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Executive age, executive gender and financial statement comparability

Shadi Farshadfar [a,*], Laleh Samarbakhsh [a], Ismat Jahan [b]

[a] Ted Rogers School of Management, Toronto Metropolitan University, Ontario, Canada
[b] DeGroote School of Business, McMaster University, Ontario, Canada

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ABSTRACT

This study investigates the association between chief executive officer (CEO) age and gender and the financial statement comparability of their firm. Our findings indicate that CEO age and gender are positively associated with comparability. We extend the literature by establishing executive age and gender as determinants of comparability. The results are independent of a battery of sensitivity tests, including applying alternative comparability measures, industry dominance of young CEOs, self-selection bias, and corporate governance measures. Our analysis further suggests that the age and gender of other executives, particularly chief financial officers (CFOs) and the top management team (TMT), impact comparability similarly to those of the CEO.

1. Introduction

This study investigates the impact that the age and gender of executives have on the comparability of financial statements.[1] Accounting standard setters and academics have widely recognized the importance of financial statement comparability. According to the Financial Accounting Standards Board's (FASB) Conceptual Framework, comparability is a key quality of accounting information that enables users to identify similarities and differences between two sets of economic phenomena (FASB, 2010). The FASB also asserts that comparability enhances the usefulness of relevant and faithfully represented information and is the key motive for setting accounting standards (FASB, 1980, para. 112). Prior studies confirm the FASB's assertion, showing that comparability provides various information advantages critical to key stakeholders (e.g., institutional investors, financial analysts, auditors, board of directors, labor unions); comparability also improves a firm's information environment and thus can play a crucial role in helping financial statement users make various economic decisions (Chen & Gong, 2019; De Franco, Kothari, & Verdi, 2011; Zhang, Ntim, Zhang, & Elmagrhi, 2020; among others).

Despite the established research on the benefits and consequences of comparability, few attempts have been made to understand what drives comparability as a distinct qualitative characteristic of accounting information. However, a handful of studies suggest that accounting standards (e.g., Chen, Gong, & Lu, 2020), the adoption of IFRS (e.g., Barth, Landsman, Lang, & Williams, 2012; Lin, Riccardi, Wang, Hopkins, & Kabureck, 2019), auditor style (e.g., Francis, Pinnuck, & Watanabe, 2014; Shi, Wen, Zhou, & Zhu, 2021), the SEC's XBRL mandate (Dhole, Lobo, Mishra, & Pal, 2015), audit committee characteristics (Endrawes, Feng, Lu, & Shan, 2020), economic policy uncertainty (Dhole, Liu, Lobo, & Mishra, 2021), CEO turnovers (De Franco, Hou, & Ma, 2022), firm life cycle (Biswas, Habib, & Ranasinghe, 2022) and firm culture (Afzali, 2023) can explain accounting comparability. In this study, we pursue this nascent line of research and comprehensively investigate the yet unexplored link between CEOs' demographic characteristics and the comparability of financial statements.

The impetus for this investigation stems from two observations in the literature. First, prior studies document that as they are fundamentally accountable for corporate performance, CEOs can be highly influential in the financial decision-making processes, financial reporting, and disclosure decisions of their firms (e.g., Chava & Purnanandam, 2010; Nguyen, Duong, & Narendran, 2021). Moreover, the accounting scandals of the early 2000s triggered the passage of the Sarbanes-Oxley Act of 2002, which compels CEOs and CFOs to register with the Security Exchange Commission (SEC) and certify their firms' financial statements before filing with the SEC. This pushes CEOs to be even more responsible

* Corresponding author at: Ted Rogers School of Management, Toronto Metropolitan University, 350 Victoria Street, Toronto, Ontario M5B 2K3, Canada.
E-mail addresses: sfarshadfar@torontomu.ca (S. Farshadfar), lsamarbakhsh@torontomu.ca (L. Samarbakhsh), jahani4@mcmaster.ca (I. Jahan).

[1] In this study, "financial statement comparability," "accounting comparability," and "comparability" are used interchangeably.

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and engaged in the process of preparation of financial statements, which can, in turn, impact the firm's financial statement comparability.

Second, upper echelon theory posits that the demographic characteristics of top executive managers, notably CEOs, influence their perspectives, perceptions, judgments, and strategic decision-making; this in turn impacts firm performance and outcomes, including the firm's financial reporting (Hambrick, 2007; Hambrick & Mason, 1984). Accordingly, an emerging stream of upper echelons-based literature has provided empirical evidence for the relationships between specific executive demographic characteristics and the different perspectives and dimensions of financial reporting quality, like accruals quality (Barua, Davidson, Rama, & Thiruvadi, 2010), conservatism (Francis, Hasan, Park, & Wu, 2015), earnings quality (e.g., Nguyen et al., 2021), and readability (Harjoto, Laksmana, & Lee, 2020; Xu, Fernando, & Tam, 2018). However, one question yet to be considered is whether CEO demographic characteristics impact the comparability of financial statements as a unique qualitative characteristic of accounting information. Note that comparability involves at least two financial items relating to different companies or accounting periods, whereas other qualitative characteristics involve only one financial item in a single company or accounting period (FASB, 2010). Thus, financial statement comparability is a relative metric, rather than an independent standalone criterion like the other accounting characteristics (Sohn, 2016). Furthermore, while using different accounting methods to estimate and report an economic transaction will mitigate accounting comparability, they may not impact the relevance and faithful representation of accounting information (Endrawes et al., 2020). In addition, accounting regulators emphasize that enhancing financial statement comparability as one of the main principles of effective disclosure in financial reporting is a judgmental and thus behavioral issue (IFRS Foundation, 2017). Given these unique features of comparability, and the responsibility of CEOs discussed above, research into the impact of CEO characteristics on comparability is justified.

In this study, we investigate the implications that CEO age and gender hold for the comparability of financial statements. A focus on age and gender is important, as these traits are observable, straightforward, reliably testable, and applicable to all executives (e.g., Hambrick & Mason, 1984; Serfling, 2014). More importantly, age and gender are proxies for some significant and widely documented individual behavioral differences that impact managerial preferences, and thus corporate financial performance.[2] In particular, prior studies find that compared to younger and male CEOs, older and female CEOs are more conservative (Francis et al., 2015; Mudrack, 1989; Sundaram & Yermack, 2007) and risk-averse (Herrmann & Datta, 2006; Ho, Li, & Zhang, 2015). They are thus more likely to be compliant with regulations and rules (e.g., Barua et al., 2010; Hofmann, Voracek, Bock, & Kirchler, 2017) and less likely to be involved in opportunistic earnings management (Qi, Lin, Tian, & Lewis, 2018), aggressive financial reporting (Gavious, Segev, & Yosef, 2012; Huang, Rose-Green, & Lee, 2012), or litigation and fraudulent accounting practices (e.g., Troy, Smith, & Domino, 2011). In addition, financial analyst forecast accuracy significantly increases with the age of the CEO and when the CEO is female (Datta, Doan, & Iskandar-Datta, 2022; Haider, Sultana, Singh, & Tham, 2020). In light of this evidence, we argue that female and older managers have a tendency to estimate financial values for economic activities accurately and choose accounting policies in line with industry practices. Also, prior studies show that the comparability of financial statements plays an important role in facilitating both the external and internal monitoring of managers' actions (e.g., Ahn, Choi, & Yun, 2020; Kim, Li, Lu, & Yu, 2021; Nam & Thompson, 2023). This facilitation incentivizes female and older CEOs, who are more conservative and less engaged with opportunistic behaviors, to make financial reporting decisions more consistent with their peers in the same industry, so as to aid both internal and external monitoring agents in further evaluating financial reporting quality and, by extension, their own managerial abilities and actions.

To investigate the effects of CEO age and gender on financial statement comparability, we analyze a large sample of US data throughout the period of 1992–2020. The results suggest that the tenure of older and female CEOs is positively related to financial statement comparability. Our additional analyses also indicate that the age and gender of other executives, particularly the CFO and the TMT, affect comparability similarly to those of the CEO. Our findings are independent of selected control factors, including industry dominance of young CEOs, self-selection bias, and corporate governance measures. Furthermore, the findings are consistent with alternative output-based measures of comparability. However, analysis of the curvilinear impact of age on financial statement comparability shows some indication that the relationship between CEO age and financial statement comparability may not be monotonic.

This study is the first to provide empirical evidence for the role of executive age and gender in enhancing financial statement comparability. The findings advance our knowledge on drivers of comparability by focusing on the impact of CEO-specific factors largely unexplored in the literature. Further, our study is related to that of De Franco et al. (2022), who explore the impact of CEO turnover on the comparability of financial statements. As a part of their study, they find that firms with female and younger new CEOs produce financial statements more comparable to those of industry leaders, as new female and young CEOs demand more legitimacy when they assume office. Our study extends De Franco et al. (2022), since we directly and comprehensively investigate the consequences of CEO age and gender on the comparability of financial statements to industry peers; this, in our view, cannot be attained by merely mimicking the financial statements of industry leaders for specific events. We also contribute to the emerging research on the impact of CEO characteristics on corporate financial decision-making and the quality of financial reporting. This study thus provides an important and interesting extension to this literature with evidence that age- and gender-based behavioral differences affect so important and unique an aspect of financial reporting quality as the comparability of financial statements. These results also support accounting regulators' claims (e.g., IFRS Foundation, 2017) that enhancing comparability as a main principle of effective communication is a behavioral matter.

The findings of this study have practical implications for members of the accounting profession and users of financial statements. First, the empirical evidence that older CEOs and female CEOs are likely to produce more comparable financial statements may help auditors assess levels of acceptable detection risk and determine levels of audit fieldwork, specifically which substantive tests and tests of controls to perform (see Huang et al., 2012). Second, users of financial statements, such as financial analysts and investors, can more efficiently assess the quality of financial statements by considering the age and gender of CEOs as indicators of financial statement comparability. Third, this finding may help reduce age and gender discrimination in the workplace by helping hiring managers make the strategic decision to hire older and/or female CEOs, and thus reap the benefits of higher financial statement comparability.

The rest of the paper is organized as follows. Section 2 presents the background and development of the hypotheses. Section 3 describes the methodology used to analyze the data and test the hypothesis. Then, Section 4 reports the data. The empirical analysis and sensitivity tests are reported in Sections 5 and 6. Finally, Section 7 concludes the paper.

