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Does financial statement comparability mitigate delayed trading volume before earnings announcements?☆

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ABSTRACT

This paper examines the role of financial statement comparability in shaping trading volume prior to earnings announcements. We find that the degree of delayed trading volume prior to earnings announcements is less pronounced for firms with more comparable financial statements. In addition, the effect of financial statement comparability on pre-announcement trading volume is stronger in more opaque information environments. Our findings are incrementally significant after controlling for a comprehensive set of within-firm earnings attributes and robust to various research design choices including alternative comparability models with differing peer group selection. Collectively, our results show that financial statement comparability serves an integral mechanism facilitating a firm's pre-existing information environment. In sum, this paper constitutes the first, volume-based evidence which lends support to the usefulness of financial statement comparability in investors' trading activity.

1. Introduction

In this paper, we investigate the role of financial statement comparability in mitigating *delayed* trading volume prior to earnings announcements (Chae, 2005). Both the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) embrace financial statement comparability as a key qualitative characteristic of accounting information which has the potential to increase the quantity of firm-level financial information and to improve the quality of a firm's pre-existing information environment (FASB, 2010; IASB, 2010, 2018). Moreover, many popular accounting and finance textbooks explain the practical value of comparable firm analysis as a starting point of equity valuation (e.g., Healy & Palepu, 2013). Notwithstanding the conceptual and practical importance of financial statement comparability, only recently have researchers begun to examine various aspects of accounting comparability partly due to the empirical challenge in computing a firm-specific measure of financial statement comparability for a large cross-section of firms (De Franco, Kothari, & Verdi, 2011). Given the interests of standard setters, regulators, practitioners, and academics in the information environment attribute of accounting comparability (see Gross and Perotti (2017) and Schipper (2003) for reviews), it is important to empirically investigate the role of comparability in investors' trading activity, which can shed new light on how comparability shapes the efficiency of capital-allocation decisions in financial markets (Chordia, Roll, & Subrahmanyam, 2001).[1]

We investigate trading volume consequences of financial statement comparability because trading volume is a *prima facie* outcome of investors' differences in investment decisions. The volume of trading captures the sum of all investors' idiosyncratic trading activities, which is in contrast to stock returns measuring the market's average belief revisions (Bamber, Barron, & Stevens, 2011). This fundamental property of trading volume makes our setting an ideal platform to test the usefulness of financial statement comparability (as a unique *across-firm* attribute of accounting information) because the conceptual framework (FASB, 2010; IASB, 2010, 2018) stipulates that decision-useful accounting information should make "a difference in the decisions made by users" (i.e. altering investors' investment decisions). Furthermore, a

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[1] We interchangeably use 'financial statement comparability,' 'accounting comparability,' and 'comparability' throughout the paper.

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proper level of trading volume is an essential process through which investors impound new information into stock price and firms raise capital needed to fund projects from financial markets (Beaver, 1968; Landsman & Maydew, 2002). Therefore, our paper complements prior studies documenting the beneficial role played by financial statement comparability in pricing earnings information (Choi, Choi, Myers, & Ziebart, 2019; Kim, Kim, & Musa, 2018) and in disciplining managers' opportunism (Kim, Li, Lu, & Yu, 2016).[2]

The market microstructure literature suggests that trading occurs for a wide variety of reasons including both information and non-information motives (e.g., risk preferences, transaction costs, or liquidity shocks). Following Admati and Pfleiderer (1988) and Foster and Viswanathan (1990), we aim to explain the effect of financial statement comparability on trading volume from an information asymmetry perspective. Specifically, Chae (2005) documents that uninformed investors, to avoid high adverse selection costs from informed trading, delay their trading before corporate announcements when *timing* of the announcements is known in advance (i.e., firms' periodic earnings announcements). As informed investors need sufficient liquidity to capitalize their private information, they also delay trading, resulting in an overall *decrease* in trading volume before earnings announcements. However, uninformed investors cannot exercise the same timing discretion in their liquidity-based trading before unscheduled corporate announcements for which *timing* of the announcements is not publicly available. We expect comparability to improve transparency and monitoring of a firm's information environment by increasing the informational value of accounting reports through relative comparisons (De Franco et al., 2011). Thus, in the context of Chae (2005), investors are less likely to postpone their trading before earnings announcements for firms with high financial statement comparability.

To capture the effect of financial statement comparability on a firm's pre-existing information environment, we use several alternative firm-quarter measures estimated over the 16-quarter rolling window ending in the quarter that precedes the event quarter (see Fig. 1 for a timeline). We assume that firms with comparable financial statements should produce similar financial reports, as represented by earnings, for similar economic events. To overcome a measurement error issue caused by the positive correlation between trading volume and stock returns (Kandel & Pearson, 1995; Wang, 1994), we capture economic events by either *stock returns* or *cash flows*. Using a large cross-section of U.S. common stocks over the period from 1994 to 2016, we find that comparability significantly affects trading volume before earnings announcements. Specifically, we document that the degree of delayed trading volume prior to earnings announcements is less pronounced for firms with high financial statement comparability than those with low financial statement comparability. The economic magnitude of the effect of comparability on trading volume is substantial. For example, the difference in pre-announcement abnormal trading volume for firms with high and low financial statement comparability ranges from 8.11 to 12.05 percent. These amounts account for approximately 57 to 84 percent of the pre-earnings announcement abnormal trading volume *decrease* for the average firms in our sample.[3]

Next, we conduct several falsification tests by examining the association between comparability and trading volume before *unscheduled* corporate announcements (i.e., acquisition, target, and Moody's credit rating announcements). We find no evidence that comparability is significantly related to trading volume before these unscheduled announcements. The results strengthen our confidence in interpreting our main findings as financial statement comparability mitigating delayed trading volume before *scheduled* firm announcements.

We then perform cross-sectional tests in which we expect the role of comparability to vary. We find that the positive association between accounting comparability and pre-announcement trading volume is more pronounced when the upcoming earnings announcement contains bad news, institutional ownership is low, the probability of informed trading (PIN) is high, and within-firm financial reporting quality is low. The results support the view that investors benefit more from comparability when the quality of pre-announcement information environment is relatively low.

Collectively, we make several important contributions. First, our paper has policy implications. The trading behavior of uninformed investors is likely to be of interest to regulators and standard setters particularly when investor uncertainty is high. Uninformed traders are relatively at an informational disadvantage compared to informed traders. Our results that financial statement comparability – a key component of the firm's information environment (FASB, 2010; IASB, 2010, 2018) – mitigates delayed trading volume before earnings announcements demonstrate the usefulness of comparability in achieving the goal of regulators and policymakers i.e., "level the playing field" in the capital market (Levitt, 1999; Verrecchia, 2001).

Second, we complement prior studies investigating price-based market outcomes, such as cost of equity (e.g., Imhof, Seavey, & Smith, 2017) and market pricing of earnings news (e.g., Choi et al., 2019; Kim et al., 2018) by documenting new, volume-based evidence on the role of financial statement comparability in improving the firm's pre-existing information environment. To the best of our knowledge, this paper is the first to study the link between financial statement comparability and trading volume.

Third, our study adds to the literature on trading volume reactions around earnings announcements. The primary focus of this literature is to study trading volume *in response to* earnings announcements (Bamber et al., 2011; Beaver, 1968; Kim & Verrecchia, 1997, to name a few). We take a different approach by focusing on trading volume *prior to* earnings announcements (Akbas, 2016; Chae, 2005). In addition, while prior market microstructure studies predict both positive and negative associations between information asymmetry and trading volume in general (O'Hara, 1997), we document evidence that trading volume is positively related to accounting comparability – a mechanism which lowers information asymmetry before public announcements – consistent with the intuition offered by Black (1986), Milgrom and Stokey (1982), and Wang (1994).

The remainder of the paper proceeds as follows. In Section 2, we review the literature and develop our hypotheses. Section 3 discusses research design and sample. Section 4 reports main empirical results and Section 5 reports additional test results. We conclude in Section 6.

2. Literature review and hypothesis development

According to the conceptual framework (FASB, 2010; IASB, 2010,

[2] Following Chae (2005), our paper focuses on a relatively short-window (i.e., [−10, −3] pre-earnings announcement period) rather than a long-window of annual period to better capture a *temporary* change in investor uncertainty around firm disclosure dates (Levi & Zhang, 2015a, 2015b). This feature of our research design allows us to provide new findings that cannot be inferred from prior studies investigating long-term benefits of comparability, such as lowering the cost of equity or debt (Fang et al., 2016; Imhof et al., 2017).

[3] We stress that our findings are robust to controls for the effects of market capitalization, analyst following, and bid-ask spreads as *ex ante* information asymmetry proxies (Chae, 2005), as well as other controls including (1) firm- and market-level stock performance and trading volume prior to the pre-earnings announcement window, (2) changes in short-term and long-term interest rates, and (3) days of the week and holidays effects (Al-Nasseri & Menla Ali, 2018; Chordia et al., 2001). We also note that our findings on the *across-firm* earnings comparability are incrementally significant after controlling for an exhaustive set of *within-firm* earnings attributes (e.g., Francis et al., 2004). In addition, we find that our results are robust to using various alternative industry groupings when measuring comparability (Hoberg & Phillips, 2010, 2016).

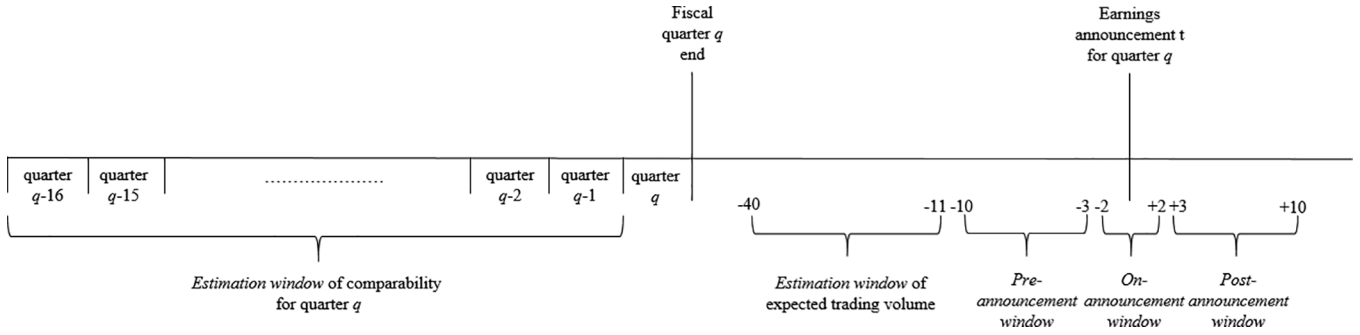

Fig. 1. Measurement timeline. This figure depicts the timelines of (1) the estimation windows of comparability and expected trading volume and of (2) the pre-, on-, and post- earnings announcement windows for fiscal quarter *q*.

