

Audit partner narcissism and audit reports readability: evidence from lead and review audit partners

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Abstract

Purpose – This study aims to investigate the impact of audit partners' narcissism on the readability of audit reports for companies listed on the Tehran Stock Exchange (TSE). It examines the effects of narcissism among both lead and review audit partners on the clarity of audit reports, considering the regulatory requirements and auditing practices within the Iranian financial reporting context.

Design/methodology/approach – This paper analyzed 2,691 firm-year observations from TSE-listed companies spanning 2011–2023, using ordinary least squares regression. Readability of audit reports was assessed using the FOG index, with the size of partners' signatures serving as a proxy for narcissism.

Findings – The findings indicate a significant negative relationship between increased narcissism and audit report readability; higher levels of narcissism correspond with elevated FOG index scores. Narcissism in lead partners notably diminishes readability more than that of review partners. This pattern holds across various robustness checks, including alternative readability metrics, variations in auditor engagement complexity, auditor specialization, subsets of qualified audit reports and considerations for endogeneity. Audit reports for economically significant clients tend to be clearer, suggesting a preference for reputation management over yielding to client pressure. Although no direct link was established between partners' quality and readability, a positive relationship exists between audit firm rank and partners' narcissism. Furthermore, interactions between auditor and CEO narcissism increase report complexity, especially in contentious negotiation scenarios. Despite regulatory advancements such as International Auditing Standard 701, its moderating effects were found to be inconsequential, highlighting the persistent influence of narcissism on audit report outcomes.

Originality/value – This research expands the understanding of how auditor personality traits, particularly narcissism, affect audit outcomes. By exploring the influence of narcissism on report readability within the Iranian context, this study fills a notable gap in the literature on emerging markets and non-Western reporting environments, providing valuable insights into global audit practices.

Keywords Audit partner, Narcissism, Audit report readability, FOG index, Auditor personality, Emerging market

Paper type Research paper

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1. Introduction

This study examines the impact of auditor narcissism on the readability of audit reports in Iran, an increasingly pertinent topic as financial reporting standards globalize. Despite the unique regulatory requirements and auditing practices in Iran, the influence of auditor personality traits, particularly narcissism, on audit outcomes has been underexplored. This research seeks to fill this gap by investigating how narcissistic traits among audit partners might affect the clarity and overall quality of audit reports.

Auditing serves as an intermediary function that enhances the credibility of financial information for businesses and investors (Healy and Palepu, 2001). The outcomes of audits are significantly influenced by the personalities and behaviors of the individuals responsible for overseeing and conducting the audit process. Recent studies have highlighted the substantial role of audit partners in shaping these outcomes. For example, research by Chen *et al.* (2020) and Pham *et al.* (2023) illustrates how factors such as partners' workload and their cultural alignment with CFOs can affect audit quality and the likelihood of issuing modified opinions. In addition, Ittonen *et al.* (2015) and Maghakyan *et al.* (2024) emphasize the critical importance of specialized knowledge – including digital competencies and experience with public clients – in enhancing audit effectiveness. Strategic decisions by audit firms to assign partners with sector-specific expertise to higher-risk clients have been shown to improve audit quality by mitigating engagement risks (Wu *et al.*, 2023). Moreover, ongoing collaborations between audit committee chairs and lead partners have been proven to enhance financial reporting quality while preserving the independence of audit fees (Bedford *et al.*, 2023).

The characteristics and behaviors of audit partners profoundly affect the integrity and effectiveness of audits (Zemi, 2012). Given their pivotal role, the personality traits of these partners, especially narcissism, are of significant interest to stakeholders who rely on transparent and accurate financial reporting and the extent to which the audit function supports these qualities (Duff, 2009). Narcissism is typified by traits such as grandiosity, entitlement, dominance and a heightened sense of self-importance, which may influence decision-making processes and interpersonal interactions within the audit context (Li *et al.*, 2023). Research indicates that while the overconfidence associated with narcissism may lead to riskier behaviors (Olsen and Stekelberg, 2016; Chatterjee and Hambrick, 2007; Neuvicka *et al.*, 2011), it can also enhance auditor independence and assertiveness, potentially improving audit quality (Chou *et al.*, 2021; Church *et al.*, 2020).

Recognizing the critical role of audit partners in determining audit quality, it is essential to consider the readability [1] of audit reports as a direct indicator of this quality (Rajabalizadeh, 2024b). The clarity and comprehensibility of these reports are crucial for their usability and for enabling stakeholders to understand and assess the credibility and validity of the financial information presented. However, audit reports often exhibit low readability, which complicates comprehension (Bookey and Quick, 2016; Coram *et al.*, 2011). Enhancing the readability of audit reports is not merely about improving the communicative value of these documents; it is also about strengthening the integrity and reliability perceived by the market (De Franco *et al.*, 2015; Loughran and McDonald, 2014; Seebeck and Kaya, 2022). Presenting complex audit findings in an accessible manner necessitates carefully crafted narratives that tackle the intricacies of detailed accounting and financial issues, as underscored by Xu *et al.* (2020). Sections such as the audit opinion and the basis for opinion are essential for providing a comprehensive understanding but contribute to the complexity of the reports. Thus, improving readability can have significant economic implications, enhancing the transparency necessary for informed investment decisions and alleviating information asymmetries and incentive problems that impede the efficient allocation of resources in capital markets.

Despite the collectivist culture of Iran, which generally discourages self-promotion, the structure of its auditing practices might inadvertently promote such traits, creating a unique amalgamation of cultural norms and professional behaviors (Rajabalizadeh, 2024a). In Iran, the absence of international audit firms and distinct auditing standards provides a specific context for examining how narcissism could influence the clarity of audit reports. A concise analysis of the differences between Iranian Standards on Auditing and International Standards on Auditing shows that while the international standards typically emphasize uniformity and comparability across borders, Iranian standards appear more aligned with domestic business practices and regulatory requirements. This alignment may lead to variations in audit scope, documentation and reporting responsibilities (Mirshekary and Saudagaran, 2005). The substantial influence individual auditors have over these reports, within Iran's specific regulatory framework and auditing practices, adds significant complexity to this dynamic. This intricate interplay between is further explored in Section 2, where the impact of narcissism on audit outcomes is detailed, incorporating insights from recent research (Wan Hussin *et al.*, 2018; Nazarian and Atkinson, 2013; Cooper and Pullig, 2013; Kurpis *et al.*, 2008).

This study uses signature size as an indicator of narcissism (Ham *et al.*, 2017, 2018; Chou *et al.*, 2021) and uses the *FOG* index to assess the readability of audit reports (Li, 2008; Biddle *et al.*, 2009; Lehavy *et al.*, 2011; Hesarzadeh and Rajabalizadeh, 2019; Salehi *et al.*, 2020; Hesarzadeh *et al.*, 2020). Our analysis is informed by a multifaceted theoretical framework: Upper Echelons Theory suggests that the personal traits of audit partners, particularly narcissism, influence audit outcomes, leading to complex and less readable reports (Wang *et al.*, 2016; Joullié *et al.*, 2021). Institutional Theory elucidates how auditors might adjust report readability to conform to ethical norms (Filatotchev and Nakajima, 2014). Agency Theory examines how client power dynamics affect readability adjustments (Adams, 1994). A comprehensive discussion of these theoretical perspectives and their relevance to our study is presented in Section 3.1, titled "Theoretical Underpinning."

Our analysis substantiates the first hypothesis (*H1*), positing a significant relationship between the narcissism of audit partners and the readability of audit reports. We found that audit partners with narcissistic tendencies generally produce reports of lower readability, as indicated by higher *FOG* index scores. This phenomenon is rooted in their approach to managing accounting conflicts and their preference for autonomous decision-making. The heightened scrutiny of narcissistic partners toward potential client deception and errors manifests in reports that are both more comprehensive and complex. These findings align with previous studies (Ma and Jaeger, 2005; Hüffmeier *et al.*, 2014), confirming the impact of auditor personality traits on the attributes of audit reports.

In addition, our research supports the second hypothesis (*H2*), elucidating the distinct impacts of narcissism among both lead and review audit partners on report readability. Notably, the narcissism of lead partners significantly exacerbates the complexity of audit reports. This finding highlights the divergent roles that lead and review partners play in determining the outcomes of reports. The association between the partners' narcissism and report complexity is consistent across various readability metrics, including the *SMOG* (Simple Measure of Gobbledygook) and the *ARI* (Automated Readability Index). This relationship is demonstrated to be robust through analyses correlating partners' narcissism rankings and the sizes of their signatures, thus underscoring the pervasive influence of narcissism on the presentation of audit reports.

Further analysis reveals that narcissistic traits contribute to increased complexity in detailed audits, consistently resulting in decreased readability, even in specialized or intricate audit scenarios. The study also examines the effects of client economic significance and partner narcissism on readability. We found that reports concerning larger clients tend to be

more readable, suggesting adjustments are made for clients of substantial economic importance. However, our findings show no significant relationship between partner quality and readability, highlighting that narcissism, rather than professional competence, predominantly influences readability. A positive relationship between the rank of an audit firm and partner narcissism indicates that higher-ranking firms tend to use more narcissistic auditors who produce complex reports, thus emphasizing the influence of firm ranking on the presentation of audit reports. In addition, our research suggests that the combined narcissism of auditors and CEOs may exacerbate challenges, resulting in less clear and potentially more biased audit reports, especially in contentious negotiation scenarios. The implementation of International Auditing Standard 701 has not significantly mitigated these effects, indicating that while the standard aims to enhance transparency, entrenched narcissistic traits continue to overshadow these regulatory efforts. This underscores the challenge of mitigating inherent personality influences within audit practices through standard regulatory measures alone.

Our study contributes to the advancement of accounting theory by integrating the psychological trait of narcissism into the analysis of audit outcomes, adopting a behavioral accounting perspective. This approach investigates how individual behaviors and psychological traits, particularly narcissism as identified among Iranian auditors by [Banimahd et al. \(2013\)](#), influence accounting and auditing practices. In addition, we use concepts from Agency Theory and Upper Echelons Theory to assess how narcissistic traits affect the professional judgments of audit partners. Agency Theory is expanded to explore the interaction between auditors' psychological characteristics and their independence and objectivity, supported by studies from [Hambrick \(2007\)](#) and [Liu \(2023\)](#). Moreover, Upper Echelons Theory, which asserts that organizational outcomes reflect leaders' characteristics, supports our examination of how leadership narcissism impacts audit practices, further explored by [Brunzel \(2021\)](#) and [Zengin-Karaibrahimoglu et al. \(2021\)](#).

