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Accounting comparability, financial reporting quality, and the pricing of accruals

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ABSTRACT

This study examines the impact of accounting comparability on financial reporting quality and the extent to which financial statement users understand the implications of firms' accruals. We predict that comparability improves the information environment, which not only enhances the ability of managers to estimate accruals more accurately and signal their private information, but also improves investors' comprehension of accruals. Utilizing restatements, the mapping of accruals into cash flows, earnings persistence, and audit fees as measures of financial reporting quality, we find that prior-period comparability is associated with higher financial reporting quality. We also provide evidence that comparability is positively associated with managerial forecast accuracy and precision, consistent with comparability improving the ability of managers to predict future firm performance. Furthermore, we find that when prior-period comparability is higher, current period discretionary accruals are less positively correlated with contemporaneous returns and less negatively correlated with future returns, consistent with our prediction that comparability improves the pricing efficiency of accruals. Our results are robust to controlling for the endogeneity of accounting comparability and several different empirical model specifications. Overall, our findings suggest that enhanced accounting comparability is beneficial to both preparers and users of financial statements.

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1. Introduction

Regulators argue that comparability increases accounting information's usefulness and enables financial statement users (hereafter users) to identify the similarities and differences between economic phenomena (Financial Accounting Standards Board (FASB), 2010). The Financial Accounting Standards Board (FASB) (1980) states that "investing and lending decisions…cannot be made rationally if comparative information is not available." Financial statement analysis textbooks also stress the importance of comparability in judging a firm's performance (e.g., Revsine, Collins, Johnson, & Mittelstaedt, 2011). Existing research on accounting comparability primarily focuses on its benefits to financial statement users such as financial analysts and creditors (e.g., De Franco, Kothari, & Verdi, 2011; Kim, Kraft, & Ryan, 2013). Very few studies have examined the implications of comparability for managers, an important party in the information production and dissemination process. Also, the implications of comparability for users have not been fully explored. To fill these gaps in the literature, we examine the impact of comparability on the quality of managers' financial reporting and the extent to which investors understand the implications of firms' accruals, given the impact of comparability on financial reporting quality.[1]

Following the Financial Accounting Standards Board (FASB) (2010) and De Franco et al. (2011), we define comparability as the extent to which similar economic transactions are accounted for similarly, and dissimilar transactions are accounted for differently. Thus, for a given set of economic events, comparability can be defined as the extent to which firms have similar accounting systems and hence produce similar financial statements (De Franco et al., 2011). Greater comparability can significantly improve a firm's information environment as it increases the overall quantity and quality of information about a firm and its peers. More comparable financial statements provide better benchmarks for one another, making it easier to acquire and process information. Prior research suggests that the financial statements of peer firms are an important source of information for managers (e.g., Maiga & Jacobs, 2006; Mitchell & Mulherin, 1996). Thus, higher comparability may allow managers to be more knowledgeable of the firm's competitors, industry trends, and economic conditions, as well as their impact on the firm. This enhanced knowledge facilitates managers' abilities to evaluate firm performance and predict future events. This should assist managers in incorporating information into reliable forward-looking

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[1] We define high quality earnings as those that accurately reflect company performance.

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estimates with which to report higher quality accruals (e.g., Libby & Luft, 1993) and signal future performance. In turn, we expect greater comparability to positively influence the quality of managers' financial reporting.

If investors are provided with more precise earnings information, they may be able to use this information to better price earnings. However, as noted by Perotti and Wagenhofer (2014), greater financial reporting quality may decrease errors in pricing, but it would not reduce systematic underpricing or overpricing. Even so, we expect greater comparability to improve the ability of financial statements users to process and understand accounting information, and hence reduce the overpricing of accruals documented by prior research (Sloan, 1996; Xie, 2001). Greater comparability allows users to better understand a firm, its environment, and its accounting system (De Franco et al., 2011). In addition, more comparable financial information enables users to better identify and understand the similarities and differences among accounting items (Financial Accounting Standards Board (FASB), 2010). That is, greater comparability enables users to better understand and predict economic events, and how these events translate into accounting performance. Prior studies also show that companies with more comparable financial statements are associated with higher analyst forecast accuracy and lower dispersion (De Franco et al., 2011). Furthermore, comparability may also improve the accuracy and precision of information released in managerial forecasts.[2] This improved information environment likely reduces information asymmetry in the stock market, helps investors process accruals, and hence improves the pricing efficiency of accruals.

We measure accounting comparability following the methodology of De Franco et al. (2011) and in the year prior to the year in which we measure financial reporting quality to help address endogeneity concerns. To measure financial reporting quality, we use financial restatements, the absolute value of the estimated residuals from a modified Dechow and Dichev (2002) accruals quality model, earnings persistence, and audit fees. We find that comparability is negatively associated with the likelihood of a financial restatement, audit fees, and absolute discretionary accruals. We also find that comparability is positively associated with the persistence of discretionary accruals. These results are consistent with the notion that when comparability is greater, managers are better able to report accruals that more closely correspond to the firm's underlying economic activity.

To investigate how comparability impacts the ability of users to understand the implications of firms' accruals, we examine how comparability influences the pricing efficiency of accruals. Prior research (e.g., Sloan, 1996; Xie, 2001) finds that the market tends to overestimate the persistence of discretionary accruals, which causes overpricing of these accruals in the current period and a subsequent reversal in future returns. We find that, ceteris paribus, the discretionary accruals of more comparable firms are less positively correlated with contemporaneous returns and less negatively correlated with future returns. These results are consistent with our hypothesis that comparability improves the pricing efficiency of discretionary accruals.

While we argue that comparability is largely exogenous to managerial discretion,[3] we address the issue of endogeneity in our tests by using lagged values of comparability. We also conduct three additional analyses. First, we use a lagged industry measure of comparability, which is beyond a manager's discretion. Second, we measure comparability after removing the discretionary component of earnings (i.e. discretionary accruals). While cash flows and non-discretionary accruals are relatively objective, discretionary accruals may be subjective and require significant accounting judgment (Lewis, 2012). Therefore, by removing the discretionary component from earnings, managerial discretion is removed from the resulting measure of comparability. Third, we use a two-stage regression approach to further address endogeneity issues. We find that our results are robust to controlling for endogeneity.

We argue that comparability improves the ability of managers to develop more accurate estimates and signal future firm performance, however, our results are also consistent with comparability acting as a constraint on earnings management (see e.g., Sohn, 2016). To distinguish between these two non-mutually exclusive explanations, we perform two analyses. First, we distinguish restatements by type, and find that comparability is negatively associated with restatements resulting from unintentional errors and those that specifically cite accrual estimation problems as a reason for the restatement. However, we are unable to provide evidence that comparability is associated with a reduced likelihood of restatements resulting from intentional errors. Second, we find that comparability is positively associated with financial reporting quality in samples of firms where accruals are likely to represent signals of future performance (e.g., firms announcing stock splits). Our results are consistent with our hypothesis that comparability improves the quality of managers' financial reporting.

We also examine how comparability influences managerial forecast characteristics. Prior research suggests that managerial preferences and characteristics influence firms' financial reporting (e.g., Demerjian, Lev, Lewis, & McVay, 2013; Ge, Matsumoto, & Zhang, 2011). In turn, we expect the financial reporting quality metrics we use to capture the ability of managers to develop accurate expectations of future firm performance and report higher quality accounting information. However, it is possible that the effects we document on the financial reporting quality metrics are a result of past levels of comparability, as opposed to an outcome of managerial choice. To alleviate this concern, we document that comparability is also positively associated with management forecast accuracy and precision. This provides more direct evidence that comparability enhances the ability of managers to develop more accurate expectations of future firm performance.

Lastly, our results suggest that greater comparability improves the quality of accruals, but they also suggest that as comparability increases, investors place less weight on discretionary accruals, on average. This is contrary to expectations from existing theoretical and empirical studies (see e.g., Holthausen and Verrecchia 1988; Teoh and Wong 1993), which suggest that when earnings are of higher quality, investors should respond more strongly to earnings. To further understand our findings, we use a Mishkin (1983) test following prior research on accruals (e.g., Sloan, 1996). The Mishkin test simultaneously estimates the implications of earnings components for future earnings and investors' valuation of the earnings components. We modify the analysis to incorporate the effect of comparability. That is, we examine how investors price discretionary accruals, given the quality of accruals, when varying levels of comparability. Thus, this analysis implicitly controls for the impact of comparability on financial reporting quality. The results indicate that when comparability is low, relative to when it is high, investors place greater weight on firms' discretionary accruals even though they are less likely to persist. Thus, even though the persistence of discretionary accruals increases in comparability, investors place less weight on these accruals as comparability increases because the extent to which investors overestimate their persistence is greater than the incremental increase in persistence associated with comparability. Our results are consistent with investor comprehension largely driving the increase in pricing efficiency. Perotti & Wagenhofer (2014) note that higher earnings quality may reduce errors in pricing, but would not reduce systematic underpricing or overpricing.

This study makes several contributions to the literature. First, we add to the relatively new literature examining the consequences of comparability by examining how it influences managers' estimation of accruals and investors' pricing of accruals. Prior studies largely concentrate on how comparability impacts financial statement users' decisions (Chen, Collins, Kravet, & Mergenthaler, 2014; De Franco et al., 2011; Kim et al., 2013). We provide new evidence that greater comparability can also improve the quality of information disseminated

[2] We provide evidence concerning this matter in section 4.
[3] We discuss this issue in greater detail in section 2.

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by managers. We also provide new evidence that greater comparability improves the extent to which investors efficiently price accruals. In these regards, the implications of comparability for the information environment are more direct than the provision of greater public information. This helps to provide a more complete picture of how comparability impacts a firm's information environment.

Second, this study contributes to the accruals pricing literature. Prior research finds that investors misprice accruals (Sloan, 1996; Xie, 2001), however, little research examines cross-sectional variation in the extent to which investors understand and price accruals. Moreover, the literature disagrees as to whether investor misinterpretation causes accruals mispricing. Ali, Hwang, and Trombley (2000) find that mispricing of accruals is greater when investors are more sophisticated, which they suggest is inconsistent with investors failing to fully appreciate the persistence of accruals. In contrast, we find that greater levels of comparability are associated with an improved pricing efficiency of discretionary accruals, consistent with misinterpretation contributing to the mispricing. To the best of our knowledge, we are the first study to show that greater comparability improves the pricing efficiency of accruals.

This study also contributes to the literature examining the determinants of financial reporting quality. While this literature has largely focused on the effect of firm-specific characteristics (see e.g., Dechow, Ge, & Schrand, 2010), we investigate the effect of a non-firm-specific, environmental characteristic. We provide evidence suggesting that financial statement comparability improves managers' knowledge of the firm and its environment, which allows managers to more accurately estimate discretionary accruals and signal future firm performance. This provides a greater understanding of how a firm's environment influences the quality of earnings it reports.

In the next section, we discuss the related literature and develop the hypotheses. The research design is discussed in Section 3, and the sample and results are presented in Section 4. Section 5 concludes.

2. Related prior research and hypothesis development

2.1. Comparability and financial reporting quality

The financial statements are a function of the underlying economic events captured and the accounting for those events. Assuming a given set of economic events, comparability can be defined as the extent of similarity between firms' accounting systems (De Franco et al., 2011). In other words, comparability is the extent to which similar transactions are accounted for similarly, and dissimilar transactions are accounted for dissimilarly. As noted by the Financial Accounting Standards Board (FASB) (1980), comparability is the primary reason for developing accounting standards. Accounting standards harmonize the choice and application of accounting methods for economically similar companies and limit diversity in working industry-rules to foster comparability. As the development and adoption of GAAP are largely exogenous to any particular firm, firms' accounting systems and the extent to which they are comparable, outcomes of the adoption of GAAP, are largely determined by firms' economic similarities such as business models, production functions, and operations.

