December Doldrums, Investor Distraction, and the Stock Market Reaction to Unscheduled News Events*

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Abstract

We examine how investor distraction during the December holiday season impacts the stock market's reaction to salient firm-specific news and whether this response is different for scheduled versus unscheduled news releases. We find that unscheduled credit rating downgrades and 8-K filings generate significantly weaker market responses in December, but find no equivalent effect for pre-scheduled earnings announcements. Consistently, we find lower retail and institutional investor attention in December towards unscheduled news only. Firm prominence mitigates this December distraction effect. Our results highlight how investor distraction in December can lead to a muted market reaction to unscheduled, but salient, firm-specific news.

JEL Classification: G02, G12, G14, G24

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1. Introduction

In the United States, the winter holiday season is nearly three times as long as Thanksgiving, the next longest holiday. Typically more than 100 million people take long-distance trips of 50 miles or more during the winter holidays.[1] However, major stock exchanges in the U.S. are closed only on Christmas Day, making December comparable to other months with officially recognized holidays, such as May (Memorial Day), July (Independence Day), and September (Labor Day). If holidays and personal travel distract investors and potentially lower the quality of their decision making, their response to salient firm-specific information could be muted, and may be more so for news that is unscheduled in nature. In this paper, we study whether there is investor inattention in December to salient firm-specific news and whether this December inattention differs based on the scheduled versus unscheduled nature of the news.

By exploring general within-year trends in the search activity for firm information, we find that such search activity declines considerably in December, consistent with investor distraction induced by the holiday season. However, it is possible that investors, especially institutional investors, consider scheduled firm-specific news releases (for example, earnings announcements) when making travel plans. In contrast, they cannot account for unscheduled news (for example, credit rating changes or 8-K filings). Consistently, we document this December decline in search activity only in the context of unscheduled news events. The search activity for scheduled news releases is not influenced by the month in which it is released.

The differential search patterns in December for scheduled versus unscheduled salient firm-specific news make December an attractive setting to analyze the effects of investor distraction. Consistent with these patterns, we find that the price response towards unscheduled news is significantly weaker in December compared to other months. In contrast, the market's reaction to scheduled news is not significantly different in December. We find a similar pattern for trading volume. Moreover, we find that the muted reaction to salient unscheduled firm-specific news is driven primarily by firm events in the latter half of December, when investors are most likely to be distracted by the holiday season.

We focus on three firm-specific news releases that the prior literature has shown to generate significant equity market reactions: credit rating changes, 8-K filings, and earnings announcements.[2]

[1] Source: The Bureau of Transportation Statistics (BTS), http://www.transtats.bts.gov/holidaydelay.asp.

[2] Jorion et al. (2005); Chava et al. (2019) have documented that credit rating downgrades generate significant market

While all three types of firm-specific events convey important information to investors, there are significant differences in the manner in which they are announced. Importantly, the dates of earnings announcements are known in advance, and thus provide firms with considerable discretion in the release of earnings news (Patell and Wolfson, 1982). The pre-scheduled nature of earnings announcements thus entails considerable endogeneity in the choice of earnings announcement dates (Guttman et al., 2014). Segal and Segal (2016) document that 8-K filing dates are also subject to similar endogeneity concerns. However, such concerns are substantially mitigated by regulations requiring firms to file 8-Ks within four business days of the occurrence of material events. Lastly, firms have limited control in the release of credit rating change announcements, since these are generated by third-party credit rating agencies. Overall, this suggests that selection bias concerns are more likely to affect the timing of the release of pre-scheduled earnings news rather than that of unscheduled credit rating change announcements and 8-K filings.[3]

We examine how investor attention to scheduled and unscheduled announcements is influenced by the month in which the news is released. We construct proxies for investor attention using data gathered from the SEC EDGAR Log File, Bloomberg, and Google Trends. These three data sources arguably cover a wide spectrum of investors. While Google Trends proxies for retail attention (Da et al., 2011), data from the SEC EDGAR Log File and Bloomberg plausibly proxies for the attention of more sophisticated market participants (Ben-Rephael et al., 2017). We find that only unscheduled news events are susceptible to low attention in December. Earnings announcements, the dates of which are known in advance, do not generate low attention even if they occur in December.

Next, we study how lower investor attention to unscheduled news in December impacts the stock market reaction to such news releases. We find that stock markets react significantly negatively to credit rating downgrades but insignificantly to upgrade announcements, in line with the literature (Holthausen and Leftwich, 1986; Chava et al., 2019). Consistent with limited investor attention during the December holiday season, we find that downgrades announced in December are met

responses, while credit rating upgrades do not. The information content of 8-K filings has been shown to generate significant price and volume responses (Lerman and Livnat, 2010; Zhao, 2016; Campbell et al., 2020). Similarly, a large literature, starting with Beaver (1968) and Kiger (1972), has documented that earnings announcements also generate significant market responses.

[3]This selection bias can occur because of factors including, and not limited to, the managerial tendency to withhold unfavorable news (Kothari et al., 2009) or CEO compensation and career concerns (Baginski et al., 2018; Aboody and Kasznik, 2000). These concerns can result in the strategic disclosure of information, especially if it is scheduled in nature.

with an immediate stock price reaction that is 72% weaker relative to downgrades announced in other months. Also consistent with inattention, we find that December downgrades generate a more negative post-announcement drift when compared to downgrades occurring in other months to compensate for the mispricing in the immediate horizon. Congruently, we find that while 8-K filings (which encompass different types of corporate events) generate a significant immediate price response, this response is 36% weaker for December filings relative to filings in other months. Moreover, this immediate underreaction to December 8-K filings is corrected over the longer horizon.

Consistent with the muted price reaction to unscheduled news released in December, we find that both December downgrades and December 8-K filings are also met with a muted immediate volume reaction. We find that the cumulative abnormal turnover and cumulative abnormal volume in response to December rating downgrades and 8-K filings are significantly weaker relative to the response towards similar news released in other months. Taken together, our findings regarding the differential price and volume response to unscheduled firm news in December can be interpreted as a delayed response to the release of salient firm information, consistent with Bernard and Thomas (1989, 1990).

A potential first-order concern with our analysis is selection bias with regards to firms experiencing unscheduled events in December. To address this concern, we follow Michaely et al. (2016) and split our sample into two groups: firms experiencing at least one unscheduled event in December and firms that never experience any such events in December. Our results show that the *December announcement* effect is distinct from the effect of simply being a *December announcer*, thus mitigating selection bias concerns. Further, credit rating changes are announced by third-party credit rating agencies and 8-Ks are required to be filed within four business days of a material event. Thus, it is not possible for a firm to strategically time the release of these announcements (especially credit rating announcements), which makes them "unscheduled" from the perspective of both the firm and investors. On the other hand, firms have significantly greater discretion in controlling the timing of earnings news (DeHaan et al., 2015; Michaely et al., 2016) and the flow of earnings-related information (Ge and Lennox, 2011; Cohen et al., 2020), which can result in selection bias.

We also conduct a matched-sample analysis to match firms experiencing unscheduled events in December to those experiencing such events in other months. This matching takes place along several salient characteristics at both the firm level and the announcement level, and mitigates concerns

that there are differences in observable dimensions between firms experiencing unscheduled events in December and those experiencing such events in other months. Our findings are robust to this matched-sample analysis.

Next, we explore the various factors that influence the December distraction effect towards unscheduled news events. We find that the entire December distraction effect towards downgrades is driven by downgrades announced in the latter half of the month. Congruently, we find that the price underreaction is more pronounced for 8-Ks filed after December 15. These findings suggest that investor inattention is more pronounced closer to Christmas Day and New Year's Eve. Moreover, we find that the rating downgrades and 8-K filings of prominent firms, as determined by size, analyst following, and institutional ownership, are less susceptible to the December distraction effect. These results indicate that a firm's prominence and information environment can temper the December distraction effect.

Lastly, as a placebo test, we study whether earnings announcements also experience a muted immediate price reaction in December. Johnson and So (2018) and Noh et al. (2021) show that the price response to earnings news is affected by the timing of news releases. In the context of our study, very few firms release earnings in March, June, September, and December. These firms may differ from those announcing earnings in the other eight months of the year. After addressing selection bias concerns using the methodologies of both Michaely et al. (2016) and DellaVigna and Pollet (2009), we find that earnings announcements in December generate an immediate price reaction that is not significantly different from the response to earnings news released in the other months of the year. Consistently, we do not find lower retail or institutional attention to earnings announcements released in December.

One possible concern is that our results are driven by positive investor sentiment, rather than distraction, during December. Investor sentiment (or mood) can affect trading decisions (Bassi et al., 2013; Goetzmann et al., 2014), managerial behavior (Chhaochharia et al., 2019), analysts' earnings forecasts (Hribar and McInnis, 2012), and even aggregate stock markets (Hirshleifer and Shumway, 2003; Edmans et al., 2007). Frieder and Subrahmanyam (2004) document that S&P 500 index returns are influenced by the festive nature of St. Patrick's Day and Rosh Hashanah, and the solemn nature of Yom Kippur. Christmas-induced positive sentiment could potentially explain why stock markets fail to adequately penalize firms downgraded in December. Moreover, such positive

investor sentiment can be further amplified by financial journalists (Dougal et al., 2012). However, we find that the price reaction to December 8-K filings relaying positive news is also muted, which is inconsistent with the "positive mood" hypothesis, but consistent with the December distraction hypothesis.

Our findings are also distinct from the summer distraction effect (Hong and Yu, 2009). While data on the search activity for firm information suggests that investors are also inattentive during the summer, we find that the *magnitude of inattention* is significantly higher in December. Moreover, we find no evidence of a muted price or volume response to rating downgrades and 8-K filings released during the summer relative to non-summer months.

Our study is broadly related to models of investor neglect of publicly available accounting information, which results in mispricing (Fischer and Verrecchia, 1999; Verrecchia, 2001; Hirshleifer and Teoh, 2003; DellaVigna and Pollet, 2009). Prior literature has focused mostly on investor distraction towards scheduled news released on Fridays (DellaVigna and Pollet, 2009; Louis and Sun, 2010; Michaely et al., 2016), and during non-trading hours (Francis et al., 1992; Bagnoli et al., 2005) or down-market periods (Hou et al., 2009). In contrast, our findings highlight how investor attention hinges on the scheduled versus unscheduled nature of salient firm-specific news. Moreover, our paper contributes to the literature on investor inattention by identifying the winter holiday season as a new inattention proxy.

2. Data sources

2.1. Unscheduled news

We consider two types of unscheduled firm-specific news: credit ratings and 8-K filings. We describe the construction of our datasets below.

2.1.1. Credit ratings

The data on bond ratings are from the Mergent Fixed Income Securities Database (FISD). We restrict the sample to U.S. domestic corporate debentures whose stocks are traded on either the NYSE, AMEX, or NASDAQ, and exclude Yankee bonds, convertible bonds, mortgage-backed bonds, and bonds traded with credit enhancements, as well as bonds issued through private placements, preferred stocks, and trust preferred capital. Further, we only consider the ratings issued by the top three Nationally Recognized Statistical Rating Organizations (NRSROs): Standard & Poor's

(S&P), Moody's, and Fitch. Consistent with Chava et al. (2019), we find that approximately 19% of all ratings are from Fitch, with the remaining split evenly between S&P and Moody's.

We consider any rating change issued by a credit rating agency (CRA) as one observation. When a CRA provides credit rating changes for multiple bonds of a single issuer on the same day, we use the issue that experiences the greatest absolute rating change because such changes are likely to generate the strongest market reaction. Our focus is on rating change announcements that are associated with either "DNG" (downgrades) or "UPG" (upgrades). The final sample of rating events covers the period from January 1996 to December 2020 and consists of 5,912 downgrades and 3,284 upgrades. Consistent with the findings in Dichev and Piotroski (2001), we note that there are approximately two downgrades for every upgrade. The codification of the rating notch changes is described in Table A.1.

Panel A of Table 1 displays the distribution of rating events with non-missing abnormal price reactions across different months. We find that both downgrade announcements and upgrade announcements are quite evenly distributed across all months of the year. Moreover, the average change in notches for downgrades and upgrades is not significantly different for December events relative to rating events in other months.

2.1.2. 8-K filings

We identify approximately 1.6 million unique 8-K filing events between January 1996 and December 2020 from the Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system provided by the U.S. Securities and Exchange Commission (SEC). We match these 8-K filings to the merged CRSP-Compustat database based on the historical central index key (CIK) values to identify 870,430 filings with valid stock price responses. This subset of 8-K filings is then parsed to identify the event that triggered the filing.[4] The events that could trigger an 8-K filing are classified into eight broad sections: (1) information regarding the registrant's business and operations, (2) registrant's financial information, (3) matters related to the trading of securities, (4) matters related to accountants and financial statements, (5) corporate governance and management, (6) matters related to asset-backed securities, (7) events related to Regulation FD, and (8) other material events considered important by the firm. A complete listing of all 8-K filing triggering events is presented in Table A.2.

