively associated with the quality of voluntarily disclosed non-GAAP earnings measures.

Keywords: Non-GAAP disclosures; Big 4 auditors; Industry specialization

JEL Classification: J33, M41

I. INTRODUCTION

There has been worldwide growth in managers' voluntary disclosure of non-GAAP earnings as a supplement to audited statutory Generally Accepted Accounting Principles (GAAP) reports. Regulators and standard setters such as the Securities and Exchange Commission (SEC), the Financial Accounting Standards Board (FASB), and the International Accounting Standards Board (IASB) have all recently questioned the implications of the proliferation of these voluntary disclosure practices relative to statutory reporting under IFRS or US GAAP (Hoogervorst 2016; IASB 2021). While there is evidence that these disclosures can be informative, non-GAAP earnings are typically higher and regulators are concerned that non-GAAP reporting is often low quality when it is used to portray a firm's performance in an overly optimistic way (Black, Christensen, Ciesielski, and Whipple 2018; Black and Christensen 2018).[1] Given continuing debate about managers' motives for disclosing non-GAAP earnings measures, it is not surprising that regulators such as the Public Company Accounting Oversight Board (PCAOB) have considered whether auditors should be responsible for attesting to the quality of non-GAAP metrics (PCAOB 2016). We respond to these concerns by investigating whether the quality of non-GAAP earnings is affected by a firm's auditor choice.[2]

The archival audit literature suggests that audited earnings are of higher quality when a Big 4 firm or an industry expert performs the audit. A better auditor can detect and report aggressive accounting choices (if uncorrected) and, more generally, can deter a firm from making aggressive accounting choices in the first place.[3] Similarly, a better auditor may

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[1] Black et al. (2018) provide a comprehensive review of non-GAAP research and conclude that "managers and analysts are primarily motivated to provide non-GAAP performance metrics to inform stakeholders, but there is evidence of opportunism" (pg. 260). However, they also conclude that evidence of opportunistic disclosure is more evident prior to the introduction of regulations such as Regulation G.

[2] Understanding the association between audit quality and the quality of non-GAAP earnings is important for at least two reasons. First, the reporting of non-GAAP earnings has become increasingly prevalent. Second, although non-GAAP reporting as a form of voluntary disclosure is beyond the statutory disclosure requirements, non-GAAP earnings numbers are derived directly from statutory earnings numbers, which in turn are the result of the accounting systems and internal controls subject to audit. In addition, auditing standards require auditors to consider whether there are any misleading inconsistencies between the statutory GAAP earnings and non-GAAP earnings included in annual reports.

[3] DeFond and Zhang (2014) provide a detailed review of studies demonstrating a positive association between measures of accounting quality and the choice of a Big 4 or industry expert auditor. Examples include smaller abnormal accruals (Balsam, Krishnan, and Yang 2003; Reichelt and Wang 2010), more timely loss recognition

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constrain a firm from making low-quality non-GAAP disclosures. Non-GAAP earnings are generated from the same internal accounting system as GAAP earnings, and therefore reflect most (but not all) of the accounting judgements and related issues that are explicitly considered by the auditor in attesting to GAAP earnings. Non-GAAP earnings reflect a modification of GAAP–compliant earnings measures derived from the audited accounting system, rather than from an entirely "independent" and unaudited measurement system. Since non-GAAP figures begin with audited numbers, all else equal, non-GAAP earnings quality increases with auditor quality.

While this prediction is a logical extension of the audit quality literature, the extent of any auditor effect on the quality of voluntary disclosure is uncertain. There is a lower level of assurance with respect to non-GAAP reporting which is only subject, at best, to "review" by the auditor.[4] In the context of a review, the auditor may have less ability to influence a manager's non-GAAP choices compared to the full audit requirement applicable to statutory GAAP reports. Furthermore, many firms report non-GAAP figures in other venues such as analyst presentations or press releases outlining financial results, which are beyond the scope of existing audit requirements. Therefore, it is possible that no association exists between a firm's auditor choice and the quality of its non-GAAP reporting.

In addition, it is possible that if high-quality auditors constrain earnings management, then managers may use non-GAAP disclosure as an alternative form of "perception management", resulting in a negative association between audit quality and the quality of non-GAAP earnings. For example, following prior evidence of substitution among alternative forms of earnings management (Badertscher 2011, Cohen and Zarowin 2010), Black, Christensen, Taylor, Joo, and Schmardebeck (2017b) report evidence consistent with substitution between voluntary disclosure of non-GAAP earnings and both accrual-based and transaction-based earnings management. Hence, if higher quality auditors constrain relatively

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(Francis and Wang 2008), more persistent earnings and a lower likelihood of earnings restatements (Francis, Michas, and Yu 2013b), and earnings with higher value relevance (Francis and Marin 2010). These results suggest that high-quality auditors play a role in constraining aggressive accounting, and are consistent with the premise that high-quality auditors do more than just ensure "technical compliance" with GAAP (DeFond and Zhang 2014).

[4] We discuss the specific requirement to "read and consider" non-GAAP disclosures more fully in Section II.

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aggressive earnings management (DeFond and Zhang 2014), managers of client firms may be more likely to disclose non-GAAP earnings as a way to partially "undo" the inherent conservatism in their GAAP earnings, or even as a tool for perception management. Aggressive non-GAAP reporting may also be less costly than many earnings management tools (Black et al. 2017b). Overall, the extent to which audit quality is positively versus negatively associated with the quality of non-GAAP earnings is an important question lacking empirical evidence.

To understand the extent to which audit quality is associated with non-GAAP quality, we first examine non-GAAP disclosures of Australian firms (2001 through 2014), using a comprehensive hand-collected database of non-GAAP disclosures (Coulton, Ribeiro, Shan, and Taylor 2016). We define high-quality auditors as either Big 4 auditors or industry market leaders. After controlling for identified determinants of managers' decision to voluntarily disclose non-GAAP earnings, we find that clients of high-quality auditors are 12–15 percent more likely to disclose non-GAAP figures than clients of low-quality auditors. However, as we have noted, a higher rate of disclosure by clients of high-quality auditors could be consistent with either higher or lower quality non-GAAP earnings. Hence, our primary focus is on whether prior evidence of a positive association between high-quality auditors and the quality of GAAP earnings extends to voluntarily disclosed non-GAAP earnings.

Using two distinct approaches to measure the quality of non-GAAP earnings, our results are consistent with a positive relation between high-quality auditors and the quality of voluntary non-GAAP disclosures. First, we follow prior studies and use the persistence of non-GAAP exclusions[5] to measure the quality of non-GAAP disclosure (Doyle, Lundholm, and Soliman 2003; Gu and Chen 2004; Kolev, Marquardt, and McVay 2008; Frankel, McVay, and Soliman 2011; Hsu and Kross 2011). We estimate the persistence of exclusions by regressing future operating income and future cash flow on current non-GAAP earnings and non-GAAP exclusions. "High-quality" non-GAAP exclusions (measured as the difference between non-

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[5] Most of the GAAP items that are excluded in calculating non-GAAP earnings are GAAP expenses, but in some cases, firms also adjust to GAAP revenues. Following prior research (Bentley, Christensen, Gee, and Whipple 2018; Christensen, Pei, Pierce, and Tan 2019; Christensen, Gomez, Ma, and Pan 2021), we use the term "non-GAAP exclusions" to describe the adjustments to GAAP earnings in the calculation of non-GAAP earnings.

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GAAP earnings and GAAP earnings) should be transitory, without any predictive power for future performance, while "low-quality" exclusions tend to be recurring and indicate a significant association with future operating performance. Consistent with Kolev et al. (2008) and Frankel et al. (2011), we find that non-GAAP exclusions are, on average, recurring and are predictive of future expenses. More importantly, we find that, for a non-GAAP discloser audited by a non-Big 4 auditor, a dollar of exclusions is associated with $0.33 of future expenses. In contrast, when a non-GAAP discloser is a client of a Big 4 auditor, a dollar of exclusions is associated with only $0.07 of future expenses. In tests restricted to Big 4 clients, we find similar results for non-GAAP disclosers audited by national market leader auditors. In other words, for clients of high-quality auditors, non-GAAP exclusions are more likely to be transitory, and therefore of higher quality.

Second, we examine the value relevance of non-GAAP exclusions. "High-quality" exclusions should be less value relevant than "low-quality" exclusions. We measure value relevance as the association between book value and earnings with price (Collins, Maydew, and Weiss 1997). Our value relevance tests regress stock price on both book value and non-GAAP earnings, along with non-GAAP exclusions. This approach assumes that the exclusions should not be value relevant if they are truly transitory, and we find that this is the case for clients of Big 4 auditors. In contrast, the exclusions are value relevant for clients of non-Big 4 auditors. These results reinforce those based on the persistence of non-GAAP exclusions and are consistent with the view that non-GAAP exclusions by clients of high-quality auditors are less value relevant than those made by other firms disclosing non-GAAP earnings.

The non-GAAP disclosures of Australian firms that we identify are typically reported in annual reports, in addition to simply being contained in press releases. Hence, the degree to which our results can be generalized to settings where non-GAAP earnings are primarily found in documents other than the annual report (e.g., press releases) is unclear. Australia has also adopted International Financial Reporting Standards (IFRS) beginning in 2005. To address these generalization concerns, we use Bentley et al. (2018)'s *quarterly* non-GAAP earnings disclosed by US firms and repeat our main analyses. In general, we find that the US evidence

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is largely consistent with the Australian evidence. US client firms of high-quality auditors are more likely to report non-GAAP numbers. In tests of the association between Big 4 auditors and the quality of non-GAAP exclusions, we find that Big 4 clients tend to have more transitory non-GAAP exclusions compared to non-Big 4 client firms, suggesting the beneficial role of high-quality auditors in facilitating the disclosure of high-quality statutory earnings as well as voluntary disclosures. Similarly, we find that non-GAAP earnings of US firms are significantly more value relevant, and non-GAAP exclusions are less value relevant when firms employ a high-quality auditor.

Additional analyses suggest that these results are robust to various approaches for controlling for endogenous auditor choice, including entropy balancing and propensity score matching (PSM). We identify a sample of Australian firms that had previously hired low-quality auditors but then switched to high-quality auditors, and find that non-GAAP exclusions are less likely to be recurring expenses and are of higher quality after firms switch to Big 4 or industry specialist auditors. We also find that the effects of high-quality auditors are stronger in client-firm industries where disclosure of non-GAAP earnings is less common. This evidence is consistent with audit quality playing a more important role in the absence of comparable non-GAAP earnings benchmarks from industry peers. Finally, we find a negative relation between the use of high-quality auditors and aggressive non-GAAP exclusions, indicating that clients of high-quality auditors are more constrained in their use of aggressive exclusionary adjustments to GAAP earnings.

We recognize that in the absence of an explicit linkage via audit standards or other regulatory or legal requirements, our evidence of an association between audit quality and the quality of non-GAAP reporting should nevertheless be interpreted with some caution. Non-GAAP disclosure is a management decision and subject to the broader influence of corporate governance factors, and auditors are careful to remind stakeholders that non-GAAP disclosures are not directly subject to the same assurance requirements (CAQ 2020).[6] Further, we are

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[6] See Brown, Christensen, Elliott, and Mergenthaler (2012), Walker and Louvari (2003) and Curtis, McVay, and Whipple (2014) for the roles of managerial motivation and sentiment-driven expectations in driving non-GAAP

unaware of auditors facing litigation related specifically to the non-GAAP disclosure of their clients. However, our results are robust to the inclusion of several controls likely to capture management incentives, accounting quality and conservatism, as well as corporate governance attributes previously recognized as being associated with the quality of non-GAAP reporting (Frankel et al. 2011). While our controls are not exhaustive, we expect that they substantially address the role of management and relevant external parties in the disclosure of non-GAAP metrics. In addition, we also find similar results across two quite separate accounting and regulatory regimes (i.e., Australia and the US).

Our research makes two important contributions. First, we expand the audit literature by exploring the association between auditor choice and the quality of voluntary non-GAAP disclosure. While prior researchers have found an association between high-quality auditors and the quality of statutory GAAP earnings (Balsam et al. 2003; Lim and Tan 2008; Reichelt and Wang 2010), the possible influence of high-quality auditors on the quality of other disclosures is mostly overlooked. At the same time, given the steady rise in firms' propensity to report non-GAAP performance metrics, regulators have expressed concerns about the absence of an explicit role for auditors (SEC 2016). These concerns are exacerbated by evidence that investors may be less discerning about non-GAAP information if they believe that the information is audited (Anderson, Hobson, and Sommerfeldt 2022). Prior research indicating that audit quality is associated with disclosure quality beyond statutory GAAP requirements is limited to analysts' broad assessment of disclosure quality (Dunn and Mayhew 2004), or the propensity to issue management earnings forecasts, which are effectively an "early indication" of forthcoming GAAP results (Ball, Jayaraman, and Shivakumar 2012). We characterize the voluntary disclosure of non-GAAP earnings results as lying between these two extremes, having its foundation within the audited system leading to GAAP results, but specifically undoing some elements of GAAP and not being subject to any explicit audit confirmation. Our study also differs significantly from prior studies that link auditing attributes

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disclosure decisions. In addition, Frankel et al. (2011), Isidro and Marques (2013) and Jennings and Marques (2011) discuss and examine how different corporate governance attributes influence non-GAAP disclosures.

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with non-GAAP disclosures, which predominantly examine how firms' non-GAAP disclosure decisions influence auditors' judgments (Albrecht, Chen, and Nelson 2020; Black, Black, and Christensen 2014; Chen, Krishnan, and Pevzner 2012; Hallman, Schmidt, and Thompson 2022).[7] In contrast, we are concerned with how indicators of audit quality are associated with the quality of non-GAAP reporting.

Second, our results have implications for the debate about the role of auditors in validating measures of financial performance that do not comply with GAAP (Black and Christensen 2018).[8] For example, renewed interest from both the SEC and the PCAOB has led to ongoing discussion about whether auditors should have a more direct responsibility for attesting to the quality of voluntary non-GAAP disclosures (Brown 2019; Black and Christensen 2018). The Centre for Audit Quality (CAQ) has recently suggested an explicit role for auditors in attesting to non-GAAP disclosures (CAQ 2020) but this proposed role would be limited to assurance that the company has complied with applicable SEC rules and regulations that focus on the presentation of non-GAAP earnings, rather than the underlying quality of non-GAAP earnings. In contrast, our evidence suggests that clients of high-quality auditors already have higher quality non-GAAP reporting. Thus, a mandatory requirement solely focused on compliance is unlikely to reflect the full effect of auditing on the quality of non-GAAP disclosure. Our results suggest that, consistent with variation in the quality of GAAP earnings across auditor clienteles, there are similar variations in the quality of non-GAAP earnings given differences in the audit procedures, expertise and experience and reputational concerns. Thus, we believe that mandatory attestation of non-GAAP disclosures that is

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[7] Chen et al. (2012) examine the association between the magnitude of non-GAAP earnings exclusions, the level of audit fees and the likelihood of auditor resignations, while Black et al. (2014) examine the association between abnormal audit fees and the likelihood of reporting aggressive non-GAAP earnings. Hallman et al. (2022) investigate the frequency of auditor reliance on non-GAAP earnings metrics when determining the materiality benchmark, and whether these results in less conservative materiality benchmarks. Finally, Albrecht et al. (2020) explore if auditors incorporate high-quality non-GAAP information into their going concern assessments, and find that auditors are less likely to issue a going concern opinion when non-GAAP earnings are positive and GAAP earnings are negative. Hence, their evidence speaks to how the quality of non-GAAP (taken as given) influences auditor actions, rather than the possible influence of audit quality on the quality of non-GAAP.

[8] Black and Christensen (2018) provide important insights into the policy implications of prior non-GAAP research for both regulation and standard setting. With respect to the role of auditors in non-GAAP disclosures, our study responds to the call for an expanded and more direct role of auditors in formally reviewing non-GAAP adjustments and reconciliations for consistency in accordance with accounting and securities regulations.

narrowly focused on regulatory compliance will not result in uniform quality of non-GAAP reporting.

