Do Individual Investors Care About Accounting Disinformation?

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ABSTRACT

Individual investors are often considered as less informed than institutional investors and easily exhibit behavioural bias and thus it is unclear whether they would be attentive to unexpected corporate events. Nonetheless, we find that individual investors acquire information in a timely manner when accounting restatements are revealed as evident by a spike in Google search on the restating firm. Interestingly, the information collection appears to be mainly undertaken by those who reside in the state where the restating firms headquarter. Further, individual investor attention affects the consequences of accounting restatements. Specifically, restating firms experience longer and more pronounced drop in earnings response coefficients if the individual investors conduct more Google search on the restatements. Further, restating firms with more retail investor attention are related with larger abnormal stock sales and more negative stock returns subsequent to the restatement announcements. Finally, retail investor attention also facilitates the information transfer of accounting restatements to restating firms' industry peers. Overall, our findings suggest that individual investors are attentive to financial misstatements and their information acquisition has significant effects over capital market outcome associated with these incidents.

I. INTRODUCTION

Financial misstatements are egregious accounting events that could trigger substantial capital market effects. More detailed, when fraudulent accounting irregularities are announced, they could trigger up to 10% stock price drops in a few days (e.g., Palmrose 2004). Even for financial misreporting that is driven by unintentional accounting errors, the restating firms still experience non-trivial stock downturns surrounding the announcement (Hennes et al. 2008). The stock price underperformance suggests that financial misstatements attract substantial investor scrutiny and propel investors of restating firms to unload their holdings of the restating firms.[1] Nonetheless, it is unclear whether such stock transactions, in particular those by individual investors, are driven by rational analysis or market sentiment. Indeed, it is often argued that individual shareholders are not as sophisticated as institutional investors and are easily prone to behavioural bias – that is, they could sell shares of restating firms out of sentiment without understanding the nature of the incident (e.g., they simply observe substantial stock price drop without knowing the accounting irregularity). To verify this, in this study, we therefore investigate whether retail investors demand for information on the accounting restatement when these events are revealed.

[1] A few studies show that even before the announcement of accounting restatements, insiders already start to sell their shares, and short sellers also build up their interests (e.g., Desai et al. 2006; Thevenot 2012; Agrawal and Cooper 2015; Drake et al. 2015). This is consistent with the notion that there is information leakage about accounting restatements before their announcements (Hribar and Jenkins 2004). After accounting restatement is revealed, stock returns drop significantly in a short window, suggesting that there are more investors attempting to unload the shares than those who want to buy. Hribar et al. (2004) find that transient institutional investors are one of the major sellers on restating firms.

Empirically, it is ex ante unclear whether individual investors would collect information on the restating firms when restatements occur. On one hand, extant literature has documented individual investors on average underperform in their stock trading relative to the market or institutional investors (see Barber and Odean (2013) for a review on the stock trading of individual investors). Notably, the poor stock trading performance of individual investors is observed even before considering trading cost and does not reverse in the long run. Several factors including cognitive bias such as overconfidence and sensation seeking have been offered to explain the trading underperformance of individual investors (e.g., Barber et al. 2009; Dorn et al. 2015). Further, individual investors tend to hold onto money-losing stocks but sell money-winning shares, which is commonly known as the disposition effect (e.g., Grinblatt and Keloharju 2001). These findings together suggest that average individual investors could be irrational, ignorant, and do not have sufficient financial literacy (Frazzini and Lamont 2008). As such, it is likely that accounting restatements may not alert average individual investors to acquire information for further analysis. That is, they may be aware of the incident, but they just sell their shares because the stock price drops without detailed understanding. Alternatively, it is likely that retail investors may not even be aware if the accounting irregularity and only see a declining stock price. Indeed, while accounting restatements are publicly announced in company 8-K, most of them do not receive any news coverage, which may lead to limited individual investor attention.[2]

[2] In our sample period, there are more than 2000 accounting restatements, but only 429 of them receive coverage in the Wall Street Journal five days after the announcement (day 0 to 5, where t = 0 is the announcement date).

On the other hand, while individual investors as a group earn lower returns relative to appropriate benchmarks, there is significant variation among them. For example, individual investors with higher intelligence or younger age outperform their peers and male investors tend to underperform as compared to female investors due to more frequent trading (e.g., Korniotis and Kumar 2011, 2013; Barber and Odean 2001). Notably, a selected group of individual investors holds concentrated portfolio on very few firms on which they have informational advantage, and they outperform their peer with diversified portfolio. This suggests that while individual investors on average exhibit inferior stock trading performance, certain individuals are able to overcome cognitive bias and conduct rational and informed stock transactions. Accordingly, it is reasonable to observe that these selected individuals conduct information acquisition if one of their portfolio firms announce accounting misstatement. More specifically, while restating firms issue 8-K about the revision, the information in the announcement may not be enough to understand the full details. For example, a more professional individual may acquire information about the corporate governance (e.g., audit committee quality) of the restating firm and whether the company has any remedial actions to prevent future restatements. Further, an experienced individual investor may search for soft information about the restating firm's management team in particular CEO/CFO to understand their track record as well as financial motives (stock ownership and pay), which could undercover the factors that drive the financial misreporting. This suggests that information acquisition via Google would increase significantly right after the revelation of accounting restatements.

Following prior studies (Da et al. 2011), we reply on Google trend data as proxy for individual investor attention to a specific company. Google undoubtedly is the most used search engine and Da et al. (2011) establishes that SVI (search volume index by Google) captures information search by less informed individual investors. Further, high SVI causes short term increase in stock price, which is nonetheless reversed later, suggesting that individual investors engage in stock transactions after information acquisition.

Reling on Google trend data on the daily basis and 1,887 restatements, we find that no change in SVI before the announcement of accounting restatements, confirming that such events appear to be surprising to individual investors. Next, relative to pre-announcement periods, one day after the announcement of accounting restatements, we observe a significant surge in SVI on restating firms. More detailed, regression analysis indicates a 15% spike in abnormal Google search relative to the pre-announcement period. Pun in another way, if we use the 15 days before the announcement date (t = -15, -1) as the benchmark, SVI would jump by 20% on average on day 1 (t=0, which is the announcement day). This suggests retail investors start to acquire information on the accounting misstatements after they are aware of the incidents. Our findings remain similar if we include a set of control firms without accounting restatements but similar firm characteristics. Interestingly, using Bloomberg terminal data as proxy for institutional investor's information demand, we find that there is s spike in news search on the restating firms on the day of accounting announcement. This is consistent with the notion that institutional investors acquire information more quickly than individual investors.

Our next batch of analysis focuses on whether the information acquisition by individual investors is associated with short term stock trades and stock returns. Specifically, we consider whether SVI search on day 0 to day 5 affects stock trading in next three days including the search day (e.g., the impact of SVI on day 1 on the stock trading in day 1 to 3). The purpose of this test is to see whether individual investors apply the information they collect into their stock transactions. We find that a higher SVI is related to more pronounced stock sales, which is consistent that retail investors who obtain information on the accounting restatements sell their shareholdings. Next, we also find similar patterns from stock returns. That is, a higher SVI is related to more negative stock returns in a three-day window after the Google search. Taken together, these results indicate that information acquisition by individual investors induces more negative capital market consequences of financial misreporting.

Next, while we do not have demographic data on individual investors who conduct information acquisition on accounting restating firms. Taking advantage of the state-level search data by Google trend, we explore whether it is individual investors who reside in the same state ("local" investors) as the headquarter of the restating firms or those stay in remote states ("non-local" investors) who conduct information acquisition on the financial misreporting. The result indicates that the increased Google search on the restating firms mainly come from the home state of the restating firms. This is consistent with prior studies that investors tend to internet search on firms that geographically near (Chi and Shanthikumar 2017), and this suggests that local investors are more attentive to financial misreporting than non-local investors.

Next, we investigate the effects of retail investor attention on the financial credibility of restating firms. Prior studies have found that subsequent to restatements, restating firms

experience long-term loss in earnings credibility as captured by lower earnings response coefficient (ERC) for up to three years (Chen et al. 2014). Regression analysis reveals that restating firms experience longer drop in ERC if they receive greater retail investor attention. This finding suggests that restating firms suffer longer lose in earnings credibility if retail investors are more attentive to the financial misstatement.

Finally, we also consider whether retail investor attention facilitates the information transfer effect of accounting restatements as shown in prior studies (e.g, Gleason et al. 2008). Specifically, we examine whether restating firms with higher SVI after announcement casts stronger information spill over upon industry peers. Our test supports this prediction. That is, industry peers of restating firms that receive greater retail investor attention experience more negative stock returns when the accounting restatement is announced.

To summarize, our empirical tests first establish that financial misstatements appear to be a shock to individual investors as Google search starts to surge only after these incidents become public. Second, we find that retail investor attention amplifies negative stock returns and the decreased earning credibility experienced by restating firms, and retail investor attention also transfers to restating firms' industry peers. These findings complement a few streams of lines of research themes. First, while many studies have documented various negative consequences brought by accounting restatements, it remains unclear the role played by the individual investors in such events. It may not be too surprising to observe sophisticated traders such as institutional investors to demand information instantly when such significant event is disclosed or even they are able to anticipate it before the news becomes public (e.g., Desai et al. 2006). Nonetheless, often deemed as ignorant and irrational, it is uncertain whether individual investors are attentive to accounting restatements. Our findings suggest that Google search on restating firm significantly surges only after the financial misstatement is disclosed, indicating that individual investors are not aware of financial misreporting until it is revealed.

However, the surged Google search indicates that certain retail investors acquire information on the misreporting and we find that their information acquisition has real impacts on the outcome of accounting restatements. Specifically, restating firms experience longer drop in ERC or suffer more severe short-term price pressure if local retail investors engage in more information search on the restatements. This finding establishes that even with much lower shareholdings relative to institutional investors, retail investors still exert non-trivial influences over the outcome of financial misreporting.

Further, prior studies show that accounting misreporting affects not only restating firms but also their industry peers through information transfer (e.g., Gleason et al. 2008; Beaty et al. 2013). We find that individual investor attention to financial misstatements further facilitates the information transfer from restating firms to their peers. This could be due to the fact that individual investors often internet search for multiple firms and they often concentrate their portfolio in a few industries (Leung et al. 2024). Together with their internet search behaviour, to the best of our knowledge, we provide one of the first evidence about information acquisition and transmission by retail investors when accounting irregularity happens.

Finally, extant literature on retail investors have shown that investors are inclined to invest more in geographically close firms and such local bias could be driven by informational advantage or familiarity (e.g., Huberman 2001; Ivkovic and Weisbenner 2005). Interestingly, except for investment preference, internet search by individual investors also exhibit local bias - that is, individual investors tend to use Google to collect information about local firms rather than distant firms (Chi and Shanthikumar, 2017).[3] Complementing Chi and Shanthikumar,

[3] Similar as investment local bias, Chi and Shanthikumar, (2017) show that internet search local bias could be explained by both information advantage and familiarity. driven by information advantage and firms with greater local internet search experience more informed trading before earnings announcement and have lower ERC upon earnings announcement. This finding is consistent with the explanation that internet search by local investors accords them with certain information advantage. Nonetheless, they also find that post-earnings announcement drift is larger for firms with more local internet search.

(2017) that focuses on regular earnings announcements, our study considers how retail investor respond to unexpected occurrence of financial misreporting. As mentioned, Google search on restating firms is likely to be done by existing investors holding the shares. As such, our finding complements extant literature by showing that local shareholders devote more attention to accounting irregularities than non-local shareholders. This again could be driven by the fact that local investment represents a higher portion of retail investor portfolio (Ivkovic and Weisbenner 2005) so they are particularly altered when accounting restatements occurred to local firms.

Section II summarizes extant literature on accounting restatement, section III describes the sample composition and section IV provides the empirical tests. Section V concludes the paper.

II. INSTITUTIONAL BACKGROUND

Literature on Accounting Restatements

Extant literature has documented significant stock price drops when accounting restatements are revealed. Using short-window test surrounding the announcement, a few studies find that accounting restatements could trigger 3% to 19.8% stock downturns for restating firms in just few days (Palmrose 2004; Hribar and Jenkins 2004; Gleason et al. 2008). It has also been found that restating firms experience not only short term but also long term stock underperformance for up to 36 months (Hribar and Jenkins 2004; Burks 2011). These findings suggest that restating firms face substantial price pressure once the accounting irregularity is revealed and have difficulty with the recovery of stock performance. Probably

due to the anticipated negative consequences, managers of restating firms start to unload their holdings before the announcement even though doing so is illegal (Agrawal and Cooper 2015; Thevenot 2012; Baderscher et al. 2011). While restatement becomes public news only when it is announced, a few studies have shown that short sellers start to accumulate interest before official announcement, suggesting potential information leakage (Desai et al. 2006; Drake 2105; Li et al. 2011). Finally, Hribar et al. (2014) find that institutional investors unload their holdings in restating firms significantly once restatements are revealed.

To Summarize, we notice that existing literature on financial misstatements does not consider the role of retail investors, in particular whether they are aware of this incident and how they react to it.