For example, two firms in the same industry are expected to be more comparable (De Franco et al., 2011) due to economic similarities, which as a result of GAAP and industry-working rules, lead to similar accounting. Consistent with this notion, Srivastava (2014) finds that temporal changes in accounting quality measures, such as value relevance, matching, and earnings volatility, are largely driven by economic fundamentals as opposed to changes in accounting, pointing to the substantial influence of innate factors on earnings properties. While a firm's innate factors gradually evolve, they are slow to change (Francis, Lafond, Olsson, & Schipper, 2005). Thus, comparability between firms is largely fixed, particularly in short-term periods. That is, comparability is largely an external, environmental condition. In support of this notion, Schipper (1989) notes that many research studies assume that the manager's reporting set is largely fixed in the short-term.[4] This assumption is also implicit in De Franco et al.'s (2011) measure of comparability as quarterly data from several previous years are used in measuring comparability in the current year.[5] While we argue that comparability is largely exogenous to managerial discretion, we perform several supplemental analyses to address potential endogeneity.

Several recent studies examine the consequences of comparability for financial statement users. These studies focus on the benefits of comparability, including increased analyst following (De Franco et al., 2011), reduced credit risk (Kim et al., 2013), greater levels of foreign M&A activity (Francis, Huang, & Khurana, 2015), more efficient acquisitions (Chen et al., 2014), and greater stock price informativeness (Choi, Choi, Myers, & Ziebart, 2014). Overall, these studies indicate that greater comparability is associated with a richer information environment. However, very few studies examine the implications of comparability for managers, a critical party in the information generation and dissemination process.

Barth et al. (2012) find that the adoption of IFRS by non-US firms over 20 countries increases their comparability with US firms applying US GAAP. They also find that differences in earnings smoothing, accruals quality, and earnings timeliness between IFRS-adopting and US firms decreases, on average. Thus, while not the objective of their study, Barth et al. provide some indirect evidence regarding the association between comparability and financial reporting quality. However, their study does not directly test the association between the accounting quality metrics and comparability. This is important as IFRS adoption and cross-country studies have a multitude of confounding effects, which are difficult to control for (Gordon et al. 2013). For example, IFRS adoptions may reflect contemporaneous changes that accompany adoption, such as improvements in regulation and enforcement, which may lead to increased comparability. Changes and differences in institutional factors may also confound the inferences drawn in cross-country studies. Thus, it is unclear to what extent the accounting quality metrics examined by Barth et al. are associated with comparability. As a result, Barth et al. note that the accounting quality metrics they examined are only *potentially* associated with comparability. Moreover, their study examines *differences* in accounting quality metrics and their relation to comparability. In contrast to their study, we directly examine the impact of comparability on a single firm's financial reporting quality metrics that reflect managers' ability to produce accurate accounting estimates.[6]

Also related to our study, Gong, Li, and Zhou (2013) find that lower levels of comparability, as measured by earnings non-synchronicity, increases managers' propensity to issue earnings forecasts to reduce the expected costs associated with information asymmetry. Their evidence suggests that managers are aware of their firm's level of comparability and it influences their disclosure decisions. We conjecture that comparability impacts the quality of accounting information released by managers in the financial statements.

Accounting standards do not completely eliminate subjectivity, and hence diversity, in the choice and application of accounting methods. Prior empirical research suggests that managers use their reporting discretion to communicate or signal their private information through discretionary accruals (e.g., Arya, Glover, & Sunder, 2003; Beaver & Engel, 1996; Louis & Robinson, 2005; Subramanyam, 1996; Watts & Zimmerman, 1986). For example, Bowen, Rajgopal, and Venkatachalam (2008) find that discretionary accruals associated

[4] This assumption permits a focus on financial reporting quality as a response to environmental conditions.

[5] De Franco et al. (2011) model the accounting system using the past 16 quarters of data and use data from these 16 quarters in calculating a firm-year measure of comparability. This measure is described in more detail in Section 3.

[6] Our study also contributes to the literature by examining the impact of comparability on: (1) investor comprehension of discretionary accruals, and (2) managerial forecast characteristics.

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with poor governance are positively related to future firm performance, which they interpret as evidence that discretionary accruals reflect managers' future performance expectations.

Prior studies also suggest that one firm's financial reporting information influences the financial reporting and decisions of related firms (Beatty, Liao, & Yu, 2013; Desir, 2012). Managers may use the financial reports of peer firms to acquire information about other firms' strategic choices, mitigate uncertainty about demand and cost conditions, and for benchmarking purposes (Durnev & Mangen, 2009; Maiga & Jacobs, 2006; Mitchell & Mulherin, 1996). That is, managers may learn new information from their peers' financial statements, update their priors, and modify their actions accordingly.

Prior research suggests that comparability reduces the cost of acquiring and processing information, thereby increasing the quantity and quality of information (Chen et al., 2014; De Franco et al., 2011; Francis et al., 2015; Kim et al., 2013). This suggests that comparability will expand the information set available to managers, make it easier to synthesize information, and reduce uncertainty in judgments. In turn, managers should be more knowledgeable about the firm, its industry and peers, and its overall environment. This should put the manager in a better position to evaluate the firm's relative performance, and understand and predict economic events, as well as their impact on the firm.[7] We expect managers with greater understanding and knowledge of their firm environment to be able to report higher quality accruals (Aier, Comprix, Gunlock, & Lee, 2005; Demerjian et al., 2013). Specifically, we expect comparability to enable managers to produce more reliable forward-looking estimates and better signal future firm performance with discretionary accruals. In sum, we expect the discretionary accruals reported by managers with superior information to be of higher quality. Our first hypothesis, stated in alternate form, is as follows:

H1. *Accounting comparability is positively associated with financial reporting quality.*

2.2. Comparability and pricing of accruals

Sloan (1996) finds that investors overestimate the persistence of accruals and systematically overprice accruals in the current period. Xie (2001) further distinguish between non-discretionary and discretionary accruals, and find that investors materially misprice the discretionary accrual component, but not the non-discretionary component. This may result from users failing to correctly distinguish the type of accrual and/or failing to correctly account for the difference in persistence between earnings components. In other words, investors may have trouble accurately assessing earnings quality and/or making the appropriate adjustments. We expect greater levels of comparability to improve investor comprehension of accruals and thereby reduce the systematic overpricing of discretionary accruals. In the following paragraphs, we explain the channels through which comparability influences investors' pricing of accruals.

First, when comparability is greater, investors are provided with a greater quantity and quality of information. For example, management and analyst forecasts may provide investors with higher quality information to better price accruals. De Franco et al. (2011) find that greater levels of comparability are associated with greater analyst coverage, more accurate analyst forecasts, and lower analyst forecast dispersion. As we argue above, comparability should also help managers to develop more accurate expectations of future firm performance.[8] Thus, to the extent that managers release earnings forecasts, greater levels of comparability may improve the accuracy and precision of this information. This expanded, higher quality information set should allow investors to better understand the firm's performance.

Second, we expect comparability to improve the ability of investors to process accounting information. More comparable information provides better benchmarks, which enables users to make sharper inferences about the similarities and differences between firms. This allows users to better understand and predict economic events, and how a firm's transactions translate into accounting performance. Several studies have shown that accounting comparability provides benefits to market participants. As mentioned above, De Franco et al. (2011) suggest that comparability helps analysts to interpret accounting information, which improves analyst coverage and forecast accuracy, and decreases dispersion. Kim et al. (2013) find that comparability is positively associated with bond liquidity, which supports the view that comparability helps market participants to process information and reduces information asymmetry in the capital market. In sum, comparability will be beneficial to not only managers, but also financial statement users such as stock investors.

Overall, we expect comparability to improve the information environment, which should allow users to better evaluate firms' historical and current financial performance, and enhance the ability of financial statement users to understand the implications of firms' accounting earnings. As prior research documents that investor mispricing is largely due to the discretionary accrual component of earnings (Xie, 2001), we focus on this component. Our second hypothesis, stated in alternate form, is as follows:

H2. *Accounting comparability is positively associated with the pricing efficiency of discretionary accruals.*

Our second hypothesis is somewhat counterintuitive. Our first hypothesis suggests that comparability should be associated with higher financial reporting quality. Prior literature suggests that when there is less noise in earnings, investors should respond more strongly to earnings (see e.g., Holthausen and Verrecchia 1988; Choi and Salamon 1989; Teoh and Wong 1993). In contrast, we suggest that investors should respond less strongly to discretionary accruals and overprice them to a lesser degree. Our prediction is consistent with the argument of Perotti and Wagenhofer (2014) who note that higher earnings quality may reduce errors in pricing, but would not reduce systematic underpricing or overpricing, as in the case of the accruals anomaly documented by Sloan (1996). That is, we predict that comparability will improve investor comprehension of accruals, which will mitigate the overpricing of accruals and drive the increase in pricing efficiency.

3. Research design

3.1. Empirical measures

3.1.1. Accounting comparability

Consistent with prior studies (e.g., Sohn, 2016), we use the De Franco et al. (2011) method to measure accounting comparability. We estimate the following model for each firm-year observation using the previous 16 quarters of data:

$$\text{Earnings}_{it} = \alpha_i + \beta_i \text{Return}_{it} + e_{it} \quad (1)$$

where $Earnings_{it}$ is quarterly net income before extraordinary items scaled by beginning market value of equity and $Return_{it}$ is the stock returns during the quarter. The estimated parameters $\widehat{\alpha_i}$ and $\widehat{\beta_i}$ proxy for the accounting system of firm i. Likewise, the same process is repeated for firms j. Using the estimated parameters, we predict earnings

[7] For example, managers may consider economic and industry trends when estimating the allowance for doubtful accounts.

[8] We test this assertion regarding managerial forecasts in a later section. Gong et al. (2013) find that greater levels of comparability reduce the likelihood that managers release a forecast. Assuming managers release forecasts to reduce information asymmetry (Gong et al., 2013), their findings should bias against our prediction.

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for firm i and firm j, assuming firm i's returns:

$$E(\text{earnings})iit = \widehat{\alpha_i} + \widehat{\beta_i}\text{Return}_{it} \quad (2)$$

$$E(\text{earnings})ijt = \widehat{\alpha_j} + \widehat{\beta_j}\text{Return}_{it} \quad (3)$$

Accounting comparability is defined as the negative value of the absolute difference between predicted earnings for firm i and firm j:

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

Comparability is calculated for each firm i-firm j pair within the same two-digit SIC industry classification.[9] Greater values of *ACCT COMP* indicate greater accounting comparability between firm-pairs. To create a firm-year measure of comparability, *M4_ACCTCOMP*, we calculate the average $ACCTCOMP_{ijt}$ of the four firms j with the highest comparability to firm i during period t.[10] As noted by De Franco et al. (2011), the distribution of *M4_ACCTCOMP* is left-skewed with large negative outliers. To address skewness in the measure, we use a decile-rank transformation of the firm-year measure of comparability, *ACCT COMPD*, in the empirical analyses. We further scale ACCTCOMPD to be between [0, 1] for ease of interpretation.

3.1.2. Financial reporting quality

We employ four measures of financial reporting quality. We expect that greater levels of comparability will improve the ability of managers to understand their industry and environment, as well as their ability to synthesize information. In turn, this increased understanding will allow managers to better estimate the impact of potential future events on the firm and future performance. We expect this to translate into more reliable financial reporting information, including higher quality accounting estimates. We choose measures of reporting quality that will reflect this notion.