Building upon prior research into auditors' professional attributes, such as education and experience ([Salehi et al., 2022](#)), our study explores personality traits within the framework of Iran's mandatory disclosure regulations. This context allows us to examine the influence of transparency on report presentation and contributes to global discussions on audit quality and partner identification, as detailed by [Fisher et al. \(2016\)](#). In addition, our research ties into investigations of negative personality traits and behaviors in accounting, including tax evasion ([Olsen and Stekelberg, 2016](#)) and dishonesty ([Cohen et al., 2017](#); [Campbell et al., 2011](#)). We investigate how narcissism affects auditors' decision-making and transparency and analyze the correlation between signature size – a direct indicator of personal accountability – and reporting patterns, following [DeZoort et al. \(2006\)](#). This analysis aids in devising strategies that align auditor traits with client needs, thus enhancing our understanding of auditor style and its impact on audit outcomes ([Goodwin and Wu, 2016](#)).

Building on this foundation, our study introduces a novel contribution to the literature by examining the specific effects of auditor narcissism on audit report readability within the Iranian audit context, which significantly differs from those previously studied. While existing research such as that by [Church et al. \(2020\)](#) and [Johnson et al. \(2021\)](#) has illuminated the effects of auditor narcissism in China and globally, focusing on various audit outcomes and auditor-client negotiations, our investigation delves into this phenomenon within the distinctive Iranian setting. Here, the manifestations of auditor narcissism are particularly apparent in less readable audit reports. This finding contrasts with prior research and underscores the significant role of regulatory environments and auditing practices in shaping the consequences of auditor narcissism. By expanding the geographical focus of the research and deepening the understanding of how auditor narcissism affects audit processes and outcomes in non-Western contexts, our study provides essential insights. The observed

differences highlight the need for a nuanced approach to assessing auditor behavior across diverse regulatory and cultural landscapes, which is crucial for academics and practitioners aiming to improve audit quality and transparency globally.

The subsequent sections of the paper are structured as follows: Section 3 outlines the theoretical relationship between auditors' narcissism and the readability of audit reports. Section 4 details the data and research design, while Sections 5 and 6 present the empirical findings, additional tests and a sensitivity analysis. Section 7 discusses the implications and concludes the paper.

2. Delineating the Iranian auditing context and profession

Iran presents a distinct context for investigating the influence of auditor narcissism on audit report readability. In Iran, social and professional behaviors are deeply influenced by Islamic values (Dastmalchian *et al.*, 2001). Traits associated with narcissism, such as a heightened sense of self-importance, might arise, potentially conflicting with these religious norms (Cooper and Pullig, 2013; Kurpis *et al.*, 2008). Such traits could lead auditors to produce more complex, less comprehensible audit reports as a means to demonstrate their expertise. Conversely, recent research suggests that narcissism might also promote audit quality by enhancing auditors' independence, indicating a complex role for personal traits in the efficacy of auditing in Iran (Salehi *et al.*, 2022).

The auditing process in Iran, delineated through the roles of lead and review partners, illustrates a confluence of individual motivations and broader socioeconomic factors. Although Iranian audit reports adhere to a traditional format that diverges from Western practices – often emphasizing key audit matters – they still provide critical market insights. The auditing environment is marked by significant government oversight, lax governance and opaque practices, emphasizing the importance of personal relationships and risk tolerance in audit outcomes (Nazarian and Atkinson, 2013). This setting forms a framework in which the effects of auditor narcissism may be either mitigated or exacerbated, especially during periods of increasing alignment with International Standards on Auditing. In this challenging environment, auditors in Iran are under considerable pressure to adhere to both national and international standards, influencing their professional behavior and the clarity of their reports. This scenario facilitates a comprehensive examination of how these pressures, along with the distinctive regulatory framework in Iran, affect auditor behavior, offering insights potentially unobservable in more liberal or less regulated contexts. Recent studies by Safarzadeh and Mohammadian (2024) indicate that narcissism among auditors positively affects professional skepticism. Nonetheless, the research also points to variations in narcissism across different demographics, noting higher levels among younger auditors and those in the private sector (Banimahd *et al.*, 2013). These observations underscore the intricate relationship between auditor traits, market dynamics and reporting practices within Iran's unique regulatory landscape.

Furthermore, challenges such as international sanctions and political constraints distinctively position Iran's audit sector. These factors, while restricting the presence of global firms, foster a vibrant and diverse local auditing environment. The absence of large, international firms encourages a broader variety of audit practices and decision-making processes. This situation potentially strengthens local auditors' skills, reduces audit costs, minimizes conflicts of interest and enhances competition, which could improve transparency. This unique structure may influence how narcissism manifests in audit reports. Local firms, perhaps striving to compete with or differentiate from global standards, may adopt reporting styles that more prominently reflect individual auditors' traits, making the study of narcissism's impact on report readability particularly pertinent. Research indicates that narcissism among audit partners, evident from signature size, enhances both perceived

and actual audit quality, particularly for larger clients and when auditors have personal relationships with client executives (Chou *et al.*, 2021). Recent findings by Zudana *et al.* (2023) demonstrate that CEO narcissism improves the readability of tax footnotes, affirming that executive traits significantly impact reporting clarity. These studies underscore the complex relationship between narcissism and various facets of financial reporting and audit quality within distinct regulatory and market contexts like those in Iran.

Finally, mandatory audit procedures and regulatory oversight in Iran play an essential role in upholding high standards of practice within a multifaceted regulatory and economic landscape. Audits require signatures from certified partners and mandate firm rotations every four years, complemented by rigorous annual evaluations conducted by the Iranian Association of Certified Public Accountants (IACPA), which assesses firms based on detailed quality criteria, assigning grades from A to D (MohammadRezaei *et al.*, 2018). Top-ranked firms, accredited by the Security Exchange Organization, are able to command higher fees and provide superior services, capitalizing on their extensive experience and broad service range. Despite these stringent regulations, the actual content of audit reports often varies significantly, reflecting disparities in how individual firms interpret and implement these standards. Such variability can result in marked discrepancies in report readability, underscoring the challenges in ensuring consistent audit report quality across the industry. This inconsistency is further affected by factors such as auditor tenure, fees and specialization, which have been shown to negatively impact report readability. Conversely, intense competition in the audit market, particularly among private firms, tends to improve it (Rajabalizadeh, 2024b). This competitive environment is especially pronounced in contexts where audit teams remain unchanged over long periods and in smaller market scenarios.

These dynamics illustrate the intricate interplay between personal traits, professional norms and market conditions that shape audit practices and report quality in Iran. The next section will provide a theoretical foundation for these observations, aiming to deepen our understanding of how these various elements influence audit quality and financial reporting within the unique Iranian context.

3. Theories, literature review and hypothesis development

3.1 Theoretical underpinning

The role of individual auditor traits, particularly narcissism, and their impact on audit outcomes is crucial for understanding auditing practices, especially within the distinct regulatory and cultural landscapes of Iran. This section focuses on the significant influence of narcissistic traits among auditors on the readability of audit reports, integrating insights from upper echelons theory, institutional theory and agency theory. This analysis not only deepens our understanding of the auditor's role but also sets the stage for subsequent hypothesis development.

Upper Echelons Theory suggests that organizational outcomes, such as strategic decisions and performance levels, are influenced by the background characteristics of top executives, including CEOs and audit partners (Wang *et al.*, 2016). In the Iranian context, where individual traits significantly affect professional behaviors due to cultural and religious factors (Nasmosavi and Jahanzeb, 2017), narcissistic traits in audit partners could lead to more complex audit reports. These leaders might use elaborate language to project superiority or distinctiveness, thereby imprinting their personal traits onto organizational outcomes (Joullié *et al.*, 2021). In this regard, pronounced narcissistic traits could compel audit partners to enhance report readability to demonstrate their competence and earn respect and admiration within the collectivist frameworks of Iranian society. Conversely, they might

opt to obscure readability to create an illusion of complexity, believing that it reflects their intellectual prowess in an environment that values modesty.

Transitioning from the discussion on Upper Echelons Theory, we delve into Institutional Theory, which examines how the broader regulatory and cultural environment in Iran could shape auditors' motivations and behaviors concerning report readability. Institutional Theory posits that organizations adopt practices more for legitimacy than for efficiency, often in response to normative pressures within their environment (Filatotchev and Nakajima, 2014). Given the strong religious and cultural ethos in Iran, which significantly shapes business practices (Zamani-Farahani and Musa, 2012), auditors may be compelled to enhance the readability of their reports to align with the ethical and professional standards expected in Iranian society. This alignment with institutional norms serves to gain legitimacy. However, if the institutional environment is perceived as valuing detailed and intricate reporting as a sign of thoroughness and expertise, auditors might increase the complexity of their reports to meet these expectations.

Finally, we expand our theoretical exploration to include Agency Theory, which primarily investigates the conflicts between principals (clients) and agents (auditors). Agents may act in their own interests, diverging from the interests of their principals (Adams, 1994). In addition, we consider how the bargaining power of clients influences auditors' behaviors and decision-making processes (Windsor and Ashkanasy, 1995). In the context of Iranian audits, clients may possess substantial bargaining power due to their economic or political ties (MohammadRezaei and Mohd-Saleh, 2017; MohammadRezaei *et al.*, 2016). Such power can impact how auditors respond to client preferences in their audit reports. For example, if powerful clients demand transparency and straightforwardness to meet regulatory requirements or enhance market reputation, they might pressure auditors to produce clearer audit reports. In this scenario, narcissistic auditors might view compliance as an opportunity to curry favor and boost their own prestige (Young *et al.*, 2016). On the other hand, if clients with significant bargaining power prefer less transparency – perhaps to conceal poor performance or reduce tax liabilities – they may push for more opaque reports. Narcissistic auditors, driven by the desire to sustain profitable client relationships or showcase their capability in managing complex situations, may accommodate these demands (Johnson *et al.*, 2013), thus diminishing report readability.

With a robust theoretical framework in place, we now shift our focus to reviewing literature and developing hypotheses. The forthcoming section will integrate empirical studies and theoretical perspectives to deepen our understanding of how auditor characteristics influence the readability of audit reports. Our examination of the existing literature will highlight gaps that our study seeks to address, thus paving the way for the presentation of our hypotheses.

3.2 Literature review and hypothesis formulation

The influence of narcissism on auditing effectiveness is multifaceted. Narcissistic traits, such as risk underestimation and overconfidence, can compromise financial decisions and leadership, thereby undermining the teamwork essential for accurate audits. These traits may lead to the oversight of critical errors, producing shorter, ostensibly clearer audit reports (Olsen and Stekelberg, 2016; Chatterjee and Hambrick, 2007; Nevicka *et al.*, 2011). Conversely, narcissistic resistance to conformity and persistence in views can result in deeper audits, yielding longer, more detailed reports that might impair readability (Maccoby, 2000, 2003; Xiang and Song, 2021). This dual impact of narcissism necessitates a nuanced exploration of its effects on audit report readability.