[4]We are able to identify the triggering event for 99.5% of these filings.

In Panel B of Table 1, we display the distribution of 8-K filings across different months of the year. Broadly, we note that 8-K filings are uniformly distributed across all months of the year, even after accounting for the filing type (or section) of the 8-K filing. Overall, we conclude that there appears to be no seasonality in the release of unscheduled news.[5]

2.2. Measures of investor attention

We create three distinct measures of investor attention, and describe the construction of these measures below.

2.2.1. SEC EDGAR Log File

We measure investor attention to firm-specific news using the SEC EDGAR Log File. This dataset maintains records of over 15 billion online searches between February 2003 and June 2017.[6] We transform this raw data on search queries into CIK–date pairs by counting the total number of searches for a given firm on a given date. Using this CIK–date panel, we compute the abnormal attention paid to a given firm on a given date. This measure is constructed as the difference between the number of EDGAR searches for a given firm-date pair and the average number of EDGAR searches involving the same firm in the preceding three months.

In addition, the log file dataset also contains information on the browsers used to search the EDGAR system. We classify searches originating from iPhones, iPads, Android mobile devices, BlackBerrys, and Internet Explorer Mobile as *mobile device* searches. We count the number of mobile device searches for each CIK–date pair. In addition, we set a dummy variable equal to 1 if a given firm is accessed through a mobile device at least once on a given day, and 0 otherwise. It is important to note, however, that the browser field is not well-populated, and has insignificant coverage starting from 2012. Thus, when studying mobile access, we limit our analysis to the period from February 2003 to December 2011.

[5] In Table A.3, we show a relatively even distribution of 8-K filings across all months of the year even after accounting for the sentiment of the 8-K filing.

[6] The Division of Economic and Risk Analysis (DERA) has compiled information on internet search traffic for EDGAR filings through the SEC's website starting from February 2003. This dataset maintains search records of accessing users' unique Internet Protocol (IP) anonymized addresses, timestamps associated with searches, and the identity of the companies being searched, which are tracked by their CIK values.

2.2.2. Bloomberg's Abnormal Institutional Attention (AIA) measure

Our measure of institutional attention is gathered from Bloomberg. Given that there are only about 320,000 Bloomberg subscriptions worldwide, and annual subscriptions cost approximately $24,000 per machine, these terminals are more likely to be used by institutional investors than retail investors (Ben-Rephael et al., 2017). Bloomberg creates this attention measure by recording the number of times news articles for a particular stock are accessed by users, as well as the number of times users actively search for news regarding a specific stock in a given hour. However, these raw hourly counts or scores are not made available to researchers. Instead, Bloomberg transforms these scores using the following methodology: for any given stock, a value of 1 is assigned to each article read and a value of 10 is assigned for each news search involving said stock. These numbers are aggregated into hourly counts, which are then used to create a numerical attention score each hour by comparing the average hourly count during the previous eight hours to all hourly counts over the previous month for the same stock. A score of 0 is assigned if the rolling average is less than 80% of the hourly counts over the previous 30 days. Similarly, scores of 1, 2, 3, or 4 are assigned if the average is between 80%–90%, 90%–94%, 94%–96%, or over 96% of the previous 30 days' hourly counts, respectively. As a final step, these hourly counts are aggregated up to the daily frequency by taking the maximum of all hourly scores throughout the day.

Due to data limitations, we only have access to this institutional attention measure beginning from February 2010. We gather this institutional attention information for all stocks listed on the Russell 3000 between February 2010 and December 2020. To capture the left tail of the attention distribution (i.e., inattention), we set our abnormal institutional attention (AIA) measure dummy variable to one if the Bloomberg–supplied daily maximum is 0 or 1, and zero otherwise. Thus, our AIA dummy captures the absence of institutional investor attention for any particular stock during any particular day.

2.2.3. Google Trends Search Volume Index (SVI)

We measure retail attention through Google Trends' search volume index. Due to data and access limitations on Google Trends, we construct this retail attention measure for Russell 3000 firms beginning from 2004. Following Da et al. (2011), we scrape data from Google Trends based on the search activity for firms' tickers. The data for each firm ticker is queried on an annual basis and

is reported at a weekly frequency.[7] Retail attention data is matched to firm events based on firm stock tickers and the week of the event. Note that this attention measure is coarser, and therefore possibly not as precise as the investor attention proxies generated through the EDGAR Log File or Bloomberg, both of which are available at a daily frequency.

2.3. Other data sources

We use the CDA/Spectrum 13f Institutional Holdings database from Thomson Reuters to determine the total number of institutional owners in a firm in a given quarter. We identify the number of institutional owners in each firm in the quarter immediately before the firm experiences a salient event.[8]

Finally, we use Compustat Quarterly and the Center for Research in Security Prices (CRSP) to develop various measures of firm-level controls for our regressions. All of our measures are adjusted for inflation and winsorized at the 0.5% tails. A full listing of all the controls we use, along with detailed descriptions of their construction, is provided in the appendix.

3. Calculating abnormal market reactions

In this subsection, we describe the methodology used to calculate abnormal market reactions to firm-specific events.

3.1. Cumulative abnormal returns

The daily abnormal stock return for firm i on day t ($AR_{i,t}$) is defined as the residual estimated from the market model:

$$AR_{i,t} = R_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i R_{m,t}).$$

[7] There are several nuances to the Google Trends data that are important to note. For one, it provides an index of search activity by query category. The index measures the fraction of queries that include the search term in the specified geography in the chosen search window relative to the total number of queries within said window. The maximum value of the index within the specified geography-search window combination is set to 100, and all other reported values on other dates within the search window are relative to this maximum value. Lastly, Google Trends data is cached on a daily basis. Thus, the same request made on two separate days can generate different values. We thus take the average across three iterations of the same request conducted across three separate days. More information about Google Trends data is available on Hal Varian's 2015 primer: http://people.ischool.berkeley.edu/ hal/Papers/2015/primer.pdf.

[8] We use the previous quarter's institutional ownership when institutional ownership for a firm in a particular quarter is missing. When we are unable to identify the number of institutional owners for any firm in the quarter preceding the firm event, the institutional ownership in that firm for that quarter is set to zero.

Here, $R_{i,t}$ is the raw return for firm i on day t, and $R_{m,t}$ is the value-weighted index return of stocks listed on the NYSE, AMEX, and NASDAQ. We estimate the model coefficients, $\hat{\alpha}_i$ and $\hat{\beta}_i$, using a rolling window over a period of 255 days from -91 to -345 calendar days relative to the event date. The event date refers to either the earnings announcement date, the rating change date, or the 8-K filing date. We compute the cumulative abnormal returns ($CAR_{i,t}$) over the three-day window centered on the date of the unscheduled event. Kothari and Warner (2007) show that short-horizon studies, such as ours, are not highly sensitive to an assumption of the cross-sectional or time-series dependence of abnormal returns, or the benchmark model used for computing abnormal returns.

We are also interested in studying the long-run price response to firm-specific announcements. To do so, we define CARs over the window [+2,+61] in trading days relative to the announcement date. Our choice of the post-announcement window covers approximately three calendar months. We adjust the returns by subtracting the returns of a size, book-to-market (B/M), and momentum matching portfolio over the same window. We accomplish this by matching each stock with one of 125 size-B/M-momentum portfolios. These portfolios are constructed using the methodology described in Daniel et al. (1997).

3.2. Cumulative abnormal volume

Investor reaction can also be measured using the trading volume response to firm-specific announcements. Following Llorente et al. (2002), we use daily turnover as a measure of trading volume for individual stocks. A stock's turnover on any given day is defined as the number of shares traded on that day divided by the number of shares outstanding. Due to the non-stationarity of the daily time-series of turnover, we measure the turnover in logs. To avoid the problem of zero daily trading volume, we add a small constant ($C = 2.55 \times 10^{-6}$) to the turnover before taking logs.[9]

We compute the abnormal stock turnover for a given firm on a given event date. We first calculate the difference between the log turnover for a given firm–event date pair and the average turnover for the same firm in the three months preceding the event. Next, we scale this difference by the standard deviation of log turnover for the same firm over the same three-month window preceding the event date. The cumulative abnormal stock turnover is then computed as the sum of the daily abnormal turnover over the three-day window centered on event date t. Our results are unchanged

[9]The value of the constant helps bring the distribution of daily trading volume closer to a normal distribution. See Richardson et al. (1986), Ajinkya and Jain (1989), and Cready and Ramanan (1991) for a detailed explanation.

if we define cumulative abnormal trading volume using the number of shares traded on a given day as a measure of trading volume.

4. Does unscheduled news in December elicit a distracted response?

In this section, we present empirical evidence which suggests that investors are distracted during the winter holiday season. Moreover, we document that these results are robust to selection bias and other similar econometric concerns.

4.1. Price response to unscheduled news events – Univariate analysis

In Panel C of Table 1, we study how the immediate price response to unscheduled news events is affected by the month in which the announcements take place. We study the immediate price response to rating changes through the CAR over the three-day window centered on the date of the rating change announcement (CAR[−1,+1]). Consistent with both Jorion et al. (2005) and Chava et al. (2019), our results suggest that overall, stock prices react strongly immediately to downgrades (−3.08%) but only weakly immediately to upgrades (0.10%). We also find that the mean CAR for rating downgrades announced across all months, except December, is −3.19%. On the other hand, the immediate reaction to downgrades announced in December is −1.80%. In effect, the immediate price response to downgrade announcements in December is approximately 43.6% ($= \frac{-3.19-(-1.80)}{-3.19}$) weaker than the response to downgrades in other months, and this difference is significant at the 1% level. Moreover, our findings suggest that the immediate price response to December upgrades is not economically or statistically different from that to upgrades in other months.

Panel C also shows how the stock price response to 8-K filings differs depending on the month in which the filing occurs. As a preliminary step, we conservatively study the absolute price response in the [−1,+1] window (Abs(CAR[−1,+1])) relative to the 8-K filing date.[10] We find that 8-Ks filed in months other than December generate an absolute immediate return of 4.66% compared to an absolute immediate return of 4.35% for 8-Ks filed in December. This difference of -0.31% is significant at the 1% level. Thus, 8-Ks filed in December generate an absolute immediate price response that is approximately 6.7% (0.31/4.66) weaker than that to 8-Ks filed in other months. We further subset the data to focus on 8-K filings that generated immediate negative and immediate positive price

[10] In later analyses, we construct a sentiment measure for the text in 8-Ks using the words list in Loughran and McDonald (2011).

responses separately. We note a muted price reaction at both ends – the filing of 8-Ks generates relatively weak immediate price reactions to both positive and negative events if they are filed in December.[11]

4.2. Price response to unscheduled news events – Multivariate analysis

In this section, we examine the price response to unscheduled news events in December in a multivariate setting. First, following previous studies of credit ratings (Holthausen and Leftwich, 1986; Chava et al., 2019), we run multivariate regressions separately for upgrades and downgrades. The multivariate setting controls for factors that could affect stock price reactions to rating changes. The regression model that we estimate is:

$$CAR[-1,+1]_{i,t} = \beta_0 + \beta_1 dDecember_{i,t} + \sum \gamma_i EventLevelControls_{i,t} + \sum \omega_i FirmLevelControls_{i,t} + \epsilon_{i,t}, \quad (1)$$

where for any bond issue i, $CAR[-1,+1]_{i,t}$ is the immediate CAR in response to a credit rating change. The main predictor of interest is the indicator variable, *dDecember*. This dummy equals one if the unscheduled news event takes place in December and zero otherwise. The regression specification includes firm fixed effects, which help account for time-invariant firm-specific differences between firms that experience rating changes in December and firms that never do. In addition, the specification also includes Fama-French 12-industry × year-quarter fixed effects to capture any time-varying trends within industries. We cluster robust T-statistics at the firm level. All the control variables used in the regression analysis are described in the appendix.

Panel A of Table 2 reports the results for rating changes. Columns (1)–(2) report results for credit rating downgrades. In Column (1), we find that the immediate reaction to downgrades announced in December is 2.29% weaker than that to downgrades announced in other months (significant at the 5% level). Thus, the immediate response to downgrades in December appears to be approximately 71.8% (2.29/3.19) weaker than that to downgrades in other months.