Our first measure of financial reporting quality is financial restatements. Restatements are not dependent upon an estimation procedure and unambiguously reflect accounting measurement problems (Dechow et al., 2010). This helps to lower type I error rates and alleviates the limitations of other earnings quality measures, such as accruals models.[11] Although restatements can occur for numerous reasons, prior research shows that most restatements occur because of managerial estimates and impact accrual accounts (Palmrose & Scholz, 2004; Plumlee & Yohn, 2010). For example, in determining whether to write-down an asset, managers must use their judgment in determining the future benefits from the asset. If subsequent performance differs from managements' expectations, firms may have to restate their earnings.

Hennes, Leone, and Miller (2008) note that distinguishing between intentional and non-intentional restatements can be an important consideration. They classify restatements as intentional if the restatement is associated with fraud or if there is a SEC investigation, and suggest that the remaining restatements are unlikely to be associated with aggressive accounting and classify them as unintentional errors. Following their methodology, we classify restatements as intentional or unintentional. Specifically, Audit Analytics includes an indicator variable set equal to one for the existence of an SEC investigation, and for a fraud-related restatement. Restatements with a value of one for either of these variables are classified as intentional restatements, and those with a value of zero are classified as unintentional. To further supplement our main analyses, we also examine how comparability influences restatements that occur because of significant errors in management's accounting estimates. To classify restatements that occur because of management's accounting estimates, we identify restatements that specifically cite "Liabilities, payables, reserves and accrual estimate failures" as a reason for the restatement.[12]

Although restatements unambiguously reflect accounting measurement problems, they only capture errors and mistakes that are identified and that require restating. Consequently, unidentified or less severe accounting errors will not be captured by restatements. Thus, our second measure of financial reporting quality is the absolute value of the estimated residuals from a modified Dechow-Dichev model following McNichols (2002). Dechow and Dichev (2002) suggest that high-quality accruals should ultimately be realized as cash flows because accruals anticipate future cash collections and payments. We posit that comparability will improve managers' knowledge of their environment, which should improve their ability to estimate accruals that reflect their economic conditions. Following McNichols (2002), we estimate the following model cross-sectionally for each industry-year (defined as Fama-French 48 industry classifications):

$$\text{ACC}_{it} = \beta_0 + \beta_1\text{CFO}_{it-1} + \beta_2\text{CFO}_{it} + \beta_3\text{CFO}_{it+1} + \beta_4\Delta\text{REV}_{it} + \beta_5\text{PPE}_{it} + \varepsilon_{it} \quad (5)$$

All variables are scaled by average total assets. ACC is defined as earnings before extraordinary items and discontinued operations (Compustat #123) less operating cash flows, CFO, as taken directly from the statement of cash flows (#308-#124) following Hribar and Collins (2002).[13] ΔREV is the change in sales from the preceding year, and PPE is the gross value of property, plant, and equipment. Normal Accruals, NA, are the fitted values, and discretionary accruals, DA, are the estimated residuals from Eq. (5).[14] The residuals from the regression indicate the extent to which current accruals map into past, present, and future cash flows, with smaller absolute values indicating better mapping.

It is well known that a limitation of accruals models is the ability of the models to partition accruals into their discretionary and normal components (see e.g., Jones, Krishnan, & Melendrez, 2008; McNichols, 2000). In addition, the maintained assumption underlying most studies' usage of discretionary accruals models is that the discretionary component represents manipulation or error. However, prior research suggests that discretionary accruals, on average, help to provide a more informative earnings number (Arya et al., 2003; Louis & Robinson, 2005; Subramanyam, 1996). As accruals models do not address the quality of discretionary accruals, we utilize earnings persistence as another measure of financial reporting quality.

We argue in this study that comparability helps managers to better understand their environment, which should improve the accuracy of their expectations and accounting estimates. In turn, to the extent that managers use discretionary accruals to signal future firm performance and the economic value of the firm (Arya et al., 2003; Louis & Robinson, 2005; Subramanyam, 1996), we expect greater levels of comparability to be associated with more persistent discretionary accruals. We discuss our model of earnings persistence in the following section.

[9] We graciously thank Rodrigo Verdi for making the SAS code publicly available.

[10] The results are qualitatively similar using the average of the top ten firms j with the highest comparability to firm i during period t.

[11] We do not include Accounting and Auditing Enforcement Releases as an external indicator of financial reporting quality as doing so would significantly reduce our sample size. Additionally, we do not include internal control weaknesses as an external financial reporting quality measure as it fails to capture the notion of earnings quality implied in this study.

[12] Audit Analytics identifies one or more reason for a restatement utilizing one of forty reasons. We use this data to identify different restatement types. If one of the reasons includes "Liabilities, payables, reserves and accrual estimate failures", we classify the restatement as occurring because of management's accounting estimates.

[13] The Dechow and Dichev (2002) model typically incorporates working capital accruals as the dependent variable. We choose not to use this definition because it allows us to maintain greater consistency with prior accruals pricing studies, the resulting measure of accruals is less comprehensive, and data availability is more limited.

[14] While the Jones model is the most commonly used model to estimate discretionary accruals, several papers (e.g., McNichols, 2000) argue that the Jones model is subject to power and misspecification issues. Moreover, the Jones model does not capture the extent to which accruals map into cash flows.

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A potential drawback of using earnings persistence, however, is that persistence may be attained over short-term periods through earnings management. However, as mentioned above, since we examine a broad cross-section of firms, earnings management is unlikely to be widespread in our sample (Ball, 2013; Dechow & Skinner, 2000; Subramanyam, 1996).

We also use audit fees as an additional measure to further corroborate our results. Audit fees provide an indirect measure of financial reporting quality. In his seminal work, Simunic (1980) shows that audit fees reflect the cost of resources provided during an audit, which reflects the level of audit risk in an engagement. An extensive number of studies have also shown a significant positive relationship between audit risk and audit fees (see e.g., Bell, Landsman, & Shackelford, 2001; Hay, Knechel, & Wong, 2006; Simunic & Stein, 1996). If comparability improves the quality of managerial accounting estimates, the risk of an account being misstated should be lower, all else equal. This should lower the auditor's assessment of inherent audit risk, and thereby lead to lower audit fees.

3.2. Research design

To examine the impact of comparability on the mapping of accruals into cash flows and on financial restatements, we estimate the following equation:

$$\begin{aligned} FRQ_{it} = {} & \gamma_0 + \gamma_1 ACCTCOMPD_{it-1} + \gamma_2 OPCYCLE_{it-1} + \gamma_3 NANALYST_{it} \\ & + \gamma_4 INSTIT_{it-1} + \gamma_5 BIGN_{it} + \gamma_6 SIZE_{it} + \gamma_7 MTB_{it} + \gamma_8 ROA_{it} \\ & + \gamma_9 LEV_{it} + \gamma_{10} \Delta REV_{it} + \gamma_{11} SALEVOL_{it} + \varepsilon_{it} \end{aligned} \quad (6)$$

where FRQ is P(RESTATE = 1) or |DA|. We estimate a logistic regression when FRQ = P(RESTATE = 1) and an ordinary least squares (OLS) regression when FRQ = |DA|. ACCTCOMPD is the decile rank of comparability.[15] We measure comparability at the end of the prior fiscal year to mitigate simultaneous determination issues. Following prior research, we also include several control variables including operating cycle (OPCYCLE), analyst coverage (NANALYST), institutional ownership (INSTIT), big N auditors (BIGN), the log of total assets (SIZE), market-to-book (MTB), returns on assets (ROA), leverage (LEV), change in net sales (ΔREV), and sales volatility (SALEVOL). Variable definitions can be found in Appendix A. Industry and year fixed effects are included, but omitted for brevity. Unless otherwise noted, in this and all subsequent estimations, we cluster robust standard errors by both firm and year. A negative coefficient on γ_1 would be consistent with H1, which suggests that greater comparability helps managers to estimate accruals more accurately, and hence is associated with higher financial reporting quality.

To examine our hypothesis using earnings persistence as a measure of financial reporting quality, we use the following model:

$$\begin{aligned} ROA_{it+1} = {} & \gamma_0 + \gamma_1 DA_{it} + \gamma_2 NA_{it} + \gamma_3 CFO_{it} + \gamma_4 ACCTCOMPD_{it-1} \\ & + \gamma_5 DA_{it}{}^{*} ACCTCOMPD_{it-1} + \gamma_6 OPCYCLE_{it-1} \\ & + \gamma_7 NANALYST_{it} + \gamma_8 INSTIT_{it-1} + \gamma_9 BIGN_{it} + \gamma_{10} SIZE_{it} \\ & + \gamma_{11} MTB_{it} + \gamma_{12} LEV_{it} + \gamma_{13} \Delta REV_{it} + \gamma_{14} SALEVOL_{it} + \varepsilon_{it} \end{aligned} \quad (7)$$

All variables are as previously defined. Industry and year fixed effects are included, but omitted for brevity. Our coefficient of interest in Eq. (7) is γ_5, which captures how comparability influences management's estimation of discretionary accruals. A positive and significant coefficient would provide support for H1 and would be consistent with greater levels of comparability improving the ability of managers to report more accurate discretionary accrual estimates, and hence more persistent discretionary accruals.

To examine our hypothesis using audit fees as a measure of financial reporting quality, we estimate the following model:

$$\begin{aligned} LAUDIT_{it} = {} & \gamma_0 + \gamma_1 ACCTCOMPD_{it-1} + \gamma_2 OPCYCLE_{it-1} \\ & + \gamma_3 NANALYST_{it} + \gamma_4 INSTIT_{it-1} + \gamma_5 BIGN_{it} + \gamma_6 SIZE_{it} \\ & + \gamma_7 MTB_{it} + \gamma_8 ROA_{it} + \gamma_9 LEV_{it} + \gamma_{10} \Delta REV_{it} \\ & + \gamma_{11} SALEVOL_{it} + \gamma_{12} GC_{it} + \gamma_{13} MW_{it} + \gamma_{14} RESTATE_{it} \\ & + \gamma_{15} SPEC_{it} + \gamma_{16} FYE_{it} + \varepsilon_{it} \end{aligned} \quad (8)$$

where LAUDIT is the natural log of audit fees. GC is an indicator variable set equal to one if a firm received a qualified going concern opinion, and zero otherwise. MW is an indicator variable set equal to one if a firm has a material weakness in its internal controls, and zero otherwise. RESTATE is an indicator variable set equal to one if a firm restated its financial statements, and zero otherwise. SPEC is an indicator variable set equal to one if the auditor is an industry leader, and zero otherwise. FYE is an indicator variable set equal to one if the firm's fiscal-year end is December 31, and zero otherwise. All other variables are as previously defined. A negative and significant coefficient on γ_1 would suggest that greater levels of comparability are associated with lower audit fees, consistent with comparability improving the quality of earnings information released by managers.

To examine H2, or the impact of comparability on the pricing efficiency of discretionary accruals, we estimate the following model using OLS:

$$\begin{aligned} SIZEAJR_{it+j} = {} & \gamma_0 + \gamma_1 DA_{it} + \gamma_2 NA_{it} + \gamma_3 CFO_{it} + \gamma_4 ACCTCOMPD_{it-1} \\ & + \gamma_5 DA_{it}{}^{*} ACCTCOMPD_{it-1} + \gamma_6 SIZE_{it} + \gamma_7 MTB_{it} \\ & + \gamma_8 MGR^{*} DA_{it} + \gamma_9 MGR_{it} + \varepsilon_{it} \end{aligned} \quad (9)$$

where SIZEAJR are size-adjusted abnormal returns calculated as the difference between a firm's annual compounded returns ending three months after fiscal year-end and the annual compounded returns for the same period on the market capitalization portfolio decile to which the firm belongs. Subscripts i and t represent firm and year, respectively, and j = 0 or 1. MGR is the accuracy of managerial forecasts. We interact MGR with DA to control for the quality of managers' estimates. That is, we argue that comparability may help managers to produce higher quality accounting estimates. If managers are able to provide higher quality information, this may impact the efficiency with which investors price discretionary accruals. However, as we previously note, poor earnings quality may increase errors in pricing, but would not lead to systematic underpricing or overpricing (Perotti & Wagenhofer, 2014), as in the case of the accruals anomaly documented by Sloan (1996). Other variables are as previously defined. Industry and year fixed effects are included, but omitted for brevity.