Literature on Using Google SVI to Measure Retail investor Attention

Da et al. (2011) propose using Google trend search data (SVI) to capture retail investor attention to specific firms, and they demonstrate that SVI measures individual investor attention in a more timely manner than traditional metrics. Drake et al. (2012) uses SVI and document individual investor attention to earnings announcement. Specifically, Drake et al. (2012) find that due to predicable schedule, retail investors start to search for forthcoming earnings announcements two weeks before and the information acquisition lasts another two weeks after earnings is revealed, suggesting that retail investor attention to regular earnings announcement is not instantaneous. Chi and Shanthikumar (2017) show that individual investors tend to use Google to collect information about local firms rather than distant firms-

that is, local investor internet search exhibits local preference and this bias is driven by both familiarity and private information. Similarly, Cziraki et al. (2021) find that local investors devote more attention to local firms so some local firms attract asymmetric local relative to non-local attention. Notably, local firms with asymmetric local attention earn better future stock returns, suggesting that local investor attention is driven by private information. Importantly, they find that news coverage spurs greater retail investor attention. Li et al. (2023) show that weekend SVI search is more predictive about future stock returns than weekday search, suggesting that retail investors are able to better focus on information acquisition and processing during weekends.

Our study adds to existing literature by demonstrating SVI patterns surrounding non-scheduled corporate events such as the occurrence of financial misstatements.

III. SAMPLE SELECTION

Sample Selection Process

Our sample construction begins by identifying 7,014 reissuance restatement events from Audit Analytics with available disclosure dates during the period 2005 to 2022. Our sample period begins in 2005, coinciding with the implementation of new SEC requirements mandating domestic filers to disclose material restatements under Form 8-K, Item 4.02, which took effect in August 2004. We further restrict the sample to firms headquartered in the U.S. Next, we merge the restatement data with Compustat, CRSP, TAQ, and I/B/E/S, which yields

a sample of 2,399 restatements. Among these restatements, Google Trends data is available for 1,887 events. Table1 Panel A describes the sample selection process. See Appendix A for variable definitions.

Individual Investor Information Demand

In this study, following prior studies (e.g. Blankespoor et al., 2020; Da et al., 2011), we compile a dataset with search activities on Google for the 1,887 restatements as described above. Specifically, we follow the approach of deHaan et al. (2023) and employ a search term that combines a firm's ticker symbol and the word "stock" (e.g., "AAPL stock" for Apple Inc.). deHaan et al. (2023) indicate that while ticker symbols are more widely available and capture a broader range of information acquisition, they find that 69% of ticker searches are unrelated to investing activities, introducing measurement error that is highly correlated with firm characteristics. As such, we collect the daily Search Volume Index (SVI) for a search term combining the firm's ticker symbol and the word "stock" (e.g., "AAPL stock") over a period spanning 15 days before and after the restatement announcement date. Additionally, we gather SVI data for the 8 weeks preceding the event window (-15, 15) to facilitate the calculation of abnormal search volume. The SVI provided by Google Trends is a normalized measure of search propensity, scaled on a range from 0 to 100, where 100 represents the highest search volume for the specified term and period. This scaling is based on the term's proportion relative to the total search volume, enabling meaningful comparisons across different terms and periods. Figure 1 provides SVI for the Kraft Heinz Company surrounding its declaration of a financial

restatement on February 21, 2019, and it is noticed that a significant spike in SVI on the day (t=1) after the announcement.

We use the abnormal Google search volume index (AbGoogle) to proxy for retail investor information demand around the announcements of restatements. For a given day during our event window (-15, 15), AbGoogle is calculated by subtracting the average search volume index (SVI) for the same weekday over the preceding eight weeks from the raw SVI and then scaling this difference by the same average SVI.

Institutional Investor Information Demand

Following prior literature (Ben-Rephael et al., 2017), we measure the institutional investor attention using Bloomberg terminal. The Bloomberg terminal has one variable ”News Heat Daily Max Readership”, which is defined as abnormal institutional investor attention received by a particular stock (AbBBInst). This data is available on a daily basis but only available after 2010. Consistent with Ben-Rephael et al., (2017), if the daily rolling average falls within the lowest 80% of the hourly counts over the previous 30 days, a score of zero is assigned. Similarly, scores of 1, 2, 3, or 4 are assigned if the average falls within the ranges of 80% to 90%, 90% to 94%, 94% to 96%, or above 96% of the previous 30 days’ hourly counts, respectively.

Descriptive Statistics

Table1 Panel B presents the descriptive statistics, with all financial variables winsorized at the 1st and 99th percentiles. The mean abnormal Google search volume index (AbGoogle) for

the full sample is -0.011, which increases to 0.006 on the announcement date (Day 0) and further jump to 0.153 on the following day (Day 1), which suggests that there is a 15.3 spike in abnormal Google search one day after the restatement announcement. Similarly, for the abnormal institutional investor attention (AbBBInst), the mean is 0.143 for the entire sample, rising significantly to 0.731 on Day 0 and to 0.419 on Day 1 relative to the restatement announcement date. This again suggests that institutional investor attention to restating firms spikes significantly after restatement is revealed.

Table 2 provides the correlations among the main variables, highlighting a significant positive association between AbGoogle and Day 1, while the association between AbGoogle and other days remains insignificant. Additionally, AbBBInst shows a significant positive correlation with both Day 0 and Day 1, but an insignificant association with other days. These findings support our hypotheses, indicating heightened investor demand surrounding the restatement announcement.

IV. EMPIRICAL RESULTS

Investor Information Demand Surrounding Restatement Announcement

To initiate our empirical analyses, we investigate the association between the occurrence of financial restatement announcements and changes in investor information demand surrounding these events. Previous research indicates that individual shareholders are more susceptible to behavioral biases and market sentiment compared to institutional investors, who

typically exhibit greater sophistication in their investment strategies. Therefore, we hypothesize that retail investors may begin to acquire information subsequent to becoming aware of restatement events, whereas institutional investors typically respond more swiftly. Consistent with above hypotheses, we find that the announcement of a restatement triggers an increase in information demand from both retail and institutional investors as they seek to re-evaluate the firm's financial position, internal controls, and informational environment in light of the restatement disclosure. Institutional investors exhibit an immediate spike on day 0, followed by a delayed spike from retail investors on day 1. Visually, Figure 2 presents evidence supporting these hypotheses. The figure shows AbGoogle and AbBBInst in the days surrounding the restatement announcement, highlighting distinct patterns of information demand by institutional and retail investors. Formally, we employ the following models to test the hypotheses.

$$\begin{aligned}\mathrm{AbGoogle}_{i,t} = {} & \beta_0 + \beta_1 \mathrm{RES\_Daym1}_{i,t} + \beta_2 \mathrm{RES\_Day0}_{i,t} + \beta_3 \mathrm{RES\_Day1}_{i,t} \\ & + \beta_4 \mathrm{RES\_Day2}_{i,t} \quad (+ \beta_5 \mathrm{AbBBInst}_{i,t}) \\ & + \beta_6 \mathrm{Abs\_ret}_{i,t} + \beta_7 \mathrm{AbVolume}_{i,t} + \beta_8 \mathrm{Prc\_HLocaltoH}_{i,t} + \beta_9 \mathrm{Prc\_52weekhigh}_{i,t} \\ & + \beta_{10} \mathrm{Prc\_52weeklow}_{i,t} + \beta_{11} \mathrm{Spread}_{i,t} + \beta_{12} \mathrm{Turnover}_{i,t} + \beta_{13} \mathrm{Magnitude}_{i,t} + \beta_{14} \mathrm{BM}_{i,t} \\ & + \beta_{15} \mathrm{Size}_{i,t} + \beta_{16} \mathrm{Sd\_ret}_{i,t} + \beta_{17} \mathrm{Advertise}_{i,t} + \beta_{18} \mathrm{Employee}_{i,t} + \beta_{19} \mathrm{Shareholder}_{i,t} \\ & + \beta_{20} \mathrm{AnalystF}_{i,t} + \beta_{21} \mathrm{InstOwn}_{i,t} + \beta_{22} \mathrm{ManagOwn}_{i,t} + \beta_{23} \mathrm{EarningsA}_{i,t} \\ & + \beta_{24} \mathrm{News\_num}_{i,t} \\ & + \Sigma_{i=24}^{29} \beta_i \mathrm{D}_{\mathrm{weekday}_{i,t}} + \mathrm{Quarter\ FE} + \mathrm{Industry\ FE} + \epsilon\end{aligned} \tag{1}$$

Variables are calculated quarterly. AbGoogle is the raw SVI as provided by Google, minus the average raw SVI for the same weekday over the prior 8 weeks, scaled by the average raw SVI

for the same weekday over the prior 8 weeks[4]. AbBBInst is the institutional investor attention from Bloomberg. RES_day(t) is the indicator variable equal to one when the t day is relative to the restatement announcement date. We incorporate a set of control variables influencing the firm's visibility and searchability on the internet. Abs_ret is the absolute value of the raw stock return. AbVolume is the abnormal trading volume. Prc_HLtoH is the daily high-price minus the low-price difference, then scaled by the daily high price. Prc_52weekhigh is set to one when the stock price surpasses the highest price observed over the past 52 weeks. Prc_52weeklow is set to one when the stock price drops below the lowest price observed over the past 52 weeks (Ben-Rephael et al., 2017). Spread and Turnover are measures of stock liquidity (Drake et al., 2012). Magnitude is the aggregate impact of the restatement. The book-to-market ratio (BM) signals growth opportunities, with lower ratios of growth firms drawing more investor interest versus higher book-to-market value firms (Lakonishok et al., 1994). Sd_ret is the volatility of the stock price in the last month. Advertise is advertising expenditure scaled by assets, while News_num captures the number of news articles about the firm published in the Wall Street Journal. Greater media coverage and advertising may amplify investor information demand towards the firm (Bushee et al., 2010; Grullon et al., 2004; Lou, 2014). Employee and Shareholder represent the natural logarithm number of employees and shareholders, respectively. A larger employee base and shareholder base may enhance the firm's market

[4] To ensure robustness, we also employ an alternative measure, AbGoogle_p30d, which is derived by subtracting the average SVI over the preceding 30 days from the raw SVI on a given day t and then scaling this difference by the average SVI over the past 30 days, the results are similar. See the results in Appendix B Table AB1.

visibility (Bushee et al., 2010; Hong et al., 2008). A higher number of Analyst Following (AnalystF) and Institutional Ownership (InstOwn) are associated with increased firm visibility (Bushee & Miller, 2012). ManagOwn is the share percentage held by the top 5 managers. EarningsA is an indicator variable that assumes a value of 1 on the dates coinciding with a firm's earnings announcements, and 0 otherwise. This control variable is implemented to address potential confounding factors arising from routine but substantial corporate activities on the outcomes under investigation[5]. Weekday indicators are incorporated into the model to address the variations in information demand across different days of the week. We also add quarter and industry-fixed effects. See variable definitions in Appendix A.

Table 3 Panel A presents the results for model (1). Columns (1) present the findings about AbGoogle as dependent variables, whereas Columns (2) detail the results for adding AbBBInst as control. Column (1) reveals that there is a statistically significant increase in search activity on Google only on the day after the announcement, the abnormal search increase 13.9% compared to the normal period. This suggests heightened retail investor interest and search behavior following the release of restatement information, rather than in anticipation of it. The absence of significant effects on the days preceding the announcement indicates a lack of preemptive searches, emphasizing reactions to the disclosed restatements. The results are similar after adding the institutional investor attention. Additionally, the results demonstrate a

[5] To ensure robustness, we drop the samples if they announce their quarter earnings in the window [-1,1]. The results do not change. See the results in Appendix B Table AB4.

positive association between abnormal search volume and absolute stock returns. This correlation suggests that larger price movements, indicative of significant market reactions, prompt increased investor searches. Investors likely seek to assess the financial implications and understand the underlying causes of the restatements. We also find that analyst following and advertise expense, have a positive impact on search volume, indicating that increased firm visibility corresponds with a greater demand for information. Overall, we observe a significant increase in investor information demand following the restatement announcement, with a considerable economic magnitude.

To address concerns that the increased investor information demand may be attributed to inherent characteristics of the firms issuing restatements, we employ a propensity score matching procedure to identify a control firm for each restatement firm in the same 4-digit SIC industry and the year following the model developed by Dechow et al. (2011) and Amel-Zadeh and Zhang (2015). Visually, Figure 3 illustrates the AbGoogle for both restating and corresponding control firms around the announcement period. The figure indicates that control firms do not exhibit significant changes in information demand throughout the observed timeframe, thereby reinforcing the assertion that restatement announcements are the primary drivers of increased search activity among investors. The results presented in Table 3, Panel B. Column (1) reveal a statistically significant increase in AbGoogle for restating firms, as evidenced by the significant coefficient of the interaction term for day 1. This indicates that restatement announcements lead to heightened search activity, particularly on Day 1, aligning

with the observed increase in information demand. The results remain consistent in Column (2) adding AbBBInst as a control.