In Column (2), we analyze the post-announcement drift in response to December downgrades. We find that relative to downgrades occurring in other months, December downgrades generate a negative

[11]Importantly, our approach assumes that positive and negative 8-Ks generate only positive and only negative immediate market reactions, respectively, which does not allow for investor mistakes in the short term. For example, the immediate market reaction to a positive 8-K filing may be negative in the short run before correcting over the longer horizon. Thus, even though we do not identify whether the information contained in the 8-K filings is positive or negative, our approach biases us against finding a December distraction effect.

post-announcement drift that is 3.40% stronger (i.e., more negative). This estimate, significant at the 5% level, suggests that there is some longer-term correction for the immediate muted price reaction. The average long-horizon CAR for downgrades announced in other months is -4.76%. Thus, in terms of economic magnitude, the long-horizon price response for December downgrades is approximately 71.4% (= 3.40/4.76) stronger compared to the long-horizon price response towards downgrades announced in other months. In contrast to the results for December downgrades, we find that December credit rating upgrades do not generate a significantly different immediate-term or long-term price response compared to upgrades announced in other months (Columns (3)–(4)).

Panel B of Table 2 displays analogous results for 8-K filings occurring in December. In Column (1), we study the absolute immediate price response towards 8-K filings, with Abs(CAR[−1,+1]) as the dependent variable. We note that, in absolute terms, 8-Ks filed in December generate an immediate response that is 0.80% weaker than the response to 8-Ks filed in other months. In terms of economic magnitude, December 8-Ks generate an immediate response that is 17.2% (0.80/4.66) weaker than that to non-December 8-Ks.

We further verify our findings above by identifying the "sentiment" of all 8-K filings. We use the words list in Loughran and McDonald (2011) to conduct our sentiment analysis. For each 8-K filing, we calculate the difference between the number of positive words and the number of negative words, and scale this difference by the total number of words in the document. This measure is then sorted into quintiles at an annual frequency, with the lowest (highest) quintiles representing the most negative (most positive) documents. The model we estimate is:

$$CAR[-1,+1]_{i,t} = \beta_0 + \beta_1 dDecember_{i,t} + \beta_2 SentimentMeasure_{i,t} + \beta_3 dDecember_{i,t} \times SentimentMeasure_{i,t} + \sum \gamma_{i,t} Controls_{i,t} + \epsilon_{i,t}, \quad (2)$$

where $dDecember$ is a dummy variable which indicates whether the 8-K filing occurs in December and $SentimentMeasure$ is the sentiment rank measure described above. β_2 captures the slope of the immediate price response to 8-Ks filed in months other than December across different sentiment quintiles, while β_3 captures the differential price reaction for December 8-K filings relative to non-December 8-K filings.

The results presented in Column (2) suggest that the slope of the immediate price response to non-December 8-K filings is positive (0.14%, significant at the 1% level). In addition, we find that the immediate price response to December 8-K filings is muted relative to non-December filings. The

slope is approximately 35.7% (0.05/0.14) *flatter*. Thus, our results suggest that both positive and negative 8-K filings are met with a muted immediate price response when filed in December.

We also compare the post-announcement drift in response to 8-Ks filed in December relative to 8-Ks filed in other months and report the results in Column (3). We note that non-December filings generate a positive drift slope of 0.11%. In comparison, December 8-Ks generate a slope that is 90.9% (0.10/0.11) *steeper*, which suggests a longer-horizon correction to the immediate underreaction. Overall, the results in Panel B indicate that 8-Ks filed in December are met with a muted immediate price response that is corrected over the longer horizon.

We conduct a couple of specification checks to ensure the robustness of these findings for 8-K filings. SEC regulations mandate the filing of a Form 8-K within four business days of the occurrence of a material event. Thus, to also account for 8-Ks that are not filed immediately after material events, we conservatively study the price response in longer immediate horizon windows. The results of this robustness analysis are presented in Table A.4, Panel A. Further, to ensure that our results are not driven by specific 8-K filing sections, we include filing section fixed effects in our specifications, and find that our inferences are unchanged. The results of this robustness analysis are presented in Table A.4, Panel B.

4.3. Robustness checks

In this section, we test the robustness of our results presented in Section 4.2 to a battery of specification checks.

4.3.1. Addressing sample selection concerns

A significant concern is sample selection bias. It is possible that firm characteristics unobservable to the econometrician could non-randomly split the sample into two groups: one subsample containing firms that experience unscheduled news events in December and the other subsample containing firms that never experience unscheduled events in December. Michaely et al. (2016) explore such selection bias issues when studying the underreaction to salient firm news, such as stock repurchases, equity offerings, mergers, dividend changes, and earnings announcements, if they occur on Friday. However, all these events are firm-generated, which allows firms to strategically time the release of such information, and influence its flow. On the other hand, firms have limited control in timing the release of either third-party generated rating downgrades or 8-K information.

Still, to address any potential selection concerns, we follow Michaely et al. (2016) and split the firms in our sample into two groups: those firms experiencing at least one unscheduled event in December (so-called December *announcer* firms) and those firms that never experience any such events in December. We do this separately for our sample of rating downgrades and 8-K filings. In econometric terms, we are attempting to separate out the December *announcement* effect from the effect of simply being a December *announcer* firm with regards to both types of unscheduled news events.

The results of this analysis are presented in Table 3. In Panel A, we study rating downgrades. In Column (1) of Panel A, we address concerns about the non-comparability of firms experiencing downgrades in December to firms that never experience downgrades in December. We re-run our baseline ratings specification on the subsample of firms that experience at least one downgrade event in December at any time over our sample period, and find that our coefficient estimate is unaffected.

In Column (2), we explore whether firms experiencing December downgrades also experience a muted immediate stock price reaction when downgraded in other months of the year. First, we set an indicator variable, *dDecAnnouncer*, that equals 1 for firms that experience rating downgrades in December at any point in our main sample, and equals 0 otherwise. We then subset the sample to only include rating downgrades that occur in all months except December. For this specification, we do not include firm fixed effects since they are perfectly collinear with the *dDecAnnouncer* indicator variable. We find no evidence suggesting that such *December announcer* firms generate generally weak immediate price responses relative to non–December announcers in the sample of non-December rating downgrades.

Finally, in Column (3), we study the full sample of rating downgrades and include both the December downgrade indicator variable and the *dDecAnnouncer* indicator variable simultaneously. We find that controlling for the characteristic of being a December announcer does not subsume the significance of the December downgrade announcement dummy. We thus document that the effect of the December announcement is distinct from the effect of simply being a December announcer. In Panel B, we document similar evidence for our sample of 8-K filing events.

4.3.2. Matched-sample analysis

We conduct a matched-sample analysis in order to mitigate any concerns that firms experiencing unscheduled events in December are different on some observable firm- or event-specific characteristics

from those experiencing the same in other months of the year. Following Rosenbaum and Rubin (1983), we use a propensity-score matching method that allows for matching on multiple dimensions. Firms experiencing unscheduled events in December are matched to those experiencing the same types of events in other months based on several observable firm- and event-specific characteristics. These matching characteristics include important determinants of CARs such as the magnitude of the downgrade (when matching December downgrades to non-December downgrades), the number of 8-K filings in the recent past (when matching December 8-K filings to non-December 8-K filings), and several firm-level controls, such as leverage, size, and firm performance in the month leading up to the unscheduled event. The complete list of matching variables is provided in Table A.5.

We first estimate a firm's propensity of experiencing a rating downgrade in December using a probit model. For each firm experiencing a downgrade in December, we use its propensity score to identify a firm experiencing a downgrade in other months with the closest propensity (within a 2% bound) using the nearest-neighborhood caliper method described in Cochran and Rubin (1973). In order to increase the sample of matched pairs, we match each firm experiencing a downgrade in December (treated group) to ten firms experiencing downgrades in other months (control group). The matching is carried out with replacement. We follow a similar approach when matching December 8-K filings to filings occurring in other months.

In Table A.5, we highlight the efficacy of our matching process. We report the univariate means of all the observable firm- and event-specific characteristics for the full, unmatched sample and the matched sample. In the unmatched samples of both rating downgrades and 8-K filings, we find that there are significant differences between the observable characteristics of firms experiencing unscheduled news events in December (i.e. *treated* firms) and firms experiencing unscheduled news events in other months (i.e., *control* firms). However, the propensity-score matching process significantly reduces the observable differences between the treated and control groups.

We present our analysis using the matched sample in Table 4. Columns (1)–(2) report the regression results for a matched sample of rating downgrades. We use all matching characteristics listed in Table A.5 as controls to account for any possible remaining differences along these observable dimensions. We find that the immediate price response to downgrades released in December is 2.24% weaker relative to downgrades announced in other months. We also find that December 8-K filings experience a distracted response even when matched to comparable non-December 8-K filings

(Columns (3)–(4)). Finally, our inferences for the post-announcement drift in response to both types of unscheduled events remain consistent in the matched sample. Overall, we find that our results are robust to the matched-sample analysis.

4.3.3. Additional robustness checks

In this section, we subject our baseline findings in Table 2 to alternative clustering levels and report our results in Table A.6. Our baseline specifications involve clustering standard errors at the firm level. In Column (1) of Table A.6, we show that our results for the muted immediate price response to December downgrades are robust to double clustering standard errors at the firm and rating change event date levels. Moreover, since our paper documents a time effect, we test the robustness of our December rating downgrades results to double clustering along the firm and month dimensions to account for dependencies in the cross-section and report our results in Column (2). Our inferences are unaffected by this alternative specification. Similarly, we note that our findings for 8-K filings are unaffected by these alternative clustering levels.

In Table A.7, we rule out alternative explanations that can potentially explain the December distraction effect. In Columns (1)–(4), we show that information overload (as documented in Hirshleifer et al. (2009)) cannot explain our findings regarding the muted reaction to December downgrade announcements and December 8-K filings. In Columns (5)–(8), we show that our results are not driven by investors being distracted by large aggregate market movements, as described in Kottimukkalur (2019).

4.4. Is there an associated volume underreaction?

In this section, we explore whether the weak immediate stock price reaction to unscheduled events announced in December is accompanied by a weak immediate volume reaction. We replace the dependent variable in Equation (1) with the cumulative abnormal stock turnover.

Our results regarding the abnormal volume reaction are presented in Table 5. Columns (1) and (2) present the results for the full sample of rating downgrades. In Column (1), the dependent variable is the cumulative abnormal stock turnover. The coefficient on *dDecember* suggests that rating downgrades in December generate weaker stock turnover responses than downgrades occurring in other months. The inference remains the same when the dependent variable is the cumulative abnormal stock trading volume (Column (2)). We also find a muted volume reaction for December

8-K filings relative to non-December 8-K filings (Columns (3) and (4)).

4.5. Placebo test: December distraction effect for scheduled news?

It is possible that investors, especially institutional investors, take scheduled firm-specific news releases into account when making December travel plans. If this is the case, then the December holiday season should not affect investor attention, and thus the price response, to earnings news released in December.

We use the Institutional Brokers' Estimate System (IBES) database and compute a firm's quarterly earnings surprise as $ES_{i,t} = \frac{EPS_{i,t} - Forecast(EPS)_{i,t}}{P_{i,t}}$, where $EPS_{i,t}$ is the announced earnings per share as reported by IBES, $Forecast(EPS_{i,t})$ is the consensus earnings per share forecast computed as the median of the most recent forecasts from individual analysts using the IBES detail tape, and $P_{i,t}$ is the stock price at the end of the corresponding quarter.[12] Hereafter, we refer to earnings announcements that meet or beat the earnings forecast as *positive* earnings surprises and earnings announcements that fail to meet the earnings forecast as *negative* earnings surprises. Consistent with the literature, we find that positive earnings surprises are more common than negative ones for one-quarter–ahead forecasts (Burgstahler and Dichev, 1997; Bartov et al., 2002).

Table 6 presents summary statistics for 254,610 unique earnings announcements with valid earnings surprises between January 1996 and December 2020. The distribution of earnings announcements across different months of the year displayed in Panel A indicates that earnings announcements are much less likely to occur in months coinciding with calendar quarter ends; only about 7.9% of all earnings announcements occur in March, June, September, and December, with the remaining 92.1% occurring in other months of the year.

The distribution of earnings announcements across calendar months suggests that selection issues are important in studying earnings announcements, since firms can endogenously select when to report earnings news (Michaely et al., 2016). Only 1.4% of earnings news is released in December, making selection a major concern for our analysis of the December effect. Thus, for every firm in our sample, we count the number of earnings announcements released in December during our sample

[12] We only include analyst forecasts issued or reviewed in the 90 days prior to the earnings announcement date to exclude the effects of stale forecasts on the consensus (median) forecast. While $EPS_{i,t}$ and $P_{i,t}$ are unadjusted for stock splits, we adjust $Forecast(EPS_{i,t})$ for any stock splits and stock dividends that occur in the 90 days prior to the earnings announcement date. Also, if an analyst makes multiple forecasts for any firm during that period, we only consider the most recent forecast.

period. We then group firms into buckets, where the buckets are created based on the percentage of firms' earnings news released in December. The results are presented in Panel B. We find that 10,409 firms in our data never release any earnings news in December. In contrast, only 779 firms release earnings news at least once in December in our data. In Panel C, we study the distribution of earnings announcements across months for the 779 firms that release earnings news at least once in December. Unlike the distribution displayed in Panel A, we find that earnings announcements in months corresponding to calendar quarter ends are relatively common for firms that report earnings in December. Moreover, the distribution in Panel C is relatively more even than the one displayed in Panel A. Thus, from here on, we restrict our analysis to these *December announcer* firms – i.e., we only consider the 779 firms that announce earnings at least once in December when studying the effect of the holiday season on the price reaction to earnings news.