Prior accruals research (e.g., Xie, 2001) finds that investors overestimate the persistence of discretionary accruals (DA) and consequently overprice these accruals in the current period, which then leads to a subsequent reversal in stock prices in future periods.[16] If greater levels of comparability help investors to better understand the implications of firms' accruals, then the association between DA and contemporaneous returns should be less positive, and the association between DA and future returns should be less negative. Thus, when j = 0, we expect the coefficient on γ_5 to be negative and significant, and when j = 1, the coefficient on γ_5 should be positive and significant, consistent with less accruals mispricing.

4. Sample and results

4.1. Sample description

We collect our sample from Compustat and CRSP for the period 1988–2017, during which statement of cash flow data is available for calculating accruals (Hribar & Collins, 2002). We collect analyst data

[15] As discussed previously, we use a decile-rank transformation of M4_ACCTCOMP to avoid issues with the skewed distribution of M4_ACCTCOMP. Results using M10_ACCTCOMP are qualitatively similar.

[16] Xie (2001) find that investors do not materially misprice non-discretionary accruals.

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Table 1
Sample selection.

Observations from Compustat for the period 1984–2017	184,066
Less: Firms with missing historical SIC and permno	(15,416)
Less: Holding firms, ADRs, and limited partnerships	
Required Compustat quarterly and CRSP data for comparability measure	
Firms in industry-years with less than 11 firms	(83,589)
Observations with measure of comparability (1988–2017)	85,061
Less: Missing required Compustat variables and discretionary accruals	(47,748)
Missing I/B/E/S variables	(7998)
Missing required returns data	(1050)
Base Sample Size	28,265
Base Sample Size	28,265
Less: Required Audit Analytics data	(12,332)
Audit Fee Sample	15,933
Base Sample Size	28,265
Less: Managerial Forecast Data	(18,263)
Returns Sample	10,002
Base Sample Size	28,265
Less: Observations from 1988 to 1994 (restatement sample starts in 1995)	(5107)
Restatement Sample	23,158

from the Institutional Brokers' Estimate System (I/B/E/S), institutional ownership data from Thomson Reuters, and restatement and audit data from Audit Analytics. Following prior research, we eliminate financial institutions and regulated industries from the sample (SIC 6000–6999, 4400–5000), and require at least 15 firm-year observations in each of the Fama-French 48 industry classifications. Following De Franco et al. (2011), we remove firms without fiscal year ends in March, June, September, and December and delete holding firms, American Depository Receipts, and limited partnerships. We require that each firm-year have the data necessary to calculate measures of comparability and our measures of financial reporting quality. All continuous variables are winsorized at the 1% and 99% levels. Our sample selection process is described in Table 1.[17]

Table 2 reports descriptive statistics for the sample. The mean value of M4_ACCTCOMP is −0.48, which is consistent with that reported in De Franco et al. (2011). The mean value of RESTATE is 0.10, which is similar to the mean reported in other studies (e.g., Demerjian et al., 2013). The mean value for DA is close to zero as expected. The mean size-adjusted return for our sample is roughly 3%. In general, the descriptives are consistent with the summary statistics reported in prior studies (Allen, Larson, & Sloan, 2013; Sloan, 1996; Subramanyam, 1996; Xie, 2001).

Table 3 presents Pearson correlations for the variables used in Eqs. (6)–(9). All the coefficients significant at less than the 10% level are in bold. We find that comparability is significantly and negatively associated with both the likelihood of a restatement and the absolute value of discretionary accruals. We also find that $ACCTCOMPD_{t-1}{}^{*}DA$ is significantly and positively associated with return on assets in year t + 1. Contrary to expectations, we find that comparability is positively and significantly associated with the natural log of audit fees. Overall, however, we find univariate support that comparability is associated with higher financial reporting quality, consistent with greater comparability enhancing the ability of managers to report higher quality earnings. We also find that $ACCTCOMPD_{t-1}{}^{*}DA$ is significantly and positively associated with $SIZEAJR_t$, and negatively associated with $SIZEAJR_{t+1}$. That is, investors appear to react more strongly to discretionary accruals in the current period when firms are more comparable, which leads to a greater reversal in stock returns in the future year. Thus, if investors generally overestimate the persistence of discretionary accruals (Xie, 2001), the results are contrary to expectations that comparability will be associated with increased pricing efficiency of accruals. The correlations among other variables are consistent with those reported in prior literature.

[17] To estimate the comparability measure, we use data from the past 16 quarters. Thus, we collect data starting in 1984 to estimate a firm-year comparability measure starting in 1988.

Table 2
Descriptive statistics.

VARIABLE	N	MEAN	STD DEV	25%	50%	75%
M4_ACCTCOMP	28,265	−0.48	0.90	−0.47	−0.21	−0.11
RESTATE	23,158	0.10	0.30	0.00	0.00	0.00
ACC	28,265	−0.06	0.10	−0.09	−0.05	−0.02
DA	28,265	0.01	0.09	−0.02	0.01	0.05
|DA|	28,265	0.06	0.07	0.02	0.04	0.07
NA	28,265	−0.07	0.06	−0.10	−0.07	−0.04
ROA	28,265	0.02	0.13	0.00	0.05	0.09
SIZEAJR	28,265	0.03	0.52	−0.27	−0.04	0.22
CFO	28,265	0.08	0.13	0.04	0.10	0.15
SIZE	28,265	6.32	1.91	4.91	6.17	7.60
MTB	28,265	3.13	3.17	1.40	2.20	3.57
LEV	28,265	0.20	0.18	0.02	0.18	0.31
OPCYCLE	28,265	4.76	0.61	4.40	4.81	5.17
NANALYST	28,265	1.87	0.83	1.10	1.79	2.56
BIGN	28,265	0.88	0.32	1.00	1.00	1.00
ΔREV	28,265	0.01	0.21	−0.09	−0.01	0.08
INSTIT	28,265	0.53	0.27	0.32	0.56	0.76
SALEVOL	28,265	0.14	0.13	0.06	0.10	0.18
LAUDIT	15,933	13.84	1.27	12.96	13.80	14.67
GC	15,933	0.01	0.08	0.00	0.00	0.00
MW	15,933	0.05	0.22	0.00	0.00	0.00
SPEC	15,933	0.59	0.49	0.00	1.00	1.00
FYE	15,933	0.75	0.43	0.00	1.00	1.00

Table 2 presents descriptive statistics for the primary variables used in the analyses. M4_ACCTCOMP is a firm-year measure of comparability, and is calculated as described in section 3. RESTATE is an indicator variable set equal to one if a firm restates their financial statements, and zero otherwise. DA is the estimated residual from the following model, estimated on a cross-sectional basis for each industry-year with at least 15 observations: $ACC_{it} = \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \beta_4 \Delta REV_{it} + \beta_5 PPE_{it} + \varepsilon_{it}$. ACC is earnings before extraordinary items and discontinued operations less cash flows from operations (CFO) as taken from the statement of cash flows. LAUDIT is the natural log of audit fees. SIZEAJR are size-adjusted annual buy and hold returns ending 3 months after fiscal year-end. All continuous variables are winsorized at the 1st and 99th percentiles. Please see Appendix A for other variable definitions.

4.2. Main regression results

4.2.1. Comparability and financial reporting quality

Table 4 reports the results from regressing measures of financial reporting quality on accounting comparability, using the models in Eqs. (6)–(8). In the first column, we find that comparability is significantly negatively associated with the likelihood of a restatement. As most restatements occur because of managerial estimates and impact accrual accounts (Palmrose & Scholz, 2004; Plumlee & Yohn, 2010), this result is consistent with comparability helping managers to more accurately estimate accruals. In the second column, we find that comparability is significantly and negatively associated with the absolute value of discretionary accruals. As smaller absolute values indicate a greater mapping of accruals into cash flows, this result provides support for the notion that comparability improves the information environment and further corroborates the results in the first column.

In the third column, we find that $ACCTCOMPD_{t-1}{}^{*}DA$ is positively and significantly associated with future firm performance (i.e. ROA_{t+1}). This result suggests that comparability is associated with more persistent discretionary accruals, consistent with comparability helping managers to better signal future firm performance. This result is also consistent with the argument that comparability improves financial reporting quality by reducing accruals earnings management (Sohn, 2016).[18] However, because we examine a broad cross-section of firms, we do

[18] If comparability is associated with reduced information asymmetry, it may reduce accruals earnings management (see e.g., Dye, 1988; Richardson, 2000). Alternatively, comparability may be associated with greater amounts of opportunistic accounting as a certain level of comparable accounting may provide a guise for earnings management. We do not aim to test the relative effect of reductions of earnings management versus improvements in accruals signaling on financial reporting quality. It is beyond the scope of this paper.

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Table 3
Pearson correlations.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
$ACCTCOMPD_{t-1}$ (1)																	
RESTATE (2)	**−0.05**																
|DA| (3)	**−0.13**	**0.02**															
LAUDIT (4)	**0.19**	−0.01	**−0.17**														
ROA_{t+1} (5)	**0.23**	**−0.01**	**−0.26**	**0.21**													
SIZE (6)	**0.24**	**0.00**	**−0.21**	**0.84**	**0.30**												
MTB (7)	**0.09**	−0.03	**0.05**	**0.06**	−0.01	**0.01**											
LEV (8)	**−0.09**	**0.03**	**−0.08**	**0.25**	**0.03**	**0.36**	**0.15**										
OPCYCLE (9)	**0.12**	0.00	**0.02**	**0.03**	**−0.03**	**−0.06**	**−0.05**	**−0.09**									
NANALYST (10)	**0.28**	**0.00**	**−0.13**	**0.59**	**0.21**	**0.73**	**0.18**	**0.16**	**−0.09**								
BIGN (11)	**0.11**	**0.06**	**−0.06**	**0.32**	**0.09**	**0.38**	**0.05**	**0.14**	**−0.06**	**0.32**							
ΔREV (12)	**−0.11**	0.01	**0.09**	**−0.06**	**−0.07**	**−0.10**	**0.09**	**−0.06**	**−0.09**	**−0.05**	0.00						
INSTIT (13)	**0.27**	**0.00**	**−0.16**	**0.47**	**0.24**	**0.48**	**0.00**	**0.10**	**0.00**	**0.49**	**0.27**	**−0.07**					
SALEVOL (14)	**−0.22**	0.01	**0.14**	**−0.21**	**−0.09**	**−0.23**	−0.01	**−0.09**	**−0.09**	**−0.17**	**−0.08**	**−0.03**	**−0.18**				
SIZEAJR (15)	**−0.05**	**−0.01**	**−0.06**	−0.01	**0.23**	0.01	**0.14**	**0.02**	**−0.03**	−0.01	0.01	**0.09**	**−0.03**	**0.02**			
$SIZEAJR_{t+1}$ (16)	0.01	−0.02	**0.00**	0.02	**0.20**	**0.02**	**−0.04**	0.04	0.00	−0.01	0.01	−0.01	**0.02**	0.00	**−0.04**		
$ACCTCOMP_{t-1}$ x DA (17)	**0.10**	**−0.01**	**−0.21**	**0.00**	**0.09**	**0.03**	0.00	**−0.02**	**0.03**	**0.01**	**−0.01**	**0.01**	−0.01	**−0.02**	**0.06**	**−0.06**	