Information Demand and Short-Term Trading Behavior

In this section, the association between information acquisition by individual investors and subsequent short-term trading activities is explored. Specifically, the study examines the influence of Search Volume Index (SVI) from day 0 to day 5 on trading volumes over the ensuing three-day period, including the day of the search itself. Studies show that individual investors usually earn less from their stock trades than institutional investors (Barber and Odean, 2013). This lower performance is often linked to common thinking errors like overconfidence and thrill-seeking behavior. Additionally, individual investors may act irrationally, often following mainstream market trends without thorough analysis. When companies issue restatements, typically seen as negative news, retail investors might sell their shares simply in response to a falling stock price, without a detailed understanding of the underlying issues. We hypothesize that the average retail trading imbalance[6] within the [0,2] window exhibits a negative correlation with the abnormal demand for information by retail

[6] The retail trading amount/volume/trade number imbalance is calculated as the trading amount/volume/trade number of retail buy-initiated orders less the amount/volume/trade number of retail sell-initiated orders divided by the sum of total retail orders amount/volume/trade number. We use the algorithm in Boehmer et al. (2021) to identify an order as a retail buy or retail sell (TAQ).

investors. Additionally, we analyze the trade imbalances by categorizing them into buy and sell orders separately. We apply the following model:

$$\begin{aligned}\text{OrderImbalance}[t_0, t_2]_{i,t} = {} & \beta_0 + \beta_1 \text{AbGoogle}_{i,t}\left(+\beta_2 \text{AbBBInst}_{i,t}\right) + \beta_3 \text{Size}_{i,t} + \beta_4 \text{Turnover}_{i,t} + \beta_5 \text{Sd\_ret}_{i,t} \\ & + \beta_6 \text{Ret\_lastm}_{i,t} + \beta_7 \text{Magnitude}_{i,t} + \beta_8 \text{Advertise}_{i,t} + \beta_9 \text{InstOwn}_{i,t} + \beta_{10} \text{AnalystF}_{i,t} \\ & + \beta_{11} News\_num_{i,t} + \beta_{12} Imb\_lastm_{i,t} + \text{Quarter FE} + \text{Industry FE} + \epsilon\end{aligned} \quad (2)$$

Table 4 presents the results. Panel A, B, and C present the results for trading amount, volume, and number, respectively. Columns (1), (2), and (3) display the outcomes from the baseline model, focusing exclusively on retail trading activity as the dependent variable. Columns (4), (5), and (6) extend the analysis by incorporating institutional investor attention, with the dependent variable broadened to encompass overall trading activity[7]. Panel A, column (1), reveals a significant negative coefficient of -0.005 for the imbalance in retail trading amounts, suggesting a substantial inverse relationship between abnormal Google search volume and the trade amount imbalance. This pattern implies that an increase in abnormal search volume is associated with a higher likelihood of retail sales compared to purchases. Columns (2) and (3) further dissect this trend by examining retail buy and sell orders separately. The findings indicate no significant effects on the volumes of buy orders; however, there is a notable significance in the volumes of sell orders. These results support the hypothesis that retail investors, upon becoming informed of accounting restatements and driven by market sentiment

[7] The overall trading amount/volume/trade number imbalance is calculated as the trading amount/volume/trade number of retail buy-initiated orders less the amount/volume/trade number of overall sell-initiated orders divided by the sum of overall orders amount/volume/trade number. We use the algorithm in Lee and Ready (1991) to identify an order as a buy or sell (TAQ).

and thrill-seeking behaviors, are more inclined to sell their shares. After incorporating the attention of institutional investors and expanding the dependent variable to encompass firm-level trade imbalances, which include more than just retail orders, the previously significant effects of abnormal Google search vanish, and the significance of the sell orders diminishes, as reported in columns (4), (5), and (6). This suggests that institutional investors, who possess greater market sway and engage in more extensive trading activities, may overshadow the impacts observed among retail investors. Furthermore, the findings indicate that trade imbalances among institutional investors are not significant, whereas both buy and sell orders are noteworthy. This could suggest that institutional investors may not depend solely on public news sources like Bloomberg for information; instead, they might access internal data through private channels and employ advanced analytical tools in their decision-making processes. Similar results are observed in Panel B for trading volume analysis. However, in Panel C, the trading number imbalance is not significant, but there is a notable positive association between the information demand of retail investors, and both buy and sell orders. This could be due to some smaller retail investors perceiving the price drop following the restatement as a speculative and opportunistic investment chance. Overall, these findings suggest that retail investors, primarily dependent on publicly available market information, are more likely to sell stocks when they gather more information from the Internet.

Information Demand and Short-Term Cumulative Abnormal Return

This section examines the relationship between information acquisition by individual investors and the subsequent short-term cumulative abnormal returns. We apply the following model:

$$\begin{aligned}\mathrm{CAR}[t_i, t_j]_{i,t} = {} & \beta_0 + \beta_1 \mathrm{AbGoogle}_{i,t}(+\beta_2 \mathrm{AbBBInst}_{i,t}) + \beta_3 \mathrm{Size}_{i,t} + \beta_4 \mathrm{Turnover}_{i,t} + \beta_5 \mathrm{Sd\_ret}_{i,t} \\ & + \beta_6 \mathrm{Ret\_lastm}_{i,t} + \beta_7 \mathrm{Magnitude}_{i,t} + \beta_8 \mathrm{Advertise}_{i,t} + \beta_9 \mathrm{InstOwn}_{i,t} + \beta_{10} \mathrm{AnalystF}_{i,t} \\ & + \beta_{11} News\_num_{i,t} + \mathrm{Quarter\ \ FE} + \mathrm{Industry\ \ FE} + \epsilon\end{aligned} \tag{3}$$

Table 5 presents the findings from our analysis. Columns (1), (2), and (3) demonstrate that an elevated abnormal information demand is associated with increasingly negative stock returns within short-term windows ([0,1], [0,2], [0,3]). Specifically, the data in Column (2) show that a 1% increase in abnormal SVI corresponds to a 0.2% decline in stock returns over the following two days. This trend persists in Columns (4), (5), and (6), where the effects remain robust even after including institutional investor attention as a control variable. These results collectively indicate that information acquisition by individual investors is likely to lead to more negative capital market reactions shortly after a restatement announcement.

Information Demand at State-Level

In this section, we examine the cross-sectional pattern of information demand across different states for a firm. To investigate whether the headquarter state garners greater research attention compared to other states, we employ the following model:

$$\begin{aligned}\mathrm{Google\%}[t_0, t_5]_{i,s} = {} & \beta_0 + \beta_1 \mathrm{HQ}_{i,s} + \beta_2 \mathrm{Top\_pop}_{i,s} + \beta_3 \mathrm{MF\_num}_{i,s} + \beta_4 \mathrm{GDP}_{i,s} + \beta_5 \mathrm{Google\%}[t_{-90}, t_{-30}]_{i,s} \\ & + \beta_6 \mathrm{Distance\_to\_NY}_{i,s}(+\beta_7 \mathrm{AbBBInst}[t_0, t_5]_i) + \beta_8 \mathrm{CAR}[t_0, t_5]_i + \beta_9 \mathrm{AbVolume}[t_0, t_5]_i \\ & + \beta_{10} \mathrm{Prc\_HLocaltoH}_i + \beta_{11} \mathrm{Prc\_52weekhigh}_i + \beta_{12} \mathrm{Prc\_52weeklow}_i + \beta_{13} \mathrm{Spread}_i \\ & + \beta_{14} \mathrm{Turnover}_i + \beta_{15} \mathrm{Magnitude}_i + \beta_{16} \mathrm{BM}_i + \beta_{17} \mathrm{Size}_i + \beta_{18} \mathrm{Sd\_ret}_i \\ & + \beta_{19} \mathrm{Advertise}_i\end{aligned}$$

$$+ \beta_{20}\text{Employee}_i + \beta_{21}\text{Shareholder}_i + \beta_{22}\text{AnalystF}_i + \beta_{23}\text{InstOwn}_i + \beta_{24}\text{ManagOwn}_i + \beta_{25}\text{News\_num}[t_0, t_5]_i + \text{Quarter FE} + \text{Industry FE} + \epsilon \quad (4)$$

$\text{Google\%}[t_0, t_5]$ is the state-level Google search volume index (SVI) scaled by the sum of all-state SVI for the time window [0,5]. Smaller time windows, such as [0,1], are not employed due to data availability constraints. Adopting a narrower window would result in a substantial loss of sample observations, as Google's data indicates insufficient data for such queries. Figures 4 and 5 illustrate samples of the available geographic SVI data and highlight the lack of adequate data for narrower time windows. HQ is an indicator variable assigned a value of one if the state hosts the firm's headquarters. We incorporate several control variables that may influence the information demand across different states. Top_Pop is an indicator variable equal to one if the state ranks among the top 10 most populous states in the United States. MF_num represents the natural logarithm of the number of mutual funds domiciled in the state. GDP is the natural logarithm of the state's gross domestic product for the prior year. Additionally, we control for the past Google% to mitigate concerns that higher search volumes may be a normal circumstance for certain states (e.g. the high local investor percentage). Distance_to_NY represents the distance between the state and New York, which is the information center in the US. $\text{AbBBInst}[t_0, t_5]$ represents the average of AbBBInst in the window [0,5]. We also add the firm-level controls used in the model (1). Table 1 Panel C presents the summary statistics for the state-level data. Table 6 Panel A presents the results for model (4). Column (1) reports the result without institutional investor attention. Column (2) reports the result adding it. The empirical findings indicate a statistically significant increase in search activity within the firm's

headquarters state. Additionally, states with larger populations, higher GDP, and near New York also show a significant relationship with the search volume percentage. Our results remain robust and significant even after controlling the previous search volume percentage. To ensure the robustness of our findings, we replaced the headquarters indicator with the distance from the search state to the headquarters state. The results, presented in Table 4 Panel B, reveal a negative association between distance and search percentage. This suggests that the greater the distance from the headquarters, the lower the investor search activity regarding the restatement, thereby corroborating our initial findings.

The Effect of Local Demand on the Content of Earning of Announcement after the Restatement

In this section, we examine whether the heightened local attention during the restatement announcement period serves as the primary catalyst for the negative impact associated with restatement events. Prior literature suggests that the information content of earnings tends to diminish following restatement announcements, and the earnings response coefficient (ERC) exhibits a decrease spanning three quarters. If local investors allocate greater attentional resources to the focal firms, it is plausible that these investors may experience a more substantial erosion of confidence regarding the quality of financial reporting. Consequently, the firms might require an extended period to recover from this adverse effect. We employ the following models to test the hypotheses:

$$\mathrm{CAR_{i,t}} = \beta_0 + \Sigma_{t=1}^{8}\beta_{1,t}QTR_t + \ \beta_2 UE_{i,t} + \Sigma_{t=1}^{8}\beta_{3,t}\left[UE_{i,t} * QTR_t\right] + \ \Sigma_{t=1}^{8}\beta_{4,t}\left[UE_{i,t} * QTR_t * HLocal\right]$$

$$+\ \Sigma_{t=1}^{8}\beta_{5,t}\left[UE_{i,t} * QTR_t * HInst\right] + \Sigma_{k=6}^{12}\beta_{\mathrm{k,t}}\ Controls_t + \ \Sigma_{k=12}^{18}\beta_{k,t}\left[UE_{i,t} * Controls_t\right]$$
$$+\text{Quarter FE} + \text{Firm FE} + \epsilon$$

(5)

CAR is the cumulative abnormal return in the three-day window around the earnings announcement. UE is unexpected earnings scaled by price, with expected earnings measured as the median of analysts' earnings forecasts issued within 60 days before the earnings announcement. High Local Demand (HLocal) is assigned a value of one if the search percentage at a given headquarters exceeds the median search percentage across all headquarters. High Institution Demand (HInst) is assigned a value of one if the $\mathrm{AbBBInst}[t_0, t_5]$ exceeds median across all samples. We add a set of controls to control the impact of the factors on ERC. The market-to-book ratio is included to account for the impact of growth opportunities on firm valuation. Firm size is controlled for by the inclusion of the Size variable. To capture the influence of risk factors, we incorporate Beta. The indicator variables Loss and Q4 are employed to control for the lower informational content typically associated with negative earnings and fourth-quarter earnings, respectively. Furthermore, we include control variables to account for earnings predictability (Predict) and earnings persistence (Persist). All variable definitions are in Appendix A.

