Media Disagreement Around Earnings Announcements and Capital Market Consequences

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6 September 2024

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We appreciate feedback from Mary Ellen Carter, Tim Gray, and brownbag participants at Boston University.

1. Introduction

News media outlets are important information intermediaries. Prior research has shown that both information production and dissemination by media outlets impact various outcomes in capital markets. Market participants react both to creation of new content as well as synthesis and dissemination of existing content by news media evidenced by higher trading volume, lower information asymmetry, and improved price discovery (Blankespoor et al., 2018, Bushee et al, 2010; Drake, Guest, and Twedt, 2014; Guest, 2021). Since most prior studies that examine the impact of media have primarily focused on the effects of frequency of media coverage, tone and type of content included in the coverage, we know little about whether media outlets disagree among each other when they process information released by firms, and what effect, if any, this disagreement has on capital markets.

In this paper, we focus on the disagreement among media outlets around earnings announcements and investigate the consequences of changes in their disagreement. Coverage and dissemination by media outlets around earnings announcements increase trading volume and liquidity (Bushee et al. 2010 and Blankespoor et al. 2018), suggesting media affects disagreement among investors as disagreement among investors is one of the primary reasons for trading (Milgrom and Stokey, 1982; Karpoff, 1986). Although information in earnings announcements helps resolve differences in priors among investors, this information can also be interpreted differently by different investors (Kendal and Pearson, 1995; Kim and Verrecchia, 1997). With its information dissemination, information synthesis and information production activities, media outlets can contribute to investors' differential interpretation of earnings information around earnings announcements.

To the extent that media articles disseminate not only earnings information but also the journalists' assessment of the earnings information and their revised beliefs about the firm based on the earnings information, we would expect that disagreement among media outlets changes around earnings announcements. If journalists interpret the implications of earnings information on firm fundamentals similarly, then the disagreement in their views is expected to decrease after the earnings announcement. However, if journalists interpret the earnings news differently, then we would expect an increase in disagreement after the earnings announcement. In a way, the change in news outlet disagreement subsequent to the earnings announcement can be viewed as a summary measure of information processing by the news outlets.

We use a comprehensive dataset of news articles from RavenPack to measure media disagreement. This database contains articles from more than 9,000 media outlets over a period of 2000-2020. RavenPack analyzes media articles from a range of media outlets including major media organizations such as The Wall Street Journal, The New York Times, CNN, The Washington Post as well as the local and smaller media outlets. We compute disagreement prior to earnings announcement as the standard deviation of the tone of all media articles published within the 24-hour window before earnings announcement. In order to compute the change in disagreement, we compute disagreement post-earnings announcement by considering news articles published in 24-hour window after earnings announcement and compute the change in disagreement as the difference between post-earnings announcement disagreement and pre-earnings announcement disagreement.

Our sample covers 2000 to 2020 period and contains 60,053 firm-quarter observations with non-missing Compustat, CRSP, and earnings announcement time stamp data from IBES for which are able to compute media disagreement using RavenPack. For 36,470 of these firm-

quarter observations, we are also able to compute analysts' forecast dispersion. For our analysis using StockTwits-based investor disagreement, we have 34,096 firm-quarter observations during 2010 to 2020, 21,284 of which also have analysts' forecast dispersion available.

We find that media disagreement exhibits a low correlation with analyst disagreement and investor disagreement. In particular, the Pearson correlation between media disagreement prior to earnings announcement and analysts' forecast dispersion is 0.012. The correlation with investor disagreement measure based on StockTwits (Cookson and Niessner, 2021; Booker, Curtis, and Richardson, 2023) is 0.066, whereas that the correlation with return volatility is 0.110. This suggest that media disagreement captures a different aspect of disagreement in capital markets compared to disagreement captured by other measures or that media outlets process information differently than StockTwits users and analysts.

We find that both pre-earnings announcement disagreement and change in disagreement are positively associated with trading volume around earnings announcement. In terms of economic significance, one standard deviation increase in pre-earnings announcement disagreement (change in disagreement) is associated with 10.4% (8%) increase in trading volume. We also find that one standard deviation increase in pre-earnings announcement disagreement (change in disagreement) is associated with 6.2% (5.9%) increase in returns volatility around earnings announcements.

Having documented the impact of media disagreement on capital market outcomes, we test whether the trading by retail investors is a channel through which the media disagreement and change in media disagreement impact the capital market outcomes. We follow Boehmer et al. (2020) to compute retail trading activity from TAQ dataset. In line with our prediction, we find that retail trading activity is positively associated with media disagreement around earnings

announcements, consistent with the interpretation that retail investors' trading activity is fueled by media disagreement.

Next, we focus on the factors that affect media disagreement and how media disagreement changes after the earnings announcement. Our regression analysis shows that pre-earnings announcement disagreement is positively associated with returns volatility, analyst dispersion and investor disagreement, and negatively associated with past returns. Analysis of change in disagreement reveals that pre-earnings announcement disagreement is negatively associated with change in disagreement, whereas analyst dispersion and investor disagreement are positively associated with it. We find that media disagreement increases when firms announce a loss or when announced earnings are below analysts' expectations, consistent with arrival of negative news increasing the uncertainty of signal interpretation increasing disagreement (Doukas, Kim, & Pantzalis, 2006).

Our results are robust to using an alternative sample which focuses on media outlets that cover the firm both before and after the earnings announcements; for both small and large firms; and concentrating on disagreement among top media outlets as well as non-top media outlets.

Our main contribution is to the literature on the role of news media plays in capital markets. By using a proxy that summarizes news outlets' processing of information around earnings announcements, we add to our understanding of how these information intermediaries influence the trading decisions of capital market participants during an information rich time period such as earnings announcements.

The rest of the paper is structured as follows. Section 2 discusses prior literature and Section 3 develops hypotheses. Data and sample construction are described in Section 4 and Section 5 presents empirical results. Section 6 concludes the paper.

2. Prior Literature

As a key information intermediary, news media affects capital market outcomes such as trading volume, information asymmetry, and stock returns (Tetlock, 2007; Bushee et al, 2010; Drake, Guest, and Twedt, 2014; Blankespoor, deHaan, and Zhu, 2018; Guest, 2021). In addition, it helps investors in monitoring managers by identifying excess pay, and uncovering irregularities or fraud (Miller, 2006, Dyck, Morse, and Zingales, 2010).

News media plays two primary roles: dissemination of already generated information, and production of new information. In its role as information disseminator, news media will primarily affect capital markets by enabling greater coverage of the information for market participants, thereby reducing cost of information acquisition (Bloomfield, 2002; Dyck and Zingales, 2002; Miller, 2006). Consistent with this role, studies find that increased dissemination of earnings information improves price discovery and reduces information asymmetry (Stice,1991; Soltes, 2010; Bushee et al., 2010; Engelberg and Parsons, 2011; Drake, Guest and Twedt, 2014; and Blankespoor, DeHaan and Zhu, 2018). Bushee et al. (2010) show that more media coverage around earnings announcements narrows spreads, increases depth and hence reduces information asymmetry. Similarly, Soltes (2010) documents higher trading volume, lower volatility, and narrow spreads as a result of media coverage. Bonsall, Green, and Muller (2020) find that business press increases coverage of earnings announcements during times of

greater uncertainty leading to an improved information environment and increased trading by both retail and institutional investors.

Prior studies show evidence that press coverage helps market participants process information. Drake et al. (2014) study a dataset of more than 111,000 earnings related news articles from 2000 – 2010 and find that media coverage mitigates cash flow mispricing but has very little effect on accruals mispricing. They attribute their finding to the dissemination role of media rather the information creation role under which news media can help investors understand the accounting information implications. Fang and Peress (2009) look at the firms with lower media coverage and find that investors in these firms earn higher risk premiums than the ones with higher media coverage. Press coverage is also associated with lower cost of capital and lower dispersion among analyst forecasts (Kothari et al, 2009). In their study of algorithmic coverage of earnings announcements, Blankespoor et al (2018) find that such articles are associated with higher volume and liquidity but have no impact on price discovery process. Additionally, they also find that the documented effects seem to be primarily driven by retail traders.

While majority of studies have found support for the dissemination role, studies that examine media's information creation role in stock markets are relatively sparse. Tetlock (2011) develops a measure of information creation in news articles by computing word differences with past articles and finds that stock returns are strongly associated with articles that create information. Guest (2021) utilizes the setting of restructuring at The Wall Street Journal in 2008 that produced an exogenous variation in coverage of earnings. Guest (2021) documents higher trading volume and faster price discovery for S&P 500 firms with higher coverage and finds that these effects are stronger for articles that have higher amount of editorial content (new

information). Guest (2021) finds that price discovery improvement is stronger when the tone of news content is consistent with the tone of firm's news, whereas increased volume is observed regardless of the tone consistency.

A smaller set of the literature studies the interaction between information intermediaries. Kross, Ro, and Schroeder (1990) suggest that press coverage improves analysts' forecast accuracy, while Ahn, Drake, Kyung, and Stice (2019) show that press coverage helps markets better interpret analyst recommendation revisions. Bradshaw et al. (2021) study analysts' recommendation revisions subsequent to media coverage, and find a stronger price reaction to these revisions, in particular subsequent to coverage containing more soft information, suggesting analysts incorporate information from news coverage.