Bolded values indicate statistical significance at the 0.10 level or lower. Table 3 presents pairwise correlations between the primary variables used in the analyses. Pearson correlations are based on a sample of 15,933 firm-year observations. All variables are measured at time t unless otherwise noted. RESTATE is an indicator variable set equal to one if a firm restates their financial statements, and zero otherwise. ACCTCOMPD is the decile-rank transformation of M4_ACCTCOMP, scaled to be between [0, 1]. M4_ACCTCOMP is a firm-year measure of comparability, and is calculated as described in section 3. DA is the estimated residual from the following model, estimated on a cross-sectional basis for each industry-year with at least 15 observations: $ACC_{it} = \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \beta_4 \Delta REV_{it} + \beta_5 PPE_{it} + \varepsilon_{it}$. ACC is earnings before extraordinary items and discontinued operations less cash flows from operations (CFO) as taken from the statement of cash flows. LAUDIT is the natural log of audit fees. SIZEAJR are size-adjusted returns ending 3 months after fiscal year end. Please see Appendix A for other variable definitions.

not expect to find strong evidence of earnings management (Ball, 2013; Dechow & Skinner, 2000; Demerjian et al., 2013; Subramanyam, 1996).[19]

Lastly, in the final column, we find that comparability is significantly and negatively associated with the natural log of audit fees. This result is in line with our previous results. If comparability helps managers to report higher quality financial information, audit risk should be lower, which should permit lower audit fees. Thus, across all proxies of financial reporting quality, we find that comparability is associated with higher financial reporting quality. The control variables generally load in the expected direction. For example, we find that a negative association between restatements and ROA, and a positive association between restatements and leverage, as well as the length of operating cycles. We also find a positive association between absolute discretionary accruals and the length of operating cycles, the market-to-book ratio, and sales volatility.

4.2.2. Comparability and pricing of accruals

To test H2, or the impact of comparability on the pricing efficiency of discretionary accruals, we estimate Eq. (9) using OLS. The results are tabulated in Table 5.[20] Results for contemporaneous returns are presented in the first column and results for future returns are presented in the second column. Sloan (1996) finds that users overestimate the persistence of and overprice accruals in current periods, which leads to a subsequent reversal in stock prices in future periods. Extending upon his study, Xie (2001) distinguishes between non-discretionary and discretionary accruals, and finds that investors do not materially misprice non-discretionary accruals. That is, the mispricing of accruals is due to the discretionary component. Therefore, if greater comparability improves users' understanding of a firm's discretionary accruals (DA) and their implications, then the association between DA and current returns should be less positive and the association between DA and future returns should be less negative when comparability is greater, consistent with less accruals mispricing.

In line with prior research, we find a positive association between DA and contemporaneous returns and a negative association between DA and future returns, consistent with investors overpricing discretionary accruals. We find that the coefficient on MGR*DA is significantly and positively (negatively) associated with current (future) returns. As MGR inversely measures the accuracy of managers' future performance expectations, the coefficients are consistent with the notion that managerial guidance helps investors to more efficiently price discretionary accruals. More importantly, after controlling for managers' expectations, we find that $ACCTCOMPD_{t-1}$*DA is negatively and significantly associated with current returns. In the second column, we find that the interaction is positively and significantly associated with future returns. These results suggest that investors overprice discretionary accruals to a lesser degree when firms are more comparable. Overall, our results are consistent with expectations, and suggest that, all else equal, greater levels of comparability improve the ability of investors to understand the implications of a firm's discretionary accruals.

4.3. Supplementary tests

4.3.1. Endogeneity of comparability and financial reporting quality

The results in Table 4 provide support for the notion that comparability improves the information environment and managers' ability to estimate accruals more accurately. However, an alternative explanation for this result is that managerial discretion jointly determines our measures of financial reporting quality and accounting comparability. While plausible, this explanation implies that managers have a large amount of discretion over their comparability with other firms. As previously discussed, comparability is likely largely exogenous to a firm. Nevertheless, to further address this issue, we take the following steps.

First, in our main analyses, we used lagged values of accounting comparability as contemporaneous accounting choices cannot affect prior levels of comparability. Second, instead of using firm-specific measures of comparability, we use a lagged industry measure of comparability, ACCTCOMPD_IND, which is clearly beyond the direct control of managers. The results are presented in Table 6, Panel A. Across all measures of financial reporting quality, we find that comparability is associated with higher financial reporting quality. All control variables in Eqs. (6) and (7) are included, but omitted for brevity.

Third, we use a modified firm-specific measure of comparability, ACCTCOMPD_NDI. Specifically, we measure comparability using non-

[19] We provide supplementary analyses in a later section to examine this notion.
[20] Our sample size in Table 5 is reduced, relative to the base sample size in Table 4, as we require managerial forecast data to control for the quality of managerial estimates.

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Table 4
Comparability and financial reporting quality.

	Measure of Earnings Quality =			
Variable	RESTATE	|DA|	Persistence	LAUDIT
INTERCEPT	−5.780***	0.042***	−0.101***	9.370***
	(−9.65)	(6.18)	(−8.30)	(44.36)
ACCTCOMPD	−0.781***	−0.008***	0.013***	−0.251***
	(−5.49)	(−3.92)	(4.10)	(−9.21)
ACCTCOMPD*DA			0.217***	
			(4.17)	
OPCYCLE	0.191**	0.006***	0.015***	0.053***
	(2.27)	(4.56)	(7.01)	(2.52)
NANALYST	0.025	0.000	−0.008***	
	(0.35)	(0.42)	(−5.58)	
INSTIT	0.557***	−0.005**	0.011***	
	(3.03)	(−2.03)	(3.05)	
BIGN	0.382***	−0.001	0.000	0.244***
	(2.66)	(−0.41)	(0.18)	(8.94)
SIZE	0.023	−0.002***	0.005***	0.561***
	(0.68)	(−4.14)	(6.75)	(79.41)
MTB	−0.011	0.002***	0.002***	0.010***
	(−0.95)	(9.22)	(5.56)	(4.48)
ROA	−0.425**	−0.162***		−0.322***
	(−1.82)	(−17.19)		(−5.84)
LEV	0.589***	−0.020***	−0.006	0.004
	(2.58)	(−6.16)	(−1.20)	(0.08)
ΔREV	−0.068	0.012***	0.031***	0.041**
	(−0.62)	(3.87)	(6.03)	(2.02)
SALEVOL	0.057	0.038***	−0.006	0.104**
	(0.23)	(9.22)	(−0.76)	(2.00)
DA			0.210***	
			(7.02)	
NA			0.980***	
			(37.61)	
CFO			0.882***	
			(66.56)	
GC				0.156***
				(2.91)
MW				0.325***
				(13.18)
RESTATE				0.114***
				(7.71)
SPEC				0.067***
				(4.22)
FYE				0.111***
				(5.10)
Industry Fixed Effects	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y
Adj- (Pseudo-) r^2	0.065	0.211	0.556	0.870
Observations	23,158	28,265	28,265	15,933

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a one-tailed test. T-statistics are in parentheses and robust standard errors are clustered by both firm and year. All continuous variables are winsorized at the 1st and 99th percentiles. Table 4 presents results examining the association between comparability and measures of financial reporting quality. The results in the first column are based on a logistic regression and the results in the remaining columns are based on ordinary least squares regressions. ACCTCOMPD is the decile-rank transformation of M4_ACCTCOMP, scaled to be between [0, 1] and measured in year t-1. M4_ACCTCOMP is a firm-year measure of comparability and is calculated as described in section 3. RESTATE is an indicator variable set equal to one if a firm restates their financial statements, and zero otherwise. DA is the estimated residual from the following model, estimated on a cross-sectional basis for each industry-year with at least 15 observations: $ACC_{it} = \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \beta_4 \Delta REV_{it} + \beta_5 PPE_{it} + \varepsilon_{it}$. NA is the fitted value from the preceding model. ACC is earnings before extraordinary items and discontinued operations less cash flows from operations (CFO) as taken from the statement of cash flows. LAUDIT is the natural log of audit fees. Please see Appendix A for other variable definitions.

Table 5
Comparability and the pricing of accruals.

	Dependent Variable =	
Variable	$SIZEAJR_t$	$SIZEAJR_{t+1}$
INTERCEPT	−0.254***	0.231***
	(−7.53)	(2.90)
DA	0.683***	−0.682***
	(5.67)	(−5.12)
ACCTCOMPD*DA	−0.406**	0.516**
	(−1.98)	(2.14)
NA	0.382***	0.595***
	(2.84)	(4.50)
CFO	0.926***	0.285***
	(13.18)	(4.76)
ACCTCOMPD	−0.153***	−0.049***
	(−7.74)	(−2.46)
MGR*DA	0.045**	−0.076***
	(1.75)	(−2.49)
MGR	0.004	0.001
	(1.16)	(0.26)
SIZE	−0.005*	−0.001
	(−1.53)	(−0.21)
MTB	0.026***	−0.006***
	(9.93)	(−4.19)
Industry Fixed Effects	Y	Y
Year Fixed Effects	Y	Y
Adjusted r^2	0.094	0.032
Observations	10,002	10,002

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a one-tailed test. T-statistics are in parentheses and robust standard errors are clustered by both firm and year. All continuous variables are winsorized at the 1st and 99th percentiles. Table 5 presents the impact of comparability on the pricing of discretionary accruals. ACCTCOMPD is the decile-rank transformation of M4_ACCTCOMP, scaled to be between [0, 1] and measured in year t-1. M4_ACCTCOMP is a firm-year measure of comparability and is calculated as described in section 3. MGR is managerial forecast accuracy, which is defined as the absolute value of the difference between management's EPS forecast and actual EPS, scaled by management's EPS forecast. Please see Appendix A for other variable definitions.

discretionary income, which is defined as the sum of cash flows from operations and non-discretionary accruals.[21] Non-discretionary accruals are accounting adjustments made to cash flows which are made in strict adherence to GAAP and are relatively objective. In contrast, discretionary accruals choices may be subjective and require significant accounting judgment in application (Lewis, 2012). In other words, the impact of managers on accounting comparability largely occurs through the discretionary accrual component of earnings. Therefore, by removing the discretionary accrual component of earnings from the measurement of accounting comparability, we remove managers' accounting discretion from the resulting measure of comparability. To measure non-discretionary accruals, we use the fitted values from estimating a modified Dechow-Dichev accruals model as in Eq. (5). Using this modified measure of comparability, we present the results in Table 6, Panel B. Across all columns, we find that the coefficients of interest are statistically significant in the expected direction. Thus, the results are qualitatively similar to those reported in the previous tables and provide evidence that our results are robust to this alternative explanation.[22]

Finally, we also use a two-stage regression approach to address the potential endogeneity between comparability and financial reporting quality measures. In the first stage, we estimate a firm's level of comparability using an instrumental variable along with the control variables used in the second stage regressions. In the second stage, we replace *ACCTCOMPD* with the predicted value of comparability estimated from the first-stage regressions. In choosing an instrumental variable, we would like to find a variable that is directly related to comparability, but is not directly related to our measures of financial reporting quality. As previously noted, to measure comparability at a firm-year level, we average the comparability scores for the top four firms j comparable to firm i within the same industry following De Franco et al. (2011). As an instrument for comparability, we employ the number of firms j

[21] De Franco et al. (2011) measure comparability using earnings before extraordinary items as a proxy for the financial statements. As we require a measure of non-discretionary income to estimate a measure of comparability, our sample size is significantly reduced relative to the base sample.

