Yahoo Finance Search and Earnings Announcements

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ABSTRACT: We use Yahoo Finance search to examine the effects of investor attention at earnings announcements. We find that Yahoo Finance search at earnings announcements is a major factor explaining earnings responses and is predictive of subsequent returns. Moreover, we show that other measures of investor attention (e.g., Google search, EDGAR search) are less informative in explaining earnings responses and subsequent returns. The findings suggest the importance of investor attention, and in particular, retail attention in the pricing of financial information.

KEYWORDS: Yahoo Finance search; investor attention; earnings responses; earnings surprises; returns; volume; EDGAR search; Google search.

JEL CLASSIFICATION: M41, G12, and G14.

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1. Introduction

The purpose of this study is to investigate the pricing effects of investor attention at earnings announcements. Despite the prevalence of research examining the market reaction to earnings (e.g., Ball and Brown 1968; Bernard and Thomas 1989), little is still known concerning how investor attention affects the pricing of earnings. Traditional asset pricing models generally conclude that new information is immediately available to traders and reflected in prices; accordingly, earnings responses should not depend on the extent of investor attention. However, theoretical models that assume not all investors observe the information suggest that the fraction of investors observing the information determines how fully the information will be priced (e.g., Grossman and Stiglitz 1980; Hellwig 1980).

Investigating the pricing effects of investor attention on information events has been inherently challenging as direct measures of attention have only recently become available. Prior research uses the number of shareholders (e.g., Bushee, Core, Guay, and Hamm 2010), index membership (e.g., Shleifer 1986; Chen, Noronha, and Singal 2004), stock listings (e.g., Kadlec and McConnel 1994, Foerster and Karolyi 1999), trading volume (e.g., Gervais, Kaniel, and Mingelgrin 2001; Barber and Odean 2008), news and headlines (e.g., Barber and Odean 2008; Yuan 2015), extreme returns (e.g., Barber and Odean 2008), institutional holdings (e.g., Lehavy and Sloan 2008), analyst following (e.g., Irvine 2003), price limits (e.g., Seasholes and Wu 2007), and day of the week (e.g., DellaVigna and Pollet 2009; deHaan, Shevlin, and Thornock 2015) as indirect measures of investor attention. Many of these measures are invariant over short time periods and can be driven by factors unrelated to investor attention. To better identify attention via the demand for firm-specific financial information, recent research uses Google Trends search volume (e.g., Da, Engelberg, and Gao 2011, 2015) and the Securities and

Exchange Commission's EDGAR search volume (Drake, Roulstone, and Thornock 2015; Dechow, Lawrence, and Ryans 2016).

We use proprietary Yahoo Finance (*finance.yahoo.com*) search from 2014 to 2015 to measure company-specific investor attention at earnings announcements for U.S. publicly-listed stocks. Yahoo Finance is the most popular web site for financial information in the U.S. with over 30 million unique daily users (Bordino, Kourtellis, Laptev, and Billawala 2014; Yahoo 2015), the vast majority of which are retail investors rather than professional investors. Due to the large number of daily users, the web-traffic patterns on Yahoo Finance are likely representative of the U.S. retail investor population. For comparison, there are approximately 60,000 unique daily EDGAR users, less than 0.3 percent of the number of daily Yahoo Finance users.[1] We are unable to make comparisons to the frequencies of Google search volumes because Google only discloses relative search volumes (i.e., the search volume index, or SVI). Unlike Google search volumes, where it is not possible to identify whether investors ultimately view financial information, Yahoo Finance search reflects views of firm-specific financial- and news-related information.

Yahoo Finance presents a set of financial information pages for all publicly-listed companies. Each firm's Summary page has 23 subpages, providing information on prices, news, ownership, analyst estimates, financial results and ratios, and SEC filings, where applicable data are available. Hence, it is possible both to identify that users are primarily consuming financial information on the searched firm, and to observe the types of financial information consumed when users search beyond the Summary page. In our analyses we consider both the effects of overall search and the specific categories of financial information search: i) Summary page

[1] We measure the average number of unique IP addresses on the EDGAR web logs during a random sample of 10 trading days between July 2014 and March 2015.

search; ii) News search; iii) financial statement and SEC filing search (Financial); iv) Analyst Information search; and v) Other search.

We find that there is significant variation in Yahoo Finance earnings announcement search across U.S. publicly-listed firms. Specifically, firms in the highest quintile of abnormal search have increases of over 680 percent on the earnings announcement day, while firms in the lowest quintile of abnormal search have increases of only 34 percent, reflecting a spread of approximately 20 times. Size explains very little of the variation in abnormal search and as a result there are many large firms in the lowest quintiles of abnormal search. Not only is there significant variation in abnormal search at earnings announcements across firms but there is also significant variation within firms from quarter to quarter. For example, only 33 percent of firm-quarters stay within the same abnormal search quintile as in the past quarter, indicating that 67 percent of firm-quarters have significant changes in abnormal search from one earnings announcement to the next.

We next show that earnings responses are increasing in Yahoo Finance search. In particular, the two-day earnings announcement return spread between firm-quarters in the highest versus lowest quintile of earnings surprises is less than one percent for the lowest quintile of abnormal search. However, the same two-day earnings announcement return spread for the highest quintile of abnormal search is approximately eight percent, and the spread is monotonically increasing in each abnormal search quintile. We also find that Yahoo Finance search is associated with positive price pressure for the following quarter and even for the following year. Specifically, market-adjusted returns for firms in the highest quintile of abnormal Yahoo Finance search at the earnings announcement exceed those of the lowest quintile by approximately four percent between two and 60 trading days after the earnings announcement.

We find no evidence of return reversals and in fact, these return spreads continue to increase over the subsequent year to over 12 percent. Inferences are similar but are slightly less pronounced when using risk-adjusted returns rather than market-adjusted returns.

These findings, of search resulting in positive price pressure, are largely consistent with Merton's (1987) asset pricing model incorporating investor recognition, and prior empirical studies that consider various proxies for increased investor recognition: institutional investor holdings (e.g., Arbel, Carvell, and Strebel 1983; Chen, Hong, and Stein 2002; Lehavy and Sloan 2008), hiring investor relation firms (e.g., Bushee and Miller 2012), increased advertising expenditures (e.g., Grullon, Kanatas, and Weston 2004), and Google search (Da et al. 2011). Additionally, they highlight that firms with an abnormally low interest in their earnings announcement appear to significantly underperform those stocks with a high interest in their earnings announcements for at least the following year and have a more delayed post-earnings announcement drift.

We also examine whether the type of information sought (e.g., Summary, News, Analyst Information, and Financial search) differentially affects earnings responses or the price drifts. Overall, inferences across the various types of search are fairly similar to the overall level of search with some exceptions. We find that all the categories of search are associated with the pricing of earnings surprises and subsequent returns in the year following the earnings announcement. In additional analyses, we incorporate three other commonly used measures of investor attention into the main analyses: i) volume; ii) EDGAR search; and iii) Google Trends search, in order to benchmark them against Yahoo Finance search. We show that while these three measures are correlated with Yahoo Finance search, they reflect distinct measures of investor attention. Yahoo Finance search at earnings announcements is most correlated with

volume rather than Google or EDGAR search, with volume explaining approximately 35 percent of the variation in Yahoo Finance search whereas Google or EDGAR search only explains approximately six percent of the variation in Yahoo Finance search. The strongest correlations across the four measures are between Yahoo Finance search and volume, supporting the inference that Yahoo Finance search, generated by millions of daily users, is associated with significant volume and pricing effects at earnings announcements, but that Google and EDGAR search are not.

Overall, we find that these alternative measures of investor attention are less informative in explaining earnings responses or subsequent returns, with the exception of abnormal volume in explaining the short-window pricing of earnings surprises. Moreover, the correlations between subsequent returns and Yahoo Finance search are between approximately three and seven times those using the other three measures, and the other three measures do not reliably predict subsequent returns. An important and practical takeaway of this analysis for future earnings announcement research is that researchers should interact earnings, sales, and guidance surprises with abnormal volume in order to better control for the effects of investor attention on the earnings response or the importance of the earnings announcement.

We caveat our analyses in that we cannot establish as to whether investor attention at the earnings announcement is endogenously determined by the importance of the earnings announcement, which is unrelated to the earnings news that we observe and control for. Hence, we are unable to conclude whether investor attention affects the earnings responses or whether it captures the importance of the earnings announcement that is unrelated to the earnings and sales surprises or the guidance issued at the earnings announcement. The significant variation in investor attention from one earnings announcement to another at the firm-level provides some

comfort that investor attention may not just simply reflect the importance of the earnings announcement. Moreover, while we see no specific reason, our findings may not generalize to other time periods, data availability limits our sample period to 2014 and 2015.[2] Despite such caveats, we provide new evidence indicating the importance of investor attention at earnings announcements, and specifically retail investor attention, in explaining earnings responses and subsequent returns.

2. Predictions

Theory suggests the greater the fraction of investors who are informed about a security, the greater the response to information, even under the assumption that the information is immediately and fully distributed and understood by investors (e.g., Hellwig 1980, Grossman and Stiglitz 1980). While a large body of research examines the market reaction to earnings announcements (e.g., Ball and Brown 1968, Bernard and Thomas 1989), there is no consensus in the literature as to the extent to which investor attention affects the pricing of earnings (e.g., Drake et al.2012; 2015). We use Yahoo Finance search as a proxy for investor attention, and investigate the market reaction to earnings announcements. Accordingly, consistent with the foregoing theories, our first main prediction is that Yahoo Finance search is positively associated with the market response to earnings announcements.

Asset pricing and behavioral theories both suggest that investor attention and recognition is positively associated with a security's price (e.g., Merton 1987, Odean 1999, Barber and Odean 2008). Models of limited attention (e.g., Kaheneman 1973, Hirshleifer and Teoh 2003) indicate that investors are constrained to consider only a few stocks from the universe of available investments, or may not process all available information perfectly. Merton (1987)

[2] We are currently expanding our sample so that the Yahoo Finance search data spans from July 2014 to June 2016.

provides a framework where even though information may be instantaneously disseminated, the level of investor recognition of a security will be positively associated with its price. Odean (1999) proposes that individual investors in particular address their limited processing capacity by primarily considering investments from among the securities that come to their attention, for example through the media or because of abnormal trading activity. While such investors of course cannot buy all stocks that catch their attention, they generally only buy stocks from this set. Hence, in accordance with asset pricing theories and behavioral models predicting that attention-grabbing (neglected) stocks are more likely to face upwards (downwards) price pressure, our second main prediction is that Yahoo Finance search is positively associated with future stock returns.

3. Yahoo Finance search and firm characteristics

Yahoo Finance provides general financial news, market information, and firm-specific information for all exchange traded and over-the-counter equities in the United States. Since 2008, Yahoo Finance has been the most widely used financial news and research web site in the U.S., with an estimated 30 million unique daily users (Bordino et al. 2014, Yahoo 2015). Users of the Yahoo Finance site search for a company's financial information via a "Quote Lookup" dialog box, either by entering a ticker, or by typing a company name, and selecting from a list of matching ticker symbols. When a valid ticker is entered or selected, the user is presented with a company's firm-specific Summary page, with up to 23 firm-specific subpages containing more specialized information, where the requisite data is available. Figure 1 illustrates a Yahoo Finance Summary page.

[Insert Figure 1 here]

We obtain the Yahoo Finance search data from Yahoo! Inc., which includes all firm-specific page views on Yahoo Finance for U.S. exchange-traded stocks from July 1, 2014 to July 1, 2015. These search data only include page views of U.S. stocks made on *finance.yahoo.com* and do not include page views of U.S. stocks made on non-U.S. versions of Yahoo Finance (e.g., *finance.yahoo.co.uk* for the United Kingdom). We are primarily interested in the total number of firm-specific searches, including views of the company's Summary page as well as any of the 23 subpages. To obtain inferences about the level of investor attention at the time of an earnings announcement, our primary measure is abnormal total Yahoo Finance search (*AB_TOTAL*). AB_TOTAL_t is measured as the total number of searches on day t minus the mean total searches on the same day of the week for the prior 10 weeks, scaled by the mean total searches on the same day of the week for the prior 10 weeks. See Appendix A for all variable definitions. Using a similar definition of abnormal Yahoo Finance search, we also examine the effects of different types of financial information search, considering the number of views of the subpages grouped into the following categories: Summary (*AB_SUMMARY*: Summary page); Analyst (*AB_ANALYST*: Analyst Opinion and Analyst Estimates pages); News (*AB_NEWS*: Headlines, Press Releases, Company Events, and Message Boards pages); Financial (*AB_FINANCIAL*: Income Statement, Balance Sheet, Cash Flow, and SEC Filings pages); and Other (*AB_OTHER*: Order Book, Options, Historical Prices, Interactive Charts, Profile, Key Statistics, Major Holders, Insider Transactions, Insider Roster, Market Pulse, Competitors, Industry, and Components pages).