2018), comparability, along with verifiability, timeliness, and understandability, is one of the key qualitative characteristics of desirable accounting information, which has potential implications for enhancing both relevance and faithful representation. The conceptual framework states that a core purpose of financial reporting standards is to increase the comparability of firms' reported accounting information (e.g., FASB, 2010; IASB, 2010, BC 3.33), emphasizing the importance of financial statement comparability in producing high-quality financial reports. Unlike other qualitative characteristics, comparability involves *across-firm* comparisons and the relative assessment of economic performances.

De Franco et al. (2011) provide an intuitive and implementable measurement strategy of accounting comparability using reverse earnings/returns regressions of a set of comparable peer firms. De Franco et al. (2011) find that comparability is positively associated with analyst coverage and forecast accuracy and inversely related to forecast dispersion, consistent with the positive role played by comparability in enriching the firm's pre-existing information environment.[4]

Comparability also plays an important role in determining costs of financing in capital markets. Imhof et al. (2017) show that the implied cost of equity is lower for firms with more comparable financial statements. Kim and Lim (2017a) document that comparable earnings information lowers equity investors' incentives to acquire private information. Fang, Li, Xin, and Zhang (2016) find that the cost of debt is negatively associated with firms' accounting comparability. In addition, comparable accounting information facilitates the valuation of current and future earnings news. Choi et al. (2019) document that comparability enhances the ability of current stock returns to predict future firm performance, i.e., improves the informativeness of stock prices. Kim et al. (2018) find that both investor sophistication and information asymmetry determine the effectiveness of comparable firm analysis in assimilating firms' current earnings news into stock prices.

Several studies document the role of financial statement comparability in making managerial decisions more efficient and financial reporting outcomes less opaque. Using sample data on mergers and acquisitions, Chen, Collins, Kravet, and Mergenthaler (2018) find that managers of acquiring firms make better acquisition decisions when target firms are more comparable. Kim et al. (2016) find that comparability disciplines managers' opportunistic disclosure incentives to withhold bad news, resulting in lower stock price crash risk for more comparable firms. Peterson, Schmardebeck, and Wilks (2015) find that more comparable firms tend to exhibit higher-quality earnings (e.g., better predictability, persistence, and accruals quality). Sohn (2016) shows that firms with higher comparability engage less (more) in accrual-based (real-activity-based) earnings management.

As noted by Bamber et al. (2011), trading occurs for both information and non-information reasons (e.g., risk preferences, transaction costs, or liquidity shocks, etc.), and we focus on the information asymmetry-based channel to empirically assess the role of financial statement comparability in mitigating delayed trading volume before scheduled corporate announcements (Chae, 2005) for three reasons. First, information asymmetry directly affects liquidity and trading costs borne by investors (Amihud & Mendelson, 1986; Easley & O'Hara, 2004). Second, the resolution of information asymmetry is a primary factor causing investors to alter their investment decisions (Admati & Pfleiderer, 1988; Foster & Viswanathan, 1990). Third, the market microstructure literature has reached an ambiguous conclusion about the sign of the association between information asymmetry and trading volume (see O'Hara (1997) for a review of this literature), providing larger room for our study to make further contributions from the informational perspective (Beaver, 1968). We expect that financial statement comparability improves the firm's information environment by increasing the quantity and quality of publicly available accounting information (De Franco et al., 2011). Thus, the level of information asymmetry between informed and uninformed traders in the market is likely to be lower for firms with high financial statement comparability.

Given the debate entrenched in the market microstructure literature (O'Hara, 1997), we discuss two opposite directional associations between information asymmetry (financial statement comparability) and trading volume. On the one hand, according to Kyle (1985), trading volume is positively associated with information asymmetry when liquidity trading is exogenous and insensitive to price change. Informed investors attempt to exploit private information before their informational advantage disappears through public announcements, which predicts a positive relation between trading volume and information asymmetry. Recent research provides evidence consistent with high trading volume being associated with increased information asymmetry among investors about the firm's fundamentals (e.g., Banerjee & Kremer, 2010; Schneider, 2009). Therefore, if financial statement comparability is a mechanism which lowers information asymmetry (Imhof et al., 2017; Kim et al., 2016), financial statement comparability may be *negatively* associated with trading volume.

On the other hand, when liquidity investors are assumed to possess timing discretion in their trading, they are less willing to trade stocks when information asymmetry is high (Admati & Pfleiderer, 1988; Foster & Viswanathan, 1990). As these investors can optimize their trading, they are more likely to submit their orders when the uncertainty is resolved following public announcements.[5] The intuition in models of Black (1986), Milgrom and Stokey (1982), and Wang (1994) also

[4] Relatedly, Kim, Schmidt, and Wentland (2019) find that financial statement comparability reduces analyst forecast errors associated with tax-based earnings information to a greater extent than those associated with non-tax earnings information.

[5] Both liquidity traders and uninformed traders do not have private information but can exercise their discretion in coordinating trades around anticipated corporate announcements to reduce trading costs. Our study focuses on trading volume before earnings announcements, so we interchangeably use 'discretionary liquidity traders,' 'liquidity traders,' and 'uninformed traders.'

suggests that uninformed investors participate in the market less actively when information asymmetry is high. As informed investors need sufficient liquidity in the markets to trade based on private information, they cannot participate in trading as much. Hence, when liquidity traders have timing discretion, comparability may be *positively* associated with trading volume.

We focus on trading volume before earnings announcements to investigate the role of comparability because uninformed investors are assumed to have timing information about upcoming earnings announcements. A growing body of prior studies documents that the effect of private information-related trading costs on investors' trading decision is most pronounced during the pre-earnings announcement period. Specifically, recent research shows that both market makers and discretionary liquidity traders demand a high compensation for liquidity provision and, as a result, investors' expected returns are especially high during periods leading up to anticipated firm information events such as earnings announcements (Nagel, 2012; So & Wang, 2014). When liquidity traders possess information about the timing of corporate announcements, these traders can temporarily delay liquidity-based trading in periods of high information asymmetry and fulfil their trading needs after the firm makes public announcements.[6] Based on the above arguments, we focus on directly testing the role of comparability before earnings announcements. Our hypothesis proceeds as follows in alternative form:

H1: There is a positive relation between financial statement comparability and trading volume *prior to* earnings announcements.

In contrast, uninformed traders do not have the timing information about *unscheduled* announcements (e.g., acquisition, target, and Moody's credit rating announcements). As a result, when informed traders attempt to exploit their private information before the unscheduled announcements, uninformed traders are unable to temporarily postpone their trading execution during the pre-announcement period. Therefore, we do not expect comparability to be significantly associated with trading volume before unscheduled announcements.

3. Research design

3.1. Measurement of accounting comparability

Following De Franco et al. (2011), we measure accounting comparability for each firm-quarter level. When financial accounting systems are comparable across two different firms, an output from the system will be also comparable if the two firms have the same input to the system. We consider financial statements an output from the accounting system, and economic events an input to the accounting system. We use accounting earnings as a proxy for financial statement information, and stock returns as a proxy for economic events. In the first step, we estimate a firm-specific time-series regression, Equation (1), for each firm-quarter using 16 quarters of earnings/return data up to the quarter that precedes the event quarter q (i.e., up to quarter q-1) to avoid a look-ahead bias (see Fig. 1 for a timeline):[7]

$$EARN_{iq} = \alpha_i + \beta_i Ret_{iq} + \varepsilon_{iq}, \quad (1)$$

$EARN_{iq}$ represents net income before extraordinary items at quarter q deflated by the market value of equity at q-1, and Ret_{iq} is the stock return during the concurrent quarter q. The estimated coefficients, $\hat{\alpha}_i$ and $\hat{\beta}_i$, are viewed as the function of accounting system for firm i, such that $\hat{\alpha}_i$ and $\hat{\beta}_i$summarize the firm i's accounting process of translating economic events (i.e., stock returns) into financial statements (i.e., accounting earnings). Analogously, the estimated $\hat{\alpha}_j$ and $\hat{\beta}_j$, using earnings and stock return for firm j, are the accounting function for firm j.

The closeness between the accounting functions of two firms is the level of comparability between the two firms. The closer the mapping, the more comparable the financial statements of the two firms. To estimate the closeness of the accounting systems, we use firm i's and j's accounting functions estimated from Eq. (1) to predict earnings of firms i and j, assuming the two firms have the same stock return (i.e., as if they have the same economic circumstance). Specifically, two predicted earnings are estimated by using accounting systems of two firms and economic events for just one firm:

$$E(EARN)_{iiq} = \hat{\alpha}_i + \hat{\beta}_i (Ret)_{iq}, \quad (2a)$$

$$E(EARN)_{ijq} = \hat{\alpha}_j + \hat{\beta}_j (Ret)_{iq}, \quad (2b)$$

$E(EARN)_{iiq}$ is firm i's predicted earnings from adopting firm i's accounting function and firm i's stock return whereas $E(EARN)_{ijq}$ is firm j's predicted earnings from adopting firm j's accounting function and firm i's stock return. The use of firm i's return in both estimations allows us to hold economic shocks constant across two different firms.

Comparability between firms i and j is defined as $CompRet_{ijq}$ in Eq. (3):

$$CompRet_{ijq} = -\frac{1}{16} \times \sum_{q-16}^{q-1} |E(EARN)_{iiq} - E(EARN)_{ijq}| \quad (3)$$

Eq. (3) takes the negative value of the absolute average differences between the predicted earnings from firm i's and j's accounting functions over the previous 16 quarters ending in quarter q-1. Higher (lower) $CompRet_{ijq}$ indicates that the financial accounting systems between the two firms are more (less) comparable. We measure $CompRet_{ijq}$ of all possible {firm i- firm j} pairs generated by all j firms in the same industry for a given firm i to develop a firm-quarter level measure of comparability. Firm i and all j firms are within the same industry categorized by the two-digit SIC classification scheme.[8] Specifically, we aggregate all possible combinations of $CompRet_{ijq}$ for a given firm i and create two measures of firm i's comparability at quarter q: (a) $CompRet10_{iq}$ is the mean value of $CompRet_{ijq}$ of the ten j firms that have the highest accounting comparability to firm i at quarter q, and (b) $CompRetInd_{iq}$ is the median value of $CompRet_{iq}$ of all j firms in the same industry at quarter q.