Prior literature also studied the sentiment of media coverage. Tetlock, Saar-Tsechansky, and Macskassy (2008) shows that information conveyed by media sentiment predicts returns over the short horizon of a few days. Tetlock (2007) and Garcia (2013a) show that market-wide media tone positively predicts aggregate market returns over a short horizon (i.e., evidence of underreaction). On the one hand, much of the literature examines whether firm-specific media tone captures fundamental information that is priced in a delayed manner by the stock market (e.g. Tetlock et al. (2008), Chen et al. (2014), Heston and Sinha (2017), and Bartov et al. (2018)). On the other hand, Froot et al. (2017) show that media tone, in conjunction with the previous week's stock returns, is associated with stock returns reversals over the following ten days. Hillert et al. (2014) document that past winner-versus-loser stocks display more pronounced momentum and subsequent return reversal when media tone matches the direction of past returns.

Overall, although there is evidence that news coverage and sentiment of news coverage have information content, the literature has not considered explicitly how news outlets process information provided by firms in their public disclosures, and how their subsequent coverage and the sentiment therein may convey differential views on firms' prospects. Our paper aims to fill this gap by studying the capital market implications of change in disagreement in news sentiment subsequent to earnings announcements.

3. Hypothesis Development

There is substantial variation among media outlets in terms of resources and incentives. This heterogeneity likely results in variation in how media outlets approach firm coverage. While some outlets may focus primarily on dissemination, others focus more on information production (or both). During the process of information production, the news outlets form opinions about firms based on their independent analysis. In this respect, the work of a journalist can be analogous to that of an analyst where both form an opinion about the firm based on their private information, publicly available information set, and their own analysis. The media outlet conveys its opinion about the firm through the published news article. While there are similarities, there are also considerable differences between the expertise, incentives, and workloads of a journalist and an analyst.

To the extent that media outlets focus primarily on information dissemination, the disseminated information would be devoid of journalists' opinions and we would not expect any disagreement among media outlets either prior to earnings announcement or after the release of earnings news. However, if media articles convey not only the earnings information but also the journalist's assessment of the information, we would expect disagreement among news outlets. Furthermore, if journalists revise their views about the firm upon observing the firm's earnings

announcement, we would expect their disagreement to change subsequent to the earnings announcement. If the earnings information results in a common interpretation of information and resolution of differences in prior beliefs (Kim and Verrecchia, 1991) then the disagreement post-earnings is expected to decrease. However, if media outlets interpret the earnings news differently, then there would be an increase in media disagreement post earnings (Kim and Verrecchia, 1997).

As an information intermediary, media outlets (or their disagreement) cannot have a direct impact on the capital markets. The effect on capital markets, if any, can be through the trading decision of investors who incorporate the information contained in news articles. Evidence provided in Kothari, Li, and Short (2009) suggests that investors view business press to be a more credible information source than companies and analysts. Investors face the choice of subscribing from a large number of media outlets.[1] Survey evidence suggests that more than half of adults in U.S. subscribe to news in one form or the other. However, due to limited attention and cost of subscriptions, it is unlikely that an average investor would subscribe to all (or majority) of the media outlets and read all available articles on a firm. As a result, investors generally rely on a select number of outlets for their information needs. If investors are influenced by the information contained in the news articles they read, media disagreement will translate into investor disagreement and therefore would have an impact on investors' trading decisions. If, however, investors disregard the information contained in news articles, then we would not expect media disagreement to have an impact on market outcomes.

[1] https://www.usatoday.com/story/opinion/2021/05/14/mainstream-media-ownership-america-needs-news-transparency/5077719001/

To the extent that media disagreement induces disagreement among investors, then we should expect to see the effects of media disagreement on capital market outcomes. Our first prediction draws on the empirical observation of increases in volume around earnings announcements and disagreement models that link this increase to investor disagreement (Kim and Verrechhia, 1991; Kandel and Pearson, 1995; Banerjee and Kremer, 2010). Under these models, earnings announcements will be associated with high trading volume because there will be a convergence of prior dispersion and investors will disagree about the interpretation of new information released at the time of earnings announcement. Prior belief convergence and higher disagreement resulting from differential interpretation of new information leads to higher trading because investors readjust their portfolios in response to the new information (Booker, Curtis, and Richardson, 2023). Our first hypothesis, stated in alternate form, is:

H1: News media disagreement prior to earnings announcement and changes in media disagreement around earnings announcement are positively associated with trading volume.

Our second hypothesis relates media disagreement to stock return volatility. When disagreement is high, investors have more extreme interpretations and therefore price reactions to public signals are more likely to be extreme (Harris and Raviv, 1993; Banerjee and Kremer, 2010). As a result, we would expect volatility to be positively associated with media disagreement.

H2: News media disagreement prior to earnings announcement and changes in media disagreement around earnings announcement are positively associated with stock return volatility.

Prior literature has generally considered institutional investors as sophisticated investors and retail investors as relatively less sophisticated (e.g., Grossman and Stiglitz, 1980, Kyle, 1985, Wang, 1993, Grinblatt and Keloharju, 2001, Barber and Odean, 2008, Barber et al., 2009). Institutional investors are generally well informed and are known to possess superior information processing skills. Hendershott, Livdan, and Schurhoff (2015) show that institutional investors are informed about news and their trading activity can predict future news as well sentiment of news. However, retail traders do not generally possess superior information processing skills and would instead rely on outputs from other information intermediaries such as news articles to form their trading decisions. Survey evidence suggests that a significant proportion of young retail investors rely on different forms of news and social media for investment advice (CNBC, 2021). We therefore expect media disagreement to influence trading activity of retail investors around earnings announcements. Our final hypothesis stated in alternate form is:

H3: Increase in media disagreement around earnings announcement is positively associated with retail trading activity.

4. Data and Sample Construction

We conduct our empirical analyses over the 2000 - 2020 period using data from the following sources: 1) RavenPack Analytics, 2) Compustat, 3) CRSP, 4) I/B/E/S, 5) TAQ, 6) Thomson-Reuters 13F Filings, and 7) StockTwits-based disagreement data from Anthony Cookson's website.

News articles for all media outlets are sourced from RavenPack Analytics database. RavenPack analyzes media articles from a range of media outlets such as The Wall Street Journal, The New York Times, CNN, The Washington Post and provides data points related to each article. There are approximately 835 million observations in RavenPack. Among the key

data points that we utilize are the entity (firm) to which the article belongs, media outlet that published the article, date and timestamp when the article was published, sentiment of the article content, and a relevance score. Relevance score ranges from 0 to 100 and indicates strength of an entity's relation to the underlying news story in the article. Following prior literature and recommended practice from RavenPack, we only consider those news articles whose relevance score is 90 or above (Jiang and Sun, 2013)[2].

Furthermore, in order to examine the role of disagreement arising due to differential information interpretation, we keep only those observations where news articles are full articles since news flashes and headlines are more likely to be associated with information dissemination rather than information creation (Drake, Guest, and Twedt, 2014). Constraining the RavenPack sample to US companies' full article coverage by news media outlets results in 321.4 million articles, 16.7 million of which fall into the three-day window around the earnings announcements. We focus on the earnings announcement window, as this is a pre-scheduled mandatory disclosure event for all firms in our sample, and therefore media coverage around this window is less likely to be due to firm-specific events such as acquisitions or layoffs.

We require a minimum of two news articles before and after a firm's earnings announcement to be able to compute media disagreement. Accounting variables are computed using data from Compustat and returns related data is obtained from CRSP. We merge RavenPack data to Compustat data using common CUSIP IDs. Out of 225,851 firm-quarter observations with non-missing earnings announcement date and time stamp with available Compustat and CRSP data, 60,053 have media-disagreement computed (as described below)

[2] Results are qualitatively similar when we select articles with relevance score of 100.

using RavenPack. To compute analyst following, analyst forecast dispersion and earnings surprise related variables, we obtain data from I/B/E/S. We are able to compute analyst forecast dispersion for 36,470 observations. Trading by retail investors is computed from TAQ database by following Boehmer et al. (2022) methodology. Institutional ownership data is obtained from Thomson Reuters 13F filings.

Finally, we obtain StockTwits-based daily investor disagreement data from Anthony Cookson's website. Although our sample covers the 2000-2020 period, StockTwits-based investor disagreement data is available from 2011 onwards.[3] Out of the 60,053 firm -quarter observations for which we have Compustat, CRSP, and RavenPack data as discussed above, 34,096 have StockTwits-based investor disagreement data, out of which 21,284 also have data on analyst forecast dispersion. We present our results using three alternate samples – 1) Full sample during 2000-2020 with observations that have the required data in RavenPack, CRSP, Compustat; 2) Full sample during 2000-2020 after including analyst forecast dispersion; and 3) Sample during 2011-2020 that includes StockTwits-based investor disagreement measure. Table 1 presents our sample construction for these three samples.