We first sort the standardized unexpected earnings (earnings surprises) into quintiles at the calendar quarter frequency. We then estimate the following multivariate specification:

$$\begin{aligned} CAR[-1,+1]_{i,t} = \beta_0 + \beta_1 dDecember_{i,t} + \beta_2 dTopSUEQuintile_{i,t} \\ + \beta_3 dDecember_{i,t} \times dTopSUEQuintile_{i,t} + \sum \gamma_{i,t} Controls_{i,t} + \epsilon_{i,t}, \end{aligned} \tag{3}$$

where *dDecember* is an indicator variable that equals one if the earnings announcement takes place in December, and zero otherwise and $CAR[-1,+1]_{i,t}$ is the abnormal stock return for firm i announcing earnings at time t. The sample only includes observations from the top and bottom quintiles of the earnings surprise distribution. Thus, $dTopSUEQuintile$ takes the value one if the surprise associated with an earnings announcement falls in the top quintile, and zero otherwise. In this specification, β_2 captures the return to good news (top quintile) relative to bad news (bottom quintile) for non-December earnings announcements, while β_3 captures the differential reaction for December earnings news relative to non-December earnings news. Following DellaVigna and Pollet (2009), our set of control variables includes indicators for the year of the earnings announcement, indicators for the day of the week of the earnings announcement, the quintile of the firm's market capitalization (size), the quintile for the firm's book-to-market ratio, and the standard deviation of earnings in the previous 16 quarters. Standard errors are clustered at the firm level.

The results of the analysis are presented in Panel D of Table 6. Without controls (Column (1)), the top-to-bottom average return for non-December announcements is 8.49%, significant at the 1% level. Compared to this value, the top-to-bottom return for December announcements is 0.20% weaker,

and this estimate is not statistically significant. The results in Column (1) indicate that the short-run response to December earnings announcements is insignificantly different from the response to non-December announcements. The inference slope remains insignificant in the presence of controls (Column (2)). Column (3) presents the results for all earnings surprise quintiles. In the absence of controls, we find that earnings announcements made in December generate an insignificantly different response relative to non-December earnings news. The slope remains insignificant in the presence of controls (Column (4)). Thus, we find no evidence of a muted immediate price response to earnings news released in December.[13]

5. What factors influence the muted response towards unscheduled news in December?

In this section, we study the factors driving the underreaction to unscheduled firm-specific news in December.

5.1. Are investors distracted in December?

In this subsection, we study the attention of investors towards firms and different types of firm news. We proxy for investor attention through three data sources. The first dataset we use is the SEC EDGAR Log File, which tracks Internet searches on the SEC's website for firms' EDGAR filings. The second data source is the abnormal institutional attention dataset provided by Bloomberg. Lastly, we proxy for retail attention towards firms using data from Google Trends. The results of our analysis are presented in Table 7.

In Panel A, we present results documenting general trends of investor (in)attention in December. In Columns (1) and (2), we proxy investor attention using the SEC EDGAR Log File. We track the daily search activity across different months for all the firms in this dataset. We only consider firms with valid Fama French 12-industry codes. We estimate a general form specification with a firm's EDGAR search activity as the dependent variable. The key independent variable is an indicator variable that equals 1 if the firm's EDGAR search occurs in December, and 0 otherwise.

In Column (1), the dependent variable is abnormal attention, as defined in Section 2.2.1. Our findings suggest that abnormal attention is lower in December. Moreover, in Column (2), we study

[13]We also run tests on the full sample of earnings announcements, while also accounting for selection concerns as described in Michaely et al. (2016). We continue to find that December earnings news does not generate a significantly different immediate price response relative to comparable news released in other months once we account for selection issues. These findings are presented in Table A.8.

mobile access in December.[14] We find that incidences of mobile access are significantly greater in December relative to other months. The mean for the mobile access dummy is 0.019 in non-December months. Thus, our estimate suggests that incidences of mobile access are 10.5% (0.002/0.019) higher in December relative to other months. This finding is consistent with investors being distracted by extensive travel in December, and possibly relying on remote access through mobile phones to firm news released during the holiday season.

Next, we examine abnormal institutional attention through Bloomberg. Specifically, we study investor attention towards all stocks listed on the Russell 3000. We create an indicator variable, *LowAttention*, that equals 1 if institutional investors are inattentive towards a particular firm on a given day, and 0 otherwise. The construction of this variable is described in Section 2.2.2. We estimate a simple linear probability model with *LowAttention* as the dependent variable, and a dummy independent variable indicating whether the date occurs in December. Our findings suggest that the probability of low attention on the part of sophisticated market participants is higher in December relative to other months (Column (3)). Lastly, we track retail attention towards Russell 3000 firms through Google Trends and report our results in Column (4). We find that even retail attention towards Russell 3000 firms is considerably lower in December.

In Panel B, we study December inattention towards firm news. In Columns (1)–(3), we proxy investor attention through the SEC EDGAR Log File. In Column (1), we study rating downgrades, and find that December downgrades are faced with significantly lower EDGAR Log File attention than non-December downgrades. Similarly, December 8-K filings are faced with significantly lower attention than non-December filings (Column (2)). Our findings in Column (3) suggest that investor attention towards earnings news released in December is not significantly different from attention to news released in other months, especially once we account for selection issues.

In Columns (4)–(6), we proxy institutional attention through Bloomberg. The results suggest that there is a higher likelihood of low attention only towards unscheduled news events such as rating downgrades (Column (4)) and 8-K filings (Column (5)), but not to scheduled earnings announcements (Column (6)). Our inferences remain unchanged when we study retail attention through Google Trends (Columns (7)–(9)).

[14] As explained in Section 2, searches originating from iPhones, iPads, Android mobile devices, Blackberrys, and Internet Explorer Mobile are defined as mobile device searches. Given issues of data coverage for this variable, we limit our analysis to the years 2003–2011.

Taken together, these findings suggest that only unscheduled firm-specific news experiences low investor attention when such events occur in December. As a result, unscheduled news in December is met with a muted immediate price and volume reaction, which gets corrected in the longer horizon. On the other hand, scheduled firm news does not suffer from low attention in December, and is thus not susceptible to a muted market reaction in December. This is consistent with Ben-Rephael et al. (2017), who suggest that the price drifts following earnings are concentrated in events where institutional investors fail to pay sufficient attention.

5.2. Does investor inattention in December impact the price response to unscheduled news?

In this section, we directly examine the impact of investor inattention on the immediate price response to firm news. We proxy investor attention through the logged three-day average of the number of times a specific firm is accessed through the SEC EDGAR Log File centered on the date of the rating downgrade. Next, we group the sample of rating downgrades into quintiles based on the attention paid to the rating change announcement. We identify downgrades falling in the top quintile of the attention distribution as "high-attention" announcements, and the remaining as "low-attention" announcements. We then run our baseline specification separately for the low-attention and high-attention samples. We follow a similar approach for the analysis of 8-K filings. The results of this analysis are presented in Table 8.

In Columns (1)–(3), we study the impact of attention on the immediate price response to rating downgrades. Column (1) shows that we continue to find evidence of the December distraction effect in the stock price response to credit rating downgrades even in the subsample of downgrades for which we have attention information. Column (2) shows that the December distraction effect is particularly strong for downgrades associated with low investor attention. However, downgrades associated with high investor attention do not experience a muted immediate response (Column (3)).

In Columns (4)–(6), we study the impact of attention on the immediate price response to 8-K filings. In Column (5), we find that the December distraction effect is particularly strong for 8-K filings associated with low investor attention (indeed, the coefficient on the interaction term, $dDecember \times Sentiment$, is negative and strongly significant). In contrast, December 8-K filings associated with high investor attention are not faced with a muted immediate price reaction.

Overall, our evidence suggests that the muted immediate price response to unscheduled news in December is moderated by the level of investor attention.

5.3. Are specific weeks responsible for driving the December effect?

In this subsection, we attempt to narrow down the specific weeks that drive the December effect. Since the Christmas holidays occur towards the end of the month, the average investor typically schedules any travel plans in the latter half of the month. This implies that unscheduled firm events announced in the first half of the month should be less prone to investor inattention and that the majority of the holiday season distraction is driven by the latter half of the month. We test this hypothesis by replacing the December indicator variable in our baseline specifications with two separate indicator variables, $dDecember\_1stHalf$ and $dDecember\_2ndHalf$. The former identifies whether the unscheduled event occurs between December 1 and December 15, which is our proxy for the first half of December. Similarly, the latter identifies whether the unscheduled event occurs between December 16 and December 31, and serves as a crude proxy for the latter half of December.

The results are presented in Table 9. In Column (1), we proxy attention through Internet searches on the SEC's website for all the firms in the SEC EDGAR Log File dataset with non-missing Fama French 12-industry codes. We find that investor attention is lower in both the first and second half of December. However, our estimates suggest that inattention is higher in the second half of December. In Column (2), we study institutional attention towards Russell 3000 firms through Bloomberg, and find that institutional attention is much lower in the second half of December. Lastly, in Column (3), we proxy retail attention towards Russell 3000 firms through Google Trends, and find that inattention is greater in the second half of December.

In Columns (4) and (5), we study the immediate price response to unscheduled news. The results in Column (4) show that downgrades released after December 15 generate an immediate reaction that is 2.39% weaker relative to downgrades announced in other months (significant at the 1% level). However, downgrades released in the first half of December do not appear to generate a weak immediate response relative to other months. In Column (5), we find that the immediate absolute price reaction to 8-K filings is 0.97% weaker (significant at the 1% level) if they occur in the latter half of December, but only 0.66% weaker if they occur in the first half of December. These results are consistent with investors being more distracted with holiday-related travel during the second half of December.

5.4. Role of firm prominence

In this subsection, we examine whether all firms are equally susceptible to investor distraction in December. It is possible that smaller and less prominent firms receive less attention from investors, especially in periods of investor distraction. We classify a firm as *prominent* if its market value, analyst following, or institutional ownership falls in the top quintile of their respective distributions. We then run our baseline specification separately for non-prominent and prominent firms. Our findings are presented in Table 10.

In Panel A, we report our results for credit rating downgrades. In Columns (1)–(2), we present our findings for cross-sectional cuts based on the announcing firm's market capitalization. We find that non-prominent firms, as proxied by market capitalization, which experience downgrades in December generate an immediate response that is 3.48% weaker relative to similar firms downgraded in other months (Column (1)). In contrast, prominent firms downgraded in December do not appear to experience a muted immediate price response (Column (2)). We document consistent inferences when we define firm prominence in terms of analyst following (Columns (3)–(4)) and institutional ownership (Columns (5)–(6)).

In Panel B, we examine the impact of firm prominence on the immediate price response to December 8-K filings. In Columns (1)–(2), Columns (3)–(4), and Columns (5)–(6), we define firm prominence through the announcing firm's market capitalization, analyst following, and institutional ownership, respectively. We find that when firm prominence is defined in terms of market value or institutional ownership, non-prominent firms experience a muted immediate reaction for 8-Ks filed in December (as determined by the significance of the interaction term between the December indicator and the 8-K filing sentiment measure). On the other hand, prominent firms do not experience a muted immediate price response.

Overall, our results suggest that the muted immediate response to unscheduled news in December is primarily driven by the announcements of less prominent firms.

6. Investor inattention in December versus summer

In this section, we examine whether the December effect documented in this paper is distinct from the summer effect documented in Hong and Yu (2009). To do so, we replicate the analysis conducted in Table 7, but replace the December dummy with a summer dummy that indicates whether the

event date occurs in the summer. We classify the months of June, July, and August as summer months.

In Panel A of Table 11, we study general investor attention in the summer. Using the SEC EDGAR Log File, we note that abnormal attention appears to be lower in the summer. Moreover, through Bloomberg data for Russell 3000 firms, we document that institutional investors are more likely to be inattentive in summer months relative to other months of the year. Lastly, using Google Trends data for Russell 3000 firms, we find that retail attention in the summer is not significantly different from that in other months. Taken together, our findings in Panel A provide evidence suggesting that investor attention is markedly lower in the summer, consistent with the findings in Hong and Yu (2009).