[22] All control variables in Eq. (6) are included, but omitted for brevity.

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Table 6
Endogeneity of comparability and financial reporting quality.

Panel A: Lagged Industry Measure of Comparability

	Measure of Financial Reporting Quality =			
Variable	Restatements	|DA|	Persistence	Audit Fees
INTERCEPT	−5.710***	0.068***	−0.055***	9.077***
	(−9.45)	(14.44)	(−6.53)	(88.81)
ACCTCOMPD_IND	−0.061***	−0.001***	0.001***	−0.012***
	(−3.83)	(−6.57)	(4.11)	(−3.50)
ACCTCOMPD_IND*DA			0.025***	
			(5.02)	
OPCYCLE	0.186**	0.002***	0.005***	0.179***
	(2.19)	(2.58)	(3.79)	(10.24)
NANALYST	0.012	0.003***	−0.009***	
	(0.16)	(3.34)	(−7.18)	
Year Fixed Effects	Y	Y	Y	Y
Adj- (Pseudo-) r^2	0.063	0.188	0.552	0.825
Observations	23,158	28,265	28,265	15,933

Panel B: Comparability of Non-Discretionary Income and Financial Reporting Quality

	Measure of Financial Reporting Quality =			
Variable	Restatements	|DA|	Persistence	Audit Fees
INTERCEPT	−5.959***	0.048***	−0.092***	8.804***
	(−5.72)	(4.50)	(−4.13)	(231.92)
ACCTCOMPD_NDI	−0.304*	−0.009***	0.005	−0.116***
	(−1.40)	(−3.05)	(1.11)	(−4.56)
ACCTCOMPD_NDI*DA			0.116*	
			(1.63)	
OPCYCLE	0.222*	0.005***	0.014***	
	(1.47)	(2.72)	(4.19)	
NANALYST	0.024	−0.000	−0.008***	
	(0.21)	(−0.29)	(−3.54)	
Industry Fixed Effects	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y
Adj- (Pseudo-) r^2	0.059	0.213	0.534	0.897
Observations	10,688	11,882	11,882	6945

Panel C: Two-stage regression results

		2nd Stage			
Variable	1st Stage	P[Restate = 1]	|DA|	Persistence	Audit Fees
INTERCEPT	0.281***	−1.245***	0.060***	−0.049***	9.400***
	(8.85)	(−2.47)	(11.20)	(−5.28)	(46.07)
ACCTCOMPD		−2.579***	−0.032***	0.017	−0.246*
		(−2.85)	(−2.51)	(0.88)	(−1.49)
ACCTCOMPD*DA				0.220***	
				(3.77)	
OPCYCLE	0.033***	0.117***	0.004***	0.004**	0.049**
	(5.94)	(3.08)	(3.79)	(2.13)	(2.20)
NANALYST	0.063***	0.098**	0.005***	−0.010***	−0.109***
	(11.41)	(1.65)	(4.33)	(−6.04)	(−5.48)
INSTIT	0.138***	0.456***	−0.004	0.008**	0.058*
	(9.52)	(5.13)	(−1.23)	(2.07)	(1.40)
BIGN	0.004	0.239***	−0.000	−0.001	0.252***
	(0.43)	(3.99)	(−0.17)	(−0.47)	(9.20)
SIZE	−0.002	0.041***	−0.003***	0.006***	0.590***
	(−0.57)	(2.67)	(−6.93)	(9.78)	(68.27)
MTB	0.009***	0.000	0.002***	0.001***	0.016***
	(10.01)	(0.06)	(8.41)	(3.31)	(6.12)
ROA	0.364***	0.761*	−0.156***		−0.333***
	(20.20)	(1.56)	(−14.42)		(−4.65)
LEV	−0.248***	−0.030	−0.030***	0.005	−0.056
	(−14.87)	(−0.19)	(−7.04)	(0.74)	(−0.89)
ΔREV	−0.112***	−0.240**	0.009***	0.028***	0.032
	(−15.94)	(−1.93)	(2.57)	(5.06)	(1.14)
SALEVOL	−0.306***	−0.440*	0.035***	0.000	0.109*
	(−16.04)	(−1.49)	(6.58)	(0.05)	(1.48)
SAMESIC4	−0.031***				
	(−13.11)				
DA				0.232***	
				(7.34)	
NA				0.960***	
				(39.10)	
CFO				0.889***	
				(60.27)	

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Table 6 (*continued*)

Panel C: Two-stage regression results					
		2nd Stage			
Variable	1st Stage	P[Restate = 1]	|DA|	Persistence	Audit Fees
GC					0.141***
					(2.69)
MW					0.327***
					(13.27)
RESTATE					0.117***
					(7.83)
SPEC					0.066***
					(4.17)
FYE					0.122***
					(5.61)
Adjusted- (Pseudo-) r^2	0.24	0.06	0.18	0.55	0.87
Observations	28,265	23,158	28,265	28,265	15,933

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a one-tailed test. T-statistics are in parentheses and robust standard errors are clustered by both firm and year. All continuous variables are winsorized at the 1st and 99th percentiles. All model specifications include all control variables used in the main analyses. In Table 6, we address endogeneity concerns by using an industry measure of comparability (i.e. ACCTCOMPD_IND) in Panel A, measuring comparability using nondiscretionary income (i.e. ACCT COMPD_NDI) in Panel B, and using a two-stage regression in Panel C. For brevity, we report only the 1st stage regression results from analyses examining the impact of predicted values of comparability on restatements as the other 1st stage regression results are qualitatively similar. Please see Appendix A for other variable definitions.

in the same four-digit SIC code as firm i used in calculating the firm-year measure of comparability for firm i, which we denote as *SAMESIC4*. The number of firms in the same industry may increase comparability as it mechanically increases the likelihood that a firm is comparable to other firms. Alternatively, a greater number of firms in the same industry may also lead to greater firm heterogeneity, which would decrease how comparable one firm is to another. Conceptually, the number of firms in the same industry is likely related to comparability, but unlikely to *directly* affect a firm's accounting. Furthermore, there is a lack of theoretical and empirical evidence that the number of firms in an industry directly impacts a firm's accounting system.

Table 6, Panel C, presents the results from our two-stage regressions. Our first-stage regression results are presented in the first column.[23] We find that the number of firms in the same industry significantly predicts a firm's level of comparability. When performing a weak identification test, we find that the Kleibergen-Paap rk Wald F-statistic is 593.384, and are able to reject the null that our instrumental variable is weakly identified. In the last four columns of the table, we present our second-stage regression results, which are qualitatively similar to those reported in Table 4 based on single-stage regressions.[24] We find that comparability is significantly and negatively associated with both the likelihood of a restatement and absolute discretionary accruals. We also find that greater levels of comparability are associated with more persistent earnings and a lower magnitude of audit fees. Overall, these results corroborate those in the previous tables, and provide evidence that our results are robust to potential endogeneity issues.

4.3.2. Comparability and management signaling through accruals

We argue that comparability improves financial reporting quality by improving the ability of managers to make more accurate accounting estimates and signal future performance. As previously discussed, we do not expect to find strong evidence of earnings management in our main analyses as we examine a broad cross-section of firms (Ball, 2013; Dechow & Skinner, 2000; Subramanyam, 1996). However, it is possible for comparability to improve financial reporting quality by reducing information asymmetry, and hence accruals earnings management. To help distinguish between these non-mutually exclusive explanations, we: (1) examine the association between comparability and restatements when distinguishing the type of restatement, and (2) re-examine the impact of comparability on financial reporting quality in samples where discretionary accruals are likely to represent managerial signaling. All model specifications include all control variables used in the main analyses, however, they are omitted for brevity.

First, we classify restatements as resulting from intentional actions, non-intentional actions, and accrual estimate failures as explained in Section 3. Whereas restatements resulting from intentional actions are more than likely the result of earnings management, restatements resulting from non-intentional actions are not. The results are provided in Table 7.[25] In the first column, we remove all non-intentional restatement firms. Thus, the sample contains restatement firms only if they are classified as resulting from intentional actions.[26] We find that the coefficient on accounting comparability is negative, but not significant. These results are inconsistent with the notion that accounting comparability improves financial reporting quality by constraining opportunistic accounting. In the second column, we focus on non-intentional restatement firms. We find that the coefficient on comparability is negative and significant, suggesting that the likelihood of a restatement is decreasing in comparability, consistent with our main analyses. In the last column, we use a sample of restatement firms where accrual estimate failures are listed as a reason for the restatement. Again, we find that the coefficient on comparability is negative and statistically significant.

In Table 8, we focus on subsets of firms where discretionary accruals are more likely to represent management's future performance expectations and signals of future performance. We first eliminate all firms that just meet or beat expectations (i.e. close to zero earnings, close to zero change in earnings, close to analyst expectations), and present the results in Table 8, Panel A. We find that our results are qualitatively similar to those in Table 4. In untabulated analyses, we further delete all restatement firms from the sample, and find similar results. Second, we focus on a sample of stock split firms following Louis and Robinson (2005), who find that discretionary accruals made in conjunction with stock splits are used as a means of signaling favorable private

[23] For brevity, we only report the first-stage regression results from estimating the two-stage regression when the dependent variable is absolute discretionary accruals. Our other first-stage regressions results are qualitatively similar.

[24] We are unable to reject the null in Hausman specification tests (test statistic = 1.805, p-value = .1791) that comparability is exogenous to financial reporting quality. This suggests that our single-stage regression results are robust to endogeneity concerns.

[25] Our restatement data begins in 1995. As a result, we lose several years of data relative to our base sample.

[26] Audit Analytics includes an indicator variable set equal to one for the existence of an SEC investigation, and for a fraud-related restatement. Following Hennes et al. (2008), restatements with a value of one for either of these variables are classified as intentional restatements, and those with a value of zero are classified as unintentional. Audit Analytics also identifies one or more reason for a restatement utilizing one of forty reasons. If one of the reasons includes "Liabilities, payables, reserves and accrual estimate failures", we classify the restatement as occurring because of management's accounting estimates.

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information. As shown in Panel B of Table 8, we find that comparability is negatively associated with absolute discretionary accruals and positively associated with earnings persistence.[27] Overall, these analyses suggest that the association between comparability and financial reporting quality that we document is unlikely to be driven by reductions in accounting manipulations. Rather, the results are consistent with comparability improving the ability of managers to estimate accruals more accurately and signal their private information regarding future firm performance.

4.3.3. Comparability and managerial forecast characteristics

Thus far, we have used financial reporting quality metrics to capture the ability of managers to develop accurate expectations of future firm performance and report higher quality accounting estimates. A potential limitation of using financial reporting quality metrics, such as discretionary accruals and persistence, is the difficulty in distinguishing whether differences in these metrics are simply a result of past levels of comparability or whether these differences reflect managerial choice. We note that prior research shows that managerial preferences and characteristics influence firms' financial reporting. For example, Ge et al. (2011) finds that CFO style has a distinctive effect on financial reporting outcomes, such as discretionary accruals. Demerjian et al. (2013) finds that managers with greater ability report higher quality earnings. However, to provide more direct evidence that greater levels of comparability improve financial reporting quality as a result of improved managerial estimates, as opposed to past levels of comparability, we examine how comparability impacts managerial forecast characteristics. Specifically, we examine how comparability influences the accuracy, precision, and timeliness of managerial forecasts.