II. BACKGROUND AND HYPOTHESIS DEVELOPMENT

Institutional details on auditors and non-GAAP disclosures

Non-GAAP earnings are a voluntary disclosure by management, and hence are not part of the audited statutory (i.e., GAAP) accounts. However, at the same time, there is at least some recognition in auditing standards of auditor responsibilities beyond assuring the quality of GAAP financial statements. In Australia, an auditor has the responsibility to assure that all statutory and non-statutory information included in an entity's annual report is of sufficient quality. For example, Auditing Standard ASA 720 specifically requires that the auditor read both financial and non-financial information, and consider whether there is any material inconsistency between the other information and the financial report.[9] Paragraph 16 of ASA 720 states that: "If the auditor identifies that a material inconsistency appears to exist (or becomes aware that the other information appears to be materially misstated), the auditor shall discuss the matter with management", while paragraph 17 requires that if a material misstatement exists, "the auditor shall request management to correct the other information". Since non-GAAP earnings information is generally disclosed in the annual report in Australia, ASA 720 clearly defines that auditors have some responsibility to ensure the non-GAAP earnings information is not materially misleading relative to GAAP earnings.[10]

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[9] ASA 720 has been in effect since 2006, with an amendment in 2014. Prior to the adoption of International Auditing Standards in 2005, Australian Auditing Standard (AUS) 212 Other Information in Documents Containing Audited Financial Reports imposed similar requirements since 1995 (Para 11-17, AUS 212). Therefore, auditors' responsibility for statutory and non-statutory information appears to be consistent throughout the sample period (2001–2014).

[10] Discussions with senior audit partners from all of the Big 4 and one smaller firm universally confirmed that auditors read the non-GAAP earnings information included in annual reports and earnings releases and consider whether there is any material inconsistency between non-GAAP figures and other financial information in the financial reports. Their response to questions regarding possible concerns (or disagreement) with the client ranged from pointing to possible resignation (one partner) to requesting discussion with the audit committee (all partners). We gratefully acknowledge these partners for their input.

In the US context, similar requirements also apply.[11] Non-GAAP metrics, when included in a document with audited financial statements, fall under the aegis of the PCAOB's Auditing Standard (AS) 2710 and the American Institute of Certified Public Accountants (AICPA)'s AU-C section 720 (amended with SAS 137). In 2019, the Auditing Standards Board (ASB) of AICPA issued *Statement on Auditing Standards 137: The Auditor's Responsibilities Relating to Other Information Included in Annual Reports*, which is largely consistent with international auditing standards including ASA 720. The PCAOB has generally maintained that non-GAAP reporting is outside the formal scope of the audits, and auditors are not directly responsible for attesting to voluntary non-GAAP disclosures (Black and Christensen 2018; CAQ 2020). However, as stated by J. Robert Brown, a PCAOB board member, non-GAAP numbers "do not always remain entirely outside the audit…. In some cases, firms provide assurance on metrics that may qualify as non-GAAP…. This can occur, for example, with respect to the footnote containing disclosure about operating segments, something examined as part of the audit (Brown 2019)."

The setting described by Brown (2019) is largely consistent with non-GAAP earnings disclosure practices in Australia. In our sample of over 3,000 firm-year observations of disclosures with non-GAAP reconciliations, 65 percent (2,099) of firm-years present the reconciliation in the annual report, and over half (1,054 firm-years) present a reconciliation table in the footnotes of financial statements, most commonly as "Exceptional items" followed by "Segment reporting" and "Underlying/Operating profits". Since the majority of non-GAAP metrics in our sample appear in annual reports and even in the footnotes, the auditing standards suggest that Australian auditors have some role in assessing the disclosure of non-GAAP information.

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[11] See PCAOB Audit Standard 2710: Other information in documents containing audited financial statements. In particular, Paragraph 4 of AS 2710 states "(auditors) should read the other information and consider whether such information, or the manner of its presentation, is materially inconsistent with information, or the manner of its presentation, appearing in the financial statements……If the other information is not revised to eliminate the material inconsistency, he should communicate the material inconsistency to the audit committee and consider other actions, such as revising his report to include an explanatory paragraph, including an appropriate title, describing the material inconsistency, withholding the use of his report in the document, and withdrawing from the engagement."

In addition, the auditor might also use non-GAAP earnings figures as a materiality benchmark during the auditing process. When considering what benchmark to use as a starting point in determining materiality, ASA 320 indicates that financial statement items (e.g., normalized profits) and their volatility are important considerations (Para A3-A7, ASA320).[12] In theory, higher quality non-GAAP earnings (i.e., where non-GAAP exclusions are transitory) tend to be less volatile compared with GAAP earnings (Hallman et al. 2022).[13] Thus, if non-GAAP earnings represent a better measure of underlying performance (i.e., the underlying economics), then they may be used as the benchmark for determining the materiality amount (Hallman et al. 2022). [14]

Hypotheses

Prior research suggests that a high-quality auditor (Big 4 or industry specialist) possesses greater incentives and competency to provide higher quality audits (Dopuch and Simunic 1982; Dunn and Mayhew 2004; DeFond and Zhang 2014). Even when firms employ a Big 4 auditor, hiring an industry specialist can further improve both statutory and voluntary disclosure quality (Dunn and Mayhew 2004). Since non-GAAP reporting is a form of voluntary disclosure, we first examine whether managers' decision to voluntarily disclose non-GAAP earnings is associated with auditor choice. Prior studies find that auditors may have negative views on voluntary disclosures, since these disclosures may be associated with greater litigation risks, thereby resulting in higher audit fees (Chen et al. 2012; Krishnan, Pevzner, and Sengupta 2012). Similarly, high-quality auditors may also have a negative view of voluntary non-GAAP disclosures and discourage their use. Although non-GAAP disclosures are unaudited, if they

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[12] For example, paragraph A6 of ASA320 indicates that "when, as a starting point, materiality for the financial report as a whole is determined for a particular entity based on a percentage of profit before tax from continuing operations, circumstances that give rise to an exceptional decrease or increase in profit may lead the auditor to conclude that materiality for the financial report as a whole is more appropriately determined using a normalized profit before tax from continuing operations figure based on past results".

[13] Ribeiro, Shan, and Taylor (2019) find that non-GAAP earnings disclosed by Australian firms are significantly less volatile than their closest GAAP equivalent.

[14] Using a sample of 229 UK firms that report non-GAAP profit-before-tax, Hallman et al. (2022) find that auditors of 159 (69 percent) of these companies rely on non-GAAP profit-before-tax to set the materiality benchmark. Moreover, Eilifsen and Messier Jr (2015) find that seven of the eight largest US public accounting firms use income before taxes or "normalised" earnings as the materiality benchmark. In Australia, the auditing standards do not require explicit disclosure of the materiality threshold. However, in discussions with Big 4 audit partners, they suggest that it is common to use a non-GAAP measure in determining the materiality benchmark.

are included as part of the financial statements (or in accompanying documents), they still must be read by the auditor to ascertain that the disclosures are not misleading or materially inconsistent with the audited financial statements. If non-GAAP disclosures reflect an upwardly biased picture of performance, auditors may also be uncomfortable with non-GAAP disclosures for the same reason as regulators (Hoogervorst 2016).

However, voluntary non-GAAP disclosure is ultimately a management decision, and may be an attempt either to inflate stakeholder perceptions, or to provide informative disclosure. Prior research finds mixed results, with evidence consistent with both viewpoints (Black et al. 2018).[15] If managers are motivated to manage investor perceptions, then they may do so using various forms of earnings management (Dechow, Ge, and Schrandc 2010). However, there is extensive evidence suggesting that high-quality auditors constrain aggressive GAAP accounting choices (DeFond and Zhang 2014). In reducing the ability to use earnings management methods, high- quality auditors may indirectly encourage voluntary disclosure of alternative performance measures such as non-GAAP earnings. Attempts to manage investor perceptions outside audited GAAP may result in client firms that use high-quality auditors being more likely to voluntarily disclose non-GAAP earnings.

In addition, the tendency for higher quality auditors to constrain aggressive accounting choices also potentially results in some degree of conservatism, which can reduce the extent to which external stakeholders such as investors and analysts find reported GAAP earnings to be useful. Hence, clients of high-quality auditors may be more likely to voluntarily disclose non-GAAP earnings to satisfy external stakeholders' demand for informative and useful financial information, especially if these disclosures are more credible because the firm employs a high-quality auditor. Prior research suggests that audit quality is an important signal for credible earnings-related disclosure (Ball et al. 2012), and we expect that the use of a high-quality auditor may likewise be associated with a higher probability of managers' voluntary disclosure of non-GAAP earnings measures that are useful to investors and others. Hence, regardless of

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[15] Although prior research finds evidence consistent with both explanations, Black et al. (2018) suggest that more recent evidence is largely consistent with the informative disclosure rationale.

manager's motives in disclosing non-GAAP earnings, we expect a positive relation between the disclosure of non-GAAP numbers and the use of a high-quality auditor. Accordingly, we hypothesize that:

H1: *The use of a high-quality auditor is positively associated with the likelihood of non-GAAP disclosure.*

Although both aggressive and informative disclosure rationales for voluntary disclosure of non-GAAP earnings can lead to our H1, there is still some tension in our prediction, and it is not obvious ex-ante what empirical result will emerge. For example, if high-quality auditors discourage the disclosure of non-GAAP measures that are less conservative than their GAAP equivalent, then we may also observe less frequent non-GAAP reporting by clients of high-quality auditors.

Regardless of the directional association in H1, our primary interest is whether high-quality auditors are associated with higher quality non-GAAP earnings disclosures. As discussed previously, a positive association between managers' voluntary disclosure of non-GAAP earnings and the use of a high-quality auditor could reflect a positive *or* negative association between auditor quality and the quality of non-GAAP earnings. If perception management via non-GAAP earnings increases when other forms of earnings management are constrained, then the use of a high-quality auditor may be negatively associated with the quality of non-GAAP earnings. However, on balance we expect that the positive association between the use of a high-quality auditor and the quality of GAAP earnings may extend to voluntarily disclosed non-GAAP for a number of reasons. First, a higher quality audit may also result in higher quality disclosures which are based on that information system. The audit process involves far more than just attesting to GAAP compliance (DeFond and Zhang 2014; DeFond, Francis, and Hallman 2018), and includes analysis of internal controls as well as the extent to which transactions are reliably captured within the accounting system. Non-GAAP earnings are a modification of GAAP–compliant earnings measures derived from the audited accounting system, rather than from an entirely "independent" and unaudited measurement system.

Second, as suggested by Ball et al. (2012), the decision to use a high-quality auditor may be part of a coordinated disclosure strategy, encompassing both the quality of statutory GAAP disclosures as well as voluntary disclosures such as non-GAAP earnings. Third, we also expect high-quality auditors to have better knowledge and understanding of the company being audited and the industry in which it operates (Dopuch and Simunic 1982; Craswell, Francis, and Taylor 1995; Gul, Fung, and Jaggi 2009), and so be more aware of attempts at perception management via non-GAAP earnings disclosures.

Finally, even in the absence of any direct legal evidence, and despite the significantly reduced "read and consider" requirement, we expect high-quality auditors will be concerned with the possible reputation risk (Francis and Krishnan 1999; Lee, Taylor, and Taylor 2006) of being associated with low-quality non-GAAP earnings disclosures. For example, in the US, non-GAAP financial measures have risen to become the most common reason for SEC comment letters (Ernst & Young 2020). Although most letters are concerned with a failure to follow SEC disclosure and compliance interpretations (C&DIs), the SEC has also expressed concern about selective exclusion of nonrecurring charges compared to nonrecurring gains (i.e., aggressive non-GAAP figures). SEC comment letters potentially lead to reputation damage to the incumbent auditor, since audit partners and firms are often publicly named on the letter.[16]

The extent to which use of a high-quality auditor is positively associated with the quality of managements' non-GAAP earnings disclosures is ultimately an empirical question, with no prior evidence of which we are aware. However, based on our expectation that the extant association between auditor quality and the quality of GAAP earnings can be extended to voluntarily disclosed non-GAAP earnings, we examine two related hypotheses on the positive association between auditor quality and the quality of non-GAAP earnings. First, we examine the persistence of non-GAAP exclusions. Prior studies find that lower quality non-GAAP exclusions have predictive ability for future earnings, cash flows, and abnormal returns, which suggests that these exclusions may be recurring and therefore inappropriately excluded in

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[16] Consistent with this view, our results (untabulated) and Donelson, Kartapanis, and Koutney (2020) find that clients of Big 4 auditors are less likely to receive SEC comment letters on non-GAAP earnings.

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calculating non-GAAP earnings (Doyle et al. 2003; Curtis et al. 2014). Previous studies also find that non-GAAP exclusions are, on average, recurring and associated with future performance (Frankel et al. 2011; Kolev et al. 2008). We hypothesize that non-GAAP exclusions of clients of high-quality auditors are more transitory and less associated with future performance (i.e., less persistent):

H2a: *The use of a high-quality auditor is associated with lower persistence of non-GAAP exclusion*s.

Our second hypothesis addresses the value relevance of non-GAAP exclusions. Value relevance is often measured as the ability of earnings to explain variation in stock prices or returns (Francis, LaFond, Olsson, and Schipper 2004). Prior studies find that non-GAAP earnings are more value relevant than GAAP earnings. For example, Entwistle, Feltham, and Mbagwu (2010) find that non-GAAP earnings disclosed by Standard and Poor's (S&P) 500 firms are significantly more value relevant than I/B/E/S earnings, which in turn are more value relevant than GAAP earnings. Venter, Emanuel, and Cahan (2014) use price-level regressions based on the Ohlson (1995) model to examine the incremental and relative value relevance of mandatory non-GAAP earnings disclosures reported by South African firms. They find that non-GAAP earnings have higher value relevance than GAAP earnings. Similarly, Ribeiro et al. (2019) find that non-GAAP earnings voluntarily reported by Australian firms are more value relevant than their closest GAAP equivalent. To the extent that non-GAAP exclusions are truly transitory, they should not be value relevant. However, given prior evidence that non-GAAP adjustments tend to reflect recurring items that have been found to predict future expenses (Frankel et al. 2011; Kolev et al. 2008), we expect that non-GAAP to be, on average, value relevant. To the extent that high-quality auditors can mitigate managers' abilities to inappropriately exclude recurring items in calculating non-GAAP earnings, we predict that non-GAAP exclusions of clients of high-quality auditors are less value relevant. Hence, we hypothesize that:

H2b: *The use of a high-quality auditor is associated with lower value relevance of non-GAAP exclusions*.

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III. SAMPLE AND RESEARCH DESIGN

Data and sample

We identify and hand-collect non-GAAP earnings disclosures from Australian annual reports, preliminary financial statements and/or earnings announcements for ASX 500 firms over the period of 2001 to 2014.[17] We use the text search technology available from the Securities Industry Research Centre of Asia-Pacific (SIRCA) to identify all instances in which full-year profit results also include a non-GAAP earnings disclosure, as reported by an ASX 500 company. We use a comprehensive dictionary of terms commonly used to describe non-GAAP earnings such as "cash earnings", "core earnings", "underlying earnings" and "normalized profit" in the initial search stage.[18] Given the variation in disclosed non-GAAP earnings (including whether they are pre- or post-tax), we then hand collect the GAAP measure which most closely corresponds to the non-GAAP measure.[19]

The final sample consists of 8,905 firm-year observations (1,048 unique firms) with 2,576 non-GAAP disclosers (568 unique firms) over 2001–2014. We use the Morningstar DatAnalysis Database to extract accounting information and the SIRCA database to extract auditing information. To mitigate the undue influence of outliers, we winsorize the top and bottom one percentile of all continuous variables used in the regression analysis. Results are unchanged when the regressions are estimated on the data without winsorization.

Research design

Prior to examining the association between audit quality indicators and the quality of non-GAAP disclosures, we first examine the extent to which audit quality is associated with the likelihood that managers will voluntarily disclose non-GAAP earnings measures (*H*1). We estimate a probit regression of the following specification:

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[17] Our sample consists of firms that are or were previously included in ASX 500 and we check and collect their non-GAAP disclosures for the whole sample period.

[18] In the initial stages of identifying non-GAAP earnings disclosures, two research assistants (to cross-check) and one senior researcher examined each case to ensure that an appropriate match occurred with the closest GAAP equivalent. Coulton et al. (2016) provide additional details on the data collection process.

[19] We also verify our "matching" of GAAP and non-GAAP by reference to firms' own reconciliation of non-GAAP and GAAP.

$$Probit\ (Non\text{-}GAAP\_indicator_{i,t}) = \alpha + \beta_1 Auditor_{i,t} + \gamma Controls_{i,t} + \varepsilon_{i,t} \qquad (1)$$

where *Non-GAAP_indicator* is an indicator variable coded one when managers disclose non-GAAP earnings; *Auditor* is an indicator variable capturing the use of a high-quality auditor, representing either a Big 4 auditor (*Big4*), a national industry leader based on audit fees (*Leader*), or a city-level industry leader based on audit fees (*City leader*). *Controls* are a set of control variables, including leverage (*LEV*), the market to book ratio (*MTB*), sales growth (*SG*), firm size (*SIZE*), an indicator for loss (*LOSS*), return on assets (*ROA*), institutional ownership (*%INST*), stock return (*RETURN*), CEO duality (*CEO_Duality*), board size (*BOARDSIZE*), board independence (*BOARDIND*), number of analyst coverage (*#ANALYST*), absolute value of abnormal accruals (*ABSAC*) and accounting conservatism (*CSCORE*).[20] To control for unobserved industry- and year-specific heteroscedasticity, we also include year and industry indicator variables in all models. The coefficient of interest in the regression is β_1. If clients of high-quality auditors are more likely to disclose non-GAAP earnings, we expect the coefficient on β_1 to be positive.