2. Background and development of hypotheses

2.1. The consequence and determinants of comparability

The consequences of financial statement comparability have been

[2] For studies on age see Barker and Mueller (2002), Belenzon et al. (2019), and Adhikari et al. (2021), among others. For studies on gender, see, Bobe and Kober (2020), and Liu et al. (2022), among others.

the main research theme for several studies. De Franco et al. (2011)'s study is the first to develop a comparability measure. The authors find that higher comparability results in increased analyst following, decreased forecast dispersion, and higher analyst forecast accuracy. The literature also suggests that financial statement comparability plays an important role in alleviating information asymmetry (Fang, Li, Xin, & Zhang, 2016), determining firms' debt maturity policies (Do, 2021) and earnings manipulation (Sohn, 2016), reducing the costs of capital and of debt (e.g., Bordeman, Shane, Smith, & Zhang, 2021; Fang et al., 2016; Imhof, Seavey, & Smith, 2017), improving a firm's information environments, and facilitating the monitoring of managers' actions (e.g., Ahn et al., 2020) and the usefulness of earnings (Farshadfar, Samarbakhsh, & Jiang, 2023). Further, firms with better accounting comparability attract more lenders (Fang et al., 2016; Kim, Kraft, & Ryan, 2013) and foreign investors (Chauhan & Kumar, 2019; Mita, Utama, Fitriany, & Wulandari, 2018), and also pay less in audit fees relative to their peers (Zhang, 2018). Comparability also improves market liquidity (e.g., Yu & Wahid, 2014), encourages more efficient use of corporate resources (Kim et al., 2021), increases the timely disclosure of bad news, and reduces asymmetric market reaction by helping investors assess a firm's future crash risk (Kim, Li, Lu, & Yu, 2016). Prior studies also show that higher levels of comparability reduce the cost of information acquisition and equity valuation for investors and analysts (e.g., Chen, Collins, Kravet, & Mergenthaler, 2018; De Franco et al., 2011; Kim et al., 2016), effectively facilitate the use of accounting-based relative performance evaluation (e.g., Lobo, Neel, & Rhodes, 2018; Ozkan, Singer, & You, 2012), improve valuation performance (Young & Zeng, 2015), and improve the efficacy of both corporate labor investment (Zhang et al., 2020) and the SEC's oversight of accounting quality (Nam & Thompson, 2023).

These results suggest that comparability plays a crucial role in helping financial statement users make various economic decisions. Consequently, identifying factors that impact financial statement comparability should be a significant area of interest. However, despite its importance, the existing literature on the determinants of comparability is limited and primarily focused on the adoption of IFRS as a major driving force. For example, some studies report that mandatory IFRS adoption in 2005 resulted in higher financial statement comparability (Barth et al., 2012; Brochet, Jagolinzer, & Riedl, 2013; Caban-Garcia & He, 2013; Yip & Young, 2012). However, there are studies that argue otherwise (e.g., Callao, Jarne, & Laínez, 2007; Liao, Sellhorn, & Skaife, 2012). Lin et al. (2019) empirically showed that mandatory IFRS adoption did not offer significant improvements in comparability beyond convergence. Some argue that there is only a weak relationship between mandatory IFRS adoption and comparability (Cascino & Gassen, 2015). In addition, research shows that firms' compliance incentives impact the degree to which firms will be able to materialize the benefits of mandatory IFRS adoption in terms of improved financial statement comparability (e.g., Cascino & Gassen, 2015). While examining the impact of voluntary adoption of IFRS on comparability, Barth et al. (2012) also show that IFRS adoption led adopted firms to greater comparability with their peers.

More recent studies have investigated determinants of comparability other than accounting standards. Francis et al. (2014) document that the Big 4 audit firms show distinctive audit styles in persuading their clients to comply with accounting standards, which in turn result in higher comparability among firms audited by the Big 4 than among those audited by other auditors. Using Chinese data, Shi et al. (2021) support Francis et al. (2014)'s findings and indicate that auditors' knowledge and skills are also significant determinants of their client firms' financial statement comparability. In a similar fashion, prior studies provide empirical evidence that common signing auditors (Chen, Chen, Chin, & Lobo, 2020) and local audit companies from the same global network (Ege, Kim, & Wang, 2020) can be important factors in enhancing a firm's financial statement comparability. Ross, Shi, and Xie (2019) investigate some country-level and firm-specific determinants of financial statement comparability. Their findings show that firms in countries with rules-based accounting, higher-quality public auditor work environments, stricter enforcement of accounting standards, and more reliance on equity-market financing have higher within-country comparability with each other. The authors also identify firm size, level of earnings management, and volatility of economic transactions as firm-specific factors that affect the comparability of financial statements.

The literature also shows that foreign mutual ownership in emerging markets (Fang, Maffett, & Zhang, 2015), the SEC's XBRL mandate (Dhole et al., 2015), the characteristics of audit committees (Endrawes et al., 2020), economic policy uncertainty (Dhole et al., 2021), firm life cycle (Biswas et al., 2022), and firm culture (Afzali, 2023) are other factors impacting comparability. De Franco et al. (2022) is the only study that has investigated the impact of management-related factors on the comparability of financial statements. They posit that new managers produce financial statements more comparable with those of industry leaders in order to gain legitimacy. Their findings support their hypothesis and show that this result is more conspicuous for younger, female, non-white, and less experienced new managers.

We extend this line of research and examine the role of CEO demographic characteristics in shaping comparability, an unexplored topic in the literature on comparability determinants. Our study is related to but remarkably distinct from De Franco et al. (2022) in that their study examines, in part, the impact of CEO age and gender on enhancing comparability through mimicking the accounting practices of industry leaders during CEO turnover events only. In comparison, our research findings are not limited to new managers, the specific event of CEO turnover, or the imitation of industry leaders' financial reporting decisions. Indeed, we seek to directly provide comprehensive empirical evidence for the association of CEO age and gender with a firm's accounting comparability to its industry peers.

2.2. *Executive demographic characteristics and financial reporting*

Underlying Hambrick and Mason's (1984) upper echelons theory is the premise that individual executives' values, perceptions, and cognitive biases determine how they are going to evaluate and respond to a particular situation, which in turn significantly influence their strategic decisions, and eventually, organizational outcomes and performance. However, it is challenging to gauge psychological factors like those noted above in empirical research. Thus, Hambrick and Mason (1984) suggest that demographic characteristics (e.g., age and gender) be employed as proxies for psychological attributes, since they are observable, testable, and relatively straightforward.

Using this foundation, several upper echelons theory-based studies have investigated and shown the relationship between executive demographic characteristics and financial reporting quality, as measured by different qualitative characteristics of financial statements (see Habib & Hossain, 2013). In particular, some prior studies identify executive age (e.g., Bamber, Jiang, & Wang, 2010; Huang et al., 2012; Xu et al., 2018) and gender (e.g., Adhikari, Agrawal, & Malm, 2019; Bobe & Kober, 2020; Liu, Neely, & Karim, 2022) as distinct characteristics with a substantial influence on firms' outcomes and the quality of financial disclosure. For example, in a related study, Nguyen et al. (2021) provide empirical evidence that CEO age, among other CEO characteristics, has strong positive relationships with earnings quality, as measured by discretionary accruals and financial statement errors. The authors also indicate that this relationship is more prominent in the presence of equity-based compensation for CEOs. Belot and Serve (2018) find that age and gender have a strong, and for age, negative, association with earnings management levels in private SMEs. The research has also established that firms with female top executives have higher accrual quality, use more conservative earnings management strategies, and show higher levels of accounting conservatism (e.g., Barua et al., 2010; Francis et al., 2015). However, inconsistent with prior empirical

evidence in developed markets, Ye, Zhang, and Rezaee (2010) found no significant relationship between top executive gender and various earnings quality proxies in the Chinese context.

Our study contributes to the upper echelons theory-based literature mentioned above. We focus on the impact of executive age and gender on the comparability of financial statements as the first enhancing qualitative characteristic of accounting information. This issue should be of significant interest to the users of financial statements, regulators, and researchers, given the considerable economic benefits of financial statement comparability, as discussed and documented in the literature above.

2.3. Development of hypotheses

2.3.1. Age and financial statement comparability

Hambrick and Mason (1984, p. 198), in their seminal article on upper echelons theory, refer to age as one of "the most supportable and interesting" executive demographic characteristics that can shape managerial preferences on risk, and in turn impact executives' views on corporate policies and performance.[3] They further suggest three possible reasons why older managers are more risk averse and conservative compared to their younger counterparts. First, older executives have more financial and career security concerns. Second, older executives have a higher commitment to the status quo of the organization, compared to younger managers. Finally, older executives may show less ability to grasp new concepts or adopt new behaviors, and frequently lack the mental and physical endurance of younger peers.

Supporting this observation of risk aversion and conservative behavior by older managers, follow up empirical research has studied the impact of executive age on various organizational outcomes, including working capital management (Adhikari, Krolikowski, Malm, & Sah, 2021), closely held firms' performance (Belenzon, Shamshur, & Zarutskie, 2019), market-based firm risk measures (Peltomäki, Sihvonen, Swidler, & Vähämaa, 2021), R&D spending (Barker & Mueller, 2002), acquisition (Yim, 2013), and corporate policy riskiness (Serfling, 2014). In addition, research on executive age suggests that older CEOs are more likely to comply with regulations and less often involved in opportunistic behaviors or fraudulent financial reporting (e.g., Plöckinger, Aschauer, Hiebl, & Rohatschek, 2016; Qi et al., 2018; Sun, Kent, Qi, & Wang, 2019). Further, financial analysts forecast accuracy increases with CEO age (Haider et al., 2020).

Turning to the comparability literature, prior research finds that comparable financial statements can improve monitoring of managers' actions by helping external and internal monitoring agents, like auditors, boards of directors, and investors (e.g., Kim et al., 2021), to better evaluate firm performance through more meaningful peer-to-peer industry comparisons. In addition, accounting regulators have recently been paying particular attention to enhancing financial statement comparability as one of the main principles of effective communication of financial reporting, which they categorize a judgmental and thus behavioral matter. As a part of their study, De Franco et al. (2022) documented that new and younger CEOs, with stronger demands for legitimacy, mimic the industry leaders' accounting; this, in turn, improves the firm's financial statement comparability during turnover events. This finding is relevant because it supports the relation between age and comparability, albeit indirectly. However, the research does not comprehensively and clearly explain whether and how age, as a prominent CEO demographic characteristic, can shape a firm's financial statement comparability to its industry peers in general and not for a specific event; this is an important research question yet to be answered.

We draw on the theoretical arguments of the upper echelon theory and subsequent empirical evidence on age, as well as the comparability literature, and hypothesize a connection between CEO age and financial statement comparability. We posit that the unique attributes associated with older CEOs, as previously discussed, contribute to their ability to more precisely estimate accounting information, align with real economic circumstances, and adopt accounting policies consistent with industry norms. This, in turn, enhances accounting comparability. Further, given the monitoring role of accounting comparability and the positive relation between age and financial reporting quality, older CEOs have a greater incentive to produce comparable financial statements in order to favorably influence the opinions that key stakeholders, including internal and external monitoring agents, will form about their managerial actions. We therefore develop our first hypothesis as follows:

H1. The comparability of financial statements will improve with the age of the CEO.