As we investigate the impact of comparability on trading volume before earnings announcements, our results might be affected by the earnings-return relationship. To mitigate the confounding effect due to the correlation between trading volume and price changes (Kandel & Pearson, 1995; Wang, 1994), we alternatively use cash flows (instead of stock returns in Eq. (1)) and re-estimate Eq. (4) using 16 quarters of earnings/cash flows data up to quarter q-1:

$$EARN_{iq} = \alpha_i + \beta_i CF_{iq} + \varepsilon_{iq}, \quad (4)$$

CF_{iq} represents operating cash flows at quarter q deflated by the market value of equity at q-1. In this alternative measure, we use cash flows as a proxy for economic events. Following the same procedures employed to estimate Eqs. (2) and (3), we create two alternative firm-quarter level measures of comparability: $CompCF10_{iq}$ and $CompCFInd_{iq}$.

Finally, we use an aggregate comparability measure ($AggComp_{iq}$). $AggComp_{iq}$ is an indicator variable which takes the value of one if the aggregate comparability index is above the sample median, where the

[6] Of course, it is difficult for uninformed investors to differentiate private information-based trading from other liquidity-based trading. However, uninformed traders are assumed to rationally expect private information-based trading to increase during the period leading up to scheduled disclosure dates.

[7] Similar to De Franco et al. (2011), we exclude holding firms, American Depository Receipts (ADRs), and limited partnerships from our sample. We also drop firms whose fiscal year end is not in March, June, September, or December.

[8] Following De Franco et al. (2011), we require that at least 11 firms be available in each industry group to ensure economically meaningful comparisons.

aggregate index is the mean value of decile rankings of the four different comparability measures: $CompRet10_{iq}$, $CompRetInd_{iq}$, $CompCF10_{iq}$, and $CompCFInd_{iq}$.[9]

3.2. Measurement of trading volume

We use the natural logarithm of turnover as a measure of trading volume, where turnover is daily trading volume deflated by total outstanding shares. Because raw turnover shows extreme skewness and kurtosis (Ajinkya & Jain, 1989; Broggard, Koski, & Siegel, 2019), we use the natural logarithm function to allow normality in volume data that is required for statistical inferences. Next, we closely follow Chae (2005) and define daily abnormal trading volume as follows:

$$Vol_{it} = Log\left(\frac{Trading\ \ Volume_{it}}{Shares\ \ Outstanding_{it}}\right), \tag{5a}$$

$$AbVol_{it} = Vol_{it} - \left(\sum_{t=-40}^{t=-11} Vol_{it} \Big/ 30\right), \tag{5b}$$

We sum the daily abnormal volume ($AbVol_{it}$) measured over the period $[-10, -3]$ relative to the earnings announcement date t to obtain the pre-announcement trading volume metric ($PreAbVol_{iq}$), in which we employ the mean of the natural logarithm of trading volume during the 30 day-window $[-40, -11]$ as the expected level of trading volume.[10,11]

3.3. Identification of earnings announcement dates

As trading volume in a short window is sensitive to the event date, it is important to ensure the accuracy of earnings announcement dates in our analysis. Thus, we simultaneously consider the earnings announcement dates from both Compustat and I/B/E/S. Following DellaVigna and Pollet (2009) and Johnson and So (2018), we require a maximum difference of two calendar days between Compustat's and I/B/E/S's earnings announcement dates. Further, we use the earlier date as an earnings announcement date if the two dates differ. Finally, when earnings announcements are made after the market close according to the I/B/E/S time stamp, we use the following trading day as an earnings announcement date.

3.4. Sample

We obtain firms' financial data from the Compustat quarterly file, price and return data from the CRSP daily file, and analyst coverage, analyst consensus forecasts and actual earnings from the I/B/E/S unadjusted file, respectively. The sample starts from all U.S. common stocks in the NYSE and the AMEX (i.e., the share code of 10 and 11) from 1994 to 2016, and we only keep stocks with beginning price higher than $5 to mitigate the impact of bid-ask bounce of low-priced stocks. We drop observations with missing firm-quarter level comparability measures and other control variables employed in our regression tests. We then require the sample to have non-missing volume and price data from CRSP over the period $[-40, +40]$ relative to the earnings announcement dates to create abnormal trading volume and other market outcome variables. Our final sample consists of 61,212 firm-quarter observations.

3.5. Empirical model

To examine how comparability is associated with the degree of trading volume before earnings announcements, we estimate the following regression model:

$$\begin{aligned} PreAbVol_{iq} &= \delta_0 + \delta_1 HCOMP_{iq} + \delta_2 Size_{iq} + \delta_3 Coverage_{iq} + \delta_4 Spread_{iq} + \delta_5 \\ &\quad AbsEAR_{iq-1} + \delta_6 AbsRet_{iq} + \delta_{year} + \delta_{ind} + \varepsilon_{iq}, \end{aligned} \tag{6}$$

The main variable of interest is $HCOMP_{iq}$, an indicator variable which takes the value of one if a firm's financial statement comparability is above sample median. We alternatively use different comparability measures (i.e., $CompRet10_{iq}$, $CompRetInd_{iq}$, $CompCF10_{iq}$, $CompCFInd_{iq}$, and $AggComp_{iq}$) to define $HCOMP_{iq}$. Since $HCOMP_{iq}$ is a binary variable, the coefficient on $HCOMP_{iq}$ (δ_1) represents the difference in pre-announcement turnover between high and low comparability groups of firms. We predict that δ_1 is significantly positive because we expect information asymmetry before earnings announcements to be lower for high comparability firms.[12]

Turning to the control variables, following Chae (2005), we include three *ex ante* information asymmetry proxies: firm size ($Size_{iq}$), analysts following ($Coverage_{iq}$), and bid-ask spreads ($Spread_{iq}$).[13] We expect the (inverse) proxies of *ex ante* information asymmetry to be negatively (positively) associated with trading volume prior to earnings announcements (i.e., $\delta_2 > 0$, $\delta_3 > 0$, and $\delta_4 < 0$), indicating that pre-announcement trading volume decreases as the level of information asymmetry increases. To control for the firm-specific risks surrounding the earnings announcement date, we include the absolute value of the cumulative market-adjusted returns over the lagged-quarter earnings announcements period, $[-1, +1]$ ($AbsEAR_{iq-1}$). We also control for the positive association between turnover and contemporaneous changes in stock price by including the absolute value of cumulative market-adjusted return for the pre-announcement period, $[-10, -3]$ ($AbsRet_{iq}$) (Kandel & Pearson, 1995; Wang, 1994). We include both industry (based on the 12-industry classification scheme from Fama and French (1997)) and year fixed effects in all of our regression models.[14] Appendix A describes the detailed descriptions of all variables in our analysis.

[9] Our inferences do not change when we use (1) $CompRet4_{iq}$, the mean value of $CompRet_{ijq}$ of the four j firms with the highest comparability to firm i during quarter q, and (2) $CompCF4_{iq}$, the mean value of $CompCF_{ijq}$ of the four j firms with the highest comparability to firm i during quarter q. We also apply four different models to test alternative eight different measures of comparability, and the results are very similar (see Section 5.3).

[10] To see whether our results are sensitive to using alternative measures of trading volume, we additionally construct abnormal trading volume measures. Specifically, we use (1) the *median* of the natural logarithm of daily turnover over the non-event 30-days window $[-40, -11]$, and (2) various estimation windows such as 30 days, 60 days, 90 days, or the fiscal quarter for the expected trading volume. Our inferences do not alter.

[11] Although our main focus is on pre-announcement trading volume ($PreAbVol_{iq}$), we later test the associations between comparability and trading volume during the on-announcement period ($OnAbVol_{iq}$) and post-announcement period ($PostAbVol_{iq}$) as an additional analysis (see Section 5.2). Our results show that while comparability is significantly positively associated with $PreAbVol_{iq}$, comparability is not significantly associated with $OnAbVol_{iq}$ or $PostAbVol_{iq}$, implying that the role of comparability in mitigating information asymmetry is observed only during the pre-earnings announcement period.

[12] For unscheduled (i.e., acquisition, target, and Moody's credit rating) announcements, we predict that δ_1 is statistically insignificant because liquidity traders do not have timing information about these unscheduled corporate announcements.

[13] Firm size, analyst coverage, and bid-ask spreads are widely used proxies for information asymmetry in accounting and finance literatures (e.g., Kim & Lim, 2017a, 2017b).

[14] As a robustness check, we additionally control for two proxies for *economic similarity* across firms, i.e., the co-movements of stock returns and the co-movements of cash flows (De Franco et al., 2011). The unreported results are very similar to those reported in this paper (available upon request).

Table 1
Descriptive statistics for sample firms.

Panel A: Distribution of firm characteristics.

Variables	N	Mean	S. D.	P25	P50	P75
$CompRet10_{iq}$	61,212	−0.61	0.98	−0.62	−0.28	−0.15
$CompRetInd_{iq}$	61,212	−1.77	1.50	−2.08	−1.32	−0.92
$CompCF10_{iq}$	61,212	−0.64	1.02	−0.66	−0.30	−0.16
$CompCFInd_{iq}$	61,212	−1.68	1.58	−1.83	−1.21	−0.86
$PreAbVol_{iq}$	61,212	−14.28	268.14	−185.02	−27.84	142.88
$Size_{iq}$	61,212	7.79	1.63	6.65	7.72	8.86
$Coverage_{iq}$	61,212	1.98	0.83	1.39	2.08	2.64
$Spread_{iq}$	61,212	0.70	1.07	0.06	0.16	0.96
$AbsEAR_{iq-1}$	61,212	4.68	4.68	1.43	3.23	6.31
$AbsRet_{iq}$	61,212	3.96	4.10	1.22	2.72	5.25

Panel B: Comparison of summary statistics by comparability groups.