Following prior research (DeFond and Zhang 2014), we classify auditors as high-quality when they are either Big 4 auditors, or industry market leaders, defined at either the national or city-specific level. We measure national and city-level auditor industry leadership variables based on an auditor's market share of audit fees, using two-digit SIRCA industry codes as the basis for identifying client industry affiliation. Prior studies suggest that industry expertise is increasing in market share (Craswell et al. 1995; Ferguson and Stokes 2002; Ferguson, Francis, and Stokes 2003; Francis, Reichelt, and Wang 2005; Minutti‑Meza 2013).[21]

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[20] Prior studies using street earnings provided by financial analysts in the I/B/E/S database as the proxy for non-GAAP earnings suggest that the probability of disclosing non-GAAP earnings is positively associated with firm size, the incidence of reporting a financial loss and the volatility of accounting profitability, and negatively related to financial leverage and the market-to-book ratio (Heflin and Hsu. 2008; Heflin, Hsu, and Jin 2015; Black et al. 2017b). In addition, the level of non-GAAP exclusions is negatively associated with firm size, sales growth and the market-to-book ratio, and positively related to earnings volatility (Heflin and Hsu. 2008; Heflin et al. 2015).

[21] Although our sample is restricted to non-GAAP disclosers, the market share of auditors is based on the full population (i.e., non-GAAP disclosers and firms who do not disclose non-GAAP). In addition to audit fees, we also estimate client-industry leadership based on number of clients. The results are qualitatively similar to those we report using audit fees.

Next, we conduct two sets of tests to examine the effect of audit quality on the properties of voluntarily disclosed non-GAAP earnings figures. Our first test examines the association between indicators of audit quality and the persistence of non-GAAP exclusions (*H2a*). Consistent with Kolev et al. (2008), Frankel et al. (2011) and Curtis et al. (2014), we estimate the following regression models:[22]

$$Future\ Performance_{i,t+1} = \alpha + \beta_1 Non\text{-}GAAP\_Earnings_{i,t} + \beta_2\ Exclusions_{i,t} + \beta_3\ Auditor_{i,t}$$
$$+ \delta_1\ Non\text{-}GAAP\_Earnings_{i,t} \times Auditor_{i,t} + \delta_2\ Exclusions_{i,t} \times Auditor_{i,t} + \gamma Controls_{i,t} + \varepsilon_{i,t}\ (2)$$

$$Future\ Performance_{i,t+1} = \alpha + \beta_1 Non\text{-}GAAP\_Earnings_{i,t} + \beta_2\ MGRRECUR_{i,t} + \beta_3\ DISCONT_{i,t}$$
$$+ \beta_4\ BELOWLINE_{i,t} + \beta_5\ Auditor_{i,t} + \delta_1\ Non\text{-}GAAP\_Earnings_{i,t} \times Auditor_{i,t} + \delta_2\ MGRRECUR_{i,t}$$
$$\times Auditor_{i,t}\ + \delta_3\ DISCONT_{i,t} \times Auditor_{i,t} + \delta_4\ BELOWLINE_{i,t}\ \times Auditor_{i,t} + \gamma Controls_{i,t} + \varepsilon_{i,t}$$

$$(3)$$

where *Future Performance* is either *Future Operating Income* or *Future Cash Flow*. *Future Operating Income* is earnings per share from operations in *t+1*, and *Future cash flow* is cash flow per share from operations.[23] *Non-GAAP_Earnings* is the hand-collected non-GAAP earnings per share reported in time *t*. *Exclusions* is the difference between non-GAAP and GAAP earnings per share. The control variables are similar to those included in Equation 1 (Bentley et al. 2018; Christensen et al. 2019; Frankel et al. 2011; Kolev et al. 2008). To better isolate those exclusions likely to reflect aggressive managerial actions, we follow Christensen et al. (2019, 2021) and further decompose *Exclusions* into three components in Equation 3: managerial recurring exclusions per share (*MGRRECUR*), exclusions for discontinued operations per share (*DISCONT*), and below-the-line exclusions per share (*BELOWLINE*).[24]

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[22] We also acknowledge that the firm-quarter-specific measure of exclusion persistence suggested by Gee, Li, and Whipple (2021) is likely to better capture non-GAAP exclusion quality for future research.

[23] We believe that the definition of operating income is most appropriate for examining the research question because operating income excludes non-recurring special items but includes recurring items that might appear in firms' "other exclusions" in calculating non-GAAP earnings. As a result, it best approximates the concept of "permanent earnings" (Kolev et al. 2008; Frankel et al. 2011; Curtis et al. 2014).

[24] Christensen et al. (2019, 2021) decompose *Exclusions* into managerial recurring exclusions per share, special items per share and, and below-the-line exclusions per share. However, since 2001, Australian accounting standards do not allow firms to classify profit and loss items as abnormal (Cameron and Gallery 2008). Thus, we rely on the annual items in the Morningstar DatAnalysis Database and construct managerial recurring exclusions, exclusions for discontinued operations and below-the-line exclusions in the spirit of Christensen et al. (2019, 2021). More specifically, we calculate total exclusions as the difference between the hand-collected non-GAAP earnings per share and reported EPS after abnormals (#8036), the latter of which is equivalent to GAAP diluted earnings after extraordinary items in Compustat (*EPSFIQ*). Managerial recurring exclusions (*MGRRECUR*) are

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Because we express all main variables, other than the indicator variables, in dollars per share and scaled by total assets per share, the coefficients in Equations 2 and 3 can be interpreted as the future-dollar implication of a dollar change in the unscaled independent variable. If non-GAAP exclusions are irrelevant and non-recurring and have no future earnings consequences, then the coefficient on non-GAAP exclusions (i.e., β_2) should be zero. Following prior research, we expect the coefficient on non-GAAP exclusions (*Exclusions*) to be negative, indicating that a portion of non-GAAP exclusions is comprised of recurring expenses (Doyle et al. 2003; Gu and Chen 2004; McVay 2006; Kolev et al. 2008; Frankel et al. 2011). *H2a* predicts that clients of high-quality auditors report higher quality non-GAAP earnings, and we expect the incremental effect (δ_2) to be positive in Equation 2, countering the expected negative coefficient associated with non-GAAP exclusions for clients of low-quality auditors. Similarly, to the extent that *MGRRECUR* captures aggressive managerial exclusions, we expect a positive coefficient on δ_2 in Equation 3.

Second, we investigate whether audit quality is associated with the value relevance of non-GAAP exclusions (*H2b*). We follow Collins et al. (1997) and conduct our tests based on Ohlson's (1995) framework, where firm value is a function of the book value of equity and accounting earnings. We estimate the following regression:

$$Price_{i,t} = \alpha + \beta_1 Book\ value_{i,t} + \beta_2\ Non\text{-}GAAP\_Earnings_{i,t} + \beta_3\ Exclusions_{i,t} + \beta_4\ Auditor_{i,t} +$$
$$\beta_5 Book\ value_{i,t} \times Auditor_{i,t} + \beta_6\ Non\text{-}GAAP\_Earnings_{i,t} \times Auditor_{i,t}$$
$$+ \beta_7\ Exclusions_{i,t} \times Auditor_{i,t} + \varepsilon_{i,t} \tag{4}$$

where *Price* is the fiscal year-end closing price, adjusted for stock splits and stock dividends for firm *i* at time *t*; *Book value* is common equity per share for firm *i* at time *t*; *Non-GAAP_Earnings* is non-GAAP earnings per share. Non-GAAP exclusions are expected to be value relevant among clients of low-quality auditors because the exclusions can include persistent expense items. However, for high-quality auditors, we expect the incremental

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the difference between the hand-collected non-GAAP earnings and Reported NPAT before abnormals (#8020), the latter of which is equivalent to GAAP earnings from operations in Compustat (*OEPSXQ*). Exclusions for discontinued operations (*DISCONT*) is profit (loss) from discontinued operations (#8033), mimicking special item exclusions. Below-the-line exclusions are abnormals after tax (#8031) provided by the Morningstar DatAnalysis Database.

coefficient β_7 to be positive, indicating higher quality non-GAAP exclusions for clients of high-quality auditors. Recall that if non-GAAP exclusions are transitory one would expect them to have no value relevance.

Endogenous auditor selection

To address endogeneity concerns arising from potential selection bias with respect to the use of a high-quality auditor, we use the entropy balancing approach to create a control sample of clients not using high-quality auditors and that exhibit covariate balance with the sample of clients of high-quality auditors. Entropy balancing has several primary advantages over the propensity score matching approach in addressing the selection bias of high-quality auditors.[25] For example, the key advantage of entropy balancing over PSM is that it ensures covariate balance, thereby obviating the problem of biased PSM estimates (Hainmueller 2012; Armstrong, Jagolinzer, and Larcker 2010; Shipman et al. 2017; McMullin and Schonberger 2019).[26]

Panel D of Table 1 presents means for the sample of clients of high-quality auditors and the control sample generated from the entropy balancing, along with the *t*-statistics for tests of differences. The results indicate no significant differences between firms with high-quality and low-quality auditors. This evidence indicates the covariates are balanced across the two groups, and that differences in the control variables are not likely to confound the estimates of the average effect of high-quality auditors.

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[25] First, entropy balancing's use of continuous weights ensures that higher order moments of covariate distributions are similar across treated and control samples resulting in near-perfect covariate balance (Hainmueller 2012). Second, entropy balancing permits less researcher discretion than PSM, through focusing on setting a tolerance for convergence of the algorithm (Shipman, Swanquist, and Whited 2017). Third, entropy balancing should reduce idiosyncratic noise by assigning continuous weights to all control observations, rather than integer weights to observations matched via PSM (McMullin and Schonberger 2019).

[26] Propensity score matching (PSM) is premised on the assumption that an appropriate comparison is between (in this case) firms using an auditor identified as higher quality and those which, in some respects "should" make this type of a choice do not (Lawrence, Minutti-Meza, and Zhang 2011; Minutti-Meza 2013). We also follow Minutti-Meza (2013) and test the robustness of our results to PSM. We first estimate a Probit model of auditor choice using a set of firm characteristics including firm size, profitability, asset tangibility, financial leverage, financial loss and debt issuance. After obtaining the propensity score of hiring a Big 4 auditor (market leader auditor), we follow Lawrence et al. (2011) and match, without replacement, a non-Big 4 (non-market leader client) with a Big 4 (market-leader) client that has the closest predicted value within a maximum distance of three percent. We repeat our previous analyses and find the results (untabulated) remain qualitatively similar.

Summary statistics and correlation analysis

We report summary statistics for all variables in Panel A of Table 1. The mean dollar value per share of GAAP earnings is $0.28, while the mean dollar value per share of non-GAAP earnings is $0.33. This pattern indicates that non-GAAP earnings are generally higher than GAAP earnings. Panel B indicates that, among our sample of non-GAAP disclosers, 75.1 percent are clients of Big 4 auditors,[27] while 29.4 percent of non-GAAP disclosers are clients of national-level market leaders (measured by the market share of audit fees).[28] We also find that 36.7 percent of non-GAAP disclosers are audited by city-level leaders. Compared to non-GAAP disclosers, the likelihood of using Big 4 or industry specialist auditors is significantly lower for firms without non-GAAP disclosure. Consistently, Panel C reports an economically significant difference in the probability of disclosing non-GAAP figures between firms using high- versus low-quality auditors. For firms with Big 4 auditors, the probability of non-GAAP disclosure is 15.0 percent higher than for firms using non-Big 4 auditors. Compared to clients of non-industry specialist auditors, the likelihood of non-GAAP disclosure is 12.3 percent higher for firms audited by national leaders and 15.1 percent higher for firms using city-level industry leaders. Thus, the statistics in Table 1 provide preliminary evidence consistent with the view that clients of high-quality auditors are more likely to disclose non-GAAP information.

High-quality auditors and the likelihood of non-GAAP earnings disclosures

Table 2 reports the results from estimating the model in Equation 1, which provides a test of *H1*. Initially, we need to disentangle the separate effects of Big 4 auditors and industry leaders. We first explore whether clients of Big 4 auditors are more likely to report non-GAAP earnings than clients of non-Big 4 auditors. The results in column 1 reveal that the indicator Big 4 auditor variable (*Big4*) is positively associated with the probability of disclosing non-

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[27] In an examination of data from more than 40 countries, Francis, Michas, and Seavey (2013a) find that in 2,335 firm-year observations in Australia between 1997 and 2007, 71% of firms are audited by Big 4 auditors, while the Big 4 audit market Herfindahl index based on audit fees is 0.46.

[28] Consistently, Carson, Simnett, Soo, and Wright (2012) find that 25.6% of firms are audited by market leaders (calculated in terms of audit fee market share) in their Australian sample.

GAAP earnings ($\beta_1 = 0.126$, $t = 2.85$), suggesting that clients of Big 4 auditors are more likely to disclose non-GAAP earnings information.

The effect of industry leadership on the probability of disclosing non-GAAP earnings is reported in column 2 of Table 2 for national industry leaders, and in column 3 for city-level industry leaders. These tests are restricted to firms audited by Big 4 auditors. The results reveal that the indicator variable for the city-level leader is positively associated with the probability of non-GAAP disclosures, but at the national level we do not observe a statistically significant effect. In columns 4 to 6, we use the entropy-balanced sample constructed using weighted least squares with the weights computed based on the first stage of the entropy-balancing procedure. We find that clients of Big 4 auditors are more likely to disclose non-GAAP earnings.[29] Overall, the results suggest that clients of Big 4 auditors are more likely to disclose non-GAAP earnings.

High-quality auditors and the quality of non-GAAP exclusions

For tests of the relation between high-quality auditors and the persistence of non-GAAP exclusions (*H2a*), we regress one-year-ahead operating income (*Future Operating Income*) on non-GAAP exclusions, the indicator variables for high-quality auditors and their interaction terms. The results in column 1 of Table 3 indicate the coefficient on non-GAAP exclusions is significantly negative ($\beta_2 = -0.326$, $t = -4.51$). The result is consistent with prior research that non-GAAP exclusions are less persistent than non-GAAP earnings (β_1) ($0.326 < 0.461$), but are not entirely transitory (Doyle et al. 2003; Gu and Chen 2004; Frankel et al. 2011). Given the model specification, β_2 measures the persistence of exclusions for low-quality (non-Big 4) auditors. The coefficient on the interaction term between non-GAAP exclusions and Big 4 auditors is significantly positive ($\delta_2 = 0.257$, $t = 5.04$), which largely counters the negative coefficient on β_2. This result validates *H2a* that non-GAAP exclusions are more transitory (i.e., less persistent) when the firm employs a Big 4 auditor.

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[29] The results in columns 5 and 6 suggest that clients of national and city-level specialist auditors are less likely to disclose non-GAAP earnings. This result is consistent with the view that industry specialist auditors discourage the disclosure of non-GAAP measures that are less conservative than their GAAP equivalent, leading to less frequent non-GAAP reporting by their clients. This result, based on the entropy-balanced sample, is somewhat different from that for Big auditors and that using the full sample. However, as we explain previously, there is no obvious ex-ante prediction regarding the empirical results.

The results reported in column 1 of Table 3 indicate that, on average, one dollar of non-GAAP exclusions is associated with $0.07 (0.326–0.257) of future expenses among firms that are audited by Big 4 auditors, compared with $0.33 of future expenses for firms that are audited by non-Big 4 auditors. In other words, non-GAAP exclusions reported by firms audited by Big 4 auditors tend to have less persistence for future operating performance, implying higher quality of non-GAAP earnings compared to firms audited by non-Big 4 auditors. Additional tests in Table 3 suggest that the sum of β_2 and δ_2 for Big 4 and national level industry leaders is not significantly different from zero, indicating that non-GAAP exclusions for clients of high-quality auditors are on average completely transitory.