2.3.2. Gender and financial statement comparability

The upper echelon theory developed by Hambrick and Mason (1984) did not initially propose gender as an executive demographic characteristic. However, the authors (p. 198) admit that their list of upper echelon characteristics is not exhaustive and that their research seeks to inspire "theory building" rather than only "build theory." In line with this perspective, research has established gender as a demographic characteristic that can impact executives' interpretation, preferences, cognitive biases, and values, and thus management's strategic decisions (e.g., Bobe & Kober, 2020; Teodósio, Vieira, & Madaleno, 2021).

Prior studies particularly document that female executives are more risk-averse than their male counterparts (e.g., Hanousek, Shamshur, & Tresl, 2019; Zalata, Tauringana, & Tingbani, 2018). They are also less prone to unethical behavior, more trustworthy, and more compliant with regulation (e.g., Adhikari et al., 2019; Beu, Buckley, & Harvey, 2003). Female managers suffer less from overconfidence and thus exhibit less aggressive behavior while making financial decisions (e.g., Huang & Kisgen, 2013). In addition, they adopt more conservative accounting policies (e.g., Francis et al., 2015), and show more dedication to their organizations than do their male peers (e.g., Qi et al., 2018). Thus, they are less likely to face lawsuits for fraudulent or opportunistic actions (e.g., Adhikari et al., 2019; Qi et al., 2018). Liu et al. (2022) report that female CEOs and CFOs can significantly enhance the efficiency of corporate investment through a reduction in overinvestments. Gender-based attributes have also received increasing attention in financial reporting studies (Liu, Wei, & Xie, 2016). In this vein, empirical evidence indicates that female executives facilitate more efficient financial reporting processes and strategic directions through efficient monitoring and control (e.g., Belot & Serve, 2018; Clatworthy & Peel, 2013). Prior studies show that female top managers produce higher quality accruals and reduce errors in absolute accrual estimation (Barua et al., 2010); they can also positively impact analysts' forecast accuracy (Datta et al., 2022). Furthermore, gender diversity among top management facilitates higher levels of earnings quality (Krishnan & Parsons, 2008), and lower levels of earnings management (Qi et al., 2018). Female executives also provide for higher income-reducing discretionary accruals, consistent with the more conservative behavior of women in general (Francis et al., 2015; Peni & Vähämaa, 2010). Furthermore, comparability increases the quality and transparency of accounting information by facilitating internal and external monitoring of managers' actions. Financial comparability is considered a basis for the effective communication of accounting information (IFRS Foundation, 2017). De Franco et al. (2022) provide evidence that newly hired female managers seeking legitimacy tend to produce more comparable financial statements by mimicking industry leaders' accounting policies. However, while these results extend the literature on the impact gender has on financial statement comparability during CEO turnover events, they do not answer the important research question of if, and to what extent, female CEOs fundamentally enhance accounting comparability between industry peers.

[3] Serfling (2014, p.253) refers to CEO age as a unique trait "in that it is readily observable and measurable, applies to all CEOs, and changes over time."

Taken together, we argue that gender-based behaviors facilitate a higher likelihood of female CEOs demonstrating greater compliance with accounting regulations adopted by industry peers and reporting more accurate accounting information aligned with actual economic activities. Thus, they are more likely to produce financial statements more comparable with those of their industry peers, as directed by accounting standard setters. Female CEOs are also more likely to enhance a firm's financial statement comparability in order to influence stakeholder views of their management abilities and thus gain more legitimacy. Accordingly, we develop our second hypothesis as follows:

H2. The comparability of financial statements will improve if the CEO is female.

3. Research design

3.1. Comparability proxies

We estimate the following model to measure comparability, as developed by De Franco et al. (2011):

$$Earnings_{it} = \alpha_i + \beta_i \, \text{Return}_{it} + \varepsilon_{it} \quad (1)$$

where *Earnings* is the ratio of quarterly net income before extraordinary items to the beginning-of-period market value of equity, and *Return* is the stock price return during the quarter. α_i and β_i are the coefficients for estimating the accounting function of firm *i* over the 16 quarters in the regression.

We re-run the above model for firm *j* to hold the assumption that firm *i* and firm *j* face the same economic events. Firm *i*'s and firm *j*'s earnings are then predicted by estimating the following regressions:

$$\text{E (Earnings)}_{iit} = \widehat{\alpha}_i + \widehat{\beta}_i \, \text{Return}_{it} \quad (2)$$

$$\text{E (Earnings)}_{ijt} = \widehat{\alpha}_j + \widehat{\beta}_j \, \text{Return}_{it} \quad (3)$$

where *E (Earnings)* $_{iit}$ is firm *i*'s predicted earnings, estimated from firms *i*'s function and firm *i*'s *Return* in period *t*. *E (Earnings)*$_{ijt}$ is firms *j*'s predicted earnings, estimated from firms *j*'s function and firm *i*'s *Return* in period *t*. *Return*$_{it}$ (the Return of firm *i* in the period *t*) is used to estimate both firm *i*'s and firm *j*'s predicted earnings, and holds that both firms face similar economic events, such that the accounting amounts – that is, the earnings – of both firms should be similar. Thus, the accounting comparability between firm *i* and firm *j* (*Comp_Earnings*) is computed as the negative value of the average absolute difference between predicted earnings, using firm *i*'s and firm *j*'s accounting functions.

This study measures comparability by matching each pair of firms *i* and *j* from the same industry (based on two-digit SIC codes) and year, following Francis et al. (2014) and De Franco et al. (2011). Also, both firms *i* and *j* have fiscal year ends at March, June, September, and December.

$$\text{Comp\_Earnings}_{ijt} = -\frac{1}{16} \times \sum_{t-15}^{t} \left| \text{E}\left(\text{Earnings}_{iit}\right) - \text{E}\left(\text{Earnings}_{ijt}\right) \right| \quad (4)$$

A smaller negative value of *Comp_Earnings*$_{ijt}$ indicates higher comparability of firm *i* with firm *j*. Firm level comparability is measured as the median *Comp_Earnings*$_{ij}$ for all combinations of firms *j* and *i*. This firm level measure is used in all analyses, following Neel (2017).

Our second measure of comparability is based on the relationship between contemporaneous cash flows and accruals, following Neel (2017). In this measure, contemporaneous cash flows are used as a proxy for economic events and accruals are used as a proxy for accounting amounts, as reported by Ball and Shivakumar (2006). To maintain consistency with the first measure of comparability, we use quarterly data for this measure too. Also, the firm pairs are matched using the same criteria as the first measure. The accrual-cash flow relationship is as follows:

$$ACC_{it} = \alpha_i + \beta_i \, \text{CF}_{it} \quad (5)$$

where *ACC* is accruals scaled by market value of equity. CF is cash flow from operating activities scaled by market value of equity. This study determines *Comp_Accrual* using Eq. (5) and the procedure described above.

3.2. Regression model

We use the following empirical model to test H1 and H2:

$$\begin{aligned} Comparability = {} & \beta_0 + \beta_1 CEO\_AGE + \beta_2 CEO\_FEMALE + \beta_3 Ln\_MVE \\ & + \beta_4 MB + \beta_5 GROWTH + \beta_6 EPR + \beta_7 ROA + \beta_8 ABS\_DA \\ & + \beta_9 FOREIGN + \beta_{10} RESTRUCTURE \\ & + \beta_{11} SPECIAL\_ITEM + \beta_{12}\, CONSERVATISM + \beta_{13} BIG4 \\ & + \beta_{14} LEV + \beta_{15} CO\_AGE + \beta_{16} LOSS + \beta_{17} FIN + \beta_{18} BEPC \\ & + \beta_{19} CEO\_TENURE + Fixed\ Effects + \varepsilon_i \end{aligned} \quad \text{(Model 1)}$$

where *Comparability* is the proxy for financial statement comparability, *Comp_Earnings* is measured following De Franco et al. (2011), and *Comp_Accrual* is measured as discussed in the previous section. CEO_*AGE* is the CEO age in years, as reported in Execucomp. *CEO_FEMALE* is a dummy variable which takes a value of one if the CEO is female and zero otherwise.

The control variables, which were selected following prior studies (e.g., Huang et al., 2012; Xu et al., 2018), are as follows. *Ln_MVE* is the natural logarithm of the market value of equity, which is the control variable for firm size and the operational complexity of the firm (Xu et al., 2018). Three measures are used as proxies for firm growth. The first one, *MB*,[4] market-to-book ratio, is the ratio of the market value of equity to the book value of equity. The second proxy for firm growth, *GROWTH*, is the percentage change in revenues. The third is *EPR*, the earnings-price ratio. *ROA,* return on assets, is the proxy for the firm's financial performance. *ABS_DA,* the absolute value of discretionary accruals measured following Jones (1991), is the proxy for earnings quality.

FOREIGN (Doyle, Ge, & McVay, 2007; Hoitash & Hoitash, 2018), *RESTRUCTURE* (Chychyla, Leone, & Minutti-Meza, 2019; Gunny & Hermis, 2020), and *SPECIAL_ITEM* (Hwang, No, & Kim, 2021) are the proxies for the operational complexity of a firm. They are all binary indicator variables explained in detail in Appendix A. *CONSERVATISM* is the accrual-based measure of accounting conservatism following Givoly and Hayn (2000). *BIG4,* an indicator variable equal to one if the firm's auditor is one of the Big 4 audit firms[5] and zero otherwise, is included to control for the effects of auditor quality and the monitoring process of the audit committee (Endrawes et al., 2020).

Following Romanus, Maher, and Fleming (2008), a firm's leverage, *LEV*, is taken as a proxy for debt covenant pressure. This study includes *CO_AGE* to control for the firm's internal control quality, following the arguments of Ge and McVay (2005). They argued that younger firms have a lower probability of having well-established internal control procedures, and that such firms' employees are less experienced. Using this argument, Lenard, Petruska, Alam, and Yu (2016) posit that

[4] Market to book ratio has also been used as a proxy for operational complexity (Xu et al., 2018).

[5] The Big Four Accounting Firms are the four largest international accountancy and professional services firms. They are Deloitte Touche Tohmatsu, Ernst & Young, KPMG, and PricewaterhouseCoopers.

company age can influence the development of a firm's internal control systems. The *LOSS* variable is included to control for the reporting of earnings surprises and *FIN* is used to control external financing, following Romanus et al. (2008).

BEPC is included as a control variable to measure the portion of CEOs' equity-based compensation in their total compensation, following Harris, Karl, and Lawrence (2019). *CEO_TENURE* is the number of years a CEO has held the position, following Souder, Simsek, and Johnson (2012). It is included in the model to control for the experience effect, following Huang et al. (2012).