Disagreement Variables Construction

The primary variables for our analyses are the demeaned news media disagreement (*BEFORE_EA_DISAG*) and changes in news media disagreement (*EA_DISAG_DELTA*) around earnings announcement. We construct the demeaned disagreement variable as follows. For each quarterly earnings announcement of a firm in I/B/E/S, we take the earnings announcement date

[3] In its own words "StockTwits is the largest social network for investors and traders". On this platform, users can post their views on companies using cashtags (e.g. $TSLA for Tesla).

and time[4]. Using this timestamp, we take all unique media articles (according to the criteria mentioned above) published within 24 hours of the earnings announcement timestamp. We then take the sentiment (CSS) score of each article and demean it by the average CSS score of all articles published for the same media outlet-firm pair in the [-180, -10] days window relative to earnings announcement date.[5,6]

We demean the sentiment to control for the possibility that media outlets have their individual styles that can cause a difference in the sentiment score even if they essentially convey a similar opinion. For example, an article written by The Wall Street Journal is likely to adopt a different writing style compared to an article that is written in The Washington Post. Furthermore, we control for the possibility that media outlets may have different incentives or inclinations while covering a firm and there could be differences in writing styles *within* the outlet for the firm being covered. These differences could arise because of political leanings, advertisement spending or other factors (Besley and Prat, 2006; Rees and Twedt, 2022). In order to control for both of these possibilities, we demean the sentiment of the media articles by subtracting the average sentiment score at the media outlet-firm level.[7]

We then compute the disagreement 24-hour prior (*BEFORE_EA_DISAG*) and 24-hour after (*AFTER_EA_DISAG*) by taking the standard deviation of demeaned sentiment scores of media articles published within the respective time periods relative to the earnings announcement

[4] We take earnings announcement data from I/B/E/S as it contains both the earnings announcement date and the time when the earnings was announced.
[5] We check robustness of results to use of alternate sentiment measure – Event Sentiment Score (ESS) – published by RavenPack. ESS and CSS are closely related scores with a correlation of more than 0.9 and prior studies have used either of the scores.
[6] We conduct robustness checks for demeaning by taking average of articles in [-80, -10] window and find qualitatively similar results.
[7] We conduct robustness checks for demeaning at the media outlet level rather than media outlet-firm level and find qualitatively similar results.

(Cookson and Niessner, 2022; Booker, Curtis, and Richardson, 2023). Finally, we compute the change in disagreement around earnings announcement (*EA_DISAG_DELTA*) as the difference between *AFTER_EA_DISAG* and *BEFORE_EA_DISAG.*[8]

5. Results

We present our descriptive statistics in Table 2. On average, there are 61 news articles covering a firm around earnings announcements, and median count of articles covering firms is 26. Approximately 16 percent of the sample firms announce a loss, and 25.5 percent announce earnings that are below analysts' expectations. Average (median) Book-to-Market is 0.518 (0.397), whereas average (median) ROA is 0.3 (0.9) percent. 75.5 percent of outstanding shares of our sample firms are held by institutional shareholders, and median institutional ownership is 81.2 percent.

Table 3 presents Pearson correlations between news media disagreement with other measures of disagreement - analyst forecast dispersion (Diether, Malloy, and Scherbina, 2002), stock return volatility, and StockTwits-based daily investor disagreement (Cookson and Niessner, 2022). In order to ensure that the measurement period for the disagreement measures is the same, we compute all of the disagreement measures over the period [-45, -2] relative to earnings announcement. Specifically, we compute analyst forecast dispersion as standard deviation of latest analyst forecasts issued by individual analysts during the period. Return volatility is computed as standard deviation of characteristics-adjusted daily abnormal returns where abnormal returns are computed using Daniel et al (1997) methodology. For media

[8] It is possible that not many media outlets will publish an article in the 24-hour period prior to EA. To control for this possibility, we compute an alternative measure of *BEFORE_EA_DISAG* by considering all media articles published in the [-9, -1] window relative to the EA date. Our results remain qualitatively similar when we use this alternate measure of before period disagreement.

disagreement, we compute daily disagreement over the period based on demeaned sentiment values of the media articles published on the day and take an average over the entire period. Similarly, we take the average of daily investor disagreement conveyed by StockTwits over the same period.

Evidence in Table 3 shows that media disagreement is positively correlated with other measures of disagreement (correlation of 0.012, 0.110, and 0.066 with analyst dispersion, volatility, and investor disagreement measures respectively). However, the correlation values are quite small and suggest that media disagreement captures a different dimension of disagreement compared to disagreement captured by other measures. These correlations also suggest that media outlets process information differently than StockTwits users or analysts.

We next study how media disagreement influences trading volume and stock return volatility. We present results for different samples based on data availability in each of the tables. Panel A of each respective table presents results for full sample without and with analyst forecast dispersion variable (*FORECAST_DISP*). Panel B of each respective table presents similar analyses but on a smaller sample (from 2011-2020) where StockTwits-based investor disagreement (*STOCKTWITS_DISAG*) data is also present. Additionally, we present our results for two measurement windows for each dependent variable: [-1,1] and [0,2] days around earnings announcements.

Table 4 presents results of our test of hypothesis 1. If media disagreement indeed translates to investor disagreement, then following the predictions of disagreement models, we would expect that high prior disagreement and an increase in disagreement post earnings announcement should lead to higher trading volume We proxy for trading volume by median adjusted turnover to compute abnormal trading reaction around earnings announcement. We first

discuss full sample results (Panel A). Columns 1 and 4 present results of univariate specifications where median adjusted turnover (*ADJ_TURNOVER*) is regressed on *BEFORE_EA_DISAG* and *EA_DISAG_DELTA.* There is a statistically significant and positive relationship between turnover and both *BEFORE_EA_DISAG* (coefficient of 0.084 and 0.081) and *EA_DISAG_DELTA* (coefficient of 0.044 and 0.048).

These results are consistent with the predictions of disagreement models that a) disagreement in beliefs prior to a news event, and b) differential interpretation of news should lead to an increase in trading volume (Bamber et al, 2011). The results continue to remain positively significant after inclusion of control variables that can affect the dependent variable. In terms of economic significance, one standard deviation increase in *BEFORE_EA_DISAG* is associated with 10.4% increase in turnover (0.074*0.058/0.041) for [-1,1] window around earnings announcement. Similarly, one standard deviation increase in *EA_DISAG_DELTA* is associated with 8% increase in turnover (0.038*0.087/0.041) for [-1,1] window around earnings announcement. When we include analyst forecast dispersion (*FORECAST_DISP*), the sample size reduces by approximately 40% but coefficients for *BEFORE_EA_DISAG* and *EA_DISAG_DELTA* continue to be positive and statistically significant. We find similar results for the [0,2] window around earnings announcements, presented in columns 4 to 6.

Looking at the coefficients on control variables, we see market-wide trading (*MKT_TURNOVER),* media coverage (*COUNT_ARTICLES),* and institutional ownership (*INST_OWN)* are positively associated with *ADJ_TURNOVER.*

While results in Panel A provide strong evidence for media disagreement affecting trading volume, one of the concerns could be that the results are driven by investor disagreement and media disagreement is simply capturing this disagreement. In order to test whether this could

be potentially driving results in Panel A, Panel B of Table 4 presents results for the sub-sample where data on StockTwits-based investor disagreement is available. Requirement of including StockTwits data reduces initial sample by approximately 30%. We include investor disagreement on one day before (*STOCKTWITS_DISAG[-1]*), on the day of (*STOCKTWITS_DISAG[0]*), and one day after (*STOCKTWITS_DISAG[1]*) earnings announcement. If media disagreement simply captures the disagreement among investors, then the statistical significance of media disagreement variables should be subsumed after the inclusion of StockTwits based variables.

Similar to Panel A, we present results for both [-1,1] and [0,2] days windows relative to earnings announcements. Columns 1 and 4 present univariate results and we continue to find positive association between turnover and both *BEFORE_EA_DISAG* and *EA_DISAG_DELTA*. We then include the control variables and also *STOCKTWITS_DISAG[-1], STOCKTWITS_DISAG[0], STOCKTWITS_DISAG[1]* variables in Columns 2 and 5 respectively. After the inclusion of investor disagreement variables, we continue to find a positive relationship between turnover and media disagreement. The results continue to be similar after inclusion of *FORECAST_DISP*. Collectively, results in Columns 2 and 3 (and 5 and 6) suggest that media disagreement leads to an increase in trading volume that is incremental to the effect of analysts' disagreement and StockTwits based investor disagreement. These results are consistent with our Hypothesis 1 and suggest that media's processing of earnings announcements, and the remaining disagreement among news outlets, influence investors' trading decisions.

Next, we turn to testing our second hypothesis. In periods of high disagreement, trading volume increases as shown in Table 4. Also, because of high disagreement, investors will form more extreme opinions of fundamental value and price reactions to a public signal such as earnings announcement will be larger as investors change their opinions in response to the public

signal. Thus, we would expect that high disagreement should be positively associated with return volatility (Banerjee and Kremer, 2010). Table 5 presents results on regression of return volatility on *BEFORE_EA_DISAG* and *EA_DISAG_DELTA*.

Panel A presents our full sample results. Consistent with expectation of high disagreement leading to high volatility, we find that coefficients on both *BEFORE_EA_DISAG* and *EA_DISAG_DELTA* are positive and statistically significant. The relationship continues to be strong after inclusion of control variables and *FORECAST_DISP*. In terms of economic significance, one standard deviation increase in *BEFORE_EA_DISAG* is associated with a 6.2% (0.038*0.058/0.035) increase in return volatility. Similarly, one standard deviation increase in *EA_DISAG_DELTA* is associated with a 5.9% (0.024*0.087/0.035) increase in return volatility. Results are similar in Panel B, as well as when we measure our dependent variable over [0,2] window as presented in columns 4 to 6. Collectively, results presented in Table 5 Panels A and B are consistent with hypothesis 2 and document a statistically strong and positive relationship between stock return volatility and pre-earnings announcement media disagreement and change in media disagreement.

Overall, our results on the effect of pre-earnings announcement media disagreement and changes in disagreement around earnings announcements show that high (and increase in) media disagreement is associated with higher volume and volatility. As we expect retail traders to be more likely to rely on news outlets, we expect their trading to be associated with the media disagreement and change in media disagreement around the earnings announcement.