β_2 represents the earnings response coefficient (ERC) during the pre-restatement benchmark period. We include the four quarters preceding the restatement announcement, spanning from quarter -3 to quarter 0, and 8 quarters after the restatement announcement,

spanning from quarter 1 to quarter 8[8]. Our primary focus is on the change in the ERC following restatement announcements, captured by β_3, and the incremental effect of heightened local search, denoted by β_4. We anticipate β_3 to exhibit a negative value, indicating a decline in the informational content of earnings relative to the benchmark period. Furthermore, we predict that β_4 will reflect a more negative decline due to the elevated local demand and the associated erosion of investor confidence in the quality of financial reporting. Table 7 presents the results for model (5). Column (1) reports the results without incorporating the effect of high local demand, while Column (2) accounts for this factor, and Column (3) adds the institutional factor. As expected, unexpected earnings are positively and significantly associated (β_2) with cumulative abnormal returns. The decline in the ERC persists for four quarters, consistent with findings from previous literature. To investigate our expectation that the reduction in the informational content of earnings is more pronounced for firms with high local demand compared to other restatement firms, attributable to heightened investor skepticism, we incorporate the high local demand (HLocal) variable in the regression. The results in Column (2) indicate no significant difference between the two groups of firms during the first two quarters. However, for the third and fourth quarters, firms with high local search exhibited a significant negative decline in the ERC compared to other firms. Therefore, firms with high local demand experience a more severe drop in the informational content of earnings compared

[8] The summary statistics for the pre-and post-period data are presented in Appendix B Table AB8, and we require that at least one-quarter of data be available for both the pre-and post-periods.

to firms with low local demand. Consequently, the detrimental effect of restatements on firms with high local demand may persist for an extended period, resulting in more severe negative implications[9,10].

The Effect of Local Demand on Information Transfer to Peer Firms

Prior literature has established that investors exhibit familiarity bias and home bias when making investment decisions, demonstrating a proclivity towards favoring investments in firms with which they are familiar (Cao et al., 2011; French & Poterba, 1991). This phenomenon raises intriguing implications in the context of restatement announcements by firms with high local investor information demand. When a firm with significant local following restates its financial reports, it may cast doubt on the integrity of the financial reporting system within the industry. Consequently, local investors may scrutinize peer firms within the same industry, contemplating whether they too could be susceptible to future restatements. This chain of events could potentially trigger a contagion effect, whereby investors adjust their perspectives and investment strategies for peer firms in response to the negative signal emanating from the

[9] We notice that the median search percentage across all headquarters is 0. To mitigate concerns that results may be attributed to inherent characteristics of the firms having available local search, we reassign the HL a value of one if the search percentage at a given headquarters exceeds two-thirds of the search percentage across all headquarters. Appendix B Table AB9 Panel A presents the results, the results are similar.

[10] We also change the indicator variable to the original continuous variables, i.e. the normalized raw local Google% and AbBBInst$[t_0, t_5]$. Appendix B Table AB9 Panel B presents the results, the results are similar. In Appendix B Table AB9 Panel C changes the events scope of all columns to samples having valid Bloomberg institutional data, the results are similar.

focal firm's restatement[11]. Against this backdrop, our research endeavors to investigate whether there is indeed heightened information transfer from restatement firms with high local attention to their industry peers. We follow the models in Brochet et al. (2018) and D. M. Christensen et al. (2023):

$$
\begin{aligned}
|\text{CAR\_Peer}[0,5]|_{i,t} = \; & \beta_0 + \beta_1 |\text{CAR\_Res}[0,5]|_{i,t} + \beta_2 \text{HLocal} \\
& + \beta_3 |\text{CAR\_Res}[0,5]|_{i,t} * \text{HLocal} (+\beta_4 \text{HInst} + \beta_5 |\text{CAR\_Res}|_{i,t} * \text{HInst}) \\
& + \beta_6 \text{Size\_Peer}_{i,t} + \beta_7 \text{Size\_Res}_{i,t} + \beta_8 \text{BM\_Peer}_{i,t} + \beta_9 \text{BM\_Res}_{i,t} + \beta_{10} \text{AnalystF\_Res}_{i,t} \\
& + \beta_{11} \text{InstOwn\_Res}_{i,t} + \beta_{12} \text{ManagOwn\_Res}_{i,t} + \text{Quarter FE} + \text{Industry FE} + \epsilon
\end{aligned}
\tag{6}
$$

We define peer firms as those firms sharing the same four-digit Standard Industrial Classification (SIC) code with the focal restatement firm. The variables $|\text{CAR\_Peer}[t_0, t_5]|$ and $|\text{CAR\_Res}[t_0, t_5]|$ represent the absolute cumulative abnormal returns over the window [0,5] following the restatement announcement for peer firms and the focal restatement firm, respectively. This event window aligns with our state-level SVI search period. We incorporate firm size (Size) and book-to-market ratio (BM) for both peer and focal firms as control variables. Additionally, we include the analyst following (AnalystF_Res), institutional ownership (InstOwn_Res), and management ownership (ManagOwn_Res) of the focal restatement firm as control variables. Table 8 presents the results for model (6). The results corroborate the findings of the prior study, as evidenced by the positive and significant coefficient on $|\text{CAR\_Res}[t_0, t_5]|$. This coefficient is indicative of an information transfer between the focal restatement firm and its industry peers. Furthermore, in column (1), we

[11] See Gleason et al. (2008) for negative stock return for peer firms

document a positive and significant coefficient on the interaction term between |CAR_Res[t_0, t_5]| and the HLocal. This finding suggests that the magnitude of the information transfer is amplified when the restatement firm garners heightened local investor information demand during the restatement announcement period. Our analysis quantifies the economic significance of this effect. Specifically, when the restatement firm experiences high local Search, we observe a higher 0.6 percent information transfer to peer firms. This figure is substantially higher than the baseline transfer of 0.4 percent, which is observed when local demand is low. These results underscore the crucial role played by local investor information demand in facilitating the dissemination of information across firms within an industry following a significant corporate event such as a financial restatement. The magnitude of information transfer increases to 2.2% when adding the institutional investor demand in the model[12].

Additional Test

Cross-sectional characteristics

We have identified heightened investor interest and search behavior following the release of the restatement. To further investigate the patterns of abnormal search activity, we conduct additional tests examining cross-sectional differences among firms. Specifically, we consider

12 We change the HLocal by using two-thirds as the threshold and using the normalized raw local Google%. The results are similar, shown in Appendix B Table AB10.

two characteristics: fraud and large size. Here, Fraud is assigned a value of one if the restatement is due to fraud (Audit Analytics), and Large is assigned a value of one if the firm size is in the highest decile among all samples. The results, presented in Table 9, indicate a positive association between fraud and size with abnormal information demand. This suggests that investors exhibit greater information demand when the restatement involves fraud and occurs in a large firm.

V. CONCLUSION

In this study, we consider whether retail investors are attentive to unexpected revelation of financial misstatements and how they affect the outcome of these incidents if they become informative. Whether retail investors pay attention to financial irregularity is ex ante unclear in that they may not have enough financial literacy and often transact out of cognitive bias. However, in the meantime, certain individual investors could be relative rational and outperform others in stock transactions. Using Google trend data to measure individual investor attention, our tests reveal that there is not abnormal internet search before the announcement of accounting restatements, but we observe a significant spike in Google search on the announcement date and reach a peak one day after. This suggests that retail investors do not anticipate the occurrence of accounting misstatements, but they notice them upon announcement.

After acquiring timely information about the restatements, we find that retail investor attention affects the stock returns and selling of restating firms. That is, individual investor attention exacerbates the negative consequences associated with restatements. Further,

restating firms experience longer loss in earnings credibility if they attract greater retail investor attention. Finally, individual investor attention also facilitates the information transfer from restating firms to their industry peers, consistent with the notion that retail investors often concurrently search for information about multiple firms and hold concentrated portfolio in the same industry,

Overall, our study documents that individual investors play a non-trivial role in acquiring and transmitting information about accounting irregularity.

REFERENCES

Agrawal, A., and T. Cooper. 2015. Insider Trading Before Accounting Scandals. Journal of Corporate Finance. 34: 169-190. https://doi.org/10.1016/j.jcorpfin.2015.07.005

Amel-Zadeh, A., and Y. Zhang. 2015. The Economic Consequences of Financial Restatements: Evidence from the Market for Corporate Control. The Accounting Review. 90(1): 1-29. https://doi.org/10.2308/accr-50869

Badertscher, B. A., S. P. Hribar, and N. T. Jenkins. 2011. Informed Trading and the Market Reaction to Accounting Restatements. The Accounting Review. 86(5): 1519-1547. https://doi.org/10.2308/accr-10093

Barber, B. M., and T. Odean. 2001. Boys Will Be Boys: Gender, Overconfidence, and Common Stock Investment. The Quarterly Journal of Economics. 116(1): 261-292. https://doi.org/10.1162/003355301556400

Barber, B. M., Lee, Y. T., Liu, Y. J., & Odean, T. 2009. Just how much do individual investors lose by trading? The Review of Financial Studies, 22(2), 609-632. https://doi.org/10.1093/rfs/hhn046

Barber, B. M., and T. Odean. 2013. The Behavior of Individual Investors. In Handbook of the Economics of Finance, Vol. 2, 1533-1570. Elsevier. https://doi.org/10.1016/B978-0-44-459406-8.00022-6

Beatty, A., S. Liao, and J. J. Yu. 2013. The Spillover Effect of Fraudulent Financial Reporting on Peer Firms' Investments. Journal of Accounting and Economics. 55(2-3): 183-205. https://doi.org/10.1016/j.jacceco.2013.01.003

Ben-Rephael, A., Z. Da, and R. D. Israelsen. 2017. It Depends on Where You Search: Institutional Investor Attention and Underreaction to News. The Review of Financial Studies. 30(9): 3009-3047. https://doi.org/10.1093/rfs/hhx031

Blankespoor, E., E. deHaan, and I. Marinovic. 2020. Disclosure Processing Costs, Investors' Information Choice, and Equity Market Outcomes: A Review. Journal of Accounting and Economics. 70(2-3): Article 101344. https://doi.org/10.1016/j.jacceco.2020.101344

Boehmer, E., C. M. Jones, X. Zhang, and X. Zhang. 2021. Tracking Retail Investor Activity. The Journal of Finance. 76(5): 2249-2305. https://doi.org/10.1111/jofi.13033

Brochet, F., K. Kolev, and A. Lerman. 2018. Information Transfer and Conference Calls. Review of Accounting Studies. 23: 907-957. https://doi.org/10.1007/s11142-018-9444-4

Burks, J. J. 2011. Are Investors Confused by Restatements After Sarbanes-Oxley?. The Accounting Review. 86(2): 507-539. https://doi.org/10.2308/accr.00000017

Bushee, B. J., J. E. Core, W. Guay, and S. J. Hamm. 2010. The Role of the Business Press as an Information Intermediary. Journal of Accounting Research. 48(1): 1-19. https://doi.org/10.1111/j.1475-679X.2009.00357.x

Bushee, B. J., and G. S. Miller. 2012. Investor Relations, Firm Visibility, and Investor Following. The Accounting Review. 87(3): 867-897. https://doi.org/10.2308/accr-10211

Cao, H. H., B. Han, D. Hirshleifer, and H. H. Zhang. 2011. Fear of the Unknown: Familiarity and Economic Decisions. Review of Finance. 15(1): 173-206. https://doi.org/10.1093/rof/rfp023

Chen, X., Q. Cheng, and A. K. Lo. 2014. Is the Decline in the Information Content of Earnings Following Restatements Short-Lived? The Accounting Review. 89(1): 177-207. https://doi.org/10.2308/accr-50594

Chi, S. S., and D. M. Shanthikumar. 2017. Local Bias in Google Search and the Market Response Around Earnings Announcements. The Accounting Review. 92(4): 115-143. https://doi.org/10.2308/accr-51632

Christensen, D. M., H. Jin, J. A. Lee, S. A. Sridharan, and L. A. Wellman. 2023. Corporate Political Activism and Information Transfers. The Accounting Review. 1-27. https://doi.org/10.2308/TAR-2021-0254

Cziraki, P., J. Mondria, and T. Wu. 2021. Asymmetric Attention and Stock Returns. Management Science. 67(1): 48-71. https://doi.org/10.1287/mnsc.2019.3460

Da, Z., J. Engelberg, and P. Gao. 2011. In Search of Attention. The Journal of Finance. 66(5): 1461-1499. https://doi.org/10.1111/j.1540-6261.2011.01679.x

Dechow, P. M., W. Ge, C. R. Larson, and R. G. Sloan. 2011. Predicting Material Accounting Misstatements. Contemporary Accounting Research. 28(1): 17-82. https://doi.org/10.1111/j.1911-3846.2010.01041.x

deHaan, E., A. Lawrence, and R. Litjens. 2023. Measuring Investor Attention Using Google Search. Working Paper. Available at SSRN: https://ssrn.com/abstract=3398287

Desai, H., C. E. Hogan, and M. S. Wilkins. 2006. The Reputational Penalty for Aggressive Accounting: Earnings Restatements and Management Turnover. The Accounting Review. 81(1): 83-112. https://doi.org/10.2308/accr.2006.81.1.83

Dorn, A. J., D. Dorn, and P. Sengmueller. 2015. Trading as Gambling. Management Science. 61(10): 2376-2393. https://doi.org/10.1287/mnsc.2014.1979

Drake, M. S., D. T. Roulstone, and J. R. Thornock. 2012. Investor Information Demand: Evidence from Google Searches Around Earnings Announcements. Journal of Accounting Research. 50(4): 1001-1040. https://doi.org/10.1111/j.1475-679X.2012.00443.x

