Unexpected Distractions and Investor Attention to Corporate Announcements

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Abstract

We investigate whether and to what extent distractions affect investors' reactions to firm announcements. We use a daily news pressure index as a proxy for the presence of potential investor distraction. Since breaking news captured by this index is largely unpredictable and unrelated to investors' valuation decisions, our research design offers a unique opportunity to examine investor attention in the absence of strategic timing of announcements by managers. We examine a broad set of corporate announcements to further explore how investor attention varies with announcement type. Using overall trading and Google search volume as measures of investor attention, we find that investors are susceptible to distraction in their reactions to corporate announcements. Our findings also reveal that investor attention varies with announcement type and that retail investors are particularly susceptible to distractions.

Keywords: Investor attention; corporate announcements; retail trading; distraction
JEL classification: G12, G14, L20, M41

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1. Introduction

The goal of this study is to investigate whether and to what extent distractions affect investors' attention to corporate announcements. Although traditional asset pricing models are based on the assumption that market participants can instantaneously process the arrival of new information, a growing literature in behavioral economics adopts the view that attention is a scarce cognitive resource (Kahneman, 1973). Under this view, the wealth of information available in capital markets creates a need for investors to selectively allocate their time and attention to various information sources. Prior analytical research offers several frameworks in which limited investor attention is expected to affect capital market activity (Merton, 1987; Sims, 2003; Hirshleifer and Teoh, 2003; Peng, 2005; Peng and Xiong, 2006; Hou et al., 2009). Yet, recent empirical studies provide conflicting evidence on the existence of investor inattention to corporate announcements. Moreover, most prior work in this area uses endogenous measures of high-distraction periods, making it difficult to draw robust inferences regarding the existence of investor inattention. In this paper, we conduct a set of empirical tests on a broad set of major corporate announcements using a plausibly exogenous measure of potential distraction. We find compelling evidence that the level of investor attention to corporate announcements is substantially lower in the presence of distractions.

To develop a proxy for potential distraction that is unpredictable by either investors or managers, we adopt the approach outlined by Eisensee and Stromberg (2007) and construct a time-series of the Daily News Pressure (DNP) index. DNP is defined as the median number of minutes across the three main U.S. television news broadcasts devoted to the first three news segments. It measures the availability of newsworthy material on a given day. There are two key benefits of using DNP as a measure of potential distraction. First, DNP is a daily measure; unlike prior studies which are limited to either weekly or seasonal events, DNP enables us to examine the effect of distraction on investor inattention at a daily frequency. Second, because breaking news is largely unpredictable, the use of DNP helps us mitigate the concern of self-selection related to strategic disclosure timing based on the perceived level of investor distraction. Moreover, distractions represented by DNP are plausibly exogenous to the content of most corporate disclosures and macroeconomic news. We hypothesize that investor reactions to corporate announcements are weaker on days with high levels

of unexpected distractions as measured by DNP. Our hypothesis addresses the fundamental, but still unresolved, question of whether investors exhibit lower attention when they face competing stimuli that is unexpected ex-ante.

We test our hypothesis using a broad set of 1,397,785 corporate announcements made by 10,494 unique firms. Our sample includes 348,778 earnings announcements, 110,538 management forecasts, 190,106 dividend announcements, 14,482 share repurchase announcements, 60,388 mergers and acquisition announcements, and 765,533 press releases that reflect a long list of other announcements (e.g., new products, major sales contracts, alliances, management and board changes). Our sample period is from January 2, 1980 to December 31, 2015, although some types of announcements are available only for more recent years.

We estimate investor attention using two distinct measures: overall trading volume and Google search volume.[1] Much of the prior literature focuses on contemporaneous stock returns as a measure of investor attention to corporate announcements (DellaVigna and Pollet, 2009). This approach assumes that investor distraction leads to a muted stock price reaction to value-relevant information embedded in firms' announcements. However, stock returns are aggregate outcomes that do not reflect nuances in investor activity and fail to reveal differences in the behavior of institutional and retail investors. For instance, retail investors are likely to be very susceptible to distractions while sophisticated investors may exhibit little or no sensitivity to distractions. Even if retail investors are distracted and thus inattentive to some corporate announcements, the presence of sophisticated investors could allow stock prices to rapidly reflect new information (Chakrabarty et al., 2015; Melessa, 2013). For these reasons, we focus on measures of volume that more directly capture investors' activities and allow us to make distinct inferences regarding the effects of distractions on retail investors.[2]

In using measures of volume to estimate investor attention, we follow a substantial body of prior work that treats trading volume as a fundamental, non-directional measure of investor activity (see, for example, Beaver (1968); Verrecchia (2001); Bamber et al. (2011)). Our trading-volume-based

[1] In additional analyses we also consider retail trading volume as a more specific measure of investor attention.

[2] We also show that stock return reactions to corporate announcements are not sensitive to the arrival of unexpected distractions.

proxy for investor attention is defined as the abnormal level of trading volume of a firm's stock on an announcement day relative to the level of trading volume during a firm-specific reference period. We assume that investors are more likely to trade a particular stock in response to a corporate announcement when they pay more attention to the announcement. Therefore we presume trading volume is a monotonically increasing function of investor attention. Our first set of tests, conducted on a combined sample of all firm-announcement days, reveals that trading volume responses to corporate announcements are significantly muted when those announcements occur on days with high distractions. We find that a one standard deviation increase in the level of distraction on a firm-announcement day is associated with a one percentage point reduction in announcement-period trading volume relative to a non-announcement period. Given that trading volume is 19% higher around announcements relative to the non-announcement periods, this effect implies a 5% reduction in investor attention to corporate announcements on high distraction days.

In our initial tests we do not condition on the amount of news contained in each corporate announcement, even though we expect investor attention to be positively related to the amount of news contained in corporate announcements. Using the absolute level of stock returns as a measure of the amount of new information that arrive to the market in each firm announcement, we find that the relationship between news and investor attention is weaker on high distraction days. Specifically, a one standard deviation increase in the level of distraction is associated with a one-half percent reduction in abnormal trading volume per unit of news. Given that the abnormal trading volume increases by 5.5 percentage points per unit of news, our findings suggest that a one standard deviation increase in the level of distraction constitutes a 3.8% reduction in the trading volume response to news.

The rise of algorithmic trading raises the possibility that a significant portion of trades is programmed ex-ante and the concern that overall trading volume may be a weak proxy for investor attention. To address this concern, we consider abnormal Google search volume as an additional measure of investor attention. Unlike overall trading volume, Google search volume is more plausibly related to attention from retail investors and is potentially more sensitive to investor distraction. Moreover, Google search volume captures dimensions of investor attention that trading volume can-

not, such as those instances where investors are paying attention but ultimately choose not to trade. Consistent with our hypothesis and our findings using trading volume, we find that Google search volume responses to corporate announcements that occur on high-distraction days are significantly lower than those occurring on low-distraction days. We find that a one standard deviation increase in the level of distraction on a firm-announcement day is associated with a one percent reduction in Google search volume. When taking into consideration the amount of new information arriving to the market in each firm announcement, our results reveal that the relationship between news and Google search volume is weaker on high-distraction days. Given that Google search volume increases by 1.3 percentage points per unit of news, our findings reveal that a one standard deviation increase in the level of distraction constitutes a 5.1% reduction in the Google search volume response to news.

A comparison of results based on overall trading volume and Google search volume offers preliminary evidence that retail investors exhibit different patterns of attention relative to the market as a whole. For example, we find stronger evidence of investor distraction around earnings announcements when measuring investor attention using Google search volume than when using overall trading volume. In additional analyses, we further explore the possibility that retail traders are more likely to exhibit inattention by examining the sensitivity of abnormal retail trading volume around corporate announcements to DNP. Our results using retail trading volume are consistent with our main analyses; we find a strong reduction in abnormal retail trading volume around announcements when those announcements happen to coincide with high-distraction days. Interestingly, we also find evidence of retail investor distraction around earnings announcements. This is consistent with the idea that retail investors have different attention patterns from other classes of investors.

Our study contributes to the literature on investor attention along several dimensions. First, using DNP to measure the existence of competing stimuli, we examine whether the arrival of mostly unexpected and value-irrelevant distractions affect investor attention to corporate announcements. Prior literature frequently uses the incidence of announcements on Fridays as a setting for identifying competing stimuli that potentially displace firm-specific news in investors' decision making

processes (Lim and Teoh, 2010). For example, DellaVigna and Pollet (2009) document a smaller immediate response to Fridays earnings announcements, and a greater post-earnings-announcement drift, relative to announcements on other days. DellaVigna and Pollet (2009) interpret the delayed response to Friday announcements as evidence for limited investor attention. They further argue that this motivates firms to strategically disclose bad earnings news on Fridays, when managers surmise that investor attention is more limited. This view is consistent with the "Friday effect" documented by Penman (1987), Damodaran (1989), and Bagnoli et al. (2006).

However, several studies challenge these inferences. For example, Michaely et al. (2016b) conclude that the reduced market response to Friday announcements is an outcome of selection bias. Specifically, they show that firms that make announcements on Fridays experience reduced market response on any weekday. After correcting for selection bias, they find no evidence that investors pay less attention to announcements made on Fridays. Similarly, using non-market measures of attention such as Google search volume, DeHaan et al. (2015) find that investor attention is the same or even higher on Fridays. This finding is inconsistent with the view that Friday earnings announcements receive less attention from investors. In addition, Melessa (2013) finds that the smaller immediate response to Friday earnings announcements is attributable to heightened economic uncertainty rather than investor inattention. Finally, Doyle and Magilke (2009) find that the "Friday effect" in earnings announcements is insignificant after controlling for firm fixed effects.

The debate regarding Friday announcements highlights the importance of proper identification of competing stimuli. This is not limited to the use of Fridays; other popular proxies for competing stimuli include major sporting events such as the Olympics, World Series, or March Madness (Drake et al., 2016), scheduled releases of key macroeconomic indicators (Kasznik and Kremer, 2014), and days with many earnings announcements (Hirshleifer et al., 2009). In each of these settings, the purportedly distracting event is pre-scheduled and known to market participants long before the release of firm-specific information. Hence, it is unclear why investors would not recognize firms' incentives to strategically time their announcements and adjust their attention accordingly. Moreover, the strategic timing of firm announcements could lead to a serious selection bias when estimating the effect of distraction on investor attention. This potential bias calls for a measure

of distractions that are unanticipated ex-ante and do not provide value-relevant information. The measure of competing stimuli that we use in this study, DNP, is superior to the ones used by prior literature as it is more plausibly unpredictable and exogenous to the valuation decisions faced by investors. These features of DNP allow us to more credibly examine whether and to what extent investor attention to corporate announcements is sensitive to distractions.[3]

Another important contribution of our study is the examination of a comprehensive set of corporate announcements. Much of the prior literature focuses on investor inattention to earnings announcements. However, earnings announcements may not be representative of other types of corporate announcements, especially given the salience of earnings news to the market. In addition, earnings announcements are typically scheduled in advance and prior research shows that the scheduling of earnings announcements has information content (DeHaan et al., 2015; Johnson and So, 2017). The scheduling feature of earnings announcements allows investors to anticipate the release of corporate information and adjust their attention level. However, this is not true for other, unscheduled, corporate announcements, suggesting the level of attention to such announcements could be different. By using a broad set of corporate announcements, we are able not only to provide more comprehensive evidence on the effect of distraction on investor attention, but also compare the relative impact of competing stimuli on each of these announcements. We find the strongest effects of distraction when examining investor attention to managerial forecasts and other press releases. We find moderate evidence of investor inattention around earnings and dividend announcements and the least evidence of investor inattention around stock repurchase or M&A announcements.