We obtain all financial, market, and news information from FactSet, except for the risk factors which are from the Kenneth R. French Data Library. Our data include: quarterly return on assets, leverage, daily stock prices, market capitalization, book-to-market ratio, total returns,

news headline information, earnings announcement dates, standardized unexpected earnings (*SUE*), earnings-to-price ratio, trading volume, and management earnings-per-share guidance. We match Yahoo Finance data with FactSet based on the ticker symbol. After applying the foregoing data requirements, our main sample comprises 14,172 firm-earnings announcement (i.e., firm-quarter) observations. We measure Yahoo Finance earnings announcement search on the actual earnings announcement day (hereafter, day *t*). Consequently, the first trading day for firms reporting before the market close will be on day *t* and for firms reporting after the market close, the first trading day will be on day *t+1*.

Figure 2, Panel A plots the mean abnormal Yahoo Finance search (*AB_TOTAL*) in the 60 days before and after earnings announcements. It indicates that abnormal Yahoo Finance search increases in the few weeks before the earnings announcement and peaks on the day of the earnings announcement. Specifically, abnormal Yahoo Finance search ten days prior to the earnings announcement is approximately 5 percent, increasing to over 15 percent five days prior to, and 50 percent one day prior to, the earnings announcement. On the earnings announcement day, abnormal Yahoo Finance search increases to over 250 percent, which is by far the most pronounced search day of the entire 121 day period. The abnormal search is also very high on day *t+1* at over 200 percent and then declines to normal levels over the following five days. The magnitude of the increase in Yahoo Finance search indicates that it is a sharper proxy for investor attention at earnings announcements than Google Trends search, for which Drake et al. (2012) show increases by 13 percent on earnings announcements. The decreasing trend following day *t-60* and the increasing trend before day *t+60* reflect the effects of the surrounding earnings announcements which on average fall on days *t-65* and *t+65*.

[Insert Figure 2 here]

In Panel B, where we report abnormal Yahoo Finance search by the type of search from day *t-10* to day *t+10*, we find that Yahoo Finance search at earnings announcements increases across all categories of information (Summary, Analyst, News, Financial, and Other). However, the increase is most pronounced for News and Analyst search, and is least pronounced for Financial search. In the week prior to the earnings announcement, increases in attention are most pronounced for Analyst search and in the week subsequent to the earnings announcement increases in attention are most pronounced for News search. These search patterns suggest that investors seek information from analysts and the financial press to help them prepare for and process earnings announcements, consistent with prior research (Lawrence, Ryans, and Sun 2016).

To examine the pricing effects of Yahoo Finance search at earnings announcements, we first assign firm-quarter observations into 25 portfolios, based independently on quintiles of i) *AB_TOTAL* and ii) *SUE*. Table 1 provides the descriptive statistics for these portfolios organized into a 5x5 matrix with rows corresponding to quintiles of *AB_TOTAL*, and columns corresponding to *SUE*. Portfolios are arranged from the lowest values (Quintile 1) to the highest values (Quintile 5). The number of observations in each quintile of *AB_TOTAL* are approximately equal, with values of either 2,834 or 2,835. The number of observations in each *SUE* quintile are not evenly distributed, due to clustering of SUE at 0, and as a result the number of observations by *SUE* quintile varies from a low of 2,721 to a high of 2,948.

In Panel A of Table 1, we provide the mean level of abnormal Yahoo Finance search (*AB_TOTAL*) on the day of the earnings announcement (day *t*) for each 5x5 portfolio. There is substantial variation in abnormal Yahoo Finance search levels with an *AB_TOTAL* mean value of 0.341 (34.1 percent increase) for Quintile 1 and a mean value of 6.885 (689 percent increase) for

Quintile 5. Hence, firms in the highest quintile of investor attention have approximately 20 times more attention on their earnings announcements compared to firms in the lowest quintile of investor attention, relative to their normal (non-earnings announcement) Yahoo Finance search volumes. Across quintiles of *SUE*, there is little variation in average levels of *AB_TOTAL*, with a low mean value of 2.318 (232 percent increase) for firms in *SUE* Quintile 1 to a high mean value of 3.287 (329 percent increase) for firms in *SUE* Quintile 3. Overall, this panel indicates that we capture significant variation in abnormal Yahoo Finance search within each quintile of *SUE*.

[Insert Table 1 here]

Panel B of Table 1 illustrates the transition matrix for quintiles of abnormal Yahoo Finance search (*AB_TOTAL*) from the prior earnings announcement. This panel illustrates that the majority of firms change *AB_TOTAL* quintiles from quarter to quarter. The observations that do not change from the prior quarter are tabulated along the top-left to bottom-right diagonal. Firms in the lowest and highest quintiles of *AB_TOTAL* have the highest probability of remaining in the same category. Specifically, firms in the lowest quintile remain in the same quintile of *AB_TOTAL* for 45.3 percent (990/2,185) of observations, and firms in the highest quintile for 42.9 percent (832/1,940) of observations. Overall, only 32.8 percent of firm-quarters retain the same abnormal Yahoo Finance search quintile from the prior quarter. Thus, more than two-thirds of firms change the quintile of abnormal attention from one earnings announcement to the next, and there is a substantial probability (28.2 percent) of changing by two or more quintiles from the previous quarter. Appendix B highlights how even the largest U.S. companies switch among the different search quintiles from quarter to quarter. For example, during one quarter, Bank of America, Microsoft, and Wal-Mart Stores are in the top quintile of abnormal search while in another quarter these stocks are in the third quintile of abnormal search.

4. Pricing effects of Yahoo Finance search

4.1 Portfolio analyses

In this section, we investigate the pricing effects of abnormal Yahoo Finance search, finding that the earnings response is monotonically increasing in quintiles of abnormal Yahoo Finance search, both on an overall basis and within each quintile of *SUE*. Table 2 presents portfolio returns across the 25 portfolios based on abnormal Yahoo Finance (*AB_TOTAL*) search quintiles and *SUE* quintiles. Panel A reports cumulative market-adjusted returns from day *t* to day *t+1* ($AB\_RET_{t,t+1}$). The cumulative two-day return for firms in the highest *SUE* quintile but in the lowest *AB_TOTAL* quintile is 0.1 percent whereas the return for firms in the same *SUE* quintile but in the highest *AB_TOTAL* quintile is 3.2 percent, reflecting a spread of 3.1 percent ($p < 0.01$) or 32 times the positive earnings response for high-search firms versus low-search firms. Moreover, the average two-day return for firms in the lowest *SUE* quintile and the lowest *AB_TOTAL* is -0.8 percent whereas the return for the firms in the same *SUE* quintile but in the highest *AB_TOTAL* quintile is -4.8 percent, reflecting a spread of -4.0 percent ($p < 0.01$) or 6 times the negative response for high-search firms versus low-search firms. Additionally, the two-day earnings announcement return spread between firm-quarters in the highest versus lowest *SUE* quintiles is monotonically increasing in each abnormal search quintile. The foregoing spread is 0.9 percent for the lowest *AB_TOTAL* quintile and is 7.9 percent for the highest *AB_TOTAL* quintile.

[Insert Table 2 here]

Panel A of Figure 3 illustrates the day *t* to day *t+1* earnings responses using cumulative market-adjusted returns, and confirms the inferences from Table 2, Panel A, namely that the market response to earnings surprises are far more pronounced for the highest quintile of

abnormal Yahoo Finance search. The y-axis presents the cumulative market-adjusted returns ($AB\_RET_{t,t+1}$) and the x-axis presents the earnings surprise (*SUE*) quintiles. The five separate lines reflect the market-adjusted returns for each *AB_TOTAL* quintile. The line representing the highest *AB_TOTAL* quintile (*AB_TOTAL5_HQ*) has the steepest slope of the five quintiles and the slopes of the other four quintiles illustrate that the earnings response is increasing in quintiles of abnormal Yahoo Finance search. Overall, the results in Table 2, Panel A and Figure 3, Panel A provide support for our first prediction that abnormal Yahoo Finance search is positively associated with the market response to earnings announcements.

[Insert Figure 3 here]

Table 2, Panel B presents the cumulative market-adjusted returns from day *t+2* to day *t+60* ($AB\_RET_{t+2,t+60}$) following the earnings announcements for the 5x5 portfolios. It shows that abnormal Yahoo Finance search at earnings announcements positively relates to price pressure for the quarter following the earnings announcement. Across all *SUE* quintiles, the returns of firms in the highest *AB_TOTAL* quintile significantly outperform the returns of firms in the lowest *AB_TOTAL* quintile, with spreads ranging from 1.9 to 5.9 percent. The mean returns across each *AB_TOTAL* quintile are monotonically increasing from -4.1 percent in Quintile 1 to 0.2 percent in Quintile 5—indicating that the returns of the highest quintile of abnormal Yahoo Finance search at the earnings announcement exceed those of the lowest quintile by 4.3 percent from two days after until 60 days after the earnings announcement. Moreover, the post-earnings announcement drift is similar across most *AB_TOTAL* quintiles with *SUE* Quintile 5 minus *SUE* Quintile 1 returns ranging from 3.0 to 3.7 percent, though the difference is only 1.4 percent for the lowest abnormal Yahoo Finance search quintile and is not

significant, indicating that there is little detectible post-earnings announcement drift for low attention stocks prior to the subsequent earnings announcement.

Figure 3, Panel B illustrates positive price pressure associated with Yahoo Finance search, as the market-adjusted returns from day *t+2* to day *t+60* are much larger for higher Yahoo Finance search quintiles across all earnings surprise quintiles. The y-axis presents the cumulative market-adjusted returns ($AB\_RET_{t+2,t+60}$) and the x-axis presents the earnings surprise (*SUE*) quintiles. As in Panel A, the five separate lines reflect the market-adjusted returns for each *AB_TOTAL* quintile. The line for the highest *AB_TOTAL* quintile (*AB_TOTAL5_HQ*) is above all of the other *AB_TOTAL* quintiles and the returns of the lowest *AB_TOTAL* quintile (*AB_TOTAL1_LQ*) is below almost all other *AB_TOTAL* quintiles. Moreover, the remaining three *AB_TOTAL* quintiles illustrate that the positive price pressure is increasing in Yahoo Finance search. Figure 4, which plots the market-adjusted returns for each quintile from day *t+2* to day *t+250* (i.e., the following year), indicates the positive price pressure associated with *AB_TOTAL* is almost immediately evident following the earnings announcement and steadily increases throughout the following three quarters with a noticeable increase in the return spread between the top search quintile (*AB_TOTAL5_HQ*) and the lowest search quintile (*AB_TOTAL1_LQ*) occurring around the subsequent earnings announcement (i.e., day *t+65*).

[Insert Figure 4 here]

Panel C of Table 2 presents the cumulative market-adjusted returns from day *t*+61 to day *t+250* ($AB\_RET_{t+61,t+250}$) following the earnings announcements for the 5x5 portfolios. It shows that there is little evidence of price reversals across the quintiles of abnormal Yahoo Finance search in the subsequent quarters. In fact, the returns of firms in the highest *AB_TOTAL* quintile continue to significantly outperform those of firms in the lowest *AB_TOTAL* quintile from day

t+61 to day *t+250* with mean returns of -0.041 and -0.125 for the highest and lowest *AB_TOTAL* quintiles, respectively. Figure 4 confirms these effects as the return spread between the highest and lowest *AB_TOTAL* quintiles continues to widen over the second, third, and fourth quarters following the earnings announcement. Panel C also indicates the post-earnings announcement drift for the lowest *AB_TOTAL* quintile of abnormal Yahoo Finance search is delayed and generally only begins after day *t+61* as for the lowest *AB_TOTAL* quintile there is a spread of 11.8 percent in returns between the lowest and highest *SUE* Quintiles from day *t+61* to day *t+250*.