We then test the effects of national and city-level industry leaders on the persistence of non-GAAP exclusions. As noted earlier, these tests are restricted to client firms with Big 4 auditors. The results in column 2 suggest that one dollar of non-GAAP exclusions is associated with $0.03 (0.099–0.072) of future expenses among firms audited by national industry leaders, compared with $0.10 of future expenses for firms that are audited by non- leaders.[30]

Next, we follow Christensen et al. (2019, 2021) and decompose non-GAAP exclusions into managerial recurring exclusions, exclusions for discontinued operations, and below-the-line exclusions. This decomposition enables us to isolate those exclusions likely to reflect aggressive managerial adjustments. Thus, to the extent that managerial recurring exclusions are mostly likely to reflect managers' aggressive use of exclusions, we expect that managerial recurring exclusions are more persistent than other components, and that these exclusions for clients of high-quality auditors are less persistent due to the auditor effect. Consistent with prior studies, we find that the coefficient on managerial recurring exclusions in columns 4 to 6 is significantly negative, suggesting that these exclusions are recurring expenses. Importantly, firms with Big 4 or industry specialist auditors have less persistent managerial recurring

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[30] The control variables have significant coefficients and signs consistent with prior research. For example, leverage (*LEV*) and the loss indicator (*LOSS*) are negatively associated with future operating income (*Future Operating Income*), suggesting that firms with higher leverage and experiencing a loss have lower future operating income. On the other hand, the market-to-book ratio (*MTB*) and firm size (*SIZE*) are positively associated with future operating income, indicating firms with higher market-to-book ratio and more assets tend to have higher future operating income (Kolev et al. 2008; Curtis et al. 2014).

exclusions, as the coefficient on the interaction between *MGRRECU* and *Auditor* is significantly positive. In contrast, the coefficients on the interaction between *Auditor* and *DISCON* and *BELOWLINE* are mostly insignificant. The results also corroborate the view that high-quality auditors primarily constrain aggressive non-GAAP exclusions that contain persistent and recurring expenses.

Since non-GAAP exclusions can contain non-cash items such as the amortization of intangibles and share-based compensation, we also use future operating cash flows as the dependent variable (Doyle et al. 2003; Bentley et al. 2018). The results in columns 7 to 12 are generally similar but statistically weaker than those using future operating income as the dependent variable. In Panel B of Table 3, we conduct the persistence tests using the entropy-balanced sample and find similar inferences.

Collectively, the results reported in Table 3 are consistent with *H2a*. The results suggest that non-GAAP exclusions by clients of high-quality auditors tend to be more transitory and less persistent, consistent with the argument that high-quality auditors can assist clients to deliver not only higher quality statutory GAAP reports but also higher quality voluntary disclosures.

High-quality auditors and value relevance of non-GAAP reporting

In Table 4, we report value relevance tests of non-GAAP reporting that further extend our analysis of the relation between audit quality indicators and the quality of voluntarily disclosed non-GAAP earnings (*H2b*). We regress price on book values, non-GAAP earnings, non-GAAP exclusions, indicator variables of high-quality auditors and their interaction terms. The results in column 1 indicate that non-GAAP earnings are, on average, value relevant for clients of low-quality auditors ($\beta_2 = 5.322$, $t = 10.28$). Importantly, we find a significant incremental improvement in the value relevance of non-GAAP earnings for Big 4 clients with the degree of improvement being more than 120 percent ($\beta_6 = 6.496$). However, we observe that non-GAAP exclusions are associated with lower firm value for clients of low-quality auditors ($\beta_3 = -1.277$, $t = -2.92$), but the incremental influence of Big 4 auditors on the value relevance of exclusions is to effectively render them uninformative, which is consistent with

these exclusions being more transient and less persistent for clients of high-quality auditors. For example, the coefficient on *Exclusions* is –1.277 in column 1, while the coefficient on the interaction between *Exclusion* and *Big4* is 1.166. Additional tests suggest that the sum of these two coefficients is not statistically different from zero, indicating that non-GAAP exclusions for Big 4 clients are not value relevant. Thus, the results are consistent with *H2b*, namely that exclusions are more likely to result in high-quality non-GAAP earnings when firms employ high-quality auditors.

When we restrict our sample to clients of Big 4 auditors and use client-industry leadership as a proxy for audit quality, we do not observe incremental influence on the value relevance of non-GAAP earnings or non-GAAP exclusions. However, since non-GAAP exclusions are not value relevant and non-GAAP earnings are of high quality for Big 4 auditees, the incremental influence of industry specialist auditors is limited, reflecting little within-Big 4 variation in the value relevance of non-GAAP exclusions.

V. ADDITIONAL TESTS

High-quality auditors and non-GAAP reporting: US evidence

Our primary analysis considers voluntarily disclosure of annual non-GAAP earnings by Australian firms. These disclosures are largely unregulated (Coulton et al. 2016) and are reported by Australian firms in their financial statements, which are based on International Financial Reporting Standards (IFRS). Thus, a natural question is whether our evidence extends to other markets, especially those with different accounting standards (e.g., the US). To address this concern, we follow Bentley et al. (2018) and Christensen et al. (2019, 2021) and repeat the analysis using *quarterly* US non-GAAP earnings disclosures.[31] Compared to the US setting, Australian firms and their non-GAAP disclosure may present a relatively more powerful setting in examining the relation between high-quality auditors and non-GAAP reporting for two reasons. First, the US data from Bentley et al. (2018) are quarterly non-GAAP

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[31] We thank a reviewer for pointing out the generalization issue and the suggestion of conducting the analysis using available US non-GAAP data. We also thank Bentley et al. (2018) for making the non-GAAP data publicly available.

earnings per share, whose GAAP equivalents are not audited. In contrast, we hand-collect and use annual non-GAAP earnings for our analysis, which are generally disclosed as part of the annual report together with the audited financial statements. To the extent that auditors follow auditing standards (e.g., ASA 720) and read both financial and non-financial information to ensure consistency, we expect auditors to be more likely to check, and be accountable for, *annual* rather than *quarterly* non-GAAP earnings. Second, we find that most Australian firms disclosing the reconciliation between GAAP and non-GAAP earnings present the reconciliation tables in the footnotes of financial statements. Thus, any material difference between GAAP and non-GAAP earnings is more likely to be identified by Australian auditors and discussed with management.

Table 5 reports the results of testing whether US clients of Big 4 or industry specialist auditors are more likely to report non-GAAP earnings (*H1*). The results in columns 1 and 4 are consistent with the Australian evidence that the likelihood of non-GAAP disclosure is higher for clients of Big 4 auditors. However, when restricting the sample to Big 4 clients, we find that the indicator variable for the city-level leader is negatively associated with the probability of non-GAAP disclosures, suggesting that clients of city-level leaders are less likely to disclose non-GAAP information compared to other Big 4 auditors.[32] We do not have an explanation for this unexpected result, but the results are in line with the Australian results for national leaders.

Table 6 reports the results for tests of the relation between high-quality auditors and the persistence of non-GAAP exclusions (*H2a*). We find that non-GAAP exclusions are not entirely transitory, evidenced by a negative coefficient on non-GAAP exclusions for non-Big 4 clients ($\beta_2 = -0.309$, $t = -5.90$). The coefficient on the interaction term between non-GAAP exclusions and Big 4 auditors is significantly positive ($\delta_2 = 0.110$, $t = 2.69$), suggesting that non-GAAP exclusions for clients of Big 4 auditors are more transitory and less persistent.

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[32] For the US sample, national industry leader is the auditor whose market share is greater than 30% in a two-digit SIC category in a particular year (e.g., Reichelt and Wang, 2010; Lim and Tan, 2010; Cahan, Jeter, and Naiker 2011). The city-level industry specialist is the auditor who has a market share greater than 30% in a two-digit SIC category in a particular city and year, following Reichelt and Wang (2010) and McGuire, Omer, and Wang (2012). The definitions of national and city-level industry specialists in the US are broadly similar to those for the Australian sample.

Similarly, when using future cash flow as the dependent variable in column 4, we find the coefficient on the interaction term ($\delta_2 = 0.384$) largely counters the negative coefficient on β_2 (−0.512). Accordingly, the results in columns 1 and 4 indicate that one dollar of non-GAAP exclusions is associated with $0.20 and $0.13 future expenses, respectively, among clients of Big 4 auditors, compared with $0.31 and $0.51 future expenses for non-Big 4 clients. However, when tests are restricted to client firms with Big 4 auditors, we do not find significant effects of national or city-level industry leaders on the quality of non-GAAP earnings. Overall, the results in Table 6 are generally consistent with our previous Australian evidence on the positive association between Big 4 auditors and the quality of non-GAAP exclusions.[33] Collectively, the Australian and US evidence suggests that Big 4 client firms tend to have more transitory and less persistent non-GAAP exclusions compared to non-Big 4 clients. This evidence implies that high-quality auditors are associated with both higher quality statutory (GAAP) reporting and higher quality voluntary disclosures.

Finally, we examine the relation between audit quality and the value relevance of non-GAAP earnings (*H2b*) in Table 7. We find that non-GAAP earnings are significantly more value relevant for Big 4 clients. More importantly, while non-GAAP exclusions are associated with lower firm value for clients of low-quality auditors, we find that the use of Big 4 auditors can effectively counter the negative valuation effect. However, we do not find a similar incremental influence on the value relevance of non-GAAP exclusions, when considering national or city-level industry leadership by Big 4 auditors. Overall, the results of the persistence tests and value relevance tests are consistent with the Australian evidence that non-GAAP exclusions are more likely to be of higher quality when firms hire high-quality auditors, while the incremental influence of industry specialist auditors (within the Big 4 group) is relatively limited.

Additional tests using auditor changes and exclusion consistency

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[33] We follow Christensen et al. (2019, 2021) and decompose non-GAAP exclusions into managerial recurring exclusions, exclusions for discontinued operations, and below-the-line exclusions. The results suggest weak evidence of high-quality auditors constraining aggressive non-GAAP exclusions that contain persistent and recurring expenses, especially when future cash flow is used to represent future performance.

Although we find that our results are robust to explicitly controlling for endogenous auditor selection, we conduct additional analysis of our Australian non-GAAP disclosures that are consistent with the causal effect of audit quality.[34] First, using hand-collected data, we attempt to identify consistent versus inconsistent non-GAAP exclusions. Appendix C contains a detailed explanation of this process, as well as an overview of the results. Broadly speaking, for items that are consistently excluded from the calculation of non-GAAP earnings, there is evidence that these exclusions are more transitory when a Big 4 auditor is used. For exclusions that are classified as being inconsistent, high-quality auditors are associated with lower value relevance.

Second, we identify a sample of Australian firms that had previously hired low-quality auditors but switched to high-quality auditors. To conduct the empirical tests, we compare the two years before the last serving year by low-quality auditors (i.e., *t-3* and *t-2*) with the second and third years after the switch (i.e., *t+2* and *t+3*). For tests of the persistence of non-GAAP exclusions in Panel A of Table 8, we find that non-GAAP exclusions on average are recurring and are predictive of future expenses. Consistent with the evidence based on the full sample, for non-GAAP disclosers switching from low- to high-quality auditors, the interaction between *Exclusions* and *Change* is significantly positive. This evidence suggests that non-GAAP exclusions are less likely to be recurring expenses and therefore are of higher quality after firms switch to Big 4 or industry specialist auditors.

For tests of value relevance in Panel B of Table 8, we also find that non-GAAP exclusions are negatively associated with firm value. However, the interaction between *Exclusions* and *Change* is significantly positive, suggesting that the association of non-GAAP exclusions with lower firm value largely disappears when firms switch from non-Big 4 to Big 4 auditors. Thus, the results are consistent with the view that when firms hire high-quality auditors, their disclosed non-GAAP earnings are of higher quality. Overall, the results in Table 8 corroborate our previous evidence that clients of high-quality auditors make non-GAAP exclusions that are more transitory and hence of higher quality. However, we acknowledge that while the evidence

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[34] We are grateful to a reviewer for suggesting these tests.

based on the sample of auditor switches is less subject to the endogenous selection of high-quality auditors, the sample of auditor switches is small and may not represent the whole population. On balance, we view the evidence based on the sample of auditor switches as being descriptive but consistent with the primary results.

Prevalence of non-GAAP earnings disclosures by industry

Next, we conduct a cross-sectional analysis in which we determine whether the association between high-quality auditors and non-GAAP earnings reporting is homogeneous across industries. In industries where non-GAAP reporting is common, more comparable non-GAAP benchmarks are available. The availability of comparable benchmarks may limit managers' ability and motivation to report aggressive non-GAAP earnings numbers, since it increases the chance of being identified by market participants (Black, Black, Christensen, and Heninger 2012; Doyle, Jennings, and Soliman 2013). On the other hand, firms from industries with a limited number of non-GAAP earnings disclosers would be better able to justify and provide relatively aggressive non-GAAP earnings figures without being detected and criticized by the market.

From the perspective of auditors, in the absence of comparable benchmarks of non-GAAP earnings from industry peers, high-quality auditors may have an advantage in identifying cases where there is a material inconsistency between non-GAAP and GAAP reporting, thereby enhancing the quality of non-GAAP earnings numbers (Balsam et al. 2003).[35] In contrast, if the quality of non-GAAP earnings is relatively high for firms from industries where non-GAAP disclosure is more prevalent, high-quality auditors may have little influence on the quality of non-GAAP earnings reporting (Dunn and Mayhew 2004).[36] Thus, we predict that the auditor's reputation and industry expertise would play a more significant role in firms from industries where disclosure of non-GAAP earnings is less prevalent.

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[35] Balsam et al. (2003) find that the auditor's industry expertise is a key factor that restricts the extent to which managers can report aggressive earnings.

[36] Dunn and Mayhew (2004) find that the ability of auditor to add value via disclosure quality is limited in firms which have relatively higher earnings quality.

We divide the sample into two groups based on the industry-level propensity of non-GAAP disclosures, namely "more" prevalent industries and "less" prevalent industries.[37] We then repeat our tests using these two subsamples. The results of persistence tests (untabulated) suggest that clients from less prevalent industries tend to disclose non-GAAP earnings of lower quality, but high-quality auditors are more likely to discipline and limit these disclosure behaviors. For value relevance tests, while non-GAAP exclusions are irrelevant to share prices for clients of high-quality auditors in industries where non-GAAP disclosures are more prevalent, they are associated with lower firm value for clients from less prevalent industries. Overall, the results indicate that the influence of high-quality auditors on the quality of non-GAAP disclosure being more important in industries where non-GAAP disclosures are less common.

Further tests of the aggressiveness of non-GAAP exclusions and high-quality auditors

Finally, we examine whether clients of high-quality auditors make adjustments to arrive at non-GAAP earnings (i.e., non-GAAP exclusions) that are less aggressive compared to other firms. For example, clients may engage in aggressive non-GAAP reporting for the purpose of perception management with respect to profitability (Black et al. 2017b). We measure the aggressiveness of non-GAAP exclusions for perception management with an indicator variable in which managers use exclusions to convert a GAAP loss to a non-GAAP profit (*Profit*).[38] To the extent that aggressive non-GAAP exclusions result in lower quality non-GAAP earnings, we expect non-GAAP exclusions of clients of high-quality auditors to result in fewer instances in which a GAAP loss becomes a non-GAAP profit. A second measure of the aggressiveness of non-GAAP earnings is recurring managerial exclusions (*MGRRECUR*), capturing the

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[37] We classify companies into industries based on two-digit SIRCA codes. Following Coulton et al. (2016), we define non-GAAP prevalent industries are those most likely to present non-GAAP information, including Utilities, Consumer Discretionary, Financial and Industrial Classifications. Accordingly, we label industries, besides these four industries, as less prevalent industries.

[38] *Profit* is equal to one if a firm uses exclusions to convert a GAAP loss to a non-GAAP profit. To the extent that loss conversion is a signal of positive future profits (Leung and Veenman 2018), alternative indicators of aggressive non-GAAP exclusions may be preferable. Examples include (a) using non-GAAP exclusions to meet or beat analysts' forecasts as in Black, Christensen, Kiosse, and Steffen (2017a) or (b) managers' exclusion of recurring items beyond what analysts exclude may be better proxies for aggressive non-GAAP disclosure (Black et al. 2017a; Christensen et al. 2019).

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degree to which managers systematically exclude recurring expense item to increase non-GAAP profit in each period. We follow Christensen et al. (2021) and estimate the regression models by regressing *Profit* or *MGRRECUR* on the indicator of a high-quality auditor (*Auditor*) and controls as in Equation 1.

The untabulated results for both Australian and US samples are consistent with a negative relation between the use of high-quality auditors and aggressive non-GAAP exclusions. For tests comparing Big 4 and non-Big 4 auditees, the results suggest that clients of Big 4 auditors have less aggressive non-GAAP earnings adjustments. This result is consistent with prior evidence that Big 4 auditors tend to be associated with less aggressive reporting of GAAP earnings (DeFond and Zhang 2014). When we restrict our analysis only to clients of the Big 4, we find a similar result for national-level and city-level client industry leaders. The results based on the entropy-balanced sample are generally consistent with those using the full sample, although we do not observe a statistically significant effect when industry leadership is calculated at the national level. Overall, the results suggest that clients of high-quality auditors are more likely to report non-GAAP numbers, but are also more constrained in their use of aggressive exclusionary adjustments to GAAP earnings.