Table 6 presents our test of hypothesis 3. We compute retail trading from TAQ data over the period 2005-2020 following the methodology outlined in Boehmer et al (2020). Similar to our computation of median adjusted volume, we median adjust retail trading volume to compute

RETAIL_TURNOVER. Panel A presents full-sample results and Panel B presents results where StockTwits data is available from 2011-2020. In both panels, we find a consistently positive and significant relationship between *RETAIL_TURNOVER* and both measures of media disagreement. The results in Table 7 suggest that one potential channel through which effects of media disagreement influence capital market outcomes is trading by retail investors.

Having established that media disagreement prior to earnings announcements and change in media disagreement around earnings announcements influence trading volume, stock return volatility, and retail trading, we next explore the determinants of media disagreement. Table 7 presents results of our analyses. Columns 1-4 present different specifications when the dependent variable is media disagreement measured in the 24-hour period prior to earnings announcement (*BEFORE_EA_DISAG*) and columns 5-8 present results when the dependent variable is change in disagreement around earnings announcement (*EA_DISAG_DELTA*). We include various capital market based variables such as firm's stock return in the periods leading up to the earnings announcement (*ABN_RETURN[-2], ABN_RETURN[-3], ABN_RETURN[-90,-4]*), firm's stock price (*LOG_PRC*), firm characteristics (*MVE, BTM, INST_OWN*), media coverage (*COUNT_ARTICLES*), and other disagreement measures (*PAST_VOLATILITY, FORECAST_DISP, STOCKTWITS_DISAG[-1]*). Columns 5-8 include additional determinants related to the earnings announcement (*LOSS, SUE, NEG_EARN_SURP*) and disagreement prior to earnings announcement (*BEFORE_EA_DISAG*). Columns 1 and 5 only include determinants related to capital market, firm characteristics, and media coverage. Columns 2 and 6 add analyst forecast dispersion measure whereas Columns 3 and 7 add StockTwits based disagreement measure. Finally, Columns 4 and 8 include both analysts' disagreement and investor disagreement.

Table 7 provides several interesting insights. First, we find that majority of the disagreement variables are positively associated with *BEFORE_EA_DISAG* and *EA_DISAG_DELTA*. *PAST_VOLATILITY* is positively associated (coefficients of 0.163, 0.216, 0.110, and 0.246 with t-statistics of 5.49, 5.19, 3.31, and 4.31 respectively) with disagreement before earnings announcement and changes in disagreement (coefficients of 0.130, 0.160, 0.057, and 0.137 with t-statistics of 3.87, 3.34, 2.02, and 1.82 respectively). StockTwits-based investor disagreement measure is also positively associated with both *BEFORE_EA_DISAG* and *EA_DISAG_DELTA*. The disagreement among investors seems to influence media disagreement prior to earnings announcements, and change in media disagreement around earnings announcements. Interestingly, we find no evidence that media disagreement is associated with the dispersion of analyst forecasts. These findings are consistent with the low levels of positive correlations tabulated in Table 3.

We also find that pre period disagreement (*BEFORE_EA_DISAG*) is negatively associated with changes in disagreement (*EA_DISAG_DELTA*). Furthermore, information released during earnings announcements also have an impact on the changes in media disagreement. Consistent with summary statistics in Table 2, where *EA_DISAG_DELTA* increases after release of earnings information, we find that *LOSS* and *NEG_EARN_SURP* are positively associated with *EA_DISAG_DELTA* (coefficients of 0.047 and 0.023 in Column 8 respectively). Surprisingly, earnings surprise is not associated with *EA_DISAG_DELTA*. Negative coefficient on *BEFORE_EA_DISAG* and positive coefficients on *LOSS* and *NEG_EARN_SURP* suggest that while earnings news helps reduce prior disagreement, at the same time, arrival of new information (especially in negative cases) is interpreted differently by media outlets and it leads to an increase in disagreement. In the presence of heterogenous

beliefs, arrival of negative news can increase the uncertainty of signal interpretation and can increase disagreement (Doukas, Kim, & Pantzalis, 2006).

6. Conclusion

Prior literature documents that coverage and dissemination by media outlets around earnings announcements increase trading volume and liquidity (e.g. Bushee et al., 2010 and Blankespoor et al., 2018), consistent with media being important information intermediaries in capital markets. Our paper focuses on disagreement among media outlets around earnings announcements and investigates the consequences of changes in their disagreement.

Using a comprehensive dataset of news articles from RavenPack to measure media disagreement, we observe that media disagreement exhibits a low correlation with analyst disagreement and investor disagreement, which suggests that media's information processing around earnings announcements is distinct from that of analysts and investors as proxied by StockTwits users. We find that both pre-earnings announcement media disagreement and change in media disagreement are positively associated with trading volume, stock return volatility, and retail investor trading around earnings announcements.

Our findings are robust to using an alternative sample where we focus on media outlets that cover the firm both before and after the earnings announcement. Our results are similar for both small and large firms as well as for disagreement among top media outlets vs. non-top media outlets.

By using the change in media disagreement as a proxy that summarizes news outlets' processing of information around an information event, we add to our understanding of how

these information intermediaries influence the trading decisions of capital market participants during an information rich time period such as earnings announcements.

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APPENDIX I. VARIABLE DEFINITIONS

Variable	Definition	Dataset
ADJ_TURNOVER[-1,1]	Adjusted turnover computed as turnover in [-1,1] days around EA minus the median turnover in last 250 trading days.	CRSP, Compustat
ADJ_TURNOVER[0,2]	Adjusted turnover computed as turnover in [0,2] days around EA minus the median turnover in last 250 trading days.	CRSP, Compustat
ABN_RETURN[-1,1]	Buy and hold characteristics adjusted abnormal returns computed during period [-1,1] relative to EA. Abnormal returns are computed using Daniel, Grinblatt, Titman, and Wermers (1997) methodology.	CRSP, Compustat
ABN_RETURN[0,2]	Buy and hold characteristics adjusted abnormal returns computed during period [0,2] relative to EA. Abnormal returns are computed using Daniel, Grinblatt, Titman, and Wermers (1997) methodology.	CRSP, Compustat
ABN_VOLATILITY[-1,1]	Abnormal volatility of daily characteristics adjusted abnormal returns during [-1,1] period relative to EA. Abnormal volatility is computed as the difference between volatility during [-1,1] and volatility during [-45,-10] periods, Abnormal returns are computed using Daniel, Grinblatt, Titman, and Wermers (1997) methodology.	CRSP
ABN_VOLATILITY[0,2]	Abnormal volatility of daily characteristics adjusted abnormal returns during [0,2] period relative to EA. Abnormal volatility is computed as the difference between volatility during [0,2] and volatility during [-45,-10] periods, Abnormal returns are computed using Daniel, Grinblatt, Titman, and Wermers (1997) methodology.	CRSP
RETAIL_TURNOVER[-1,1]	Adjusted retail turnover computed as retail turnover in [-1,1] days relative to EA minus the median adjusted retail turnover in last 250 trading days. Retail trading volume is computed using the methodology in Boehmer, Jones, Zhang, and Zhang (2021).	TAQ
RETAIL_TURNOVER[0,2]	Adjusted retail turnover computed as retail turnover in [0,2] days relative to EA minus the median adjusted retail turnover in last 250 trading days. Retail trading volume is	TAQ

	computed using the methodology in Boehmer, Jones, Zhang, and Zhang (2021).	
BEFORE_EA_DISAG	News media disagreement computed as standard deviation of demeaned CSS sentiment score during 24 hour period prior to EA. Demeaned sentiment is computed by subtracting average sentiment for each media outlet-firm pair measured during [-180, -10] day period from CSS sentiment.	RavenPack
EA_DISAG_DELTA	Change in news media disagreement computed as difference between disagreement in 24 hours following EA and disagreement in 24 hours period to EA. News media disagreement is computed as standard deviation of demeaned CSS sentiment score. Demeaned sentiment is computed by subtracting average sentiment for each media outlet-firm pair measured during [-180, -10] day period from CSS sentiment.	RavenPack
MKT_TURNOVER	Turnover for all CRSP firms in [-1, 1] days around EA	CRSP
LOG_PRC	Logarithm of stock price 2 days prior to EA	CRSP
COUNT_ARTICLES	Count of all media articles published in [-1, 1] days around EA	RavenPack
ABN_RETURN[-2]	Characteristics adjusted abnormal return on day -2 relative to EA. Abnormal returns are computed using Daniel, Grinblatt, Titman, and Wermers (1997) methodology.	CRSP, Compustat
ABN_RETURN[-3]	Characteristics adjusted abnormal return on day -3 relative to EA. Abnormal returns are computed using Daniel, Grinblatt, Titman, and Wermers (1997) methodology.	CRSP, Compustat
ABN_RETURN[-90,-4]	Buy and hold characteristics adjusted abnormal returns computed during period [-90,-4] relative to EA. Abnormal returns are computed using Daniel, Grinblatt, Titman, and Wermers (1997) methodology.	CRSP, Compustat
PAST_VOLATILITY	Volatility measures as standard deviation of abnormal returns over the period [-45, -2] days relative to EA.	CRSP
INST_OWN	Proportion of institutional ownership in a firm in the previous quarter. Computed as number of shares owned by institutions in a firm at the end of a quarter divided by total shares outstanding.	Thomson-Reuters 13F Data, CRSP.
ANALYST_FOLLOWING	Number of analysts following a firm. An analyst is considered as following a firm if the	IBES

	analyst has issued a forecast for the firm in last 360 days prior to earnings announcement.	
BTM	Book-To-Market is computed as Book Value of Equity divided by Market Value of Equity	Compustat
LOSS	Dummy variable that is assigned a value of 1 if the firm reported a loss in the current quarter and 0 otherwise.	IBES
MVE	Market Value of Equity, computed at the end of the quarter as number of shares outstanding multiplied by price at the end of the quarter.	Compustat
NEG_EARN_SURP	Dummy variable that is assigned a value of 1 if the analyst forecast based earnings surprise is negative and 0 otherwise.	IBES
ROA	Return on Assets (ROA) is computed as income before extraordinary items scaled by total assets.	Compustat
SUE	Analyst forecast based earnings surprise. Earnings surprise is computed as the difference between actual reported earnings per share and median of latest analyst forecasts issued within 90 days of earnings announcement scaled by price at the end of the quarter.	IBES, Compustat
FORECAST_DISP	Analyst forecast dispersion computed as standard deviation of analyst forecasts issued between [-45, -2] days relative to EA.	I/B/E/S
STOCKTWITS_DISAG[-1]	Disagreement measure among StockTwits users on day -1 relative to EA.	Anthony Cookson Website
STOCKTWITS_DISAG[0]	Disagreement measure among StockTwits users on the day of EA.	Anthony Cookson Website
STOCKTWITS_DISAG[1]	Disagreement measure among StockTwits users on day 1 after EA.	Anthony Cookson Website

TABLE 1: SAMPLE CONSTRUCTION

This table presents the details of sample construction process and number of observations in each step. Full sample is from 2000-2020.