Our data is an unbalanced panel data set. Thus, we control for potential fixed effects and unobserved heteroskedasticity by including industry fixed effects (defined by two-digit SIC codes) and year fixed effects in the regression model.[6] The signs and significance of all estimated coefficients in the regression models are considered to evaluate whether age and gender convey distinct information about the comparability of financial statements. The significance of the coefficients is determined by the *p*-values of the standard *t*-distribution. We use adjusted R^2 measures to assess the explanatory power of the models. The adjusted R^2 in our study determines the extent to which the model can explain the total variation of *Comparability*. Variable definitions and measurements are summarized in Appendix A.

4. Data

4.1. Sample selection and industry distribution

Table 1 Panel A summarizes the sample selection procedure. Data used to measure financial statement comparability is collected from Compustat. The independent variables, the age and gender of CEOs, are collected from the Execucomp database. The control variables are collected from the Compustat and Execucomp databases. The sample period for this study is from 1992 to 2020. The sample period starts from 1992 as it is the earliest time from which Execucomp data is available. The sample period ends with 2020 as it represents the most recent comprehensive data available in both Compustat and Execucomp databases during our analysis. We start with the merged file of Compustat and Execucomp databases, with 52,202 observations from 3922 unique firms. Finance, Insurance, and Real Estate (SIC 2 digit codes 60–69) firms are excluded, following Huang et al. (2012). Firms with insufficient data to calculate comparability scores or variables from Execucomp, as well as those that reported negative total assets, are removed following Francis et al. (2014). Firm-years with missing values required to measure control variables are deleted, following Huang et al. (2012) and Francis et al. (2014). The final sample consists of 15,198 firm-years from 1277 unique firms. Among these, 371 firm-years (2.44 %) from 70 unique firms have female CEOs, reflecting the gender disparity of the top corporate executive position in line with Nguyen et al. (2021). They had only 81 firm-year observations (2.39 %) with female CEOs out of 3395 firm-years. All variables other than log-transformed ones are winsorized at 1 % and 99 %, following Barua et al. (2010) and Neel (2017).

Table 1 Panel B shows the industry distribution[7] of the sample firm-years. The samples are mainly composed of firm-year observations from the manufacturing, transportation, communications, electric, gas and sanitary services, retail trade, and services other than financial services industries. These listed industries comprise 88.71 % of all firm-year observations, followed by the mining and wholesale industries with 5.86 % and 4.38 % respectively.

Table 1
Sample summary and industry distribution.

Panel A: Sample selection

Criteria	Firm-years	Firms
Firm-years from 1992 to 2020 in the *CompustatExecucomp* merged file	52,202	3922
Less		
Financial Firms (SIC codes 6000–6999)	(9263)	(767)
Firm-years with insufficient data to calculate variables from Execucomp	(2278)	(49)
Firm-years with insufficient data to calculate Comparability scores	(20,916)	(1737)
Firm-years with insufficient data to calculate variables from Compustat	(4545)	(92)
Firm-years with negative total assets	(2)	–
Final sample	15,198	1277

Panel B: Industry distribution

2-Digit SIC	Industry Sector	Firm-years	%
1–8	Agriculture, Forestry, and Fishing	23	0.15
10–14	Mining	886	5.86
15–17	Construction	130	0.86
20–39	Manufacturing	9202	60.55
40–49	Transportation, Communications, Electric, Gas, And Sanitary Services	1054	6.94
50–51	Wholesale Trade	666	4.38
52–59	Retail Trade	1480	9.74
70–87	Services	1744	11.48
99	Non-classifiable	13	0.09
	Total Sample	15,198	100

Panel A presents the sample selection procedure, and Panel B presents the industry distribution of the sample. The industry distribution follows the Standard Industrial Classification (SIC) Manual from the United States Department of Labor.

4.2. Descriptive statistics and correlations

Table 2 reports the descriptive statistics for the sample. Table 2 Panel A shows the descriptive statistics by dividing the sample based on the age of the CEOs. The average CEO age is 56.5 years, comparable to the findings of Huang et al. (2012) and Xu et al. (2018). Therefore, the sample is partitioned, with CEO ages below 56 years representing relatively young CEOs and CEO ages above 56 years representing older CEOs. The mean, median, and standard deviation of *Comp_Earnings* for the firm-years with younger CEOs are −0.046, −0.023, and 0.112, respectively. The mean (−0.55), median (−0.022), and standard deviation (0.166) of *Comp_Accrual* are close to those of *Comp_Earnings*. The mean, median, and standard deviation of *Comp_Earnings* for the firm years with older CEOs are −0.041, −0.23, and 0.108, respectively. The lower standard deviation indicates more consistent performance from older CEOs. A similar fact can be inferred from the lower standard deviation of *Comp_Accruals*, and both the *p*-values of *t*-stat and *z*-stat imply that this difference is statistically significant. The mean *Ln_MVE* of firms managed by older CEOs is higher than the mean value of *Ln_MVE* of firms managed by younger CEOs. This statistical significance (*p*-value<0.001 for both *t*-stat and *z*-stat) is an indication that older CEOs are managing relatively larger firms.

Table 2 Panel B reports the descriptive statistics for the sample

[6] In this study, we do not cluster standard errors at the firm level because our independent variables do not depend on firm characteristics. Gender is completely time-invariant, and age changes only marginally within a firm (by one unit per year, unless there is a change in CEO). According to Petersen (2008, p. 448), OLS provides unbiased estimates of standard errors, making clustering unnecessary when the independent variables are "independent across observations", which means they do not exhibit firm-specific effects as is the case with age and gender in our analysis. Moreover, our results are not subject to self-selection bias. Therefore, the OLS robust standard errors are unbiased in this study.

[7] The industry distribution follows the Standard Industrial Classification (SIC) Manual of United States Department of Labor. See https://www.osha.gov/data/sic-manual.

Table 2
Descriptive statistics.

Panel A: CEO age

	CEO age below 56 (7572 firm-year observations)					CEO age above 56 (7626 firm-year observations)					Difference in means	Wilcoxon rank-sum test
Variable	Mean	Std. Dev.	Q1	Median	Q3	Mean	Std. Dev.	Q1	Median	Q3	*t*-stat (*p*-values)	*z*-stat (*p*-values)
Comp_ Earnings	−0.046	0.112	−0.037	−0.023	−0.017	−0.041	0.108	−0.037	−0.023	−0.017	−2.620*** (0.009)	−1.707* (0.088)
Comp_Accrual	−0.550	0.166	−0.036	−0.022	−0.017	−0.043	0.108	−0.034	−0.021	−0.043	−5.286*** (0.000)	−4.022*** (0.000)
Ln_MVE	7.463	1.617	6.290	7.359	8.552	7.644	1.653	6.419	7.544	8.779	−6.838*** (0.000)	−6.428*** (0.000)
MB	3.044	2.574	1.533	2.357	3.688	2.916	4.819	1.522	2.285	3.525	1.741* (0.082)	2.152 (0.314)
GROWTH	9.510	19.608	−0.589	6.810	16.203	7.860	17.625	−0.623	6.155	14.274	5.457*** (0.000)	3.951*** (0.000)
EPR	0.095	0.138	0.056	0.086	0.121	0.094	0.172	0.058	0.087	0.124	0.223 (0.824)	−2.008** (0.045)
ROA	10.61	7.870	6.130	10.080	14.950	10.702	7.651	6.347	10.311	14.904	−0.759 (0.448)	−1.145 (0.252)
ABS_DA	0.198	0.336	0.035	0.088	0.210	0.209	0.366	0.035	0.082	0.210	−2.001** (0.045)	0.773 (0.434)
CONSERVATISM	0.012	0.039	−0.009	0.008	0.030	0.009	0.358	−0.011	0.006	0.024	−5.436*** (0.000)	−5.867*** (0.000)
LEV	0.518	0.189	0.391	0.525	0.644	0.520	0.188	0.397	0.527	0.641	−0.596 (0.552)	−0.425 (0.671)
CO_AGE	15.572	7.649	9.000	15.000	22.000	16.307	8.136	9.000	15.000	23.000	−5.739*** (0.000)	−5.227*** (0.000)
FIN	0.080	0.135	0.000	0.015	0.106	0.080	0.132	0.000	0.020	0.106	0.229 (0.820)	−1.946* (0.052)
BEPC	0.441	0.269	0.242	0.479	0.656	0.393	0.267	0.162	0.416	0.614	11.060*** (0.000)	11.041*** (0.000)
CEO_TENURE	5.187	3.938	2.000	4.000	7.000	5.226	4.069	2.000	4.000	7.000	−0.597	0.166

Panel B: CEO gender

	Female CEO (371 firm-year observations)					Male CEO (14,827 firm-year observations)					Difference in means	Wilcoxon rank-sum test
Variable	Mean	Std. Dev.	Q1	Median	Q3	Mean	Std. Dev.	Q1	Median	Q3	*t*-stat (*p*-values)	*z*-stat (*p*-values)
Comp_ Earnings	−0.029	0.021	−0.031	−0.025	−0.016	−0.044	0.111	−0.037	−0.023	−0.017	−2.614*** (0.000)	−0.749** (0.455)
Comp_Accruals	−0.041	0.062	−0.036	−0.025	−0.018	−0.049	0.141	−0.036	−0.021	−0.016	−1.040 (0.230)	−2.300** (0.021)
Ln_MVE	7.561	1.795	6.347	7.263	8.838	7.553	1.633	6.355	7.454	8.665	−0.090* (0.928)	0.327 (0.744)
MB	2.591	18.660	1.208	2.157	4.205	2.990	2.576	1.534	2.322	3.595	1.9561* (0.051)	1.228 (0.220)
GROWTH	4.573	13.266	−2.250	4.102	11.594	8.785	18.761	−0.568	6.502	15.355	4.297*** (0.000)	4.135*** (0.000)
EPR	0.104	0.176	0.065	0.088	0.118	0.094	0.155	0.057	0.087	0.122	−1.192 (0.233)	−0.445 0.656
ROA	10.441	8.309	5.534	9.009	14.671	10.660	7.747	6.273	10.222	14.921	0.534 (0.592)	2.103** (0.036)
ABS_DA	0.193	0.305	0.032	0.078	0.225	0.204	0.353	0.035	0.085	0.210	0.566 (0.572)	0.814 (0.415)
CONSERVATISM	0.017	0.042	−0.005	0.011	0.032	0.010	0.037	−0.010	0.007	0.27	−3.507*** (0.001)	−3.227*** (0.001)
LEV	0.536	0.228	0.360	0.534	0.696	0.519	0.188	0.395	0.526	0.642	−1.728* (0.084)	−1.286 0.198
CO_AGE	20.245	7.007	15.000	21.000	26.000	15.833	7.897	9.000	15.000	22.000	−10.656*** (0.000)	−10.623*** (0.000)
FIN	0.057	0.107	0.000	0.000	0.082	0.081	0.134	0.000	0.019	0.106	3.456*** (0.001)	4.371*** (0.000)
BEPC	0.452	0.265	0.257	0.518	0.673	0.419	0.270	0.209	0.453	0.639	−2.536** (0.011)	−2.855*** (0.004)
CEO_TENURE	4.590	3.525	2.000	4.000	6.000	5.222	4.015	2.000	4.000	7.000	3.000*** (0.003)	2.621*** (0.009)