VI. CONCLUSION

Prior research finds that clients of high-quality auditors report higher quality GAAP earnings. We extend this line of inquiry to investigate if auditor quality (Big 4 auditors and auditors with greater industry expertise) also has a material effect on non-GAAP reporting behavior of clients. Using hand-collected non-GAAP earnings data for Australian ASX 500 firms during 2001–2014, we find that clients of high-quality auditors are more likely to disclose non-GAAP earnings numbers. Although this evidence is consistent with the view that high-quality auditors would encourage informative disclosures, it is also consistent with managers using non-GAAP earnings as a means of managing perceptions when they are also likely to be more constrained from managing GAAP earnings. Hence, our primary focus is on investigating

the extent to which the use of high-quality auditors is also positively associated with the quality of voluntarily disclosed non-GAAP earnings.

We conduct several tests to identify whether the positive association between high-quality auditors and GAAP earnings found in prior research extends to voluntarily disclosed non-GAAP earnings. We find that high-quality auditors are associated with non-GAAP exclusions that are less persistent and less value relevant. In additional tests we also find that high-quality auditors are associated with less aggressive non-GAAP exclusions. These results are robust to estimation using entropy balancing and PSM, and to an analysis of auditor changes. Additional analyses suggest that our results generalize to quarterly unaudited non-GAAP earnings of US firms. However, we also acknowledge that the inclusion of numerous control variables, the use of entropy balancing and propensity score matching and other additional analysis cannot fully resolve the endogeneity issue and our results, under certain circumstance, may still be attributable to a client effect that good clients who disclose high-quality non-GAAP metrics tend to hire high-quality auditors. Our results also rely on widely used proxy measures for auditor quality (i.e., Big 4 auditors and auditors with greater industry expertise), and do not consider whether any association is also influenced by characteristics of individual auditor-client engagements that possibly result in reduced auditor independence such as the tenure length or the economic significance of the firm within the auditor's client portfolio. Given mixed evidence about the effects of tenure and client significance on audit quality (DeFond and Zhang 2014), this is an area that warrants further research.

Overall, our analyses indicate that the influence of using a high-quality auditor extends beyond statutory GAAP earning to a broader effect on the firm's disclosure quality. This evidence is consistent with the view that auditors have an influence on the quality of a firm's information environment beyond a narrow focus on statutory accounting reports. Just how far this influence extends beyond the voluntary non-GAAP earnings disclosures in our study is an important topic for additional research.

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APPENDIX A: VARIABLE MEASUREMENT

Variable	Measurement
Panel A: Earnings variables	
GAAP_Earnings	GAAP earnings per share, calculated as the disclosed GAAP earnings together with non-GAAP earnings collected from a firm's earnings press release divided by the number of total shares outstanding
Non-GAAP_Earnings	Non-GAAP earnings per share, calculated as the non-GAAP earnings metric collected from the earnings press release divided by the number of total shares outstanding
Future Operating Income	*E*arnings per share from operations in t+1
Future Cash Flows	Operating cash flows in t+1
Non-GAAP_indicator	An indicator variable for disclosure of non-GAAP earnings equals one if the firm disclosure of non-GAAP earnings, zero otherwise.
Panel B: Exclusions and inclusions	
Exclusions	Non-GAAP total exclusions (*Non-GAAP_Earnings* - *GAAP_Earnings*)
MGRRECUR	Managers' total recurring exclusions per share, measured as the difference between the hand-collected non-GAAP earnings per share and reported NPAT before abnormals per share in the Morningstar DatAnalysis Database.
DISCONT	Exclusions for discontinued operations per share is profit (loss) from discontinued operations, mimicking special item exclusions, scaled by the number of outstanding shares
BELOWLINE	Below-the-line exclusions are abnormal items as reported by the firm net of the tax, scaled by the number of outstanding shares.
CE_PS	Consistent exclusions per share. Firm managers choose to exclude from non-GAAP earnings in both years t and t-1. The variable is multiplied by negative one for interpretation and set equal to zero if missing
IE_PS	Inconsistent exclusions per share. Firm managers choose to exclude from non-GAAP earnings in year t but choose not to exclude from non-GAAP earnings in year t-1. The variable is multiplied by negative one for interpretation and set equal to zero if missing.
CI_PS	Consistent inclusions per share. Firm managers choose not to exclude from non-GAAP earnings in both years t and t-1. The variable is set equal to zero if missing
II_PS	Inconsistent inclusions per share. Firm managers choose not exclude from non-GAAP earnings in year t but choose to exclude from non-GAAP earnings in year t-1. The variable is set equal to zero if missing.
Panel C: High-quality auditor variables	
Big4	An indicator variable for the use of a Big 4 auditor equals one if the auditor is the Big 4 auditing firms, and zero otherwise
Leader	An indicator variable for market leader auditor equals one if the auditor is the one with the largest market share of audit fees, where that share also is at least 10 percent higher than the second-largest market share.
City leader	An indicator variable for city-level industry leader equals one if the auditor is the one with the largest and second market share of audit fees
Panel D: Firm's characteristics	
LEV	The sum of total long-term debt and debt in current liabilities over total assets
SIZE	The natural logarithm of total assets
MTB	The market value of equity divided by the book value of equity
LOSS	An indicator variable for loss firms equal one if GAAP earnings in year *t* is less than zero, and zero otherwise
SG	Sales in current year t minus sales in year t-1 divided by sales in year t-1
ROA	Net income over total assets
%INST	The percentage of ownership for the top 20 shareholders for Australian firms, and the percentage of institutional ownership for US firms.
RETURN	Stock return over the fiscal year
#ANALYST	Number of analysts following the firm
CEO_Duality	An indicator variable for CEO duality equal one if a firm's CEO is also the chairperson of the board of directors, and zero otherwise
BOARDSIZE	Number of directors on the board of directors
BOARDIND	The percentage of independent directors in the board

CEO_Change	An indicator variable for CEO change equal one if a firm changes CEO in the current year, and zero otherwise
ABSAC	The absolute value of abnormal accruals estimated based on the modified Jones model as in Kothari et al. (2015)
CSCORE	The firm-level conservatism measure as in Khan and Watts (2009)
Profit	An indicator variable for using non-GAAP exclusions to convert a GAAP loss to a non-GAAP profit. It equals one when non-GAAP earnings are positive with a GAAP loss, and zero otherwise.
Price	The closing price at the fiscal year-end
Book value	The book value of equity per share, calculated as total shareholders' equity divided by the number of total shares outstanding

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APPENDIX B: Sample selection

Part A: Sample selection for the Australian analysis

Panel A: Sample selection from Morningstar DatAnalysis	Firm-year observations
Initial sample in the DatAnalysis database from 2001 to 2014	25,714
Less: observations that are not ASX500 firms	(16,809)
Initial sample in SIRCA database from 2001 to 2014	8,905

Panel B: Sample for the analysis of high-quality auditors and the likelihood of non-GAAP disclosure	
Number of observations from Panel A	8,905
Less: those with data missing to estimate the Probit model	(360)
Sample size	8,545

Panel C: Sample for the analysis of high-quality auditors and the quality of exclusions	
Number of observations from Panel A	8,905
Less: those observations that do not disclose non-GAAP	(6,329)
Sample size for tests of value relevance of exclusions	2,576
Less: those with data missing for tests of the persistence of non-GAAP exclusions	(573)
Sample size for tests of the persistence of non-GAAP exclusions	2,003

Part B: Sample selection for the US analysis

Panel A: Sample selection from Compustat	Firm-quarter observations
Initial sample in Compustat database from 2002 to 2018	764,483
Less: observations that are not in the BCGW database	(601,014)
Initial sample in Compustat and BCGW database from 2002 to 2018	163,469

Panel B: Sample for the analysis of high-quality auditors and the likelihood of non-GAAP disclosure	
Number of observations from Panel A	163,469
Less: those with data missing to estimate the Probit model	(95,312)
Sample size	68,157

Panel C: Sample for the analysis of high-quality auditors and the quality of exclusions	
Number of observations from Panel A	163,469
Less: those observations that do not disclose non-GAAP	(107,067)
Less: those with data missing for tests of value relevance of exclusions	(3,484)
Sample size for tests of value relevance of exclusions	52,918
Less: those with data missing for tests of the persistence of non-GAAP exclusions	(28,092)
Sample size for tests of the persistence of non-GAAP exclusions	24,826

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APPENDIX C: HIGH-QUALITY AUDITORS AND NON-GAAP EXCLUSIONS: EVIDENCE FROM DISCLOSED RECONCILIATIONS IN AUSTRALIA

To further assess the role of high-quality auditors in non-GAAP reporting, we use a unique hand-collected database of non-GAAP exclusions to provide additional evidence on the association between auditors and the quality of non-GAAP exclusions. In particular, we examine the formal reconciliation of non-GAAP exclusions from corporate annual reports, and classify the exclusion items into different categories.[39] We then decompose total non-GAAP exclusions into two components: (1) *Consistent Exclusions* (*CE_PS*) represents exclusion items that appear in both the current and previous year; and (2) *Inconsistent Exclusions* (*IE_PS*) includes exclusion items that appear in the reconciliation in the current year but not in the previous year.

Panel A of Table B1 reports the results when total exclusions are replaced by *Consistent Exclusions* and *Inconsistent Exclusions*. We find that the coefficient on *Consistent Exclusions* is significantly negative in column (1), suggesting that *Consistent Exclusions* include some recurring expenses for clients of non-Big 4 auditors. The coefficient on the interaction term between *Consistent Exclusions* and Big 4 auditors is significantly positive, countering the negative coefficient on *Consistent Exclusions*. This evidence suggests that non-GAAP exclusions that consistently appear in the current and previous years are more transitory and of higher quality for clients of Big 4 auditors. However, we do not find any differences in non-GAAP exclusions for clients of Big 4 and non-Big 4 auditors for those exclusions appearing in the current year only.

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[39] The categories of non-GAAP exclusions in our database include: (1) Restructuring; (2) Acquisitions; (3) Divestitures or sales of assets; (4) Impairment-related costs; (5) Write-down of inventory; (6) Amortization and depreciation; (7) Tax-related gains or losses; (8) Legal-related revenues or costs; (9) Gains or losses on debt extinguishment or refinancing; (10) Investment gains/losses; (11) Derivatives; (12) Foreign-currency-related gains/losses; (13) Fair value adjustments to investment; (14) Lease-related gains/losses; (15) Stock compensation; (16) Pension; (17) Financial expense; (18) Adjustments related to changes in accounting policy; (19) Discontinued operation gains/losses; (20) Minority or non-controlling interest; (21) Other uncommon adjustments; and (22) Tax adjustments. Our classification largely follows Black, Christensen, Ciesielski, and Whipple (2021), although we do not distinguish between recurring and non-recurring exclusions due to the scope of our study.

We also follow Black et al. (2021) to include two variables capturing managerial inclusions based on the income statement line items available in the Morningstar DatAnalysis Database. *Consistent Inclusions* (*CI_PS*) represents items that are included in the calculation of GAAP earnings in DatAnalysis in both the current and previous year. *Inconsistent Inclusions* (*II_PS*) includes items that are included in the current year, but appear in the reconciliation in the previous year.[40] The results reported in column (4) to (6) corroborate the significant effect of high-quality auditors in constraining *Consistent Exclusions* that contain recurring expenses. We also find some evidence that *Consistent Inclusions* represents a significant part of recurring revenues for clients of non-Big 4 auditors, while Big 4 clients tend to include transitory expenses in *Consistent Inclusions*.

In Panel B of Table B1, we test the value relevance of consistent and inconsistent non-GAAP exclusions. We find that *Inconsistent Exclusions* are associated with lower firm value, but the use of Big 4 or city-level specialist auditors can effectively counter the negative valuation effect. In contrast, we do not find any incremental influence of auditors for *Consistent Exclusions* or *Inconsistent Inclusions*. Thus, the result suggests that, when firms employ high-quality auditors, their non-GAAP exclusions are more likely to be of high quality.

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[40] The validity of the classification of *Consistent Inclusions* and *Inconsistent Inclusions* relies on the assumption that GAAP earnings disclosed by Australian firms in their reconciliation are largely consistent with GAAP earnings in the Morningstar DatAnalysis Database, and the hand-collected non-GAAP exclusions are measured and estimated in a similar way as the corresponding income statement line items recorded in the DatAnalysis database. Given the differences in accounting standards between Australia and the US as well the structure of the databases, we limit the analyses to the following identifiable non-GAAP categories: restructuring, impairment-related costs, amortization and depreciation, legal-related revenues or costs, investment gains/losses, derivatives, foreign-currency-related gains/losses, fair value adjustments to investment, financial expense, pension, and discontinued operation gains/losses.

Table C1: High-Quality Auditors and Non-GAAP exclusions from disclosed reconciliations in Australia

Panel A: High-quality auditors and the quality of exclusions

	Dependent variable = Future Operating Income					
	Big4 (1)	**Leader** (2)	**City leader** (3)	**Big4** (4)	**Leader** (5)	**City leader** (6)
Non-GAAP_Earnings	0.453	0.845***	0.799***	0.515*	0.839***	0.804***
	(1.53)	(15.11)	(13.44)	(1.84)	(15.96)	(13.45)
CE_PS	-1.200***	0.092	0.104	-0.951**	0.089	0.215
	(-2.64)	(0.86)	(0.73)	(-2.33)	(0.74)	(1.39)
IE_PS	-0.406	-0.161**	-0.092	-0.089	-0.163**	-0.029
	(-1.34)	(-1.97)	(-1.16)	(-0.24)	(-2.20)	(-0.29)
Auditor	-0.104**	0.067***	0.066	-0.135***	0.054***	0.032
	(-2.33)	(2.89)	(1.48)	(-2.93)	(4.15)	(0.80)
Non-GAAP_Earnings × Auditor	0.363	-0.073	-0.004	0.280	-0.087	-0.031
	(1.32)	(-1.13)	(-0.07)	(1.12)	(-1.11)	(-0.52)
CE_PS×AUDITOR	1.201**	-0.378	-0.504	0.889**	-0.435	-0.641*
	(2.43)	(-0.79)	(-1.40)	(2.04)	(-0.85)	(-1.71)
IE_PS×AUDITOR	0.132	-0.162	-0.281	-0.229	-0.216	-0.346
	(0.48)	(-0.81)	(-1.40)	(-0.72)	(-1.21)	(-1.45)
CI_PS				0.647***	-0.051	0.145
				(2.74)	(-0.41)	(0.94)
II_PS				-0.659	-1.152	-0.411
				(-0.34)	(-0.97)	(-0.45)
CI_PS×AUDITOR				-0.850***	-0.182	-0.399***
				(-4.10)	(-0.91)	(-3.72)
II_PS×AUDITOR				-0.694	-1.980	-2.817
				(-0.31)	(-0.94)	(-1.33)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,267	1,218	1,065	1,267	1,218	1,065
Adjusted R^2	0.642	0.642	0.645	0.646	0.642	0.650

This table examines the association between Non-GAAP exclusions predictability and the use of high-quality auditors using the following model:

$$Future\ Operating\ Income_{i,t+1} = \alpha + \beta_1 Non\text{-}GAAP\_Earnings_{i,t} + \beta_2 Exclusions/Inclusions_{i,t} + \beta_3 Auditor_{i,t} + \delta_1 Non\text{-}GAAP\_Earnings_{i,t} \times Auditor_{i,t} + \delta_2 Exclusions/Inclusions_{i,t} \times Auditor_{i,t} + \gamma Controls_{i,t} + \varepsilon_{i,t}$$

where *Future Operating Income* is earnings per share from operations, *Non-GAAP_Earnings* is earnings per share reported by the management, *Exclusions/Inclusions* represents consistent exclusions per share (*CE_PS*), inconsistent exclusions per share (*IE_PS*), consistent inclusions per share (*CI_PS*) and inconsistent inclusions per share (*II_PS*), *Auditor* is an indicator variable representing either a Big 4 auditor (*Big4*), or an indicator variable for either national-level industry leader based on fees (*Leader*) or city-level industry leader based on audit fees (*City leader*); *Controls* includes leverage (*LEV*), the market to book ratio (*MTB*), sales growth (*SG*), firm size (*SIZE*), an indicator for loss (*LOSS*), return on assets (*ROA*), operating cash flow volatility (*σ(CFO)*), institutional ownership (*%INST*) and stock return (*RETURN*), *ε* is the error term. Figures in parentheses are *t*-statistics. *** (**, *) indicates significant at the 1% (5%, 10%) level for two-tailed test. All variables are defined in the Appendix.