Next, we directly compare the *magnitude of inattention* in December to that in the three summer months by including the December indicator and the summer indicator variables in the same specification. The findings presented in Panel B show that, across all three datasets, investor attention in December and the summer is significantly lower compared to that in the other months of the year. However, the magnitude of the December dummy is significantly larger than the magnitude of the summer dummy. Moreover, F-statistics of equality reject the null hypothesis that the coefficients on the two dummy variables are equal. Thus, we conclude that while investor attention is significantly lower in both December and the summer, the magnitude of inattention is significantly larger in December.

In Panel C, we examine the attention paid to firm news released in the summer. In Column (1), Column (2), and Column (3), we proxy attention through the SEC EDGAR Log file towards rating downgrades, 8-K filings, and earnings announcements, respectively. For each of these events, we find no evidence of lower attention in the summer compared to the other months of the year. Our inferences remain unchanged when we proxy attention through Bloomberg (Columns (4)–(6)) or Google Trends (Columns (7)–(9)). Consistently, in Panel D, we find no evidence of a muted immediate price and volume reaction to unscheduled news released in the summer months.

7. Conclusion

In this paper, we present evidence of investor inattention during the December holiday season, which specifically affects the stock market reaction to unscheduled firm news events. Using various

proxies for institutional and retail investor attention, we find that investors pay limited attention to unscheduled credit rating downgrades and 8-K filings if these events occur in December. On the other hand, earnings announcements, the dates of which are known in advance, are not faced with low attention during the December holiday season.

Consistent with limited attention towards unscheduled news in December, credit rating downgrade announcements and 8-K filings in December generate a relatively weak immediate price and volume response, which is then corrected over the longer horizon. Given that earnings news is not faced with low investor attention during the holiday season, this information does not generate a differential stock market response if released in December. Further, the muted stock market response to unscheduled firm-specific news in December is mainly driven by news releases in the latter half of December, during the peak of the holiday season. Moreover, our findings suggest that prominent firms, as proxied by size, analyst following, or institutional ownership, are less susceptible to the December distraction effect. Taken together, our findings suggest that investors pay limited attention to unscheduled, but salient, firm-specific news in December.

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Table 1: Unscheduled firm news announcements – Summary statistics

This table reports descriptive statistics of credit rating change announcements and 8-K filings indicating the occurrence of material events. The rating events sample consists of 5,912 downgrades and 3,284 upgrades on taxable corporate bonds issued by U.S. firms during the period from January 1996 to December 2020. The 8-K sample consists of 870,430 filings by U.S. firms during the period from January 1996 to December 2020. Panel A displays the distribution of rating events across months of the year, while Panel B displays the distribution of 8-K filings across months of the year. In Panel C, we study the stock price reaction to rating events and 8-K filings occurring in December relative to rating events and 8-K filings occurring in other months, respectively. The average immediate price reaction to the unscheduled firm events is measured using CAR[−1,+1]. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Distribution of credit rating changes by month

	Downgrades			Upgrades		
	Count	%	Avg(Δ Notches)	Count	%	Avg(Δ Notches)
January	429	7.26	−1.59	216	6.58	1.13
February	513	8.68	−1.61	258	7.86	1.19
March	608	10.28	−1.53	356	10.84	1.31
April	524	8.86	−1.68	310	9.44	1.20
May	489	8.27	−1.49	342	10.41	1.20
June	507	8.58	−1.56	312	9.50	1.25
July	425	7.19	−1.64	241	7.34	1.17
August	437	7.39	−1.49	252	7.67	1.24
September	385	6.51	−1.32	259	7.89	1.18
October	577	9.76	−1.62	256	7.83	1.23
November	543	9.18	−1.47	251	7.64	1.19
December	475	8.03	−1.45	231	7.00	1.16
# Events	5,912			3,284		

Panel B: Distribution of 8-K filings by month

	Overall		By filing section type (%)								
	Count	%	Sec 1	Sec 2	Sec 3	Sec 4	Sec 5	Sec 6	Sec 7	Sec 8	Sec 9
January	66,600	7.65	7.36	7.69	7.37	5.45	7.60	8.00	7.35	8.13	7.18
February	80,190	9.21	7.99	11.07	7.19	6.32	9.10	16.00	8.76	8.13	8.95
March	70,941	8.15	9.17	6.14	9.01	11.93	9.02	12.00	8.10	8.48	9.05
April	79,681	9.15	7.66	10.45	7.94	11.21	8.14	12.00	9.25	8.32	9.83
May	97,829	11.24	9.01	11.08	9.19	11.01	14.54	0.00	11.21	9.31	9.58
June	61,094	7.02	8.64	3.01	8.55	10.84	9.67	8.00	6.79	8.42	6.78
July	74,039	8.51	7.20	10.73	6.79	8.10	6.16	4.00	8.43	8.27	8.88
August	77,189	8.87	7.84	11.03	8.74	7.51	6.70	12.00	8.78	8.00	9.08
September	53,364	6.13	8.03	2.95	8.32	6.69	6.37	4.00	7.32	7.69	6.52
October	75,409	8.66	8.33	11.60	7.80	7.22	6.51	4.00	8.16	8.52	8.93
November	76,283	8.76	8.38	10.77	9.15	7.52	7.28	12.00	9.71	8.21	8.88
December	57,811	6.64	10.39	3.48	9.92	6.20	8.92	8.00	6.15	8.50	6.35
# Filings	870,430		116,930	300,143	26,009	10,038	171,995	25	159,374	244,169	6,918

Panel C: Difference in CAR response to unscheduled firm news in December

	Outcome variable (1)	Overall (2)	December (3)	Other months (4)	Difference (3)−(4)
Rating changes					
Downgrades	CAR[−1,+1]	-3.08	-1.80	-3.19	1.39***
Upgrades	CAR[−1,+1]	0.10	0.39	0.08	0.31
8-K filings					
All filings	Abs(CAR[−1,+1])	4.64	4.35	4.66	-0.31***
Negative filings	CAR[−1,+1]	-4.56	-4.18	-4.59	0.41***
Positive filings	CAR[−1,+1]	4.72	4.53	4.74	-0.20***

Table 2: Stock price reaction to unscheduled news released in December

This table reports results for the differential immediate and long-run stock price response to unscheduled news released in December. Panel A of this table reports the results of stock price reactions to credit rating changes. Columns (1)–(2) present the results for rating downgrades, whereas Columns (3)–(4) present the results for rating upgrades. Columns (1) and (3) report the immediate horizon results, with CAR[−1,+1] as the dependent variable. Columns (2) and (4) report the long-run results, with CAR[+2,+61] as the dependent variable.

Panel B reports results for the stock price reactions to 8-K filings. Column (1) reports results for the absolute immediate price response to 8-K filings, with Abs(CAR[−1,+1]) as the dependent variable. Column (2) (Column (3)) reports results for the immediate (long-horizon) price response to 8-K filings, with CAR[−1,+1] (CAR[+2,+61]) as the dependent variable.

All specifications include firm and Fama French 12-industry × year-quarter fixed effects. All the variables are defined in the appendix. T-statistics, clustered at the firm level, are displayed in parentheses. *, ** and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: December Effect in the immediate and long-run price response to credit rating changes

	Downgrades		Upgrades	
	(1)	(2)	(3)	(4)
Depvar:	CAR[−1,+1]	CAR[+2,+61]	CAR[−1,+1]	CAR[+2,+61]
dDecember	2.29**	-3.40**	0.02	0.96
	(2.41)	(-2.26)	(0.04)	(0.72)
Observations	5,912	5,274	3,284	2,898
Adjusted R^2	0.15	0.19	0.22	0.17
Firm-level controls	✓	✓	✓	✓
Rating-level controls	✓	✓	✓	✓
Fixed effects	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*

Panel B: December Effect in the immediate and long-run price response to 8-K filings

	(1)	(2)	(3)
Depvar:	Abs(CAR[−1,+1])	CAR[−1,+1]	CAR[+2,+61]
dDecember	-0.80***	0.52***	0.67***
	(-27.59)	(7.45)	(3.21)
Sentiment Measure		0.14***	0.11**
		(22.42)	(2.57)
dDecember × Sentiment Measure		-0.05***	0.10**
		(-2.79)	(2.18)
Observations	870,430	870,430	701,736
Adj. R^2	0.21	0.02	0.13
Firm-level controls	✓	✓	✓
8-K–level controls	✓	✓	✓
Fixed effects	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*

Table 3: Price response to unscheduled news released in December – Addressing selection concerns

This table reports results addressing concerns of potential selection bias for the baseline results presented in Table 2. Panel A reports results for rating downgrades, while Panel B reports results for 8-K filings. In both panels, the dependent variable is CAR[−1,+1]. *dDecember* is an indicator variable that equals one for announcements made in December and zero otherwise. *dDecAnnouncer* is an indicator that equals one for firms that experienced at least one unscheduled announcement in December during the sample period and zero otherwise. This indicator is defined separately for the sample of rating downgrades and the sample of 8-K filings. Column (1) of both panels includes firm and industry × year-quarter fixed effects. Columns (2)–(3) of both panels include industry × year-quarter fixed effects. Robust T-statistics, clustered at the firm level, are displayed in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Rating Downgrades

	December Announcers Subsample	January-November Subsample	Full Sample
Depvar: CAR[−1,+1]	(1)	(2)	(3)
dDecember	2.45**		2.16**
	(1.96)		(2.33)
dDecAnnouncer		0.66	0.89*
		(1.43)	(1.88)
Observations	3,024	5,437	5,912
Adjusted R^2	0.13	0.12	0.11
Rating-level controls	✓	✓	✓
Firm-level controls	✓	✓	✓
Fixed Effects	*F*,*I*×*Y*-*Q*	*I*×*Y*-*Q*	*I*×*Y*-*Q*

Panel B: 8-K Filings

	December Announcers Subsample	January-November Subsample	Full Sample
Depvar: CAR[−1,+1]	(1)	(2)	(3)
dDecember	0.52***		0.51***
	(7.35)		(7.34)
Sentiment Measure	0.14***	0.14***	0.14***
	(22.28)	(3.78)	(3.84)
dDecember × Sentiment Measure	-0.06***		-0.05***
	(-2.83)		(-2.59)
dDecAnnouncer		-0.14	-0.15
		(-1.11)	(-1.14)
dDecAnnouncer × Sentiment Measure		-0.01	-0.01
		(-0.14)	(-0.14)
Observations	838,526	812,619	870,430
Adjusted R^2	0.02	0.01	0.01
8-K–level controls	✓	✓	✓
Firm-level controls	✓	✓	✓
Fixed Effects	*F*,*I*×*Y*-*Q*	*I*×*Y*-*Q*	*I*×*Y*-*Q*

Table 4: Price response to unscheduled news released in December – Robustness to matched sample analysis

This table reports results documenting the robustness of the baseline results presented in Table 2 to matched-sample analysis. Columns (1)–(2) report results of stock price reactions to credit rating downgrades in a 1:10 propensity-score matched sample with replacement. In Column (1) (Column (2)), firms downgraded in December are matched to firms downgraded exclusively in other months, and the dependent variable is CAR[−1,+1] (CAR[+2,+61]). Columns (3)–(5) report results of stock price reactions to 8-K filings in a 1:10 propensity score–matched sample with replacement. In Columns (3)–(5), firms with 8-K filings occurring in December are matched to firms with 8-K filings occurring exclusively in other months of the year. The dependent variable in Column (3), Column (4), and Column (5) is Abs(CAR[−1, +1]), CAR[−1, +1], and CAR[+2,+61], respectively. All the variables are defined in the appendix. All columns include firm and industry × year-quarter fixed effects. Robust T-statistics, clustered at the firm level, are displayed in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Rating downgrades		8-K filings		
	(1)	(2)	(3)	(4)	(5)
Depvar:	CAR[−1,+1]	CAR[+2,+61]	Abs(CAR[−1,+1])	CAR[−1,+1]	CAR[+2,+61]
dDecember	2.24**	-3.97**	-0.81***	0.46***	0.63*
	(2.38)	(-2.45)	(-25.50)	(7.43)	(1.77)
Sentiment Measure (SM)				0.20***	0.11**
				(11.63)	(2.21)
dDecember × SM				-0.11***	0.11**
				(-2.71)	(2.01)
Observations	3,444	2,854	460,258	460,258	376,625
Adjusted R^2	0.08	0.18	0.22	0.08	0.13
Firm-level controls	✓	✓	✓	✓	✓
Rating-level controls	✓	✓			
8-K–level controls			✓	✓	✓
Fixed effects	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*

Table 5: Volume reaction to unscheduled news released in December

This table reports results of the immediate volume reaction to unscheduled news events. Columns (1) and (2) present the results of rating downgrade announcements, whereas Columns (3) and (4) present the results of 8-K filings. In the regression results reported in Columns (1) and (3), the dependent variable is the cumulative normalized abnormal stock turnover in response to the unscheduled event. In the regression results reported in Columns (2) and (4), the dependent variable is the cumulative normalized abnormal volume in response to the unscheduled event. All specifications include firm and industry × year-quarter fixed effects. The construction of all variables is explained in the appendix. Robust T-statistics, clustered at the firm level, are displayed in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Rating downgrades		8-K filings	
	(1)	(2)	(3)	(4)
Depvar:	CATO[−1,+1]	CAV[−1,+1]	CATO[−1,+1]	CAV[−1,+1]
dDecember	-0.71**	-0.69**	-0.42***	-0.42***
	(-2.26)	(-2.21)	(-16.24)	(-16.30)
Observations	5,892	5,892	870,138	870,138
Adjusted R^2	0.28	0.28	0.06	0.06
Firm-level controls	✓	✓	✓	✓
Rating-level controls	✓	✓		
8-K–level controls			✓	✓
Fixed effects	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*

Table 6: Placebo test – Is there a muted price reaction to scheduled earnings news released in December?