Taken together, our results provide compelling evidence on the limitations of investor attention. We find that investors are susceptible to distractions in their reactions to corporate announcements. The extent to which they are distracted is related to the type of announcement (predictable versus unpredictable) and also the type of investor (retail versus sophisticated); we find the strongest

[3]We take several steps to ensure that DNP is distinct from common measures of competing stimuli such as Fridays. We first show that the distribution of DNP is not seasonal within weeks or across months or years. In additional analyses, we contrast DNP with other measures of competing stimuli, more directly, and find compelling evidence of a reduced investor attention on high DNP days incremental to those measures. Moreover, we find that DNP is the only measure that has a consistently negative association with investor attention.

incidence of inattention displayed by retail investors in their response to irregularly-occurring announcements. In doing so, we contribute to the active debate on the existence (or lack thereof) of investor inattention in capital markets (DellaVigna and Pollet, 2009; DeHaan et al., 2015; Michaely et al., 2016b).

2. Research design

We hypothesize that investor reactions to corporate announcements are weaker on days with high levels of distractions. To test this hypothesis, we use a Daily News Pressure (DNP) index as a measure of the extent to which investors face distractions that are unpredictable by both investors and managers. We identify a broad set of corporate announcements to which investors are expected to react and construct two different measures of investor attention. In the sections that follow, we outline the construction of the DNP variable, present the set of corporate announcements on which we focus, discuss our measures of investor attention, and explain the empirical framework we use to test our hypothesis.

2.1. Daily news pressure index

To develop a proxy for the presence of unexpected competing stimuli, we construct a time-series of the DNP index. The notion that investor attention is subject to capacity constraints suggests that less attention can be devoted to a firm-specific announcement when there is a great deal of other breaking news. Following Eisensee and Stromberg (2007), we measure the availability of newsworthy material as the median number of minutes across the three main U.S. television news broadcasts (ABC, CBS, and NBC) devoted to the first three news segments in a given day.

To do that, we obtain from the Vanderbilt Television News Archives a detailed list of all news segments broadcasted by the three networks on their evening news each day between January 1, 1980 and December 31, 2015. We then count, for each network, the total number of seconds spent on the first three news segments (excluding commercials, anchor segments, and program introductions). The daily median number of seconds is then divided by 60 to derive a Daily News Pressure index. Because the duration of the evening news program is 30 minutes, the DNP index will take a

value between (close to) zero and thirty.[4] Also, even though the DNP itself is based on television broadcasts airing at 5:30 pm (i.e., after market close) we expect that it will be an informative summary statistic for the level of distraction faced by investors during trading hours. Typically the content of television broadcasts is driven by newsworthy events occurring throughout the day rather than breaking news occurring during the broadcasts themselves. Appendix B provides more details on the construction of the DNP index, including an illustrative example of the calculation of DNP each day.[5]

Figure 1 plots the DNP index for all trading days between January 1, 1980 and December 31, 2015. Among the unique trading days in our sample, the mean (median) DNP index is 8.59 (8.17), and the inter-quartile range is 7.17-9.50. The index exceeds 20.0 on only nine occasions. As Figure 1 indicates, the index is fairly stable over our sample period, with the vast majority of values falling between 5 and 10. To further address concerns about seasonality in the index, we also examine the distribution of DNP by month and by day of week in Figure 2. We find no significant differences among either the means or the ranges of DNP when sorted by days of the week or by months of the year. This evidence supports the view that the DNP index captures the construct of unexpected distractions and does not exhibit any seasonality. Nonetheless, in our tests we include firm- and day-of-week-indicator variables to make sure our inferences are not affected by potential firm-specific sensitivity to DNP or cyclicality of distraction as they are measured by DNP.

A key feature of our identification strategy is the notion that the news events reflected in our measure of distraction are unpredictable by both investors and corporates. Thus, unlike prior studies that use predictable measures of investor distraction (e.g., Fridays, scheduled sporting events and scheduled macroeconomic news releases), our tests are less likely to suffer from a potential self-selection bias related to firms' strategic disclosure choices. We also assume that DNP offers a measure of investor distraction that is exogenous to corporate announcements. To provide some validity to this assumption, Table B.2 lists the dates with the highest DNP for each year between

[4]The Vanderbilt Television News Archives contain evening news broadcasts from the major U.S. national television networks beginning August 5, 1968. We focus on ABC, CBS, and NBC broadcasts because they have retained the same format (i.e., 30 minutes aired between 5:30-6:00pm) over our sample period, 1980-2015. In contrast, CNN had varying news formats over our sample period, and Fox News is only available after 2004.

[5]In the rare instances where the news broadcast deviates from the normal 30-minute format, typically when there are extraordinary events (e.g., on September 11, 2001), we set the index to missing value.

1980 and 2015, along with the main news event on that day. As the list indicates, high values of the index typically coincide with major unexpected news events. As Table B.2 indicates, the news events do not seem to be related to corporate announcements. This assumption is also consistent with inferences made about the DNP measure in a contemporaneous working paper by Peress and Schmidt (2016) that investigates the causal effect of retail trading on stock market liquidity. Peress and Schmidt (2016) find that trading activity, liquidity, and volatility all decline among stocks owned predominately by retail investors on days with high DNP. More importantly for our analysis, they find that DNP exhibits negligible correlation with macroeconomic news, investor sentiment, or other information related to future corporate cash flows or discount rates.[6] This finding, together with the distributional statistics presented in our study, suggests that variation in the DNP measure is largely orthogonal to firm-specific information contained in corporate announcements.

2.2. Corporate announcements

Most prior studies of investor attention focus on attention to earnings announcements only. For continuity with this literature we too examine how investor attention around earnings announcements changes in response to distractions. However, because earnings announcements may not be representative of other types of corporate announcements, especially given the salience and scheduling features of earnings news, we also consider a variety of other major announcements made by companies. Specifically, we test our hypothesis using the following broad set of major corporate announcements: (1) earnings announcements (EA); (2) management forecasts (MF); (3) dividend announcements (Div); (4) stock repurchases (Rep); (5) merger and acquisition announcements (M&A), and (6) other announcements not captured by the aforementioned categories (Other). A detailed description of the announcements in the "Other" category are available in Appendix C. The major components of the "Other" category of corporate announcements include announcements related to reorganizations (e.g. discontinued operations, executive changes), financial reporting and legal issues (e.g. delayed filings, auditor changes) and capital market activity

[6]Specifically, Peress and Schmidt (2016) show that DNP is not significantly correlated with instances of Federal Open Market Committee meetings or with releases of the Consumer Price Index or U.S. employment statistics from the Bureau of Labor Statistics.

(e.g. debt financing, private placements). By analyzing a broad set of corporate announcements, we are able to provide a more comprehensive assessment of investor attention and compare the relative impact of competing stimuli on investor attention to different announcement types.

2.3. Measures of investor attention

Our primary measure of investor attention is the level of abnormal trading volume of a firm's stock. This measure captures the abnormal level of trading activity by equity investors in response to a given corporate announcement. We expect abnormal trading volume to be a monotonically increasing function of investor attention to firm-specific news. In using trading volume as a measure of investor attention, we follow a substantial body of prior work.[7] The seminal work by Beaver (1968) documents a significant increase in trading volume around earnings announcements that he attributes to differential beliefs about firm value or differential risk preferences. A necessary condition for such differences to arise is that investors are paying attention to the announcement being made. We believe trading volume is a particularly good proxy for investor attention in our setting since it isolates attention from equity investors - as opposed to the general public - and reflects the actions taken by those investors. As Bamber et al. (2011) note, trading volume "arguably provides the most direct evidence that disclosure has affected individual investors."

We measure abnormal trading volume ($\text{ATVol}_{i,t}$) as the natural logarithm of one plus the average share turnover ratio for firm i across days [0,+1], scaled by the average daily turnover ratio over days [-54 ,-5] relative to announcement day t:

$$ATVol_{i,t} = \ln\left(1 + \frac{\frac{1}{2}\sum_{j=0}^{1} TR_{i,t+j}}{\frac{1}{50}\sum_{j=5}^{54} TR_{i,t-j}}\right)$$

In using abnormal trading volume as a measure of investor attention, we make the relatively straightforward but nonetheless critical assumption that investors are more likely to trade a particular stock when they pay more attention to it. To the extent that investors trade mechanically or pay attention to a stock but decide not to trade, our usage of trading volume will measure investor attention with error. For instance, DeHaan et al. (2015) suggest that the relation between atten-

[7] See Verrecchia (2001) and Bamber et al. (2011) for summaries of the extensive literature on trading volume.

tion and volume is based on an equilibrium concept that may be violated by the limited attention bias. To address this concern, we also consider Google search volume as an alternative measure of investor attention. We define abnormal Google search volume as one plus the natural logarithm of the average Google search volume index (SVI) level across days [0,+1] scaled by the average Google SVI over days [-30,-1] relative to announcement day t:

$$AGVol_{i,t} = \ln\left(1 + \frac{\frac{1}{2}\sum_{j=0}^{1} SVI_{i,t+j}}{\frac{1}{30}\sum_{j=1}^{30} SVI_{i,t-j}}\right)$$

Following Da et al. (2011) and Drake et al. (2012), we measure the Google search volume index of individual firm tickers.[8] Restrictions on data availability require us to use the fixed-scaling Google search data. As a result, our measures of Google SVI are in relative terms based on January 1, 2005 (the first day of Google search volume data availability) as a reference point. Chi and Shanthikumar (2017) note that there are geographical biases in Google search behavior. Because we focus on analyzing investor attention to corporate announcements made by U.S. firms, we only include searches originating in the U.S. in the construction of AGVol.

2.4. Empirical framework

To test our hypothesis, we estimate several versions of the following regressions:

$$ATTN_{i,t} = \alpha_i + \beta_1 DNP_t + \beta_2 AbsRet_{i,t} + \gamma Controls_{i,t} + \epsilon_{i,t} \tag{1a}$$

$$ATTN_{i,t} = \alpha_i + \beta_1 DNP_t + \beta_2 AbsRet_{i,t} + \beta_3 DNP_t \times AbsRet_{i,t} + \gamma Controls_{i,t} + \epsilon_{i,t} \tag{1b}$$

We estimate equations (1a) and (1b) using a combined sample of all corporate announcement days and separately for each of the six announcement categories. In these equations, $\text{ATTN}_{i,t}$ denotes the level of market attention, measured as either abnormal trading volume (ATVol) or abnormal Google search volume (AGVol), for firm i over days [0,+1]. DNP_t, our main variable of interest, is the average of the DNP index over days [0,+1] relative to the corporate announcement day t.