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Panel B: High-quality auditors and value relevance of exclusions

VARIABLES	Big4 (1) Price	Leader (2) Price	City leader (3) Price	Big4 (4) Price	Leader (5) Price	City leader (6) Price
Book value	1.170***	0.469***	0.394***	1.199***	0.454***	0.338***
	(15.57)	(9.13)	(6.32)	(16.29)	(8.64)	(5.24)
Auditor	-0.091	-0.081	0.164	0.066	0.077	0.116
	(-0.51)	(-0.40)	(0.76)	(0.36)	(0.37)	(0.51)
Non-GAAP_Earnings	5.269***	12.180***	13.020***	5.274***	12.179***	12.976***
	(10.01)	(41.28)	(36.66)	(10.29)	(41.36)	(36.27)
CE_PS	-2.239	2.053*	3.079**	-1.916	1.973*	2.683*
	(-0.89)	(1.93)	(2.21)	(-0.77)	(1.85)	(1.90)
IE_PS	-7.276***	-1.577	-2.766**	-5.724**	-1.607	-2.918**
	(-2.95)	(-1.47)	(-2.17)	(-2.29)	(-1.50)	(-2.25)
CI_PS				1.595	-0.737	-1.520
				(1.38)	(-0.98)	(-1.57)
II_PS				0.597	-7.883	-1.841
				(0.03)	(-0.68)	(-0.11)
Book value × AUDITOR	-0.653***	0.197**	0.250***	-0.632***	0.289***	0.355***
	(-7.76)	(2.54)	(3.02)	(-7.63)	(3.57)	(4.05)
Non-GAAP_Earnings×AUDITOR	6.895***	-0.956**	-1.784***	6.520***	-0.926**	-1.649***
	(12.14)	(-2.18)	(-3.82)	(11.74)	(-2.11)	(-3.48)
CE_PS × AUDITOR	2.956	-3.291*	-2.680	2.962	-2.787	-2.475
	(1.12)	(-1.86)	(-1.46)	(1.13)	(-1.57)	(-1.33)
IE_PS × AUDITOR	5.837**	0.766	3.110*	4.489*	1.360	3.553**
	(2.25)	(0.45)	(1.76)	(1.72)	(0.81)	(1.98)
CI_PS × AUDITOR				-0.599	4.006***	4.103***
				(-0.47)	(3.70)	(3.39)
II_PS × AUDITOR				-12.552	-3.100	-13.784
				(-0.49)	(-0.14)	(-0.65)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,629	1,563	1,374	1,629	1,563	1,374
Adjusted R^2	0.834	0.853	0.864	0.844	0.854	0.859

This table examines the association of the value relevance of non-GAAP earnings among high-quality auditors using the following model:

$$Price_{i,t} = \alpha_{0,1} + \beta_1 Bookval_{i,t} + \beta_2\ Non\text{-}GAAP\_Earnings_{i,t} + \beta_3\ Exclusions/Inclusions_{i,t} + \beta_4\ Auditor_{i,t} + \beta_5 Book\ value_{i,t} \times Auditor_{i,t}$$
$$+ \beta_6 Non\text{-}GAAP\_Earnings_{i,t} \times Auditor_{i,t} + \beta_7\ Exclusions/Inclusions_{i,t} \times Auditor_{i,t} + \varepsilon_{i,t}$$

where *Price* is the closing price at the fiscal year-end; *Book value* is the book value; *Non-GAAP_Earnings* is earnings per share reported by the management, *Exclusions/Inclusions* represents consistent exclusions per share (*CE_PS*), inconsistent exclusions per share (*IE_PS*), consistent inclusions per share (*CI_PS*) and inconsistent inclusions per share (*II_PS*), *Auditor* is an indicator variable representing either a Big 4 auditor (*Big4*), or an indicator variable for either national-level industry leader based on fees (*Leader*) or city-level industry leader based on audit fees (*City leader*). Figures in parentheses are *t*-statistics. *** (**, *) indicates significant at the 1% (5%, 10%) level for two-tailed test. All variables are defined in the Appendix.

Table 1: Summary Statistics

Panel A: Summary statistics of full sample

Variable	N	Mean	STD	Q1	Median	Q3
Non-GAAP_indicator	8,905	0.251	0.434	0.000	0.000	1.000
Non-GAAP_Earnings	2,576	0.332	0.478	0.072	0.178	0.393
GAAP_Earnings	2,576	0.281	0.584	0.023	0.140	0.355
Exclusions	2,576	0.051	0.330	0.000	0.014	0.082
MGRRECUR	2,576	0.016	0.408	-0.022	0.000	0.017
DISCONT	2,576	-0.004	0.111	0.000	0.000	0.000
BELOWLINE	2,576	0.046	0.541	0.000	0.000	0.045
Big4	8,905	0.609	0.488	0.000	1.000	1.000
Leader	8,905	0.212	0.409	0.000	0.000	0.000
City leader	8,219	0.251	0.434	0.000	0.000	1.000
Future Operating Income	8,905	0.127	0.388	-0.022	0.016	0.170
Future Cash Flows	8,905	0.227	0.495	-0.009	0.037	0.265
LEV	8,905	0.148	0.170	0.000	0.089	0.256
SIZE	8,905	18.562	2.118	17.066	18.438	19.980
MTB	8,905	2.794	3.456	0.980	1.710	3.140
LOSS	8,905	0.421	0.494	0.000	0.000	1.000
SG	7,785	3.850	21.575	-0.076	0.103	0.471
ROA	8,455	-0.064	0.323	-0.126	0.028	0.089
%INST	8,905	57.719	27.201	44.970	63.690	77.750
RETURN	8,443	0.226	0.855	-0.284	0.042	0.444
CEO_Duality	8,905	0.087	0.283	0.000	0.000	0.000
BOARDSIZE	8,905	6.405	2.171	5.000	6.000	7.000
BOARDIND	8,905	0.712	0.164	0.625	0.715	0.833
#ANALYST	8,905	2.688	4.043	0.000	1.000	4.000
CEO_Change	8,905	0.052	0.222	0.000	0.000	0.000
ABSAC	8,286	0.098	0.109	0.028	0.063	0.120
CSCORE	8,903	0.290	0.511	-0.026	0.286	0.612
Profit	8,881	0.401	0.490	0.000	0.000	1.000
Price	8,905	2.702	5.362	0.210	0.810	2.680
Book value	8,901	1.260	2.111	0.124	0.450	1.397

Panel B: Non-GAAP disclosers vs. Non-disclosers

	Non-GAAP disclosers	Non-disclosers	Difference	*t*-stat
Big4	0.751	0.561	0.191***	16.226
Leader	0.294	0.185	0.109***	10.995
City leader	0.367	0.214	0.154***	13.980
Future Operating Income	0.285	0.073	0.212***	23.052
Future Cash Flows	0.481	0.141	0.339***	29.369
LEV	0.228	0.122	0.106***	26.454
SIZE	20.188	18.016	2.172***	46.850
MTB	2.389	2.930	-0.542***	-6.430
LOSS	0.129	0.519	-0.390***	-34.438
SG	0.923	4.965	-4.041***	-7.412
ROA	0.053	-0.103	0.156***	19.827
%INST	58.758	57.370	1.388***	2.088
RETURN	0.118	0.262	-0.144***	-6.746
CEO_Duality	0.042	0.103	-0.061***	-8.819
BOARDSIZE	7.532	6.026	1.506***	29.764
BOARDIND	0.754	0.698	0.056***	14.204
#ANALYST	5.713	1.674	4.040***	45.382
CEO_change	0.055	0.051	0.004***	0.683
ABSAC	0.065	0.109	-0.043***	-15.890
CSCORE	0.057	0.369	-0.312***	-25.869
Profit	0.045	0.519	-0.474***	-43.436
Price	5.262	1.843	3.419***	27.152
Book value	2.449	0.860	1.589***	32.580

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Panel C: Probability of non-GAAP disclosure for high-quality auditors vs. low-quality auditors

	High-quality auditors	Low-quality auditors	Difference	*t*-stat	Wilcoxon z-value
Big4	0.310	0.160	0.150	16.23***	15.99***
Full sample					
Leader	0.348	0.225	0.123	11.00***	10.92***
City leader	0.358	0.207	0.151	13.98***	13.82***
Big 4 subsample					
Leader	0.349	0.289	0.060	4.54***	4.54***
City leader	0.358	0.269	0.089	6.61***	6.58***

Panel D: Summary statistics for high-quality audit clients and the control sample based on entropy balancing matching

	High quality audit clients	Sample firms without high-quality auditors		High quality audit clients	Sample firms without high-quality auditors		High quality audit clients	Sample firms without high-quality auditors	
	Big4=1	*Big4*=0		*Leader*=1	*Leader*=0		*City leader*=1	*City leader*=0	
Variable	Mean	Mean	*t*-stat	Mean	Mean	*t*-stat	Mean	Mean	*t*-stat
LEV	0.17	0.17	0.00	0.19	0.19	0.00	0.18	0.18	0.00
SIZE	19.34	19.34	0.00	19.66	19.66	0.00	19.60	19.60	0.00
MTB	2.62	2.62	0.00	2.66	2.66	0.00	2.63	2.63	0.00
LOSS	0.32	0.32	0.00	0.29	0.29	0.00	0.30	0.30	0.00
SG	2.88	2.88	0.00	2.96	2.96	0.00	3.09	3.09	0.00
ROA	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
%INST	65.74	65.74	0.00	65.34	65.34	0.00	66.44	66.44	0.00
RETURN	0.17	0.17	0.00	0.18	0.18	0.00	0.18	0.18	0.00
CEO_Duality	0.09	0.09	0.00	0.08	0.08	0.00	0.07	0.07	0.00
BOARDSIZE	6.94	6.94	0.00	7.21	7.21	0.00	7.13	7.13	0.00
BOARDIND	0.74	0.74	0.00	0.75	0.75	0.00	0.75	0.75	0.00
#ANALYST	3.83	3.83	0.00	4.35	4.35	0.00	4.62	4.61	0.00
CEO_change	0.07	0.07	0.00	0.06	0.06	0.00	0.07	0.07	0.00
ABSAC	0.09	0.09	0.00	0.08	0.08	0.00	0.08	0.08	0.00
CSCORE	0.19	0.19	0.00	0.14	0.14	0.00	0.14	0.14	0.00

The full sample consists of 8,905 firm-year observations with 2,576 non-GAAP disclosers over 2001–2014. All variables except those indicator variables are winsorize at percentile bands one and ninety-nine, and are defined in the Appendix. *** (**, *) indicates significant at the 1% (5%, 10%) level for two-tailed test.

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Table 2: High-Quality Auditors and the Likelihood of Non-GAAP Disclosure in Australia

VARIABLES	Full sample			Entropy-balanced sample		
	Big4	Leader	City leader	Big4	Leader	City leader
	(1) Non-GAAP indicator	(2) Non-GAAP indicator	(3) Non-GAAP indicator	(4) Non-GAAP indicator	(5) Non-GAAP indicator	(6) Non-GAAP indicator
AUDITOR	0.126***	-0.065	0.052*	0.107**	-0.465***	-0.055*
	(2.85)	(-1.52)	(1.71)	(2.21)	(-4.49)	(-1.72)
LEV	0.023	0.176	0.062	0.026	0.236	0.050
	(0.15)	(0.96)	(0.48)	(0.17)	(1.28)	(0.38)
SIZE	0.257***	0.242***	0.259***	0.258***	0.194***	0.241***
	(11.65)	(8.83)	(11.22)	(11.70)	(6.55)	(10.24)
MTB	-0.007	0.000	-0.006	-0.007	-0.006	-0.007
	(-0.94)	(0.02)	(-0.87)	(-0.93)	(-0.67)	(-1.10)
LOSS	-0.331***	-0.598***	-0.601***	-0.330***	-0.607***	-0.608***
	(-5.73)	(-8.34)	(-11.57)	(-5.72)	(-8.41)	(-11.41)
SG	-0.004***	-0.006**	-0.006***	-0.004***	-0.006**	-0.006***
	(-2.74)	(-2.50)	(-6.56)	(-2.75)	(-2.46)	(-6.58)
ROA	-0.105	-0.265*	-0.169	-0.106	-0.226	-0.129
	(-0.89)	(-1.66)	(-1.20)	(-0.91)	(-1.39)	(-0.91)
%INST	0.001	0.002	-0.000	0.001	-0.000	-0.001
	(1.22)	(1.54)	(-0.08)	(1.37)	(-0.14)	(-1.23)
RETURN	-0.049*	-0.082**	-0.083**	-0.050*	-0.078**	-0.081**
	(-1.73)	(-2.21)	(-2.43)	(-1.76)	(-2.10)	(-2.42)
CEO_Duality	-0.340***	-0.377***	-0.164**	-0.337***	-0.381***	-0.163**
	(-4.62)	(-4.38)	(-2.42)	(-4.58)	(-4.44)	(-2.44)
BOARDSIZE	0.018**	0.026**	0.040***	0.018**	0.018*	0.036***
	(2.04)	(2.38)	(4.51)	(2.08)	(1.65)	(3.85)
BOARDIND	0.369***	0.446***	0.403***	0.378***	0.359**	0.316***
	(3.12)	(3.12)	(4.11)	(3.20)	(2.49)	(3.18)
#ANALYST	0.050***	0.057***	0.050***	0.050***	0.057***	0.050***
	(9.52)	(9.87)	(15.39)	(9.52)	(9.76)	(15.42)
CEO_change	0.106	0.216***	0.239***	0.107	0.223***	0.235***
	(1.53)	(2.74)	(4.59)	(1.54)	(2.82)	(4.50)
ABSAC	-0.338	-1.079***	-1.258***	-0.343	-1.137***	-1.187***
	(-1.62)	(-3.88)	(-6.94)	(-1.64)	(-4.12)	(-6.64)
CSCORE	0.179***	0.272***	0.258***	0.177**	0.274***	0.282***
	(2.58)	(3.18)	(4.53)	(2.54)	(3.19)	(4.85)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,545	5,502	4,830	8,545	5,502	4,830
Pseudo R²	0.280	0.261	0.280	0.280	0.263	0.282

This table examines the association between the likelihood of non-GAAP disclosure and the use of high-quality auditor using the following model:

$$Probit\ (Non\text{-}GAAP\_indicator_{i,t}) = \alpha + \beta_1 Auditor_{i,t} + \gamma Controls_{i,t} + \varepsilon_{i,t}$$

where *Non-GAAP_indicator* is an indicator variable for non-GAAP disclosure; *AUDITOR* is an indicator variable for Big 4 auditor (*Big4*), or an indicator variable for either national-level industry leader based on fees (*Leader*) or city-level industry leader based on audit fees (*City leader*); *Controls* includes leverage (*LEV*), the market to book ratio (*MTB*), sales growth (*SG*), firm size (*SIZE*), an indicator for loss (*LOSS*), return on assets (*ROA*), institutional ownership (*%INST*), stock return (*RETURN*), CEO duality (*CEO_Duality*), board size (*BOARDSIZE*), board independence (*BOARDIND*), number of analyst coverage (*#ANALYST*), absolute value of abnormal accruals (*ABSAC*) and accounting conservatism (*CSCORE*); ε is the error term. Figures in parentheses are *t*-statistics. *** (**, *) indicates significant at the 1% (5%, 10%) level for two-tailed test. All variables are defined in the Appendix.