	Mean			Median			N	
Variables	H.Comp	L.Comp	*p*-value	H.Comp	L.Comp	*p*-value	H.Comp	L.Comp
$CompRet10_{iq}$	−0.21	−1.00	0.00	−0.16	−0.56	0.00	30,523	30,689
$CompRetInd_{iq}$	−1.17	−2.36	0.00	−1.01	−1.81	0.00	30,523	30,689
$CompCF10_{iq}$	−0.22	−1.06	0.00	−0.18	−0.62	0.00	30,523	30,689
$CompCFInd_{iq}$	−0.97	−2.39	0.00	−0.90	−1.74	0.00	30,523	30,689
$PreAbVol_{iq}$	−7.13	−21.39	0.00	−20.52	−35.91	0.00	30,523	30,689
$Size_{iq}$	8.19	7.40	0.00	8.09	7.31	0.00	30,523	30,689
$Coverage_{iq}$	2.15	1.82	0.00	2.30	1.95	0.00	30,523	30,689
$Spread_{iq}$	0.59	0.80	0.00	0.13	0.19	0.00	30,523	30,689
$AbsEAR_{iq-1}$	4.19	5.18	0.00	2.93	3.57	0.00	30,523	30,689
$AbsRet_{iq}$	3.53	4.38	0.00	2.44	3.05	0.00	30,523	30,689

Notes: This table reports the summary statistics for the sample firms. Panel A presents the distribution of the variables. P25, P50, and P75 represent 25, 50, and 75 percentiles of the distributions, respectively. Panel B tabulates the descriptive statistics and their significance tests between High (H.Comp) and Low (L.Comp) comparability groups. $PreAbVol_{iq}$, $AbsEAR_{iq-1}$, and $AbsRet_{iq}$ are reported in percentage terms (%). High (Low) comparability group represents above (below) sample median firms based on $AggComp_{iq}$. $AggComp_{iq}$ is an indicator variable which takes the value of one if the aggregate comparability index is above the sample median, where the aggregate index is the mean value of decile rankings of four different comparability measures: $CompRet10_{iq}$, $CompRetInd_{iq}$, $CompCF10_{iq}$, and $CompCFInd_{iq}$. The reported *p*-values are results from two-tailed *t*-tests (Wilcoxon rank-sum tests) for mean (median) differences. All variables in this table are defined in Appendix A.

4. Empirical results

4.1. Descriptive statistics

Table 1 reports the summary statistics for the main variables in our analysis. Panel A shows that the mean values of our comparability measures are similar to those reported in prior research (e.g., De Franco et al., 2011; Kim et al., 2018). Also, abnormal trading volume during the pre-earnings announcement period ($PreAbVol_{iq}$) is negative, implying that turnover tends to decrease before scheduled announcements.[15]

In Panel B, we report the descriptive statistics for high and low comparability firms, respectively. High (low) comparability firms are above (below) the sample median value of the aggregate comparability measure, $AggComp_{iq}$. Panel B presents that high and low comparability firms have significantly different mean and median values across all variables at the 1% level. In particular, abnormal volume during the pre-earnings announcement period ($PreAbVol_{iq}$) is significantly greater for high comparability firms (mean = −7.13%; median = −20.52%) than for low comparability firms (mean = −21.39%; median = −35.91%), suggesting that the degree of delayed trading volume before anticipated corporate announcements is mitigated for more comparable firms.

4.2. Main results

Table 2 reports the regression results of cumulative abnormal turnover before earnings announcements using five different comparability measures (i.e., estimating Eq. (6)). Columns (1) and (2) present the results from return-based measures of comparability ($HCompRet10_{iq}$ and $HCompRetInd_{iq}$), and columns (3) and (4) show the results from cash flow-based measures ($HCompCF10_{iq}$ and $HCompCFInd_{iq}$). In column (5), we tabulate the results using the aggregate measure of comparability ($AggComp_{iq}$). Consistent with H1, the coefficients of comparability are all positive and statistically significant at the 1% level, suggesting that abnormal trading activity before earnings announcements is higher for more comparable firms than less comparable firms.

As our comparability measure is a binary ranking variable, pre-event period abnormal trading volume for high comparable firms is 8.11 percent (in column (1)) to 12.05 percent (in column (4)) higher than that for low comparable firms after controlling for all three proxies for *ex ante* information asymmetry. These amounts are economically significant; they account for approximately 57 to 84 percent of the pre-announcement abnormal trading volume *decrease* for the average firms, given the mean of −14.28 percent found in Table 1, Panel A during our sample period (i.e., −0.57 = 8.11/−14.28 and −0.84 = 12.05/−14.28, respectively). The results support our prediction that financial statement comparability attenuates delayed trading volume before earnings announcements.

Turning to other variables, all the coefficients on *ex ante* information asymmetry proxies and control variables are consistent with previous literature (e.g., Chae, 2005). $Size_{iq}$ and $Coverage_{iq}$ ($Spread_{iq}$) are positively (negatively) associated with $PreAbVol_{iq}$, indicating that trading volume increases as information asymmetry decreases. We also find that the coefficient on $AbsEAR_{iq-1}$ is negative, suggesting that trading volume is inversely related to firm-specific announcement risk.

[15] These univariate results are consistent with Chae (2005).

Table 2
Cumulative abnormal volume before earnings announcements.

Dependent variable: Cumulative abnormal trading volume, $PreAbVol_{iq}$						
	Pred.	(1)	(2)	(3)	(4)	(5)
$HCompRet10_{iq}$	(+)	8.108***				
		(3.25)				
$HCompRetInd_{iq}$	(+)		10.375***			
			(4.05)			
$HCompCF10_{iq}$	(+)			9.225***		
				(3.83)		
$HCompCFInd_{iq}$	(+)				12.051***	
					(4.95)	
$AggComp_{iq}$	(+)					11.914***
						(5.04)
$Size_{iq}$	(+)	13.828***	13.932***	13.766***	13.610***	13.508***
		(12.13)	(12.21)	(12.04)	(11.89)	(11.82)
$Coverage_{iq}$	(+)	10.547***	10.567***	10.451***	10.375***	10.301***
		(4.81)	(4.82)	(4.77)	(4.74)	(4.71)
$Spread_{iq}$	(−)	−9.127***	−8.918***	−9.081***	−8.826***	−8.969***
		(−4.36)	(−4.26)	(−4.34)	(−4.21)	(−4.28)
$AbsEAR_{iq-1}$	(−)	−2.444***	−2.430***	−2.435***	−2.422***	−2.406***
		(−9.90)	(−9.83)	(−9.85)	(−9.81)	(−9.76)
$AbsRet_{iq}$	(+)	17.971***	17.995***	17.977***	17.997***	18.016***
		(52.37)	(52.42)	(52.37)	(52.53)	(52.44)
Fixed effects		Ind & Yr	Ind & Yr	Ind & Yr	Ind & Yr	Ind & Yr
S. E. clustered		Firm	Firm	Firm	Firm	Firm
No. of obs.		61,212	61,212	61,212	61,212	61,212
Adj. R-sq.		0.086	0.086	0.086	0.086	0.086

Notes: This table shows the results of regressing abnormal trading volume before earnings announcements on measures of comparability, *ex ante* information asymmetry proxies, and control variables (Eq. (6)). Standard errors are clustered at firm-level, and year and industry fixed effects are included in the regression model. *t*-statistics are reported in the parentheses under their corresponding coefficients. *, **, and *** denote statistical significance based on two-tailed *p*-values at the 10%, 5%, and 1% levels, respectively. All variables in the table are defined in the variable description in Appendix A.

The coefficient on $AbsRet_{iq}$ is positive and significant, implying that trading volume and contemporaneous price movement are positively correlated.

In Table 3, we conduct a falsification test for unscheduled announcements and report the regression results.[16] Specifically, we estimate regression model (6) separately for the acquisition sample (column (1)), the target sample (column (2)), and the rating change sample (column (3)), respectively. The coefficient on the aggregate comparability measure ($AggComp_{iq}$) is positive for the acquisition and target samples and negative for the credit rating sample.[17] More importantly, all coefficients on $AggComp_{iq}$ are statistically insignificant, suggesting that comparability does not play the same role when timing of corporate announcements is not known in advance. Similar to Chae (2005), the three *ex ante* information asymmetry proxies (i.e., $Size_{iq}$, $Coverage_{iq}$, and $Spread_{iq}$) are not statistically different from zero, except for $Spread_{iq}$ for credit rating sample.

Table 3
Cumulative abnormal volume before unscheduled announcements.

Dependent variable: Cumulative abnormal trading volume, $PreAbVol_{iq}$				
	Pred.	(1) Acquisition	(2) Target	(3) Rating Change
$AggComp_{iq}$	(?)	6.149	30.506	−32.881
		(0.64)	(0.90)	(−1.49)
$Size_{iq}$	(?)	4.752	16.898	−7.400
		(1.31)	(0.96)	(-0.55)
$Coverage_{iq}$	(?)	−2.573	−13.246	−22.574
		(−0.29)	(−0.45)	(−0.54)
$Spread_{iq}$	(?)	0.424	18.099	−310.512*
		(0.05)	(0.74)	(−1.74)
$AbsEAR_{iq-1}$	(–)	−4.537***	−8.214**	−2.745
		(−4.14)	(−2.07)	(−0.97)
$AbsRet_{iq}$	(+)	23.389***	26.212***	22.540***
		(16.71)	(8.59)	(6.82)
Fixed effects		Ind & Yr	Ind & Yr	Ind & Yr
S. E. clustered		Firm	Firm	Firm
No. of obs.		3,435	487	386
Adj. R-sq.		0.089	0.166	0.134

Notes: This table shows the results of regressing abnormal trading volume before unscheduled announcements (i.e., acquisition (column (1)), target (column (2)), and Moody's credit rating (column (3)) announcements) on the aggregate measure of comparability ($AggComp_{iq}$), *ex ante* information asymmetry, and control variables. Standard errors are clustered at firm-level, and year and industry fixed effects are included in the regression model. *t*-statistics are reported in the parentheses under their corresponding coefficients. *, **, and *** denote statistical significance based on two-tailed *p*-values at the 10%, 5%, and 1% levels, respectively. All variables in the table are defined in the variable description in Appendix A.