4.2 Regression analyses

In this subsection, we continue to investigate the pricing effects of Yahoo Finance search using regression analyses. Table 3, Panel A, which presents the descriptive statistics for all the key variables in our regression analyses, shows that abnormal Yahoo Finance search (*AB_TOTAL*) is 282 percent higher than normal levels on earnings announcements and confirms Figure 2's inferences that increases are evident across all categories of information search. Specifically, it shows that the increase is most pronounced for News (*AB_NEWS*, 360 percent) and analyst information (*AB_ANALYST*, 345 percent) search, and least pronounced for financial statement or SEC filing search (*AB_FINANCIAL*, 150 percent). Moreover, trading volume (*AB_VOL*) and media coverage (*AB_MEDIA*) are 104 and 1,190 percent higher than normal levels on earnings announcements, respectively.

[Insert Table 3 here]

Panel B indicates that the correlation between abnormal total Yahoo search (*AB_TOTAL*) and abnormal "Summary" page search (*AB_SUMMARY*) is almost one (0.99) suggesting that most users navigate the firm-specific subpages starting from the Summary page, or only view the

Summary page for a particular stock. Additionally, the correlations between Summary (*AB_SUMMARY*), Analyst (*AB_ANALYST*), News (*AB_NEWS*), and Other (*AB_OTHER*) search are fairly high, ranging between 0.64 and 0.88. However, the abnormal Financial (*AB_FINANCIAL*) search has the lowest correlations (0.47 to 0.60) with the other types of abnormal earnings announcement search. Panel C indicates that abnormal total Yahoo Finance search (*AB_TOTAL*) is most correlated with abnormal trading volume on the earnings announcement (*AB_VOL*, 0.59), and to a lesser extent abnormal EDGAR search (*AB_EDGAR*, 0.24), and abnormal Google Trends search (*AB_GTREND*, 0.24). The most correlated control variables are profitability (*ROA*, 0.20), the book-to-market ratio (*BTM*, -0.18), and size (*LOG_MCAP*, 0.11). Hence, abnormal volume on the earnings announcement explains only 35 percent (0.59^2) of the variation in Yahoo Finance search, and EDGAR and Google search explain less than six percent (0.24^2). Size explains less than two percent (0.11^2) of such variation. See Appendix A for detailed variable definitions.

[Insert Table 4 here]

Table 4 shows that Yahoo Finance search is a predominant factor explaining earnings responses as earnings surprises are priced through the interaction with search and is more important than earnings surprises in explaining quarterly returns. Moreover, it indicates that Yahoo Finance search at earnings announcements is associated with long-window positive price pressure that is independent of the earnings surprise. We present regressions of abnormal returns (*AB_RET*) on abnormal Yahoo Finance search (*AB_TOTAL*), earnings surprise (*SUE*), and an interaction term between abnormal Yahoo Finance search and earnings surprise (*AB_TOTAL * SUE*). We include controls for prior returns and return volatility (*AB_RET*, *PAST_RET_VOL*, *PAST_YEAR_RET*, *PAST_MONTH_RET*), abnormal media coverage (*AB_MEDIA*), changes in

management guidance at the earnings announcement (*CHG_GUIDE*), firm characteristics (*BTM*, *LOG_MCAP*, *EP*, *ROA*), and interactions between *SUE* and all controls.

We report the regressions using *AB_RET* measured from day *t* to *t+1* in Column (1), day *t+2* to *t+60* in Column (2), and day *t+61* to *t+250* in Column (3). For the short term earnings response reported in Column (1), we find that the coefficient on the interaction term, *AB_TOTAL* SUE*, is positive (0.211) and significant ($p < 0.01$). The coefficients on *SUE* and *AB_TOTAL* are insignificant, indicating that earnings surprises are only priced in the presence of search, and that search itself does not generate higher returns independent of the earnings surprise at the earnings announcement. In Columns (2) and (3), we find that the coefficients on *AB_TOTAL* are 0.003 ($p < 0.01$) and 0.011 ($p < 0.01$), respectively, showing that Yahoo Finance search is associated with positive price pressure following the earnings announcement. Specifically, a 100 percent increase in abnormal search is associated with a 30 basis points increase in post-earnings announcement returns for the subsequent quarter, and an additional 1.1 percent for the following three quarters. The positive and marginally significant ($p < 0.10$) coefficient on *SUE* and the insignificant coefficient on *AB_TOTAL * SUE* in Column 3, indicate the presence of the post-earnings announcement drift does not appear to relate to the level of abnormal Yahoo Finance search.

[Insert Table 5 here]

Table 5 examines the foregoing earnings response and earnings price drift relations when we condition on the type of search (e.g., Summary, News, Analyst, Financial, and Other) rather than on total search. While we don't have a specific hypothesis relating to the relation between the type of search and the magnitude or direction of the earnings response and price drifts, we find that results are largely consistent with the overall results presented in Table 4, but with some

interesting variation. In Panel A, we present the regressions of day *t* to day *t+1* cumulative market-adjusted returns ($AB\_RET_{t,t+1}$) on *AB_SEARCH*, *SUE*, and *AB_SEARCH * SUE*, where *AB_SEARCH* is the abnormal Yahoo Finance search using Summary search (*AB_SUMMARY*) in Column (1), Analyst search (*AB_ANALYST*) in Column (2), News search (*AB_NEWS*) in Column (3), Financial search (*AB_FINANCIAL*) in Column (4), and Other search (*AB_OTHER*) in Column (5). See Appendix A for definitions of the precise Yahoo Finance pages that correspond to these categories.

We have already shown in Table 4 that the interaction of Yahoo Finance search with *SUE* is a significant predictor of two-day returns at earnings announcements, whereas *AB_SEARCH* and *SUE* by themselves are not independent predictors of returns. Conditioning on the type of Yahoo Finance search, we find in Table 5 that the coefficient on *AB_SEARCH* is positive for Summary search (*AB_SUMMARY; coeff* = 0.001; $p < 0.10$), Analyst search (*AB_ANALYST; coeff* = 0.001; $p < 0.01$), and Other search (*AB_OTHER; coeff* = 0.001; $p < 0.05$), in Columns (1), (2), and (5), respectively. The coefficient on *AB_SEARCH* is negative and significant for News search (*AB_NEWS; coeff* = -0.001; $p < 0.05$) and Financial search (*AB_FINANCIAL; coeff* = -0.001; $p < 0.05$), in Columns (3) and (4), respectively. The negative coefficients on News and financial search may indicate that investors are more likely to access this information when results are negative. Also consistent with the overall findings in Table 4, we find that all the coefficients on the interaction term, *AB_SEARCH * SUE*, are positive and significant ($p < 0.05$), and that the coefficients on *SUE* are insignificant for all types of search.

In Table 5, Panel B, we replace the day *t* to day *t+1* cumulative market-adjusted returns ($AB\_RET_{t,t+1}$) with the day *t*+2 to day *t*+60 cumulative market-adjusted returns ($AB\_RET_{t+2,t+60}$). Overall, we find similar inferences to those using total Yahoo Finance search reported in Table

4, Column (2) across the different types of search. The positive and significant coefficients on *AB_SEARCH* in Columns (1) to (5) ($p < 0.01$ except for $p < 0.05$ in Column (4)) indicate that the positive quarterly price pressure associated with *AB_TOTAL* is evident across the various types of abnormal search. Financial and News search (*AB_FINANCIAL* and *AB_NEWS*) have the smallest coefficients at 0.002, compared to *AB_SUMMARY* at 0.004, and *AB_ANALYST* and *AB_OTHER* at 0.003, indicating that Financial and News search exert less upward returns pressure. Moreover, the price response to *SUE* is positive, though not statistically significant. As in Table 4, Column (2), we find insignificant coefficients on *AB_SEARCH * SUE*.

In Panel C of Table 5, we use the day *t+61* to day *t+250* cumulative market-adjusted returns ($RET_{t+61,t+250}$) as the dependent variable. Similar to Table 4, Column (3), we find that the coefficients on *AB_SEARCH* are positive and significant ($p < 0.01$) in Columns (1) to (5). This finding indicates that all of these types of search have positive effects on returns, which are independent of earnings surprises, for the period extending from the end of the subsequent quarter to one year the earnings annoucement. Financial and News search (*AB_FINANCIAL* and *AB_NEWS*) have the smallest coefficients at 0.007 and 0.008, respectively, compared to *AB_ANALYST* at 0.012 and *AB_SUMMARY* and *AB_OTHER* at 0.011, indicating that financial and News search exert less upward returns pressure. The coefficients on *SUE* are all positive and marginally significant ($p < 0.10$) and the coefficients on *AB_SEARCH * SUE* are insignificant for all types of Yahoo Finance search. Overall, the inferences using different types of Yahoo Finance search are fairly similar to those using total Yahoo Finance search.

5. Alternative measures of investor attention

We next consider and compare Yahoo Finance search to three other commonly used measures of investor attention: i) trading volume; ii) EDGAR search; and iii) Google Trends

search. Table 6 shows the coefficients of interest for separate regressions of abnormal returns on abnormal volume (*AB_VOL*), abnormal EDGAR search (*AB_EDGAR*), and abnormal Google Trends Search (*AB_GTREND*), with interactions between each measure of investor attention and *SUE*, and the same control variables as in Table 4.

[Insert Table 6 here]

Panel A provides the regression results using abnormal volume and reports the coefficients on *AB_VOL*, *SUE*, and *AB_VOL * SUE*. The dependent variable is cumulative abnormal returns measured from day *t* to *t+1* ($AB\_RET_{t,t+1}$) in Column (1), from day *t+2* to *t+60* ($AB\_RET_{t+2,t+60}$) in Column (2), and from day *t+61* to *t+250* ($AB\_RET_{t+2,t+250}$) in Column (3). The results in Column (1) using abnormal volume are similar to those using abnormal Yahoo Finance search, as the short term response to earnings announcement is only significant for the interaction term *AB_VOL * SUE* (*coeff* = 0.299, $p < 0.01$), indicating that the earnings surprise is priced in the presence of abnormal trading volume. Unlike abnormal Yahoo Finance search though, Columns (2) and (3) reveal that abnormal volume at the earnings announcement is unrelated to subsequent abnormal returns for the remainder of the quarter (day *t+2* to *t+60*) or for the subsequent quarters (day *t+61* to *t+250*).

Panel B provides results using abnormal EDGAR search, reporting the coefficients for *AB_EDGAR*, *SUE*, and *AB_EDGAR * SUE*.[3] For the short-term response reported in Column (1), the coefficient on *AB_EDGAR* is -0.001 ($p < 0.10$), indicating a weak association between EDGAR search and lower earnings announcement returns, consistent with investors seeking SEC filing information for firms with worse earnings news. The coefficient on *SUE* is 1.762 ($p < 0.10$) providing some marginal evidence that earnings surprise is priced independently of

[3] As EDGAR search is only available until March 2015, incorporating EDGAR search into the analyses reduces the sample size by approximately 25 percent.

EDGAR search. Additionally, the coefficient on *AB_EDGAR * SUE* is 0.175 ($p < 0.05$) suggesting that earning surprise is also priced through the presence of abnormal EDGAR search, but not to the same degree as for that of abnormal Yahoo Finance search or abnormal volume. For the remainder of the quarter (day *t+2* to *t+60*), the coefficients on *AB_EDGAR* and *AB_EDGAR * SUE* are both insignificant, and the coefficient on *SUE* is 5.630 ($p < 0.05$), indicating that while the earnings surprise is reflected in subsequent returns, EDGAR search is unrelated to returns during the rest of the quarter. For subsequent quarters (day *t+61* to *t+250*), the coefficient on *SUE* is 11.750 and significant ($p < 0.05$), while the coefficient on *AB_EDGAR * SUE* is negative (-0.619) and significant ($p < 0.05$), highlighting that the post-earnings announcement drift is lower in subsequent quarters for firms with higher abnormal EDGAR search, consistent with Drake et al.'s (2015) findings that higher levels of EDGAR search support the more efficient pricing of earnings.