This table reports the descriptive statistics of earnings announcements and the results for the immediate stock price reaction to these announcements. The sample consists of all earnings announcements between January 1996 and December 2020. Panel A displays the distribution of earnings announcements across months of the year. Panel B documents the issue of firms self-selecting to report earnings news in December. In this panel, firms are grouped into different buckets on the basis of the percentage of their earnings news released in December. Panel C displays the distribution of earnings announcements across months of the year for firms that announce earnings at least once in December. Panel D reports the results of stock price reactions to earnings announcements. The sample is restricted to firms that have released earnings news in December at least once in the time sample. Columns (1) and (2) present the results of earnings announcements with earnings surprises that fall in the lowest quintile (most negative earnings surprises) and highest quintile (most positive earnings surprises). Columns (3) and (4) present the results of all quintiles of earnings announcements. The dependent variable is CAR[−1,+1]. Robust T-statistics, clustered at the firm level, are displayed in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Distribution of earnings announcements by month

	All	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Number	254,610	22,209	26,139	9,305	36,934	27,393	3,803	37,162	24,874	3,444	36,365	23,367	3,615
Fraction	100	8.72	10.27	3.65	14.51	10.76	1.49	14.60	9.77	1.35	14.28	9.18	1.42

Panel B: How common are December announcements among firms?

% Earnings News in December	0%	$> 0\%$	(0, 5]%	(5, 10]%	(10, 15]%	(15, 20]%	(20, 25]%	$> 25\%$
# Firms	10,409	779	129	126	108	132	139	145

Panel C: Distribution of earnings announcements by month accounting for firm self-selection

	All	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Number	26,901	979	2,104	3,438	1,293	2,852	2,929	1,206	2,862	2,656	1,027	1,940	3,615
Fraction	100	3.64	7.82	12.78	4.81	10.60	10.89	4.48	10.64	9.87	3.82	7.21	13.44

Panel D: Stock price response to earnings news

	Extreme Surprise Quintiles		All Surprise Quintiles	
Depvar: CAR[−1,+1]	(1)	(2)	(3)	(4)
Constant	-4.04***		-3.94***	
	(-25.62)		(-31.80)	
dDecember	-0.15	-0.50	-0.38	-0.61**
	(-0.37)	(-1.18)	(-1.26)	(-2.01)
dTopQuintile	8.49***	7.36***		
	(34.80)	(4.99)		
dDecember × dTopQuintile	-0.20	0.36		
	(-0.36)	(0.65)		
Earnings Surprise Quintile			2.11***	1.69***
			(37.84)	(5.22)
dDecember × Earnings Surprise Quintile			-0.05	0.05
			(-0.43)	(0.40)
Observations	10,657	10,657	26,901	26,901
Controls (Interacted)		✓		✓
Adjusted R^2	0.16	0.18	0.11	0.12

Table 7: Low investor attention in December?

This table reports the results of investor attention towards firms in December using three unique datasets. Panel A reports results for general investor inattention in December. Columns (1)–(2) report results for investor attention towards firms in the SEC EDGAR Log File database in December compared to other months. Attention is proxied through the number of times a given firm is accessed on a given date through the SEC EDGAR system. In Column (1), the dependent variable is logged abnormal attention. In Column (2), the dependent variable is a dummy variable that equals 1 if the firm's information is accessed through the SEC EDGAR system using a mobile phone, and 0 otherwise. Column (3) reports results for institutional attention towards Russell 3000 firms. In Column (3), the dependent variable is one if the Bloomberg-supplied abnormal institutional attention measure is 0 or 1, and zero otherwise. Column (4) reports results for retail attention towards Russell 3000 firms. This measure is constructed using data from Google Trends. In Column (4), the dependent variable is the demeaned (or abnormal) attention paid towards a specific firm in a given week. Panel B reports results for investor attention towards scheduled firm news (earnings announcements) and unscheduled firm news (rating downgrades and 8-K filings) in December. Columns (1)–(3), Columns (4)–(6), and Columns (7)–(9) report results based on the SEC EDGAR Log File, Bloomberg, and Google Trends datasets, respectively. All specifications include firm and industry × year-quarter fixed effects. Robust T-statistics, clustered at the firm level, are presented in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: General investor inattention in December

	SEC EDGAR Log File		Bloomberg AIA	Google Trends
Depvar:	Abnormal Attention	Mobile Access	ℙ(Low Attention)	Abnormal Attention
	(1)	(2)	(3)	(4)
dDecember	-4.74***	0.002***	1.33***	-8.66***
	(-17.53)	(8.47)	(13.72)	(-20.17)
Observations	16,600,158	10,285,712	5,875,784	1,786,711
Adj. R^2	0.04	0.10	0.29	0.20
Fixed effects	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*

Panel B: December inattention towards firm news

	EDGAR – DV: Abnormal Attention			Bloomberg – DV: ℙ(Low Attention)			Google – DV: Abnormal Attention		
	Downgrades	8-Ks	Earnings	Downgrades	8-Ks	Earnings	Downgrades	8-Ks	Earnings
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
dDecember	-14.59**	-5.08***	2.78	18.26**	9.06***	2.79	-18.45**	-10.09***	-2.19
	(-2.07)	(-8.43)	(1.24)	(1.99)	(19.88)	(1.47)	(-2.18)	(-10.53)	(-0.39)
Observations	3,176	647,636	139,364	1,041	244,875	64,579	2,488	384,157	98,337
Adj. R^2	0.19	0.11	0.15	0.46	0.30	0.31	0.36	0.20	0.05
Fixed effects	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*

Table 8: Impact of investor inattention on the price response to unscheduled news

This table reports results documenting the impact of investor attention on the immediate price response to unscheduled firm events. Attention is proxied through the number of times a given firm is accessed on a given date through the SEC EDGAR system. Columns (1)–(3) report results for rating downgrades, while Columns (4)–(6) report results for 8-K filings. The dependent variable in all columns is CAR[−1,+1]. Columns (1) and (4) report results for the full sample of the respective unscheduled events for which attention information is available. Columns (2) and (5) report results for the subsample of unscheduled events released during low investor attention phases. Columns (3) and (6) report results for the subsample of unscheduled events released during high investor attention phases. Investor attention is deemed to be high if it falls in the top quintile of the attention distribution for the unscheduled event being reported in the respective column. All columns include firm and industry × year-quarter fixed effects. Robust T-statistics, clustered at the firm level, are displayed in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Rating downgrades			8-K filings		
	Full sample	Low attention	High attention	Full sample	Low attention	High attention
Depvar: CAR[−1,+1]	(1)	(2)	(3)	(4)	(5)	(6)
dDecember	2.51**	3.04***	-1.71	0.61***	0.58***	0.75***
	(2.18)	(2.64)	(-0.62)	(8.17)	(14.98)	(4.35)
Sentiment				0.15***	0.16***	0.12***
				(21.58)	(15.63)	(8.02)
dDecember × Sentiment				-0.05**	-0.04***	-0.07
				(-2.21)	(-3.88)	(-1.49)
Observations	3,176	2,551	625	647,633	518,454	129,179
Adj. R^2	0.16	0.10	0.12	0.02	0.02	0.05
Firm-level controls	✓	✓	✓	✓	✓	✓
Rating-level controls	✓	✓	✓			
8-K–level controls				✓	✓	✓
Fixed effects	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q

Table 9: Do certain weeks drive the December distraction effect?

This table reports results examining whether specific weeks drive the December distraction effect in the response to unscheduled firm news. Columns (1)–(3) reports results for inattention proxied through three separate datasets. In Column (1), attention is proxied through the SEC EDGAR Log File. In Column (2), institutional attention is proxied through Bloomberg's abnormal institutional attention measure. In Column (3), retail attention is determined through Google Trends. Columns (4)–(5) reports results for the immediate price response to unscheduled firm events. Column (4) reports the results of credit rating downgrades, whereas Column (5) reports the results of 8-K filings. The dependent variable in Columns (4)–(5) is CAR[−1,+1]. *dDecember_1stHalf* is an indicator variable that equals one if the event is released between December 1 and December 15, and zero otherwise. Similarly, *dDecember_2ndHalf* is an indicator variable that equals one if the event is released between December 16 and December 31. All specifications include firm and industry × year-quarter fixed effects. All the variables are defined in the appendix. Robust T-statistics, clustered at the firm level, are displayed in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Investor inattention			Unscheduled news	
Depvar:	EDGAR Attention	Bloomberg $\mathbb{P}$(Low Attention)	Google Trends Attention	Downgrades CAR[−1,+1]	8-K Filings CAR[−1,+1]
	(1)	(2)	(3)	(4)	(5)
dDecember_1stHalf	3.12***	-0.74***	-0.27	1.60	0.27***
	(9.26)	(-6.12)	(-0.58)	(1.50)	(2.93)
dDecember_2ndHalf	-12.22***	3.41***	-16.47***	2.39***	0.77***
	(-37.87)	(25.34)	(-28.15)	(2.59)	(8.03)
Sentiment Measure (SM)					0.14***
					(22.42)
dDecember_1stHalf × SM					-0.02
					(-0.85)
dDecember_2ndHalf × SM					-0.08***
					(-2.81)
Observations	16,600,158	5,875,784	1,786,711	5,912	870,430
Adj. R^2	0.04	0.29	0.20	0.15	0.02
Fixed effects	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*

Table 10: Are certain firms more susceptible to the December distraction effect?

This table reports results documenting whether firms with certain characteristics are more susceptible to the December distraction effect. Panel A reports results for credit rating downgrades, while Panel B reports results for 8-K filings. The dependent variable in both panels is CAR[−1,+1]. In both panels, Columns (1)–(2), Columns (3)–(4), and Columns (5)–(6) report results for cross-sectional cuts based on the announcing firm's market capitalization, analyst following, and institutional ownership, respectively. The odd (even) columns report results for non-prominent (prominent) firms. Firms are classified as prominent if their market value, analyst following, or institutional ownership falls in the top quintile of their respective distributions. All columns include firm and industry × year-quarter fixed effects. All the variables are defined in the appendix. Robust T-statistics, clustered at the firm level, are displayed in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Effects of firm characteristics in response to rating downgrades

	Market Cap		# Analysts		# Inst. Owners	
	Non-prominent firms	Prominent firms	Non-prominent firms	Prominent firms	Non-prominent firms	Prominent firms
Depvar: CAR[−1,+1]	(1)	(2)	(3)	(4)	(5)	(6)
dDecember	3.48***	-5.45*	3.41***	-3.25	3.26***	-1.81
	(3.17)	(-1.80)	(2.80)	(-1.13)	(3.00)	(-0.38)
N	4,750	1,162	4,819	1,093	4,756	1,156
Adjusted R^2	0.14	0.07	0.13	0.11	0.13	0.00
Controls	✓	✓	✓	✓	✓	✓
Fixed Effects	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*

Panel B: Effects of firm characteristics in response to 8-K filings

	Market Cap		# Analysts		# Inst. Owners	
	Non-prominent firms	Prominent firms	Non-prominent firms	Prominent firms	Non-prominent firms	Prominent firms
Depvar: CAR[−1,+1]	(1)	(2)	(3)	(4)	(5)	(6)
dDecember	0.62***	0.13	0.56***	0.29**	0.65***	0.03
	(7.20)	(1.55)	(6.81)	(2.51)	(7.66)	(0.35)
Sentiment	0.16***	0.07***	0.15***	0.10***	0.16***	0.07***
	(21.22)	(8.62)	(21.06)	(9.20)	(21.29)	(8.44)
dDecember × Sentiment	-0.06**	-0.04	-0.04*	-0.07**	-0.07***	0.00
	(-2.31)	(-1.59)	(-1.94)	(-2.17)	(-2.87)	(0.02)
N	696,388	174,042	703,254	167,176	696,924	173,506
Adjusted R^2	0.02	0.02	0.02	0.01	0.02	0.02
Controls	✓	✓	✓	✓	✓	✓
Fixed Effects	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*	*F,I*×*Y-Q*

Table 11: Is December inattention different from summer inattention?