4.3. Controlling for earnings quality measures

Prior literature documents that earnings quality (e.g., accruals quality, persistence) is inversely associated with information asymmetry, resulting in a lower cost of capital (e.g., Francis, LaFond, Olsson, & Schipper, 2004). We note that comparability is an *across-firm* accounting attribute which involves at least two firms' accounting information. In contrast, other *within-firm* earnings quality measures are based on earnings properties within a single firm; therefore, they should capture different and unique dimensions of accounting information (Imhof et al., 2017; Kim et al., 2018). To isolate the effect of

[16] Our samples of acquisition and target announcements consist of 3,435 and 487 observations, respectively. Among randomly selected 100 companies from I/B/E/S, we hand-collect the Moody's rating change announcement dates. After matching with Compustat and CRSP data, we have 386 announcements for the credit rating change sample.

[17] For brevity, in all subsequent tests, we tabulate the results using the aggregate comparability measure ($AggComp_{iq}$). The tenor of the results is very similar when we individually use $HCompRet10_{iq}$, $HCompRetInd_{iq}$, $HCompCF10_{iq}$, and $HCompCFInd_{iq}$ as a comparability measure or the continuous values of these comparability measures (untabulated).

Table 4
Cumulative abnormal volume before earnings announcements: controlling for various earnings quality proxies.

Dependent variable: Cumulative abnormal trading volume, $PreAbVol_{iq}$			
	Pred.	Coefficient	*t*-statistic
$AggComp_{iq}$	(+)	8.907***	3.00
$Pers_{iq}$	(+)	6.165	1.20
$Smooth_{iq}$	(+)	−0.469	−0.21
$Predict_{iq}$	(+)	0.956	0.51
AQ_{iq}	(+)	27.974**	2.52
$C\text{-}Score_{iq}$	(+)	11.519	0.63
$Timeliness_{iq}$	(+)	2.927	0.56
$VolEarn_{iq}$	(+)	43.735	1.07
$Size_{iq}$	(+)	12.677***	7.65
$Coverage_{iq}$	(+)	11.716***	4.55
$Spread_{iq}$	(−)	−9.226***	−3.65
$AbsEAR_{iq\text{-}1}$	(−)	−2.413***	−8.44
$AbsRet_{iq}$	(+)	18.477***	45.90
Fixed effects		Ind & Yr	
S. E. clustered		Firm	
No. of obs.		44,958	
Adj. R-sq.		0.089	

Notes: This table shows the results of regressing abnormal trading volume before earnings announcements on the aggregate measure of comparability ($AggComp_{iq}$), earnings quality, *ex ante* information asymmetry, and control variables. *Pers* is earnings persistence. *Smooth* is earnings smoothness. *Predict* is earnings predictability. *AQ* is accruals quality. *C-Score* is conservatism. *Timeliness* is earnings timeliness. *VolEearn* is earnings volatility. We follow Francis et al. (2004) to measure the seven earnings quality measures. We use the current and previous nine years (i.e., rolling ten years) with the minimum requirement of five years to calculate *Smooth*, *Predict*, *AQ*, *Timeliness*, and *VolEarn*. We also multiply *Smooth*, *Predict*, *AQ*, and *VolEarn* by a negative value of one. Therefore, larger values of all of our seven measures indicate a higher earnings quality. The rest of the variables in the table are defined in the variable description in Appendix A. Standard errors are clustered at firm-level, and year and industry fixed effects are included in the regression model. *t*-statistics are reported in the parentheses under their corresponding coefficients. *, **, and *** denote statistical significance based on two-tailed *p*-values at the 10%, 5%, and 1% levels, respectively.

comparability on trading volume, we control for the effects of other components of earnings quality in our main tests.

We identify seven attributes of earnings quality from Francis et al. (2004) – earnings persistence ($Pers_{iq}$), earnings smoothness ($Smooth_{iq}$), earnings predictability ($Predict_{iq}$), accruals quality (AQ_{iq}), conservatism ($C\text{-}Score_{iq}$), earnings timeliness ($Timeliness_{iq}$), and earnings volatility ($VolEarn_{iq}$). We closely follow the procedures described in Francis et al. (2004) to measure these seven earnings quality proxies.

We simultaneously control for these seven earnings quality proxies in our main regression model (6) and tabulate the regression results in Table 4.[18] The results show that the coefficient on $AggComp_{iq}$ is positive and statistically significant at the 1% level (coefficient = 8.907; t = 3.00), suggesting that pre-earnings announcement trading volume is positively associated with financial statement comparability even after controlling for persistence, smoothness, predictability, accruals quality, conservatism, timeliness, and volatility. We find that while most of the earnings quality measures are positively associated with trading volume, only accruals quality is statistically significant. Overall, we document a distinct effect of financial statement comparability on pre-earnings announcement trading volume.[19]

[18] The number of firm-year observations reduces from 61,212 to 44,958 after requiring non-missing values of the seven earnings quality measures.

[19] As a robustness check, we include a different set of variables that are associated with trading volume (Al-Nasseri & Menla Ali, 2018; Chordia et al., 2001). The controls include (1) firm- and market-level stock performance and trading volume prior to the pre-earnings announcement window [−10, −3], (2) changes in short-term interest rate and long-term interest rate, and (3) days of the week and holidays effects. Our inferences do not alter. See Appendix B for more details.

4.4. Alternative industry classifications for comparability measures

In this paper, we follow De Franco et al. (2011) to estimate the firm-specific comparability using the two-digit SIC classification scheme. To mitigate the concern that our findings are driven by one specific definition of industry, we re-estimate the comparability measures based on four alternative industry classification schemes: (1) 3-digit SIC industry classification, (2) 4-digit SIC industry classification, (3) Fama and French (1997) 48 industry classification, and (4) text-based network industry classifications (TNIC) (Hoberg & Phillips, 2010, 2016).[20] We then repeat the analysis and tabulate the results in Table 5.

For all four alternative industry classifications, we require that at least 11 peer firms be available in each industry group to ensure meaningful comparisons, resulting in varying sample sizes across the four sets of results. The results show that the coefficient on $AggComp_{iq}$ is positive and statistically significant at least at the 5% level for all different industry classifications, alleviating the concern that our findings are driven by one specific definition of industry.

5. Additional analyses

5.1. Cross-sectional tests

We further examine whether the role of comparability is stronger when the opacity of pre-announcement information environment is relatively high, i.e., when investors are more likely to benefit from financial statement comparability. We conduct subsample tests using four proxies for the quality of information environment. First, we examine whether the impact of comparability is more pronounced prior to bad news earnings announcements than good news earnings announcements (*NEWS*). Several prior studies document that managers tend to withhold bad news (e.g., Ali, Li, & Zhang, 2018; Kothari, Shu, & Wysocki, 2009), leading to the accumulation of negative information about the firm before earnings announcements.[21] One of the natural consequences of the asymmetric disclosure incentives is that firms' information environment is less transparent before bad news earnings announcements (i.e., more opaque information environment) than before good news announcements.

Second, we test the role of comparability for firms with different levels of outside monitoring. Sophisticated investors, such as institutional investors, demand high-quality financial statements and voluntary disclosures from managers, reducing the incentives of gathering private information and lowering information asymmetry (Boone & White, 2015; El-Gazzar, 1998). Hence, our second proxy for the opacity of information environment is institutional ownership (*IO*).

Third, we consider the probability of informed trading, the *PIN* score (Duarte & Young, 2009; Easley, Kiefer, & O'Hara, 1997), as another proxy. A higher *PIN* score indicates more trades are initiated by information-based motives, capturing the opacity of information environment.[22]

Lastly, we conduct the subsample test based on a measure of within-firm financial reporting quality (*FRQ*). We estimate the modified Dechow and Dichev (2002) model (McNichols, 2002).[23] Specifically,

[20] TNIC identifies competitors to each focal firm based on a continuous measure of similarity in the product space (Hoberg & Phillips, 2010, 2016). We download the TNIC data from http://hobergphillips.tuck.dartmouth.edu.

[21] These studies attribute the asymmetric disclosure pattern to managers' opportunistic incentives associated with equity-based compensation, tenure, and/or reputation in labor markets.

[22] We thank Professor Stephen Brown for sharing his data on the *PIN* score from the following website (http://www.rhsmith.umd.edu/faculty/sbrown/).

[23] We obtain qualitatively similar results when using the performance-adjusted Jones (1991) model (Kothari, Leone, & Wasley, 2005) as an alternative proxy for within-firm financial reporting quality (untabulated).

Table 5
Alternative industry classification scheme for constructing comparability measure.

Dependent variable: Cumulative abnormal trading volume, $PreAbVol_{iq}$					
	Pred.	(1) 3-digit SIC	(2) 4-digit SIC	(3) FF 48	(4) TNIC
$AggComp_{iq}$	(+)	11.193***	8.242**	14.709***	14.253***
		(3.75)	(2.40)	(5.69)	(5.25)
$Size_{iq}$	(+)	14.085***	14.397***	13.900***	13.488***
		(10.66)	(9.24)	(12.19)	(10.96)
$Coverage_{iq}$	(+)	8.783***	8.584***	9.802***	12.113***
		(3.38)	(2.77)	(4.44)	(5.16)
$Spread_{iq}$	(−)	−7.754***	−8.071***	−8.668***	−10.427***
		(−3.13)	(−2.74)	(−4.06)	(−4.54)
$AbsEAR_{iq-1}$	(−)	−2.564***	−2.518***	−2.366***	−2.170***
		(−8.63)	(−7.31)	(−9.48)	(−8.42)
$AbsRet_{iq}$	(+)	18.021***	17.933***	18.064***	17.165***
		(42.62)	(36.15)	(51.72)	(46.90)
Fixed effects		Ind & Yr	Ind & Yr	Ind & Yr	Ind & Yr
S. E. clustered		Firm	Firm	Firm	Firm
No. of obs.		41,258	30,085	59,391	50,408
Adj. R-sq.		0.088	0.092	0.087	0.089

Notes: This table shows the results of regressing abnormal trading volume before earnings announcements on the aggregate measure of comparability ($AggComp_{iq}$), *ex ante* information asymmetry, and control variables (Eq. (6)) using various comparability measures constructed based on alternative definitions of industry. In columns (1) and (2), $AggComp_{iq}$ is calculated based on 3-digit and 4-digit SIC industry classification, respectively. In column (3), $AggComp_{iq}$ is calculated based on Fama and French (1997) 48 industry classification. In column (4), $AggComp_{iq}$ is calculated based on Text-based Network Industry Classification (TNIC) defined by Hoberg and Phillips (2010, 2016). Standard errors are clustered at firm-level, and year and industry fixed effects are included in the regression model. *t*-statistics are reported in the parentheses under their corresponding coefficients. *, **, and *** denote statistical significance based on two-tailed *p*-values at the 10%, 5%, and 1% levels, respectively. All variables in the table are defined in the variable description in Appendix A.

we calculate the standard deviation of the residuals estimated by regressing total current accruals on previous, current, and next year's operating cash flows, change in sales revenue, and property, plant, and equipment for each industry and year cross-section. We divide all variables by lagged total assets and require that at least ten firms be available in each industry/year cross-section. We then multiply the standard deviation of the estimated residuals by a negative value of one to obtain *FRQ*, i.e., higher values of *FRQ* score indicate high-quality firm information environments. See Appendix A for more detailed variable descriptions.