RavenPack Dataset	
Number of observations in RavenPack	834,991,304
Observations after filtering US companies, news media outlets, and Full Articles	321,351,500
Observations within [-1,1] window relative to Earnings Announcement (EA)	16,685,110
Firm-Quarter Observations	
Firm-Quarter Observations from IBES	313,563
Firm-Quarter Observations after removing observations with earnings timestamp as (00:00:00) in IBES	296,426
Firm-Quarter Observations after merging data from Compustat and CRSP	225,851
Firm-Quarter Observations after merging with Disagreement measure from RavenPack (Full-sample observations)	60,053
Firm-Quarter Observations after merging with Analyst Forecast Dispersion (Full-sample)	36,470
Stock Twits Sample (Starting from 60,053 observations in Full-Sample)	
Full-Sample Firm-Quarter Observations (2000-2020)	60,053
StockTwits Sample Firm-Quarter Observations (2011-2020)	44,145
Firm-Quarter Observations are merging with StockTwits data	34,096
Firm-Quarter Observations after merging with Analyst Forecast Dispersion (StockTwits-sample)	21,284

TABLE 2: SUMMARY STATISTICS

This table presents summary statistics for the regression variables. All variables are defined in Appendix I.

	N	Mean	Median	Std. Dev	5 %ile	95 %ile
ADJ_TURNOVER[-1,1]	60053	0.041	0.019	0.097	-0.001	0.146
ADJ_TURNOVER[0,2]	60053	0.044	0.021	0.096	-0.001	0.158
ABN_RETURN[-1,1]	60053	0.001	0.001	0.089	-0.134	0.135
ABN_RETURN[0,2]	60053	0.000	0.000	0.090	-0.139	0.137
ABN_VOLATILITY[-1,1]	60053	0.018	0.010	0.035	-0.015	0.079
ABN_VOLATILITY[0,2]	60053	0.018	0.010	0.035	-0.015	0.079
NCSKEW_60	60053	-0.222	-0.210	1.796	-3.386	2.889
DUVOL_60	60053	-0.197	-0.184	1.234	-2.216	1.802
NEWS_SENT[-1]	60053	0.063	0.050	0.058	0.001	0.170
EA_DISAG_DELTA	60053	0.048	0.039	0.087	-0.071	0.201
MKT_TURNOVER	60053	318.266	302.273	109.355	153.215	536.414
BEFORE_EA_SENT	60053	0.006	0.007	0.058	-0.081	0.085
LOG_PRC	60053	3.422	3.526	1.057	1.490	4.962
COUNT_ARTICLES	60053	61.052	26.000	158.910	6.000	202.000
BTM	60053	0.518	0.397	0.617	0.073	1.279
MVE	60053	17030.310	3357.398	49536.140	187.711	75022.380
INST_OWN	60053	0.755	0.812	0.226	0.270	1.000
ROA	60053	0.003	0.009	0.077	-0.072	0.047
LOSS	60053	0.158	0.000	0.365	0.000	1.000
ABN_RETURN[-2]	60053	0.000	0.000	0.025	-0.032	0.032
ABN_RETURN[-3]	60053	0.000	0.000	0.024	-0.030	0.032
ABN_RETURN[-90, -4]	60053	0.004	-0.005	0.201	-0.264	0.285
PAST_VOLATILITY	60053	0.019	0.015	0.017	0.007	0.045
NEG_EARN_SURP	60053	0.265	0.000	0.442	0.000	1.000
SUE	60053	-0.001	0.001	0.076	-0.009	0.010
FORECAST_DISP	36470	0.234	0.046	2.099	0.004	0.746
STOCKTWITS_DISAG[-1]	44392	0.642	0.866	0.423	0.000	1.000
STOCKTWITS_DISAG[0]	36668	0.267	0.000	0.416	0.000	1.000
STOCKTWITS_DISAG[1]	39947	0.462	0.575	0.460	0.000	1.000

TABLE 3: CORRELATION OF NEWS DISAGREEMENT WITH OTHER DISAGREEMENT MEASURES

This table presents Pearson correlation of new-media disagreement measure (*EA_DISAG*) with other disagreement measures based on analyst forecast dispersion (*FORECAST_DISP*), past return volatility (*RETURN_VOLATILITY*), and StockTwits-based investor disagreement measure (*STOCKTWITS_DISAG*). Correlation with *FORECAST_DISP* and *RETURN_VOLATILITY* is computed using the full-sample period of 2000-2020. Correlation with *STOCKTWITS_DISAG* is computed using the sample period 2011-2020. We compute all of the disagreement measures over the period [-45, -2] relative to earnings announcement. *FORECAST_DISP* is computed as standard deviation of latest analyst forecasts issued by individual analysts during the period. *RETURN_VOLATILITY* is computed as standard deviation of characteristics-adjusted daily abnormal returns where abnormal returns are computed using Daniel et al (1997) methodology. For media disagreement (*EA_DISAG*), we compute daily disagreement over the period based on demeaned sentiment values of the media articles published on the day and take an average over the entire period. Similarly, we take the average of daily investor disagreement conveyed by StockTwits (*STOCKTWITS_DISAG*) over the same period. * denotes significance at 10%.

	FORECAST_DISP	*RETURN_VOLATILITY*	*STOCKTWITS_DISAG*
Correlation	0.012*	0.110*	0.066*
N	36,009	58,778	44,691

TABLE 4: NEWS MEDIA DISAGREEMENT AROUND EARNINGS ANNOUNCEMENT AND TRADING VOLUME

This table presents the results of the regressions of abnormal trading volume (*ADJ_TURNOVER[-1,1], ADJ_TURNOVER[0,2]*) on news-media based disagreement prior to earnings announcement (*BEFORE_EA_DISAG*), news-media based disagreement around earnings announcement (*EA_DISAG_DELTA*), and control variables. Panel A presents results for the full-sample period from 2000-2020. Panel B presents results for the sample period 2011-2020 when StockTwits based investor disagreement (*STOCKTWITS_DISAG[-1], STOCKTWITS_DISAG[0], STOCKTWITS_DISAG[1]*) measure is available. The control variables include market turnover (*MKT_TURNOVER*), log of stock price 2-days prior to EA (*LOG_PRC*), number of articles covering the firm around EA (*COUNT_ARTICLES*), book-to-market (*BTM*), firm size (*MVE*), return on assets (*ROA*), a dummy variable to indicate if the firm reported a loss in the current quarter (*LOSS*), proportion of institutional ownership (*INST_OWN*), abnormal stock returns prior to EA (*ABN_RETURN[-2], ABN_RETURN[-3], ABN_RETURN[-90, -4]*), return volatility prior to EA (*PAST_VOLATILITY*), media sentiment 24-hour prior to EA (*BEFORE_EA_SENT*), analyst forecasts based earnings surprise (*SUE*), a dummy variable to represent if the firm reported a negative earnings surprise (*NEG_EARN_SURP*), and analyst forecast dispersion based on analyst forecasts in 45-days period prior to EA (*FORECAST_DISP*). In addition, Panel B also includes control variables related to StockTwits based investor disagreement measures (*STOCKTWITS_DISAG[-1], STOCKTWITS_DISAG[0], STOCKTWITS_DISAG[1]*). All variables are defined in Appendix I. All specifications in include firm and year fixed effects. Standard errors are clustered at firm and year. The t-statistics are in parentheses below the coefficient estimates. *, ** and *** denote significance at 10%, 5% and 1%, respectively.