Previous studies, such as [Mock et al. \(2013\)](#), have underscored the importance of both the informational content of audit reports and users' reactions to this information. The quality of the narrative in audit reports is pivotal; however, research on factors influencing readability, as suggested by [Lo et al. \(2017\)](#), is limited. Readability is crucial for narrative quality and can be assessed by the presentation of information, which directly affects its perceived clarity to users. Further research by [Abdelfattah et al. \(2021\)](#) reveals that auditor characteristics, such as gender, can influence report readability, with female audit partners often producing less readable reports. Conversely, [Smith \(2023\)](#) notes that the inclusion of key audit matters in UK reports enhances readability, significantly affecting user interpretation and response.

Regarding the balance between standardization and specificity, [Fakhfakh \(2016\)](#) demonstrates that standardized audit reports can be difficult for financial statement users to understand, highlighting a gap between the intent of standardization and its practical effects. Conversely, [Dyer et al. \(2017\)](#) argue that the use of specific and verifiable language, including numerical data and organizational names, enhances readability and the reliability of the information provided. Regulatory bodies have initiated efforts to enhance financial disclosure clarity, with significant contributions from the Securities and Exchange Commission ([SEC, 1998](#)) and the International Auditing and Assurance Standards Board ([IAASB, 2015](#)). Supporting this, research by [Biddle et al. \(2009\)](#) and [Asay et al. \(2017\)](#) shows that less readable disclosures provoke weaker investor reactions, leading to greater reliance on external information. This highlights the crucial role of audit report readability as a reliable external information source. [Zeng et al. \(2021\)](#) extend this discussion by examining how textual characteristics such as readability, length and specificity correlate with audit quality, suggesting that improving these textual features can significantly enhance audit quality. This comprehensive review underscores the fundamental importance of readability in the effectiveness of financial communication and its regulatory implications, closely aligning with the central themes of audit report quality.

In the context of the literature reviewed, the potential of narcissism to either enhance or impair readability is particularly relevant in situations where lead and review audit partners in Iran must collaborate. High levels of narcissism might lead auditors to generate reports that are either overly complex or strategically straightforward, influenced by their professional motives and team dynamics. The dual-signature requirement aims to improve disclosure quality and reduce agency costs, but it also introduces complexity by illustrating how personal ambitions can either conflict with or complement collective audit objectives ([Ittonen and Tronnes, 2015](#)). Considering these dynamics and the nuanced role of narcissism described in our theoretical framework, the study proposes the following nondirectional null hypotheses to capture the intricate interactions affecting the readability of audit reports:

- H1.* There is no significant relationship between audit partners' narcissism and the readability of audit reports.

This hypothesis addresses the direct impact of narcissistic traits on the clarity of audit reports, reflecting the potential for narcissistic auditors to create reports that are either excessively complex or overly simplistic, based on their personal tendencies to either display competence or conceal deficiencies:

- H2.* The interaction between lead and review audit partners does not moderate the relationship between the narcissism of audit partners and the readability of audit reports.

This hypothesis investigates how the relationship between lead and review audit partners, particularly within the structured framework of Iranian audit practices, may affect how narcissistic traits influence report readability. It explores whether collaborative dynamics might either lessen or intensify the effects of narcissism, depending on how the requirement for dual signatures affects the auditors' approach to preparing reports.

4. Measurement, data and research design

4.1 Measuring auditor narcissism

Recent studies in accounting suggest that the size of a signature can serve as a simple and unobtrusive measure of an individual's narcissism (Chou *et al.*, 2021; Church *et al.*, 2020; Ham *et al.*, 2017, 2018). These studies indicate that larger signatures are generally associated with higher self-esteem, dominance and self-regard. This correlation supports the use of signature size as a proxy for assessing narcissism.

In our study, focusing on listed Iranian companies, we analyzed the annual reports from 2011 to 2023. Our analysis specifically targeted the mandatory handwritten signatures of two partners in the audit reports section of the financial statements. This method helped ensure the exclusion of automated signatures, which are less reliable for measuring narcissism. Following the methodology of Ham *et al.* (2017, 2018), we used ImageJ – a custom software program – to enclose each signature within a tight rectangle, ensuring each side of the rectangle touched the most extreme endpoint of the signature. The area of the rectangle (length multiplied by width) was then computed, and to adjust for variations in the length of the auditor's name, the area was divided by the number of characters in the partner's name. We calculated the average of these measurements for each partner across all signatures during the sample period to determine the average signature size. Finally, the natural logarithm of this average signature size was used to quantify each partner's level of narcissism (*AUD_NAR*).

4.2 Measuring readability

Readability in this paper is assessed using the *FOG* index, defined as:

$$FOG = 0.4 \times \left[\frac{\text{number of words}}{\text{number of sentences}} + 100 \times \left(\frac{\text{number of words with more than two syllables}}{\text{number of words}} \right) \right] \quad (1)$$

In Iran, the *FOG* index has been used in various studies to assess the readability of financial statement notes (Hesarzadeh and Rajabalizadeh, 2019, 2020; Salehi *et al.*, 2020) and the Management Discussion and Analysis (MD&A) sections (Hesarzadeh *et al.*, 2020). Our research, however, concentrates on audit reports, as they are a key communication medium between auditors and financial statement users. We specifically compute the *FOG* index for the audit report opinions, which includes sections on the financial statement opinions, the basis for these opinions, emphasis on specific matters and other explanatory clauses.

4.3 Other data

The annual reports containing auditor signatures were obtained from CODAL, a comprehensive database that archives all annual reports since a company's listing on the Tehran Stock Exchange (TSE). This database also provided financial and accounting data, as well as information on signing partner names, audit firms, audit opinions and accounting restatements. Our sample spans from 2011 to 2023, comprising a total of 2,691 firm-year observations. Data related to financial institutions such as banks, insurance companies and

investment and holding firms – totaling 960 firm-year observations – were excluded due to their distinctive accounting practices and regulations. In addition, data were removed for firms where information was inaccessible, accounting for 295 firm-year observations (see Table 1).

For the textual analysis of audit reports, we manually downloaded the relevant reports from CODAL for the specified research period and prepared them for analysis. The text was extracted using Python scripts and saved in TXT format, which facilitated the necessary processing for readability assessments. This preparation involved removing special characters from the Persian text while meticulously preserving sentence-ending punctuation to ensure accurate readability calculations. We used a suite of Natural Language Processing tools tailored to the Persian language, such as the Natural Language Toolkit and Hazm, to extract and compute readability scores from these audit reports.

4.4 Research design

The main analysis is performed using the following regression:

$$\begin{aligned}
 FOG_{it} = & \beta_0 + \beta_1 AUD_NAR_{it} + \beta_2 AUD_SPEC_{it} + \beta_3 AUD_TENURE_{it} \\
 & + \beta_4 AUD_MERGE_{it} + \beta_5 DISTANCE_{it} + \beta_6 AUD_CHANGE_{it} \\
 & + \beta_7 AUD_OPINION_{it} + \beta_8 LEAD_GENDER_i + \beta_9 REVIEW_GENDER_i \\
 & + \beta_{10} LEAD_CPA_i + \beta_{11} REVIEW_CPA_i + \beta_{12} AQ_i + \beta_{13} SIZE_{it} \\
 & + \beta_{14} SALESGROWTH_{it} + \beta_{15} CFO_{it} + \beta_{16} LOSS_{it} + \beta_{17} BANKRUPTCY_i \\
 & + \beta_{18} MB_{it} + \beta_{19} AGE_{it} + \beta_{20} OPERCYCLE_{it} + \beta_{21} RESTATE_{it} \\
 & + \beta_{22} QUICK_{it} + \beta_{23} TOPSH_{it} + FIRM\ FE + YEAR\ FE + AUDITOR\ FE + \varepsilon_{it}
 \end{aligned} \tag{2}$$

where *FOG* and *AUD_NAR* represent the measures of audit report readability and partners' narcissism, respectively. The selection and definition of the control variables are based on recent research (Hesarzadeh and Rajabalizadeh, 2019; Rajabalizadeh and Oradi, 2022; Rajabalizadeh, 2023; Church *et al.*, 2020; Chou *et al.*, 2021; Mohammadi *et al.*, 2021). These variables include audit partners' and audit firms' industry specialization (*AUD_SPEC*), tenure (*AUD_TENURE*), audit firms' mergers (*AUD_MERGE*), client and audit firms' locations (*DISTANCE*), auditor rotation (*AUD_CHANGE*) and auditor opinions (*AUD_OPINION*). The data set also accounts for the gender of the lead (*LEAD_GENDER*)

Table 1. Sample selection procedure

Filters	Sample size
Total listed firms on the Tehran stock exchange from 2011 to 2023	3,946
Less financial intermediaries, financial supply, insurance and investment firms	(960)
Less firms due to lack of access to information	(295)
Final sample used for the primary analysis	2,691

Notes: This table outlines the process used to refine the initial sample of firms listed on the Tehran Stock Exchange from 2011 to 2023. After excluding financial firms and those with incomplete information, the final sample consists of 2,691 firms for the primary analysis

Source: Authors' own work

and review partners (*REVIEW_GENDER*), as well as the CPA license tenure for both lead (*LEAD_CPA*) and review partners (*REVIEW_CPA*). Additional control variables encompass a broad range of client firm characteristics such as earning quality (*AQ*), size (*SIZE*), sales growth (*SALESGROWTH*), operating cash flows (*CFO*), loss status (*LOSS*), financial distress (*BANKRUPTCY*), the market-to-book ratio (*MB*), firm lifecycle (*AGE*), operating cycle (*OPERCYCLE*), restatement (*RESTATE*), quick ratio (*QUICK*) and share concentration (*TOPSH*). The analysis controls for firm, year and auditor fixed effects (*FIRM FE*, *YEAR FE*, *AUDITOR FE*) [2]. To mitigate the influence of outliers and potential database coding errors, all continuous variables used in the estimations are winsorized at the 1% and 99% percentiles. Standard errors are clustered by firm for all regression test statistics. [Appendix](#) provides the specifications for all regression variables.