Managers generally have an incentive to issue accurate forecasts to align market expectations with their own (Ajinkya & Gift, 1984; Baginski, Hassell, & Kimbrough, 2008; King, Pownall, & Waymire, 1990). We expect comparability to improve managers' knowledge and understanding of their firm environment, and thus develop more accurate expectations of future performance. This should not only improve managers' accounting estimates, but also the accuracy of their earnings guidance. Prior studies also suggest that the precision (e.g., point versus range, magnitude of range) of managerial forecasts reflects the precision of managerial beliefs about the future. Generally, more precise forecasts reflect greater managerial certainty relative to less precise forecasts (Hughes & Pae, 2004; King et al., 1990) as more precise forecasts carry greater litigation and reputation costs (Ajinkya, Bhojraj, & Sengupta, 2005). In a similar vein, we expect the timeliness of the forecast (i.e. the difference in time between the forecast date and the end of the fiscal period to which the forecast relates) to reflect the certainty of managerial beliefs. Prior research shows that forecasts are more likely to be inaccurate when the forecast horizon is longer (Baginski & Hassell, 1997) and that managers avoid shorter-term forecasts to minimize reputation and litigation costs (Baginski, Hassell, & Kimbrough, 2002). Thus, if comparability helps managers to more easily acquire, process, and synthesize information, comparability may be associated with more timely forecasts.

To examine how comparability impacts managerial forecast accuracy, timeliness, and precision, we estimate the following model:

$$\begin{aligned} MFC_{it} = {} & \gamma_0 + \gamma_1 ACCTCOMPD_{it-1} + \gamma_2 HORIZON_{it} + \gamma_3 SIZE_{it} \\ & + \gamma_4 MTB_{it} + \gamma_5 LOSS_{it} + \gamma_6 NANALYST_{it} + \gamma_7 DISPERSION_{it} \\ & + \gamma_8 SDRES_{it} + \gamma_9 SURPRISE_{it} + \gamma_{10} SIGNSURPRISE_{it} \\ & + \gamma_{11} EARNVOL_{it} + \varepsilon_{it} \end{aligned} \quad (10)$$

where MFC is the managerial forecast characteristic (i.e. accuracy, precision, or timeliness). Accuracy is measured as the absolute value of the difference between management's EPS forecast and actual EPS, scaled by management's EPS forecast. Timeliness is measured as the number of days between the forecast date and the end of the fiscal period to which the forecast relates. Following Choi, Myers, Zang, & Ziebart (2010), precision is equal to zero for point forecasts. For range forecasts, precision is the difference between the upper and lower limit for the range forecast, scaled by the absolute value of forecasted EPS. HORIZON is the number of days between the date of the management forecast and the end of the fiscal period to which the forecast relates. LOSS is an indicator variable set equal to one if a firm reports a loss in the current period, and zero otherwise. DISPERSION is the standard deviation of analyst forecasts scaled by the mean consensus analyst forecast, measured in the month preceding the management forecast. SDRES is the standard deviation of market model residuals over a 200-day period ending 31 trading days before the forecast. SIGNSURPRISE is the difference between managements' forecast of EPS and the median analyst forecast of EPS, scaled by price at the beginning of the fiscal period. SURPRISE is the absolute value of SIGNSURPRISE. EARNVOL is the standard deviation of quarterly earnings over 12 quarters ending in the current fiscal period, divided by median asset value for the period. All other variables are as previously defined. We include both industry and year fixed effects. Standard errors are clustered by both firm and year.

The results from estimating Eq. (10) are presented in Table 9.[28] In the first column, we examine the association between comparability and managerial forecast accuracy. We find that the coefficient on comparability is significant and negative. As accuracy is inversely measured (smaller values indicate greater accuracy), the results suggest that

Table 7
Comparability and types of restatements.

	Dependent Variable = P[RESTATE = 1]		
	Intentional	Non-intentional	Accrual Estimate Failures
INTERCEPT	−8.868***	−5.795***	−6.112***
	(−5.50)	(−9.10)	(−3.23)
ACCTCOMPD	−0.465	−0.827***	−0.629*
	(−1.21)	(−5.47)	(−1.38)
OPCYCLE	0.403**	0.161**	0.067
	(1.77)	(1.83)	(0.24)
NANALYST	0.051	0.022	0.203
	(0.24)	(0.30)	(0.96)
INSTIT	0.843*	0.519***	−0.242
	(1.63)	(2.68)	(−0.50)
BIGN	0.391	0.382***	0.371
	(0.91)	(2.55)	(0.51)
SIZE	0.008	0.025	0.031
	(0.08)	(0.71)	(0.29)
MTB	−0.005	−0.012	−0.003
	(−0.21)	(−0.97)	(−0.09)
ROA	−0.379	−0.424**	0.304
	(−0.62)	(−1.72)	(0.51)
LEV	1.596***	0.442**	−0.270
	(2.75)	(1.82)	(−0.41)
ΔREV	−0.077	−0.059	0.113
	(−0.23)	(−0.51)	(0.36)
SALEVOL	0.503	−0.042	0.268
	(0.94)	(−0.16)	(0.47)
Industry Fixed Effects	Y	Y	Y
Year Fixed Effects	Y	Y	Y
Pseudo-r^2	0.078	0.064	0.079
Chi-Square	189.374	367.446	161.561
Observations	18,928	22,877	19,554

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a one-tailed test. T-statistics are in parentheses and robust standard errors are clustered by both firm and year. All continuous variables are winsorized at the 1st and 99th percentiles. Table 7 presents results examining the association between comparability and restatements when distinguishing among types of restatements. The results are based on logistic regressions. Please see Appendix A for variable definitions.

[27] We are unable to examine the relation between comparability and restatements, as well as audit fees, within this sample due to an insufficient sample size.

[28] Our results in Table 9 are from using a different sample than our base sample. Specifically, we only require data for estimating Eq. (10).

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Table 8
Comparability and accruals signaling.

Panel A: Firms that do not just meet-or-beat earnings benchmarks

	Measure of Financial Quality =			
Variable	Restatements	|DA|	Persistence	Audit Fees
INTERCEPT	−5.494***	0.045***	−0.118***	9.362***
	(−8.52)	(5.37)	(−7.89)	(47.91)
ACCTCOMPD	−0.769***	−0.006***	0.011***	−0.239***
	(−4.95)	(−2.72)	(2.91)	(−8.27)
ACCTCOMPD*DA			0.193***	
			(3.15)	
Industry Fixed Effects	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y
Adj- (Pseudo-) r^2	0.063	0.208	0.548	0.867
Observations	16,549	20,110	20,110	11,441

Panel B: Stock Split Firms

	Financial Reporting Quality =	
Variable	|DA|	Persistence
INTERCEPT	−0.002	0.005
	(−0.17)	(0.45)
ACCTCOMPD	−0.014***	−0.003
	(−2.61)	(−0.91)
ACCTCOMPD*DA		0.269***
		(3.97)
Industry Fixed Effects	Y	Y
Year Fixed Effects	Y	Y
Adjusted r^2	0.12	0.37
Observations	1436	1436

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a one-tailed test. T-statistics are in parentheses and robust standard errors are clustered by both firm and year. All continuous variables are winsorized at the 1st and 99th percentiles. All model specifications include all control variables used in the main analyses. Table 8 re-examines our main analyses when focusing on samples of firms where discretionary accruals are more likely to represent signals of future performance. Panel A reports the results from re-examining our main analyses when removing firms that barely meet analyst expectations, have close to zero earnings, and have zero change in earnings. Panel B reports the results from re-examining our main analyses when focusing on a sample of firms that announce stock splits. Please see Appendix A for variable definitions.

Table 9
Comparability and managerial forecasts.

	Managerial Forecast Characteristics (MFC) =		
Variable	Accuracy	Timeliness	Precision
INTERCEPT	0.086	4.140***	0.242***
	(0.98)	(73.90)	(5.84)
ACCTCOMPD	−0.204***	−0.028	−0.080***
	(−5.55)	(−1.35)	(−5.19)
HORIZON	0.024***		−0.023***
	(4.91)		(−9.33)
SIZE	−0.005	−0.016***	−0.008***
	(−0.57)	(−3.26)	(−2.66)
MTB	−0.008***	0.001	−0.002***
	(−4.30)	(0.96)	(−3.57)
LOSS	0.489***	−0.036***	0.180***
	(14.52)	(−2.60)	(11.31)
NANALYST	−0.006***	0.012***	−0.003***
	(−4.41)	(12.63)	(−7.10)
DISPERSION	0.522***	−0.075***	0.318***
	(6.64)	(−3.14)	(6.63)
SDRES	7.078***	3.408***	2.738***
	(6.21)	(4.78)	(5.28)
SURPRISE	0.000***	−0.000	0.000***
	(3.00)	(−1.03)	(4.19)
SIGNSURPRISE	−0.088***	0.089***	−0.051***
	(−9.61)	(10.63)	(−12.29)
EARNVOL	0.526	−1.182***	0.480**
	(1.01)	(−5.00)	(2.09)
Industry Fixed Effects	Y	Y	Y
Year Fixed Effects	Y	Y	Y
Adj-r^2	0.186	0.143	0.099
Observations	58,544	58,544	58,544

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a one-tailed test. T-statistics are in parentheses and robust standard errors are clustered by both firm and year. All continuous variables are winsorized at the 1st and 99th percentiles. Table 9 examines the impact of comparability on managerial forecast properties. Please see Appendix A for variable definitions.

comparability is associated with more accurate managerial forecasts. In the second column, we find that comparability does not significantly influence the timeliness of managerial forecasts. In the last column, we examine the association between comparability and managerial forecast precision. We find that the coefficient on comparability is significant and negative. As precision is inversely measured (smaller values indicate greater precision), the results are consistent with comparability helping managers to develop more precise and certain beliefs. Overall, the results in Table 9 corroborate our previous findings and are consistent with the notion that comparability helps managers to develop more accurate and precise expectations of future firm performance.

4.3.4. Mishkin test of comparability and pricing of accruals

Our results suggest that greater comparability is associated with higher quality accruals that more directly map into cash flows and are more persistent. However, they also suggest that as comparability increases, investors place less weight on discretionary accruals, on average. Prior theoretical and empirical research (e.g., Holthausen and Verrecchia 1988; Teoh and Wong 1993) suggests that investors should respond more strongly to earnings when earnings are of higher quality. That is, if accruals are more likely to persist, one would expect investors to place greater weight on these accruals. Thus, our results may be puzzling. However, if investors tend to overweight discretionary accruals (Xie, 2001), even when comparability is high, and comparability helps investors to better understand the implications of the firm's accruals, then it is also reasonable to expect investors to place less weight on discretionary accruals. To test this notion, we employ the Mishkin (1983) test, following prior research (e.g., Sloan, 1996), to examine whether the market rationally prices discretionary accruals, with respect to their implications for future earnings one-year-ahead, when varying the level of comparability. Using an iterative generalized nonlinear least squares estimator, we jointly estimate the following set of equations:

$$ROA_{t+1} = \gamma_0 + \gamma_1 DA_t + \gamma_2 NA_t + \gamma_3 CFO_t + \gamma_4 LOACCTCOMP_{t-1} + \gamma_5 DA_t{}^{*} LOACCTCOMP_{t-1} + \eta_{t+1} \quad (11)$$

$$SIZEAJR_{t+1} = \alpha + \beta(ROA_{t+1} - \gamma_0 - \gamma^{*}{}_1 DA_t - \gamma^{*}{}_2 NA_t - \gamma^{*}{}_3 CFO_t - \gamma^{*}{}_4 LOACCTCOMP_{t-1} - \gamma^{*}{}_5 DA_t{}^{*} LOACCTCOMP_{t-1}) + \varepsilon_{t+1} \quad (12)$$

where *LOACCTCOMP* is an indicator variable set equal to one if a firm falls into the lower four deciles of comparability (i.e. *ACCTCOMPD*), and zero otherwise. We eliminate the inner two deciles of *ACCTCOMPD* from the sample. Model (11) is a forecasting equation that estimates the extent to which each earnings component predicts earnings in the following year. Model (12) is a valuation equation that estimates the weight that the market assigns to each earnings component. Whereas γ_1 and $\gamma^{*}{}_1$ capture the forecasting and valuation coefficients, respectively, for high comparability firms, γ_5 and $\gamma^{*}{}_5$ capture the forecasting and valuation coefficients, respectively, for low comparability firms. We note that since Eqs. (11) and (12) are simultaneously estimated, the valuation equation implicitly controls for the effect of comparability on financial reporting quality. Said another way, Eq. (12) tests the market's assessment of the persistence of the earnings components, given the persistence of the earnings components, and thus the impact of comparability on the quality of information reported by managers.