Drake, M. S., L. A. Myers, S. Scholz, and N. Y. Sharp. 2015. Short Selling Around Restatement Announcements: When Do Bears Pounce?. Journal of Accounting, Auditing & Finance. 30(2): 218-245. https://doi.org/10.1177/0148558X14560899

Frazzini, A., and O. A. Lamont. 2008. Dumb Money: Mutual Fund Flows and the Cross-Section of Stock Returns. Journal of Financial Economics. 88(2): 299-322. https://doi.org/10.1016/j.jfineco.2007.07.001

French, K., and J. Poterba. 1991. Investor diversification and international equity markets. American Economics Review. 222-226

Gleason, C. A., N. T. Jenkins, and W. B. Johnson. 2008. The Contagion Effects of Accounting Restatements. The Accounting Review. 83(1): 83-110. https://doi.org/10.2308/accr.2008.83.1.83

Grinblatt, M., and M. Keloharju. 2001. What Makes Investors Trade? The Journal of Finance. 56(2): 589-616. https://doi.org/10.1111/0022-1082.00338

Grullon, G., G. Kanatas, and J. P. Weston. 2004. Advertising, Breadth of Ownership, and Liquidity. The Review of Financial Studies. 17(2): 439-461. https://doi.org/10.1093/rfs/hhg039

Hennes, K. M., A. J. Leone, and B. P. Miller. 2008. The Importance of Distinguishing Errors from Irregularities in Restatement Research: The Case of Restatements and CEO/CFO Turnover. The Accounting Review. 83(6): 1487-1519. https://doi.org/10.2308/accr.2008.83.6.1487

Hong, H., J. D. Kubik, and J. C. Stein. 2008. The Only Game in Town: Stock-Price Consequences of Local Bias. Journal of Financial Economics. 90(1): 20-37. https://doi.org/10.1016/j.jfineco.2007.11.006

Hribar, P., and N. T. Jenkins. 2004. The Effect of Accounting Restatements on Earnings Revisions and the Estimated Cost of Capital. Review of Accounting Studies. 9: 337-356. https://doi.org/10.1023/B:RAST.0000028194.11371.42

Huberman, G. 2001. Familiarity Breeds Investment. The Review of Financial Studies. 14(3): 659-680. https://doi.org/10.1093/rfs/14.3.659

Ivković, Z., and S. Weisbenner. 2005. Local Does as Local Is: Information Content of the Geography of Individual Investors' Common Stock Investments. The Journal of Finance. 60(1): 267-306. https://doi.org/10.1111/j.1540-6261.2005.00730.x

Korniotis, G. M., and A. Kumar. 2011. Do Older Investors Make Better Investment Decisions? The Review of Economics and Statistics. 93(1): 244-265. https://doi.org/10.1162/REST_a_00053

Korniotis, G. M., and A. Kumar. 2013. Do Portfolio Distortions Reflect Superior Information or Psychological Biases? Journal of Financial and Quantitative Analysis. 48(1): 1-45. https://doi.org/10.1017/S0022109012000610

Lakonishok, J., A. Shleifer, and R. W. Vishny. 1994. Contrarian Investment, Extrapolation, and Risk. The Journal of Finance. 49(5): 1541-1578. https://doi.org/10.1111/j.1540-6261.1994.tb04772.x

Lee, C. M., and M. J. Ready. 1991. Inferring Trade Direction from Intraday Data. The Journal of Finance. 46(2): 733-746. https://doi.org/10.1111/j.1540-6261.1991.tb02683.x

Li, J., X. Liu, Q. Ye, F. Zhao, and X. Zhao. 2023. It Depends On When You Search. MIS Quarterly. 47(1). https://doi.org/10.25300/MISQ/2022/17234

Li, X., S. Radhakrishnan, H. Shin, and J. Zhang. 2011. Regulation FD, Accounting Restatements and Transient Institutional Investors' Trading Behavior. Journal of Accounting and Public Policy. 30(4): 298-326. https://doi.org/10.1016/j.jaccpubpol.2011.06.001

Lou, D. 2014. Attracting Investor Attention Through Advertising. The Review of Financial Studies. 27(6): 1797-1829. https://doi.org/10.1093/rfs/hhu019

Palmrose, Z. V., V. J. Richardson, and S. Scholz. 2004. Determinants of Market Reactions to Restatement Announcements. Journal of Accounting and Economics. 37(1): 59-89. https://doi.org/10.1016/j.jacceco.2003.06.003

Thevenot, M. 2012. The Factors Affecting Illegal Insider Trading in Firms with Violations of GAAP. Journal of Accounting and Economics. 53(1-2): 375-390. https://doi.org/10.1016/j.jacceco.2011.08.002

FIGURE 1
A Sample of Raw Google Search Volume Index (SVI) Data

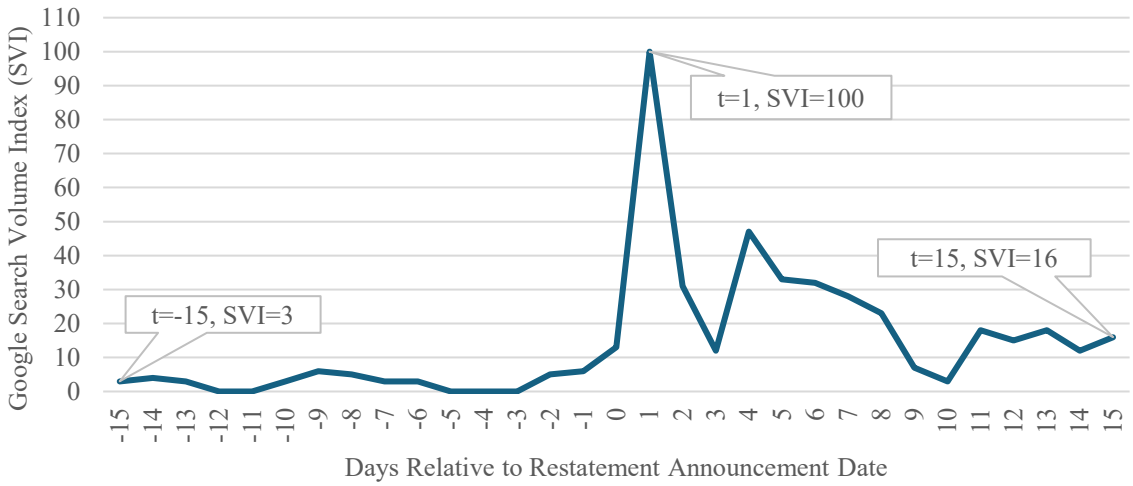

Figure 1 shows the daily Google Search Volume Index (SVI) for the term "khc stock" (representing Kraft Heinz Company) during the period surrounding its financial restatement announcement. The time series spans from February 6, 2019, to March 8, 2019, corresponding to a window of -15 days to +15 days relative to the restatement announcement date of February 21, 2019. The data exhibit a marked increase in search volume on the day after announcement date, peaking at an index value of 100, indicating heightened investor interest and market attention.

FIGURE 2
Abnormal Institutional (Bloomberg) and Retail (Google SVI) Around the Restatement Announcement (Day 0)

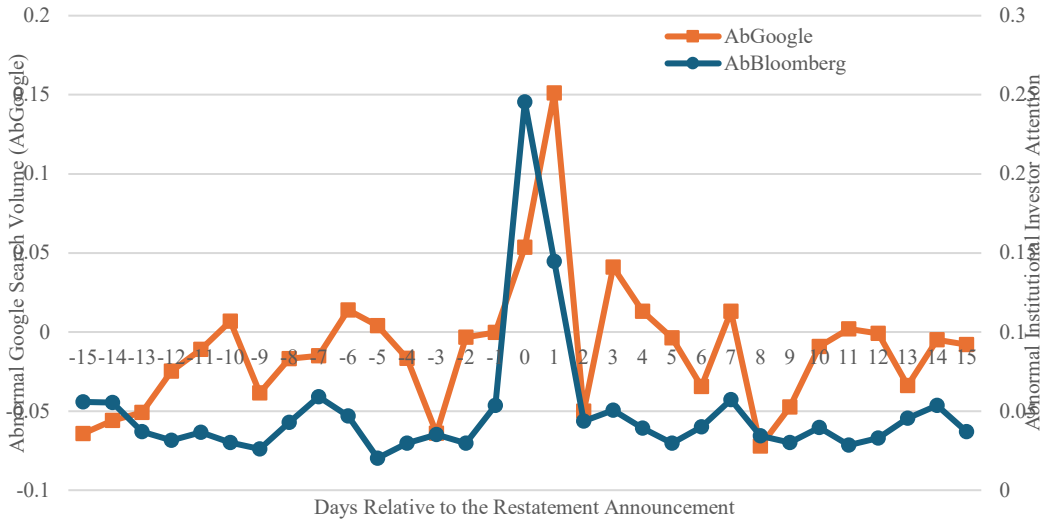

Figure 2 shows investor information demand surrounding restatement announcements for institutional and retail investors, respectively. Centering on the restatement date (t=0), the time series spans 15 days before and post the announcement.

FIGURE 3
Abnormal Retail (Google SVI) Around the Restatement Announcement (Day 0) for Restating and Control Firms

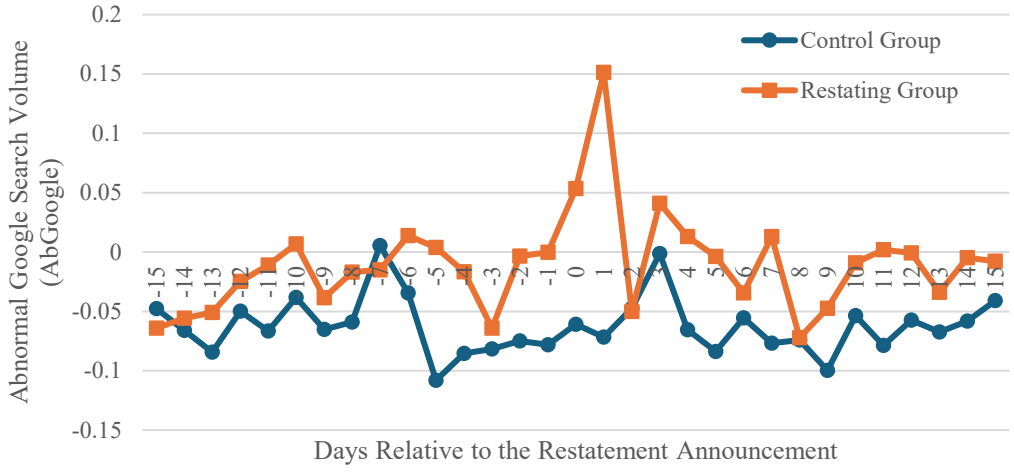

Figure 3 illustrates the abnormal search volume patterns surrounding restatement announcements for the treatment group of restating firms and a propensity score matched control group. Centering on the restatement event date (t=0), the time series spans 15 days before and post the announcement.

FIGURE4
A Sample of State-level Google Search Volume Index (SVI) Data

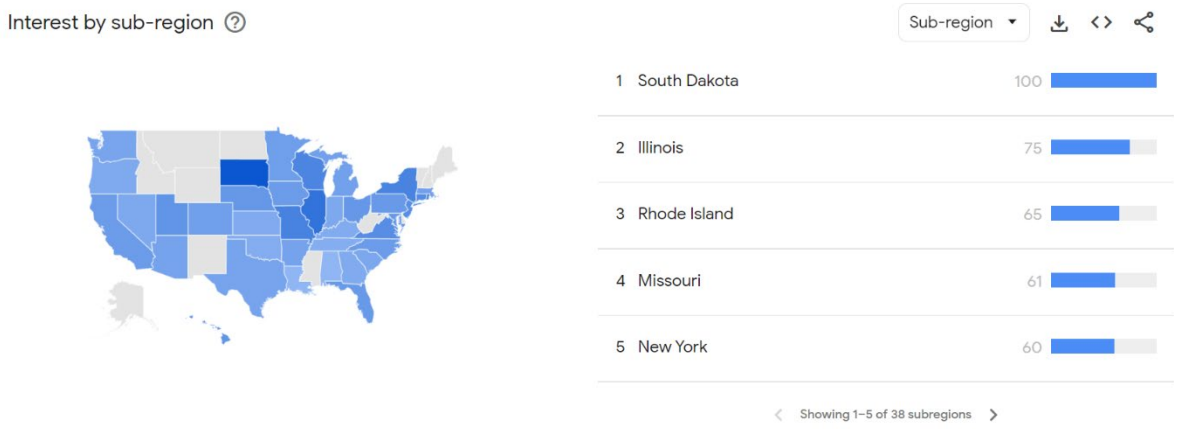

Figure 4 shows a visual representation of the Google Search Volume Index (SVI) across various U.S. states. The map indicates the intensity of search interest by state, with darker shades representing higher search volumes. The table on the right lists the states with their corresponding index, showing the highest index value of 100, and others are presented as percentages relative to highest index.