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Table 3: High-Quality Auditors and the Quality of Exclusions in Australia

Panel A: The results for the full Sample

	Dependent variable = Future Operating Income						Dependent variable = Future cash flow					
	Big4 (1)	**Leader** (2)	**City leader** (3)	**Big4** (4)	**Leader** (5)	**City leader** (6)	**Big4** (7)	**Leader** (8)	**City leader** (9)	**Big4** (10)	**Leader** (11)	**City leader** (12)
Non-GAAP_Earnings	0.461***	0.816***	0.826***	0.592***	0.811***	0.820***	0.520***	1.017***	0.971***	0.682***	1.005***	0.956***
	(7.53)	(32.39)	(24.19)	(5.42)	(20.89)	(21.28)	(3.11)	(48.59)	(24.92)	(4.44)	(34.92)	(22.36)
Exclusions	-0.326***	-0.099*	-0.017				-0.181**	0.050	0.068			
	(-4.51)	(-2.27)	(-0.94)				(-2.33)	(1.56)	(0.87)			
MGRRECUR				-0.494***	-0.198*	-0.258*				-0.458**	-0.138	-0.234
				(-8.05)	(-2.05)	(-1.86)				(-2.71)	(-0.74)	(-0.86)
DISCONT				-0.040	0.098	0.023				-0.543*	0.066	0.255
				(-0.23)	(0.54)	(0.11)				(-2.02)	(0.60)	(0.95)
BELOWLINE				-0.048	0.091*	0.055				-0.209*	0.017	-0.017
				(-0.65)	(1.91)	(1.76)				(-1.98)	(0.68)	(-0.84)
AUDITOR	-0.079***	0.012	0.045*	-0.034	0.005	0.033*	-0.062*	-0.003	0.057*	-0.014	-0.003	0.048
	(-3.20)	(0.48)	(1.95)	(-1.61)	(0.33)	(1.95)	(-1.82)	(-0.17)	(1.90)	(-0.89)	(-0.16)	(1.75)
Non-GAAP_Earnings × AUDITOR	0.350***	-0.022	-0.052	0.231*	0.018	-0.015	0.500**	-0.016	0.051	0.335**	0.015	0.084
	(5.52)	(-0.43)	(-1.24)	(2.08)	(0.27)	(-0.34)	(2.84)	(-0.35)	(0.71)	(2.26)	(0.35)	(1.36)
Exclusions × AUDITOR	0.257***	0.072*	-0.082				0.237**	0.029	0.001			
	(5.04)	(1.92)	(-1.53)				(2.97)	(0.31)	(0.01)			
MGRRECUR × AUDITOR				0.489***	0.246**	0.269**				0.476**	0.211	0.284
				(6.94)	(2.37)	(2.64)				(2.56)	(1.20)	(1.21)
DISCONT × AUDITOR				0.113	-0.041	0.172				0.591**	-0.029	-0.263
				(0.54)	(-0.20)	(0.99)				(2.28)	(-0.39)	(-1.16)
BELOWLINE × AUDITOR				0.116	-0.030	0.064*				0.186	-0.071	-0.031
				(1.52)	(-1.45)	(1.92)				(1.64)	(-1.70)	(-0.60)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,003	1,534	1,365	2,003	1,534	1,365	2,003	1,534	1,365	2,003	1,534	1,365
Adjusted R^2	0.602	0.619	0.619	0.618	0.630	0.630	0.686	0.707	0.713	0.697	0.714	0.714
Exclusions + Exclusions × AUDITOR	-0.069	-0.027	-0.099				0.056	0.079	0.069			
MGRRECUR + Mgrrecur × AUDITOR				-0.005	0.048	0.011				0.018	0.073	0.050
p-value (sum = 0)	0.1656	0.4846	0.0934	0.8945	0.1182	0.8442	0.0763	0.3275	0.2624	0.6668	0.0387	0.3347

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Panel B: The results for entropy-balanced sample

	Dependent variable = Future Operating Income						Dependent variable = Future cash flow					
	Big4 (1)	**Leader** (2)	**City leader** (3)	**Big4** (4)	**Leader** (5)	**City leader** (6)	**Big4** (7)	**Leader** (8)	**City leader** (9)	**Big4** (10)	**Leader** (11)	**City leader** (12)
Non-GAAP_Earnings	0.456***	0.814***	0.837***	0.588***	0.812***	0.830***	0.519***	1.002***	0.975***	0.688***	0.996***	0.961***
	(7.42)	(30.73)	(29.21)	(5.33)	(20.69)	(24.38)	(3.10)	(63.23)	(22.56)	(4.29)	(39.85)	(20.87)
Exclusions	-0.330***	-0.099*	-0.017				-0.182**	0.049	0.068			
	(-4.73)	(-2.28)	(-0.84)				(-2.35)	(1.54)	(0.87)			
MGRRECUR				-0.491***	-0.200*	-0.269*				-0.463**	-0.128	-0.239
				(-7.57)	(-2.00)	(-1.87)				(-2.74)	(-0.68)	(-0.86)
DISCONT				-0.037	0.100	0.058				-0.549*	0.050	0.271
				(-0.21)	(0.54)	(0.31)				(-2.03)	(0.45)	(0.97)
BELOWLINE				-0.044	0.091*	0.052*				-0.218*	0.016	-0.018
				(-0.59)	(1.92)	(1.96)				(-2.04)	(0.66)	(-0.84)
AUDITOR	-0.065***	0.002	0.067	-0.028	0.016	0.055	-0.059	-0.106	0.065	-0.025	-0.077	0.058
	(-3.11)	(0.05)	(1.61)	(-1.50)	(0.39)	(1.76)	(-1.64)	(-1.66)	(1.64)	(-1.37)	(-1.29)	(1.53)
Non-GAAP_Earnings × AUDITOR	0.358***	-0.018	-0.080	0.236*	0.014	-0.043	0.501**	0.025	0.042	0.327*	0.043	0.071
	(5.58)	(-0.31)	(-1.19)	(2.08)	(0.20)	(-0.77)	(2.85)	(0.58)	(0.53)	(2.08)	(1.02)	(1.04)
Exclusions × AUDITOR	0.261***	0.073*	-0.083				0.238**	0.032	0.001			
	(5.42)	(1.94)	(-1.43)				(2.98)	(0.34)	(0.01)			
MGRRECUR × AUDITOR				0.486***	0.247**	0.278**				0.482**	0.200	0.288
				(6.63)	(2.31)	(2.61)				(2.61)	(1.14)	(1.20)
DISCONT × AUDITOR				0.110	-0.044	0.125				0.596**	-0.009	-0.285
				(0.52)	(-0.21)	(0.62)				(2.30)	(-0.12)	(-1.19)
Belowline × AUDITOR				0.112	-0.030	0.068*				0.195	-0.072	-0.029
				(1.43)	(-1.45)	(1.82)				(1.68)	(-1.71)	(-0.55)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,003	1,534	1,365	2,003	1,534	1,365	2,003	1,534	1,365	2,003	1,534	1,365
Adjusted R^2	0.602	0.619	0.620	0.618	0.630	0.631	0.686	0.708	0.713	0.697	0.715	0.714
Exclusions + Exclusions × AUDITOR	-0.069	-0.026	-0.100				0.056	0.081	0.069			
MGRRECUR + Mgrrecur × AUDITOR				-0.005	0.047	0.009				0.019	0.072	0.049
p-value (sum = 0)	0.1636	0.4873	0.1048	0.8915	0.1200	0.8618	0.0769	0.4873	0.2641	0.6598	0.0403	0.3417

This table examines the association between Non-GAAP exclusions predictability and the use of high-quality auditors using the following model:

$$Future\ Operating\ Income_{i,t+1}\ or\ Future\ Cash\ flow_{i,t+1} = \alpha + \beta_1 Non\text{-}GAAP\_Earnings_{i,t} + \beta_2 Exclusions_{i,t} + \beta_3 Auditor_{i,t} + \delta_1 Non\text{-}GAAP\_Earnings_{i,t} \times Auditor_{i,t} + \delta_2 Exclusions_{i,t} \times Auditor_{i,t} + \gamma Controls_{i,t} + \varepsilon_{i,t}$$

$$Future\ Operating\ Income_{i,t+1}\ or\ Future\ Cash\ flow_{i,t+1} = \alpha + \beta_1 Non\text{-}GAAP\_Earnings_{i,t} + \beta_2 MGRRECUR_{i,t} + \beta_3 DISCONT_{i,t} + \beta_4 BELOWLINE_{i,t} + \beta_5 Auditor_{i,t} + \delta_1 Non\text{-}GAAP\_Earnings_{i,t} \times Auditor_{i,t} + \delta_2 MGRRECUR_{i,t} \times Auditor_{i,t} + \delta_3 DISCONT_{i,t} \times Auditor_{i,t} + \delta_4 BELOWLINE_{i,t} \times Auditor_{i,t} + \gamma Controls_{i,t} + \varepsilon_{i,t}$$

where *Future Operating Income* is earnings per share from operations; *Future Cash Flow* is future operating cash flows; *Non-GAAP_Earnings* is earnings per share reported by the management; *Exclusions* is non-GAAP earnings less GAAP earnings; *MGRRECUR* represents managers' total recurring exclusions per share; *DISCONT* represents profits from discontinued operation; *BELOWLINE* represents blow-line exclusions per share; *Auditor* is an indicator variable representing either a Big 4 auditor (*Big4*), or an indicator variable for either national-level industry leader based on fees (*Leader*) or city-level industry leader based on audit fees (*City leader*); *Controls* includes leverage (*LEV*), the market to book ratio (*MTB*), sales growth (*SG*), firm size (*SIZE*), an indicator for loss (*LOSS*), return on assets (*ROA*), institutional ownership (*%INST*), stock return (*RETURN*), CEO duality (*CEO_Duality*), board size (*BOARDSIZE*), board independence (*BOARDIND*), number of analyst coverage (*#ANALYST*), absolute value of abnormal accruals (*ABSAC*) and accounting conservatism (*CSCORE*); ε is the error term. Figures in parentheses are *t*-statistics. *** (**, *) indicates significant at the 1% (5%, 10%) level for two-tailed test. All variables are defined in the Appendix.

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Table 4: High-Quality Auditors and Value Relevance of Exclusions in Australia

VARIABLES	Full sample			Entropy-balanced sample		
	Big4	**Leader**	**City leader**	**Big4**	**Leader**	**City leader**
	(1)	(2)	(3)	(4)	(5)	(6)
	Price	*Price*	*Price*	*Price*	*Price*	*Price*
Book value	1.139***	0.475***	0.370***	1.151***	0.304***	0.236***
	(15.23)	(9.39)	(6.14)	(13.12)	(5.04)	(3.10)
AUDITOR	-0.032	-0.131	-0.064	-0.003	-2.018***	-0.874**
	(-0.18)	(-0.65)	(-0.30)	(-0.01)	(-5.36)	(-2.55)
Non-GAAP_Earnings	5.322***	12.143***	12.898***	5.116***	11.791***	12.980***
	(10.28)	(41.20)	(35.90)	(9.30)	(38.72)	(34.92)
Exclusions	-1.277***	-0.234	-0.272	-1.393***	-0.242	-0.258
	(-2.92)	(-0.86)	(-0.81)	(-2.94)	(-0.86)	(-0.74)
Book value × AUDITOR	-0.592***	0.181**	0.270***	-0.621***	0.296***	0.390***
	(-7.10)	(2.36)	(3.24)	(-6.46)	(3.43)	(4.06)
Non-GAAP_Earnings × AUDITOR	6.496***	-0.901**	-1.592***	6.780***	-0.304	-1.613***
	(11.59)	(-2.04)	(-3.34)	(11.40)	(-0.67)	(-3.28)
Exclusions × AUDITOR	1.166**	0.195	0.202	1.342***	0.231	0.182
	(2.42)	(0.47)	(0.45)	(2.58)	(0.54)	(0.39)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,576	1,942	1,690	2,353	1,816	1,588
Adjusted R^2	0.840	0.853	0.857	0.840	0.856	0.857
Exclusions + Exclusions × AUDITOR	-0.111	-0.039	-0.07	-0.051	-0.011	-0.076
p-value (sum = 0)	*0.579*	*0.904*	*0.814*	*0.809*	*0.971*	*0.799*

This table examines the association of the value relevance of non-GAAP earnings among high-quality auditors using the following model:

$$Price_{i,t} = \alpha + \beta_1 Book\ value_{i,t} + \beta_2\ Non\text{-}GAAP\_Earnings_{i,t} + \beta_3\ Exclusions_{i,t} + \beta_4\ Auditor_{i,t} + \beta_5 Book\ value_{i,t} \times Auditor_{i,t}$$
$$+ \beta_6 Non\text{-}GAAP\_Earnings_{i,t} \times Auditor_{i,t} + \beta_7\ Exclusions_{i,t} \times Auditor_{i,t} + \varepsilon_{i,t}$$

where *Price* is the closing price at the fiscal year-end; *Book value* is the book value; *Non-GAAP_Earnings* is earnings per share reported by the management; *Exclusions* is non-GAAP earnings less GAAP earnings; *Auditor* is an indicator variable representing either a Big 4 auditor (*Big4*), or an indicator variable for either national-level industry leader based on fees (*Leader*) or city-level industry leader based on audit fees (*City leader*); ε is the error term. Figures in parentheses are *t*-statistics. *** (**, *) indicates significant at the 1% (5%, 10%) level for two-tailed test. All variables are defined in the Appendix.

Table 5: High-Quality Auditors and the Likelihood of Non-GAAP Disclosure in the US

	Full sample			Entropy-balanced sample		
	Big4	Leader	City leader	Big4	Leader	City leader
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Non-GAAP indicator	Non-GAAP indicator	Non-GAAP indicator	Non-GAAP indicator	Non-GAAP indicator	Non-GAAP indicator
Auditor	0.108***	-0.012	-0.115***	0.126***	0.065**	-0.128***
	(6.50)	(-0.95)	(-9.26)	(7.01)	(2.32)	(-8.61)
LEV	-0.046	-0.025	-0.028	-0.047	0.155***	-0.027
	(-1.24)	(-0.63)	(-0.70)	(-1.26)	(3.84)	(-0.69)
SIZE	0.156***	0.156***	0.163***	0.155***	0.194***	0.166***
	(23.10)	(21.61)	(22.48)	(22.85)	(22.37)	(22.25)
MTB	-0.037***	-0.031***	-0.031***	-0.037***	-0.036***	-0.031***
	(-6.52)	(-5.08)	(-5.05)	(-6.56)	(-5.86)	(-5.04)
LOSS	0.243***	0.227***	0.227***	0.243***	0.229***	0.225***
	(15.34)	(13.01)	(12.95)	(15.32)	(13.01)	(12.85)
SG	0.048***	0.036***	0.034**	0.048***	0.036***	0.033**
	(3.92)	(2.68)	(2.56)	(3.93)	(2.61)	(2.47)
ROA	-0.001	-0.000	-0.000	-0.001	-0.001	-0.000
	(-0.62)	(-0.01)	(-0.15)	(-0.56)	(-0.58)	(-0.22)
%INST	0.414***	0.394***	0.405***	0.410***	0.366***	0.410***
	(20.35)	(18.15)	(18.54)	(20.13)	(16.54)	(18.61)
RETURN	0.026**	0.011	0.012	0.026**	0.019	0.012
	(2.42)	(0.90)	(0.99)	(2.43)	(1.64)	(1.00)
CEO_Duality	-0.001	-0.005	-0.006	-0.000	-0.004	-0.005
	(-0.04)	(-0.34)	(-0.38)	(-0.01)	(-0.27)	(-0.33)
BOARDSIZE	-0.015***	-0.013***	-0.011***	-0.015***	-0.006	-0.011***
	(-3.80)	(-3.06)	(-2.80)	(-3.77)	(-1.55)	(-2.68)
BOARDIND	0.774***	0.749***	0.750***	0.780***	0.770***	0.745***
	(11.91)	(11.11)	(11.12)	(11.99)	(11.22)	(11.04)
#ANALYST	0.008***	0.007***	0.006***	0.008***	0.004***	0.006***
	(7.29)	(5.48)	(4.90)	(7.30)	(3.21)	(4.68)
CEO_change	0.236***	0.242***	0.241***	0.235***	0.221***	0.241***
	(5.37)	(5.30)	(5.26)	(5.35)	(4.72)	(5.27)
ABSAC	-0.004*	-0.001	-0.001	-0.004*	-0.003	-0.001
	(-1.94)	(-0.61)	(-0.63)	(-1.92)	(-1.15)	(-0.58)
CSCORE	0.132***	0.120**	0.119**	0.135***	0.169***	0.119**
	(2.98)	(2.48)	(2.46)	(3.05)	(3.50)	(2.46)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	68,157	58,098	57,983	68,157	58,098	57,983
Pseudo R^2	0.118	0.113	0.114	0.118	0.130	0.114

This table examines the association between the likelihood of non-GAAP disclosure and the use of high-quality auditor using the following model:

$$Probit\ (Non\text{-}GAAP\_indicator_{i,t}) = \alpha + \beta_1 Auditor_{i,t} + \gamma Controls_{i,t} + \varepsilon_{i,t}$$

where *Non-GAAP_indicator* is an indicator variable for non-GAAP disclosure; *Auditor* is an indicator variable for Big 4 auditor (*Big4*), or an indicator variable for either national-level industry leader based on fees (*Leader*) or city-level industry leader based on audit fees (*City leader*); *Controls* includes leverage (*LEV*), the market to book ratio (*MTB*), sales growth (*SG*), firm size (*SIZE*), an indicator for loss (*LOSS*), return on assets (*ROA*), institutional ownership (*%INST*), stock return (*RETURN*), CEO duality (*CEO_Duality*), board size (*BOARDSIZE*), board independence (*BOARDIND*), number of analyst coverage (*#ANALYST*), absolute value of abnormal accruals (*ABSAC*) and accounting conservatism (*CSCORE*); ε is the error term. Figures in parentheses are *t*-statistics. *** (**, *) indicates significant at the 1% (5%, 10%) level for two-tailed test. All variables are defined in the Appendix.