Table 2 reports the results of descriptive analysis of the sample with 15,198 firm-year observations from 1277 unique firms. Panel A reports the descriptive statistics, *t*-test, and Wilcoxon rank-sum test results of subsamples of firm-years with CEOs whose ages are below and above 56 years (the mean age). Out of 15,198 firm-years, 7572 firm-years had CEOs under 56 years old. The remaining 7626 firm-years had CEOs older than 56. Panel B reports the descriptive statistics, *t*-test, and Wilcoxon rank-sum test results of subsamples of firm-years with female and male CEOs. Out of 15,198 firm-years, only 371 firm-years from 70 unique firms were with female CEOs. The remaining 14,827 firm-years had male CEOs. The *p*-values from two-tailed tests are in the parentheses. All variable definitions are in Appendix A.

partitioned by CEO gender. The number of firm-year observations with female CEOs is 371 out of 15,198 firm-years, a ratio of 2.44 %, consistent with Nguyen et al. (2021) as described above. For observations with female CEOs, the mean values of the comparability measures *Comp_Earnings* (−0.029) and *Comp_Accrual* (−0.041) are higher than the mean values of *Comp_Earnings* (−0.044) and *Comp_Accrual* (−0.049) for observations with male CEOs. The *p*-value of the test of difference of means (*t*-stat) shows that the difference in *Comp_Earnings* is statistically significant. This is a primary indicator that the financial statements produced by firms with female CEOs demonstrate more comparability than those of firms with male CEOs. The average size of the firms managed by female CEOs, with a mean value of 7.561 for the log-transformed market value of equity, is similar to that of firms managed by male CEOs, with their mean value of 7.553; the difference is statistically insignificant for both a *t*-test and Wilcoxon rank-sum test.

Table 3 reports the Pearson correlation matrix of the sample. The two comparability measures, *Comp_Earnings* and *Comp_Accrual*, have significant positive correlations with each other, which indicates that conceptually they measure similar things. The results show that *CEO_AGE* and *CEO_FEMALE* both have significant and positive correlations with *Comp_Earnings*. The natural logarithmic value of the market value of equity has a significant positive relationship with *Comp_Earnings* (0.081) and *Comp_Accrual* (0.112). Two proxies for firm growth, *GROWTH* and *EPR*, have significant negative relationships with the proxies for financial statement comparability. *CONSERVATISM* has a significant negative correlation with comparability measures. *CO_AGE* (firm age in years) also has a significant positive relationship with *Comp_Earnings* and *Comp_Accruals* (0.027 and 0.042, respectively, significant at the 1 % level). *BEPC* (equity-based compensation) is positively correlated with both comparability measures, which is significant at the 1 % level. Reporting loss by a firm in a particular financial year has a significant negative relationship with comparability proxies. As some control variables have significant correlations among themselves, a variance-inflation factors (VIF) test is performed to test multicollinearity. The results of the VIF test are discussed and properly addressed in the additional analysis section.

5. Empirical results

Table 4 reports the multivariate OLS regression estimation results of Model (1), where the dependent variable is the *Comp_Earnings,* a measure of financial statements comparability following De Franco et al. (2011). A positive association with *Comp_Earnings* indicates increased comparability. *Comp_Accruals* is the alternative measure of comparability, following Neel (2017). Our results show that the coefficients on *CEO_AGE* are positive and significant for both proxies for financial statement comparability, namely *Comp_Earnings* ($\beta = 0.0003$, significant at the 5 % level) and *Comp_Accruals* ($\beta = 0.0007$, significant at the 1 % level). The standardized β coefficients ($\beta^* = (SD_{age}/SD_{Comp})\ ^*\beta_1$) indicate that *Comp_Earnings* increases by 1.820 units, and *Comp_Accruals* by 2.859 units, as the standard deviation of CEO's age (6.671) increases by one unit. The coefficient for *CEO_FEMALE*, the dummy variable for CEO gender, has positive coefficients, significant at the 1 % level, with both *Comp_Earnings* ($\beta = 0.0135$) and *Comp_Accruals* ($\beta = 0.0152$). *Ln_MVE,* the proxy for firm size, has significant positive coefficients with both comparability measures. The proxies for firm growth opportunities, *GROWTH* and *EPR,* have significant negative coefficients with comparability measures. This is consistent with the argument that firms that trade at "high multiples of earnings and book values" are usually under pressure to manipulate earnings (Romanus et al., 2008). Also, Abbott, Parker, and Peters (2004) argue that firm growth negatively impacts the firm's ability to properly value and record transactions. The measure of earnings management, *ABS_DA,* is significantly negatively associated with the comparability measures. *BIG4* has an insignificant positive association with *Comp_Earnings* and a significant negative association with *Comp_Accruals*. This is consistent with Afzali (2023), who reported negative association of audit quality with comparability. The proxy for earnings surprises, *LOSS*, has significant negative coefficients (at the 1 % level) with *Comp_Earnings* ($\beta = -0.0106$) and *Comp_Accruals* ($\beta = -0.0177$), as expected. *CEO_TENURE* has a significant positive coefficient with *Comp_Earnings* and a positive coefficient with *Comp_Accruals*. This indicates that as CEOs work with the same firm longer, they produce more comparable financial statements.

The adjusted R^2 values of the regression estimation are 13.7 % (*Comp_Earnings*) and 11.6 % (*Comp_Accruals*), which are higher than the adjusted R^2 value of 6.8 % reported by Huang et al. (2012). The results from the regression analysis reported in Table 4 are consistent with this theoretical justification and support our prediction that older and female CEOs will produce more comparable financial statements. Furthermore, though this study is the first attempt to provide empirical evidence for a relationship between CEO age or gender and financial statement comparability, and is thus not directly comparable with the prior studies, most of the coefficients of control variables are in line with the financial reporting quality literature and reflect expected relationships with financial statement quality. Thus, based on the regression results of Model (1), this study establishes CEO age and gender as indicators of financial reporting quality, specifically of comparability. This study also provides corroborating evidence for the previous studies showing that executive age (e.g., Huang et al., 2012; Xu et al., 2018) and the presence of female board members and executives (e.g., Barua et al., 2010; Francis et al., 2015; Srinidhi, Gul, & Tsui, 2011) positively impact financial reporting quality.

6. Additional tests

6.1. CFO and TMT characteristics

CFOs hold the primary responsibility for preparing financial statements (Mian, 2001), and they can exercise significant influence over financial operations and financial reporting (Chang, Dasgupta, & Hilary, 2010). Jiang, Petroni, and Wang (2010) argue that the magnitude of abnormal accruals and the likelihood of beating analysts are more influenced by CFOs' equity incentives than by those of CEOs. Thus, as additional analysis, the association between CFO age, gender, and financial statement comparability is examined by estimating regression Model (1) with *CFO_AGE* (the age of the CFO in years, as reported in the Execucomp annual compensation database) instead of *AGE*, and *FEMALE_CFO* (a dummy variable equal to one if the CFO is female, and zero otherwise) instead of *FEMALE*. These results are reported in Table 5 Panel A. *CFO_AGE* has significant positive relationships with *Comp_Earnings* ($\beta = 0.0006$), and *Comp_Accruals* ($\beta = 0.0004$). *FEMALE_CFO* has a significant positive relationship with *Comp_Earnings* ($\beta = 0.0126$), and a significant positive coefficient with *Comp_Accruals* ($\beta = 0.0087$). These results support the arguments of H1, that older executives will produce more comparable financial statements, and of H2, that financial statement comparability will improve if the executive is female. The control variables have broadly qualitatively similar coefficients as those reported in Table 4.

In this study, the TMT includes the five highest-paid executives in our sample firms, in terms of salary and bonus. The TMT can influence a firm's financial reporting process and outcomes (Chang et al., 2010). TMT cognition, values, and perceptions affect an organization's strategy and outcomes (Carpenter, Geletkanycz, & Sanders, 2004). Accordingly, the impact of average TMT member age and gender diversity on financial statement comparability is analyzed by estimating regression Model (1) with *TMT_AGE* instead of *CEO_AGE* and *TMT_GenDiv* instead of *CEO_FEMALE*. We estimate *TMT_AGE* as the average age of the firm's TMT in a given year, as reported in the Execucomp annual compensation database. *TMT_GenDiv* is a dummy variable equal to one if the firm has at least two females in the TMT at a given year, and zero otherwise. Table 5 Panel B reports the OLS regression results for average TMT member age, gender diversity, and comparability. *TMT_AGE* has a significant positive

Table 3
Correlation matrix.

	Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	*Comp_Earnings*	1										
2.	*Comp_Accruals*	0.692***	1									
3.	*CEO_AGE*	0.022***	0.040***	1								
4.	*CEO_FEMALE*	0.021***	0.009*	−0.053***	1							
5.	*Ln_MVE*	0.081***	0.112***	0.036***	0.001	1						
6.	*MB*	0.060***	0.076***	−0.020**	0.016*	0.265***	1					
7.	*GROWTH*	−0.016**	−0.026***	−0.044***	−0.035***	0.043***	0.090***	1				
8.	*EPR*	−0.099***	−0.127***	0.000	0.01	−0.034***	−0.081***	0.041***	1			
9.	*ROA*	0.082***	0.089***	0.002	−0.004	0.313***	0.282***	0.272***	0.187***	1		
10.	*ABS_DA*	−0.008	0.000	0.010	−0.005	0.061***	0.039***	0.045***	−0.040***	−0.014*	1	
11.	*FOREIGN*	0.038***	0.032***	0.011	−0.037***	0.131***	0.020**	−0.048***	−0.022***	−0.047***	0.098***	1
12.	*RESTRUCTURE*	−0.010	−0.023***	0.033***	−0.041***	−0.161***	0.024***	0.198***	0.003	0.177***	−0.089***	−0.204***
13.	*SPECIAL_ITEM*	0.005	0.000	−0.015*	0.019**	−0.040***	0.002	0.002	−0.008	0.014*	0.025***	0.003
14.	*CONSERVATISM*	−0.033***	−0.054***	−0.047***	0.028***	−0.058***	−0.157***	−0.157***	−0.058***	−0.187***	0.000	−0.005
15.	*BIG4*	0.021**	−0.005	−0.042***	0.027***	0.221***	−0.094***	−0.056***	0.013*	0.002	0.029***	0.085***
16.	*LEV*	−0.088***	−0.104***	−0.015*	0.014*	0.138***	−0.182***	−0.094***	0.210***	−0.170***	−0.036***	0.002
17.	*CO_AGE*	0.027***	0.042***	0.067***	0.086***	0.265***	−0.188***	−0.182***	−0.034***	−0.085***	0.152***	0.197***
18	*LOSS*	−0.078***	−0.093***	−0.032***	0.004	−0.244***	0.098***	−0.188***	−0.130***	−0.512***	0.022***	0.027***
19.	*FIN*	−0.053***	−0.065***	−0.011	−0.028***	−0.079***	−0.019**	0.098***	0.074***	−0.064***	0.030***	−0.01
20.	*BEPC*	0.027***	0.033***	−0.123***	0.021**	0.369***	0.001	0.001	−0.032***	0.005	0.053***	0.129***
21.	*CEO_TENURE*	0.012	0.015*	0.021***	−0.024***	0.036***	0.003	0.003	−0.007	0.029***	0.013*	−0.013*
	Variables	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	
12.	*RESTRUCTURE*	1										
13.	*SPECIAL_ITEM*	−0.061***	1									
14.	*CONSERVATISM*	−0.123***	−0.019**	1								
15.	*BIG4*	−0.187***	0.026***	0.034***	1							
16.	*LEV*	−0.143***	−0.042***	0.055***	0.104***	1						
17.	*CO_AGE*	−0.463***	0.072***	0.070***	0.230***	0.054***	1					
18	*LOSS*	−0.125***	0.024***	0.305***	−0.027***	0.130***	0.014*	1				
19.	*FIN*	−0.042***	0.018**	0.000	−0.015*	0.250***	0.059***	0.058***	1			
20.	*BEPC*	−0.198***	0.019**	0.063***	0.169***	0.064***	0.226***	0.006	0.015*	1		
21.	*CEO_TENURE*	0.009	0.009	−0.009	0.019**	−0.071***	0.108***	−0.043***	−0.012	−0.006	1	

Table 3 reports the Pearson correlation analysis results of the sample with 15,198 firm-year observations from 1277 unique firms. *, **, and *** denote statistical significance at the 10 %, 5 %, and 1 % levels, respectively. All variable definitions are in Appendix A.

Table 4
Impact of CEO age and gender on comparability.

		Comparability			
		Comp_Earnings		*Comp_Accrual*	
Variable	Expected Sign	Coefficient	*t*-statistic	Coefficient	*t*-statistic
CEO_AGE	+	0.0003	2.36**	0.0007	3.78***
CEO_FEMALE	+	0.0135	6.89***	0.0152	4.13***
Ln_MVE	+	0.0058	6.90***	0.0075	9.94***
MB	+/−	0.0003	1.80*	0.0006	2.89***
GROWTH	−	−0.0002	−2.43**	−0.0003	−3.92***
EPR	−	−0.0582	−3.18***	−0.1042	−2.90***
ROA	+	0.0004	2.18**	0.0007	3.11***
ABS_DA	−	−0.0065	−1.73*	−0.0106	−1.90*
FOREIGN	+	0.0005	0.37	0.0017	0.71
RESTRUCTURE	+	0.0055	2.14**	0.000	0.01
SPECIAL_ITEM	−	−0.0002	−0.03	−0.0074	−1.10
CONSERVATISM	−	−0.0215	−0.68	−0.0914	−2.06**
BIG4	+/−	0.0020	0.70	−0.0086	−3.15***
LEV	−	−0.0223	−2.88***	−0.052	−5.37***
CO_AGE	+	−0.0014	−3.27***	−0.001	−2.26**
LOSS	−	−0.0106	−3.04***	−0.0177	−3.89***
FIN	−	−0.0099	−1.23	−0.0122	−1.21
BEPC	−	−0.0009	−0.25	−0.0001	−0.02
CEO_TENURE	+	0.0004	1.95*	0.0004	1.34
Intercept		−0.1170	−4.95***	−0.0935	−3.86***
Observations		15,198		15,198	
Adjusted R^2		0.137		0.116	
Industry FE		Yes		Yes	
Year FE		Yes		Yes	

Table 4 reports the OLS regression results that examines the impact of CEO age on financial statement comparability (Model 1). All *t*-statistics are based on heteroskedasticity robust standard errors. *, **, and *** denote statistical significance at the 10 %, 5 %, and 1 % levels, respectively. All variable definitions are in Appendix A.

relationship with *Comp_Earnings* ($\beta = 0.0005$) at the 1 % level and *Comp_Accruals* ($\beta = 0.0006$) at the 5 % level. *TMT_GenDiv* has a positive relationship with *Comp_Earnings* ($\beta = 0.0087$) and *Comp_Accruals* ($\beta = 0.0292$), significant at the 1 % level. These results are consistent with the results reported in Table 4, and support our hypotheses that older and female executives improve comparability. The control variables have broadly qualitatively similar coefficients, as reported in Table 4.

6.2. Self-selection bias

CEOs are not randomly assigned to firms. Rather, firms select and appoint CEOs. So, a self-selection bias may have an impact on the results. To test the robustness of the results to self-selection correction, a variation of the Heckman (1979) two-step approach, the treatment effects model, is employed. The Heckman two-stage procedure is formulated following Lennox, Francis, and Wang (2012). The first stage model is as follows:

$$CEO\_HAGE = \beta_0 + \beta_1 CEO\_IND + Control\_Variables + Fixed\ Effects + \varepsilon_i \quad (A1)$$

where *CEO_HAGE* is a dummy variable equal to one if the age of the CEO is more than the sample median (56), and zero otherwise. *CEO_IND* is the industry median of CEO age, excluding the firm itself. Control variables are the same as those used in Model (1).

The Inverse Mills ratio (*MILLS_AGE*) is computed following the standard procedure from Model (A1). In the second stage, MILLS is incorporated into the original Model (1):

$$Comparability = \beta_0 + \beta_1 CEO\_AGE + \beta_2 CEO\_FEMALE + \beta_3 MILLS\_AGE + Control\_Variables + Fixed\ Effects + \varepsilon_i \quad (A2)$$

The Heckman two-stage procedure is formulated following Na and Hong (2017) for Model (2). The first stage model is as follows:

$$FEMALE = \beta_0 + \beta_1 Ln\_MVE + \beta_2 MB + \beta_3 LEV + \beta_4 NI + \beta_5 Ln\_TENURE + \beta_6 Ln\_AGE + \beta_7 COMPENSATION + Fixed\ Effects + \varepsilon_i \quad (B1)$$

where *COMPENSATION* is total compensation including options exercised earned by the CEO during the fiscal year, deflated by opening total assets, and other variables are as defined in Appendix A.

MILLS_FEMALE is computed following standard procedure from Model (B1). In the second stage, *MILLS_FEMALE* is incorporated into the original Model (1):

$$Comparability = \beta_0 + \beta_1 CEO\_AGE + \beta_2 CEO\_FEMALE + \beta_3 MILLS\_FEMALE + Control\_Variables + Fixed\ Effects + \varepsilon_i \quad (B2)$$

Table 6 Panel A, which reports the self-selection test results for CEO age, presents the OLS estimation results for Model (A2). *CEO_AGE* has significant positive coefficients with *Comp_Earnings* ($\beta = 0.0003$) at the 5 % level and *Comp_Accruals* ($\beta = 0.0006$) at the 1 % level. The coefficient for *MILLS_AGE* is positive and significant with both comparability measures. Table 6 Panel B reports the results of the self-selection test for CEO gender (OLS estimation of the above Model (B2)). *CEO_FEMALE* has significant positive coefficients with *Comp_Earnings* ($\beta = 0.0132$) and *Comp_Accruals* ($\beta = 0.0152$) at the 1 % level. The estimation results for AGE and FEMALE are consistent with those reported in Table 6 Panel B. The coefficient for *MILLS_FEMALE* is negative with *Comp_Earnings* and positive with *Comp_Accrual*, but both are statistically insignificant. The coefficients of *CEO_AGE* and *CEO_FEMALE* are still positive and significant with the comparability measures even after correcting for potentially endogenous CEO selection biases. The adjusted R^2 values reported in Table 6 are also nearly the same as those reported in Table 4. Overall, following the interpretation of existing studies (Comprix, Lopatta, & Tideman, 2022; Conyon & He, 2017), we conclude that our original findings do not seem to be steered by CEO selection endogeneity.

Table 5
Impact of CFO and TMT characteristics on comparability.

Panel A: Impact of CFO characteristics on comparability

		Comparability			
		Comp_Earnings		*Comp_Accrual*	
Variable	Expected Sign	Coefficient	*t*-statistic	Coefficient	*t*-statistic
CFO_AGE	+	0.0006	2.27**	0.0004	1.67*
CFO_FEMALE	+	0.0126	3.35***	0.0087	2.13**
Ln_MVE	+	0.0070	6.03***	0.0105	10.30***
MB	+/−	0.0750	1.81*	0.1898	4.16***
GROWTH	−	0.0001	1.09	−0.0001	−0.62
EPR	−	0.0675	1.90*	0.0803	3.08***
ROA	+	−0.0012	−2.75***	−0.0011	−3.57***
ABS_DA	−	−0.0011	−0.58	−0.0033	−1.16
FOREIGN	+	−0.0058	−1.76*	−0.0006	−0.23
RESTRUCTURE	+	0.0105	2.93***	0.0018	0.70
SPECIAL_ITEM	−	0.0228	1.64	0.0106	0.87
CONSERVATISM	−	−0.0565	−0.80	−0.1035	−2.04**
BIG4	+/−	−0.0030	−0.93	−0.0028	−0.90
LEV	−	−0.0335	−2.69***	−0.0794	−9.22***
CO_AGE	+	−0.0018	−2.54**	−0.0016	−2.49**
LOSS	−	−0.0138	−2.16**	−0.0174	−2.60***
FIN	−	−0.0205	−1.87*	−0.048	−3.47***
BEPC	−	0.0092	1.36	0.0096	1.31
CFO_TENURE	+	0.0010	2.44**	0.0004	0.91
Intercept		−0.1292	−5.86***	−0.0833	−3.57***
Observations		8680		8680	
Adjusted R^2		0.134		0.155	
Industry FE		YES		Yes	
Year FE		YES		Yes	