[8] Da et al. (2011) justify the use of tickers rather than full company names by noting that tickers are "less ambiguous" and relatively more likely be used by investors interested in financial information than searches for full company names, which are often the result of searches by users interested in non-financial information.

We hypothesize that investor attention to corporate announcements is lower on days with larger distractions. Hence, we predict that the coefficient β_1 on DNP_t will be negative. Equations (1a) and (1b) also include $\text{AbsRet}_{i,t}$, which denotes the absolute value of firm-specific return over days [0,+1] relative to the corporate announcement day t. $\text{AbsRet}_{i,t}$ serves as a measure of the magnitude of information provided in each corporate announcement.[9] We expect that announcements that bring more information to the market will garner more attention and generate more trading volume and Google searches.

Because it is possible that the effect of distractions on investor attention is only observable when corporate announcements contain news that motivates investors to trade, we also estimate equation (1b). In equation (1b) we include the interaction of DNP_t with $\text{AbsRet}_{i,t}$ as an additional explanatory variable. This allows us to examine how the relationship between trading volume and DNP changes with the magnitude of new information arriving in the market. We predict that coefficient β_3 on this interactive term will be negative, indicating that the level of market attention to corporate announcements, per unit of news, is lower on days with more distraction.

In the controls vector we include several non-stationary firm characteristics that prior research shows to be correlated with investor attention: firm size ($\text{Size}_{i,t}$), book-to-market ratio ($\text{BTM}_{i,t}$), analyst coverage ($\text{Analyst}_{i,t}$), and institutional ownership ($\text{InstOwn}_{i,t}$). We measure $\text{Size}_{i,t}$ as the natural logarithm of the market value of equity for firm i on day t. $\text{Analyst}_{i,t}$ is defined as the natural logarithm of one plus the number of analysts issuing an earnings forecast for firm i in the given month and $\text{InstOwn}_{i,t}$ is defined as the number of firm i's shares held by institutions, scaled by the total number of shares outstanding as of the most recent quarter-end. When using abnormal trading volume as a proxy for investor attention, we also include the contemporaneous level of abnormal market trading volume (ATVol_Mkt_t) as an additional control.

In all of our estimations we also include day-of-week fixed effects to accommodate potential within-week variation in investor attention to corporate announcements. Since this involves the

[9]Our measure of information is firm-specific total return and not market-adjusted return because our measure of investor attention is the level of total trading volume for a given firm. Nonetheless, to ensure that our inferences are not affected by this research design choice, we re-estimate all of our regressions with market-adjusted returns in untabulated analyses. Our inferences remain the same using market-adjusted returns in lieu of total firm-specific returns.

inclusion of a Friday fixed effect, this approach also address concerns about the potential effect of distractions on Fridays (DellaVigna and Pollet, 2009). In addition, we include firm fixed effects to capture time-invariant differences in investor attention across firms. Hence, our identification comes from within-firm variation. We base our inferences on t-statistics computed using robust standard errors clustered by both firm and day.

3. Data and results

3.1. Sample

We test our hypothesis using firm-day observations from a broad set of major corporate announcements. We identify earnings announcement days using the Compustat, CRSP, and I\B\E\S databases following the methodology outlined by DellaVigna and Pollet (2009) to address potential inaccuracies in the reported announcement dates across databases. We obtain management forecast data from First Call and Capital IQ. We obtain dates of share repurchases and M&A announcements from the Securities Data Corporation (SDC) database and dividend announcement dates from Compustat. All other announcement dates are retrieved from Capital IQ. We restrict our sample to publicly traded U.S. firms with relevant accounting data available in Compustat and share code '10' or '11' in CRSP.

This data collection process results in a combined sample of unique 1,397,785 firm-day observations from 10,494 distinct firms from January 2, 1980 to December 31, 2015. The exact start date of each announcement subsample varies with data availability.[10] For instance, we are able to identify earnings, dividends, and M&A announcements starting in January 1980. For stock repurchases, management forecasts, and "other" announcements, our sample period begins in 1981, 1995, and 2003, respectively. It is uncommon to observe a firm make multiple types of announcements on the same day, so the vast majority (approximately 93%) of firm-days feature a single announcement.[11]

[10] Aside from data availability constraints, we avoid imposing sample-reducing filters in order to obtain the most comprehensive sample possible. One potential concern with this approach is the possibility that our results are unduly affected by extreme observations in our samples. We adopt two approaches to address this concern. First, to mitigate the effect of outliers, we winsorize ATVol, ATVol_Mkt, BTM, InstOwn, AbsRet, and Size variables at 1%. Additionally, in untabulated analyses we confirm that all of our results are unchanged if the sample is restricted to firms with share prices greater than $1.

[11] In untabulated tests we confirm that our findings are the same if we restrict each corporate announcement

Panel A of Table 1 presents an overview of the sample composition by corporate announcement category. Our largest subsample, the group of "other" announcements, comprises 765,533 firm-day observations. This is not surprising given that the "other" category includes a medley of different announcements. Aside from the "other" category, earnings announcements are our most frequent announcement category (348,778 firm days) and stock repurchases (14,482 firm days) are the least frequent.

Panel B of Table 1 provides descriptive statistics for the main variables in our analysis. Consistent with the idea that AbsRet quantifies the news provided by firm-specific announcements, panel B indicates that the mean (0.036) and median (0.021) values of AbsRet are significantly different from 0. Since Google only makes search trends data available starting in 2005, we can only estimate AGVol for 741,363 firm-days. Panel C of Table 1 provides unconditional Pearson (above the diagonal) and Spearman (below the diagonal) correlations between several of the key variables in our analysis. We observe that the correlation between abnormal trading volume and abnormal Google search volume, our two measures of investor attention, is positive but relatively small ($\rho = .124$). This bolsters our assumption that they capture related but distinct dimensions of investor attention. We also observe negative Pearson correlations between both measures of investor attention and DNP. This provides preliminary support for our hypothesis that investor attention to corporate announcements is weaker on high-distraction days.

Table 2 provides descriptive statistics for a subset of variables in each of our six announcement subsamples. We find that DNP is almost identically distributed across each subsample. This is consistent with the view that DNP is a randomly determined variable and that managers cannot strategically schedule corporate announcements around DNP levels in order to exploit variation in investor attention. Panels A through F of Table 2 reveal that announcement returns exhibit variation according to the type of news being disclosed. For instance, dividend announcements, which are often simply reiterating a well-known dividend policy, have a mean absolute announcement return of 2.4%. In contrast, management forecasts and earnings announcements have higher mean absolute announcement returns of 6.5% and 4.9%, respectively. We also note that ATVol

subsample to non-overlapping announcements only.

has higher means in the EA, MF, and Rep announcement samples and AGVol has higher means in the EA, MF, and M&A samples relative to the other types of announcements. To the extent that ATVol and AGVol capture the construct of investor attention, these univariate statistics suggest that traders may be paying more attention to these types of announcements.

3.2. Results based on a combined sample of corporate announcements

Our first set of tests is based on estimation of equations (1a) and (1b) using a combined sample of all six categories of corporate announcements. Table 3 presents regression summary statistics of both equations using the level of abnormal trading volume, ATVol, as a proxy for investor attention. Consistent with prior literature and the notion that the absolute value of stock returns captures the magnitude of information in the announcement, we find that the coefficient on AbsRet in both regressions is positive and significant. We also find firms with high book-to-market ratios experience lower trading volume in response to corporate announcements; this supports the idea of firms with high book-to-market ratios being neglected by market participants.

In column 1 of Table 3 we observe a significantly negative coefficient on DNP. This supports our hypothesis that investors pay less attention to corporate announcements if those announcements are made on days with greater distraction. We find that a one standard deviation increase in the level of distraction on a firm-announcement day is associated with a one percentage point reduction in announcement-period trading volume relative to a non-announcement control period.[12] Given that trading volume is 19% higher around announcements relative to the non-announcement periods, this effect implies a 5% reduction in investor attention to corporate announcements on high distraction days.

In column 2 of Table 3 we find that the coefficient estimate on the interaction of DNP and AbsRet is also significantly negative. Although the main effect of DNP is positive in column 2, we note that because the mean value of AbsRet in our sample is 0.036, the overall effect of DNP on abnormal trading volume is negative on average (and will be negative for all instances of AbsRet

[12] We obtain the estimated one percentage point effect by multiplying the product of standard deviation of DNP (2.178) and the estimated coefficient on DNP (-0.00198) by 1 plus the average value of ATVol in our sample (1.19).

above 0.014).[13] A one standard deviation increase in the level of distraction is associated with a one-half percent reduction in abnormal trading volume per unit of news (AbsRet). Given that the abnormal trading volume increases by 5.5 percentage points per unit of news, our findings reveal that a one standard deviation increase in the level of distraction constitutes a 3.8% reduction in the trading volume response to news.

Table 4 presents regression summary statistics of equations (1a) and (1b) where the proxy for investor attention is the abnormal level of Google search volume, AGVol. Unlike trading volume, we observe a significantly positive relationship between book-to-market ratio and abnormal Google search volume on announcement days. One possible explanation for these results is that investors are investigating high book-to-market firms when they make announcements but are ultimately deciding not to trade. Consistent with our hypothesis, we observe a significantly negative coefficient on DNP across both specifications in Table 4. The interactive effect of DNP and AbsRet is also significantly negative. The coefficient estimate on the interaction of DNP and AbsRet suggests that when taking into consideration the amount of new information arriving to the market in each firm announcement, the relationship between corporate news and Google search volume is weaker on high-distraction days. Given that Google volume increases by 1.3 percentage points per unit of AbsRet, our findings reveal that a one standard deviation increase in the level of distraction constitutes a 5.1% reduction in the Google volume response to news in corporate announcements. Overall, the results in Table 4 reveal lower Google search volume in response to corporate announcements if those announcements are made on days with large distractions.

3.3. Results based on announcement subsamples

In Tables 5 through 8 we turn our attention to announcement subsamples. These tables present summary statistics from estimating equations (1a) and (1a) separately for each subsample. Table

[13]The positive coefficient on the main effect of DNP in column 2 of Table 3 is consistent with there being a non-zero amount of trading volume in the market due to investor preferences for trading or automated trades. Essentially, the main effect of DNP is capturing the effect of DNP on days with zero returns. On such days, investors should adjust their trading downward but, because of high levels of distraction, may fail to do so. This would give rise to the observed positive coefficient on DNP. The same intuition would also explain the observed negative coefficient on the interaction of DNP with AbsRet; as the amount of news increases, investors make insufficiently large adjustments to their trading activity.