Using the aforementioned four proxies, we divide our earnings announcement sample into high and low opacity of information environments (*OIE*) and separately estimate the following models:

$$PreAbVol_{iq} = \varphi_0^{High=1} + \varphi_1 AggComp_{iq}^{High=1} + \varphi_2 Size_{iq}^{High=1} + \varphi_3 Coverage_{iq}^{High=1} + \varphi_4 Spread_{iq}^{High=1} + \varphi_5 AbsEAR_{iq-1}^{High=1} + \varphi_6 AbsRet_{iq}^{High=1} + \varphi_{year}^{High=1} + \varphi_{ind}^{High=1} + \varepsilon_{iq}, \quad (7a)$$

$$PreAbVol_{iq} = \varphi_0^{Low=1} + \varphi_1 AggComp_{iq}^{Low=1} + \varphi_2 Size_{iq}^{Low=1} + \varphi_3 Coverage_{iq}^{Low=1} + \varphi_4 Spread_{iq}^{Low=1} + \varphi_5 AbsEAR_{iq-1}^{Low=1} + \varphi_6 AbsRet_{iq}^{Low=1} + \varphi_{year}^{Low=1} + \varphi_{ind}^{Low=1} + \varepsilon_{iq}, \quad (7b)$$

High (low) *OIE* represents bad (good) earnings news, low (high) institutional ownership, high (low) *PIN*, and low (high) *FRQ*, respectively. Also, we test the difference of the effects between the two groups using χ^2-statistics from a simultaneous estimation of Eqs. (7a) and (7b).

Panel A of Table 6 presents the results of estimating Eqs. (7a) and (7b) for our four *OIE* proxies. All estimated coefficients on $AggComp_{iq}$ are positive and statistically significant except for column (6). More importantly, the coefficients on $AggComp_{iq}$ for high *OIE* firms are larger than those for low *OIE* firms for all four proxies for opacity of information environment. In Panel B, we simultaneously estimate the two equations and test the mean differences of the comparability effect between high and low *OIE* groups. We find that the effect of comparability on trading volume for high *OIE* firms is statistically larger than that for low *OIE* firms at the 5% level. In sum, the results in Table 6 show that the impact of financial statement comparability on pre-earnings announcement trading volume is more pronounced in an opaque information environment.

5.2. On- and post-announcement periods

In this section, we analyze trading volume on and after earnings announcements to examine whether the role of comparability in decreasing information asymmetry before earnings announcements is different from on- or post-announcement periods. We estimate the following regression models for comparisons:

$$PreAbVol_{iq} = \delta_0 + \delta_1 AggComp_{iq} + \delta_2 Size_{iq} + \delta_3 Coverage_{iq} + \delta_4 Spread_{iq} + \delta_5 AbsEAR_{iq-1} + \delta_6 AbsRet_{iq} + \delta_{year} + \delta_{ind} + \varepsilon_{iq}, \quad (8a)$$

$$OnAbVol_{iq} = \delta_0 + \delta_1 AggComp_{iq} + \delta_2 Size_{iq} + \delta_3 Coverage_{iq} + \delta_4 Spread_{iq} + \delta_5 AbsEAR_{iq-1} + \delta_6 AbsRet_{iq} + \delta_{year} + \delta_{ind} + \varepsilon_{iq}, \quad (8b)$$

$$PostAbVol_{iq} = \delta_0 + \delta_1 AggComp_{iq} + \delta_2 Size_{iq} + \delta_3 Coverage_{iq} + \delta_4 Spread_{iq} + \delta_5 AbsEAR_{iq-1} + \delta_6 AbsRet_{iq} + \delta_{year} + \delta_{ind} + \varepsilon_{iq}, \quad (8c)$$

$PreAbVol_{iq}$, $OnAbVol_{iq}$, and $PostAbVol_{iq}$ are measured over the period $[-10, -3]$, $[-2, +2]$ and $[+3, +10]$, respectively, relative to the earnings announcement date t where we use the average trading volume during $[-40, -11]$ as the normal level of trading volume for all three windows.[24]

We provide the results in Panel A of Table 7. Although the coefficient on the aggregate comparability measure is positive in all three columns, the coefficient on $AggComp_{iq}$ is statistically significant only in column (1). These results indicate that comparability is significantly positively associated with trading volume only in the pre-announcement period.

Table 7 also presents the mean difference tests of comparability and *ex ante* information asymmetry measures between pre- and on-announcement regression (Panel B) and between pre- and post-announcement regression (Panel C). The effects of comparability and other *ex ante* information asymmetry measures on trading volume are significantly different at the 1% level between pre- and on-announcement periods and between pre- and post-announcement periods. Overall, the results show that financial statement comparability increases investors' trading activity before earnings announcements, but the role of comparability seems to disappear after the uncertainty is resolved by earnings announcements. Therefore, the evidence in this section justifies our focus on trading activity *before* earnings announcements (Johnson & So, 2018; Levi & Zhang, 2015a; So & Wang, 2014).

[24] Note that the regression results of estimating Eq. (8a) are already reported previously. The results in column (5) of Table 2 are identical to the results in column (1) of Table 7, Panel A.

Table 6
Cross-sectional tests.

Dependent variable: Cumulative abnormal trading volume, $PreAbVol_{iq}$

Panel A: Regression results

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		OIE = NEWS		*OIE = IO*		*OIE = PIN*		*OIE = FRQ*	
	Pred.	High	Low	High	Low	High	Low	High	Low
$AggComp_{iq}$	(+)	16.692***	8.703***	16.268***	7.869**	14.912***	4.422	15.808***	8.055**
		(4.19)	(3.03)	(4.83)	(2.40)	(3.68)	(1.30)	(4.55)	(2.49)
$Size_{iq}$	(+)	15.846***	12.140***	12.980***	15.418***	18.645***	9.548***	16.214***	12.171***
		(9.17)	(8.40)	(8.71)	(8.86)	(7.32)	(5.65)	(9.73)	(7.94)
$Coverage_{iq}$	(+)	12.659***	9.494***	7.516**	11.916***	2.423	11.530***	7.976**	10.106***
		(3.80)	(3.26)	(2.46)	(3.98)	(0.73)	(3.19)	(2.57)	(3.47)
$Spread_{iq}$	(−)	−9.057***	−8.878***	−6.750**	−12.975***	−7.096**	−15.618***	−7.554***	−10.122***
		(−2.66)	(−3.23)	(−2.38)	(−3.88)	(−2.45)	(−4.94)	(−2.74)	(−3.28)
$AbsEAR_{iq-1}$	(−)	−2.506***	−2.383***	−2.880***	−1.915***	−2.256***	−2.536***	−2.162***	−2.465***
		(−5.94)	(−7.39)	(−7.95)	(−5.76)	(−5.54)	(−6.55)	(−6.28)	(−6.99)
$AbsRet_{iq}$	(+)	17.330***	18.637***	17.775***	18.370***	17.680***	17.814***	18.233***	18.387***
		(31.52)	(41.36)	(36.76)	(38.08)	(33.14)	(35.25)	(37.24)	(37.26)
Fixed effects		Ind & Yr	Ind & Yr	Ind & Yr	Ind & Yr	Ind & Yr	Ind & Yr	Ind & Yr	Ind & Yr
S. E. clustered		Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
No. of obs.		21,974	35,055	30,598	30,614	23,845	23,844	29,276	29,274
Adj. R-sq.		0.087	0.090	0.082	0.093	0.071	0.097	0.089	0.084

Panel B: Mean difference tests of the coefficients on $AggComp_{iq}$

Coefficient differences between two groups	*OIE = NEWS*		*OIE = IO*		*OIE = PIN*		*OIE = FRQ*	
	High	Low	High	Low	High	Low	High	Low
χ^2 statistics	2.86**		3.24**		4.28**		2.88**	
(*p*-value)	(0.046)		(0.036)		(0.019)		(0.045)	

Notes: Panel A shows the results of regressing abnormal trading volume before earnings announcements on the aggregate measure of comparability ($AggComp_{iq}$), *ex ante* information asymmetry proxies, and control variables for subsamples of firms partitioned by the opacity of information environments (*OIE*) (Eqs. (7a) and (7b)). High (low) *OIE* represents bad (good) earnings news (columns (1) and (2)), low (high) institutional ownership (columns (3) and (4)), high (low) probability of informed trading (columns (5) and (6)), and low (high) financial reporting quality (columns (7) and (8)), respectively. Standard errors are clustered at firm-level, and year and industry fixed effects are included in the regression model. *t*-statistics are reported in the parentheses under their corresponding coefficients. *, **, and *** denote statistical significance based on two-tailed *p*-values at the 10%, 5%, and 1% levels, respectively. All variables in the table are defined in the variable description in Appendix A. Panel B reports the mean difference test of slope coefficients on the aggregate comparability measures ($AggComp_{iq}$) across the high vs. low subsamples. χ^2 statistics are from a simultaneous estimation of Eqs. (7a) and (7b), and one-tailed *p*-values are in the parentheses.