Panel C provides results for abnormal Google Trends search, reporting the coefficients for *AB_GTREND*, *SUE*, and *AB_GTREND * SUE*.[4] Column (1) shows that *AB_GTREND* is unrelated to abnormal returns, both independently and when interacted with *SUE*. In Column (2), the coefficient on *AB_GTREND* is 0.005 ($p < 0.05$) whereas in Column (3) it is insignificant, providing some evidence that Google search relates to subsequent returns for the rest of the quarter but not thereafter. The interaction term *AB_GTREND * SUE* is not significant in any of the three periods, indicating that Google search is unrelated to the pricing of earnings.

In Table 7, we conduct regressions that include all four measures of investor attention,

[4] We download the daily Google Trends data for each stock one month at a time due to Google's downloading restrictions. As Google presents the trends data as a percentage of the highest page views during the download period, one option is to download each month with overlapping periods to adjust the trend data in terms of the highest value for the first month that is downloaded. We calculate the abnormal Google Trend search using the raw search downloaded from Google for each month rather than the adjusted search, as correlations between the adjusted and raw search are very high. For example, the correlation between the adjusted and raw search for Tesla over our sample period is 0.982.

and their interactions with *SUE*, together in a single model. Column (1) reports the regression results using $AB\_RET_{t,t+1}$ as the dependent variable, finding that when all measures of investor attention are included simultaneously, *AB_TOTAL*, *AB_VOL*, and *AB_VOL * SUE* have a significant ($p < 0.05$) relation to short-term returns. As *AB_TOTAL* and *AB_VOL* have a high correlation (0.59), and volume likely in part reflects the trading of the millions of Yahoo Finance users, it may be difficult to disentangle the effects of these two variables from one another. We find that the coefficients on *AB_EDGAR* and *AB_GTREND* are also insignificant in this specification. Columns (2) and (3) report the regression results using $AB\_RET_{t+2,t+60}$ and $AB\_RET_{t+61,t+250}$, respectively, as the dependent variables. In Column (2), the coefficient on *AB_TOTAL* is 0.005 and significant ($p < 0.01$), illustrating that abnormal Yahoo Finance search at the earnings announcement is associated with higher subsequent returns. The coefficient on *SUE* is 5.820 ($p < 0.05$) indicating the presence of the post-earnings announcement drift. The only other significant coefficient is *AB_EDGAR* with a value of -0.003 ($p < 0.05$), suggesting that abnormal EDGAR search, controlling for other measures of investor attention, is negatively associated with the subsequent quarter's returns.

[Insert Table 7 here]

In Column (3), several of the investor attention coefficients are significant. Specifically, the coefficients on *AB_TOTAL* and *SUE* are 0.016 ($p < 0.01$) and 12.602 ($p < 0.05$), respectively indicating that Yahoo Finance search volumes at earnings announcements positively relate to returns for up to one year later, and the presence of the post-earnings announcement drift remains, after controlling for the four measures of investor attention. The coefficients on *AB_VOL* (*coeff* = -0.008, $p < 0.01$), *AB_EDGAR* (*coeff* = -0.007, $p < 0.05$), and *AB_EDGAR * SUE* (*coeff* = -0.571, $p < 0.10$) are all negative but are only significant at traditional levels for

AB_VOL and *AB_EDGAR*, supporting the inferences that subsequent returns are lower in the presence of high volume and EDGAR search. The fact that the negative and significant coefficients on *AB_VOL* and *AB_EDGAR* are not present in Column (3) of Table 6, suggest that significant correlations of these measures with *AB_TOTAL* may be affecting the reliability of the coefficient estimation.

Table 8 repeats the long-term return analyses presented in Tables 4, 6, and 7 but uses the Carhart (1997) risk-adjusted four-factor daily alphas (*DAILY_ALPHA*) instead of the market-adjusted returns (*AB_RET),* to examine whether the foregoing associations between investor attention and returns reflect priced-risk factors. The dependent variable in Column (1) is $DAILY\_ALPHA_{t+2,t+60}$ and the dependent variable in Column (2) is $DAILY\_ALPHA_{t+61,t+250}$. Again for brevity, only the main coefficients of interest are presented. Panel A presents the regression results using abnormal Yahoo Finance search, and consistent with previous inferences the coefficients on *AB_TOTAL* in Columns (1) and (2) are both 0.003 and significant ($p < 0.01$ and $p < 0.05$, respectively). The coefficients on *SUE* and *AB_TOTAL*SUE* are insignificant. Panels B through D repeat the set of regressions but for abnormal volume, abnormal EDGAR search, and abnormal Google search, respectively. All of the coefficients on the abnormal search variables, their interactions with *SUE,* and *SUE* in these three panels are insignificant at convention levels ($p > 0.05$), suggesting that relations between these search measures and returns in Tables 6 and 7 are reflecting priced-risk factors.

Panel E of Table 8 presents the regression analyses simultaneously including all the four attention measures. Only the coefficients on *AB_TOTAL* in Columns (1) and (2), and on *SUE* in Column (1) are significant at conventional levels. Specifically, the coefficients on *AB_TOTAL* in Columns (1) and (2) are 0.005 and 0.004 ($p < 0.01$), respectively, suggesting that a 100 percent

increase in abnormal search is associated with a 29 basis points increase in post-earnings announcement returns for the subsequent quarter ((1+(0.005/100))^58)-1), and an additional 76 basis points for the following three quarters ((1+(0.004/100))^189)-1). Hence, the economic significance of the relation between Yahoo Finance search and abnormal returns using risk-adjusted returns, while slightly lower, is still fairly comparable to that using market-adjusted returns. The coefficient on *SUE* in Column (1) is 7.623 and significant ($p < 0.01$) and indicates the presence of the post-earnings announcement drift from day *t+2* to day *t+60*.

[Insert Table 8 here]

In summary, while these four measures are correlated, they reflect distinct measures of investor attention. Yahoo Finance search at earnings announcements is most correlated with volume rather than Google or EDGAR search, and volume explains approximately 35 percent of the variation in Yahoo Finance search. Google or EDGAR search, on the other hand, only explains approximately six percent of the variation in Yahoo Finance search. These other measures of investor attention are generally less informative in explaining earnings responses or subsequent returns, with the exception of abnormal volume in explaining the pricing of earnings surprises, supporting the inference that the millions of daily Yahoo Finance users have significant volume and pricing effects at earnings announcements which Google and EDGAR search users do not appear to have. One practical takeaway of this analysis is that researchers should interact earnings, sales, and guidance surprises with abnormal volume in order to control for the effects of investor attention on the earnings response or the importance of the earnings announcement.

6. Additional analyses

We perform the following untabulated additional analyses to corroborate our main findings. First, we repeat our main analyses replacing earnings surprises with sales surprises as for some firms sales surprises are more informative than earnings surprises. We find that all main inferences hold, and unlike in the earnings analyses in Table 7, the sales responses are increasing in Yahoo Finance search ($p < 0.05$) even after simultaneously controlling for the other three investor attention measures and their interactions with sales surprises. Second, we repeat our analyses separately for 4th quarter and non-4th quarter earnings announcements, and find that all main inferences hold for both the 4th quarter and non-4th quarter earnings announcements. Third, while we find that Yahoo Finance search is associated with higher returns for firms with similar levels of earnings surprises, the effect could be caused by investor attention itself or that attention reflects more persistent earnings innovations. Hence, we investigate and find that Yahoo Finance search is not significantly associated with earnings persistence, supporting the former explanation. Fourth, to consider whether earnings uncertainty could be an alternative explanation for the observed association between Yahoo Finance search and returns, we include a control variable for the standard deviation of analyst EPS forecasts. We find that all inferences hold and that the standard deviation of analyst forecasts is not significantly associated with returns.

7. Conclusion

Using Yahoo Finance search, we examine the pricing effects of investor attention at earnings announcements. Overall, the study provides new evidence highlighting the important role of investor attention, and in particular retail attention in the pricing of financial information. We find that Yahoo Finance search at earnings announcements is a major factor explaining

earnings responses and is predictive of subsequent returns for up to a year following earnings announcements. Additionally, the evidence indicates that other measures of investor attention (e.g., EDGAR and Google search) are less informative in explaining earnings responses and subsequent returns, supporting the takeaway that Yahoo Finance search, generated by millions of daily users, is associated with significant volume and pricing effects at earnings announcements, but that EDGAR and Google search are not.

While we document the importance of investor attention at earnings announcements, our analyses are unable to determine whether attention causes significant pricing effects or whether it proxies for some unobserved aspect of earnings announcement importance that is not explained by the actual earnings, sales, or guidance surprises and by other control variables. Nonetheless, we provide novel evidence indicating that Yahoo Finance search is a major factor explaining earnings responses and subsequent returns.

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APPENDIX A
Variable Definitions

Variable	Definition
Search Variables	
$AB\_ANALYST_t$	Firm *i*'s analyst search on day *t* minus the average analyst search on the same day of the week over the prior 10 weeks, scaled by the average analyst search on the same day of the week over the prior 10 weeks; Analyst search is the sum of searches from the Analyst Opinion and Analyst Estimate pages; winsorized at the one-percent level and capped at 10;
$AB\_FINANCIAL_t$	Firm *i*'s financial search on day *t* minus the average financial search on the same day of the week over the prior 10 weeks, scaled by the average financial search on the same day of the week over the prior 10 weeks; Financial search is the sum of searches from the Income Statement, Balance Sheet, Cash Flow, and SEC Filings pages; winsorized at the one-percent level and capped at 10;
AB_NEWS_t	Firm *i*'s news search on day *t* minus the average news search on the same day of the week over the prior 10 weeks, scaled by the average news search on the same day of the week over the prior 10 weeks; News search is the sum of searches from the Headlines, Press Releases, Company Events, and Message Board pages; winsorized at the one-percent level and capped at 10;
AB_OTHER_t	Firm *i*'s other search on day *t* minus the average other search on the same day of the week over the prior 10 weeks, scaled by the average other search on the same day of the week over the prior 10 weeks; Other search is the sum of searches from the Order Book, Options, Historical Prices, Interactive Charts, Profile, Key Statistics, Major Holders, Insider Transactions, Insider Roster, Market Pulse, Competitors, Industry, and Components pages; winsorized at the one-percent level and capped at 10;
$AB\_SUMMARY_t$	Firm *i*'s Summary page searches on day *t* minus the average Summary page searches on the same day of the week over the prior 10 weeks, scaled by the average Summary page searches on the same day of the week over the prior 10 weeks; winsorized at the one-percent level and capped at 10;
AB_TOTAL_t	Firm *i*'s total Yahoo Finance search on day *t* minus the average total Yahoo Finance search on the same day of the week over the prior 10 weeks, scaled by the average total Yahoo Finance search on the same day of the week over the prior 10 weeks; Total Yahoo Finance search is the sum of searches from the 24 Yahoo Finance pages; winsorized at the one-percent level and capped at 10;
Return Variables	
AB_RET_{t-1}	Firm *i*'s market-adjusted return on the day before the earnings announcement day; where market-adjusted return is defined as the raw return minus the CSRP value-weighted index return;
$AB\_RET_{t,t+1}$	Firm *i*'s cumulative market-adjusted returns from day *t* to day *t+1*, where *t* is the earnings announcement day;
$AB\_RET_{t+2,t+60}$	Firm *i*'s cumulative market-adjusted returns from day *t+2* to day *t+60*, where *t* is the earnings announcement day;
$AB\_RET_{t+61,t+250}$	Firm *i*'s cumulative market-adjusted returns from day *t+61* to day *t+250*, where *t* is the earnings announcement day;
$DAILY\_ALPHA_{t+2,t+60}$	Firm *i*'s daily Carhart (1997) four-factor alphas from a regression of raw return minus the risk-free rate on the contemporaneous excess market return (MKTRF), Fama and French (1993) factors (SMB, and HML), and the momentum factor (UMD) using observations from day *t+2* to day *t+60*, where *t* is the earnings announcement day;