Panel B: Impact of TMT characteristics on comparability

		Comparability			
		Comp_Earnings		*Comp_Accrual*	
Variable	Expected Sign	Coefficient	*t*-statistic	Coefficient	t-statistic
TMT_AGE	+	0.0005	2.76***	0.0006	2.21**
TMT_GenDiv	+	0.0087	1.00	0.0292	3.37***
Ln_MVE	+	0.0066	6.00***	0.0073	7.49***
MB	+/−	0.0575	2.03**	0.0738	1.62
GROWTH	−	−0.0001	−0.88	−0.0002	−2.84***
EPR	−	−0.0535	−2.09**	−0.0646	−2.12**
ROA	+	0.0000	0.00	0.0004	2.51**
ABS_DA	−	−0.0068	−1.87*	−0.0112	−2.16**
FOREIGN	+	0.0012	0.67	0.0024	0.95
RESTRUCTURE	+	0.0079	2.59***	0.0015	0.49
SPECIAL_ITEM	−	−0.0028	−0.51	−0.0135	−2.56**
CONSERVATISM	−	−0.0334	−0.63	0.0179	0.44
BIG4	+/−	0.0005	0.24	−0.0058	−2.16**
LEV	−	−0.0175	−1.91*	−0.0572	−5.61***
CO_AGE	+	−0.0013	−3.18***	−0.0014	−3.16***
LOSS	−	−0.0126	−3.02***	−0.0201	−4.06***
FIN	−	−0.0147	−1.63	−0.0161	−1.49
BEPC	−	0.0039	0.67	0.0022	0.33
TMT_TENURE	+	0.0029	6.58***	0.0027	5.15***
Intercept		−0.1090	2.76***	−0.0501	−2.63***
Observations		15,759		15,759	
Adjusted R^2		0.110		0.096	
Industry FE		YES		Yes	
Year FE		YES		Yes	

Table 5, consisting of Panel A and Panel B, reports the OLS regressions results examining the impact of CFO and TMT characteristics on financial statement comparability. Panel A focuses on the age and gender of CFOs, while Panel B assesses the average age and gender diversity within TMTs. All *t*-statistics are based on heteroskedasticity robust standard errors. *, **, and *** denote statistical significance at the 10 %, 5 %, and 1 % levels, respectively. All variable definitions are in Appendix A.

6.3. Curvilinear impact of age

Age does not bring only positive changes in individuals; it is also associated with declining memory, reasoning skills, and cognitive abilities (Salthouse, 1996). Older executives can sometimes be excessively risk-averse (Hambrick & Mason, 1984; Serfling, 2014), leading to the loss of profitable opportunities. Also, CEOs approaching retirement are more engaged with earnings management (Davidson, Xie, Xu, & Ning, 2007). However, Xu et al. (2018) argue that competitive pressure will remove executives with lower cognitive power, and thus, there should be no deteriorating effect of age. Nevertheless, to examine the curvilinear impact of age on comparability, we re-estimated Model 1 by

Table 6
Endogeneity test - Heckman two-stage least squares.

Panel A: Heckman 2nd stage self-selection test for CEO age

		Comparability			
		Comp_Earnings		*Comp_Accrual*	
Variable	Expected Sign	Coefficient	*t*-statistic	Coefficient	*t*-statistic
CEO_AGE	+	0.0003	2.27**	0.0006	3.62***
CEO_FEMALE	+	0.2780	1.62	1.0342	3.54***
MILLS_AGE	+/−	0.0135	6.92***	0.0155	4.20***
Ln_MVE	+	0.0008	0.25	−0.011	−2.06**
MB	+/−	0.0007	2.19**	0.0023	3.57***
GROWTH	−	0.0000	0.07	0.0004	1.93*
EPR	−	−0.0599	−3.28***	−0.1107	−3.05***
ROA	+	−0.0085	−2.12**	−0.0182	−2.97***
ABS_DA	−	0.0029	1.45	0.0103	2.72***
FOREIGN	+	−0.0064	−0.87	−0.0444	−3.58***
RESTRUCTURE	+	0.0023	0.39	0.0008	0.12
SPECIAL_ITEM	−	0.0233	0.57	0.0725	1.15
CONSERVATISM	−	0.0007	2.57**	0.0017	4.29***
BIG4	+/−	0.0092	1.70*	0.0180	2.36**
LEV	−	−0.0238	−3.03***	−0.0575	−6.15***
CO_AGE	+	−0.0007	−1.23	0.0014	1.75*
LOSS	−	−0.0073	−1.72*	−0.0049	−0.83
FIN	−	−0.0146	−1.69*	−0.0301	−2.72***
BEPC	−	0.0325	1.55	0.1238	3.65***
CFO_TENURE	+	0.0004	1.82*	0.0003	1.10
Intercept		0.0570	0.63	0.4539	2.98***
Observations		15,174		15,174	
Adjusted R^2		0.137		0.117	
Industry FE		YES		YES	
Year FE		YES		YES	

Panel B: Heckman 2nd stage self-selection test for CEO gender

		Comparability			
		Comp_Earnings		*Comp_Accrual*	
Variable	Expected Sign	Coefficient	*t*-statistic	Coefficient	*t*-statistic
CEO_AGE	+	0.0005	2.64***	0.0005	1.68*
CEO_FEMALE	+	0.0132	6.81***	0.0152	4.15***
MILLS_FEMALE	+/−	−0.1869	−1.12	0.1408	0.46
Ln_MVE	+	0.0059	7.24***	0.0074	10.14***
MB	+/−	0.0003	2.11**	0.0006	2.23**
GROWTH	−	−0.0002	−2.59***	−0.0003	−3.92***
EPR	−	−0.0575	−3.14***	−0.1040	−2.89***
ROA	+	−0.0068	−1.82*	−0.0106	−1.89*
ABS_DA	−	0.0005	0.34	0.0017	0.70
FOREIGN	+	0.0049	1.89*	0.0000	0.00
RESTRUCTURE	+	−0.0003	−0.06	−0.0075	−1.1
SPECIAL_ITEM	−	−0.0147	−0.48	−0.0913	−2.06**
CONSERVATISM	−	0.0004	2.21**	0.0007	3.09***
BIG4	+/−	0.0022	0.78	−0.0086	−3.19***
LEV	−	−0.0244	−3.18***	−0.0510	−5.20***
CO_AGE	+	−0.0002	−1.12	−0.0010	−2.27**
LOSS	−	−0.0099	−2.88***	−0.0178	−3.90***
FIN	−	−0.0099	−1.22	−0.0124	−1.23
BEPC	−	−0.0014	−0.37	0.0001	0.01
CFO_TENURE	+	0.0005	2.51**	0.0003	0.97
Intercept		0.1250	0.10	−0.1979	−0.86
Observations		15,198		15,198	
Adjusted R^2		0.137		0.117	
Industry FE		YES		YES	
Year FE		YES		YES	

Table 6, comprised of Panel A and Panel B, reports the OLS regression results that examine the impact of self-selection bias on financial statement comparability. Panel A focuses on the bias in choosing older versus younger CEOs, while Panel B investigates the bias in selecting female CEOs over male ones. All *t*-statistics are based on heteroskedasticity robust standard errors. *, **, and *** denote statistical significance at the 10 %, 5 %, and 1 % levels, respectively. *MILLS_AGE* is the inverse MILLS ratio for CEO age. *MILLS_FEMALE* is the inverse MILLS ratio for CEO gender. All variable definitions are in Appendix A.

grouping CEOs by age. The firm years with the youngest 40 % of CEOs (aged 40 to 55) and the oldest 40 % of CEOs (aged 58 to 78) are analyzed to compare the comparability of financial statements produced by each group. Table 7 reports the results of the OLS regression estimation for the curvilinear impact of age. *CEO_AGE* (Younger CEOs) has significant negative coefficients with *Comp_Earnings* ($\beta = -0.0036$) at the 5 % significance level and *Comp_Accrual* ($\beta = -0.0092$) at the 1 % significance level, whereas *CEO_AGE* (Older CEOs) has positive coefficients with *Comp_Earnings* ($\beta = 0.0029$) at the 10 % significance level, and *Comp_Accrual* ($\beta = 0.0087$) at the 1 % significance level. The results suggest a

Table 7
Curvilinear impact of age on comparability.

		Comparability							
		Comp_Earnings				*Comp_Accrual*			
		Younger CEOs		Older CEOs		Younger CEOs		Older CEOs	
Variable	Expected Sign	Coefficient	*t*-statistic	Coefficient	*t*-statistic	Coefficient	*t*-statistic	Coefficient	*t*-statistic
CEO_AGE	+	−0.0036	−2.05**	0.0029	1.66*	−0.0092	−4.03***	0.0087	4.46***
CEO_FEMALE	−	0.0133	6.81***	0.0131	6.70***	0.0152	4.10***	0.0149	4.03***
Ln_MVE	+	0.0058	6.83***	0.0058	6.95***	0.0074	9.73***	0.0075	9.89***
MB	+/−	0.0003	1.81*	0.0003	1.75*	0.0006	2.91***	0.0006	2.85***
GROWTH	−	−0.0002	−2.43**	−0.0002	−2.45**	−0.0003	−3.91***	−0.0003	−3.94***
EPR	−	−0.0582	−3.17***	−0.0582	−3.17***	−0.1040	−2.89***	−0.1040	−2.90***
ROA	+	0.0004	2.17**	0.0004	2.16**	0.0007	3.11***	0.0007	3.11***
ABS_DA	−	−0.0065	−1.73*	−0.0065	−1.73*	−0.0106	−1.90*	−0.0106	−1.89*
FOREIGN	+	0.0006	0.42	0.0005	0.38	0.0019	0.78	0.0018	0.73
RESTRUCTURE	+	0.0056	2.18**	0.0056	2.18**	0.0000	0.01	0.0000	0.00
SPECIAL_ITEM	−	−0.0001	−0.02	−0.0002	−0.04	−0.0073	−1.09	−0.0076	−1.12
CONSERVATISM	−	−0.0220	−0.7	−0.0223	−0.71	−0.0921	−2.08**	−0.0925	−2.09**
BIG4	+/−	0.0020	0.68	0.0020	0.68	−0.0086	−3.19***	−0.0085	−3.17***
LEV	−	−0.0226	−2.93***	−0.0223	−2.88***	−0.0527	−5.44***	−0.0519	−5.37***
CO_AGE	+	−0.0014	−3.23***	−0.0014	−3.27***	−0.0010	−2.20**	−0.001	−2.29**
LOSS	−	−0.0106	−3.05***	−0.0107	−3.05***	−0.0177	−3.88***	−0.0177	−3.90***
FIN	−	−0.0099	−1.23	−0.010	−1.24	−0.0122	−1.22	−0.0125	−1.24
BEPC	−	−0.0014	−0.37	−0.0015	−0.39	−0.0006	−0.13	−0.0004	−0.09
CEO_TENURE	+	0.0004	1.99**	0.0004	1.95*	0.0004	1.41	0.0004	1.34
Intercept		−0.0964	−4.45***	−0.1	−4.59***	−0.0506	−2.19**	−0.0600	−2.61***
Observations		6080		6081		6080		6081	
Adjusted R^2		0.137		0.137		0.116		0.116	
Industry FE		Yes		Yes		Yes		Yes	
Year FE		Yes		Yes		Yes		Yes	

CEOs are categorized into two groups for analysis: the Younger CEOs group, comprising the youngest 40 % of CEOs, and the Older CEOs group, including the oldest 40 % of CEOs. Table 7 presents the OLS regression results of Model 1 based on this age grouping, examining the curvilinear impact of CEO age on financial statement comparability. All *t*-statistics are based on heteroskedasticity robust standard errors. *, **, and *** denote statistical significance at the 10 %, 5 %, and 1 % levels, respectively. All variable definitions are in Appendix A.

negative association between CEO age and comparability in the group of younger CEOs, and a positive association in the group of older CEOs. This implies that the relationship between CEO age and comparability may not be monotonic. Future research could explore the nature and direction of potential non-linearity in the relationship between CEO age and financial statement comparability.