5.3. Alternative models to measure comparability

We conduct sensitivity tests with alternative measures of accounting comparability to address the concern that our results are driven by a specific functional form in our comparability estimation model. In line with previous literature (e.g., Chen et al., 2018; Choi et al., 2019; De Franco et al., 2011; Kim et al., 2018), we adopt four different methods of calculating firm-quarter comparability measures. Specifically, we separately estimate coefficients that summarize firm's accounting system from the following models instead of Eq. (1):

$$\Delta EARN_{iq+1} = \varphi_0 + \varphi_1 \Delta EARN_{iq} + \varphi_2 D\Delta EARN_{iq} + \varphi_3 \Delta EARN_{iq} \times D\Delta EARN_{iq} + \varepsilon_{iq}, \quad (9a)$$

$$ACC_{iq} = \varphi_0 + \varphi_1 CF_{iq} + \varphi_2 DCF_{iq} + \varphi_3 CF_{iq} \times DCF_{iq} + \varepsilon_{iq}, \quad (9b)$$

$$EARN_{iq} = \varphi_0 + \varphi_1 Ret_{iq} + \varphi_2 LRet_{iq} + \varepsilon_{iq}, \quad (9c)$$

$$EARN_{iq} = \varphi_0 + \varphi_1 Ret_{iq} + \varphi_2 DRet_{iq} + \varphi_3 Ret_{iq} \times DRet_{iq} + \varepsilon_{iq}, \quad (9d)$$

ARN_{iq} is the change in net income, and $D\Delta EARN_{iq}$ is a dummy variable that has a value of one if $\Delta EARN_{iq}$ is negative. ACC_{iq} is net income before extraordinary items less net operating cash flow deflated by lagged market value of equity. DCF_{iq} and $DRet_{iq}$ are dummy variables that have a value of one if CF_{iq} and Ret_{iq} are negative, respectively. $LRet_{iq}$ is the stock return during quarter *q*-1, and other variables are defined previously.[25] In each model, we construct the one with the top ten comparable firms and the other based on the industry median comparable firms: $CompCHE10_{iq}$, $CompCHEInd_{iq}$, $CompACC10_{iq}$, $CompACCInd_{iq}$, $CompLRet10_{iq}$, $CompLRetInd_{iq}$, $CompBASU10_{iq}$, and $CompBASUInd_{iq}$ from Eqs. (9a), (9b), (9c) and (9d), respectively. In untabulated regression results, all eight measures of comparability are positively and significantly associated with trading volume before earnings announcements at the 1% level. These results suggest that our findings are robust to several alternative models to estimate comparability, alleviating the measurement error concern in comparability estimation.

6. Conclusion

Using trading volume which summarizes the *sum* of all investors' idiosyncratic investment decisions, we provide empirical evidence which helps standard setters, regulators, and practitioners to better assess the role of financial statement comparability in shaping a firm's pre-existing information environment. We use a variety of alternative operationalization of accounting comparability in the spirit of De Franco et al. (2011) and find that financial statement comparability mitigates delayed trading volume before earnings announcements.

[25] Eq. (9a) is the differential recognition model of current value-relevant news into future earnings (Ball & Shivakumar, 2005, 2006; Basu, 1997). Eq. (9b) is the differential recognition model of cash flows into accruals (Ball & Shivakumar, 2006). Eq. (9c) is the 'prices lead earnings' model (Collins, Kothari, Shanken, & Sloan, 1994). Finally, Eq. (9d) is the timely loss recognition model of earnings (Basu, 1997). We then repeat the estimation process as previously described and create eight different comparability measures for each firm-quarter.

Table 7
Cumulative abnormal volume before, on, and after earnings announcements.

Dependent variable: Cumulative abnormal trading volume, $AbVol_{iq}$ *(Pre-, On-, and Post-)*			
Panel A: Regression results			
	(1) $PreAbVol_{iq}$ [−10, −3]	(2) $OnAbVol_{iq}$ [−2, +2]	(3) $PostAbVol_{iq}$ [+3, +10]
$AggComp_{iq}$	11.914***	3.002	4.203
	(5.04)	(1.19)	(1.47)
$Size_{iq}$	13.508***	−11.895***	−6.057***
	(11.82)	(−9.78)	(−4.56)
$Coverage_{iq}$	10.301***	31.324***	−1.055
	(4.71)	(14.19)	(−0.41)
$Spread_{iq}$	−8.969***	−10.039***	−10.927***
	(−4.28)	(−5.49)	(−4.24)
$AbsEAR_{iq-1}$	−2.406***	1.414***	−2.019***
	(−9.76)	(6.66)	(−6.67)
$AbsRet_{iq}$	18.016***	6.204***	4.365***
	(52.44)	(23.02)	(11.26)
Fixed effects	Ind & Yr	Ind & Yr	Ind & Yr
S. E. clustered	Firm	Firm	Firm
No. of obs.	61,212	61,212	61,212
Adj. R-sq.	0.086	0.087	0.029
Mean difference tests			
Panel B: Comparing pre-announcement with on-announcement regressions			
	$AggComp_{iq}$	$Size_{iq}$	$Coverage_{iq}$	$Spread_{iq}$
χ^2 statistics	18.52***	105.51***	53.12***	67.31***
(*p*-value)	(0.000)	(0.000)	(0.000)	(0.000)
Panel C: Comparing pre-announcement with after-announcement regressions				
	$AggComp_{iq}$	$Size_{iq}$	$Coverage_{iq}$	$Spread_{iq}$
χ^2 statistics	8.17***	51.26***	16.11***	49.79***
(*p*-value)	(0.002)	(0.000)	(0.000)	(0.000)

Notes: This table shows the results of regressing abnormal trading volume (1) before the announcements, [−10, −3], (2) on the announcements, [−2, +2], and (3) after the announcements, [+3, +10], on the aggregate measure of comparability ($AggComp_{iq}$), *ex ante* information asymmetry proxies, and control variables (Eqs. (8a), (8b), and (8c)). Standard errors are clustered at firm-level, and year and industry fixed effects are included in the regression model. *t*-statistics are reported in the parentheses under their corresponding coefficients. *, **, and *** denote statistical significance based on two-tailed *p*-values at the 10%, 5%, and 1% levels, respectively. All variables in the table are defined in the variable description in Appendix A. Panel B (Panel C) reports the mean difference tests of comparability and *ex ante* information asymmetry measures between pre- and on-announcement groups (between pre- and post-announcement groups). χ^2 statistics and associated one-tailed *p*-values are from simultaneous estimations of Eqs. (8a) and (8b) and of Eqs. (8a) and (8c), respectively.

Specifically, the reduction in trading volume during pre-announcement periods is less pronounced for more comparable firms than less comparable firms. The results show that comparability increases the quantity and quality of firm-specific information, resulting in increased transparency and monitoring by outside investors. Hence, financial statement comparability tends to "level the playing field," which is the primary objective of standard setters, regulators, and policymakers (Levitt, 1999; Verrecchia, 2001).

In cross-sectional tests, we document that the effect of accounting comparability on pre-announcement trading volume is more pronounced when firms experience relatively more opaque information environments, suggesting that the effect of comparability adds more value when firms' pre-existing information environment is relatively more opaque. We also find that the positive association between comparability and trading volume is observed only during the pre-earnings announcement period but neither during the on- nor post-earnings announcement period, suggesting the importance of comparability when information asymmetry is likely to be high. Lastly, we show that the results are not driven by specific mechanical forms in comparability models.

Data availability

Data are available from the public sources cited in the text.

Appendix A. Variable definitions

Variables	Description
Measures of financial statement comparability	
$HCOMP_{iq}$	An indicator variable which takes the value of one if a firm's financial statement comparability, one of the five different measures (i.e., $CompRet10_{iq}$, $CompRetInd_{iq}$, $CompCF10_{iq}$, $CompCFInd_{iq}$, and $AggComp_{iq}$), is above sample median, zero otherwise.
$AggComp_{iq}$	An indicator variable which takes the value of one if the aggregate comparability index is above sample median, zero otherwise. The aggregate index is mean value of decile rankings of $CompRet10_{iq}$, $CompRetInd_{iq}$, $CompCF10_{iq}$, and $CompCFInd_{iq}$.

$CompRet10_{iq}$	The mean of ten highest values of $CompRet_{ijq}$ for firm i at quarter q. The accounting system of individual firms is calculated by the regression of past 16-quarter (from q-16 to q-1) earnings on return, $EARN_{iq} = \alpha + \beta(Ret_{iq}) + \varepsilon_{iq}$. $EARN_{iq}$ is income before extraordinary items divided by lagged market value of equity, and Ret_{iq} is the equity return over quarter q.
$CompRetInd_{iq}$	The median of all values of $CompRet_{ijq}$ for firm i at quarter q.
$CompCF10_{iq}$	The mean of ten highest values of $CompCF_{ijq}$ for firm i at quarter q.
$CompCFInd_{iq}$	The median of all values of $CompCF_{ijq}$ for firm i at quarter q.
Measures of cumulative abnormal volume	
$PreAbVol_{iq}$	The cumulative abnormal turnover during pre-announcement period $[-10, -3]$ relative to firm i's announcement date t. Turnover is the natural logarithm of trading volume deflated by the number of outstanding shares. Abnormal turnover is turnover measured over the period $[-10, -3]$ minus expected turnover over the 30-day period $[-40, -11]$.
$OnAbVol_{iq}$	The cumulative abnormal turnover during on-announcement period $[-2, +2]$ relative to firm i's announcement date t.
$PostAbVol_{iq}$	The cumulative abnormal turnover during post-announcement period $[+3, +10]$ relative to firm i's announcement date t.
Proxies for the opacity of information environment	
$NEWS_{iq}$	The difference between actual EPS and analysts' consensus EPS forecast plus a half cent.
IO_{iq}	Institutional ownership, which is the number of shares held by institutional investors divided by the number of outstanding shares.
PIN_{iq}	The probability of informed trading obtained from Stephen Brown's website (http://www.rhsmith.umd.edu/faculty/sbrown/).
FRQ_{iq}	The modified Dechow and Dichev (2002) accruals quality (McNichols, 2002). The standard deviation of the residuals is estimated by cross-sectional regression of total current accruals on previous, current, and next year's operating cash flows, change in sales revenue, and property, plant, and equipment for each industry and year. We multiply the standard deviation of the estimated residuals by a negative value of one to obtain FRQ.
Measures of other variables	
$Size_{iq}$	The natural logarithm of market value of equity at the end of quarter q.
$Coverage_{iq}$	The natural logarithm of the number of equity analysts following firm i at quarter q.
$Spread_{iq}$	The bid-ask spreads over the 30-day pre-announcement period $[-40, -11]$, where it is calculated as the ratio of (ask price – bid price) to 0.5 × (ask price + bid price).
$AbsEAR_{iq-1}$	The absolute value of the cumulative market-adjusted returns over the lagged-quarter announcement period $[-1, +1]$.
$AbsRet_{iq}$	The absolute value of the cumulative market-adjusted returns over the pre-announcement period $[-10, -3]$.