5 presents results from estimating equation (1a) with ATVol as the dependent variable. Column 1 presents results for the earnings announcement sample. In this setting we find that the coefficient on DNP is negative but not significantly distinguishable from zero. Turning our attention to the other event samples, we find that the coefficient on DNP is significantly negative for all other events except stock repurchases. The contrast in results between earnings announcements and other announcement types is noteworthy and suggests that the setting of earnings announcements may not be generalizable to other types of announcements when investigating investor attention. Given the amount of awareness of earnings announcements, it seems reasonable that, on average, investors would make special efforts to observe and internalize the information in earnings announcements. In addition, to the extent that a particular corporate announcement (e.g., stock repurchases) does not carry information, we would not expect there to be an abnormal volume reaction, and consequently would also not expect the volume reaction to be reduced by the presence of large distractions. The results in Table 5 are consistent with this characterization.

We also examine investor attention per unit of news by estimating equation (1b). In equation (1b) we introduce the interaction of DNP with AbsRet, which captures the information content of each corporate announcement. Table 6 presents summary statistics from the estimation of equation (1b) separately for each announcement sample with ATVol as the dependent variable. As Table 6 indicates, the interaction of DNP with AbsRet carries a significantly negative coefficient across all subsamples. This supports our hypothesis by showing that whenever there is a corporate announcement that generates non-zero returns, the volume reaction is lower on high news pressure days. Though the main effect of DNP appears positive, the overall effect is consistently negative at the mean level of announcement returns for each subsample.

Tables 7 and 8 are analogous to Tables 5 and 6 with abnormal Google search volume (AGVol) as the dependent variable. In Table 7 we find that abnormal Google search volume around corporate announcements is lower for all announcements made on high DNP days, except for stock repurchase and M&A announcements. We note that the DNP coefficient estimates in these samples are also negative but not statistically significant, which might be due to lack of power because of relatively small sample sizes for these announcements in conjunction with our fixed effect structure

(particularly for stock repurchase announcements). In Table 8 we further find that the coefficient estimate on the interaction between DNP and AbsRet is also significantly negative for the same samples. Taken together, our abnormal Google search volume tests provide additional support to our hypothesis that investors pay less attention to corporate announcements made on days with high levels of distraction.

4. Additional analyses

4.1. Retail trading volume as a measure of investor attention

The idea that investors may pay less attention to corporate announcements when faced with greater distraction arises from Kahneman's (1973) argument that attention is a scarce cognitive resource. In this framework, the degree of inattention investors exhibit is an inverse function of the resources they have to facilitate information processing. One class of investors who are likely to have particularly scarce information processing resources is retail investors. For instance, Blankespoor et al. (2017) show that retail investors are motivated to trade by automated "robo-journalism" articles that merely synthesize stale information, suggesting that retail investors might have difficulty collecting and parsing information when it is initially disseminated.

We explore the possibility that retail investors are more likely to exhibit periods of inattention by examining the extent to which abnormal retail trading volume around corporate announcements is sensitive to the level of DNP. We adopt the methodology outlined by Boehmer et al. (2016) and Blankespoor et al. (2017) to distinguish trades involving retail investors in the NYSE Trade and Quote (TAQ) database. TAQ assigns exchange code "D" to all trades reported to a FINRA Trade Reporting Facility (TRF). These trades are almost all either retail trades or institutional dark-pool trades, and it is possible to distinguish between them by examining the price improvement on the trade. Boehmer et al. (2016) report that institutional trades usually occur at the penny or half-penny, while retail trades are more likely to receive a small fractional-cent price improvement relative to National Best Bid or Offer. By excluding all trades that occur at the penny or half-penny, we are able to identify a portion of trading volume that results exclusively from retail trading.[14]

[14]Blankespoor et al. (2017) note that this approach offers low type I and high type II errors. In other words, using

As with ATVol, we measure abnormal retail trading volume (ARVol) for a given firm announcement as the natural logarithm of one plus the firm's daily average retail shares traded over days t and $t+1$, scaled by the firm's trailing retail volume average over days [-54, -5] relative to the announcement date. Due to the availability of TAQ data, we are only able to estimate ARVol from 2003 to 2015. This reduces our combined sample to 755,754 unique firm-announcement days. In untabulated analyses we find that the distribution of ARVol is very similar to that of ATVol and that ARVol is noticeably higher around earnings announcements and management forecasts relative to the other types of corporate announcements.

Table 9 presents regression summary statistics from the estimation of equations (1a) and (1b) where the proxy for investor attention is the abnormal level of retail trading volume, ARVol. Our inferences from this estimation are largely similar to those based on analysis of overall trading volume. We find a consistently and significantly negative relationship between DNP and abnormal retail trading volume. This indicates that the retail trading volume response to corporate announcements is lower on high DNP days. In Tables 10 and 11 we focus our analysis of abnormal retail trading volume on each of our six announcement subsamples. In Table 10 we observe lower retail trading volume in response to announcements made on high DNP days across all announcement types except for M&A announcement. When we allow DNP to interact with AbsRet, in Table 11, we continue to find strong support for our hypothesis. The interaction of DNP with AbsRet is significantly negative across all subsamples except for stock repurchases, which again is likely to suffer from low power due to the reduced sample size.

4.2. Alternative measures of investor distraction

Prior research on investor inattention is conflicted on whether investors suffer from distraction and whether investor distraction can have capital market consequences (DellaVigna and Pollet, 2009; Hirshleifer et al., 2009; Melessa, 2013; Michaely et al., 2016b). One reason for this ambiguity may be the lack of a clear identification strategy. Prior research identifies Fridays and days with

this approach we are unlikely to misclassify trades as retail, but probably are not capturing the full extent of retail trading. Therefore, the difference between total trading volume and our measure of retail trading volume is not an effective measure institutional trading volume.

many earnings announcements as days with greater potential distraction to investors. One challenge presented by this approach is the fact that these measures of distraction are commonly known ex-ante and could be used by managers to strategically decide when to release information to the market (Penman, 1980; DeHaan et al., 2015; Johnson and So, 2017). This challenge creates the possibility of a selection bias in studies that attempt to measure inattention using such measures (Michaely et al., 2016a,b).

A key feature of our identification strategy is the independence of DNP, our measure of investor distraction, from corporate announcement decisions. Unlike Fridays and the number of earnings announcements, DNP is not predictable ex-ante, making it hard, if not impossible, for managers to time their announcements in response to DNP levels. Nonetheless, for completeness and comparison purposes, we replicate our tests including two alternative measures of investor distraction used by prior literature. The first measure, an indicator variable that takes on the value of one if the announcement is made on Friday, is relatively straightforward. The second measure, the number of contemporaneous corporate announcements, is based on Hirshleifer et al. (2009). Focusing exclusively on earnings announcements, Hirshleifer et al. (2009) propose a day-specific measure of potential distraction, NumEA, defined as the number of other earnings announcements made on a given day. Since we consider six types of corporate announcements in our sample, we modify the NumEA measure slightly. Specifically, we define a day-specific variable called NumAll which measures the number of corporate announcements made by other firms on a given day. We augment equations (1a) and (1b) with Friday and NumAll as additional control variables and re-estimate the two equations using each of our three measures of investor attention (ATVol, AGVol, and ARVol) as dependent variables.

Table 12 presents summary statistics from re-estimating equations (1a) and (1b) with Friday and NumAll as additional measures of distraction. As Table 12 indicates, neither Friday nor NumAll is consistently related to any of our measures of investor attention. In columns 1 and 2, where ATVol is the dependent variable, we observe that Friday has a positive and significant coefficient. This suggests that, all else equal, announcements made on Friday are accompanied by higher abnormal trading volume, and is consistent with findings by DeHaan et al. (2015) and Michaely et al. (2016a)

that call into question the assertion that investor attention is lower on Fridays. The coefficient estimates on NumAll in columns 1 and 2 are negative but statistically indistinguishable from zero. In addition, both Friday and NumAll appear unrelated to ATVol when they are interacted with AbsRet as a measure of the news content of the announcement.

In columns 3 and 4 of Table 12, where AGVol is the dependent variable, we find that Friday has a significantly negative coefficient and a negative interactive term, suggesting that the level of abnormal Google search volume is lower on Fridays. However, these results do not diminish the effect of DNP; both the main effect and interactive term of DNP are negatively related to AGVol as well. In contrast, NumAll has a slightly positive coefficient, suggesting *more* firm-specific Google search volume on days with more announcements from other firms. This contradicts the proposed interpretation of NumAll as a measure of investor distraction. Turning our attention to abnormal retail trading volume in columns 5 and 6, we again observe no statistical relationship between ARVol and either Friday or NumAll. The interaction of Friday with AbsRet is also indistinguishable from zero, and the interaction of NumAll with AbsRet is positive, indicating there is higher retail volume per unit of news on days with more contemporaneous announcements. On the other hand, our measure of distraction, DNP, has a negative overall and conditional relation with ARVol.

The findings presented in Table 12 show that our results attributed to the DNP measure of investor distraction are incremental to those previously documented using alternative measures of investor distraction. While DNP seems to have a uniformly negative relation to all three measures of investor attention, this is clearly not the case with either Friday or NumAll. We also use a much broader set of corporate announcements, which allows us to revisit the efficacy of those alternative measures of distraction. Taken together, our findings using DNP as a measure of distraction provide stronger evidence for the adverse effect of distraction on investor attention to corporate announcement than do studies employing Fridays or NumAll.

4.3. Using returns to measure information and investor attention

In our main tests, our primary market-based measure of investor attention is abnormal trading volume. We believe trading volume is well-suited to measure investor attention in equity markets

because it helps us distinguish attention from investors from that of the general public. It also quantifies real actions taken by those investors. A popular alternative measure of investor attention used in prior studies is the short-window stock return around an announcement (DellaVigna and Pollet, 2009; Hirshleifer et al., 2009; Drake et al., 2016; Michaely et al., 2016a). However, the purported relation between investor attention and stock returns is tenuous because we expect stock prices to be somewhat insensitive to investor distraction. Specifically, it is plausible that while retail investors are distracted and thus inattentive to some corporate announcements, there are still a host of sophisticated investors who observe the announcements and trade accordingly to impound the new information into stock prices. Consistent with this view, Melessa (2013) finds that much of the underreaction around earnings announcements can be explained by macroeconomic uncertainty rather than investor inattention.

Accordingly, in our primary analyses, we assume that stock returns reflect the information content of corporate announcements and use short-window returns as a measure of the informativeness of these announcements. According to this assumption, one should not observe a differential stock price reaction to corporate announcements due to inattention of retail traders. To provide empirical support to our assumption, we test whether market reaction to corporate announcements is sensitive to investor distraction as measured by DNP. In order to do so we adopt the framework outlined by DellaVigna and Pollet (2009); Hirshleifer et al. (2009) and Michaely et al. (2016a) and estimate the following equation:

$$Ret_{i,t} = \beta_i + \beta_1 DNP_t + \beta_2 PosSurp_{i,t} + \beta_3 PosSurp_{i,t} \times DNP_t + \Gamma_0 Controls_{i,t} + \epsilon_{i,t} \qquad (2)$$

We only estimate equation (2) for the subsamples of earnings announcements, management forecasts, and dividend announcements because it is only for these announcement types that we have a quantifiable measure of the information content of the announcement that is separate from returns. For all other announcement types there is no reference point other than stock returns for assessing the information content and hence no way of understanding whether the stock return is commensurate to that information content. We quantify the information content of earnings announcements as the standardized unexplained earnings based on a seasonal random walk and estimate equation

(2) on a sample of the top and bottom deciles of earnings surprises. We quantify the information content of dividend announcements and management forecasts as the change from the most recent previous announcement.