The results are presented in Table 10. We find that the forecasting coefficient on *DA* is significantly lower than the valuation coefficient on *DA* (as shown in Panel C), suggesting that even when comparability

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Table 10
Mishkin test of comparability and the market reaction to discretionary accruals.

Panel A: Forecasting coefficients

Parameter	Estimate	Asymptotic Standard Error
DA	0.38	0.011
NA	0.93	0.013
CFO	0.90	0.006
LOACCTCOMP	0.00	0.002
DA*LOACCTCOMP	−0.13	0.017

Panel B: Valuation coefficients

Parameter	Estimate	Asymptotic Standard Error
DA	0.67	0.044
NA	0.72	0.054
CFO	0.66	0.025
LOACCTCOMP	−0.01	0.007
DA*LOACCTCOMP	0.12	0.071

Panel C: Tests of Rational Pricing

Null Hypotheses	Likelihood Ratio Statistic	Marginal Significance Level
$\gamma_1 = \gamma^*_1$	41.7099	0.001
$\gamma_5 = \gamma^*_5$	11.9307	0.001

Table 10 reports the results from employing the Mishkin (1983) test, which simultaneously estimates Eqs. (11) and (12) using an iterative generalized nonlinear least squares estimator. This analysis examines whether the market rationally prices discretionary accruals with respect to their implications for future earnings one-year-ahead when varying the level of comparability. Please see Appendix A for variable definitions.

is high, investors overweight discretionary accruals. On the other hand, the forecasting and valuation coefficients on *DA* for low comparability firms (i.e. γ_5 and γ^*_5) are −0.13 and 0.12, respectively. This suggests that when comparability is low, relative to when it is high, investors place greater weight on discretionary accruals, even though they are less persistent. This result provides an explanation for why investors place less weight on discretionary accruals even though the persistence of discretionary accruals increases with comparability. That is, investors place less weight on discretionary accruals when there are greater levels of comparability because the extent to which investors overestimate the persistence of discretionary accruals is greater than the incremental increase in persistence associated with greater comparability. Overall, the results from this analysis are consistent with the notion that comparability helps investors to better understand the implications of firms' discretionary accruals, and that the pricing effect we document is not driven by the impact of comparability on financial reporting quality. Our results also help to explain our finding that investors respond less strongly to accruals when comparability is greater despite the increase in earnings quality associated with comparability.

5. Conclusion

This paper examines the consequences of comparability on financial statement preparers and users. We first investigate the impact of comparability on the ability of managers to make more accurate predictions of future firm performance and prepare higher quality financial statements. Using restatements, the mapping of accruals into cash flows, earnings persistence, and audit fees as measures of financial reporting quality, we provide evidence consistent with greater levels of comparability improving managers' information environment, and hence the quality of their financial reporting. We find that our results are qualitatively similar when we utilize an industry measure of comparability, a measure of comparability using non-discretionary income, and two-stage regressions to address endogeneity concerns. We also provide evidence that comparability is associated with more accurate and precise managerial forecasts. This result, to our knowledge, is new in the literature and corroborates the notion that comparability helps managers to develop more accurate expectations of future firm performance.

We are unable to document a significant association between comparability and restatements when focusing on restatements resulting from manipulative behavior. However, we find comparability is significantly and negatively associated with restatements resulting from unintentional errors, and those that specifically cite accrual estimation failures. We also find that comparability is associated with higher financial reporting quality in samples where discretionary accruals likely represent managers' attempts to signal future firm performance. Taken together, the results of our tests suggest that comparability is associated with higher financial reporting quality because it improves management's accrual estimation process and ability to signal future performance. While we cannot rule out the possibility that comparability constrains opportunistic accounting, it is not the focus of our study. Future research can further investigate the degree to which the relation between comparability and financial reporting quality results from improvements in managerial signaling as opposed to reductions in earnings management.

We also find that investors respond less strongly to accruals when comparability is greater. As prior research finds that investors tend to overestimate the persistence of accruals and overprice accruals, our results are consistent with comparability helping investors to better understand the implications of discretionary accruals. The results from our Mishkin (1983) test, which simultaneously examines the persistence of accruals and investors pricing of accruals, confirm this notion. Overall, our results show that the ability of investors to understand accruals increases with comparability, and that comparability is associated with higher accruals pricing efficiency.

This study contributes to the literature by examining the association between comparability and financial reporting quality. While the literature on financial reporting quality has largely focused on the effect of firm-specific characteristics, we examine the effect of an environmental characteristic. We find results suggesting that greater levels of comparability improve the information environment and allow managers to estimate discretionary accruals more accurately and signal private information more effectively. Thus, while prior research largely focuses on the effect of comparability on investors, we examine how comparability influences managers, thus contributing to our understanding of how comparability influences the information environment. We also contribute more generally to the literature examining factors influencing managerial reporting decisions. Our study extends upon Gong et al. (2013) who finds that comparability is negatively associated with the likelihood of a managerial forecast. Our results show that when managers release forecasts and comparability is greater, managerial forecast accuracy and precision is improved.

We also contribute to both the comparability and accruals pricing literature by examining how comparability influences the pricing efficiency of discretionary accruals. To the best of our knowledge, our study is the first to do so. Our results suggest that the degree of mispricing varies directly with comparability, add to the few studies that examine variation in the pricing of accruals, and are inconsistent with arguments that accrual mispricing is not due to investor misinterpretation.

Our study also has practical implications. We provide evidence suggesting that greater comparability not only improves the quality of information disseminated by managers, but also the pricing efficiency of accruals by investors. We thus provide a more complete picture of how comparability impacts a firm's information environment. In the future, accounting standard setters may need to carefully weigh the costs and benefits of allowing alternative accounting methods for the same economic phenomenon because doing so will diminish comparability, and hence the informativeness of the financial statements.

Declarations of interest

None.

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Data availability

All data is publicly available from the sources cited in the text.

Appendix A. Variable definitions

ACCTCOMP	=	A firm-pair-year measure of comparability. The negative value of the absolute difference between predicted earnings for firm i and firm j. Calculated as defined in section 3.
ACCTCOMPD	=	A firm-year measure of comparability. The decile-rank transformation of M4_ACCTCOMP or the average ACCTCOMP of the top 4 firms j with the highest comparability to firm i, scaled to be between [0,1].
ACCT COMPD_IND	=	An industry-year measure of comparability. It is calculated as the decile-rank transformation of the average ACCTCOMP of all firm-pair-years in the same industry, scaled to be between [0,1].
ACCT COMPD_NDI	=	The decile-rank transformation (scaled to be between [0,1]) of a firm-year measure of comparability calculated using non-discretionary income. Non-discretionary income is the sum of NA and CFO.
RESTATE	=	An indicator variable equal to 1 if a firm restates their financial statements, 0 otherwise. Following Hennes et al. (2008), a restatement is classified as intentional if the restatement is associated with fraud or if there is an SEC investigation. Audit Analytics includes an indicator variable set equal to one for the existence of a SEC investigation, and for a fraud-related restatement. All other restatements are classified as non-intentional. To identify restatements that occur because of accrual estimate failures, we focus on restatements that specifically cite "Liabilities, payables, reserves, and accrual estimate failures" as a reason for the restatement on Audit Analytics. Audit Analytics identifies one or more reason for a restatement using one of forty reasons.
LAUDIT	=	natural log of audit fees
DA	=	The estimated residual from the following regression, estimated on a cross-sectional basis for each industry-year: $ACC_{it} = \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \beta_4 \Delta REV_{it} + \beta_5 PPE_{it} + \varepsilon_{it}$
CFO	=	OANCF – XIDOC, scaled by average total assets
ACC	=	Earnings before extraordinary items and discontinued operations less cash flows from operations, scaled by average total assets
NA	=	The fitted value from the following regression, estimated on a cross-sectional basis for each industry-year: $ACC_{it} = \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \beta_4 \Delta REV_{it} + \beta_5 PPE_{it} + \varepsilon_{it}$
REV	=	Net sales, scaled by average total assets
ΔREV	=	Change in REV from the previous year
PPE	=	Gross property, plant, and equipment, scaled by average total assets
SIZEAJR	=	Size-adjusted annual returns, ending three months after fiscal year-end
SIZE	=	The log of average total assets
MTB	=	Market capitalization, scaled by book value of common equity
ROA	=	Earnings before extraordinary items and discontinued operations, scaled by average total assets
LEV	=	Leverage, defined as (DLC + DLTT), scaled by average total assets
OPCYCLE	=	Operating cycle, defined as the log of the sum of days in receivables plus days in inventory
NANALYST	=	Analyst following, defined as the log of the number of analysts making an annual EPS forecast
BIGN	=	An indicator variable set equal to 1 if a firm has a big N auditor, 0 otherwise
INSTIT	=	Institutional ownership, defined as the percentage of total shares owned by institutions
SALEVOL	=	Sales volatility, measured as the standard deviation of *REV* over the past four years
LOACCTCOMP	=	an indicator variable set equal to one when a firm falls into the lower four deciles of ACCTCOMPD
GC	=	an indicator variable set equal to one if the firm received a qualified going concern opinion, and 0 otherwise
MW	=	an indicator variable set equal to one if there is a material weakness in internal controls, and 0 otherwise
SPEC	=	an indicator variable set equal to one if the firm's auditor is an industry leader, and 0 otherwise
FYE	=	an indicator variable set equal to one if the firm's fiscal year-end is December 31, and 0 otherwise
MFC	=	Managerial forecast characteristics, which refer to managerial forecast accuracy, precision, or timeliness. Accuracy is the absolute value of the difference between management's EPS forecast and actual EPS, scaled by the absolute value of management's EPS forecast. Precision is zero for point forecasts, and the difference between the upper and lower limit for range forecasts. Timeliness is the numbers of days between the forecast release date and the end of the fiscal period to which the forecast relates.
HORIZON	=	number of days between the date of the management forecast and the end of the fiscal period to which the forecast relates
LOSS	=	an indicator variable set equal to one if the firm reports a loss in the current period, and 0 otherwise
DISPERSION	=	standard deviation of analyst forecasts, scaled by the mean consensus analyst forecast, measured in the month preceding the management forecast
SDRES	=	standard deviation of market model residuals over a 200-day period ending 31 trading days before the forecast
SIGNSURPRISE	=	difference between management's EPS forecast and the median analyst EPS forecast, scaled by price at the beginning of the fiscal period
SURPRISE	=	the absolute value of SIGNSURPRISE
EARNVOL	=	the standard deviation of quarterly earnings over 12 quarters ending in the current fiscal period
MGR	=	managerial forecast accuracy, the difference between management's EPS forecast and actual EPS, scaled by the absolute value of management's EPS forecast

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