FIGURE5
A Sample of Insufficient State-level SVI Data

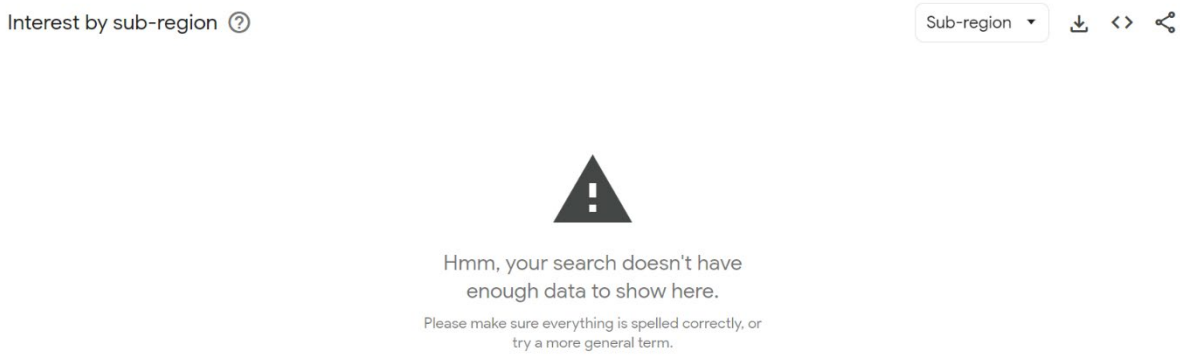

Figure 5 shows a sample of the absence of sufficient data for generating a state-level SVI data.

TABLE 1

Panel A: Sample Selection Process

	Events
(1) Restatements Have available announcement date	7,014
(2) Headquartered in the U.S.	5,544
(3) Available Data in Compustat & CRSP	2,399
(4) Available Data in Google Trend	1,887

Panel B: Descriptive Statistics: Firm Level

	n	Mean	Std.	P10	Median	P90
AbGoogle	58,337	-0.011	1.797	-1.000	0.000	0.111
AbGoogle day0	1,887	0.006	1.744	-1.000	0.000	0.391
AbGoogle day1	1,887	0.153	2.389	-1.000	0.000	1.000
AbBBInst	21,903	0.143	0.655	0.000	0.000	0.000
AbBBInst day0	711	0.731	1.483	0.000	0.000	4.000
AbBBInst day1	711	0.419	1.097	0.000	0.000	2.000
Abs ret	58,337	0.026	0.031	0.002	0.016	0.060
AbVolume	58,337	0.142	1.227	-0.707	-0.172	1.093
Prc HLtoH	58,337	0.477	0.406	0.133	0.358	0.965
Prc 52weekhigh	58,337	0.025	0.156	0.000	0.000	0.000
Prc 52weeklow	58,337	0.042	0.201	0.000	0.000	0.000
Spread	58,337	0.498	0.447	0.133	0.365	1.014
Turnover	58,337	0.223	0.312	0.020	0.123	0.491
Magnitude	58,337	0.001	0.003	0.000	0.000	0.001
BM	58,337	0.583	0.682	0.086	0.483	1.163
Size	58,337	5.741	1.825	3.285	5.683	8.115
Sd ret	58,337	0.034	0.025	0.013	0.027	0.065
Advertise	58,337	0.013	0.034	0.000	0.000	0.038
Employee	58,337	6.581	2.352	3.871	6.569	9.528
Shareholder	58,337	5.497	3.080	0.000	5.927	9.090
AnalystF	58,337	1.478	1.016	0.000	1.609	2.833
InstOwn	58,337	0.528	0.336	0.057	0.542	0.972
ManagOwn	58,337	1.533	5.547	0.000	0.000	2.63
EarningsA	58,337	0.018	0.133	0.000	0.000	0.000
News num	58,337	0.046	0.264	0.000	0.000	0.000

Panel C: Descriptive Statistics: State Level

	n	Mean	Std.	P10	Median	P90
Google%	96,084	1.961	7.951	0.000	0.000	3.266
Google% HQ	1,884	4.350	14.730	0.000	0.000	6.989
Top pop	96,084	0.196	0.397	0.000	0.000	1.000
MF num	96,084	4.053	2.329	0.000	3.951	7.078
GDP	96,084	12.113	1.024	10.803	12.117	13.425
Google%[-90,-30]	96,084	1.547	7.773	0.000	0.000	2.545
Distance	96,084	7.188	1.279	6.190	7.402	8.247
Distance to NY	96,084	7.011	1.365	5.451	7.371	8.253

Panel A presents the sample selection process. Panel B reports descriptive statistics for the firm-level variables used in our tests. Panel C reports descriptive statistics for the state-level variables used in our tests.

Table2 Correlation Table

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
(1)AbGoogle	1.00																								
(2)RES_daym1	0.00	1.00																							
(3)RES_day0	0.00	**-0.03**	1.00																						
(4)RES_day1	**0.02**	**-0.03**	**-0.03**	1.00																					
(5)RES_day2	0.00	**-0.03**	**-0.03**	**-0.03**	1.00																				
(6)Abs_ret	**0.03**	0.00	**0.06**	**0.08**	**0.04**	1.00																			
(7)AbVolume	**0.02**	0.00	**0.09**	**0.12**	**0.06**	**0.41**	1.00																		
(8)Prc_HLtoH	**0.02**	0.00	**0.05**	**0.07**	**0.04**	**0.70**	**0.37**	1.00																	
(9)Prc_52weekhigh	0.00	0.01	0.00	0.00	0.00	**0.02**	**0.07**	**-0.02**	1.00																
(10)Prc_52weeklow	**0.01**	**-0.01**	**0.02**	**0.03**	**0.02**	**0.17**	**0.12**	**0.17**	**-0.03**	1.00															
(11)Spread	**0.02**	0.00	**0.05**	**0.07**	**0.04**	**0.70**	**0.37**	**0.99**	**-0.02**	**0.17**	1.00														
(12)Turnover	**0.02**	0.00	0.00	0.00	0.01	**0.18**	**0.05**	**0.23**	0.01	**0.09**	**0.23**	1.00													
(13)Magnitude	0.00	0.00	0.00	0.00	0.00	**0.05**	0.00	**0.08**	**-0.03**	0.01	**0.08**	**0.05**	1.00												
(14)BM	0.00	0.00	0.00	0.00	0.00	**0.03**	0.01	**0.03**	-0.00	-0.01	**0.02**	**-0.10**	**-0.07**	1.00											
(15)Size	**0.01**	0.00	0.00	0.00	0.00	**-0.18**	0.00	**-0.27**	**0.06**	**0.01**	**-0.27**	**0.20**	**-0.09**	**-0.22**	1.00										
(16)Sd_ret	0.01	**-0.01**	**-0.01**	0.00	0.01	**0.39**	**-0.02**	**0.55**	**-0.06**	**0.08**	**0.55**	**0.32**	**0.07**	**0.03**	**-0.35**	1.00									
(17)Advertise	0.01	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	**0.01**	**-0.01**	0.00	**0.08**	**-0.04**	**-0.08**	**0.04**	**-0.01**	1.00								
(18)Employee	0.00	0.00	0.00	0.00	0.00	**-0.13**	0.00	**-0.22**	**0.07**	0.00	**-0.20**	**0.02**	**-0.20**	**-0.05**	**0.55**	**-0.24**	**0.11**	1.00							
(19)Shareholder	0.00	0.00	0.00	0.00	0.00	**-0.06**	0.01	**-0.08**	**0.02**	**-0.01**	**-0.08**	-0.01	0.00	**-0.08**	**0.21**	**-0.12**	**0.08**	**0.33**	1.00						
(20)AnalystF	**0.02**	0.00	0.00	0.00	0.00	**-0.12**	**-0.01**	**-0.16**	**0.03**	**0.03**	**-0.16**	**0.27**	**-0.10**	**-0.13**	**0.72**	**-0.22**	**0.09**	**0.45**	**0.14**	1.00					
(21)InstOwn	0.00	0.00	0.00	0.00	0.00	**-0.15**	0.01	**-0.22**	**0.05**	**0.01**	**-0.22**	**0.19**	**-0.15**	**-0.07**	**0.67**	**-0.29**	**0.04**	**0.48**	**0.17**	**0.66**	1.00				
(22)ManagOwn	0.00	0.00	0.00	0.00	0.00	**-0.04**	**0.02**	**-0.06**	**0.03**	**-0.02**	**-0.06**	**-0.01**	**-0.04**	**0.02**	**0.10**	**-0.08**	**0.07**	**0.14**	**0.02**	**0.06**	**0.05**	1.00			
(23)EarningsA	**0.01**	**0.01**	**0.31**	0.00	-0.01	**0.06**	**0.10**	**0.06**	0.00	0.00	**0.06**	0.01	0.00	-0.01	0.00	-0.01	0.00	0.01	**0.02**	0.00	0.00	0.01	1.00		
(24)News_num	**0.01**	0.00	**0.03**	**0.03**	**0.01**	0.00	**0.04**	**-0.02**	**0.01**	**0.01**	**-0.02**	**0.03**	**-0.02**	**-0.01**	**0.13**	**-0.05**	**0.01**	**0.11**	**0.05**	**0.11**	**0.08**	0.00	**0.02**	1.00	
(25)AbBBInst	**0.04**	0.01	**0.16**	**0.08**	-0.01	**0.08**	**0.14**	**0.05**	0.00	**0.03**	**0.05**	**0.10**	0.00	**-0.03**	**0.21**	**-0.05**	**0.04**	**0.13**	**0.08**	**0.19**	**0.15**	0.01	**0.22**	**0.14**	1.00

Correlations significant at the 5 percent level are in bold. Variable definitions are listed in Appendix A.

Table 3

Daily Abnormal Investor Information Demand around the Restatement Announcement

Panel A: Only Treat Firms

	(1) AbGoogle		(2) AbGoogle	
	Coeff.	**t-stat**	**Coeff.**	**t-stat**
RES_daym1	-0.001	(-0.030)	0.016	(0.181)
RES_day0	-0.033	(-0.838)	-0.008	(-0.114)
RES_day1	0.139***	(2.653)	0.255**	(2.513)
RES_day2	-0.046	(-1.206)	0.026	(0.308)
AbBBInst			0.055*	(1.888)
Abs_ret	0.994**	(2.520)	1.827**	(2.378)
AbVolume	0.015*	(1.660)	0.052**	(2.531)
Prc_HLtoH	-1.320**	(-2.191)	-3.586***	(-2.951)
Prc_52weekhigh	-0.028	(-0.603)	0.064	(0.685)
Prc_52weeklow	0.013	(0.233)	0.179	(1.583)
Spread	1.189**	(2.178)	3.157***	(2.866)
Turnover	0.029	(0.604)	0.031	(0.463)
Magnitude	-1.334	(-0.603)	1.106	(0.336)
BM	0.001	(0.048)	0.005	(0.298)
Size	0.000	(0.034)	-0.019	(-1.004)
Sd_ret	-1.098**	(-2.302)	-0.516	(-0.649)
Advertise	0.615**	(2.148)	0.413	(0.961)
Employee	-0.000	(-0.039)	-0.001	(-0.161)
Shareholder	0.004	(1.278)	-0.004	(-0.554)
AnalystF	0.034**	(2.466)	0.091***	(3.384)
InstOwn	-0.076*	(-1.807)	-0.082	(-1.065)
ManagOwn	-0.001	(-0.438)	0.000	(0.064)
EarningsA	0.122**	(2.070)	0.076	(0.737)
News_num	0.069	(1.351)	0.645**	(2.048)
D_Tue	0.004	(0.134)	0.027	(0.544)
D_Wed	-0.016	(-0.620)	-0.037	(-0.754)
D_Thu	0.002	(0.066)	0.020	(0.437)
D_Fri	0.015	(0.572)	-0.008	(-0.167)
D_Sat	0.003	(0.116)	0.006	(0.115)
D_Sun	0.001	(0.035)	-0.007	(-0.136)
Observations	58,337		21,903	
Adj. R^2	0.004		0.011	

Quarter FE	YES	YES
Industry FE	YES	YES

Panel B: Restate and Control Firms

	(1) AbGoogle		(2) AbGoogle	
	Coeff.	**t-stat**	**Coeff.**	**t-stat**
Restate	0.061***	(4.438)	0.100***	(3.551)
RES_daym1	-0.020	(-1.100)	-0.045	(-1.373)
RES_day0	0.003	(0.141)	0.005	(0.130)
RES_day1	-0.007	(-0.315)	-0.004	(-0.087)
RES_day2	0.028	(1.095)	0.056	(1.083)
Restate * RES_daym1	0.015	(0.328)	0.056	(0.601)
Restate * RES_day0	-0.036	(-0.825)	-0.044	(-0.539)
Restate * RES_day1	0.145**	(2.526)	0.248**	(2.219)
Restate * RES_day2	-0.076*	(-1.650)	-0.031	(-0.319)
AbBBInst			0.109***	(2.674)
Controls	YES		YES	
Observations	77,662		30,764	
Adj. R^2	0.005		0.014	
Quarter FE	YES		YES	
Industry FE	YES		YES	

This table presents the results of the estimation for regression model (1), which assesses the impact of restatement announcements on retail investors' demand for information. The dependent variable, AbGoogle, represents the abnormal daily Google search volume. It is calculated as the average value of the raw Google Search Volume Index (SVI) for a given day t, minus the average SVI for the same weekday over the previous eight weeks, scaled by the average SVI for the same weekday over the prior eight weeks. Panel A provides results that focus exclusively on restatement firms. In this panel, Column (1) presents the baseline model results, while Column (2) includes the variable AbBBInst as a control for institutional investor attention, measured using Bloomberg data, as discussed in Ben-Rephael et al. (2017). Panel B expands the analysis by including both restatement and control firms. Coefficients are estimated using OLS, and t-statistics are presented in parentheses. Standard errors are clustered at the firm level. Significance levels are denoted by ***, **, and * for the 1%, 5%, and 10% levels, respectively. Variable definitions can be found in Appendix A.