Variable	Definition
$DAILY\_ALPHA_{t+61,t+250}$	Firm *i*'s daily Carhart (1997) four-factor alphas from a regression of raw return minus the risk-free rate on the contemporaneous excess market return (MKTRF), Fama and French (1993) factors (SMB, and HML), and the momentum factor (UMD) using observations from day *t+61* to day *t+250*, where *t* is the earnings announcement day;
Other Variables	
AB_EDGAR_t	Firm *i*'s EDGAR search on day *t* minus the average edgar search on the same day of the week over the prior 10 weeks, scaled by the average edgar search on the same day of the week over the prior 10 weeks; winsorized at the one-percent level;
AB_GTREND_t	Firm *i*'s Google Trends search on day *t* minus the average Google Trends search on the same day of the week over the prior 10 weeks, scaled by the average Google Trends search on the same day of the week over the prior 10 weeks; winsorized at the one-percent level;
AB_MEDIA_t	Firm *i*'s media count on day *t* minus the average media count on the same day of the week over the prior 10 weeks, scaled by the average media count on the same day of the week over the prior 10 weeks; winsorized at the one-percent level;
AB_VOL_t	Firm *i*'s trading volume on day *t* minus the average trading volume on the same day of the week over the prior 10 weeks, scaled by the average trading volume on the same day of the week over the prior 10 weeks; winsorized at the one-percent level;
BTM_t	The book value of equity to market capitalization for firm *i* on day *t*; winsorized at the one-percent level;
EP_t	The ratio of earnings per share to price per share for firm *i* on day *t*; winsorized at the one-percent level;
CHG_GUIDE_t	Firm *i*'s EPS guidance on day *t* minus its EPS guidance on day *t-1;* winsorized at the one-percent level;
LOG_MCAP_t	The logarithm of market capitalization for firm *i* on day *t*; winsorized at the one-percent level;
$PAST\_MONTH\_RET_t$	The sum of firm *i*'s daily market-adjusted returns over the past month ending two days before the earnings announcement day;
$PAST\_RET\_VOL_t$	The standard deviation of firm *i*'s daily returns over the past 12 months ending on day *t-1*;
$PAST\_YEAR\_RET_t$	The sum of firm *i*'s daily market-adjusted returns over the past 11 months ending 30 days before the earnings announcement day;
ROA_t	The ratio of net income to total assets for firm *i* on day *t;* winsorized at the one-percent level;
SUE_t	Firm *i*'s actual earnings per share minus the most recent consensus analysts' earnings per share forecasts, scaled by the price per share two days before the earnings announcement day; winsorized at the one-percent level;

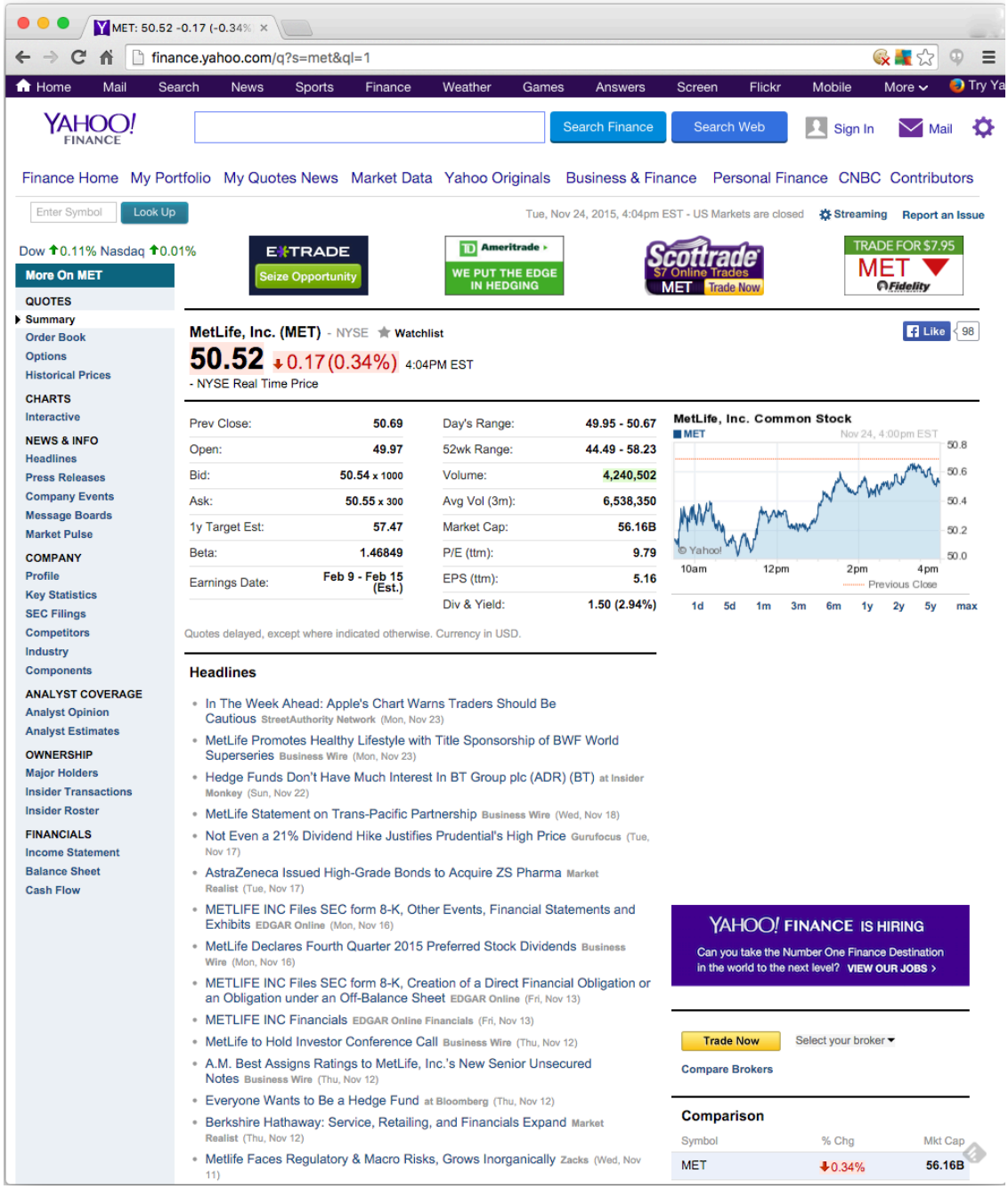
APPENDIX B

Top 5 Firms Ranked by Market Capitalization in Each Abnormal Yahoo Finance Search and SUE Portfolio

AB_TOTAL_t Quintile	SUE_t Quintile				
	1 Lowest	2	3	4	5 Highest
1 Lowest	Suncor Energy	ConocoPhillips	Altria Group	United Technologies	Suncor Energy
	Imperial Oil	Eli Lilly	Toronto-Dominion Bank	Allergan	Valero Energy
	Energy Transfer Equity	Occidental Petroleum	American Express	Bristol-Myers Squibb	American Electric Power
	Williams Partners	Enterprise Products	Bristol-Myers Squibb	AbbVie	Equity Residential
	Vertex Pharmaceuticals	Nippon T & T	Allergan	Allergan	Twenty-First Century Fox
2	Suncor Energy	Chevron	General Electric	Chevron	Exxon Mobil
	E. I. du Pont de Nemours	AT&T	Pfizer	Citigroup	Bristol-Myers Squibb
	Anadarko Petroleum	Verizon	Visa	Exxon Mobil	Nippon T & T
	Phillips 66	Gilead Sciences	Schlumberger	Amgen	MetLife
	Suncor Energy	Altria Group	Verizon	United Technologies	LyondellBasell
3	Bank of America	Bank of America	Medtronic	Chevron	Gilead Sciences
	McDonalds	Exxon Mobil	Schlumberger	Verizon	Bank of America
	Honeywell International	Microsoft	Pfizer	Medtronic	Chevron
	General Motors	Verizon	General Electric	Visa	Boeing
	Prudential Financial	Starbucks	Wal-Mart Stores	Apple	American Inter. Group
4	McDonalds	Citigroup	Facebook	Wells Fargo	Apple
	Morgan Stanley	Procter & Gamble	CVS	JPMorgan Chase	Qualcomm
	BB&T	Qualcomm	PepsiCo	Walt Disney	Goldman Sachs
	Broadcom	JPMorgan Chase	Coca-Cola	Qualcomm	Mondelez International
	Sprint	Home Depot	Johnson & Johnson	Merck & Co.	General Motors
5 Highest	Bank of America	JPMorgan Chase	PepsiCo	Walt Disney	JPMorgan Chase
	IBM	IBM	Amazon	UnitedHealth	Citigroup
	Caterpillar	Procter & Gamble	Home Depot	Facebook	Goldman Sachs
	Charter Communications	Oracle	Oracle	Cisco Systems	Caterpillar
	Motorola Solutions	Wells Fargo	Wal-Mart Stores	Microsoft	Yahoo!

This appendix presents the top 5 firms ranked by market capitalization assigned to 25 portfolios based on abnormal Yahoo Finance search quintiles and *SUE* quintiles on the earnings announcement day.

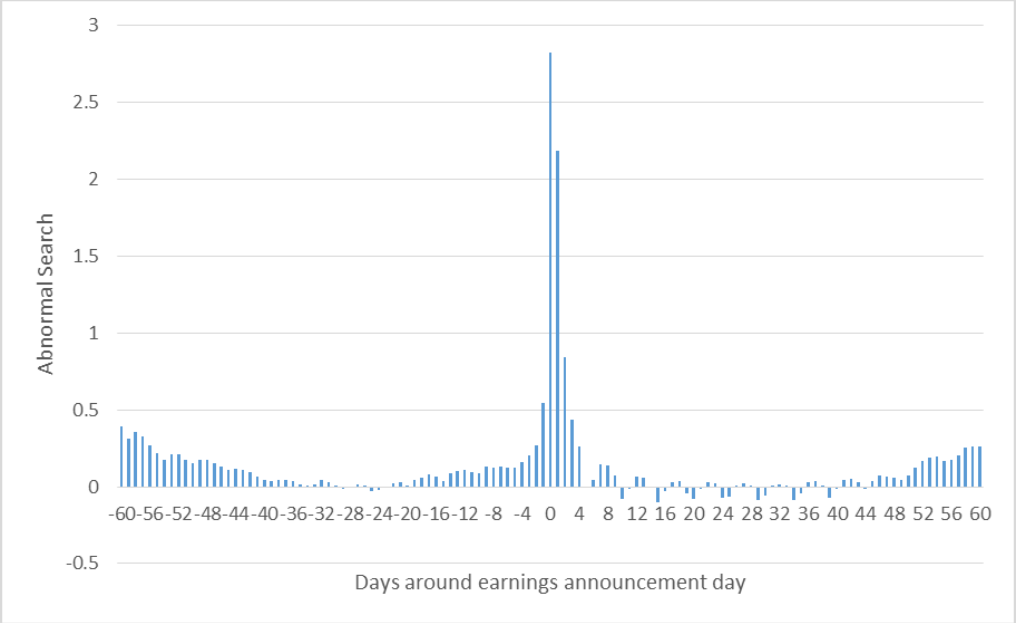
FIGURE 1
Example of a Yahoo Finance Firm-Specific Summary Page



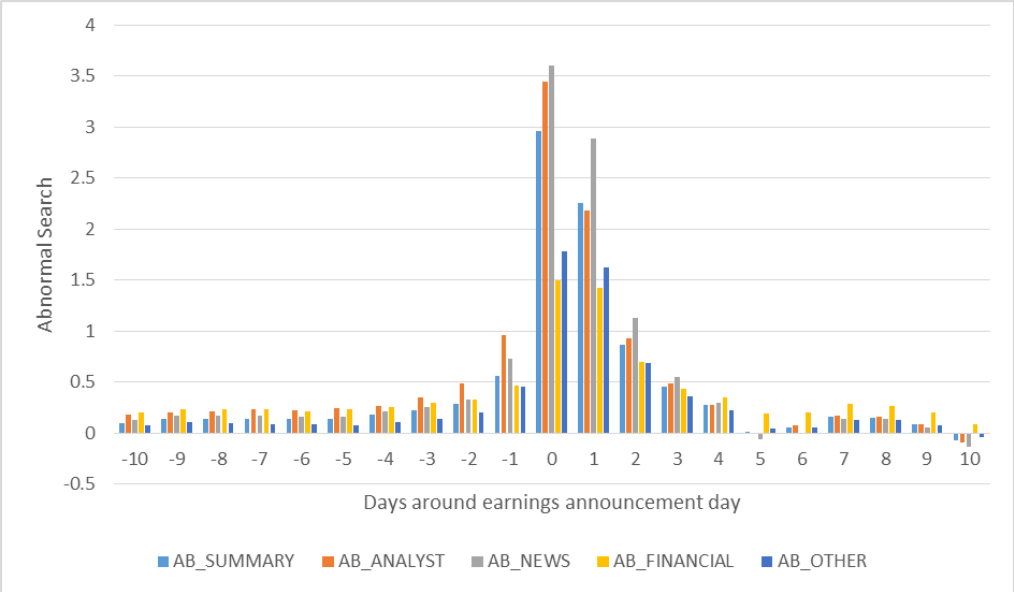
This figure illustrates an example of a typical Yahoo Finance (*finance.yahoo.com*) firm-specific Summary page, as well as access to 23 firm-specific pages containing analyst, financial, news, and other information.