Appendix B. Controlling for other firm- and market-level determinants of trading volume

As a robustness check, we additionally include a comprehensive set of variables that are associated with trading volume (e.g., Al-Nasseri & Menla Ali, 2018; Chordia et al., 2001). All variables are defined in the notes of Table B1. We first consider (1) individual stock performance ($Stock^+$, $Stock^-$, $MA5Stock^+$, $MA5Stock^-$, and $MA5StockVol$), (2) market stock performance (MKT^+, MKT^-, $MA5MKT^+$, $MA5MKT^-$, and $MA5MKTVol$) and (3) trading volume (TV^+, TV^-, $MA5TV^+$, and $MA5TV^-$) prior to the pre-announcement window $[-10, -3]$. We predict that trading volume is more (less) strongly related to good (bad) stock performance. We also predict that trading volume is positively associated with recent trends in stock return volatility and trading volume.

Next, we include changes in short-term interest rate (ΔFFR) and long-term interest rate ($Term\_Spread$) because interest rates affect the short-selling constraints and the cost of margin trading, in turn determining the level of trading volume. We expect both ΔFFR and $Term\_Spread$ to be

Table B1
Controlling for other firm- and market-level determinants of trading volume.

Dependent variable: Cumulative abnormal trading volume, $PreAbVol_{iq}$

	Pred.	(1)	(2)	(3)	(4)	(5)
$HCompRet10_{iq}$	(+)	6.354**				
		(2.57)				
$HCompRetInd_{iq}$	(+)		7.377***			
			(3.08)			
$HCompCF10_{iq}$	(+)			9.524***		
				(3.76)		
$HCompCFInd_{iq}$	(+)				10.517***	
					(4.35)	
$AggComp_{iq}$	(+)					10.913***
						(4.64)
$Stock^+_{iq}$	(+)	3.481	3.650	3.384	3.458	3.563
		(0.49)	(0.51)	(0.47)	(0.48)	(0.50)
$Stock^-_{iq}$	(−)	11.176	11.338	11.110	11.101	11.245
		(1.57)	(1.60)	(1.56)	(1.56)	(1.58)
$MA5Stock^+_{iq}$	(+)	−2.974	−2.994	−2.933	−2.981	−2.639
		(−0.29)	(−0.29)	(−0.29)	(−0.29)	(−0.26)
$MA5Stock^-_{iq}$	(−)	19.701*	19.681*	19.688*	19.590*	19.985*
		(1.90)	(1.90)	(1.90)	(1.89)	(1.93)
$MA5StockVol_{iq}$	(+)	24.114***	24.071***	24.242***	24.137***	24.088***
		(11.49)	(11.45)	(11.58)	(11.54)	(11.51)
MKT^+_{iq}	(+)	−18.448***	−18.467***	−18.352***	−18.404***	−18.412***
		(−4.54)	(−4.55)	(−4.52)	(−4.53)	(−4.53)
MKT^-_{iq}	(−)	−15.340***	−15.365***	−15.344***	−15.335***	−15.330***
		(−3.77)	(−3.77)	(−3.77)	(−3.77)	(−3.76)
$MA5MKT^+_{iq}$	(+)	20.989***	20.912***	20.917***	20.979***	21.008***
		(3.19)	(3.18)	(3.18)	(3.19)	(3.19)
$MA5MKT^-_{iq}$	(−)	21.924***	21.858***	21.903***	22.017***	22.055***
		(3.28)	(3.27)	(3.28)	(3.30)	(3.30)
$MA5MKTVol_{iq}$	(+)	21.587***	21.541***	21.461***	21.363***	21.418***
		(6.53)	(6.51)	(6.49)	(6.46)	(6.48)
TV^+_{iq}	(+)	3.355	3.439	3.511	3.070	3.138
		(0.08)	(0.08)	(0.08)	(0.07)	(0.07)

(continued on next page)

Table B1 (*continued*)

Dependent variable: Cumulative abnormal trading volume, $PreAbVol_{iq}$						
	Pred.	(1)	(2)	(3)	(4)	(5)
TV_{iq}^{-}	(−)	−3.592	−3.526	−3.440	−3.923	−3.815
		(−0.08)	(−0.08)	(−0.08)	(−0.09)	(−0.09)
$MA5TV_{iq}^{+}$	(+)	−58.816	−58.269	−57.673	−57.902	−57.016
		(−1.30)	(−1.29)	(−1.29)	(−1.29)	(−1.27)
$MA5TV_{iq}^{-}$	(−)	−114.098**	−113.523**	−113.016**	−113.178**	−112.292**
		(−2.53)	(−2.52)	(−2.52)	(−2.52)	(−2.49)
ΔFFR_{iq}	(−)	−145.776***	−145.957***	−145.968***	−145.821***	−145.491***
		(−7.23)	(−7.24)	(−7.24)	(−7.22)	(−7.22)
$Term\_Spread_{iq}$	(−)	−147.235***	−147.361***	−147.390***	−147.354***	−147.049***
		(−7.57)	(−7.57)	(−7.57)	(−7.56)	(−7.55)
MON_{iq}	(+)	18.178***	18.133***	18.269***	18.453***	18.264***
		(3.78)	(3.77)	(3.80)	(3.83)	(3.79)
TUE_{iq}	(+)	16.287***	16.306***	16.476***	16.613***	16.466***
		(4.07)	(4.08)	(4.12)	(4.15)	(4.12)
WED_{iq}	(+)	11.217***	11.231***	11.281***	11.408***	11.324***
		(2.87)	(2.88)	(2.89)	(2.92)	(2.90)
THU_{iq}	(+)	0.987	1.007	0.973	1.109	1.080
		(0.26)	(0.27)	(0.26)	(0.29)	(0.29)
$Holiday_{iq}$	(−)	−22.231***	−22.360***	−22.077***	−22.140***	−22.288***
		(−3.25)	(−3.27)	(−3.22)	(−3.23)	(−3.26)
$Size_{iq}$	(+)	10.246***	10.198***	10.288***	10.024***	9.915***
		(8.97)	(8.91)	(9.01)	(8.76)	(8.67)
$Coverage_{iq}$	(+)	11.656***	11.568***	11.630***	11.473***	11.378***
		(5.29)	(5.25)	(5.29)	(5.23)	(5.18)
$Spread_{iq}$	(−)	−6.036***	−6.001***	−5.827***	−5.768***	−5.877***
		(−2.75)	(−2.74)	(−2.66)	(−2.63)	(−2.68)
$AbsEAR_{iq-1}$	(−)	−2.390***	−2.382***	−2.372***	−2.366***	−2.350***
		(−9.63)	(−9.58)	(−9.54)	(−9.53)	(−9.48)
$AbsRet_{iq}$	(+)	18.010***	18.015***	18.036***	18.038***	18.060***
		(51.62)	(51.59)	(51.62)	(51.70)	(51.67)
Fixed effects		Ind & Yr	Ind & Yr	Ind & Yr	Ind & Yr	Ind & Yr
S. E. clustered		Firm	Firm	Firm	Firm	Firm
No. of obs.		59,824	59,824	59,824	59,824	59,824
Adj. R-sq.		0.109	0.109	0.109	0.109	0.109

Notes: This table shows the results of regressing abnormal trading volume before earnings announcements on measures of comparability, determinants of trading volume (Al-Nasseri & Menla Ali, 2018; Chordia et al., 2001), *ex ante* information asymmetry, and control variables. $Stock^{+}$ ($Stock^{-}$) is an indicator variable which equals one if a firm's stock price increases (decreases) from day −12 to day −11, and zero otherwise. $MA5Stock^{+}$ ($MA5Stock^{-}$) is an indicator variable which equals one if a firm's stock price increases (decreases) from day −16 to day −11, and zero otherwise. *MA5StockVol* is the standard deviation of firm stock price during day −16 and day −11. MKT^{+} (MKT^{-}) is an indicator variable which equals one if market stock price increases (decreases) from day −12 to day −11, and zero otherwise. $MA5MKT^{+}$ ($MA5MKT^{-}$) is an indicator variable which equals one if market stock price increases (decreases) from day −16 to day −11, and zero otherwise. *MA5MKTVol* is the standard deviation of market stock price during day −16 and day −11. TV^{+} (TV^{-}) is an indicator variable which equals one if trading volume increases (decreases) from day −12 to day −11, and zero otherwise. $MA5TV^{+}$ ($MA5TV^{-}$) is an indicator variable which equals one if trading volume increases (decreases) from day −16 to day −11, and zero otherwise. *ΔFFR* is the change in daily federal funds rates. *Term_Spread* is the change in daily term structure variable from day −11 to day −10 where term structure is the difference between federal funds rate and the yield on 10-year Treasury bond. *MON* is an indicator variable which equals one if day −10 is Monday, and zero otherwise. *TUE* is an indicator variable which equals one if day −10 is Tuesday, and zero otherwise. *WED* is an indicator variable which equals one if day −10 is Wednesday, and zero otherwise. *THU* is an indicator variable which equals one if day −10 is Thursday, and zero otherwise. *Holiday* is an indicator variable which equals one if Independence Day, Thanksgiving Day, or Christmas Day exists during the pre-announcement window [−10, −3], and zero otherwise. The rest of the variables in the table are defined in the variable description in Appendix A. Standard errors are clustered at firm-level, and year and industry fixed effects are included in the regression model. *t*-statistics are reported in the parentheses under their corresponding coefficients. *, **, and *** denote statistical significance based on two-tailed *p*-values at the 10%, 5%, and 1% levels, respectively.

negatively associated with trading volume, suggesting that trading volume is higher when the costs of short-sale and margin trading are low. Finally, we control for the effects of days of the week (*MON*, *TUE*, *WED*, and *THU*) and holidays (*Holiday*) on trading volume because investor trading activity is likely to be lower during Fridays or holidays.

We present the results in Table B1. The results in all columns suggest that the coefficient on *HCOMP* is positive and statistically significant at the 1% level (except for column (1) where the significance level is 5%). The coefficients on control variables are generally consistent with our predictions.[26] Overall, our inferences remain unchanged when controlling for these additional determinants of trading volume.

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[26] We also note that the results in Tables 3 through 7 are similar when we control for these variables in the regression models.

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