Table 4
Trading Behavior around the Restatement Announcement

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	**Retail Trading Amount [t_0, t_2]**			**Overall Trading Amount [t_0, t_2]**		
	Imbalance	Buy	Sell	Imbalance	Buy	Sell
AbGoogle	-0.005**	-0.004	0.044**	-0.001	0.025	0.044*
	(-2.024)	(-0.152)	(2.246)	(-0.613)	(0.978)	(1.702)
AbBBInst				-0.001	0.180***	0.166***
				(-0.436)	(4.529)	(4.633)
Observations	6,839	6,839	6,839	3,651	3,651	3,651
Adj. R^2	0.077	0.815	0.798	0.162	0.878	0.890
Controls	YES	YES	YES	YES	YES	YES
Q & Ind FE	YES	YES	YES	YES	YES	YES
Panel B	**Retail Trading Volume [t_0, t_2]**			**Overall Trading Volume [t_0, t_2]**		
	Imbalance	Buy	Sell	Imbalance	Buy	Sell
AbGoogle	-0.005**	0.005	0.042**	-0.001	0.027	0.048**
	(-1.975)	(0.227)	(2.360)	(-0.734)	(1.103)	(1.994)
AbBBInst				-0.000	0.188***	0.173***
				(-0.233)	(4.739)	(4.655)
Observations	6,839	6,839	6,839	3,651	3,651	3,651
Adj. R^2	0.076	0.761	0.758	0.150	0.831	0.837
Controls	YES	YES	YES	YES	YES	YES
Q & Ind FE	YES	YES	YES	YES	YES	YES
Panel C	**Retail Trading Number [t_0, t_2]**			**Overall Trading Number [t_0, t_2]**		
	Imbalance	Buy	Sell	Imbalance	Buy	Sell
AbGoogle	-0.005	0.031**	0.031**	-0.001	0.024	0.032
	(-1.622)	(2.073)	(2.198)	(-0.438)	(1.148)	(1.469)
AbBBInst				-0.000	0.148***	0.135***
				(-0.022)	(5.029)	(4.524)
Observations	6,839	6,839	6,839	3,651	3,651	3,651
Adj. R^2	0.085	0.887	0.878	0.144	0.911	0.907
Controls	YES	YES	YES	YES	YES	YES
Q & Ind FE	YES	YES	YES	YES	YES	YES

This table presents the results from the estimation of model (2), which examines the relationship between information acquisition by individual investors and their subsequent short-term trading activities. The dependent variables—trading imbalance, buy orders, and sell orders—are aggregated for the search day and the subsequent two days. Columns (1), (2), and (3) of the table show the results for the baseline model. Each column corresponds to one of the dependent variables: trading imbalance, buy orders, and sell orders, respectively. Columns (4), (5), and (6) extend the analysis by incorporating the variable AbBBInst as a control for institutional investor attention. These columns use overall trading behaviors as the dependent variables. Panel A shows the results for trading amount, Panel B shows the results for trading volume, and Panel C shows the results for trading number. The coefficients are estimated using OLS, with t-statistics reported in parentheses. Standard errors are clustered at the firm level. Significance levels are clearly indicated, with ***, **, and * denoting statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions can be found in Appendix A.

Table 5
Cumulative Abnormal Return and Abnormal Retail Investor Demand

	(1)	(2)	(3)	(4)	(5)	(6)
	CAR[t_0,t_1]	**CAR[t_0,t_2]**	**CAR[t_0,t_3]**	**CAR[t_0,t_1]**	**CAR[t_0,t_2]**	**CAR[t_0,t_3]**
AbGoogle	-0.001*	-0.002**	-0.001**	-0.002**	-0.002**	-0.002**
	(-1.853)	(-2.474)	(-2.008)	(-2.227)	(-2.302)	(-2.131)
				-0.005**	-0.005**	-0.005**
				(-2.232)	(-2.403)	(-2.024)
Size	0.002	0.003	0.002	0.001	0.001	-0.000
	(1.268)	(1.415)	(1.088)	(0.514)	(0.487)	(-0.133)
BM	0.001	0.001	-0.001	-0.001	-0.003	-0.005
	(0.382)	(0.318)	(-0.139)	(-0.173)	(-0.641)	(-0.882)
Turnover	-0.028**	-0.028**	-0.028*	-0.023***	-0.024**	-0.026**
	(-2.529)	(-2.177)	(-1.888)	(-2.917)	(-2.398)	(-2.088)
Sd_ret	0.289**	0.373**	0.463**	0.057	0.011	0.054
	(2.011)	(2.110)	(2.411)	(0.340)	(0.054)	(0.247)
Ret_lastm	-0.020	-0.014	-0.022	-0.008	-0.000	-0.003
	(-1.570)	(-0.885)	(-1.241)	(-0.491)	(-0.002)	(-0.133)
Magnitude	0.984**	1.116**	0.992**	1.474***	1.837***	1.811***
	(2.459)	(2.372)	(1.991)	(3.644)	(4.711)	(4.289)
Advertise	0.018	0.024	-0.004	-0.000	0.003	-0.022
	(0.468)	(0.497)	(-0.076)	(-0.002)	(0.042)	(-0.211)
InstOwn	0.021***	0.026***	0.029***	0.024**	0.028**	0.032**
	(2.904)	(2.833)	(2.851)	(2.547)	(2.435)	(2.515)
AnalystF	-0.005	-0.007*	-0.007	-0.003	-0.003	-0.003
	(-1.637)	(-1.698)	(-1.641)	(-0.826)	(-0.727)	(-0.625)
News_num	-0.010***	-0.011***	-0.011**	-0.017	-0.024	-0.027
	(-2.786)	(-2.749)	(-2.525)	(-1.207)	(-1.400)	(-1.174)
Observations	11,318	11,317	11,313	4,266	4,266	4,263
Adj. R^2	0.047	0.055	0.065	0.087	0.105	0.127
Q & Ind FE	YES	YES	YES	YES	YES	YES

This table presents the results from the estimation of model (3), which examines information acquisition by individual investors and the subsequent short-term cumulative abnormal returns. The dependent variable CAR[t_0,t_i] is the cumulative abnormal returns from the search date to day j after the search day. Columns (1), (2), and (3) of the table show the results for the baseline model. Columns (4), (5), and (6) extend the analysis by incorporating the variable AbBBInst as a control for institutional investor attention. The coefficients are estimated using OLS, with t-statistics reported in parentheses. Standard errors are clustered at the firm level. Significance levels are clearly indicated, with ***, **, and * denoting statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions can be found in Appendix A.

Table 6
Local Bias in Investor Demand around the Restatement Announcement

	(1)		(2)	
Panel A	**Google%[t_0, t_5]**		**Google%[t_0, t_5]**	
	Coeff.	**t-stat**	**Coeff.**	**t-stat**
HQ	1.795***	(4.821)	2.498***	(3.947)
Top_pop	0.234**	(2.073)	0.262	(1.447)
MF_num	0.014	(0.776)	0.036	(1.333)
GDP	0.271***	(5.001)	0.339***	(3.873)
Google%[t_{-90}, t_{-30}]	0.042***	(4.874)	0.079***	(4.090)
Distance_to_NY	-0.060**	(-1.997)	-0.068	(-1.476)
AbBBInst[t_0, t_5]			0.007*	(1.765)
CAR[t_0, t_5]	-0.004	(-0.682)	0.004	(0.307)
AbVolume[t_0, t_5]	-0.001	(-1.311)	0.000	(0.100)
Prc*HLtoH	-0.006	(-0.274)	0.074	(1.532)
Prc_52weekhigh	-0.005	(-1.183)	0.015	(0.882)
Prc_52weeklow	0.004	(1.049)	0.011	(1.422)
Spread	0.007	(0.417)	-0.060	(-1.484)
Turnover	-0.004*	(-1.697)	-0.011***	(-2.589)
Magnitude	0.000	(0.006)	-0.000	(-1.248)
BM	-0.001	(-0.958)	0.003	(1.032)
Size	-0.004***	(-3.641)	-0.005**	(-2.444)
Sd_ret	-0.074*	(-1.794)	-0.121	(-1.407)
Advertise	-0.038	(-1.646)	-0.056	(-1.319)
Employee	0.000	(0.104)	0.000	(0.215)
Shareholder	-0.000	(-0.460)	0.001	(1.046)
AnalystF	0.001	(0.512)	-0.002	(-0.766)
InstOwn	0.007**	(2.047)	0.006	(0.871)
ManagOwn	0.000	(0.850)	0.000	(0.744)
News_num[t_0, t_5]	0.000	(0.050)	-0.003	(-1.401)
Observations	96,084		36,465	
Adj. R^2	0.005		0.011	
Q & Ind FE	YES		YES	
Panel B	**Google%[t_0, t_5]**		**Google%[t_0, t_5]**	
Distance	-0.167***	(-4.785)	-0.229***	(-4.010)
Controls	YES		YES	
Observations	96,084		36,465	
Adj. R^2	0.004		0.010	
Q & Ind FE	YES		YES	

This table reports the results of the estimating regression model (4), testing the association between the state search percentage and the headquarters. The dependent variable Google%[t_0,t_5] is the state-level google search volume index scaled by the sum of all-state SVI for the time window [0,5]. Columns (1) shows the results for the baseline model. Columns (2) adds AbBBInst as a control for institutional investor attention. In Panel A, HQ is an indicator variable assigned a value of one if the state hosts the firm's headquarters. In Panel B, Distance is the natural logarithm of distance (km) from the search state to the headquarters state.The coefficients are estimated using OLS, with t-statistics reported in parentheses. Standard errors are clustered at the firm level. Significance levels are clearly indicated, with ***, **, and * denoting statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions can be found in Appendix A.

Table 7
Change in the Information Content of Earnings after Restatement Announcements

	(1) CAR		(2) CAR		(3) CAR	
	Coeff.	**p-value**	**Coeff.**	**p-value**	**Coeff.**	**p-value**
UE	2.255***	(0.000)	2.291***	(0.000)	2.509***	(0.000)
UE*QTR1	-0.373**	(0.025)	-0.337*	(0.085)	-0.103	(0.380)
UE*QTR2	-0.485*	(0.089)	-0.078	(0.463)	0.835	(0.182)
UE*QTR3	-0.820***	(0.001)	-0.375*	(0.061)	-0.192	(0.252)
UE*QTR4	-0.698***	(0.004)	-0.252	(0.199)	0.154	(0.349)
UE*QTR5	-0.056	(0.419)	-0.169	(0.269)	-0.079	(0.453)
UE*QTR6	0.080	(0.405)	-0.100	(0.373)	0.366	(0.237)
UE*QTR7	-0.215	(0.219)	-0.336	(0.125)	-0.324	(0.187)
UE*QTR8	-0.436	(0.138)	-0.215	(0.195)	-0.019	(0.486)
UE*QTR1*HLocal			-0.051	(0.876)	-0.369	(0.345)
UE*QTR2*HLocal			-0.624	(0.491)	-1.372	(0.155)
UE*QTR3*HLocal			-1.108***	(0.009)	-1.285***	(0.008)
UE*QTR4*HLocal			-1.035**	(0.012)	-1.307***	(0.010)
UE*QTR5*HLocal			0.242	(0.582)	-0.028	(0.973)
UE*QTR6*HLocal			0.277	(0.581)	0.621	(0.314)
UE*QTR7*HLocal			0.703	(0.178)	0.581	(0.255)
UE*QTR8*HLocal			-0.558	(0.508)	0.840	(0.242)
UE*QTR1*HInst					-1.503*	(0.067)
UE*QTR2*HInst					-1.150	(0.174)
UE*QTR3*HInst					0.128	(0.778)
UE*QTR4*HInst					-0.740	(0.428)
UE*QTR5*HInst					0.044	(0.949)
UE*QTR6*HInst					-0.113	(0.881)
UE*QTR7*HInst					0.537	(0.596)
UE*QTR8*HInst					-0.728	(0.304)
Controls	YES		YES		YES	
Observations	8,124		8,124		3,616	
Adj. R^2	0.122		0.125		0.150	
Q & Ind FE	YES		YES		YES	

This table reports the results of the estimating regression model (5), which measures the changes in the information content of earnings after restatement announcements. CAR is the cumulative abnormal return in the three-day window around the earnings announcement. UE is unexpected earnings scaled by price, with expected earnings measured as the median of analysts' earnings forecasts issued within 60 days before the earnings announcement. Column (1) reports the result for the baseline model, column (2) reports the result after adding the indicator of high local demand, and column (3) adds AbBBInst as a control for high institutional investor attention. High Local Demand (HLocal) is assigned a value of one if the search percentage at a given headquarters in the windows [0,5] exceeds the median search percentage across all headquarters. High Institutional Demand (HInst) is an indicator variable set equal to one if the average AbBBInst in the windows [0,5] exceeds median. The coefficients are estimated using OLS, with p-value reported in parentheses. Standard errors are clustered at the firm level. ***, **, and * denote the two-tailed statistical significance (one-sided for the coefficients on UE*QTR) for the 1%, 5%, and 10% levels, respectively. Variable definitions can be found in Appendix A.