FIGURE 2
Distribution of Abnormal Yahoo Finance Search around the Earnings Announcement Day

Panel A: Total Search



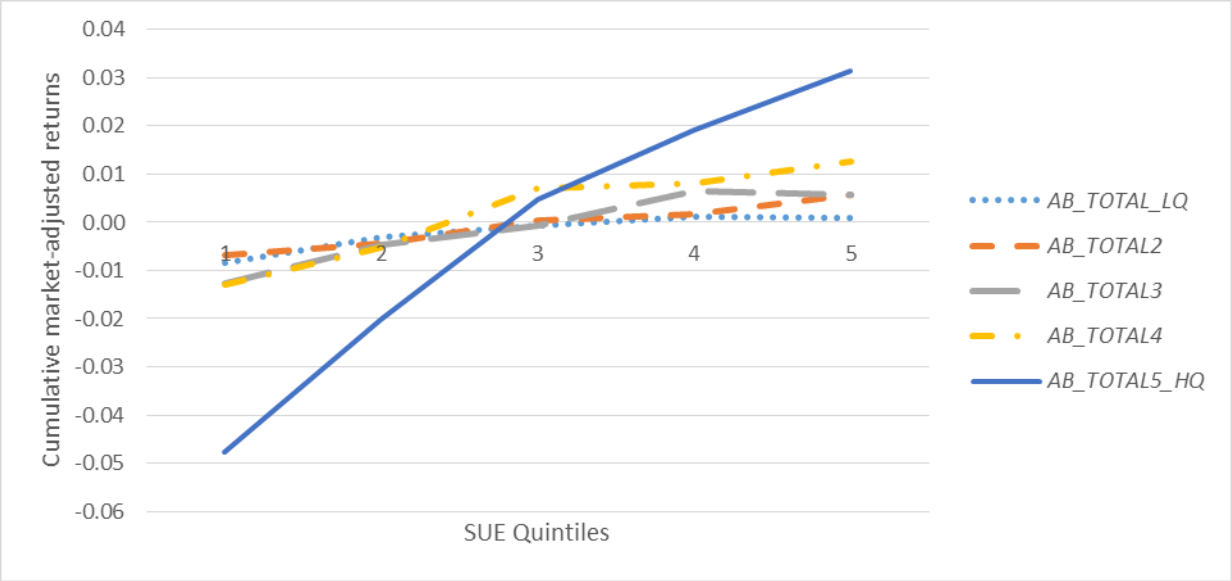
Panel B: Categories of Search



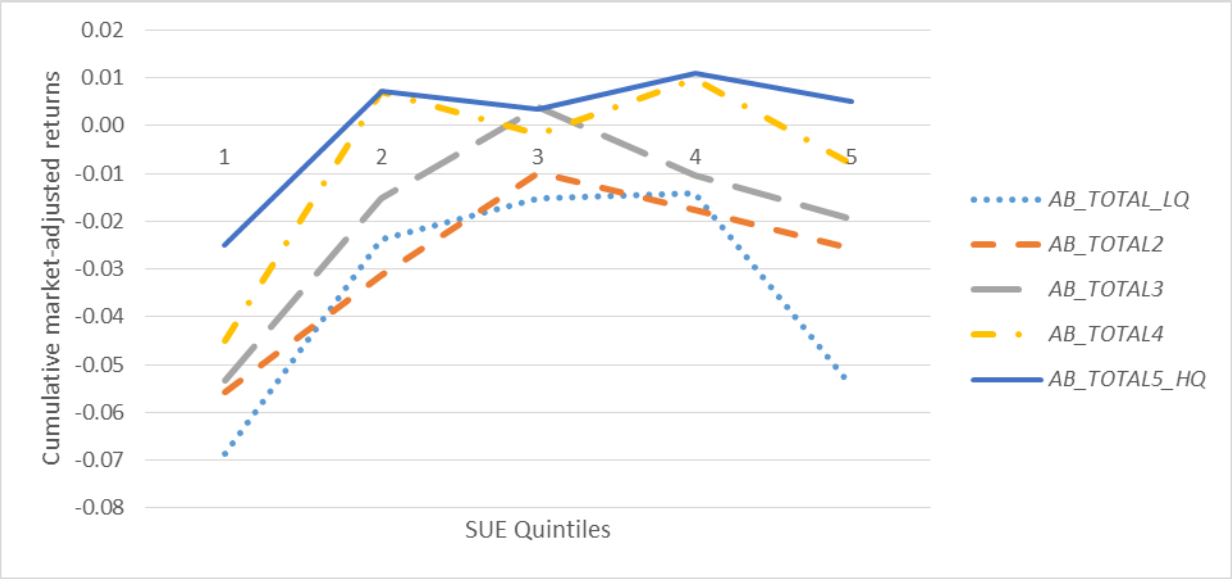
This figure plots mean abnormal Yahoo Finance search around the earnings announcement. Panel A plots the abnormal Total Yahoo Finance search from 60 days before the earnings announcement to 60 days after the earnings announcement. Panel B plots the abnormal Yahoo Finance search for five categories: Summary, Analyst, News, Financial, and Other from 10 days before the earnings announcement to 10 days after the earnings announcement. See Appendix A for category definitions including the specific pages included.

FIGURE 3
Cumulative Market-Adjusted Returns for Each SUE Quintile
Partitioned by Abnormal Yahoo Finance Search Quintiles

Panel A: Cumulative Market-Adjusted Returns from Day *t* to Day *t*+1 ($AB\_RET_{t,t+1}$)



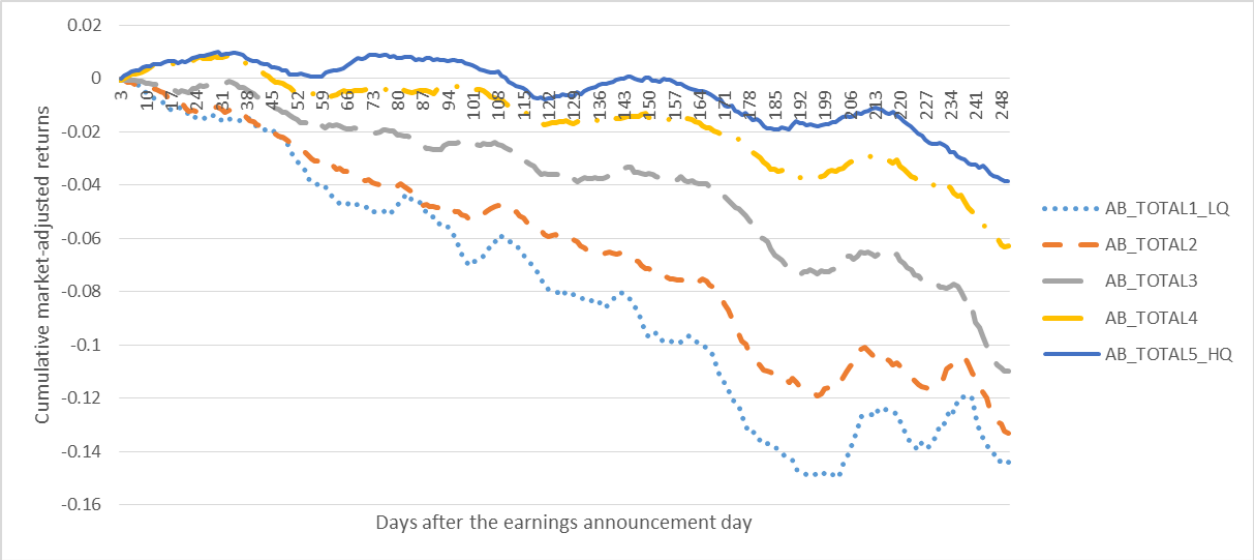
Panel B: Cumulative Market-Adjusted Returns from Day *t*+2 to Day *t*+60 ($AB\_RET_{t+2,t+60}$)



This figure plots the cumulative market-adjusted returns for each *SUE* quintile partitioned by abnormal Yahoo Finance search quintiles. Panel A shows the cumulative two-day market-adjusted earnings announcement returns (day *t* to day *t+1*). Panel B shows cumulative market-adjusted returns from day *t+2* to day *t+60*. *SUE* Quintile 1 represents the lowest *SUE* quintile, and *SUE* Quintile 5 represents the highest *SUE* quintile. *AB_TOTAL1_LQ* represents the lowest abnormal Yahoo Finance search quintile and *AB_TOTAL5_HQ* represents the highest abnormal Yahoo Finance search quintile.

FIGURE 4

Cumulative Market-Adjusted Returns for Each Abnormal Yahoo Finance Search Quintile from Day t+2 to Day t+250



This figure plots the cumulative market-adjusted returns after the earnings announcement from day *t+2* to day *t+250* (*AB_RET*) for each abnormal Yahoo Finance search quintile. *AB_TOTAL1_LQ* represents the lowest abnormal Yahoo Finance search quintile and *AB_TOTAL5_HQ* represents the highest abnormal Yahoo Finance search quintile.

TABLE 1

Descriptive Statistics for Each Abnormal Yahoo Finance Search and SUE Portfolio

Panel A: Abnormal Yahoo Finance Search

				SUE_t Quintile			
AB_TOTAL_t Quintile	N	1 Lowest	2	3	4	5 Highest	Mean
1 Lowest	2,834	0.299	0.374	0.375	0.386	0.309	0.341
2	2,835	1.242	1.268	1.309	1.260	1.254	1.264
3	2,834	2.166	2.175	2.199	2.161	2.160	2.172
4	2,835	3.439	3.412	3.455	3.457	3.460	3.445
5 Highest	2,834	6.915	6.973	6.800	6.935	6.827	6.885
N		2,834	2,948	2,721	2,835	2,834	
Mean	14,172	2.318	2.688	3.287	3.108	2.730	

Panel B: Quarterly Change in Abnormal Yahoo Finance Search

			AB_TOTAL Quintile for Quarter *t-1*			
AB_TOTAL Quintile for Quarter *t*	N	1 Lowest	2	3	4	5 Highest
1 Lowest	2,185	990	582	295	164	154
2	2,089	532	516	466	354	221
3	2,081	263	457	500	506	355
4	1,925	150	314	460	519	482
5 Highest	1,940	109	175	323	501	832

This table presents the descriptive statistics for firm-quarter observations assigned to 25 portfolios based on abnormal Yahoo Finance search quintiles and *SUE* quintiles on the earnings announcement day. Panels A shows the mean abnormal Yahoo Finance search for each portfolio on the earnings announcement day. Panel B shows the transition matrix for quintiles of abnormal Yahoo Finance search from the prior earnings announcement (excluding each firm's first earnings announcement).