This table reports the results of investor attention towards firms in the summer months using three unique datasets. The independent variable of interest, $dSummer$, is a dummy variable that takes the value of 1 if the date is in June, July, or August, and 0 otherwise. Panel A reports results for general investor attention in the summer. Column (1) report results for investor attention towards firms in the SEC EDGAR database in the summer compared to other months. Attention is proxied through the number of times a given firm is accessed on a given date through the SEC EDGAR system. In Column (1), the dependent variable is logged abnormal attention. Column (2) reports results for institutional attention towards Russell 3000 firms. In Column (2), the dependent variable is one if the Bloomberg-supplied abnormal institutional attention measure is 0 or 1, and zero otherwise. Column (3) reports results for retail attention towards Russell 3000 firms. In Column (3), the dependent variable is the demeaned (or abnormal) attention paid towards a specific firm in a given week. Panel B reports results comparing the magnitude of (in)attention in December relative to the summer. Panel C reports results comparing attention towards firm news released in the summer relative to other months of the year. Panel D reports results for the summer effect in the price and volume response to unscheduled news events. All specifications include firm and industry × year-quarter fixed effects. Robust T-statistics, clustered at the firm level, are presented in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Are investors inattentive in the summer?

	SEC EDGAR Log File	Bloomberg AIA	Google Trends
Depvar:	Abnormal Attention	$\mathbb{P}$(Low Attention)	Abnormal Attention
	(1)	(2)	(3)
dSummer	-2.57***	-0.23***	-0.54*
	(-15.73)	(-3.80)	(-1.76)
Observations	16,600,158	5,875,784	1,786,711
Adj. R^2	0.03	0.29	0.20
Fixed Effects	F,$I \times Y$-Q	F,$I \times Y$-Q	F,$I \times Y$-Q

Panel B: How does summer attention compare to December attention?

	SEC EDGAR Log File	Bloomberg AIA	Google Trends
Depvar:	Abnormal Attention	$\mathbb{P}$(Low Attention)	Abnormal Attention
	(1)	(2)	(3)
dDecember	-4.74***	1.33***	-8.66***
	(-17.53)	(13.72)	(-20.17)
dSummer	-2.57***	-0.23***	-0.54*
	(-15.73)	(-3.80)	(-1.76)
Observations	16,600,158	5,875,784	1,786,711
Adj. R^2	0.04	0.29	0.20
Fixed Effects	F,$I \times Y$-Q	F,$I \times Y$-Q	F,$I \times Y$-Q

Panel C: Summer attention towards firm news

	EDGAR – DV: Abnormal Attention			Bloomberg – DV: $\mathbb{P}$(Low Attention)			Google – DV: Abnormal Attention		
	Downgrades	8-Ks	Earnings	Downgrades	8-Ks	Earnings	Downgrades	8-Ks	Earnings
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
dSummer	0.14	0.00	-0.19	-12.88	-1.97***	-4.64***	-5.73	-1.53**	-1.59*
	(0.03)	(0.01)	(-0.42)	(-1.35)	(-6.62)	(-15.63)	(-0.69)	(-2.32)	(-1.80)
Observations	3,176	647,636	139,364	1,041	244,875	64,579	2,488	384,157	98,337
Adj. R^2	0.19	0.11	0.15	0.40	0.30	0.31	0.36	0.20	0.05
Fixed Effects	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q

Panel D: Summer Effect in price and volume response to unscheduled firm news

	D.1: Rating Downgrades		**D.2**: 8-K Filings		
Depvar:	CAR[−1,+1]	CATO[−1,+1]	Abs(CAR[−1,+1])	CAR[−1,+1]	CATO[−1,+1]
	(1)	(2)	(3)	(4)	(5)
dSummer	-0.88	0.43*	-0.01	0.01	0.01
	(-1.29)	(1.74)	(-0.36)	(0.25)	(0.68)
Sentiment Measure (SM)				0.14***	
				(20.04)	
dSummer × SM				-0.00	
				(-0.21)	
Observations	5,912	5,892	870,430	870,430	870,138
Adjusted R^2	0.15	0.28	0.21	0.02	0.06
Fixed effects	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q	F,$I\times Y$-Q

Internet Appendix:
December Doldrums, Investor Distraction, and Stock Market Reaction to Unscheduled News Events

Variable Definitions

Rating-level variables

- *dDecember* is an indicator equal to one if the rating change is announced in December and zero otherwise
- *dFriday* is an indicator equal to one if the rating change is announced on Friday and zero otherwise
- *Previous Rating* is the credit rating level prior to the rating change. It is expressed as the natural logarithm of the cardinal rating scale
- *Abs(Rating Change)* is the absolute value of the difference in rating scale changes between after and before rating change events
- *Log(Days Since Last Rating)* is the natural logarithm of the number of days between the previous rating change in the same direction for the same bond issue, but by another rating agency. Following Jorion, Liu, and Shi (2005), the number of days is set to 60 if
  - if both rating agencies rate on the same day
  - if the rating by the second rating agency is in the opposite direction
  - if the rating change by the other rating agency is separated by more than 60 days

8-K-level variables

- *dDecember* is an indicator equal to one if the 8-K form is filed in December and zero otherwise
- *dFriday* is an indicator equal to one if the 8-K form is filed on Friday and zero otherwise
- *Log(Days Since Last Filing)* is the natural logarithm of the number of days since the last 8-K filing by the same firm
- *Log(#8-K Filings Last Year)* is the natural logarithm of the number of 8-K filings by the same firm in the previous calendar year
- *Sentiment Measure* helps capture the 'tone' of the 8-K filing. It is constructed in the following manner:
  - Utilize words list in Loughran and McDonald (2011) to count the total number of positive and negative words in each 8-K filing
  - For each filing, calculate the difference between the number of positive words and the number of negative words, and scale this difference by the total number of words in the document (Note that this is a variant of the methodology used in Tetlock et al. (2008))
  - Sort above measure into quintiles at an annual frequency, with the lowest (highest) quintile representing the most negative (most positive) documents

Firm-level control variables

- *Size* is the natural logarithm of a firm's market capitalization in the quarter prior to experiencing an unscheduled event
- *MTB* is a firm's market-to-book ratio in the quarter prior to experiencing an unscheduled event
- *Profitability* is a firm's lagged quarterly ratio of operating income to sales
- *Leverage* is the firm's quarterly total debt divided by its assets
- *Earnings* is the firm's lagged quarterly ratio between income before extraordinary items and assets
- *Volatility* is the standard deviation of daily stock returns in the 30 trading days prior to experiencing an unscheduled event expressed in natural logarithm form
- *Average Trading Volume* is the average trading volume in the 30 trading days prior to experiencing an unscheduled event expressed in natural logarithm form
- *Average Return* is the average daily return in the 30 trading days prior to experiencing an unscheduled event
- *FF48* refers to the Fama-French 48 industry to which the firm belongs
- *FF12* refers to the Fama-French 12 industry to which the firm belongs

Additional Tests

- Table A.1 lists the numbering and classification of credit rating codes.
- Table A.2 lists the various triggering events underlying the filing of a Form 8-K, grouped together under broad umbrella sections.
- Table A.3 reports results for the distribution of 8-K filings across months of the year by the sentiment of the filing. In addition, it also displays the distribution of 8-K filings by sentiment and section type in the weeks surrounding the calendar year end.
- Table A.4 documents the robustness of the December effect in response to 8-K filings. Panel A reports the robustness of the immediate price response to alternate, longer immediate horizon windows. Panel B reports the results of robustness analysis that mitigates concerns that the December effect in the price response to 8-K filings is driven by specific filing event sections.
- Table A.5 presents descriptive statistics which show the efficacy of the propensity-score matching process in reducing observable differences between firms experiencing unscheduled news in December (i.e., *treated* firms) and firms experiencing unscheduled news in other months (i.e., *control* firms).
- Table A.6 shows that our baseline results (reported in Table 2) are robust to alternative clustering levels.
- Table A.7 shows that our baseline results are not driven by information overload (as documented in Hirshleifer et al. (2009)) or by investor attention towards market price movements (as documented in Kottimukkalur (2019)).

- Table A.8 reports results addressing selection concerns of firms reporting earnings news in December. Specifically, the table shows that earnings news released in December is not susceptible to a differential immediate price response once selection issues are addressed following the tests suggested in Michaely, Rubin, and Vedrashko (2016).

Table A.1: Classification by rating agencies

The table presents the mapping of rating codes issued by the credit rating agencies to the cardinal scale we use in our analysis. The rating codes used by S&P and Fitch are similar and are different from those used by Moody's. Moody's uses codes from Aaa down to C to rate bonds whereas S&P rates bonds from AAA down to D. Within the 6 classes - AA to CCC for S&P and Aa to Caa for Moody's, both rating agencies have three additional gradations with the modifiers +/− for S&P and 1/2/3 for Moody's (For example AA+, AA, AA− for S&P and Aa1, Aa2, Aa3 for Moody's). We transformed the credit ratings for S&P (Moody's) into a cardinal scale starting with 1 as AAA (Aaa), 2 as AA+ (Aa1), 3 as AA (Aa2), and so on until 23 as the default category. As Fitch provides three ratings for default, following Jorion et al. (2005), we chose 23 instead of 22 for the default category which is the average of the default DD rating.

Explanation	Standard & poor's (modifiers)	Moody's (modifiers)	Fitch (modifiers)	Cardinal Scale
Investment grade				
Highest grade	AAA	Aaa	AAA	1
High grade	AA (+,none,−)	Aa (1,2,3)	AA (+,none,−)	2,3,4
Upper medium grade	A (+,none,−)	A (1,2,3)	A (+,none,−)	5,6,7
Medium grade	BBB (+,none,−)	Baa (1,2,3)	BBB (+,none,−)	8,9,10
Speculative grade				
Lower medium grade	BB (+,none,−)	Ba (1,2,3)	BB (+,none,−)	11,12,13
Speculative	B (+,none,−)	B (1,2,3)	B (+,none,−)	14,15,16
Poor standing	CCC (+,none,−)	Caa (1,2,3)	CCC (+,none,−)	17,18,19
Highly speculative	CC	Ca	CC	20
Lowest quality	C	C	C	21
In default	D		DDD/DD/D	23

Table A.2: Classification of 8-K filings

This table presents information on various material events that trigger a public company's obligation to file a current report. The various kinds of material events, called items, are aggregated into broad sections.

Section Number	Section Name	Item	Description
1	**Registrant's Business and Operations**	1.01	Entry into a material definitive agreement
		1.02	Termination of a material definitive agreement
		1.03	Bankruptcy or receivership
		1.04	Mine safety - Reporting of shutdowns or patterns of violations
2	**Financial Information**	2.01	Completion of acquisition or disposition of assets
		2.02	Results of operations and financial condition
		2.03	Creation of a direct financial obligation or an obligation under an off-balance sheet arrangement of a registrant
		2.04	Triggering events that accelerate or increase a direct financial obligation under an off-balance sheet arrangement
		2.05	Costs associated with exit or disposal activities
		2.06	Material impairments
3	**Securities and Trading Markets**	3.01	Notice of delisting or failure to satisfy a a continued listing rule or standard; transfer of listing
		3.02	Unregistered sales of equity securities
		3.03	Material modification of rights of security holders
4	**Matters Related to Accountants and Financial Statements**	4.01	Changes in registrant's certifying accountant
		4.02	Non-reliance on previously issued financial statements or a related audit report or completed interim review

5	**Corporate Governance and Management**	5.01	Changes in control of registrant
		5.02	Departure of directors or certain officers; election of directors; appointment of certain officers; compensatory arrangements of certain officers
		5.03	Amendments to articles by incorporation or bylaws; change in fiscal year
		5.04	Temporary suspension of trading under registrant's employee benefit plan
		5.05	Amendment to registrant's code of ethics, or waiver of a provision of the code of ethics
		5.06	Change in shell company status
		5.07	Submission of matters to a vote of security holders
		5.08	Shareholder director nominations
6	**Asset-Backed Securities**	6.01	ABS informational and computational material
		6.02	Change of servicer or trustee
		6.03	Change in credit enhancement or other external support
		6.04	Failure to make a required distribution
		6.05	Securities act updating disclosure
7	**Regulation FD**	7.01	Regulation FD disclosure
8	**Other Events**	8.01	Other events
9	**Financial Statements and Exhibits**	9.01	Financial statements and exhibits

Table A.3: Distribution of 8-K filings by sentiment

This table reports the distribution of mandatory 8-K filings indicating the occurrence of material events across different months of the year. In Panel A, 8-K filings are grouped into quintiles on the basis of the sentiment of the filing across different months of the year. The bottom (top) quintile represents the most negative (most positive) filings. Panel B (Panel C) presents the distribution of 8-K filings by filing sentiment (filing section) in the weeks surrounding calendar year-ends.