Panel A: FULL SAMPLE (2000 – 2020)

	(1) *ADJ_TURNOVER[-1,1]*	(2) *ADJ_TURNOVER[-1,1]*	(3) *ADJ_TURNOVER[-1,1]*	(4) *ADJ_TURNOVER[0,2]*	(5) *ADJ_TURNOVER[0,2]*	(6) *ADJ_TURNOVER[0,2]*
BEFORE_EA_DISAG	0.084***	0.074***	0.072***	0.081***	0.071***	0.068***
	(9.261)	(8.980)	(6.321)	(8.454)	(7.807)	(5.723)
EA_DISAG_DELTA	0.044***	0.038***	0.035***	0.048***	0.041***	0.039***
	(6.487)	(5.699)	(3.689)	(6.655)	(5.670)	(3.832)
MKT_TURNOVER		0.000**	0.000		0.000**	0.000
		(2.599)	(1.643)		(2.522)	(1.321)
NEWS_SENT[-1]		0.002	-0.008		0.005	-0.004
		(0.449)	(-1.178)		(0.883)	(-0.569)
LOG_PRC		0.005*	-0.000		0.004	-0.001
		(1.916)	(-0.077)		(1.630)	(-0.407)
COUNT_ARTICLES		0.000***	0.000**		0.000***	0.000**
		(3.207)	(2.738)		(3.225)	(2.663)
BTM		0.002	0.003		0.001	0.002
		(0.717)	(0.717)		(0.622)	(0.660)
MVE		-0.000***	-0.000***		-0.000***	-0.000***
		(-4.043)	(-3.469)		(-4.203)	(-3.619)
INST_OWN		0.019***	0.015**		0.020***	0.014**
		(3.791)	(2.544)		(3.695)	(2.380)
ROA		-0.015	0.022		-0.010	0.021
		(-0.696)	(0.946)		(-0.521)	(1.013)
LOSS		-0.010***	-0.006*		-0.010***	-0.005
		(-3.657)	(-1.908)		(-3.653)	(-1.627)
ABN_RETURN[-2]		0.112	0.185		0.078	0.127
		(1.482)	(1.691)		(1.269)	(1.524)
ABN_RETURN[-3]		0.165	-0.002		0.131	-0.004
		(0.963)	(-0.031)		(1.034)	(-0.074)
ABN_RETURN[-90,-4]		0.004	-0.001		0.001	-0.005
		(0.408)	(-0.052)		(0.109)	(-0.459)
PAST_VOLATILITY		1.039***	1.173***		0.963***	1.065***
		(4.927)	(5.868)		(5.410)	(6.568)
SUE		0.040	0.022		0.037	0.011
		(1.660)	(0.684)		(1.623)	(0.408)
NEG_EARN_SURP		0.008***	0.010***		0.009***	0.011***

		(5.856)	(5.917)		(6.338)	(6.369)
FORECAST _DISP			0.000			0.000**
			(1.720)			(2.270)
N	59,301	59,301	35,615	59,301	59,301	35,615
Adj. R-SQ	0.288	0.312	0.369	0.289	0.310	0.384

Panel B: STOCKTWITS SAMPLE (2011 – 2020)

	(1) *ADJ_TURNOVER[-1,1]*	(2) *ADJ_TURNOVER[-1,1]*	(3) *ADJ_TURNOVER[-1,1]*	(4) *ADJ_TURNOVER[0,2]*	(5) *ADJ_TURNOVER[0,2]*	(6) *ADJ_TURNOVER[0,2]*
BEFORE_EA_DISAG	0.094***	0.083***	0.082***	0.093***	0.078***	0.078***
	(9.981)	(6.493)	(6.266)	(8.981)	(5.493)	(5.395)
EA_DISAG_DELTA	0.056***	0.039***	0.048***	0.064***	0.045***	0.054***
	(6.724)	(3.211)	(4.490)	(7.282)	(3.473)	(4.516)
MKT_TURNOVER		0.000	0.000		0.000	0.000
		(1.702)	(1.022)		(1.730)	(0.582)
NEWS_SENT[-1]		0.006	-0.008		0.009	-0.004
		(0.690)	(-1.233)		(1.120)	(-0.619)
LOG_PRC		-0.000	-0.009***		-0.001	-0.010***
		(-0.040)	(-3.450)		(-0.314)	(-3.507)
COUNT_ARTICLES		0.000**	0.000**		0.000**	0.000*
		(2.530)	(2.268)		(2.431)	(2.113)
BTM		-0.000	-0.000		0.000	0.000
		(-0.061)	(-0.000)		(0.217)	(0.142)
MVE		-0.000***	-0.000**		-0.000***	-0.000**
		(-3.178)	(-2.538)		(-3.246)	(-2.606)
INST_OWN		0.018***	0.016**		0.017**	0.013*
		(3.201)	(2.697)		(2.662)	(2.047)
ROA		-0.109*	0.002		-0.093*	-0.011
		(-1.851)	(0.134)		(-1.951)	(-0.557)
LOSS		-0.010***	-0.005*		-0.010**	-0.005
		(-3.120)	(-1.847)		(-3.100)	(-1.445)
ABN_RETURN[-2]		0.216**	0.042		0.161*	0.024
		(2.249)	(1.502)		(1.840)	(0.863)
ABN_RETURN[-3]		0.284	-0.025		0.206	-0.062**
		(0.874)	(-0.965)		(0.863)	(-2.351)
ABN_RETURN[-90,-4]		0.004	-0.013*		0.001	-0.016**
		(0.332)	(-1.949)		(0.119)	(-2.336)
PAST_VOLATILITY		0.754**	0.808***		0.737***	0.787***
		(3.093)	(6.854)		(3.582)	(7.697)
SUE		0.044	-0.034		0.032	-0.035
		(0.518)	(-1.254)		(0.414)	(-1.254)
NEG_EARN_SURP		0.007***	0.008***		0.008***	0.008***

		(3.762)	(6.661)		(4.239)	(5.928)
FORECAST_ DISP			0.000**			0.000**
			(2.581)			(2.952)
STOCKTWITS_DISAG[0]		0.010***	0.006***		0.010***	0.006***
		(6.461)	(3.778)		(6.576)	(3.863)
STOCKTWITS_DISAG[-1]		0.017***	0.012***		0.014***	0.011***
		(5.138)	(6.174)		(4.820)	(5.470)
STOCKTWITS_DISAG[1]		0.019***	0.014***		0.023***	0.017***
		(10.870)	(10.894)		(11.623)	(10.509)
N	43,968	33,630	20,746	43,968	33,630	20,746
Adj. R-SQ	0.338	0.382	0.533	0.332	0.370	0.511

TABLE 5: NEWS MEDIA DISAGREEMENT AROUND EARNINGS ANNOUNCEMENT AND VOLATILITY

This table presents the results of the regressions of abnormal volatility (*ABN_VOLATILITY[-1,1], ABN_VOLATILITY[0,2]*) on news-media based disagreement prior to earnings announcement (*BEFORE_EA_DISAG*), news-media based disagreement around earnings announcement (*EA_DISAG_DELTA*), and control variables. Panel A presents results for the full-sample period from 2000-2020. Panel B presents results for the sample period 2011-2020 when StockTwits based investor disagreement (*STOCKTWITS_DISAG[-1], STOCKTWITS_DISAG[0], STOCKTWITS_DISAG[1]*) measure is available. The control variables include market turnover (*MKT_TURNOVER*), log of stock price 2-days prior to EA (*LOG_PRC*), number of articles covering the firm around EA (*COUNT_ARTICLES*), book-to-market (*BTM*), firm size (*MVE*), return on assets (*ROA*), a dummy variable to indicate if the firm reported a loss in the current quarter (*LOSS*), proportion of institutional ownership (*INST_OWN*), abnormal stock returns prior to EA (*ABN_RETURN[-2], ABN_RETURN[-3], ABN_RETURN[-90, -4]*), return volatility prior to EA (*PAST_VOLATILITY*), media sentiment 24-hour prior to EA (*BEFORE_EA_SENT*), analyst forecasts based earnings surprise (*SUE*), a dummy variable to represent if the firm reported a negative earnings surprise (*NEG_EARN_SURP*), and analyst forecast dispersion based on analyst forecasts in 45-days period prior to EA (*FORECAST_DISP*). In addition, Panel B also includes control variables related to StockTwits based investor disagreement measures (*STOCKTWITS_DISAG[-1], STOCKTWITS_DISAG[0], STOCKTWITS_DISAG[1]*). All variables are defined in Appendix I. All specifications in include firm and year fixed effects. Standard errors are clustered at firm and year. The t-statistics are in parentheses below the coefficient estimates. *, ** and *** denote significance at 10%, 5% and 1%, respectively.

Panel A: FULL SAMPLE (2000 – 2020)

	(1) *ABN_VOLATILITY[-1,1]*	(2) *ABN_VOLATILITY[-1,1]*	(3) *ABN_VOLATILITY[-1,1]*	(4) *ABN_VOLATILITY[0,2]*	(5) *ABN_VOLATILITY[0,2]*	(6) *ABN_VOLATILITY[0,2]*
BEFORE_EA_DISAG	0.034***	0.038***	0.028***	0.030***	0.035***	0.027***
	(7.794)	(9.787)	(7.048)	(5.851)	(9.200)	(7.271)
EA_DISAG_DELTA	0.022***	0.024***	0.018***	0.023***	0.025***	0.019***
	(4.917)	(5.556)	(4.314)	(5.028)	(6.021)	(5.050)
MKT_TURNOVER		0.000***	0.000***		0.000***	0.000***
		(5.435)	(2.959)		(5.644)	(2.851)
NEWS_SENT[-1]		-0.004	-0.006*		-0.001	-0.001
		(-1.052)	(-1.915)		(-0.270)	(-0.357)
LOG_PRC		-0.006***	-0.006***		-0.007***	-0.006***
		(-9.114)	(-8.916)		(-9.760)	(-8.740)
COUNT_ARTICLES		0.000***	0.000**		0.000***	0.000**
		(3.174)	(2.717)		(3.250)	(2.779)
BTM		0.001	0.001		0.000	0.001
		(1.666)	(1.681)		(0.966)	(1.255)
MVE		-0.000***	-0.000***		-0.000***	-0.000***
		(-4.248)	(-3.619)		(-4.645)	(-4.052)
INST_OWN		0.003*	0.000		0.002	-0.000
		(1.797)	(0.235)		(1.382)	(-0.197)
ROA		-0.006	-0.012**		-0.006	-0.013***
		(-1.357)	(-2.180)		(-1.262)	(-4.160)
LOSS		-0.003***	-0.002		-0.003***	-0.001
		(-3.388)	(-1.111)		(-3.788)	(-0.910)
ABN_RETURN[-2]		-0.015	-0.030		-0.012	-0.025
		(-0.944)	(-1.081)		(-0.753)	(-0.939)
ABN_RETURN[-3]		0.008	-0.015		0.013	-0.017
		(0.605)	(-0.962)		(1.013)	(-1.163)
ABN_RETURN[-90,-4]		-0.005***	-0.008***		-0.007***	-0.009***
		(-3.441)	(-3.988)		(-5.049)	(-5.674)
PAST_VOLATILITY		-0.750***	-0.646***		-0.766***	-0.656***
		(-8.789)	(-10.689)		(-9.560)	(-11.057)
SUE		0.001	-0.008		-0.001	-0.003
		(0.163)	(-0.905)		(-0.513)	(-0.304)