5. Main results

5.1 Descriptive statistics and correlations

Descriptive statistics presented in [Table 2](#) illustrate that the mean readability (*FOG*) of audit reports is 21.561, which is lower compared to the *FOG* scores reported by [Zeng et al. \(2021\)](#) and [Seebeck and Kaya \(2022\)](#), at 25.775 and 25.570, respectively. Given that Persian sentences are typically 15% shorter than their English counterparts, these figures are

Table 2. Descriptive statistics ($n = 2,691$)

Variable	Mean	Median	SD	1%	99%
<i>FOG</i>	21.561	21.609	1.693	15.603	26.599
<i>AUD_NAR</i>	9.659	9.697	0.479	8.711	10.623
<i>AUD_SPEC</i>	0.139	0	0.346	0	1
<i>AUD_TENURE</i>	4.011	3	3.430	1	16
<i>AUD_MERGE</i>	0.028	0	0.165	0	1
<i>DISTANCE</i>	0.728	1	0.445	0	1
<i>AUD_CHANGE</i>	0.305	0	0.460	0	1
<i>AUD_OPINION</i>	0.389	0	0.488	0	1
<i>LEAD_GENDER</i>	0.085	0	0.279	0	1
<i>REVIEW_GENDER</i>	0.063	0	0.243	0	1
<i>LEAD_CPA</i>	10.987	11	6.355	1	22
<i>REVIEW_CPA</i>	10.155	11	6.187	1	22
<i>AQ</i>	0.154	0.167	0.063	0.002	0.236
<i>SIZE</i>	14.643	14.658	0.823	12.280	17.754
<i>SALESGROWTH</i>	0.383	0.381	0.272	-0.300	0.891
<i>CFO</i>	0.166	0.171	0.083	-0.064	0.391
<i>LOSS</i>	0.091	0	0.288	0	1
<i>BANKRUPTCY</i>	2.567	2.734	0.839	-0.288	4.032
<i>MB</i>	2.588	2.651	0.798	1.031	4.213
<i>AGE</i>	3.638	3.714	0.375	2.639	4.191
<i>OPERCYCLE</i>	6.914	6.876	0.331	6.109	8.117
<i>RESTATE</i>	0.580	1	0.494	0	1
<i>QUICK</i>	1.381	1.483	0.429	0.271	2.062
<i>TOPSH</i>	0.791	0.860	0.211	0	0.947

Notes: This table provides summary statistics for the key variables across 2,691 firm-year observations. It includes measures such as means, medians, standard deviations and the 1st and 99th percentiles for each variable. Definitions of all variables are available in [Appendix](#)

Source: Authors' own work

consistent with international standards. Earlier research within Iran, using the *FOG* index, observed comparable trends across financial statement notes and MD&A sections (Hesarzadeh and Rajabalizadeh, 2019, 2020; Salehi *et al.*, 2020). The average narcissism score of audit partners (*AUD_NAR*) is 9.659, which aligns with findings on CFO narcissism by Xiang and Song (2021).

The correlation matrix in Table 3 indicates a positive, significant correlation between *AUD_NAR* and *FOG*, suggesting that higher levels of narcissism may decrease audit report readability. The low variance inflation factors for independent variables, all below 5, effectively dismiss multicollinearity concerns.

5.2 Evidence on audit reports readability

Building on our extensive theoretical discourse, the empirical analysis seeks to definitively test the proposed mechanisms linking auditor narcissism with audit report readability. The findings detailed in Table 4 offer crucial empirical support, accurately reflecting the impacts hypothesized under various theoretical frameworks. The regression analysis reveals a positive correlation between the narcissism of audit partners (*AUD_NAR*) and the *FOG* index of audit reports, with a significant coefficient of 0.185 at the 1% level. This relationship suggests that higher narcissism correlates with higher *FOG* scores, hence lower readability [3].

This observation supports Upper Echelons Theory (Wang *et al.*, 2016), which posits that senior executives' personal traits, such as narcissism, can shape decision-making to reflect their individual styles – manifesting here as complex and less accessible audit reports. In addition, Institutional Theory (Filatotchev and Nakajima, 2014) suggests that such complexity may stem from institutional pressures within the Iranian audit environment, where auditors may use complexity either to navigate or resist normative expectations. Moreover, the differentiated impact of narcissism between lead and review partners (coefficients of 0.160 and 0.140 at the 1% and 5% levels, respectively) highlights how roles within the audit team influence report outcomes. The focus on different roles within the team ties directly back to the traits described by Upper Echelons Theory and the dynamics explored in Agency Theory. Agency Theory (Adams, 1994) further posits that the readability of audit reports can be influenced by the dynamics between auditors (agents) and their clients (principals). Here, the bargaining power of clients can compel auditors to adjust readability to better serve client interests, potentially varying based on the auditor's narcissistic traits and their approach to client relationship management.

Using the methodology introduced by Mitton (2024), the economic significance of the relationship between *AUD_NAR* and *FOG* was assessed. This result is calculated using the $E_S^{IQR} = \frac{|b(p_{75} - p_{25})|}{|S_y|}$ where *b* is the regression coefficient for partners narcissism (*AUD_NAR*), *p*₇₅ and *p*₂₅ are the 75th and 25th percentiles of *AUD_NAR* and *s*_y is the standard deviation of *FOG* [4]. The analysis demonstrates that an increment in partner's narcissism across its interquartile range corresponds to a 0.081 increase in the *FOG* index when expressed as a percentage of its standard deviation. This metric offers a standardized measure of the effect relative to the natural dispersion of the outcome, highlighting the substantial influence of partner's narcissism on the clarity and readability of audit reports. The interpretation of this metric underscores that higher levels of partner's narcissism are associated with less readable audit reports, emphasizing the considerable impact of auditor personality traits on the transparency of financial reporting. This finding underscores the critical role these traits play in the readability and transparency of financial documents, suggesting that increased narcissism may lead to more opaque and complex audit reports [5].

Table 3. Correlation matrix ($n = 2,691$)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) FOG	1												
(2) AUD_NAR	0.046	1											
(3) AUD_SPEC	0.035	0.083	1										
(4) AUD_TENURE	0.063	0.024	0.421	1									
(5) AUD_MERGE	0.030	-0.010	-0.042	-0.062	1								
(6) DISTANCE	-0.036	0.026	0.023	0.004	0.017	1							
(7) AUD_CHANGE	-0.012	0.018	-0.093	-0.163	0.030	-0.030	1						
(8) AUD_OPINION	-0.044	0.016	-0.011	-0.039	0.018	0.034	-0.014	1					
(9) LEAD_GENDER	-0.029	-0.014	0.144	0.115	-0.035	0.027	-0.039	0.020	1				
(10) REVIEW_GENDER	-0.007	-0.029	-0.006	0.001	0.012	-0.017	-0.005	0.032	0.020	1			
(11) LEAD_CPA	-0.024	-0.049	-0.087	-0.059	-0.005	0.006	0.001	-0.215	0.046	0.014	1		
(12) REVIEW_CPA	0.027	0.004	-0.010	-0.048	0.029	-0.062	-0.013	-0.222	-0.030	0.026	0.431	1	
(13) AQ	-0.018	-0.154	-0.129	-0.019	0.005	-0.058	-0.014	-0.103	0.001	0.009	0.182	0.143	1
(14) SIZE	0.020	-0.024	0.172	0.185	-0.015	0.037	-0.043	0.018	0.066	-0.015	0.058	0.054	0.159
(15) SALESGROWTH	-0.035	-0.112	-0.069	0.003	-0.035	-0.056	-0.031	-0.066	0.021	0.008	0.094	0.056	0.297
(16) CFO	0.012	-0.086	-0.065	-0.020	-0.029	-0.024	-0.036	-0.096	0.026	-0.002	0.061	0.046	0.204
(17) LOSS	0.010	0.021	0.004	0.002	0.009	-0.024	0.001	0.235	-0.036	-0.002	-0.070	-0.057	0.045
(18) BANKRUPTCY	0.006	-0.137	-0.131	-0.053	-0.039	-0.062	0.001	-0.165	0.040	0.019	0.148	0.121	0.426
(19) MB	0.008	-0.136	-0.145	-0.056	-0.007	-0.096	0.026	-0.098	0.005	0.023	0.155	0.081	0.391
(20) AGE	-0.007	-0.020	0.054	0.072	-0.004	0.016	0.015	-0.051	0.017	0.017	0.194	0.179	0.063
(21) OPERCYCLE	0.003	0.018	0.109	0.067	0.002	0.004	-0.014	0.095	0.03	-0.008	-0.048	0.005	-0.181
(22) RESTATE	-0.012	0.013	0.023	-0.043	0.021	0.042	0.045	0.047	-0.003	0.022	-0.088	-0.066	-0.165
(23) QUICK	-0.027	-0.172	-0.164	-0.049	-0.028	-0.097	-0.013	-0.096	0.016	0.050	0.193	0.148	0.422
(24) TOPSH	0.095	-0.159	-0.02	0.066	-0.019	-0.044	-0.031	-0.160	0.024	-0.008	0.116	0.091	0.426

Notes: This table presents the Pearson correlation coefficients for the variables used in the primary regression models. Correlations in italic indicate statistical significance at the 5% level or higher. Variable definitions can be found in [Appendix](#)

Source: Authors' own work

(continued)

Table 3. Continued

Variables	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
(1) FOG											
(2) AUD_NAR											
(3) AUD_SPEC											
(4) AUD_TENURE											
(5) AUD_MERGE											
(6) DISTANCE											
(7) AUD_CHANGE											
(8) AUD_OPINION											
(9) LEAD_GENDER											
(10) REVIEW_GENDER											
(11) LEAD_CPA											
(12) REVIEW_CPA											
(13) AQ											
(14) SIZE	1										
(15) SALESGROWTH	0.112	1									
(16) CFO	0.123	0.168	1								
(17) LOSS	-0.047	-0.075	-0.095	1							
(18) BANKRUPTCY	0.137	0.358	0.448	-0.239	1						
(19) MB	-0.039	0.327	0.377	-0.059	0.468	1					
(20) AGE	0.025	0.003	0.001	0.015	0.014	0.015	1				
(21) OPERCYCLE	0.110	-0.025	-0.097	0.093	-0.087	-0.160	-0.044	1			
(22) RESTATE	-0.043	-0.114	-0.070	0.034	-0.163	-0.126	0.006	0.085	1		
(23) QUICK	0.143	0.353	0.343	-0.128	0.459	0.450	0.080	-0.139	-0.153	1	
(24) TOPSH	0.310	0.259	0.248	-0.053	0.400	0.256	-0.010	-0.100	-0.113	0.303	1

Table 4. Auditor narcissism and audit reports readability (*FOG* index)