6.4. Industries dominated by young CEOs

As an additional analysis, we test the robustness of our findings in the industries dominated by young CEOs. The mean age of industries shows that the mean ages of CEOs in the "Wholesale Trade" (SIC 2 digit codes 50–51), "Retail Trade" (SIC 2 digit codes 52–59), and "Services" (SIC 2 digit codes 70–87) industries are below the mean age of the sample. Thus, we consider those industries as dominated by younger CEOs. OLS regression Model (1) is estimated using the subsample of these three industries. The untabulated results show that *CEO_AGE* has a negative coefficient with *Comp_Earnings* and a significant positive coefficient with *Comp_Accruals* at a 5 % level. The OLS estimation results of Model (1) using the subsample of the industries dominated by the older CEOs show significant positive coefficients with *Comp_Earnings* and *Comp_Accruals* at the 1 % level. These results are consistent with the findings reported in Table 4, and support the prediction made by H1 that financial statement comparability is enhanced if the CEO is older.

6.5. Corporate governance measures

Existing literature (Endrawes et al., 2020; Haque & Ntim, 2018; Nadeem, De Silva, Gan, & Zaman, 2017) provides evidence that corporate governance influences financial reporting quality. Some influential governance measures related to financial reporting quality are board size, board independence, and audit committee size. These variables are included in the regression Model (1) to analyze the relationship between CEO age, gender, and comparability in the presence of corporate governance mechanisms. Model 1 includes controls for board size (following Laksmana, 2008; Bushman, Chen, Engel, & Smith, 2004), board independence (following Klein, 2002), audit committee size (following Karamanou & Vafeas, 2005), and audit committee financial expertise (followingEndrawes et al., 2020; Klein, 1998). Effective management from the board of directors has a negative association with financial statements fraud (Beasley, 1996) and can improve the board's ability to monitor the managers (Klein, 2002). Further, an effective audit committee plays a monitoring role (Klein, 1998; Endrawes et al., 2020) and helps to reduce earnings management (Vafeas, 2005).

Data for corporate governance measures have been collected from the Refinitv ESG Board Members database and then merged with our final sample. This caused a significant reduction in the sample size. The final sample for this test consists of 5077 firm-year observations. Untabulated results suggest that *CEO_AGE* has a significant positive coefficient with *Comp_Earnings* ($\beta = 0.0005$) at a 1 % significance level and *Comp_Accrual* ($\beta = 0.0004$) at a 5 % significance level. *CEO_FEMALE* has significant positive coefficients with *Comp_Earnings* ($\beta = 0.0063$) at a 1 % level and *Comp_Accrual* ($\beta = 0.0077$) at a 5 % significance level. *Board size, board independence* and *audit committee size* have positive associations with the comparability measures, as expected. The coefficients of the control variables are qualitatively similar to those reported in Table 4. These results further strengthen our claim that older and female executives produce more comparable financial statements relative to younger and male executives.

6.6. Quantile regression, multicollinearity and fixed effects

Quantile regression results offer a more complete quantified portrayal of the relationship between an independent and dependent variable (Conyon & He, 2017). We run quantile regressions at 25 %, 50

%, and 75 % percentiles to estimate conditional quantile functions (see Chernozhukov & Hansen, 2005; Koenker & Gilbert, 1978). The untabulated results show that the positive coefficient for *CEO_AGE* with *Comp_Earnings* and *Comp_Accruals* increases from the 25th to the 50th quantile, and then to the 75th. This supports H1 regarding the improvement of comparability with CEO age.

In addition, a variance inflation factors (VIF) test has been performed to test for multicollinearity for Model (1). Only *CO_AGE* has a value of VIF greater than the threshold value of 10. Thus, regression Model (1) is run without *CO_AGE* to check the validity of the results. Further, the findings reported in Table 4 are not affected by the exclusion of *CO_AGE*. All the OLS regression estimations include year and industry fixed effects to control for unobserved heteroscedasticity. For further analysis, Model (1) has been re-run without fixed effects, and the unreported results show that both *CEO_AGE* and *CEO_FEMALE* have significant positive coefficients with all proxies for financial statement comparability.

7. Conclusion

In this study, we focus on the role of executive age and gender in improving the comparability of financial statements. We are motivated by the paucity of research on this crucial issue and the findings of the extant literature indicating the significant importance of comparability in enhancing the quality of financial reporting. This study is also inspired by upper echelons theory-based research suggesting the influential role that executive characteristics play in improving the quality of financial reporting.

Our main findings, based on analyzing a large sample of US data over the period of 1992–2020, show that both older CEOs and female CEOs enhance the comparability of financial statements. The results are robust to a battery of sensitivity tests, including self-selection bias, industry dominance of young CEOs, and corporate governance measures. Furthermore, the findings are consistent with alternative output-based measures of comparability. Our analysis suggests that the age and gender of other executives, particularly the CFO and the TMT, also significantly influence comparability, much like the CEO. The analysis of the curvilinear effect of age on financial statement comparability shows that the relationship between CEO age and comparability might not follow a linear pattern. Future research could further investigate the nature and direction of this non-linear relationship.

This study contributes to the corporate governance and accounting literatures by providing the first empirical evidence for the relationship between CEO demographic characteristics, particularly age and gender, and comparability. No study so far has examined whether CEO age and gender improve financial statement comparability as a unique aspect of accounting information. Furthermore, this study contributes to the research investigating the possible behavioral impacts that CEO demographic characteristics may have on corporate financial reporting outcomes. These findings will extend this literature and help in understanding the behavioral impacts of CEO age and gender on the financial reporting of firms. These results also support the claim made by accounting regulators as was discussed in Sections 1 and 2.3.1: that enhancing financial statement comparability, as a foundation for effective communication of financial reporting, is a behavioral matter (IFRS Foundation, 2017).

The findings of this study will also contribute to the continuous debate on possible age discrimination (Lipnic, 2018; Wanberg, Kanfer, Hamann, & Zhang, 2016) and gender discrimination in the workplace. The participation of females in top executive positions in North American firms is still low (Barua et al., 2010; Nguyen et al., 2021). Therefore, the findings of this study may motivate firms to hire more women for top executive positions and thus reduce gender discrimination. These higher quality financial statements could be used to lower the costs of capital and increase firm value.

Our findings and limitations suggest some future research opportunities. One interesting way to extend this study might be to empirically examine how this important link, between executive traits and financial statement comparability, is influenced by possible factors suggested in this study (e.g., CEO tenure, monitoring cost). Future studies can also investigate the associations between other CEO characteristics and comparability. This study is conducted using publicly traded non-financial US firms. Therefore, future research can investigate the associations between executive age and comparability, or between executive gender and comparability, in a different setting. Possible settings include nontraded or private U.S. firms, U.S. financial institutions, and firms in developing or emerging economies.

Declaration of competing interest

None.

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Appendix A. Variable definition and measurement

Variables	Definition and measurement
Dependent Variables	
Comp_Earnings	Output-based measure of financial statement comparability, calculated using the average of the past 16 quarters' absolute differences in reported earnings between firm *i* and firm *j*, where earnings is the ratio of quarterly net income before extraordinary items to the beginning-of-period market value of equity.
Comp_Accruals	Output-based measure of financial statement comparability calculated using the average of the past 16 quarters' absolute differences in accruals between firm *i* and firm *j*, where accruals is net income minus operating cash flows scaled by the market value of equity.
Independent Variables	
CEO_AGE	Age of the CEO in years, as reported in the Execucomp annual compensation database.
CEO_FEMALE	An indicator variable that takes a value of one if the CEO is female, and zero otherwise.
CFO_AGE	CFO age in years as reported in Execucomp annual compensation data.
CFO_FEMALE	An indicator variable that takes a value of one if the CFO of the firm is female, and zero otherwise.
TMT_AGE	The average TMT age in years.
TMT_GenDiv	An indicator variable that takes a value of one if there are at least two females in the TMT for given firm-year, and zero otherwise.
Control Variables	

(*continued on next page*)

(*continued*)

Variables	Definition and measurement
Ln_MVE	Natural logarithm of market value of equity, where market value of equity is measured as the firm's price per share at fiscal year-end multiplied by the number of shares outstanding, measured in millions of dollars.
MB	Market value of equity by the book value of equity.
GROWTH	The percentage change in revenues.
EPR	Income from continuing operations divided by market capitalization at the end of the year.
ROA	Net income divided by average total assets.
ABS_DA	The absolute value of discretionary accruals.
FOREIGN	An indicator variable that takes a value of one if the firm has any foreign operation, and zero otherwise.
RESTRUCTURE	An indicator variable that takes a value of one if the firm had any restructuring, and zero otherwise.
SPECIAL_ITEM	An indicator variable that takes a value of one if the firm reported any special items, and zero otherwise.
CONSERVATISM	The measure of accrual-based accounting conservatism.
BIG4	An indicator variable that takes a value of one if the auditor is one of the Big 4 accounting firms, and zero otherwise.
LEV	Ratio of total liabilities to total assets.
CO_AGE	Firm's age in years. It is calculated by deducting the date of the firm's first appearance in Compustat from the date of the firm-year observation.
LOSS	An indicator variable that takes a value of one if the firm reports a loss (negative net income) for the particular year, and zero otherwise.
FIN	The sum of additional cash raised by the issuance of long-term debt, common stock, and preferred stock deflated by total assets.
BEPC	Sum of the value of restricted stocks and the value of stock options granted during the fiscal year, divided by total compensation.
CEO_TENURE	The number of years a CEO is holding the position.
CFO_TENURE	The number of years a CFO is holding the position.
TMT_TENURE	The average tenure of TMT in years.

Data availability

All data used in the article is available from sources indicated in the text.

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