NEG_EARN_SURP		0.003***	0.002***		0.003***	0.003***
		(9.414)	(7.123)		(8.704)	(6.895)
FORECAST_DISP			0.000			0.000
			(0.015)			(0.982)
N	59,301	59,301	35,615	59,301	59,301	35,615
Adj. R-SQ	0.214	0.279	0.269	0.216	0.285	0.270

Panel B: STOCKTWITS SAMPLE (2011 – 2020)

	(1) *ABN_VOLATILITY[-1,1]*	(2) *ABN_VOLATILITY[-1,1]*	(3) *ABN_VOLATILITY[-1,1]*	(4) *ABN_VOLATILITY[0,2]*	(5) *ABN_VOLATILITY[0,2]*	(6) *ABN_VOLATILITY[0,2]*
BEFORE_EA_DISAG	0.039***	0.038***	0.026***	0.035***	0.034***	0.025***
	(6.422)	(7.486)	(4.180)	(4.526)	(5.539)	(3.125)
EA_DISAG_DELTA	0.029***	0.024***	0.021***	0.030***	0.025***	0.022***
	(4.904)	(3.922)	(3.752)	(4.986)	(4.149)	(3.704)
MKT_TURNOVER		0.000***	0.000**		0.000***	0.000*
		(3.792)	(2.354)		(4.356)	(1.996)
NEWS_SENT[-1]		-0.004	-0.011*		-0.002	-0.005
		(-0.770)	(-1.974)		(-0.363)	(-0.929)
LOG_PRC		-0.008***	-0.008***		-0.008***	-0.008***
		(-9.475)	(-9.428)		(-9.356)	(-9.535)
COUNT_ARTICLES		0.000**	0.000*		0.000**	0.000**
		(2.326)	(2.183)		(2.482)	(2.366)
BTM		0.001	0.001		0.001	0.001
		(1.684)	(1.685)		(1.262)	(1.330)
MVE		-0.000***	-0.000**		-0.000***	-0.000***
		(-3.266)	(-2.936)		(-3.554)	(-3.229)
INST_OWN		0.005	0.003		0.004	0.002
		(1.777)	(0.961)		(1.361)	(0.615)
ROA		-0.008	-0.008		-0.012	-0.010
		(-0.713)	(-0.678)		(-0.965)	(-0.908)
LOSS		-0.005***	-0.004		-0.005***	-0.003
		(-4.092)	(-1.638)		(-3.753)	(-1.412)
ABN_RETURN[-2]		0.004	-0.016		-0.002	-0.013
		(0.179)	(-0.390)		(-0.088)	(-0.321)
ABN_RETURN[-3]		0.018	-0.016		0.022	-0.018
		(1.082)	(-1.142)		(1.197)	(-1.190)
ABN_RETURN[-90,-4]		-0.002	-0.009***		-0.004**	-0.009***
		(-0.947)	(-4.129)		(-2.267)	(-4.311)
PAST_VOLATILITY		-0.940***	-0.806***		-0.932***	-0.804***
		(-15.395)	(-19.767)		(-16.594)	(-19.044)
SUE		-0.005	0.002		0.012	0.015
		(-0.454)	(0.139)		(1.384)	(0.946)

NEG_EARN_SURP		0.002***	0.002***		0.002***	0.002***
		(8.040)	(3.850)		(7.726)	(4.564)
FORECAST_DISP			0.000			0.000**
			(1.349)			(2.845)
STOCKTWITS_DISAG[0]		0.004***	0.002***		0.003***	0.002**
		(5.615)	(3.531)		(4.709)	(2.938)
STOCKTWITS_DISAG[-1]		0.002***	0.002***		0.001	0.001
		(4.402)	(3.404)		(1.711)	(1.748)
STOCKTWITS_DISAG[1]		0.011***	0.008***		0.011***	0.008***
		(14.593)	(12.088)		(14.781)	(11.346)
N	43,968	33,630	20,746	43,968	33,630	20,746
Adj. R-SQ	0.234	0.354	0.330	0.240	0.360	0.334

TABLE 6: NEWS MEDIA DISAGREEMENT AROUND EARNINGS ANNOUNCEMENT AND RETAIL TRADING

This table presents the results of the regressions of abnormal retail trading volume (*RETAIL_TURNOVER[-1,1], RETAIL_TURNOVER[0,2]*) on news-media based disagreement prior to earnings announcement (*BEFORE_EA_DISAG*), news-media based disagreement around earnings announcement (*EA_DISAG_DELTA*), and control variables. Panel A presents results for the full-sample period from 2000-2020. Panel B presents results for the sample period 2011-2020 when StockTwits based investor disagreement (*STOCKTWITS_DISAG[-1], STOCKTWITS_DISAG[0], STOCKTWITS_DISAG[1]*) measure is available. The control variables include market turnover (*MKT_TURNOVER*), log of stock price 2-days prior to EA (*LOG_PRC*), number of articles covering the firm around EA (*COUNT_ARTICLES*), book-to-market (*BTM*), firm size (*MVE*), return on assets (*ROA*), a dummy variable to indicate if the firm reported a loss in the current quarter (*LOSS*), proportion of institutional ownership (*INST_OWN*), abnormal stock returns prior to EA (*ABN_RETURN[-2], ABN_RETURN[-3], ABN_RETURN[-90, -4]*), return volatility prior to EA (*PAST_VOLATILITY*), media sentiment 24-hour prior to EA (*BEFORE_EA_SENT*), analyst forecasts based earnings surprise (*SUE*), a dummy variable to represent if the firm reported a negative earnings surprise (*NEG_EARN_SURP*), and analyst forecast dispersion based on analyst forecasts in 45-days period prior to EA (*FORECAST_DISP*). In addition, Panel B also includes control variables related to StockTwits based investor disagreement measures (*STOCKTWITS_DISAG[-1], STOCKTWITS_DISAG[0], STOCKTWITS_DISAG[1]*). All variables are defined in Appendix I. All specifications in include firm and year fixed effects. Standard errors are clustered at firm and year. The t-statistics are in parentheses below the coefficient estimates. *, ** and *** denote significance at 10%, 5% and 1%, respectively.

Panel A: FULL SAMPLE (2000 – 2020)

	(1) *RETAIL_TURNOVER[-1,1]*	(2) *RETAIL_TURNOVER[-1,1]*	(3) *RETAIL_TURNOVER[-1,1]*	(4) *RETAIL_TURNOVER[0,2]*	(5) *RETAIL_TURNOVER[0,2]*	(6) *RETAIL_TURNOVER[0,2]*
BEFORE_EA_DISAG	0.008***	0.005**	0.005**	0.008***	0.005**	0.006**
	(4.761)	(2.485)	(2.474)	(4.825)	(2.451)	(2.337)
EA_DISAG_DELTA	0.004***	0.003*	0.003*	0.005***	0.004**	0.004*
	(3.548)	(1.979)	(1.990)	(3.778)	(2.398)	(2.116)
MKT_TURNOVER		-0.000	-0.000		-0.000	-0.000
		(-0.873)	(-1.685)		(-1.028)	(-1.726)
NEWS_SENT[-1]		0.001	-0.001		0.001	-0.001
		(1.123)	(-1.564)		(0.608)	(-1.211)
LOG_PRC		-0.000	-0.001		-0.000	-0.001
		(-0.083)	(-0.981)		(-0.239)	(-1.225)
COUNT_ARTICLES		0.000***	0.000***		0.000***	0.000***
		(3.792)	(3.456)		(3.972)	(3.618)
BTM		0.001	0.001		0.001	0.001
		(1.300)	(1.381)		(1.267)	(1.329)
MVE		-0.000***	-0.000***		-0.000***	-0.000***
		(-4.346)	(-3.902)		(-4.523)	(-4.110)
INST_OWN		0.000	-0.000		0.001	-0.000
		(0.571)	(-0.613)		(0.780)	(-0.519)
ROA		-0.005	-0.007		-0.005	-0.005
		(-1.259)	(-1.169)		(-1.272)	(-1.115)
LOSS		-0.001**	-0.001		-0.001***	-0.001
		(-2.830)	(-1.667)		(-3.288)	(-1.437)
ABN_RETURN[-2]		0.011	0.034*		0.006	0.026*
		(0.728)	(1.893)		(0.510)	(1.769)
ABN_RETURN[-3]		0.046	-0.008		0.036	-0.009
		(1.266)	(-1.178)		(1.274)	(-1.302)
ABN_RETURN[-90,-4]		-0.001	-0.002		-0.002	-0.003**
		(-1.316)	(-1.597)		(-1.583)	(-2.280)
PAST_VOLATILITY		0.158***	0.157***		0.159***	0.147***