Variables	H1		H2			
	Partners narcissism		Lead partner		Review partner	
	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic
AUD_NAR	0.185***	2.670	0.160**	2.300	0.140**	2.000
AUD_SPEC	-0.010	-0.090	0.016	0.120	0.061	0.470
AUD_TENURE	0.031***	2.730	0.024*	1.820	0.029**	2.100
AUD_MERGE	0.346**	1.760	0.295	1.490	0.304	1.520
DISTANCE	-0.107	-1.460	-0.129*	-1.750	-0.140*	-1.890
AUD_CHANGE	-0.004	-0.060	-0.038	-0.540	-0.029	-0.400
AUD_OPINION	-0.154**	-1.970	-0.090	-1.200	-0.176**	-2.240
LEAD_GENDER	-0.135	-1.130	-0.172	-1.370	-0.178	-1.400
REVIEW_GENDER	0.030	0.230	-0.046	-0.340	-0.031	-0.220
LEAD_CPA	-0.002	-0.220	-0.013**	-2.020	-0.010	-1.280
REVIEW_CPA	0.017**	2.520	0.007	1.010	0.010	1.340
AQ	-0.862	-1.270	-1.043	-1.560	-0.973	-1.430
SIZE	0.014	0.310	0.021	0.460	-0.014	-0.310
SALESGROWTH	-0.279**	-2.070	-0.284**	-2.150	-0.287**	-2.120
CFO	-0.074	-0.160	-0.033	-0.070	0.098	0.220
LOSS	0.022	0.180	0.020	0.160	0.029	0.230
BANKRUPTCY	0.045	0.760	0.007	0.120	-0.001	-0.010
MB	0.085	1.580	0.079	1.490	0.083	1.530
AGE	0.061	0.590	0.053	0.520	0.036	0.390
OPERCYCLE	-0.057	-0.530	-0.007	-0.070	0.019	0.180
RESTATE	-0.027	-0.400	-0.025	-0.370	-0.038	-0.560
QUICK	-0.197*	-1.660	-0.212*	-1.810	-0.105	-0.890
TOPSH	1.006***	5.250	0.860***	4.500	1.092***	5.710
Intercept	19.139***	15.310	19.422***	15.670	19.347***	15.860
FIRM FE		Yes		Yes		Yes
YEAR FE		Yes		Yes		Yes
AUDITOR FE		Yes		Yes		Yes
Observations		2,691		2,691		2,691
Adj. R ²		0.269		0.253		0.248

Notes: This table displays the OLS regression results analyzing the relationship between auditor narcissism (*AUD_NAR*) and audit report readability (*FOG* index). The results are also presented for both the lead and review partners. *, ** and *** indicate statistical significance at the 10, 5 and 1% levels, respectively. Variable definitions are available in [Appendix](#)

Source: Authors' own work

5.3 Effects of auditing complexity, auditor specialization and type of auditor opinion

In this section, we critically examine how specific contextual variables – auditing complexity, auditor specialization and the type of auditor opinion – affect the interplay between auditor narcissism and the readability of audit reports. These aspects are pivotal as they represent key facets of the auditing environment that can either amplify or mitigate the inherent traits of auditor narcissism, influencing their professional conduct and the clarity of financial reporting ([Gaynor et al., 2016](#); [Habib, 2013](#); [El-Masry and Hansen, 2008](#); [Beattie and Fearnley, 1995](#)). Understanding these relationships is crucial for enhancing audit quality and tailoring auditor training and oversight to match the demands of varied audit contexts.

Complex audit engagements, measured by the ratio of inventories and accounts receivable to total assets (*INVREC*), generally require more detailed explanations and nuanced financial reporting. Our findings, as documented in [Table 5](#), reveal that when

Table 5. Effects of auditing complexity, auditor specialization and auditor opinion type

Variables	(1)		(2)		(3)	
	Auditing complexity Coef.	t-statistic	Auditor specialization Coef.	t-statistic	Qualified opinion Coef.	t-statistic
<i>AUD_NAR</i>	0.092	0.420				
<i>INVREC</i>	-1.371**	-2.040				
<i>INVREC</i> × <i>AUD_NAR</i>	0.031***	2.2720				
<i>AUD_NAR</i>			0.207***	2.830		
<i>AUD_SPEC</i>			-1.279**	-2.080		
<i>AUD_SPEC</i> × <i>AUD_NAR</i>			0.013***	5.280		
<i>AUD_NAR</i>					0.195**	2.240
<i>AUD_OPINION</i>					-0.106*	-1.68
<i>AUD_NAR</i> × <i>AUD_OPINION</i>					1.967***	2.930
Intercept and controls	YES		YES			YES
FIRM FE	YES		YES			YES
YEAR FE	YES		YES			YES
AUDITOR FE	YES		YES			YES
Observations	2,691		2,691			1,046
Adj. R^2	0.889		0.343			0.209

Notes: This table presents the OLS regression results examining the effects of auditing complexity, auditor specialization and the type of auditor opinion on audit outcomes. Each column reflects a different model specification. *, ** and *** denote statistical significance at the 10, 5 and 1% levels, respectively. Definitions of the variables are available in [Appendix](#)

Source: Authors' own work

narcissistic auditors handle such complex engagements, the readability of audit reports deteriorates further, as indicated by the positive interaction term (*INVREC* × *AUD_NAR*). This suggests that the assertiveness and overconfidence typically associated with narcissism may lead to overly complex or less precise explanations in already complex scenarios, thus increasing the *FOG* index.

For auditor specialization, defined by an indicator variable (*AUD_SPEC*) that marks auditors with the highest number of clients in a client's industry for a given fiscal year, we also observe a positive interaction with auditor narcissism (*AUD_SPEC* × *AUD_NAR*). This result implies that in specialized firms, where one might expect a deeper industry knowledge to aid clarity, the narcissistic traits instead lead to a decrease in report readability. This could be because narcissistic auditors, despite their industry knowledge, might prefer showcasing their expertise through complex language, adversely impacting the clarity perceived by less specialized readers.

The analysis further extends to the impact of narcissism in settings where auditors issue different types of opinions. Positive coefficients in scenarios involving qualified opinions would suggest that narcissistic auditors produce even less readable reports under conditions where clarity and precision are paramount. This might reflect a misalignment between the auditor's self-perceived competence and the actual clarity of their reporting, particularly in contentious or scrutinized audit situations.

The observed increase in the *FOG* index in contexts involving complex audits, specialized auditors and qualified opinions can be theoretically linked to the personality traits associated with narcissism. Narcissistic auditors might be inclined to use more complex language to assert dominance or showcase expertise, particularly in environments that are

inherently complex or where they hold a lot of industry-specific knowledge (Kaszak *et al.*, 2024). Moreover, the demanding nature of specialized audits and the critical scrutiny in qualified opinions could exacerbate the auditors' tendencies toward verbosity or technical jargon, which, while potentially impressing some peers, does not necessarily translate to clear and accessible reporting. Thus, the presence of narcissistic traits might amplify the inherent challenges of these audit contexts, leading to poorer readability as auditors opt to emphasize complexity over clarity.

6. Robustness tests and sensitivity analyses

6.1 Impact of auditor narcissism on audit report readability using alternative measures

To enhance the robustness of our initial findings which used the *FOG* index, we expanded our analysis to include the *SMOG* and *ARI* readability indices. These indices are well-recognized for assessing text complexity in accounting (Hesarzadeh *et al.*, 2020). Our results, though untabled, consistently indicate that higher levels of auditor narcissism lead to less readable audit reports. This finding corroborates our initial results, demonstrating a clear negative impact of auditor narcissism on report clarity. In addition, we analyzed auditor narcissism using different metrics, initially focusing on the size of audit partners' signatures and then categorizing these sizes into quantiles. Higher quantiles suggest greater narcissism. Our findings confirm a significant correlation between higher narcissism levels and increased *FOG* index scores, indicating less readable reports.

6.2 Endogeneity issues

Concerns about endogeneity in auditor-client relationships present substantial challenges, as the pairing of audit partners with clients involves complex factors, including partner skills and client needs (Lennox and Wu, 2018). To navigate these complexities, our study uses firm and audit firm fixed effects in the main regression analysis. However, the relationship between partners' narcissism and the readability of audit reports may be influenced by unobservable omitted variable bias. To address this issue, we use a quasi-experimental switching regression difference-in-differences (DiD) methodology, as reported in column 1 of Table 6. Following the approaches outlined by Garcia-Blandon *et al.* (2019), Hardies *et al.* (2015) and Ittonen *et al.* (2013), we investigate the changes in audit reports' readability following the appointment of audit partners with varying degrees of narcissism. Our primary narcissism measure, *AUD_NAR*, is divided into high-narcissism (coded as 1) and low-narcissism (coded as 0) groups based on the median score.

The DiD analysis contrasts the readability of audit reports before and after the switch from non-narcissistic to narcissistic audit partners, compared with a control group that experienced consistent non-narcissistic switches. We define a dummy variable, *NNTN*, which is set to 1 for switches to narcissistic partners and 0 for consistent non-narcissistic switches. Our sample now comprises 491 non-narcissistic and 143 narcissistic partner switches, resulting in a total of 634 firm-year observations. The variable *NNTN* captures the incremental impact of switching from a non-narcissistic to a narcissistic audit partner.

Adhering to the methods of Hardies *et al.* (2016), we reestimate the regression models presented in Table 4 with *NNTN* as the primary independent variable. The dependent and control variables measure the changes (Δ) from year $t-1$ to year t , with each auditee acting as its own control to enhance causal inference by accounting for firm-specific, time-invariant characteristics. The estimated coefficient for the change in narcissism score, Δ *AUD_NAR* (0.561), is statistically significant at the 5% level in our primary model. This finding suggests that audit reports become significantly less readable when high-narcissistic partners are assigned, compared to their low-narcissistic counterparts [6].

Table 6. Controlling endogeneity

Variables	(1)		(2)	
	Difference-in-Difference		Role based on narcissism	
	Coef.	t-statistic	Coef.	t-statistic
<i>AUD_NAR</i>			0.238**	2.151
Δ <i>AUD_NAR</i>	0.561**	2.250		
Intercept and Δ controls		Yes		–
Intercept and controls		–		Yes
FIRM FE		Yes		Yes
YEAR FE		Yes		Yes
AUDITOR FE		Yes		No
Observations		634		2,691
Adj. R^2		0.112		0.286

Notes: This table investigates potential endogeneity concerns using a difference-in-difference approach and role-based analysis. *, ** and *** indicate statistical significance at the 10, 5 and 1% levels, respectively. Variable definitions are provided in [Appendix](#)

Source: Authors' own work

We also explored the potential for self-selection bias regarding the roles that audit partners assume within the audit process. Given that leadership roles typically require traits such as assertiveness and risk-taking – characteristics frequently associated with higher levels of narcissism – it raises the question of whether narcissistic tendencies influence an auditor's preference for leading rather than reviewing. Conversely, review roles, which demand precision and a keen eye for detail, might attract those with lower levels of narcissism. To examine this dynamic, we used logistic regression to assess how levels of narcissism impact the likelihood of auditors assuming lead versus review roles. Our analysis, presented in column 2, reveals a coefficient of 0.238 for narcissism scores, statistically significant at the 5% level. This indicates a positive correlation between higher levels of narcissism and the propensity to assume leadership roles, supporting the hypothesis that auditors with more narcissistic tendencies are more inclined to occupy leadership positions within audit teams. This finding underscores the complex interplay between personality traits and professional roles.