Table 6: High-Quality Auditors and the Quality of Exclusions in the US

Panel A: The results for the full sample

	Dependent variable = Future Operating Income			Dependent variable = Future cash flow		
	Big4 (1)	**Leader** (2)	**City leader** (3)	**Big4** (4)	**Leader** (5)	**City leader** (6)
Non-GAAP_Earnings	2.390***	2.628***	2.508***	3.342***	3.671***	3.770***
	(20.68)	(130.77)	(42.51)	(9.57)	(20.87)	(16.43)
Exclusions	-0.309***	-0.196***	-0.222***	-0.512***	-0.140**	-0.125
	(-5.90)	(-4.79)	(-8.77)	(-4.46)	(-2.10)	(-1.31)
AUDITOR	-0.078	0.023	-0.051**	-0.012	0.085	0.087
	(-1.16)	(0.32)	(-3.27)	(-0.15)	(0.95)	(1.23)
Non-GAAP_Earnings × AUDITOR	0.286*	0.079	0.209***	0.282	-0.114	-0.197
	(2.33)	(0.98)	(7.28)	(0.81)	(-0.56)	(-0.87)
Exclusions × AUDITOR	0.110**	0.001	0.052	0.384***	-0.049	-0.042
	(2.69)	(0.01)	(1.21)	(3.55)	(-0.63)	(-0.44)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	24,826	22,206	22,151	24,813	22,194	22,139
Adjusted R²	0.641	0.642	0.643	0.618	0.614	0.615
Exclusions + Exclusions × AUDITOR	-0.199	-0.195	-0.170	-0.128	-0.189	-0.167
p-value (sum = 0)	0.0001	0.0018	0.0006	0.0220	0.0100	0.0063

Panel B: The results for entropy-balanced sample

	Dependent variable = Future Operating Income			Dependent variable = Future cash flow		
	Big4 (1)	**Leader** (2)	**City leader** (3)	**Big4** (4)	**Leader** (5)	**City leader** (6)
Non-GAAP_Earnings	2.369***	2.645***	2.514***	3.213***	3.690***	3.754***
	(17.58)	(104.96)	(43.25)	(10.88)	(20.53)	(16.03)
Exclusions	-0.310***	-0.195***	-0.221***	-0.534***	-0.139**	-0.128
	(-5.89)	(-4.71)	(-8.69)	(-4.54)	(-2.10)	(-1.36)
AUDITOR	-0.092	0.115	-0.055**	0.021	0.186	0.098
	(-1.40)	(0.54)	(-2.64)	(0.24)	(0.86)	(1.38)
Non-GAAP_Earnings × AUDITOR	0.292*	0.040	0.201***	0.418	-0.157	-0.174
	(2.24)	(0.28)	(5.06)	(1.41)	(-0.71)	(-0.73)
Exclusions × AUDITOR	0.109**	-0.003	0.051	0.409***	-0.053	-0.038
	(2.56)	(-0.04)	(1.21)	(3.67)	(-0.69)	(-0.41)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	24,935	22,206	22,151	24,813	22,194	22,139
Adjusted R²	0.643	0.642	0.643	0.618	0.614	0.615
Exclusions + Exclusions × AUDITOR	-0.201	-0.198	-0.170	-0.125	-0.192	-0.166
p-value (sum = 0)	0.0000	0.0028	0.0005	0.0245	0.0084	0.0067

This table examines the association between Non-GAAP exclusions predictability and the use of high-quality auditors using the following model:

$$\text{Future Operating Income}_{i,t+1} \text{ or } \text{Future Cash flow}_{i,t+1} = \alpha + \beta_1 \text{Non-GAAP\_Earnings}_{i,t} + \beta_2 \text{Exclusions}_{i,t} + \beta_3 \text{Auditor}_{i,t} + \delta_1 \text{Non-GAAP\_Earnings}_{i,t} \times \text{Auditor}_{i,t} + \delta_2 \text{Exclusions}_{i,t} \times \text{Auditor}_{i,t} + \gamma \text{Controls}_{i,t} + \varepsilon_{i,t}$$

$$\text{Future Operating Income}_{i,t+1} \text{ or } \text{Future Cash flow}_{i,t+1} = \alpha + \beta_1 \text{Non-GAAP\_Earnings}_{i,t} + \beta_2 \text{MGRRECUR}_{i,t} + \beta_3 \text{DISCONT}_{i,t} + \beta_4 \text{BELOWLINE}_{i,t} + \beta_5 \text{Auditor}_{i,t} + \delta_1 \text{Non-GAAP\_Earnings}_{i,t} \times \text{Auditor}_{i,t} + \delta_2 \text{MGRRECUR}_{i,t} \times \text{Auditor}_{i,t} + \delta_3 \text{DISCONT}_{i,t} \times \text{Auditor}_{i,t} + \delta_4 \text{BELOWLINE}_{i,t} \times \text{Auditor}_{i,t} + \gamma \text{Controls}_{i,t} + \varepsilon_{i,t}$$

where *Future Operating Income* is earnings per share from operations; *Future Cash Flow* is future operating cash flows; *Non-GAAP_Earnings* is earnings per share reported by the management; *Exclusions* is non-GAAP earnings less GAAP earnings, *MGRRECUR* represents managers' total recurring exclusions per share; *DISCONT* represents profits from discontinued operation; *BELOWLINE* represents blow-line exclusions per share; *Auditor* is an indicator variable representing either a Big 4 auditor (*Big4*), or an indicator variable for either national-level industry leader based on fees (*Leader*) or city-level industry leader based on audit fees (*City leader*); *Controls* includes leverage (*LEV*), the market to book ratio (*MTB*), sales growth (*SG*), firm size (*SIZE*), an indicator for loss (*LOSS*), return on assets (*ROA*), institutional ownership (*%INST*), stock return (*RETURN*), CEO duality (*CEO_Duality*), board size (*BOARDSIZE*), board independence (*BOARDIND*), number of analyst coverage (*#ANALYST*), absolute value of abnormal accruals (*ABSAC*) and accounting conservatism (*CSCORE*); ε is the error term. Figures in parentheses are *t*-statistics. *** (**, *) indicates significant at the 1% (5%, 10%) level for two-tailed test. All variables are defined in the Appendix.

Table 7: High-Quality Auditors and Value Relevance of Exclusions in the US

	Full sample			Entropy-balanced sample		
	Big4	**Leader**	**City leader**	**Big4**	**Leader**	**City leader**
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	*Price*	*Price*	*Price*	*Price*	*Price*	*Price*
Book value	1.201***	0.560***	0.570***	1.100***	0.457***	0.504***
	(28.92)	(33.47)	(21.41)	(27.77)	(28.29)	(17.58)
AUDITOR	9.452***	0.280	-0.104	9.508***	-17.537***	0.898***
	(34.50)	(0.97)	(-0.38)	(35.17)	(-26.83)	(3.22)
Non-GAAP_Earnings	20.356***	28.235***	27.013***	18.507***	25.499***	28.359***
	(17.79)	(64.70)	(38.65)	(15.97)	(54.58)	(38.21)
Exclusions	-1.104***	0.193	0.288	-1.340***	-0.179	0.313
	(-2.79)	(0.86)	(0.83)	(-3.61)	(-0.85)	(0.93)
Book value × AUDITOR	-0.637***	0.009	-0.011	-0.545***	0.103***	0.054*
	(-14.73)	(0.32)	(-0.36)	(-13.12)	(3.56)	(1.66)
Non-GAAP_Earnings × AUDITOR	8.309***	0.929	2.265***	11.163***	5.003***	1.737**
	(6.96)	(1.35)	(2.84)	(9.22)	(6.91)	(2.06)
Exclusions × AUDITOR	1.143***	-0.623	-0.408	1.253***	-0.239	-0.497
	(2.62)	(-1.57)	(-1.00)	(3.01)	(-0.59)	(-1.22)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	52,918	46,282	46,040	48,354	42,318	42,140
Adjusted R²	0.602	0.585	0.586	0.611	0.606	0.589
Exclusions + Exclusions × AUDITOR	0.039	-0.430	-0.12	-0.087	-0.418	-0.184
p-value (sum = 0)	*0.835*	*0.189*	*0.584*	*0.607*	*0.140*	*0.407*

This table examines the association of the value relevance of non-GAAP earnings among high-quality auditors using the following model:

$$Price_{i,t} = \alpha + \beta_1 Bookval_{i,t} + \beta_2\, Non\text{-}GAAP\_Earnings_{i,t} + \beta_3\, Exclusions_{i,t} + \beta_4\, Auditor_{i,t} + \beta_5 Book\ value_{i,t} \times Auditor_{i,t}$$
$$+ \beta_6 Non\text{-}GAAP\_Earnings_{i,t} \times Auditor_{i,t} + \beta_7\, Exclusions_{i,t} \times Auditor_{i,t} + \varepsilon_{i,t}$$

where *Price* is the closing price at the fiscal year-end; *Book value* is the book value; *Non-GAAP_Earnings* is earnings per share reported by the management; *Exclusions* is non-GAAP earnings less GAAP earnings; *Auditor* is an indicator variable representing either a Big 4 auditor (*Big4*), or an indicator variable for either national-level industry leader based on fees (*Leader*) or city-level industry leader based on audit fees (*City leader*); *ε* is the error term. Figures in parentheses are *t*-statistics. *** (**, *) indicates significant at the 1% (5%, 10%) level for two-tailed test. All variables are defined in the Appendix.

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Table 8: Changes from Low-Quality to High-Quality Auditors and Non-GAAP Earnings in Australia

Panel A: Changes from low-quality to high-quality auditors and the quality of exclusions

	Dependent variable = Future Operating Income						Dependent variable = Future cash flow					
	Big4	Leader	City leader	Big4	Leader	City leader	Big4	Leader	City leader	Big4	Leader	City leader
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Non-GAAP_Earnings	0.413	0.912***	0.857***	0.155	0.868***	0.793***	1.416***	1.048***	1.071***	1.238***	1.001***	1.026***
	(1.38)	(29.42)	(14.45)	(0.48)	(19.90)	(9.66)	(3.91)	(13.95)	(12.53)	(8.15)	(11.84)	(9.25)
Exclusions	-0.219*	-0.380***	-0.016				-0.141*	-0.133	0.137**			
	(-1.69)	(-4.60)	(-0.38)				(-1.91)	(-1.23)	(2.52)			
MGRRECUR				-0.785	-0.617***	-0.589***				-0.406**	-0.367	-0.669**
				(-1.52)	(-4.34)	(-2.76)				(-2.33)	(-1.14)	(-2.25)
DISCONT				-0.054	-0.003	0.587***				-0.017	0.017	0.201
				(-0.49)	(-0.03)	(5.61)				(-0.11)	(0.23)	(0.91)
BELOWLINE				0.135	0.408***	0.000				0.165***	0.208	-0.006
				(1.36)	(5.66)	(0.02)				(5.85)	(1.42)	(-0.21)
CHANGE	-0.098	0.007	0.022	-0.103**	0.006	0.017	0.049	-0.084**	0.028	0.013	-0.079*	0.026
	(-1.43)	(0.20)	(1.01)	(-2.31)	(0.18)	(0.49)	(1.30)	(-2.19)	(0.90)	(0.33)	(-1.74)	(0.63)
Non-GAAP_Earnings × CHANGE	0.505	-0.049	0.045	0.366	-0.059	0.100	-0.447*	0.025	-0.043	-0.320	0.016	0.037
	(1.35)	(-0.84)	(1.09)	(0.77)	(-0.70)	(1.14)	(-1.80)	(0.24)	(-0.89)	(-1.18)	(0.14)	(0.27)
Exclusions × CHANGE	0.323**	0.174*	0.042				0.129	0.276*	-0.064			
	(2.04)	(1.99)	(0.31)				(1.22)	(1.87)	(-0.55)			
MGRRECUR × CHANGE				1.046**	0.351*	0.378*				0.553**	0.325	0.390*
				(2.21)	(1.66)	(1.69)				(2.41)	(0.89)	(1.72)
DISCONT × CHANGE				-1.558	-0.067	-0.672***				-0.881	0.179	-0.650
				(-1.61)	(-0.55)	(-4.32)				(-1.03)	(0.85)	(-1.02)
BELOWLINE × CHANGE				-0.595**	-0.243***	0.158				-0.080	-0.224	0.126
				(-2.45)	(-3.68)	(1.24)				(-1.23)	(-1.52)	(1.19)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	87	428	396	87	428	396	87	428	396	87	428	396
Adjusted R^2	0.196	0.742	0.614	0.254	0.768	0.635	0.595	0.763	0.684	0.621	0.772	0.707

This table examines the association between Non-GAAP exclusions predictability and the use of high-quality auditors using the following model:

$$Future\ Operating\ Income_{i,t+1} \text{ or } Future\ Cash\ flow_{i,t+1} = \alpha + \beta_1 Non\text{-}GAAP\_Earnings_{i,t} + \beta_2 Exclusions_{i,t} + \beta_3 Auditor_{i,t} + \delta_1 Non\text{-}GAAP\_Earnings_{i,t} \times Auditor_{i,t} + \delta_2 Exclusions_{i,t} \times Auditor_{i,t} + \gamma Controls_{i,t} + \varepsilon_{i,t}$$

$$Future\ Operating\ Income_{i,t+1} \text{ or } Future\ Cash\ flow_{i,t+1} = \alpha + \beta_1 Non\text{-}GAAP\_Earnings_{i,t} + \beta_2 MGRRECUR_{i,t} + \beta_3 DISCONT_{i,t} + \beta_4 BELOWLINE_{i,t} + \beta_5 Auditor_{i,t} + \delta_1 Non\text{-}GAAP\_Earnings_{i,t} \times Auditor_{i,t} + \delta_2 MGRRECUR_{i,t} \times Auditor_{i,t} + \delta_3 DISCONT_{i,t} \times Auditor_{i,t} + \delta_4 BELOWLINE_{i,t} \times Auditor_{i,t} + \gamma Controls_{i,t} + \varepsilon_{i,t}$$

where *Future Operating Income* is earnings per share from operations; *Future Cash Flow* is future operating cash flows; *Non-GAAP_Earnings* is earnings per share reported by the management; *Exclusions* is non-GAAP earnings less GAAP earnings; *MGRRECUR* represents managers' total recurring exclusions per share; *DISCONT* represents profits from discontinued operation; *BELOWLINE* represents blow-line exclusions per share; *Change* is an indicator variable representing the change from low-quality auditors to high-quality auditors, where high-quality auditors are either a Big 4 auditor (*Big4*), or an indicator variable for either national-level industry leader based on fees (*Leader*) or city-level industry leader based on audit fees (*City leader*); *Controls* includes leverage (*LEV*), the market to book ratio (*MTB*), sales growth (*SG*), firm size (*SIZE*), an indicator for loss (*LOSS*), return on assets (*ROA*), institutional ownership (*%INST*), stock return (*RETURN*), CEO duality (*CEO_Duality*), board size (*BOARDSIZE*), board independence (*BOARDIND*), number of analyst coverage (*#ANALYST*), absolute value of abnormal accruals (*ABSAC*) and accounting conservatism (*CSCORE*); ε is the error term. Figures in parentheses are *t*-statistics. *** (**, *) indicates significant at the 1% (5%, 10%) level for two-tailed test. All variables are defined in the Appendix.

Panel B: Changes from low-quality to high-quality auditors and value relevance of exclusions

VARIABLES	Big4 (1) Price	Leader (2) Price	City leader (3) Price
Book value	-0.027	0.488***	0.267**
	(-0.26)	(4.36)	(2.25)
CHANGE	-1.004***	-0.081	0.249
	(-5.43)	(-0.21)	(0.59)
Non-GAAP_Earnings	10.886***	12.965***	12.661***
	(7.63)	(20.48)	(16.29)
Exclusions	-1.163***	-1.856***	-0.466
	(-2.87)	(-3.35)	(-0.98)
Book value × Change	1.087***	-0.020	-0.066
	(3.09)	(-0.13)	(-0.41)
Non-GAAP_Earnings × Change	-4.218	0.376	1.023
	(-1.43)	(0.45)	(0.97)
Exclusions × Change	2.393***	0.789	-0.620
	(4.77)	(0.83)	(-0.70)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	95	526	476
Adjusted R^2	0.780	0.884	0.837

This table examines the association the value relevance of non-GAAP earnings among high-quality auditors using the following model:

$$Price_{i,t} = \alpha + \beta_1 Bookval_{i,t} + \beta_2\ Non\text{-}GAAP\_Earnings_{i,t} + \beta_3\ Exclusions_{i,t} + \beta_4\ CHANGE_{i,t} + \beta_5 Book\ value_{i,t} \times CHANGE_{i,t} + \beta_6 Non\text{-}GAAP\_Earnings_{i,t} \times CHANGE_{i,t} + \beta_7\ Exclusions_{i,t} \times CHANGE_{i,t} + \varepsilon_{i,t}$$

where *Price* is the closing price at the fiscal year-end; *Book value* is the book value; *Non-GAAP_Earnings* is earnings per share reported by the management; *Exclusions* is non-GAAP earnings less GAAP earnings; *Change* is an indicator variable representing the change from low-quality auditors to high-quality auditors, where high-quality auditors are either a Big 4 auditor (*Big4*), or an indicator variable for either national-level industry leader based on fees (*Leader*) or city-level industry leader based on audit fees (*City leader*); ε is the error term. Figures in parentheses are *t*-statistics. *** (**, *) indicates significant at the 1% (5%, 10%) level for two-tailed test. All variables are defined in the Appendix.