In equation (2) the dependent variable, $\text{Ret}_{i,t,}$, is the return for firm i over days [0,+1] relative to announcement day t. $\text{PosSurp}_{i,t}$ is an indicator variable that captures extreme good news. For earnings announcements and management forecasts, PosSurp equals 1 if the magnitude of the announcement is in the top decile of all announcements of the same type made in that year, and zero otherwise. For dividends, PosSurp equals 1 if the dividend announcement reflected a positive change relative to the previously announced dividend, and zero otherwise. As controls we include the market return over the same period (Ret_Mkt), firm size (Size), book-to-market ratio (BTM), analyst coverage (Analyst), institutional ownership (InstOwn), and firm and day-of-week fixed effects. As before, we cluster standard errors by both firm and day.

Table 13 presents results from the estimation of equation (2). Consistent with our conjecture, we do not find differential price reaction to corporate announcements on days with high DNP. Both the main effect of DNP and the interactive effect of DNP with Surp have coefficients that are indistinguishable from zero. This indicates that announcement returns are not systematically different on high DNP days relative to other days. These results are consistent with our assumption that returns are an appropriate measure of the news content in each announcement. Moreover, it reinforces our belief that measures such as trading volume and Google search volume are more appropriate proxies of investor attention than are stock returns.

5. Conclusion

We investigate whether and to what extent investors are distracted in their reactions to corporate announcements. To offer comprehensive analyses of investor attention to different announcement types, we consider a wide range of corporate announcements including earnings announcements, management forecasts, dividend announcements, stock repurchases, merger and acquisition announcements, and other announcements. We measure investor attention using three volume-based metrics: overall trading volume, Google search volume, and retail trading volume. Using

each of these metrics, we find evidence of investor inattention to corporate announcements.

A central contribution of our study is our use of a daily news pressure index as a measure of the presence of potential distraction. Prior literature relies on measures such as Fridays, major sporting events (Drake et al., 2016), scheduled releases of key macroeconomic indicators (Kasznik and Kremer, 2014), and days with many earnings announcements (Hirshleifer et al., 2009) to capture potential distraction. A limitation shared by all of the measures used in prior research lies in their ex-ante predictability. This creates a significant empirical challenge along two dimensions when attempting to assess the level of investor attention to corporate announcements. First, to the extent that distraction is predictable ex-ante, investors can make extra efforts to overcome the distraction. Additionally, managers can strategically time announcements to either take advantage of or avoid high-distraction periods. Given these empirical challenges, it is not surprising that there is an active debate in the literature regarding both the existence and the extent of investor inattention (DellaVigna and Pollet, 2009; Michaely et al., 2016a,b). In contrast to these measures, DNP is largely unpredictable and unrelated to investors' valuation decisions. As such, it offers us the ability to examine investor attention in the absence of strategically-timed announcements. Using this more effective measure of competing stimuli, we are able to draw more robust inferences regarding the limitations of investor attention. Our findings indicate that, in the presence of distraction, investor attention is contingent on the type of announcement being made, and that retail investors are particularly susceptible to periods of inattention.

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Fig. 1. Daily news pressure index between 1980 and 2015

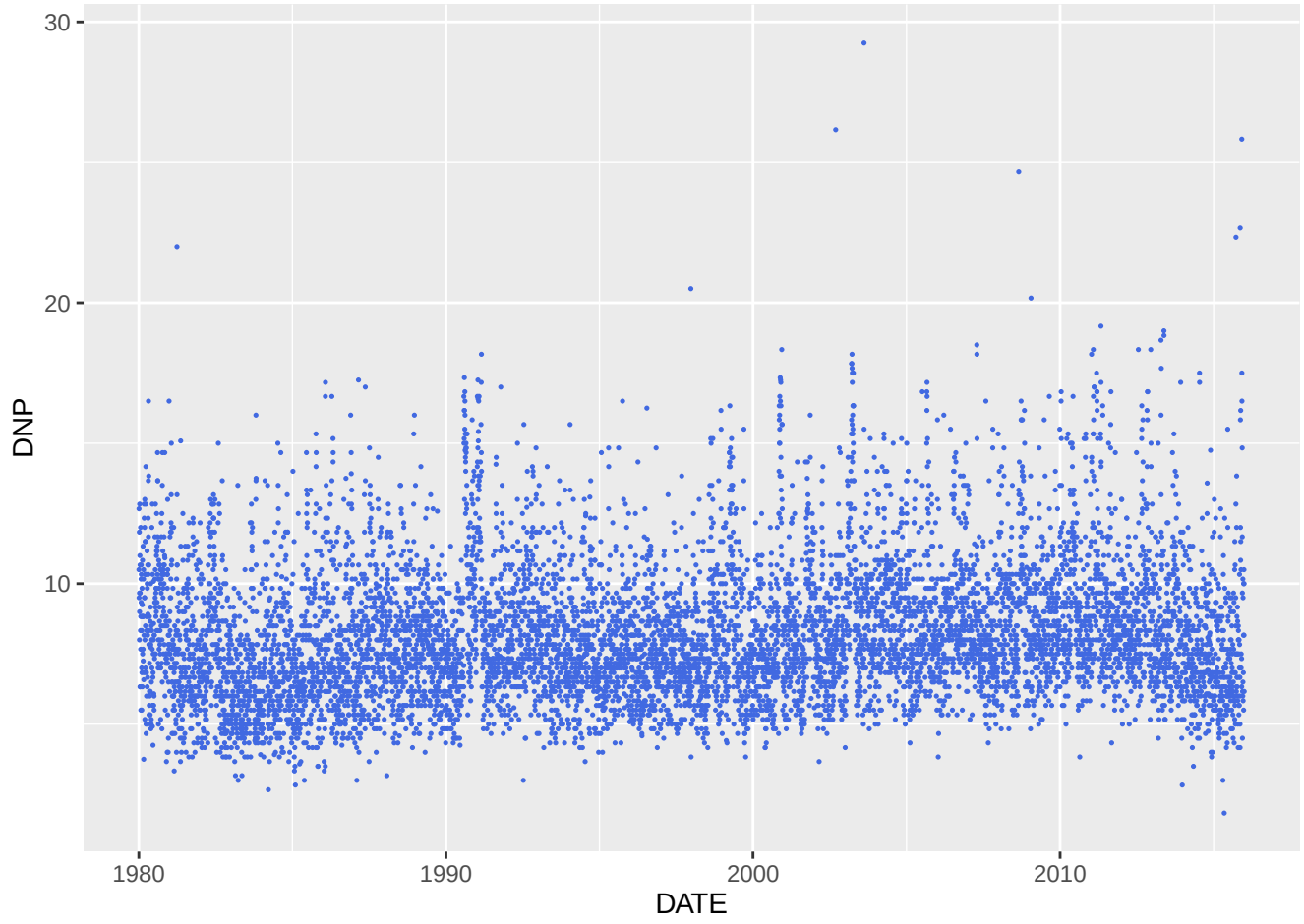
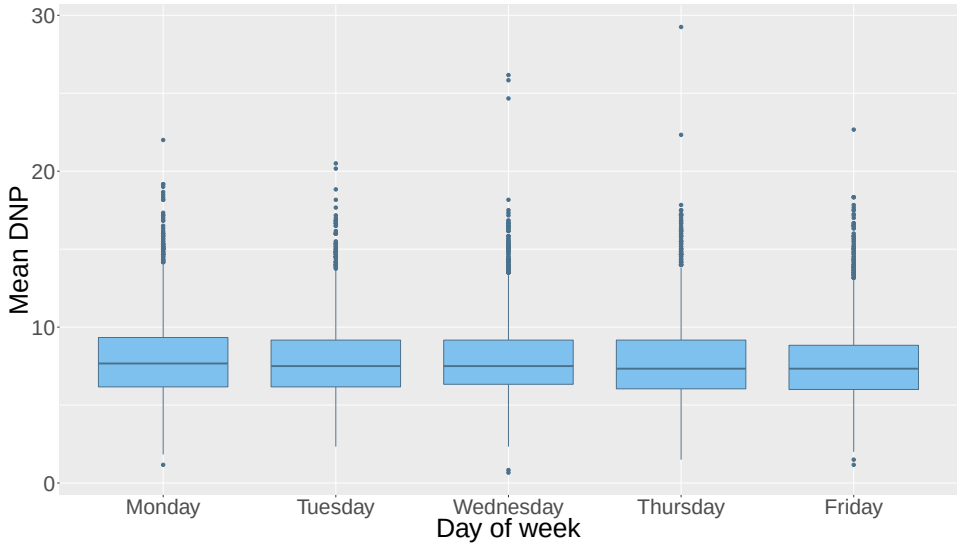


Fig. 2. Distribution of the daily news pressure index by day and month
Panel A (B) provides a distribution of DNP by days of the week (months of the year).

(a) Distribution by day of week



(b) Distribution by month

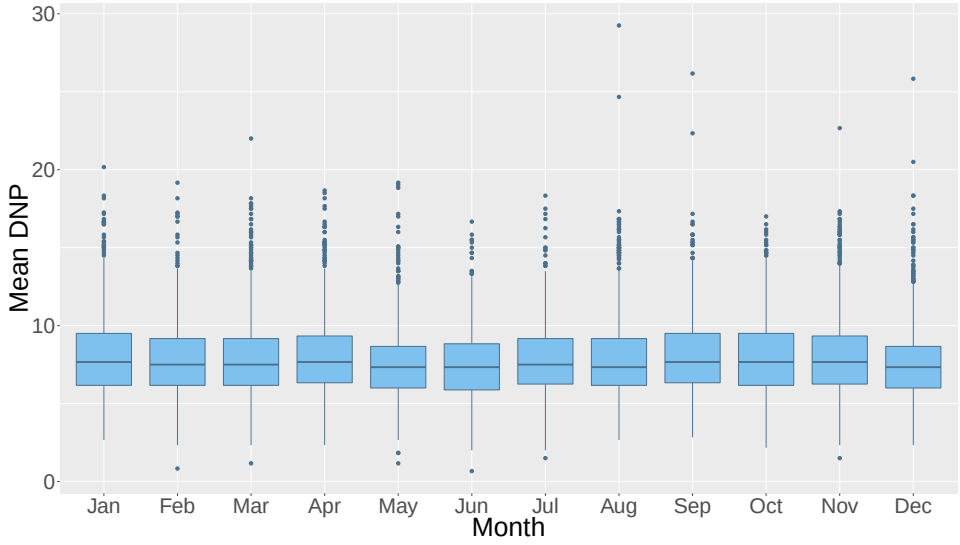


Table 1: Descriptive statistics for the combined sample of corporate announcements

Panel A outlines the combined sample composition by corporate announcement type. Panel B and C provides descriptive statistics and a correlation matrix, respectively, for the main variables in our analysis over our full sample. In Panel C, Pearson (Spearman) correlations are reported above (below) the diagonal. All reported correlations are distinct from zero at the 1% significance level. All variable definitions appear in Appendix A.