To mitigate the potential selection bias inherent in observational studies, we applied the entropy balancing approach to refine our analysis of the impact of auditor narcissism on audit report complexity. Proposed by [Hainmueller \(2012\)](#), entropy balancing is a reweighting technique that precisely adjusts covariates to achieve a predetermined balance between treatment and control groups. This method is particularly effective in ensuring that the distributions of covariates are comparable across groups, thereby minimizing the influence of confounding variables.

We used the entropy balancing method to adjust for various covariates, including auditor characteristics and firm-specific factors, which could influence the complexity of audit reports as measured by the *FOG* index. Our goal was to isolate the effect of auditor narcissism from these potential confounders. This approach involved adjusting weights for each observation in the treatment group (high narcissism auditors based on the median) to match specific moment conditions (mean, variance and skewness) in the control group (low narcissism auditors).

Panel A of [Table 7](#) presents the first, second and third moments of key covariates before entropy balancing. It shows significant differences between the treatment and control groups across various metrics, indicating initial imbalance. Following the application of entropy balancing, Panel B confirms that the moment conditions for the covariates are closely aligned between the two groups post-balancing, reflecting successful adjustment. For example, the means and variances for key variables such as auditor tenure, auditor mergers and financial metrics now closely mirror each other between the treatment and control groups, validating the effectiveness of entropy balancing in creating comparable groups for subsequent analysis.

Panel C outlines the regression results post-entropy balancing. The models incorporate the balanced weights and further control for firm, year and auditor fixed effects to ensure robustness. The results show a significant positive association between auditor narcissism and the complexity of audit reports. The coefficient for overall partner narcissism (*AUD_NAR*) is statistically significant at the 1% level, suggesting that higher levels of narcissism among audit partners are associated with less readable audit reports. The results also differentiate between lead and review partners, indicating that narcissism in lead partners has a more pronounced effect on report complexity. These findings address concerns regarding the robustness of our results and reinforce the validity of our conclusions that audit report complexity can indeed be attributed to the narcissistic traits of auditors, rather than other extraneous factors.

6.3 *Partners' narcissism, client importance and audit reports readability*

Our research examines how auditor narcissism interacts with the economic significance of clients to influence audit report readability. Addressing the conflicts between auditors' financial interests, professional independence and the risk of client loss as discussed by [Mautz and Sharaf \(1961\)](#) and [DeAngelo \(1981\)](#), we analyze the impact of auditors' stakes in client relationships on audit quality. This is particularly relevant in markets like Iran, where protections are less stringent. In our regression analysis, we use a methodology adapted from [Chen et al. \(2010\)](#) to measure client importance and its interaction with auditor narcissism. The results, detailed in [Table 8](#), indicate that while significant clients generally receive clearer reports, the introduction of auditor narcissism leads to increased report complexity. The coefficients for the interaction terms with client importance (CI_A and CI_S) are positive and significant [CI_A : 1.012** (t-statistic = 1.970), CI_S : 0.529* (t-statistic = 1.870)], suggesting that narcissistic auditors might prioritize asserting their expertise and maintaining professional standing over simplifying reports for better client comprehension, aligning with findings by [Maccoby \(2003\)](#), [Ma and Jaeger \(2005\)](#) and [Hüffmeier et al. \(2014\)](#).

6.4 *Audit partner quality and audit reports readability*

In Iran, audit restatements are notably prevalent, affecting 60–70% of audit opinions and 75% of financial reports from TSE-listed firms. This high incidence raises substantial concerns about investor trust and market stability. Our study exploits Iranian disclosure norms that mandate the naming of lead and review partners in audit reports. We investigate audit partner quality (*QLead* and *QReview*) through the lens of audit failures, defined as restatements following unqualified opinions ([Wang et al., 2015](#)). Contrary to initial expectations, our findings (untabulated) reveal no significant correlation between the readability of audit reports and audit partner performance. This suggests that less readable reports, which are typically more detailed and complex, do not necessarily indicate lower audit quality. Instead, they may reflect the auditor's diligence, potentially associated with narcissistic traits.

Table 7. Addressing selection bias using entropy balancing approach

Variables	Treatment (HIGHNARCISSIST = 1)			Control (LOWNARCISSIST = 0)		
	Mean	Variance	Skewness	Mean	Variance	Skewness
<i>Panel A. Pre-balancing first, second and third moments of control variables</i>						
AUD_SPEC	0.166	0.139	1.791	0.111	0.099	2.480
AUD_TENURE	4.108	13.330	1.692	3.914	10.180	1.831
AUD_MERGE	0.028	0.027	5.696	0.028	0.027	5.778
DISTANCE	0.740	0.193	-1.094	0.715	0.204	-0.954
AUD_CHANGE	0.301	0.211	0.868	0.309	0.214	0.829
AUD_OPINION	0.398	0.240	0.416	0.379	0.236	0.498
LEAD_GENDER	0.076	0.070	3.206	0.094	0.085	2.789
REVIEW_GENDER	0.061	0.057	3.671	0.065	0.061	3.540
LEAD_CPA	10.670	39.240	0.031	11.310	41.370	-0.140
REVIEW_CPA	10.070	36.140	0.038	10.240	40.440	0.018
AQ	0.146	0.005	-0.507	0.162	0.003	-1.043
SIZE	14.620	0.893	0.608	14.660	0.462	-0.128
SALESGROWTH	0.354	0.088	0.349	0.411	0.058	-0.037
CFO	0.161	0.008	0.151	0.170	0.006	0.083
LOSS	0.097	0.088	2.717	0.085	0.078	2.982
BANKRUPTCY	2.468	0.881	-1.163	2.666	0.508	-1.753
MB	2.504	0.792	2.396	2.672	0.466	1.100
AGE	3.627	0.145	-0.660	3.649	0.136	-0.696
OPERCYCLE	6.920	0.138	1.446	6.908	0.081	2.056
RESTATE	0.580	0.244	-0.322	0.580	0.244	-0.324
QUICK	1.317	0.221	-0.251	1.446	0.138	-1.122
TOPSH	0.757	0.061	-2.189	0.825	0.026	-4.044
<i>Panel B. Post-balancing first, second and third moments of control variables</i>						
AUD_SPEC	0.166	0.139	1.791	0.166	0.139	1.792
AUD_TENURE	4.108	13.330	1.692	4.108	12.370	1.687
AUD_MERGE	0.028	0.027	5.696	0.028	0.027	5.697
DISTANCE	0.740	0.193	-1.094	0.740	0.193	-1.094
AUD_CHANGE	0.301	0.211	0.868	0.301	0.211	0.868
AUD_OPINION	0.398	0.240	0.416	0.398	0.240	0.416
LEAD_GENDER	0.076	0.070	3.206	0.076	0.070	3.205
REVIEW_GENDER	0.061	0.057	3.671	0.061	0.057	3.672
LEAD_CPA	10.670	39.240	0.031	10.670	40.280	-0.044
REVIEW_CPA	10.070	36.140	0.038	10.070	39.620	0.014
AQ	0.146	0.005	-0.507	0.146	0.004	-0.542
SIZE	14.620	0.893	0.608	14.620	0.706	0.389
SALESGROWTH	0.354	0.088	0.349	0.354	0.071	-0.131
CFO	0.161	0.008	0.151	0.161	0.009	0.112
LOSS	0.097	0.088	2.717	0.097	0.088	2.717
BANKRUPTCY	2.468	0.881	-1.163	2.468	0.792	-1.320
MB	2.504	0.792	2.396	2.504	0.555	0.304
AGE	3.627	0.145	-0.660	3.627	0.141	-0.651
OPERCYCLE	6.920	0.138	1.446	6.920	0.139	1.283
RESTATE	0.580	0.244	-0.322	0.580	0.244	-0.322
QUICK	1.317	0.221	-0.251	1.317	0.199	-0.756
TOPSH	0.757	0.061	-2.189	0.757	0.065	-2.196

(continued)

Table 7. Continued

Panel C. Models with entropy balancing weights						
Variables	H1		H2		H2	
	Partners narcissism		Lead partner		Review partner	
	Coef.	t.statistic	Coef.	t.statistic	Coef.	t.statistic
AUD_NAR	0.206***	2.740	0.145**	2.530	0.032**	2.220
Intercept and controls		Yes		Yes		Yes
FIRM FE		Yes		Yes		Yes
YEAR FE		Yes		Yes		Yes
AUDITOR FE		Yes		Yes		Yes
Observations		2,691		2,691		2,691
Adj. R ²		0.346		0.336		0.331

Notes: This table shows the results of addressing selection bias using an Entropy Balancing approach. Panel A presents pre-balancing descriptive statistics for the treatment and control groups, while Panel B shows post-balancing results. Panel C provides the regression results using the entropy-balanced sample. *, ** and *** denote statistical significance at the 10, 5 and 1% levels, respectively. Variable definitions are available in [Appendix](#)

Source: Authors' own work

Table 8. Partners' narcissism, client importance and audit reports readability (*FOG* index)

Variables	Coef.	t-statistic	Coef.	t-statistic
AUD_NAR	0.335**	2.070		
CI _A	-2.235**	-2.030		
AUD_NAR × CI _A	1.012**	1.970		
AUD_NAR			0.451***	2.750
CI _S			-4.515	-1.630
AUD_NAR × CI _S			0.529*	1.870
Intercept and controls		YES		YES
FIRM FE		YES		YES
YEAR FE		YES		YES
AUDITOR FE		YES		YES
Observations		2,691		2,691
Adj. R ²		0.272		0.261

Notes: This table presents the OLS regression results for the first hypothesis, analyzing the impact of partner narcissism and client importance on audit report readability (*FOG* index). Client importance is measured as the ratio of the natural logarithm of the total assets (sales) of the client to the sum of the natural logarithm of the total assets (sales) of *n* clients audited by audit office *j* in a specific year, denoted as CI_A (CI_S). *, ** and *** indicate statistical significance at the 10, 5 and 1% levels, respectively. Variable definitions are provided in [Appendix](#)

Source: Authors' own work

6.5 Audit firm ranking, audit quality and audit reports readability

The IACPA grades audit firms from A to D based on audit quality criteria, with rankings reflecting various evaluative measures including partner and staff evaluation, firm structure, diversity in service provision and overall audit quality ([MohammadRezaei et al., 2018](#)). Our study assessed the correlation between auditor narcissism and employment in higher-ranked audit firms, assigning values of 4 to A-ranked firms down to 1 for D-ranked ones, with the

majority of firms in our sample being A-ranked. Our analysis (untabed) indicated a significant positive link between firm ranking and auditor narcissism in relation to audit report readability. This suggests that auditors with traits like assertiveness or self-confidence, which are advantageous in high-pressure, prestigious environments, may be more prevalent in top-tier firms. This finding points to a potential attraction of narcissistic auditors to prestigious firms for recognition, impacting audit report readability.