TABLE 2

Earnings Announcement Returns for Each Abnormal Yahoo Finance Search and SUE Portfolio

Panel A: Cumulative Market-Adjusted Returns from Day *t* to Day *t+1* ($AB\_RET_{t,t+1}$)

	SUE_t Quintile						
AB_TOTAL_t Quintile	1 Lowest	2	3	4	5 Highest	Diff	Mean
1 Lowest	-0.008	-0.003	-0.001	0.001	0.001	0.009***	-0.003***
2	-0.007	-0.004	0.000	0.002	0.006	0.012***	-0.001
3	-0.013	-0.005	-0.001	0.006	0.006	0.018***	-0.001
4	-0.013	-0.005	0.007	0.008	0.013	0.026***	0.003**
5 Highest	-0.048	-0.020	0.005	0.019	0.032	0.079***	0.001
Diff.	-0.039***	-0.017***	0.006	0.018***	0.031***		
Mean	-0.015***	-0.007***	0.003**	0.008***	0.011***		

Panel B: Cumulative Market-Adjusted Returns from Day *t+2* to Day *t+60* ($AB\_RET_{t+2,t+60}$)

	SUE_t Quintile						
AB_TOTAL_t Quintile	1 Lowest	2	3	4	5 Highest	Diff	Mean
1 Lowest	-0.069	-0.024	-0.015	-0.014	-0.054	0.014	-0.041***
2	-0.056	-0.031	-0.010	-0.018	-0.026	0.030**	-0.030***
3	-0.053	-0.015	0.004	-0.010	-0.020	0.034**	-0.018***
4	-0.045	0.007	-0.002	0.010	-0.008	0.037***	-0.005*
5 Highest	-0.025	0.007	0.003	0.011	0.005	0.030**	0.002
Diff.	0.044***	0.031***	0.019**	0.025***	0.059***		
Mean	-0.053***	-0.012***	-0.002	-0.003	-0.022***		

Panel C: Cumulative Market-Adjusted Returns from Day *t+61* to Day *t+250* ($AB\_RET_{t+61,t+250}$)

	SUE_t Quintile						
AB_TOTAL_t Quintile	1 Lowest	2	3	4	5 Highest	Diff	Mean
1 Lowest	-0.223	-0.093	-0.075	-0.057	-0.105	0.118***	-0.125***
2	-0.194	-0.055	-0.022	-0.055	-0.190	0.003	-0.108***
3	-0.174	-0.079	-0.046	-0.044	-0.103	0.071**	-0.088***
4	-0.151	-0.037	-0.018	-0.027	-0.087	0.064*	-0.058***
5 Highest	-0.113	-0.030	-0.019	-0.018	-0.055	0.058**	-0.041***
Diff.	0.109***	0.063***	0.056**	0.039	0.050		
Mean	-0.176***	-0.058***	-0.030***	-0.036***	-0.107***		

This table presents cumulative market-adjusted two-day earnings announcement returns (day *t* to day *t+1*), and long window cumulative market-adjusted returns after the earnings announcement for each abnormal Yahoo Finance search and *SUE* portfolio. Panel A presents the cumulative market-adjusted returns from day *t* to day *t+1*. Panel B presents market-adjusted returns after the earnings announcement from day *t+2* to day *t+60*. Panel C presents market-adjusted returns after the earnings announcement from day *t+61* to day *t+250*. Diff. refers to the mean difference between the highest and the lowest quintile. Mean refers to the mean returns of each row or column. *, **, *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively, using two-tailed tests. See Appendix A for variable definitions.

TABLE 3
Descriptive Statistics for Regression Variables

Panel A: Descriptive Statistics for Regression Variables

	N	Mean	Std. Dev	P5	P25	P50	P75	P95
AB_TOTAL_t	14,172	2.821	2.458	0.082	1.064	2.166	3.855	8.623
$AB\_SUMMARY_t$	14,172	2.966	2.507	0.119	1.141	2.305	4.062	8.895
$AB\_ANALYST_t$	14,172	3.451	3.058	-0.066	1.058	2.557	5.165	10.000
AB_NEWS_t	14,172	3.604	3.115	-0.045	1.167	2.709	5.337	10.000
$AB\_FINANCIAL_t$	14,172	1.496	2.154	-0.698	0.096	0.905	2.167	5.939
AB_OTHER_t	14,172	1.785	2.235	-0.298	0.328	1.086	2.388	6.814
AB_VOL_t	14,172	1.035	1.760	-0.515	-0.004	0.529	1.407	4.391
AB_EDGAR_t	10,618	1.042	1.414	-0.448	0.126	0.710	1.528	3.742
AB_GTREND_t	14,172	0.242	0.646	-0.456	-0.076	0.061	0.391	1.660
SUE_t	14,172	-0.001	0.012	-0.017	-0.001	0.000	0.002	0.012
$AB\_RET_{t,t+1}$	14,172	0.000	0.075	-0.119	-0.031	0.000	0.032	0.115
$AB\_RET_{t+2,t+60}$	14,172	-0.018	0.196	-0.336	-0.091	-0.004	0.071	0.243
$AB\_RET_{t+61,t+250}$	14,172	-0.081	0.410	-0.800	-0.236	-0.030	0.136	0.422
AB_RET_{t-1}	14,172	0.000	0.023	-0.031	-0.010	0.000	0.009	0.032
AB_MEDIA_t	14,172	11.902	14.526	0.000	3.615	7.000	14.000	42.333
CHG_GUIDE_t	14,172	0.007	0.088	0.000	0.000	0.000	0.000	0.020
BTM_t	14,172	0.533	0.398	0.084	0.244	0.436	0.729	1.250
LOG_MCAP_t	14,172	14.131	1.804	11.267	12.801	14.059	15.328	17.316
EP_t	14,172	0.000	0.141	-0.262	-0.007	0.037	0.060	0.114
$PAST\_RET\_VOL_t$	14,172	0.022	0.012	0.010	0.014	0.019	0.028	0.046
ROA_t	14,172	-0.014	0.180	-0.403	-0.007	0.025	0.063	0.152
$PAST\_YEAR\_RET_t$	14,172	-0.039	0.339	-0.639	-0.187	-0.029	0.129	0.507
$PAST\_MONTH\_RET_t$	14,172	-0.006	0.089	-0.150	-0.048	-0.006	0.038	0.136

Panel B: Pearson Correlations for Abnormal Yahoo Finance Search Variables

	Variable	1	2	3	4	5	6
1	AB_TOTAL_t	1					
2	$AB\_SUMMARY_t$	0.99	1				
3	$AB\_ANALYST_t$	0.80	0.78	1			
4	AB_NEWS_t	0.85	0.82	0.69	1		
5	$AB\_FINANCIAL_t$	0.60	0.57	0.53	0.47	1	
6	AB_OTHER_t	0.91	0.88	0.76	0.73	0.64	1

Panel C: Pearson Correlations for Regression Variables

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	AB_TOTAL_t	1																
2	AB_VOL_t	0.59	1															
3	AB_EDGAR_t	0.24	0.27	1														
4	AB_GTREND_t	0.24	0.17	0.07	1													
5	SUE_t	0.03	**0.00**	-0.03	**0.01**	1												
6	$AB\_RET_{t,t+1}$	**0.01**	-0.02	-0.03	**0.01**	0.10	1											
7	$AB\_RET_{t+2,t+60}$	0.07	0.02	**0.00**	0.02	0.07	0.06	1										
8	$AB\_RET_{t+61,t+250}$	0.07	**0.01**	-0.02	**-0.01**	0.07	0.02	0.13	1									
9	AB_RET_{t-1}	0.05	0.03	**0.01**	**0.01**	**0.00**	-0.04	0.03	**0.00**	1								
10	AB_MEDIA_t	0.07	0.07	0.13	**-0.01**	**-0.01**	**0.00**	**0.00**	**0.00**	**0.01**	1							
11	CHG_GUIDE_t	0.04	**0.01**	**0.02**	**0.01**	0.03	0.05	0.02	0.02	**0.00**	**0.00**	1						
12	BTM_t	-0.18	-0.10	-0.05	-0.12	-0.07	**0.01**	-0.12	-0.11	**-0.01**	0.03	-0.05	1					
13	LOG_MCAP_t	0.11	0.05	-0.07	0.11	0.10	0.02	0.04	0.04	-0.02	-0.11	0.10	-0.25	1				
14	EP_t	0.09	0.04	**-0.02**	**0.01**	0.23	0.04	0.12	0.13	**0.00**	-0.03	0.02	-0.12	0.37	1			
15	$PAST\_RET\_VOL_t$	-0.10	**0.00**	0.06	0.05	-0.11	-0.02	-0.09	-0.15	0.03	**0.00**	-0.05	**-0.01**	-0.52	-0.51	1		
16	ROA_t	0.20	0.11	**0.00**	0.04	0.12	0.04	**0.02**	0.07	**-0.01**	**-0.01**	0.04	0.04	0.38	0.64	-0.57	1	
17	$PAST\_YEAR\_RET_t$	0.04	**0.00**	-0.04	0.03	0.11	**0.01**	0.11	0.13	**0.01**	-0.04	0.06	-0.37	0.19	0.29	-0.07	0.10	1
18	$PAST\_MONTH\_RET_t$	**0.00**	**0.01**	**0.02**	0.02	0.04	**-0.01**	0.02	**0.01**	**-0.01**	**-0.01**	0.03	**0.00**	0.08	0.07	**0.00**	0.05	-0.06

This table presents descriptive statistics of the regression variables. Panel A presents descriptive statistics, Panel B presents the Pearson correlation coefficients for the abnormal Yahoo Finance search variables, and Panel C presents the Pearson correlation coefficients for the regression variables. The insignificant correlation coefficients are bolded. See Appendix A for variable definitions. The total unique number of firms is 3,952.

TABLE 4

Regressions of Cumulative Returns on Abnormal Yahoo Finance Search and SUE

	(1)		(2)		(3)	
Dep. Var.	$AB\_RET_{t,t+1}$		$AB\_RET_{t+2,t+60}$		$AB\_RET_{t+61,t+250}$	
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	-0.001	-0.06	0.119***	3.27	0.580***	4.99
$\boldsymbol{AB\_TOTAL_t}$	**0.001**	**1.03**	**0.003*** **	**4.96**	**0.011*** **	**5.57**
$\boldsymbol{SUE_t}$	**0.304**	**0.29**	**3.290**	**1.39**	**11.288***	**1.93**
$\boldsymbol{AB\_TOTAL_t * SUE_t}$	**0.211** **	**2.52**	**-0.014**	**-0.13**	**-0.188**	**-1.03**
AB_RET_{t-1}	-0.159***	-4.41	0.122	1.28	-0.069	-0.26
AB_MEDIA_t	0.000	0.43	0.000	-0.41	0.000	-0.51
CHG_GUIDE_t	0.040***	6.51	0.018	1.48	0.054*	1.66
BTM_t	0.004**	2.03	-0.041***	-6.36	-0.099***	-4.83
LOG_MCAP_t	0.000	0.98	-0.008***	-7.12	-0.028***	-7.85
EP_t	0.009	1.03	0.153***	4.70	0.262**	2.52
$PAST\_RET\_VOL_t$	0.134	1.29	-1.962***	-6.78	-6.338***	-7.76
ROA_t	0.011*	1.75	-0.128***	-5.05	-0.181**	-2.55
$PAST\_YEAR\_RET_t$	-0.001	-0.28	0.044***	5.80	0.104***	4.97
$PAST\_MONTH\_RET_t$	-0.016	-1.72	0.049***	1.95	0.051	0.74
Include interactions between SUE and all controls	Yes		Yes		Yes	
Week fixed effect	Yes		Yes		Yes	
Day-of-week fixed effect	Yes		Yes		Yes	
Firm clustering	Yes		Yes		Yes	
N	14,172		14,172		10,277	
Adjusted R^2	0.024		0.068		0.078	

This table presents regression results for cumulative market-adjusted returns on abnormal Yahoo Finance search, *SUE*, and their interaction. Column (1) utilizes two-day earnings announcement returns (day *t* to day *t+1*) as the dependent variable. Column (2) utilizes returns after the earnings announcement from day *t+2* to day *t+60*. Column (3) utilizes returns after the earnings announcement from day *t+61* to day *t+250*. *, **, *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively, using two-tailed tests. T-statistics are calculated using clustered standard errors by firm. Week fixed effects and day-of-week fixed effects are included in the regressions. See Appendix A for variable definitions.