Table 8
Information Transfer to Peer Firms around Restatement Announcements

	(1)	(2)
	|CAR_Peer[t_0, t_5]|	**|CAR_Peer[t_0, t_5]|**
|CAR_Res[t_0, t_5]|	0.004*	-0.001
	(1.704)	(-0.038)
HLocal	-0.001	-0.002**
	(-1.072)	(-2.146)
|CAR_Res[t_0, t_5]| * HLocal	0.006**	0.022***
	(2.063)	(4.170)
HInst		0.005***
		(5.639)
|CAR_Res[t_0, t_5]|*HInst		-0.024***
		(-4.121)
Size_Res	-0.000	-0.000
	(-1.241)	(-1.116)
Size_Peer	-0.004***	-0.005***
	(-26.555)	(-21.472)
BM_Res	0.001***	0.000
	(5.178)	(1.471)
BM_Peer	0.002***	0.002***
	(13.056)	(8.113)
AnalystF_Res	0.001***	0.001*
	(3.285)	(1.955)
InstOwn_Res	0.000	0.003**
	(0.199)	(2.071)
ManagOwn_Res	0.000	-0.000**
	(0.255)	(-2.449)
Observations	86,679	32,761
Adj. R^2	0.115	0.122
Q & Ind FE	YES	YES

This table reports the results of the estimating regression model (6), which models information transfer to peer firms around restatement announcements. The dependent variable |CAR_Peer[t_0, t_5]| represents the abnormal cumulative return for the peer firms for the window [0,5] around the restatement of the focal firm. Columns (1) of the table shows the results for the baseline model, and column (2) reports the results after adding HInst as a control for institutional investor attention. High Local Demand (HLocal) is assigned a value of one if the search percentage at a given headquarters exceeds the median search percentage across all headquarters. High lnstitutional Demand (HInst) is an indicator variable set equal to one if the AbBBInst exceeds median. The coefficients are estimated using OLS, with t-statistics reported in parentheses. Standard errors are clustered at the firm level. Significance levels are clearly indicated, with ***, **, and * denoting statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions can be found in Appendix A.

Table 9
Cross-Section Firm Characteristic Influencing the Investor Information Demand

	(1)	(2)	(3)	(4)
	AbGoogle	AbGoogle	AbGoogle	AbGoogle
RES_daym1	-0.008	0.018	0.007	0.046
	(-0.187)	(0.226)	(0.162)	(0.563)
RES_day0	-0.058	-0.061	-0.069	-0.092
	(-1.273)	(-0.713)	(-1.480)	(-1.064)
RES_day1	0.113***	0.188**	0.113**	0.202**
	(2.611)	(2.310)	(2.505)	(2.436)
RES_day2	-0.048	0.023	-0.067	-0.015
	(-1.122)	(0.290)	(-1.500)	(-0.178)
Fraud	-0.048	-0.007		
	(-1.053)	(-0.090)		
RES_daym1*Fraud	0.205	-0.032		
	(0.887)	(-0.085)		
RES_day0*Fraud	0.724***	1.168***		
	(3.140)	(3.143)		
RES_day1*Fraud	0.783***	1.522***		
	(3.393)	(4.092)		
RES_day2*Fraud	0.085	0.083		
	(0.370)	(0.225)		
Large			-0.006	-0.023
			(-0.178)	(-0.323)
RES_daym1*Large			-0.083	-0.368
			(-0.602)	(-1.289)
RES_day0*Large			0.354**	1.128***
			(2.567)	(3.915)
RES_day1*Large			0.254*	0.712**
			(1.845)	(2.489)
RES_day2*Large			0.204	0.509*
			(1.484)	(1.782)
AbBBInst		0.055**		0.041*
		(2.358)		(1.717)
Controls	YES	YES	YES	YES
Observations	58,337	21,903	58,337	21,903
Adj. R^2	0.005	0.012	0.005	0.012
Q & Ind FE	YES	YES	YES	YES

This table reports the results of the cross-section of firm characteristics (fraud and large firm) influencing the investor information demand. The dependent variable AbGoogle is the abnormal daily Google search volume, which is calculated as the average value of the raw Google Search Volume Index (SVI) for a given day t, minus the average SVI for the same weekday over the previous eight weeks, scaled by the average SVI for the same weekday over the prior eight weeks. Fraud is assigned a value of one if the restatement is due to fraud, and Large is assigned a value of one if the firm size is in the highest decile among all samples. The coefficients are estimated using OLS, with t-statistics reported in parentheses. Standard errors are clustered at the firm level. Significance levels are clearly indicated, with ***, **, and * denoting statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions can be found in Appendix A.

APPENDIX A

Variable Definitions

Variable	Variable Description
AbGoogle	The average value of raw Google Search Volume Index (SVI) for a given day t minus the average SVI for the same weekday over the past 8 weeks, scaled by the average SVI for the same weekday over the past 8 weeks. (Google Trends)
AbBBInst	The institutional investor attention (AbBBInst) is a variable derived from Bloomberg data, which measures the level of abnormal attention received by a particular stock. Bloomberg tracks the number of times news articles related to the stock are read by terminal users, as well as the frequency of active searches for news about the stock. Each article read is assigned a value of one, while each news search is assigned a value of ten. These values are aggregated on an hourly basis. To calculate the hourly attention score, Bloomberg compares the average count of the past eight hours with all the hourly counts recorded over the previous month for the same stock. If the rolling average falls within the lowest 80% of the hourly counts over the previous 30 days, a score of zero is assigned. Similarly, scores of 1, 2, 3, or 4 are assigned if the average falls within the ranges of 80% to 90%, 90% to 94%, 94% to 96%, or above 96% of the previous 30 days' hourly counts, respectively. (Bloomberg)
AbBBInst[t_i, t_j]	The average value of AbBBInst in the window [t_i, t_j] relative to the corresponding date. (Bloomberg)
Abs_ret	Absolute value of daily stock return. (CRSP)
AbVolume	Abnormal Trading Volume, the value of trading volume for a given day t minus the average trading volume for the past month, scaled by the average trading volume for the past month. (CRSP)
AbVolume[t_i, t_j]	The average value of AbVolume in the window [t_i, t_j] relative to the corresponding date.
Advertise	Advertising expense scaled by assets. (Compustat)
AnalystF	The natural logarithm of 1 + Analyst Following in the last consensus analyst earnings forecast before the earnings announcement. (I/B/E/S)
Beta	Market-model beta, estimated for the year that ends two days before the announcement of the restatement. (CRSP)
BM	Book value of common equity to market capitalization ratio. (Compustat)
CAR	Cumulative abnormal returns in the three-day window[-1,1] around the earnings/restate announcement date. (CRSP)
|CAR_Peer[t_i, t_j]|	Cumulative abnormal returns of the peer firms in the window [t_i, t_j] relative to the corresponding date.

$\|CAR\_Res[t_i, t_j]\|$	Cumulative abnormal returns of the restatement firms in the window $[t_i, t_j]$ relative to the corresponding date.
$CAR[t_i, t_j]$	Cumulative abnormal returns in the window $[t_i, t_j]$ relative to the corresponding date. (CRSP)
Distance	The natural logarithm of distance (km) from the search state to the headquarters state.
Distance_to_NY	The natural logarithm of distance (km) from the search state to New York.
D_weekday	Indicator variable of the weekday. For example, D_Tue is assigned as 1 if the search day is Tuesday.
EarningsA	Indicator of the date that is an earnings announcement date. (Compustat)
Employee	The natural logarithm of 1 plus the number of employees. (Compustat)
FourthQ	Indicator variable set equal to one for firms in the fourth fiscal quarter and to zero otherwise. (Compustat)
Fraud	Indicator variable set equal to one if the event is a fraud. (Audit Analytics)
GDP	The natural logarithm of 1 + GDP in 2012 US dollars for the state in the year before the restatement announcement. (U.S. Bureau of Economic Analysis)
Google%	State-level Google search volume index (SVI) scaled by the sum of all-state SVI for the time window [0,5]. (Google Trends)
$Google\%[t_{-90}, t_{-30}]$	State-level Google search volume index (SVI) scaled by the sum of all-state SVI for the time window [-90,-30]. (Google Trends)
HInst	High institution demand. The indicator variable is set equal to one if the AbBBInst[0,5] exceeds the median.
HLocal	High local demand. The indicator variable is set equal to one if the search percentage at a given headquarters exceeds the median search percentage across all headquarters.
HQ	Indicator variable set to one when search state is the headquarter.
InstOwn	Shares held by institutional investors scaled by total shares outstanding. (CRSP/Thomson)
Large	Indicator variable set equal to one if the market value of equity of the firm is in the highest decile of the sample and to zero otherwise.
LocalGoogle%	State-level Google search percentage in headquarter.
Loss	Indicator variable set equal to one if earnings are negative. (Compustat)
Magnitude	The aggregate impact of the restatement, the sum of changes in net income for all the periods affected by the restatement scaled by the sales. (Audit Analytics /Compustat)
ManagOwn	Shares held by top reported executives scaled by total shares outstanding. (ExecuComp)
MF_num	The natural logarithm of 1 + the number of mutual funds for the state in the year before the restatement announcement. (Compustat)
News_num	Number of articles of the firm in the Wall Street Journal. (Wall Street Journal)

News_num[t_i, t_j]	Total number of news article in the window [t_i, t_j] relative to the corresponding date.
Persist	Autoregressive coefficient derived from Foster (1977) model, calculated over the two years leading up to the restatement announcement. (Compustat)
Prc_HLtoH	Daily high price minus low price difference, then scaled by daily high price. (CRSP)
Prc_52weekhigh	Indicator variable set to one when the stock price surpasses the highest price observed over the past 52 weeks and zero otherwise. (CRSP)
Prc_52weeklow	Indicator variable set to one when the stock price drops below the lowest price observed over the past 52 weeks and zero otherwise. (CRSP)
Predict	Variance of the absolute values of unexpected earnings (based on a seasonal random walk model) calculated over the two years leading up to the restatement announcement. (Compustat)
QTRt	Indicator variable equal to 1 if the earnings announcement pertains to quarter t after the restatement. (Compustat)
RES_daym1	Indicator of the date that is the previous day before the announcement date of a restatement.
RES_day0	Indicator of the date that is the announcement date of a restatement.
RES_day1	Indicator of the date that is first day after the announcement date of a restatement.
RES_day2	Indicator of the date that is the second day after the announcement date of a restatement.
Ret_lastm	Cumulative return of the stock in the last month. (CRSP)
Sd_ret	Standard deviation of daily stock returns for the last month. (CRSP)
Shareholder	The natural logarithm of 1 plus the number of shareholders. (Compustat)
Size	Market capitalization measured as of the fiscal quarter end date. (Compustat)
Spread	The offer price minus the bid price, divided by the midpoint of the offer and bid price. (CRSP)
Top_pop	Indicator variable set equal to one if the state's population ranks among the top ten in the same decade with the restatement announcement.
Trading Imbalance (Overall)	The overall trading amount/volume/trade number imbalance of the current day and the following two days. The overall trading amount/volume/trade number imbalance is calculated as the trading amount/volume/trade number of retail buy-initiated orders less the amount/volume/trade number of overall sell-initiated orders divided by the sum of overall orders amount/volume/trade number. We use the algorithm in Lee and Ready (1991) to identify an order as a buy or sell. (TAQ)
Trading Imbalance (Retail)	The retail trading amount/volume/trade number imbalance of the current day and the following two days. The retail trading amount/volume/trade number imbalance is calculated as the trading amount/volume/trade number of retail buy-initiated orders less the amount/volume/trade number of retail sell-

	initiated orders divided by the sum of total retail orders amount/volume/trade number. We use the algorithm in Boehmer et al. (2021) to identify an order as a retail buy or retail sell. (TAQ)
Turnover	Average monthly trading volume, scaled by the average number of shares outstanding over the one year ending on the fiscal quarter end date. (CRSP)
UE	Unexpected quarterly earnings scaled by price, with expected earnings proxied by the median of analysts' earnings forecasts issued within 60 days before the earnings announcement date. (I/B/E/S)