6.6 Interplay of auditor and CEO narcissism in determining audit outcome

Recent advancements in behavioral accounting have emphasized the role of individual traits in influencing corporate outcomes (Anessi-Pessina and Sicilia, 2020; Liem and Hien, 2020). The application of Upper Echelons Theory in accounting research illustrates how the personal characteristics of top executives can significantly impact corporate decision-making and financial reporting practices (Hiebl, 2014; Bassyouny *et al.*, 2020). Similarly, by relaxing the assumption of auditor rationality, traits such as narcissism become pivotal in understanding the auditing process and its outcomes (D'Souza *et al.*, 2019). While our research has focused on auditor narcissism, the potential influence of client traits, particularly the narcissism of CEOs [7], on audit negotiations and outcomes cannot be ignored. This section introduces a new variable – CEO narcissism, *CEO_NAR* – calculated based on the size of CEOs' signatures, a proxy previously validated in the literature as indicative of narcissistic traits (Ham *et al.*, 2017). We explore how the interplay between auditor and CEO narcissism might jointly influence audit outcomes.

To investigate the combined effect of auditor and CEO narcissism on audit outcomes, we introduce an interaction term between auditor narcissism and CEO narcissism ($AUD_NAR \times CEO_NAR$) in our regression models. This approach allows us to examine whether the negotiation dynamics between narcissistic auditors and executives exacerbate or mitigate issues in audit quality and financial reporting clarity. We hypothesize that the interaction between auditor and CEO narcissism may lead to heightened conflict during audit negotiations, particularly in scenarios involving significant audit adjustments (Church *et al.*, 2020; Chou *et al.*, 2021). Our regression analysis reveals a positive and statistically significant coefficient at the 10% level for the interaction term, suggesting reduced clarity in audit reports when both auditor and CEO narcissism levels are high, as further detailed in Table 9. CEO narcissism (*CEO_NAR*) presents a positively significant coefficient at the 10%, indicating a stronger, significant influence on audit report readability. Unexpectedly, the individual effect of auditor narcissism (*AUD_NAR*) becomes nonsignificant when controlling for CEO narcissism. This indicates that the predominant influence of CEO narcissism in shaping audit outcomes is a critical aspect that merits further exploration.

This observation compels us to explore further the impact of CEOs' narcissistic traits on audit processes. In the realm of financial reporting and audit processes, the narcissistic traits of CEOs – characterized by grandiosity, entitlement, dominance and a sense of superiority – are particularly consequential (Amernic and Craig, 2010; Zhu and Chen, 2015). Such traits may prompt CEOs to pursue aggressive corporate strategies that directly influence audit processes and enable them to assert their desired outcomes (Judd *et al.*, 2017). Institutional Theory supports this notion, proposing that while individuals in top executive roles generally conform to the norms of their environments (Liang *et al.*, 2007), they also tailor these environments to suit their personal traits and agendas (Hambrick *et al.*, 1993; Alvarez and Svejnova, 2005). Furthermore, Agency Theory suggests that conflicts of interest between principals (shareholders) and agents (CEOs) intensify when agents operate with significant discretion (Dagnino *et al.*, 2019), a situation that may be exacerbated by their narcissistic traits (Kashmiri *et al.*, 2017). This exacerbation of agency problems can pose substantial

Table 9. Interplay of partners and CEO narcissism on audit reports readability (*FOG* index)

Variables	Coef.	<i>t</i> -statistic
<i>AUD_NAR</i>	1.623	1.573
<i>CEO_NAR</i>	1.820*	1.671
<i>AUD_NAR</i> × <i>CEONAR</i>	0.192*	1.720
Intercept and controls		Yes
FIRM FE		Yes
YEAR FE		Yes
AUDITOR FE		Yes
Observations		2,691
Adj. <i>R</i> ²		0.269

Notes: This table shows the OLS regression results analyzing the combined effects of partner and CEO narcissism on audit report readability (*FOG* index). *, ** and *** denote statistical significance at the 10, 5 and 1% levels, respectively. Variable definitions are available in [Appendix](#)

Source: Authors' own work

governance challenges, particularly affecting financial transparency and audit integrity (Head, 2012; Salehi *et al.*, 2023). Narcissistic CEOs, likely to resist scrutiny and challenge audit adjustments, paired with similarly narcissistic auditors who may assert their judgments more aggressively (Hou *et al.*, 2024), could lead to more contentious and less effective audit processes. This might result in audit reports that are less clear and potentially more biased.

The context of Iran provides a unique setting to examine the influence of CEO traits on audit outcomes. In environments where regulatory frameworks may permit significant executive discretion (Rajabalizadeh, 2023), the personal traits of CEOs, such as narcissism, could have a more pronounced impact on corporate governance practices. Factors such as the bargaining power of narcissistic CEOs, auditor tenure and the prevalence of opinion shopping are crucial in this regard (Tarighi *et al.*, 2022; MohammadRezaei *et al.*, 2016). Narcissistic CEOs may strongly resist audit adjustments (Sedikides and Campbell, 2017) and engage in more aggressive negotiations during audit report preparation, influenced by their bargaining power (Bhaskar *et al.*, 2023). Moreover, prolonged auditor tenures might suggest excessively close relationships between auditors and executive teams, which, when combined with CEO narcissism, subtly yet powerfully influence audit negotiations (Liu *et al.*, 2021; Wang and Tuttle, 2009). The practice of opinion shopping, where executives seek auditors who may align with their views, further illustrates how CEO narcissism might manifest, affecting audit quality and financial reporting clarity (Berglund *et al.*, 2022; Seifzadeh *et al.*, 2021).

In conclusion, our study emphasizes the significant influence of CEO narcissism on audit outcomes, more so than auditor narcissism. This predominance of CEO narcissism, especially in contexts like Iran where executive discretion is extensive, underscores the need for robust governance mechanisms to mitigate the potential adverse effects of executive personality traits on audit quality. Our findings enrich the literature by detailing the complex interplay between executive traits and corporate governance, offering insights that could inform both policy and practice in the realms of financial reporting and audit oversight.

6.7 The moderating role of international auditing standard 701

Since December 2016, specific criteria have been established for communicating key audit matters to corporate governance stakeholders (management) and disclosing them in the

auditor's report (Kitiwong and Sarapaivanich, 2020; Nguyen and Kend, 2021; Rautiainen *et al.*, 2021). In Iran, International Auditing Standard 701 was adopted in 2021, with the revisions becoming effective for auditing financial statements for periods ending on or after March 21, 2022 (Ghaemi *et al.*, 2024). This standard marks a significant advancement in enhancing transparency and accountability in audit reporting by requiring auditors to explicitly address those matters that, in their professional judgment, were most significant in the audit of the financial statements for the current period.

To assess the potential moderating effect of this new standard on the relationship between auditor narcissism and the readability of audit reports, we divided our sample into pre- and post-reform periods. The pre-reform period encompasses the years 2011–2021, while the post-reform period includes the years 2022 and 2023. We introduced a dummy variable, *POST_REFORM*, to denote these periods, with the post-reform period coded as “1” and the pre-reform as “0.” In addition, we generated an interaction term, *POST_REFORM* × *AUD_NAR*, to represent the interaction between auditor narcissism and the implementation of the reform. Our untabled regression analysis revealed that the coefficient for auditor narcissism was positive (0.216) and significant ($p = 0.004$), indicating that higher levels of narcissism are associated with less readable audit reports, as measured by higher *FOG* index scores. The coefficient for the post-reform period was not significant ($p = 0.386$), indicating that the introduction of the standard alone did not have a discernible impact on the readability of audit reports. The interaction term was negative (−0.203) but not significant ($p = 0.290$), suggesting that the reform does not significantly alter the effect of auditor narcissism on report readability.

This analysis indicates that the implementation of International Auditing Standard 701 in Iran, which mandates the disclosure of key audit matters, does not significantly moderate the impact of auditor narcissism on the readability of audit reports. These findings suggest that despite the regulatory intent to enhance transparency and clarity, the personal characteristics of auditors, such as narcissism, continue to play a dominant role in shaping audit report outcomes [8]. This may imply that the standard, while theoretically beneficial, has not been effective in practice in mitigating the influence of individual auditor traits on report readability within the Iranian auditing environment.

7. Concluding remarks

This study presents compelling evidence that the narcissism of audit partners, particularly within the Iranian context, significantly influences the readability of audit reports listed on the TSE. The use of signature size as a proxy for narcissism has elucidated the impact of auditor personality traits on the clarity of audit reports. Notably, narcissism, especially prominent in lead audit partners, is correlated with lower readability of audit reports, as indicated by higher *FOG* index scores. This trend highlights the complexity introduced into audit reports by narcissistic auditors, who likely embed the reports with detailed and complex narratives to assert their dominance and expertise.

The implications of this research are profound, extending beyond academic circles into practical applications for audit firms and regulatory bodies. By demonstrating that narcissism adversely affects audit report readability, the study underscores the need for meticulous selection and training of audit partners. Audit firms may need to incorporate personality assessments into their recruitment and team assembly processes to ensure a balance that promotes assertive independence and clear communication in audit reporting. In addition, the study illuminates the broader impact of cultural and regulatory environments on audit practices. Despite the general discouragement of self-promotion within Iran's collectivist culture, the structure of its audit practices may inadvertently foster narcissistic traits among

auditors. This observation suggests that both cultural nuances and professional practices should be considered in the development of standards and training programs for auditors in Iran and potentially in other similar regulatory contexts.