(a) Sample composition

Unique firm days	1,397,785
With earnings announcements	348,778
With management forecasts	110,538
With dividend announcements	190,106
With stock repurchase announcements	14,482
With M&A announcements	60,388
With other announcements	765,533

(b) Descriptive statistics

Variable	N	Mean	SD	Q25	Median	Q75
ATVol	1,397,785	0.784	0.416	0.518	0.693	0.951
AGVol	741,363	0.687	0.371	0.587	0.700	0.815
ATVol_Mkt	1,397,785	0.703	0.074	0.659	0.702	0.744
DNP	1,397,785	8.588	2.178	7.167	8.167	9.500
AbsRet	1,397,785	0.036	0.042	0.009	0.021	0.045
Size	1,397,785	6.735	2.168	5.158	6.600	8.146
BTM	1,397,785	0.596	0.532	0.271	0.477	0.777
Analyst	1,397,785	0.913	0.990	0.000	0.693	1.609
InstOwn	1,397,785	0.553	0.282	0.325	0.596	0.785

(c) Correlation matrix

	ATVol	AGVol	DNP	AbsRet	Size	BTM	Analyst	InstOwn
ATVol		0.124	-0.004	0.462	-0.044	-0.016	-0.059	0.016
AGVol	0.105		-0.016	0.082	0.093	-0.02	0.045	0.036
DNP	0.003	-0.018		0.021	0.024	0.007	0.025	0.071
AbsRet	0.345	0.047	0.026		-0.205	0.073	-0.115	-0.062
Size	0.046	0.108	0.029	-0.179		-0.304	0.566	0.545
BTM	-0.038	-0.03	-0.004	-0.003	-0.317		-0.15	-0.166
Analyst	-0.006	0.056	0.027	-0.088	0.554	-0.167		0.384
InstOwn	0.07	0.03	0.087	-0.033	0.564	-0.162	0.387	

Table 2: Descriptive statistics for announcement subsamples

Panels A through F provides descriptive statistics for key dependent and explanatory variables in our analysis over each of our 6 distinct corporate announcement subsamples. All variable definitions appear in Appendix A.

(a) Earnings announcement subsample

Variable	N	Mean	SD	Q25	Median	Q75
ATVol	348,778	0.942	0.495	0.599	0.877	1.208
AGVol	100,600	0.720	0.414	0.598	0.708	0.850
DNP	348,778	8.379	2.150	6.917	8.000	9.333
AbsRet	348,778	0.049	0.053	0.012	0.031	0.066

(b) Management forecast subsample

Variable	N	Mean	SD	Q25	Median	Q75
ATVol	110,538	1.109	0.445	0.801	1.041	1.344
AGVol	71,203	0.774	0.414	0.637	0.725	0.884
DNP	110,538	8.682	2.173	7.167	8.333	9.583
AbsRet	110,538	0.065	0.066	0.018	0.044	0.088

(c) Dividend announcement subsample

Variable	N	Mean	SD	Q25	Median	Q75
ATVol	190,112	0.714	0.397	0.459	0.655	0.895
AGVol	45,570	0.683	0.343	0.600	0.699	0.801
DNP	190,112	8.213	2.102	6.750	7.833	9.167
AbsRet	190,112	0.024	0.025	0.007	0.016	0.032

(d) Stock repurchase subsample

Variable	N	Mean	SD	Q25	Median	Q75
ATVol	14,482	0.937	0.505	0.606	0.832	1.151
AGVol	4,473	0.701	0.374	0.607	0.703	0.821
DNP	14,482	8.368	2.120	6.917	7.958	9.250
AbsRet	14,482	0.043	0.048	0.011	0.027	0.056

(e) M&A announcement subsample

Variable	N	Mean	SD	Q25	Median	Q75
ATVol	60,388	0.777	0.427	0.509	0.685	0.933
AGVol	16,995	0.722	0.361	0.619	0.715	0.834
DNP	60,388	8.295	2.091	6.833	7.917	9.250
AbsRet	60,388	0.035	0.041	0.009	0.022	0.045

(f) Other announcement subsample

Variable	N	Mean	SD	Q25	Median	Q75
ATVol	765,533	0.710	0.336	0.507	0.645	0.826
AGVol	560,792	0.676	0.358	0.582	0.697	0.807
DNP	765,533	8.793	2.191	7.333	8.417	9.583
AbsRet	765,533	0.030	0.033	0.008	0.019	0.039

Table 3: Trading volume reaction to corporate announcements

This table presents regression results from the estimation of Equations (1a) and (1b) on our combined sample of corporate announcements using abnormal trading volume, ATVol, as the dependent variable. Two-way firm and date cluster robust standard errors are in parentheses. All variable definitions appear in Appendix A.

	Dependent variable:	
	ATVol	
	(1)	(2)
ATVol_Mkt	0.84937^{***}	0.85113^{***}
	(0.01688)	(0.01672)
Size	0.02330^{***}	0.02325^{***}
	(0.00122)	(0.00122)
AbsRet	4.60571^{***}	5.39357^{***}
	(0.04373)	(0.15281)
BTM	-0.04448^{***}	-0.04424^{***}
	(0.00209)	(0.00208)
Analyst	-0.02522^{***}	-0.02521^{***}
	(0.00087)	(0.00087)
InstOwn	-0.02205^{***}	-0.02240^{***}
	(0.00524)	(0.00524)
DNP	-0.00198^{***}	0.00127^{**}
	(0.00043)	(0.00050)
DNP × AbsRet		-0.09085^{***}
		(0.01805)
Firm FE	Yes	Yes
Day of week FE	Yes	Yes
Observations	1,397,785	1,397,785
Adjusted R^2	0.26653	0.26694
Note:	*p<0.1; **p<0.05; ***p<0.01	

Table 4: Google search volume reaction to corporate announcements

This table presents regression results from the estimation of Equations (1a) and (1b) on our combined sample of corporate announcements using AGVol as the dependent variable. Two-way firm and date cluster robust standard errors are in parentheses. All variable definitions appear in Appendix A.

	Dependent variable:	
	AGVol	
	(1)	(2)
Size	0.03540***	0.03547***
	(0.00196)	(0.00196)
AbsRet	0.99854***	1.25504***
	(0.03344)	(0.08761)
BTM	0.01150***	0.01156***
	(0.00228)	(0.00228)
Analyst	−0.00339***	−0.00337***
	(0.00084)	(0.00084)
InstOwn	0.00611	0.00588
	(0.00697)	(0.00698)
DNP	−0.00216***	−0.00117*
	(0.00055)	(0.00063)
DNP × AbsRet		−0.02921***
		(0.00922)
Firm FE	Yes	Yes
Day of week FE	Yes	Yes
Observations	741,363	741,363
Adjusted R^2	0.06002	0.06006
Note:	*p<0.1; **p<0.05; ***p<0.01	

Table 5: Trading volume reaction to distinct corporate announcements

This table presents regression results from the estimation of Equation (1a) on separate announcement subsamples using abnormal trading volume, ATVol, as the dependent variable. Two-way firm and date cluster robust standard errors are in parentheses. All variable definitions appear in Appendix A.

	Dependent variable:					
	ATVol					
	EA	MF	Div	Rep	M&A	Other
	(1)	(2)	(3)	(4)	(5)	(6)
ATVol_Mkt	0.74208***	0.51221***	0.69761***	0.62668***	0.80672***	0.84921***
	(0.02611)	(0.03628)	(0.01486)	(0.08044)	(0.02675)	(0.02261)
Size	0.04195***	0.07101***	0.01702***	0.00306	−0.00441	0.02901***
	(0.00185)	(0.00362)	(0.00196)	(0.00921)	(0.00305)	(0.00163)
AbsRet	3.90402***	3.67011***	4.85243***	3.59971***	4.69462***	4.19176***
	(0.04197)	(0.04425)	(0.07456)	(0.19079)	(0.07641)	(0.06726)
BTM	−0.03683***	−0.06284***	−0.01947***	−0.02173	−0.04198***	−0.03409***
	(0.00307)	(0.00607)	(0.00423)	(0.02214)	(0.00809)	(0.00233)
Analyst	0.00542***	−0.00762***	−0.00448***	−0.00233	−0.00759***	−0.01706***
	(0.00162)	(0.00215)	(0.00147)	(0.00743)	(0.00226)	(0.00075)
InstOwn	0.10494***	0.05203***	0.01656*	0.03738	0.11677***	−0.06848***
	(0.00949)	(0.01390)	(0.00884)	(0.04488)	(0.01481)	(0.00595)
DNP	−0.00074	−0.00247**	−0.00105**	−0.00420	−0.00190**	−0.00139***
	(0.00069)	(0.00097)	(0.00050)	(0.00264)	(0.00087)	(0.00043)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Day of week FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	348,778	110,538	190,106	14,482	60,388	765,533
Adjusted R^2	0.29413	0.40694	0.17437	0.21709	0.27741	0.20209
Note:						*p<0.1; **p<0.05; ***p<0.01

Table 6: Trading volume reaction to distinct corporate announcements with returns interactions

This table presents regression results from the estimation of Equation (1b) on separate announcement subsamples using abnormal trading volume, ATVol, as the dependent variable. Two-way firm and date cluster robust standard errors are in parentheses. All variable definitions appear in Appendix A.

	Dependent variable:					
	ATVol					
	EA	MF	Div	Rep	M&A	Other
	(1)	(2)	(3)	(4)	(5)	(6)
ATVol_Mkt	0.74432***	0.51177***	0.69976***	0.62882***	0.80866***	0.85016***
	(0.02557)	(0.03606)	(0.01481)	(0.08184)	(0.02670)	(0.02257)
Size	0.04173***	0.07116***	0.01692***	0.00312	−0.00452	0.02925***
	(0.00184)	(0.00362)	(0.00196)	(0.00919)	(0.00306)	(0.00163)
AbsRet	4.60289***	4.20890***	6.48157***	5.18591***	5.89634***	5.10395***
	(0.15754)	(0.15094)	(0.23829)	(0.68040)	(0.25897)	(0.23261)
BTM	−0.03665***	−0.06261***	−0.01886***	−0.01993	−0.04145***	−0.03396***
	(0.00306)	(0.00605)	(0.00424)	(0.02203)	(0.00810)	(0.00234)
Analyst	0.00548***	−0.00759***	−0.00446***	−0.00253	−0.00750***	−0.01702***
	(0.00161)	(0.00215)	(0.00147)	(0.00741)	(0.00226)	(0.00075)
InstOwn	0.10480***	0.05136***	0.01706*	0.03801	0.11639***	−0.06937***
	(0.00946)	(0.01389)	(0.00883)	(0.04471)	(0.01479)	(0.00593)
DNP	0.00329***	0.00148	0.00369***	0.00336	0.00312***	0.00166***
	(0.00072)	(0.00103)	(0.00069)	(0.00365)	(0.00112)	(0.00062)
DNP × AbsRet	−0.08160***	−0.06180***	−0.19335***	−0.18611**	−0.14316***	−0.10253***
	(0.01902)	(0.01784)	(0.02809)	(0.07549)	(0.02995)	(0.02532)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Day of week FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	348,778	110,538	190,106	14,482	60,388	765,533
Adjusted R^2	0.29449	0.40732	0.17508	0.21826	0.27820	0.20256
Note:						*p<0.1; **p<0.05; ***p<0.01

Table 7: Google search volume reaction to distinct corporate announcements

This table presents regression results from the estimation of Equation (1a) on separate announcement subsamples using abnormal Google search volume, AGVol, as the dependent variable. Two-way firm and date cluster robust standard errors are in parentheses. All variable definitions appear in Appendix A.