		(3.117)	(6.948)		(4.297)	(6.444)
SUE		0.005	-0.001		0.004	-0.003
		(1.033)	(-0.212)		(0.963)	(-0.466)
NEG_EAR						
N_SURP		0.000	0.001***		0.001*	0.001***
		(1.293)	(6.239)		(1.786)	(5.842)
FORECAS						
T_DISP			0.000			0.000
			(1.067)			(1.232)
N	53,757	46,563	27,255	53,760	46,562	27,257
Adj. R-SQ	0.191	0.198	0.458	0.209	0.205	0.461

Panel B: STOCKTWITS SAMPLE (2011 – 2020)

	(1) *RETAIL_TURNOVER[-1,1]*	(2) *RETAIL_TURNOVER[-1,1]*	(3) *RETAIL_TURNOVER[-1,1]*	(4) *RETAIL_TURNOVER[0,2]*	(5) *RETAIL_TURNOVER[0,2]*	(6) *RETAIL_TURNOVER[0,2]*
BEFORE_EA_DISAG	0.011***	0.009***	0.010***	0.011***	0.009***	0.010***
	(6.466)	(4.863)	(4.666)	(6.642)	(4.424)	(3.978)
EA_DISAG_DELTA	0.006***	0.004*	0.007***	0.007***	0.006**	0.008***
	(4.693)	(2.098)	(3.399)	(5.016)	(2.717)	(3.700)
MKT_TURNOVER		0.000	-0.000		0.000	-0.000
		(0.770)	(-1.079)		(0.161)	(-1.330)
NEWS_SENT[-1]		0.001	-0.002*		0.001	-0.001
		(0.759)	(-1.891)		(0.502)	(-1.217)
LOG_PRC		-0.000	-0.001		-0.000	-0.001
		(-0.713)	(-1.467)		(-0.671)	(-1.583)
COUNT_ARTICLES		0.000***	0.000**		0.000***	0.000**
		(3.283)	(2.870)		(3.304)	(2.836)
BTM		0.001	0.001		0.001	0.002
		(0.890)	(1.010)		(0.959)	(1.106)
MVE		-0.000**	-0.000**		-0.000**	-0.000**
		(-2.824)	(-2.832)		(-2.987)	(-2.958)
INST_OWN		0.001	0.001		0.001	0.001
		(0.967)	(1.394)		(1.167)	(1.146)
ROA		-0.015	0.001		-0.013	0.001
		(-1.588)	(0.553)		(-1.620)	(0.321)
LOSS		-0.002**	-0.001*		-0.002***	-0.001*
		(-2.686)	(-2.049)		(-3.339)	(-1.883)
ABN_RETURN[-2]		0.029*	0.012*		0.014	0.007
		(1.828)	(2.205)		(1.304)	(1.280)
ABN_RETURN[-3]		0.080	-0.008		0.060	-0.013
		(1.326)	(-0.898)		(1.303)	(-1.426)
ABN_RETURN[-90,-4]		-0.001	-0.002*		-0.001	-0.002*
		(-0.760)	(-1.931)		(-0.872)	(-2.125)
PAST_VOLATILITY		0.128	0.173***		0.148**	0.172***
		(1.523)	(6.927)		(2.595)	(6.384)
SUE		0.004	-0.027		0.003	-0.033
		(0.262)	(-1.420)		(0.173)	(-1.701)

NEG_EARN_SURP		0.001***	0.001***		0.001***	0.001***
		(4.332)	(5.271)		(5.101)	(4.538)
FORECAST_DISP			0.000			0.000
			(1.448)			(1.571)
STOCKTWITS_DISAG[0]		0.001***	0.000		0.001***	0.000*
		(4.983)	(1.609)		(4.840)	(1.911)
STOCKTWITS_DISAG[-1]		0.002***	0.002***		0.002***	0.002***
		(7.590)	(7.244)		(6.519)	(6.697)
STOCKTWITS_DISAG[1]		0.002***	0.002***		0.003***	0.002***
		(12.871)	(9.485)		(11.343)	(9.356)
N	43,864	28,758	17,414	43,861	28,757	17,414
Adj. R-SQ	0.360	0.471	0.511	0.367	0.445	0.513

TABLE 7: DETERMINANTS OF NEWS MEDIA DISAGREEMENT AROUND EARNINGS ANNOUNCEMENT

This table presents the results of the regressions of news-media based disagreement prior to earnings announcement (*BEFORE_EA_DISAG*) and news-media based disagreement around earnings announcement (*EA_DISAG_DELTA*) on the determinants variables. The determinants variables include log of stock price 2-days prior to EA (*LOG_PRC*), number of articles covering the firm around EA (*COUNT_ARTICLES*), book-to-market (*BTM*), firm size (*MVE*), a dummy variable to indicate if the firm reported a loss in the current quarter (*LOSS*), proportion of institutional ownership (*INST_OWN*), abnormal stock returns prior to EA (*ABN_RETURN[-2], ABN_RETURN[-3], ABN_RETURN[-90, -4]*), return volatility prior to EA (*PAST_VOLATILITY*), analyst forecasts based earnings surprise (*SUE*), a dummy variable to represent if the firm reported a negative earnings surprise (*NEG_EARN_SURP*), analyst forecast dispersion based on analyst forecasts in 45-days period prior to EA (*FORECAST_DISP*), and StockTwits based investor disagreement measures (*STOCKTWITS_DISAG[-1]*). All variables are defined in Appendix I. All specifications in include firm and year fixed effects. Standard errors are clustered at firm and year. The t-statistics are in parentheses below the coefficient estimates. *, ** and *** denote significance at 10%, 5% and 1%, respectively.

	(1) *BEFORE_EA_DISAG*	(2) *BEFORE_EA_DISAG*	(3) *BEFORE_EA_DISAG*	(4) *BEFORE_EA_DISAG*	(5) *EA_DISAG_DELTA*	(6) *EA_DISAG_DELTA*	(7) *EA_DISAG_DELTA*	(8) *EA_DISAG_DELTA*
BEFORE_EA_DISAG					-0.936***	-0.933***	-0.951***	-0.949***
					(-120.750)	(-91.941)	(-126.839)	(-89.331)
MVE	-0.000	-0.000	-0.000	-0.000	0.000	0.000	0.000	0.000
	(-1.046)	(-0.479)	(-0.958)	(-1.118)	(1.168)	(1.536)	(0.777)	(0.776)
BTM	0.001	0.001	-0.001*	-0.000	0.001	0.001	0.001	-0.000
	(0.877)	(0.770)	(-1.834)	(-1.219)	(1.626)	(0.589)	(0.932)	(-0.146)
PAST_VOLATILITY	0.163***	0.216***	0.110***	0.246***	0.130***	0.160***	0.057*	0.137*
	(5.491)	(5.118)	(3.309)	(4.315)	(3.871)	(3.342)	(2.020)	(1.822)
ABN_RETURN[-2]	-0.023*	-0.039**	-0.040**	-0.039**	-0.024*	-0.001	-0.011	0.008
	(-2.069)	(-2.788)	(-2.705)	(-2.374)	(-1.837)	(-0.068)	(-0.768)	(0.390)

ABN_RETURN[-3]	-0.010	-0.022	-0.005	-0.039	-0.016	-0.039*	-0.014	-0.019
	(-0.887)	(-1.354)	(-0.375)	(-1.667)	(-1.023)	(-1.924)	(-0.595)	(-0.754)
ABN_RETURN[-90,-4]	-0.008***	-0.008***	-0.006**	-0.006**	-0.010***	-0.009**	-0.012***	-0.012***
	(-4.761)	(-3.967)	(-3.044)	(-2.716)	(-3.931)	(-2.623)	(-5.393)	(-3.145)
INST_OWN	-0.000	0.001	-0.001	-0.000	0.005*	-0.003	-0.000	0.002
	(-0.167)	(0.224)	(-0.486)	(-0.063)	(1.983)	(-0.948)	(-0.018)	(0.773)
LOG_PRC	-0.002*	-0.002*	-0.001	-0.000	-0.003***	-0.004***	-0.003**	-0.004***
	(-1.896)	(-1.882)	(-1.650)	(-0.350)	(-3.057)	(-4.145)	(-2.995)	(-4.283)
COUNT_ARTICLES	0.000	-0.000	0.000	0.000	0.000	0.000	0.000*	0.000
	(0.753)	(-0.192)	(1.212)	(1.244)	(0.836)	(0.108)	(1.948)	(1.675)
LOSS					0.046***	0.053***	0.040***	0.047***
					(10.689)	(12.836)	(7.870)	(10.115)
SUE					-0.002	0.020	-0.011	0.033
					(-0.482)	(1.232)	(-0.676)	(1.367)
NEG_EARN_SURP					0.021***	0.023***	0.021***	0.023***
					(20.128)	(22.247)	(15.789)	(17.063)
FORECAST_DISP		-0.000		-0.000		0.000		0.000
		(-0.933)		(-1.030)		(1.381)		(1.079)
STOCKTWITS_DISAG[-1]			0.003**	0.002			0.003**	0.002*
			(2.525)	(1.611)			(2.526)	(2.174)
Observations	59,301	35,615	36,196	22,144	59,301	35,615	36,196	22,144
R-squared	0.133	0.139	0.150	0.162	0.501	0.524	0.521	0.542