TABLE 5
Regressions of Cumulative Returns on Abnormal Yahoo Finance Search and SUE
For Each Search Category

AB_SEARCH_t=	(1) $AB\_SUMMARY_t$ Coeff.	(2) $AB\_ANALYST_t$ Coeff.	(3) AB_NEWS_t Coeff.	(4) $AB\_FINANCIAL_t$ Coeff.	(5) AB_OTHER_t Coeff.
Panel A: Cumulative Market-Adjusted Returns from Day *t* to Day *t+1* ($AB\_RET_{t,t+1}$)					
AB_SEARCH_t	0.001*	0.001***	-0.001**	-0.001**	0.001**
SUE_t	0.146	0.164	0.608	0.638	0.644
$AB\_SEARCH_t * SUE_t$	0.216***	0.152***	0.152***	0.220***	0.240***
Panel B: Cumulative Market-Adjusted Returns from Day *t+2* to Day *t+60* ($AB\_RET_{t+2,t+60}$)					
AB_SEARCH_t	0.004***	0.003***	0.002***	0.002**	0.003***
SUE_t	3.265	2.753	3.128	3.390	3.282
$AB\_SEARCH_t * SUE_t$	-0.007	0.054	0.012	-0.068	-0.036
Panel C: Cumulative Market-Adjusted Returns from Day *t+61* to Day *t+250* ($AB\_RET_{t+61,t+250}$)					
AB_SEARCH_t	0.011***	0.012***	0.008***	0.007***	0.011***
SUE_t	11.324*	11.221*	10.858*	10.289*	10.572*
$AB\_SEARCH_t * SUE_t$	-0.169	-0.133	-0.123	-0.001	-0.120
Controls	Yes	Yes	Yes	Yes	Yes
Week fixed effect	Yes	Yes	Yes	Yes	Yes
Day-of-week fixed effect	Yes	Yes	Yes	Yes	Yes
Firm clustering	Yes	Yes	Yes	Yes	Yes

This table presents regressions of market-adjusted returns on abnormal Yahoo Finance search, *SUE*, and their interaction for each search category (Summary, Analyst, News, Financial, and Other) reported in Columns (1) through (5). Panel A presents regressions utilizing cumulative market-adjusted earnings announcement returns from day *t* to day *t*+1. Panel B presents regressions utilizing cumulative market-adjusted returns after the earnings announcement from day *t*+2 to day *t*+60. Panel C presents regressions utilizing cumulative market-adjusted returns from day *t+61* to day *t*+250. For brevity, the control variables (as in Table 4), the Adjusted R^2s, the intercepts, and the number of observations are not tabulated. *, **, *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively, using two-tailed tests. T-statistics are calculated using clustered standard errors by firm. Week fixed effects and day-of-week fixed effects are included in the regressions. See Appendix A for variable definitions.

TABLE 6

Regressions of Cumulative Returns on Abnormal Volume, Abnormal EDGAR Search, Abnormal Google Trends Search and SUE

Dep. Var.	(1) $AB\_RET_{t,t+1}$		(2) $AB\_RET_{t+2,t+60}$		(3) $AB\_RET_{t+61,t+250}$	
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Panel A: Abnormal Volume						
AB_VOL_t	-0.001	-0.94	0.001	1.36	0.002	0.74
SUE_t	0.623	0.65	2.993	1.26	10.761*	1.86
$AB\_VOL_t * SUE_t$	0.299***	2.89	0.092	0.67	-0.203	-0.94
Panel B: Abnormal EDGAR Search						
AB_EDGAR_t	-0.001*	-1.76	-0.002	-1.43	-0.004	-1.33
SUE_t	1.762*	1.66	5.630**	2.19	11.750**	1.96
$AB\_EDGAR_t * SUE_t$	0.175**	2.23	-0.047	-0.28	-0.619**	-2.16
Panel C: Abnormal Google Trends Search						
AB_GTREND_t	0.002	1.36	0.005**	2.09	0.002	0.34
SUE_t	1.289	1.57	3.232	1.33	10.422*	1.82
$AB\_GTREND_t * SUE_t$	-0.005	-0.02	0.187	0.54	0.377	0.50
Controls	Yes		Yes		Yes	
Week fixed effect	Yes		Yes		Yes	
Day-of-week fixed effect	Yes		Yes		Yes	
Firm clustering	Yes		Yes		Yes	

This table presents regressions of market-adjusted returns on Abnormal Volume, Abnormal EDGAR Search, Abnormal Google Trends Search, their interactions with *SUE*, and *SUE*. Column (1) utilizes two-day earnings announcement returns (day *t* to day *t+1*) as the dependent variable. Column (2) utilizes returns after the earnings announcement from day *t+2* to day *t+60*. Column (3) utilizes returns after the earnings announcement from day *t+61* to day *t+250*. For brevity, the control variables (as in Table 4), the Adjusted R^2s, the intercepts, and the number of observations are not tabulated. *, **, *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively, using two-tailed tests. T-statistics are calculated using clustered standard errors by firm. Week fixed effects and day-of-week fixed effects are included in the regressions. See Appendix A for variable definitions.

TABLE 7

Regressions of Cumulative Returns on Abnormal Yahoo Finance Search, Abnormal Volume, Abnormal EDGAR Search, and Abnormal Google Trends Search

	(1)		(2)		(3)	
Dep. Var.	$AB\_RET_{t,t+1}$		$AB\_RET_{t+2,t+60}$		$AB\_RET_{t+61,t+250}$	
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	-0.016	-0.96	-0.032	-0.60	0.399***	3.90
$\boldsymbol{AB\_TOTAL_t}$	**0.001*** **	**2.71**	**0.005*** **	**5.53**	**0.016*** **	**6.72**
$\boldsymbol{SUE_t}$	**1.330**	**1.18**	**5.820****	**2.31**	**12.602****	**2.10**
$\boldsymbol{AB\_TOTAL_t * SUE_t}$	**0.008**	**0.13**	**-0.114**	**-0.91**	**-0.168**	**-0.56**
$\boldsymbol{AB\_VOL_t}$	**-0.002****	**-2.51**	**-0.002**	**-1.37**	**-0.008*** **	**-2.69**
$\boldsymbol{AB\_VOL_t * SUE_t}$	**0.278****	**2.44**	**0.288**	**1.46**	**0.026**	**0.08**
$\boldsymbol{AB\_EDGAR_t}$	**-0.001**	**-1.50**	**-0.003****	**-2.21**	**-0.007****	**-2.13**
$\boldsymbol{AB\_EDGAR_t * SUE_t}$	**0.075**	**1.02**	**-0.140**	**-0.96**	**-0.571***	**-1.87**
$\boldsymbol{AB\_GTREND_t}$	**0.001**	**0.83**	**0.001**	**0.29**	**-0.004**	**-0.62**
$\boldsymbol{AB\_GTREND_t * SUE_t}$	**-0.368**	**-1.43**	**0.470**	**1.17**	**0.786**	**0.94**
AB_RET_{t-1}	-0.185***	-4.66	0.073	0.66	-0.105	-0.39
AB_MEDIA_t	0.000	0.41	0.000	0.90	0.000	-0.08
CHG_GUIDE_t	0.035***	5.34	0.021*	1.68	0.057*	1.79
BTM_t	0.001	0.52	-0.019***	-2.88	-0.100***	-4.85
LOG_MCAP_t	0.000	0.33	-0.004***	-3.03	-0.027***	-7.53
EP_t	0.000	0.00	0.111***	3.27	0.267**	2.53
$PAST\_RET\_VOL_t$	-0.027	-0.25	-0.411	-1.39	-6.349***	-7.80
ROA_t	0.016**	2.24	-0.078***	-2.98	-0.192***	-2.67
$PAST\_YEAR\_RET_t$	0.002	0.67	-0.008	-0.89	0.103***	4.94
$PAST\_MONTH\_RET_t$	-0.019*	-1.93	0.139***	4.65	0.071	1.08
Include interactions between SUE and all controls	Yes		Yes		Yes	
Week fixed effect	Yes		Yes		Yes	
Day-of-week fixed effect	Yes		Yes		Yes	
Firm clustering	Yes		Yes		Yes	
N	10,618		10,618		10,277	
Adjusted R^2	0.032		0.037		0.081	

This table presents regression results for cumulative returns on abnormal Yahoo Finance search, abnormal volume, abnormal EDGAR search, abnormal Google Trends search, their interactions with *SUE*, and *SUE*. Column (1) utilizes two-day earnings announcement returns (day *t* to day *t+1*) as the dependent variable. Column (2) utilizes returns after the earnings announcement from day *t+2* to day *t+60*. Column (3) utilizes returns after the earnings announcement from day *t+61* to day *t+250*. Control variables from Table 4 are included in all regressions but for brevity are not tabulated. *, **, *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively, using two-tailed tests. T-statistics are calculated using clustered standard errors by firm. Week fixed effects and day-of-week fixed effects are included in the regressions. See Appendix A for variable definitions.

TABLE 8

Regressions of Daily Alphas on Abnormal Yahoo Finance Search, Abnormal Volume, Abnormal EDGAR Search, Abnormal Google Trends Search and SUE

Dep. Var.	(1) $DAILY\_ALPHA_{t+2,t+60}$		(2) $DAILY\_ALPHA_{t+61,t+250}$	
	Coeff.	t-stat	Coeff.	t-stat
Panel A: Abnormal Yahoo Finance Search				
AB_TOTAL_t	0.003***	2.79	0.003**	2.35
SUE_t	5.021	1.49	3.400	1.07
$AB\_TOTAL_t * SUE_t$	-0.035	-0.25	-0.090	-0.84
Panel B: Abnormal Volume				
AB_VOL_t	0.001	0.64	0.000	0.10
SUE_t	4.649	1.39	3.239	1.03
$AB\_VOL_t * SUE_t$	0.083	0.49	-0.125	-0.97
Panel C: Abnormal EDGAR Search				
AB_EDGAR_t	-0.003	-1.29	-0.002	-1.10
SUE_t	7.031*	1.90	2.562	0.79
$AB\_EDGAR_t * SUE_t$	-0.128	-0.61	-0.087	-0.42
Panel D: Abnormal Google Trends Search				
AB_GTREND_t	0.002	0.53	-0.001	-0.33
SUE_t	4.967	1.47	3.071	0.97
$AB\_GTREND_t * SUE_t$	0.646	1.34	0.370	0.70
Panel E: All Four Abnormal Measures Included				
AB_TOTAL_t	0.005***	3.53	0.004***	3.24
SUE_t	7.623**	2.07	3.191	0.98
$AB\_TOTAL_t * SUE_t$	-0.179	-0.94	-0.115	-0.71
AB_VOL_t	-0.002	-0.89	-0.003	-1.41
$AB\_VOL_t * SUE_t$	0.278	1.09	-0.033	-0.17
AB_EDGAR_t	-0.004*	-1.74	-0.003	-1.42
$AB\_EDGAR_t * SUE_t$	-0.226	-1.11	-0.055	-0.25
AB_GTREND_t	-0.002	-0.52	-0.004	-1.07
$AB\_GTREND_t * SUE_t$	0.985*	1.71	0.734	1.32
Controls	Yes		Yes	
Week fixed effect	Yes		Yes	
Day-of-week fixed effect	Yes		Yes	
Firm clustering	Yes		Yes	

This table presents regressions of the daily alphas on Abnormal Yahoo Finance search, Abnormal Volume, Abnormal EDGAR Search, Abnormal Google Trends Search, their interactions with *SUE*, and *SUE*. Column (1) utilizes the daily alphas from day *t+2* to day *t+60*, which is the daily Carhart (1997) four-factor alphas from a regression of raw returns minus the risk-free rate on the contemporaneous excess market return (MKTRF), Fama and French (1993) factors (SMB, and HML), and the momentum factor (UMD) using observations from day *t+2* to day *t+60*, where *t* is the earnings announcement day. Column (2) utilizes the daily alphas from day *t+61* to day *t+250*. For brevity, the control variables (as in Table 4), the Adjusted R^2s, the intercepts, and the number of observations are not tabulated. *, **, *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively, using two-tailed tests. T-statistics are calculated using clustered standard errors by firm. Week fixed effects and day-of-week fixed effects are included in the regressions. See Appendix A for variable definitions.