Panel A: Distribution of 8-K filings by month and sentiment

	Sentiment Quintiles					
Month	Most Negative Filings	Quintile 2	Quintile 3	Quintile 4	Most Positive Filings	Total
January	13,603	12,730	13,793	12,388	14,086	66,600
February	14,082	15,498	18,499	16,075	16,036	80,190
March	16,258	14,325	13,007	12,620	14,731	70,941
April	14,848	16,061	18,343	15,120	15,309	79,681
May	17,761	22,673	23,305	18,005	16,085	97,829
June	15,654	12,664	11,015	9,924	11,837	61,094
July	13,041	14,282	18,145	14,430	14,141	74,039
August	13,923	15,912	17,603	14,727	15,024	77,189
September	12,924	9,711	8,859	9,633	12,237	53,364
October	13,184	14,161	17,806	14,575	15,683	75,409
November	13,725	15,050	16,981	15,068	15,459	76,283
December	15,099	11,018	8,841	9,418	13,435	57,811
Total	174,102	174,085	186,197	161,983	174,063	870,430

Panel B: Distribution of 8-K filings by filing sentiment in weeks surrounding calendar year-end

Sentiment Quintile	December 1st Half	December 2nd Half	January 1st Half
Negative Filings	7,458	7,641	6,327
Quintile 2	5,708	5,310	4,740
Quintile 3	5,102	3,739	4,095
Quintile 4	5,629	3,789	4,800
Positive Filings	7,452	5,983	6,061

Panel C: Distribution of 8-K filings by filing section in weeks surrounding calendar year-end

Filing Section	December 1st Half	December 2nd Half	January 1st Half
Section 1	5,691	6,456	4,130
Section 2	5,729	4,720	6,220
Section 3	1,218	1,363	971
Section 4	296	326	236
Section 5	7,896	7,440	5,837
Section 6	2	0	1
Section 7	6,403	3,403	5,170
Section 8	11,255	9,509	8,082
Section 9	216	223	159

Table A.4: Price response to 8-K filings in December – Robustness checks

This table reports results documenting the robustness of the findings regarding the stock price reaction to December 8-K filings (presented in Table 2). Panel A reports the robustness of the December effect in the immediate stock price reaction to 8-K filings to alternative immediate horizon windows. The dependent variable in Column (1) and Column (2) is Abs(CAR[−5,+1]) and CAR[−5,+1], respectively. The dependent variable in Column (3) and Column (4) is Abs(CAR[−10,+1]) and CAR[−10,+1], respectively. All specifications in Panel A include firm and industry × year-quarter fixed effects.

Panel B reports results of robustness tests mitigating concerns that the December effect in the stock price reaction to 8-K filings is driven by specific filing event sections. All specifications in Panel B include include firm, industry × year-quarter, and filing event section fixed effects.

All the variables are defined in the appendix. Robust T-statistics, clustered at the firm level, are displayed in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Robustness to varying immediate reaction windows

Depvar:	Absolute CAR[−5,+1]	CAR[−5,+1]	Absolute CAR[−10,+1]	CAR[−10,+1]
	(1)	(2)	(3)	(4)
dDecember	-0.81***	0.85***	-0.80***	1.09***
	(-21.31)	(8.21)	(-17.29)	(8.33)
Sentiment (SM)		0.17***		0.16***
		(20.88)		(16.56)
dDecember × SM		-0.12***		-0.13***
		(-4.42)		(-3.77)
Observations	870,430	870,430	870,242	870,242
Adj. R^2	0.26	0.07	0.29	0.14
Fixed Effects	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*

Panel B: Robustness to filing event section fixed effects

Depvar:	Absolute CAR[−1,+1]	CAR[−1,+1]	CAR[+2,+61]
	(1)	(2)	(3)
dDecember	-0.39***	0.48***	0.68***
	(-14.42)	(6.80)	(3.19)
Sentiment (SM)		0.16***	0.10**
		(24.51)	(2.16)
dDecember × SM		-0.05***	0.11**
		(-2.66)	(2.31)
Observations	870,430	870,430	701,736
Adj. R^2	0.23	0.04	0.13
Fixed Effects	*F*,*I*×*Y*-*Q*,*S*	*F*,*I*×*Y*-*Q*,*S*	*F*,*I*×*Y*-*Q*,*S*

Table A.5: Descriptive statistics – Propensity-score matched-sample

This table presents results comparing the descriptive statistics of the full, unmatched sample of unscheduled news events (used for analysis in Table 2) to the descriptive statistics of the matched sample (used for analysis in Table 4). For creating the matched sample of rating downgrades, every firm downgraded in December (i.e., the *treatment* firm) is matched with up to ten firms that did not experience credit rating downgrades in December (i.e., the *control* firms) based on the propensity score of experiencing a rating downgrade in December. The outcome on which the treatment and control groups are matched is CAR[−1,+1] in relation to the rating downgrade date. The matched sample of 8-K filings is created analogously, with the outcome variable as CAR[−1,+1] in relation to the 8-K filing date. For both the unmatched and matched samples, the table reports the economic and statistical difference of firm characteristics between firms that experience unscheduled news events in December and those that do not. *, **, and *** indicate statistical significance greater than the 10%, 5%, and 1% levels, respectively.

Rating Downgrades	Before Matching			After Matching		
	Mean		(Diff)	Mean		(Diff)
	Treated	Control	p-value	Treated	Control	p-value
Abs(Rating Change)	1.45	1.55	*	1.45	1.45	
Log(Days Since Last Rating)	4.76	4.62	*	4.76	4.76	
Size	8.23	8.10		8.23	8.20	
Market-to-Book	1.26	1.30		1.26	1.26	
Leverage	0.78	0.76	***	0.78	0.79	
Profitability	0.08	0.05		0.08	0.08	
Earnings	-0.02	-0.01	***	-0.02	-0.02	
Log(Volatility)	-3.36	-3.44	**	-3.36	-3.36	
Log(Trading Volume)	14.24	14.12		14.24	14.20	
Average Return	-0.00	-0.00		-0.00	-0.00	

8-K Filings	Before Matching			After Matching		
	Mean		(Diff)	Mean		(Diff)
	Treated	Control	p-value	Treated	Control	p-value
Log(#8-Ks Filed Last Year)	2.29	2.39	***	2.29	2.28	
Log(Days Since Last Filing)	3.07	3.08	*	3.07	3.08	
Size	6.56	6.56		6.56	6.55	
Market-to-Book	1.85	1.87	***	1.85	1.87	**
Leverage	0.60	0.60	***	0.60	0.60	
Profitability	-0.79	-0.70	***	-0.79	-0.79	
Earnings	-0.01	-0.01	***	-0.01	-0.01	
Log(Volatility)	-3.61	-3.68	***	-3.61	-3.61	
Log(Trading Volume)	12.40	12.36	***	12.40	12.39	
Average Return	0.00	0.00	***	0.00	0.00	

Table A.6: Stock price reaction to unscheduled news released in December – Robustness to alternative clustering levels

This table reports results that document the robustness of the findings in Table 2 to alternative clustering levels. Columns (1)–(2) present results for rating downgrades, while Columns (3)–(6) present results for 8-K filings. Standard errors are double clustered at the firm and event date levels (firm and month levels) in the odd (even) columns. Robust T-statistics, clustered as specified in each column, are displayed in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Rating downgrades		8-K filings			
	(1)	(2)	(3)	(4)	(5)	(6)
Depvar:	CAR[−1,+1]	CAR[−1,+1]	Abs(CAR[−1,+1])	Abs(CAR[−1,+1])	CAR[−1,+1]	CAR[−1,+1]
dDecember	2.29**	2.29**	-0.80***	-0.80***	0.52***	0.52***
	(2.34)	(2.21)	(-18.03)	(-18.79)	(6.00)	(12.31)
Sentiment Measure (SM)					0.14***	0.14***
					(21.13)	(19.48)
dDecember × SM					-0.05***	-0.05***
					(-2.62)	(-7.56)
Observations	5,912	5,912	870,430	870,430	870,430	870,430
Adjusted R^2	0.15	0.15	0.21	0.21	0.02	0.02
Firm-level controls	✓	✓	✓	✓	✓	✓
Rating-level controls	✓	✓				
8-K–level controls			✓	✓	✓	✓
Fixed effects	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*
Clustering	*F*,*D*	*F*,*M*	*F*,*D*	*F*,*M*	*F*,*D*	*F*,*M*

Table A.7: December distraction effect towards unscheduled news – Ruling out alternate channels

This table reports results ruling out alternative hypotheses that could potentially explain the December distraction effect towards unscheduled news. Columns (1)–(4) show that information overload, as identified in Hirshleifer et al. (2009), does not drive the December distraction effect. Information overload is defined as the number of competing earnings announcements, rating change announcements, and 8-K filings made on any given trading day. The information overload variable is formed by ranking trading days into quintiles based on the total number of competing earnings announcements, rating change announcements, and 8-K filings made on a given day. The quintiles are formed on the basis of monthly sorts. Columns (1) and (3) focus on the subsample of "low overload" days (bottom quintile), while Columns (2) and (4) focus on the subsample of "high overload" days (top quintile).

Columns (5)–(8) show that attention to aggregate market movements, as identified in Kottimukkalur (2019), does not drive the December distraction effect. Market movement is defined as the absolute value of the daily return on the CRSP value-weighted index. *MMRANK* is the market movement ranking variable formed by ranking trading days into quintiles based on the absolute aggregate market movement on a given day. The quintiles are formed on the basis of monthly sorts, and these quintile break points are lagged to avoid look-ahead bias. Columns (5) and (7) focus on the subsample of "small movement" days (bottom quintile), while Columns (6) and (8) focus on the subsample of "large movement" days (top quintile).

The dependent variable in all columns is CAR[−1,+1]. All the variables are defined in the appendix. Robust T-statistics, clustered at the firm level, are displayed in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Information overload?				Attention to large market movements?			
	Rating downgrades		8-K filings		Rating downgrades		8-K filings	
	Low Overload	High Overload	Low Overload	High Overload	Small Movement	Large Movement	Small Movement	Large Movement
Depvar: CAR[−1,+1]	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
dDecember	3.27**	4.23***	1.21***	0.95***	3.88**	2.28**	0.88***	1.12***
	(2.18)	(2.76)	(5.98)	(5.41)	(2.05)	(1.96)	(2.64)	(4.90)
Sentiment			0.15***	0.21****			0.47***	0.17***
			(9.48)	(12.29)			(8.97)	(8.55)
dDecember × Sentiment			-0.13**	-0.16***			-0.37*	-0.16**
			(-2.23)	(-3.20)			(-1.79)	(-2.42)
Observations	3,006	2,906	194,245	141,545	2,981	2,931	197,421	148,819
Adjusted R^2	0.09	0.15	0.09	0.05	0.04	0.11	0.11	0.10
Firm-level controls	✓	✓	✓	✓	✓	✓	✓	✓
Rating-level controls	✓	✓			✓	✓		
8-K filing–level controls			✓	✓			✓	✓
Fixed effects	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*	*F*,*I*×*Y*-*Q*

Table A.8: Is there a muted price response for scheduled earnings news released in December? Addressing selection concerns through Michaely, Rubin, and Vedrashko (2016) Tests

This table reports results which address the selection concerns associated with firms endogenously announcing earnings news in December. The table employs selection tests proposed in Michaely et al. (2016). The dependent variable is CAR[−1,+1]. *dDecember* is an indicator variable equal to one for announcements made in December and zero otherwise. *dDecember_Announcer* is an indicator equal to one for firms that release at least one earnings announcement in December during the sample period and zero otherwise. The set of controls includes indicators for the year of the earnings announcement, indicators for the day of week of the earnings announcement, the quintile of the announcing firm's market capitalization (size), the quintile of the announcing firm's book-to-market ratio, and the standard deviation of the announcing firm's earnings in the previous sixteen quarters. All control variables are interacted with the earnings surprise quintile variable. All the variables are defined in the appendix. Robust T-statistics, clustered at the firm level, are displayed in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	January–November Subsample	December Announcers	Full Sample
Depvar: CAR[−1,+1]	(1)	(2)	(3)
ES Quintile	1.78***	1.69***	1.79***
	(17.72)	(5.22)	(18.06)
dDecember_Announcer	-0.76***		-0.76***
	(-6.00)		(-6.01)
dDecember_Announcer × ES Quintile	0.48***		0.49***
	(8.49)		(8.51)
dDecember		-0.61**	-0.52*
		(-2.01)	(-1.73)
dDecember × ES Quintile		0.05	0.03
		(0.40)	(0.23)
Observations	250,995	26,901	254,610
Adj. R^2	0.09	0.12	0.08