	Dependent variable:					
	AGVol					
	EA	MF	Div	Rep	M&A	Other
	(1)	(2)	(3)	(4)	(5)	(6)
Size	0.04888***	0.06603***	0.04576***	0.07646***	0.03626***	0.02844***
	(0.00376)	(0.00519)	(0.00613)	(0.02608)	(0.00863)	(0.00196)
AbsRet	0.67942***	0.74162***	0.56288***	0.78137***	1.02193***	0.87420***
	(0.03426)	(0.03877)	(0.07624)	(0.27375)	(0.13293)	(0.03403)
BTM	0.01626***	0.02425***	0.04610***	0.15582***	−0.00565	0.01009***
	(0.00467)	(0.00673)	(0.00947)	(0.04979)	(0.01348)	(0.00230)
Analyst	0.00992***	−0.00527**	0.00094	−0.00725	0.00245	0.00201***
	(0.00247)	(0.00256)	(0.00260)	(0.01263)	(0.00389)	(0.00077)
InstOwn	−0.00027	−0.05349***	0.05570**	0.15228	−0.01885	0.00765
	(0.01511)	(0.01790)	(0.02225)	(0.10670)	(0.03600)	(0.00714)
DNP	−0.00234***	−0.00220***	−0.00129*	−0.00284	−0.00025	−0.00208***
	(0.00074)	(0.00072)	(0.00078)	(0.00443)	(0.00145)	(0.00062)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Day of week FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	100,614	71,206	45,571	4,473	16,997	560,836
Adjusted R^2	0.10876	0.15558	0.10135	0.17078	0.12001	0.06409
Note:						*p<0.1; **p<0.05; ***p<0.01

Table 8: Google search volume reaction to distinct corporate announcements with returns interactions

This table presents regression results from the estimation of Equation (1b) on separate announcement subsamples using abnormal Google search volume, AGVol, as the dependent variable. Two-way firm and date cluster robust standard errors are in parentheses. All variable definitions appear in Appendix A.

	Dependent variable:					
	AGVol					
	EA	MF	Div	Rep	M&A	Other
	(1)	(2)	(3)	(4)	(5)	(6)
Size	0.04899***	0.06611***	0.04593***	0.07619***	0.03613***	0.02849***
	(0.00376)	(0.00519)	(0.00612)	(0.02614)	(0.00864)	(0.00196)
AbsRet	0.93837***	0.95571***	1.05713***	0.28407	1.64933***	1.03570***
	(0.11522)	(0.12654)	(0.24399)	(0.95898)	(0.47736)	(0.10058)
BTM	0.01638***	0.02429***	0.04603***	0.15573***	−0.00542	0.01011***
	(0.00467)	(0.00672)	(0.00946)	(0.04984)	(0.01349)	(0.00230)
Analyst	0.00991***	−0.00524**	0.00089	−0.00715	0.00254	0.00201***
	(0.00247)	(0.00256)	(0.00261)	(0.01265)	(0.00389)	(0.00077)
InstOwn	−0.00069	−0.05392***	0.05581**	0.15231	−0.01936	0.00750
	(0.01511)	(0.01789)	(0.02225)	(0.10648)	(0.03607)	(0.00715)
DNP	−0.00064	−0.00075	0.00021	−0.00503	0.00176	−0.00156**
	(0.00088)	(0.00098)	(0.00100)	(0.00580)	(0.00191)	(0.00070)
DNP × AbsRet	−0.02967**	−0.02444*	−0.05613**	0.05560	−0.07124	−0.01828*
	(0.01282)	(0.01341)	(0.02571)	(0.10247)	(0.05215)	(0.01053)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Day of week FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	100,614	71,206	45,571	4,473	16,997	560,836
Adjusted R^2	0.10883	0.15562	0.10144	0.17065	0.12014	0.06410
Note:						*p<0.1; **p<0.05; ***p<0.01

Table 9: Retail trading volume reaction to corporate announcements

This table presents regression results from the estimation of Equations (1a) and (1b) on our combined sample of corporate announcements using abnormal retail trading volume, ARVol, as the dependent variable. Two-way firm and date cluster robust standard errors are in parentheses. All variable definitions appear in Appendix A.

	Dependent variable:	
	ARVol	
	(1)	(2)
ATVol_Mkt	0.54251***	0.54390***
	(0.03177)	(0.03144)
Size	0.05470***	0.05509***
	(0.00245)	(0.00245)
AbsRet	4.64440***	5.84069***
	(0.06810)	(0.24087)
BTM	−0.02655***	−0.02641***
	(0.00299)	(0.00299)
Analyst	−0.04724***	−0.04714***
	(0.00148)	(0.00148)
InstOwn	0.00110	−0.00047
	(0.00811)	(0.00810)
DNP	−0.00284***	0.00193**
	(0.00074)	(0.00081)
DNP × AbsRet		−0.13610***
		(0.02769)
Firm FE	Yes	Yes
Day of week FE	Yes	Yes
Observations	755,745	755,745
Adjusted R^2	0.25205	0.25293
Note:	*p<0.1; **p<0.05; ***p<0.01	

Table 10: Retail trading volume reaction to distinct corporate announcements

This table presents regression results from the estimation of Equation (1a) on separate announcement subsamples using abnormal retail trading volume, ARVol, as the dependent variable. Two-way firm and date cluster robust standard errors are in parentheses. All variable definitions appear in Appendix A.

	Dependent variable:					
	ARVol					
	EA	MF	Div	Rep	M&A	Other
	(1)	(2)	(3)	(4)	(5)	(6)
ATVol_Mkt	0.20499***	0.09076	0.45869***	0.56438***	0.52391***	0.48720***
	(0.05769)	(0.05994)	(0.03865)	(0.13246)	(0.05204)	(0.02376)
Size	0.10104***	0.10186***	0.04150***	0.08669***	0.03781***	0.02793***
	(0.00561)	(0.00614)	(0.00715)	(0.03253)	(0.00980)	(0.00187)
AbsRet	3.65504***	3.81148***	3.42925***	4.26158***	4.90975***	3.44390***
	(0.06551)	(0.06096)	(0.11775)	(0.31208)	(0.14033)	(0.06015)
BTM	−0.02874***	−0.04848***	−0.01230	0.01434	−0.08957***	−0.01590***
	(0.00621)	(0.00901)	(0.00963)	(0.05824)	(0.01700)	(0.00256)
Analyst	0.00470	−0.02467***	−0.01922***	−0.02846**	−0.02734***	−0.02221***
	(0.00359)	(0.00352)	(0.00293)	(0.01365)	(0.00396)	(0.00099)
InstOwn	0.01684	0.00774	−0.04088*	0.13003	−0.08250**	−0.00325
	(0.02064)	(0.02023)	(0.02248)	(0.11060)	(0.03764)	(0.00687)
DNP	−0.00661***	−0.00591***	−0.00325***	−0.00830*	−0.00224	−0.00162***
	(0.00171)	(0.00157)	(0.00104)	(0.00453)	(0.00154)	(0.00056)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Day of week FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	104,197	71,913	47,327	4,665	16,613	570,635
Adjusted R^2	0.34688	0.36783	0.22448	0.28048	0.29176	0.13885
Note:						*p<0.1; **p<0.05; ***p<0.01

Table 11: Retail trading volume reaction to distinct corporate announcements with returns interactions

This table presents regression results from the estimation of Equation (1b) on separate announcement subsamples using abnormal retail trading volume, ARVol, as the dependent variable. Two-way firm and date cluster robust standard errors are in parentheses. All variable definitions appear in Appendix A.

	Dependent variable:					
	ARVol					
	EA	MF	Div	Rep	M&A	Other
	(1)	(2)	(3)	(4)	(5)	(6)
ATVol_Mkt	0.20456***	0.09043	0.45853***	0.56445***	0.52592***	0.48861***
	(0.05692)	(0.05962)	(0.03822)	(0.13235)	(0.05149)	(0.02367)
Size	0.10135***	0.10233***	0.04223***	0.08702***	0.03712***	0.02828***
	(0.00561)	(0.00614)	(0.00715)	(0.03251)	(0.00984)	(0.00188)
AbsRet	4.37756***	4.56254***	5.04449***	4.80592***	7.14598***	4.50511***
	(0.25940)	(0.21389)	(0.39004)	(1.03363)	(0.49615)	(0.20634)
BTM	−0.02854***	−0.04837***	−0.01253	0.01464	−0.09042***	−0.01587***
	(0.00621)	(0.00900)	(0.00956)	(0.05812)	(0.01707)	(0.00256)
Analyst	0.00464	−0.02463***	−0.01938***	−0.02864**	−0.02720***	−0.02216***
	(0.00358)	(0.00351)	(0.00293)	(0.01364)	(0.00395)	(0.00099)
InstOwn	0.01594	0.00605	−0.04122*	0.12927	−0.08820**	−0.00459
	(0.02060)	(0.02019)	(0.02243)	(0.11031)	(0.03777)	(0.00686)
DNP	−0.00188	−0.00070	0.00175	−0.00594	0.00538***	0.00195***
	(0.00181)	(0.00186)	(0.00133)	(0.00588)	(0.00207)	(0.00070)
DNP × AbsRet	−0.08247***	−0.08557***	−0.18210***	−0.06104	−0.25437***	−0.12020***
	(0.03132)	(0.02525)	(0.04450)	(0.11195)	(0.05705)	(0.02275)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Day of week FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	104,197	71,913	47,327	4,665	16,613	570,635
Adjusted R^2	0.34727	0.36836	0.22543	0.28037	0.29408	0.13955
Note:						*p<0.1; **p<0.05; ***p<0.01

Table 12: Daily news pressure and other measures of investor distraction

This table presents regression results from the estimation of Equation (1b) including Friday and NumAll as alternative measures of distractions. The estimation is based on our combined sample and using each of our three measures of investor attention: abnormal trading volume; abnormal Google search volume, and abnormal retail trading volume, as dependent variables. Additional control variables include Size, BTM, Analyst, InstOwn. When the dependent variable is either ATVol or ARVol, we also include ATVol_Mkt as an additional control. Two-way firm and date cluster robust standard errors are in parentheses. All variable definitions appear in Appendix A.