Our study has its limitations, which necessitate a cautious interpretation of the results. We used signature sizes as a proxy for narcissism, a creative yet indirect method that may not fully capture the complexity of this personality trait. Despite efforts to control for variables such as company size and risk, challenges such as data availability and the potential variability of narcissism over time remain. Moreover, focusing on Iranian audit firms may limit the generalizability of our findings due to geographical specificity, though the insights could be relevant to both developed and emerging markets. Future research could empirically evaluate how readability affects stakeholder perceptions, conduct behavioral experiments on readability and trust and explore additional personality traits like conscientiousness. Further investigation into how readability influences different market participants and the regulatory impacts on audit practices could yield deeper insights for both academia and practice.

Notes

1. Readability refers to how easily written content can be understood. In the accounting and finance realm, the *FOG* index is commonly employed. This index, often called the Gunning-Fog Index, calculates readability based on sentence length and the number of complex words (those with over two syllables). Notably, several studies in the field, such as [Li \(2008\)](#), [Lehavy et al. \(2011\)](#) and [Loughran and McDonald \(2014\)](#), have adopted this index. Specifically, [Biddle et al. \(2009\)](#) described the *FOG* index as an indicator of how easy financial statements are to read. It's important to note that a higher *FOG* index indicates lower readability of the document.
2. Further analyses included industry fixed effects to ensure that industry-specific characteristics do not obscure the primary findings. These results, which are not tabulated for brevity, are consistent with those obtained using firm fixed effects, thereby reinforcing the robustness of our conclusions regarding the influence of auditor narcissism on the readability of audit reports.
3. In presenting our findings, it is crucial to note the stark contrast in the relationship between auditor narcissism and readability compared to prior research in Iran by [Salehi et al. \(2022\)](#). While Salehi et al. observed a positive relationship, suggesting that higher narcissism is associated with more readable reports, our extended analysis reveals a negative relationship, where increased narcissism correlates with less readable audit reports. This discrepancy may be attributed to several methodological distinctions and extensions in our study. Notably, [Salehi et al. \(2022\)](#) analyzed the period from 2012 to 2018, whereas our study not only encompasses this period but also extends from 2011 to 2023, providing a broader temporal scope that captures additional trends and regulatory changes impacting audit report readability. Furthermore, [Salehi et al. \(2022\)](#) employed a sampling method that analyzed readability based on 100-word excerpts randomly selected from various sections of audit reports. In contrast, our study employs a comprehensive textual analysis that examines the entire text of each report, ensuring a more accurate and holistic assessment of readability. In addition, while [Salehi et al. \(2022\)](#) utilized a simple dummy variable approach to measure auditor characteristics, our study includes a more detailed quantitative analysis of auditor signature size, enhancing the depth and precision of our assessment of auditor characteristics' impact.
4. This metric E_s^{IQR} , or the "Effect Size based on the Interquartile Range," serves as a robust indicator of the extent to which variations in auditor narcissism can obscure financial disclosures in audit reports.
5. Consistent with the main findings, the results remain robust when examining the impact of partners' narcissism, specifically distinguishing between lead and review partners. Notably, the

economic significance for lead partners is more pronounced compared to review partners, suggesting that the lead partners' level of narcissism is more strongly associated with the readability of audit reports. This indicates a nuanced dynamic where the lead partner's traits may have a more pronounced effect on audit communications.

6. To further our understanding of the direct influence of partner changes on the readability of audit reports, we conducted a granular examination of changes in the *FOG* index upon shifts in the audit partner roles. We observed instances where either the lead or review partners underwent a transition to determine any notable shift in the *FOG* index. Our findings indicate that changes in either the lead or review partners contribute to statistically significant variations in the *FOG* index. Utilizing a means comparison, we observed that audit reports subjected to partner transitions exhibited alterations in their readability. The results were statistically meaningful at the 10% significance level, indicating that partner changes significantly influence the clarity and comprehensibility of audit reports. It is noteworthy to highlight that while the observed effect was prevalent for both lead and review partner changes, a slightly stronger influence was ascribed to transitions involving the lead partner. Nonetheless, the overarching inference remains consistent across both partner categories, emphasizing the pivotal role of audit partners in determining report readability.
7. Due to the nature of available data and disclosure practices in Iran, our study was limited to analyzing the signatures of CEOs, as these are the only executive signatures consistently available in financial statements. Consequently, we could not extend our analysis to include CFOs, whose signatures and potential influence on audit outcomes might also be significant. This limitation highlights a gap in the available data, which future research could aim to address if access to broader executive signature data becomes feasible.
8. The absence of a significant moderating effect by International Auditing Standard 701 can be attributed to several key factors. First, the observation period since the standard's implementation is relatively short, spanning only two years (2022 and 2023). This limited timeframe may not provide enough data to observe meaningful changes in auditing practices. Second, there is variability in how fully firms disclose or detail key audit matters, which could be due to the novelty of the requirement or differences in enforcement across firms. In addition, when disclosures are made, they are often not comprehensive. Some firms appear to resort to generic descriptions of issues such as inventories or export revenues—content that does little more than fulfill regulatory requirements without truly enhancing the quality or transparency of the information. These practices indicate a superficial adoption of the standard, potentially compromising its intended impact on improving the transparency and readability of audit reports.

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Further reading

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Table A1. Variable definitions

<i>FOG</i>	= $0.4 \times [\text{number of words/number of sentences} + 100 \times (\text{number of words with more than three syllables/number of words})]$ computed exactly as in Li (2008)
<i>AUD_NAR</i>	= Natural logarithm of the average area per character of the partners' signatures
<i>AUD_SPEC</i>	= Indicator variable that takes the value of 1 if the auditor has the highest number of clients in the client's industry in a specific fiscal year, and 0 otherwise
<i>AUD_TENURE</i>	= Number of years that the auditor is retained by the client firm
<i>AUD_MERGE</i>	= Indicator variable that takes the value of 1 if the audit firm is merged with another one in the current year, and 0 otherwise
<i>DISTANCE</i>	= Indicator variable that takes the value of 1 if the audit engagement office is located 160 km away from the client's headquarters, and 0 otherwise
<i>AUD_CHANGE</i>	= Indicator variable that takes the value of 1 if the audit firm is changed in the current year, and 0 otherwise
<i>AUD_OPINION</i>	= Indicator variable that takes the value of 1 if the client's firm has an qualified opinion, and 0 otherwise
<i>LEAD_GENDER</i>	= Indicates the gender of the lead partner. This is a dummy variable where "1" represents female and "0" represents male
<i>REVIEW_GENDER</i>	= Indicates the gender of the review partner. Similar to LEAD_Gender, "1" is female and "0" is male
<i>LEAD_CPA</i>	= Shows the tenure of the CPA license for the lead partner, calculated as the difference between the year the CPA license was obtained and the current year of observation
<i>REVIEW_CPA</i>	= Shows the tenure of the CPA license for the review partner, calculated as the difference between the year the CPA license was obtained and the current year of observation
<i>AQ</i>	= The absolute value of the residuals from annual estimations of the modified Dechow and Dichev (2002) model, i.e., regression of the firm's year t total accruals on year t , $t-1$, and $t+1$ cash flows from operations (all variables scaled by total assets)
<i>SIZE</i>	= Natural logarithm of a client's total assets
<i>SALESGROWTH</i>	= One-year growth rate of the client firm's sales revenue
<i>CFO</i>	= Operating cash flows deflated by the total assets of the client
<i>LOSS</i>	= Indicator variable that takes the value of 1 if the client's income before extraordinary items is negative, and 0 otherwise
<i>BANKRUPTCY</i>	= Altman Z-score of the client firm that measures the probability of bankruptcy, with a lower value indicating greater financial distress
<i>MB</i>	= Ratio of a client's market value of equity to its book value of equity
<i>AGE</i>	= Natural logarithm of the number of years since the client firm's incorporation
<i>OPERCYCLE</i>	= Natural logarithm of the same of account receivables turnover inventory turnover in days: $\ln[360/(\text{Sales}/\text{Average Accounts Receivable}) + 360/(\text{Cost of Goods Sold}/\text{Average Inventory})]$
<i>RESTATE</i>	= Indicator variable that takes the value of 1 if a client's annual financial statements are misstated, and 0 otherwise
<i>QUICK</i>	= Current assets minus inventory divided by current liabilities
<i>TOPSH</i>	= Percentage of shares held by the top 10 shareholders at the end of the current year

(continued)

Table A1. Continued

<i>YEAR and INDUSTRY FE</i>	= Year and industry fixed effects are included to control for variation across industries or over time
<i>Additional variables</i>	
<i>SMOG</i>	= $1.043 \times \text{sqrt}(30 \times \text{number of words with more than two syllables/number of sentences}) + 3.1291$
<i>ARI</i>	= $4.71 \times (\text{characters/words}) + 0.5 \times (\text{words/sentences}) - 21.43$
<i>INVREC</i>	= Inventory plus accounts receivable divided by total assets
<i>NNTN</i>	= A dummy variable set to 1 if there is a switch from a non-narcissistic audit partner to a narcissistic audit partner, based on the median split of the AUD_NAR score. A value of 0 indicates a consistent assignment of non-narcissistic audit partners
<i>CI_A</i>	= Following Chen et al. (2010) , we define the importance of client <i>i</i> to audit office <i>j</i> as the division of the LnTAST_i (the natural logarithm of the total assets of client <i>i</i>) to $\sum_{i=1}^n \text{LnTAST}_i$ (the sum of the natural logarithm of the total assets of <i>n</i> clients audited by audit office <i>j</i> in a particular year)
<i>CI_S</i>	= Following Chen et al. (2010) , we define the importance of client <i>i</i> to audit office <i>j</i> as the division of the LnTSL_i (the natural logarithm of the total sales of client <i>i</i>) to $\sum_{i=1}^n \text{LnTSL}_i$ (the sum of the natural logarithm of the total sales of <i>n</i> clients audited by audit office <i>j</i> in a particular year)
<i>QLead</i>	= 1 minus the failure rate of the lead partner in the current year. The audit failure rate is calculated by dividing the number of type 2 failures (number of annual reports restated following a clean audit opinion) by the total number of annual reports signed by the audit partner (Wang et al., 2015)
<i>QReview</i>	= 1 minus the failure rate of the review partner in the current year. The audit failure rate is calculated by dividing the number of type 2 failures (number of annual reports restated following a clean audit opinion) by the total number of annual reports signed by the audit partner (Wang et al., 2015)
<i>CEO_NAR</i>	= This variable measures the narcissistic traits of a CEO, operationalized through the size of the CEO's signature on official documents. Larger signatures are used as a proxy for higher levels of narcissism
<i>POST_REFORM</i>	= A dummy variable indicating the period of compliance with International Auditing Standard 701, coded "1" for financial statements of periods ending in the years 2022 and 2023, and "0" for earlier periods (years 2011–2021)

Note: Variables are based on data from the Tehran Stock Exchange (TSE) database

Source: Authors' own work

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