	Dependent variable:					
	ATVol		AGVol		ARVol	
	(1)	(2)	(3)	(4)	(5)	(6)
AbsRet	4.60521***	5.40394***	0.99557***	0.96038**	4.64471***	1.48823
	(0.04373)	(0.24836)	(0.03341)	(0.37616)	(0.06806)	(0.97527)
DNP	−0.00192***	0.00134***	−0.00221***	−0.00128*	−0.00276***	0.00184**
	(0.00042)	(0.00048)	(0.00059)	(0.00067)	(0.00074)	(0.00081)
Friday	0.01006***	0.00988***	−0.07306***	−0.06831***	0.00265	−0.00386
	(0.00328)	(0.00368)	(0.00447)	(0.00498)	(0.00601)	(0.00595)
NumAll	−0.00301	−0.00311	0.01014*	0.00835	0.02128***	−0.00268
	(0.00200)	(0.00211)	(0.00545)	(0.00591)	(0.00684)	(0.00556)
DNP × AbsRet		−0.09105***		−0.02715***		−0.12997***
		(0.01796)		(0.00925)		(0.02760)
Friday × AbsRet		0.00764		−0.14461***		0.21368
		(0.10185)		(0.05448)		(0.15405)
NumAll × AbsRet		−0.00187		0.04935		0.70892***
		(0.03863)		(0.05814)		(0.15151)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Day of week FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,397,785	1,397,785	741,363	741,363	755,745	755,745
Adjusted R^2	0.26655	0.26696	0.06016	0.06024	0.25247	0.25413
Note:						*p<0.1; **p<0.05; ***p<0.01

Table 13: Stock return reaction to corporate announcements

This table presents regression results from the estimation of Equation (2) on our earnings announcement, management forecast, and dividend announcement subsamples. Two-way firm and date cluster robust standard errors are in parentheses. All variable definitions appear in Appendix A.

	Dependent variable:		
	Ret		
	(1)	(2)	(3)
Ret_Mkt	0.88620***	1.13578***	1.02414***
	(0.02613)	(0.04815)	(0.19433)
Size	−0.00863***	−0.02455***	−0.02639***
	(0.00061)	(0.00209)	(0.00700)
BTM	−0.01497***	−0.01689***	−0.03530*
	(0.00122)	(0.00397)	(0.01976)
Analyst	0.00034	−0.00223**	0.00159
	(0.00054)	(0.00106)	(0.00459)
InstOwn	0.01133***	0.02103***	0.00788
	(0.00288)	(0.00749)	(0.03134)
DNP	−0.00014	0.00034	0.00609
	(0.00020)	(0.00063)	(0.00528)
EA_PosSurp	0.02535***		
	(0.00249)		
DNP × EA_PosSurp	0.00021		
	(0.00029)		
MF_PosSurp		0.10181***	
		(0.00703)	
DNP × MF_PosSurp		−0.00070	
		(0.00075)	
Div_PosSurp			0.07287
			(0.04684)
DNP × Div_PosSurp			−0.00662
			(0.00535)
Firm FE	Yes	Yes	Yes
Day of week FE	Yes	Yes	Yes
Observations	69,880	22,144	1,579
Adjusted R^2	0.10785	0.37034	0.24455
Note:		*p<0.1; **p<0.05; ***p<0.01	

Appendix A. Variable definitions

Variable	Description
$\text{AbsRet}_{i,t}$	Absolute cumulative stock return for firm i during days t and $t+1$
$\text{AGVol}_{i,t}$	Log of 1 + the ratio of Google search volume index (SVI) for firm i on day t to the average SVI over days $t-31$ to $t-1$
$\text{Analyst}_{i,t}$	Log of 1 + the number of analysts providing an earnings forecast for firm i during month t
$\text{ARVol}_{i,t}$	Log of 1 + the ratio of average retail share volume for firm i across days t and $t+1$ to the average retail share volume for firm i over days $t-54$ to $t-5$
$\text{ATVol}_{i,t}$	Log of 1+ the ratio of average share turnover for firm i across days t and $t+1$ to the average daily turnover for firm i over days $t-54$ to $t-5$
ATVol_Mkt_t	Log of 1+ the ratio of average share turnover for the market across days t and $t+1$ to the average daily turnover for the market over days $t-54$ to $t-5$
$\text{BTM}_{i,t}$	Ratio of book value of equity to market value of equity for firm i on day t
DNP_t	Average daily news pressure across days t and $t+1$
Friday_t	Indicator equalling 1 if day t is a Friday, and 0 otherwise
$\text{InstOwn}_{i,t}$	Percentage of firm i's shares owned by institutions at the most recent quarter-end relative to day t
$\text{Ret}_{i,t}$	Cumulative stock return for firm i during days t and $t+1$
Ret_Mkt_t	Cumulative value-weighted market return during days t and $t+1$
$\text{Size}_{i,t}$	Log of market value of equity for firm i on day t
NumAll_t	Log of the number of corporate announcements made on day t. Potential announcements include earnings announcements (EA), dividend announcements (Div), management forecasts (MF), M&A announcements (MA), stock repurchase announcements (Rep), and other corporate announcements (Other).

Appendix B. Daily news pressure construction

The daily news pressure (DNP) index captures the availability of newsworthy material, measured as the median number of minutes across the main TV news broadcasts (ABC, CBS, and NBC) devoted to the first three news segments in a given day. To do that, we obtain from the Vanderbilt Television News Archives a detailed list of all news segments broadcasted by the three networks on their Evening News each day. We then count, for each network, the number of seconds spent on the first three segments (excluding commercials, anchor segments, and program introductions). The daily median number of seconds is then divided by 60 to derive a daily news pressure index. Because the duration of the Evening News program is 30 minutes, the news pressure index takes a value between (close to) 0 and 30.

To further illustrate the data underlying the calculation of DNP, Table B.1 provides the detailed breakdown of evening news coverage on the three main news networks on August 2, 2007. The top three news segments for broadcast are in bold. The table reveals that ABC spent 13:10 minutes on "Minneapolis Bridge Collapse", 2:50 minutes on "Infrastructure", and 0:30 minutes on "Toy Recall" for a total of 990 seconds on its first three news segments. CBS spent 12:30 minutes, 2:50 minutes, and 1:30 minutes (total of 1,010 seconds) on its first three news segments, and NBC spent 13:10 minutes, 2:40 minutes, and 0:30 minutes (total of 980 seconds). Across the three networks, the median number of seconds spent on the first three news segments on August 2, 2007 was 990 seconds, or 16.5 minutes.

In contrast, on August 8, 2007, ABC spent 300 seconds on "Heat Wave", "Global Weather", and "Mine Cave-in", CBS spent 220 seconds on "Mine Cave-in", "Minneapolis Bridge Collapse", and "Wild Weather", and NBC spent 640 seconds on "Heat Wave", "Shuttle Endeavour Liftoff", and "Utah Mine Collapse". Thus, on August 8, 2007 the median number of seconds spent on the first three news segments across the three networks is 300 seconds, or 5.0 minutes. We interpret this as an indication that the news pressure on August 2, 2007 is greater than on August 8, 2007.

Table B.1: Construction of DNP: example from August 2, 2007

No.	Date	Headline	Network	Begin	Length
1	8/2/07	Preview/Introduction Charles Gibson (Minneapolis)	ABC	05:30:00pm	0:50
2	8/2/07	**Minneapolis, Minnesota/Bridge Collapse/The Day After**	ABC	05:30:50pm	13:10
3	8/2/07	Upcoming Items (Minneapolis: Charles Gibson)	ABC	05:44:00pm	0:40
4	8/2/07	(Commercial: VESIcare; Caduet; Florida orange juice.)	ABC	05:44:40pm	2:30
5	8/2/07	**Infrastructure**	ABC	05:47:10pm	2:50
6	8/2/07	Upcoming Items (Minneapolis: Charles Gibson)	ABC	05:50:00pm	0:10
7	8/2/07	(Commercial: Zetia; Gas-X; Benefiber; Centrum; Detrol)	ABC	05:50:00pm	3:00
8	8/2/07	**Toy Recall**	ABC	05:53:00pm	0:30
9	8/2/07	Stock Market Report (Minneapolis: Charles Gibson)	ABC	05:53:30pm	0:10
10	8/2/07	Arctic Grab	ABC	05:53:40pm	0:20
11	8/2/07	Upcoming Items (Minneapolis: Charles Gibson)	ABC	05:54:00pm	0:20
12	8/2/07	(Commercial: Advair; Red Lobster; Serenity; Plavix)	ABC	05:54:20pm	3:00
13	8/2/07	Minneapolis, Minnesota/Bridge Collapse/Book	ABC	05:57:20pm	1:00
14	8/2/07	Good Night	ABC	05:58:20pm	0:10
1	8/2/07	Preview/Introduction Katie Couric (Minneapolis)	CBS	05:30:00pm	0:50
2	8/2/07	**Minneapolis, Minnesota/Bridge Collapse/The Day After**	CBS	05:30:50pm	12:30
3	8/2/07	Upcoming Items (Minneapolis: Katie Couric)	CBS	05:43:20pm	0:20
4	8/2/07	(Commercial: Hyundai; Dannon; Prilosec; Oral-B.)	CBS	05:43:40pm	2:30
5	8/2/07	**Minneapolis, Minnesota/Bridge Collapse/Infrastructure**	CBS	05:46:10pm	2:50
6	8/2/07	Upcoming Items (Minneapolis: Katie Couric)	CBS	05:49:00pm	0:10
7	8/2/07	(Commercial: Serenity; Lanacane; Caduet; Advair)	CBS	05:49:10pm	2:30
8	8/2/07	**Toy Recall**	CBS	05:51:40pm	1:30
9	8/2/07	Stock Market Report (Minneapolis: Katie Couric)	CBS	05:53:10pm	0:30
10	8/2/07	(Commercial: CBS Evening News; Beano; Poligrip)	CBS	05:53:40pm	2:50
11	8/2/07	Minneapolis, Minnesota/Bridge Collapse	CBS	05:56:30pm	2:20
12	8/2/07	Good Night	CBS	05:58:50pm	0:10
1	8/2/07	Preview/Introduction Brian Williams (Minneapolis)	NBC	05:30:00pm	0:30
2	8/2/07	**Minneapolis / Bridge Collapse / The Day After**	NBC	05:30:30pm	13:10
3	8/2/07	Upcoming Items (Minneapolis: Brian Williams).	NBC	05:43:40pm	0:30
4	8/2/07	(Commercial: Bayer; Zetia; Hyundai)	NBC	05:44:10pm	2:20
5	8/2/07	**Minneapolis / Bridge Collapse / Infrastructure**	NBC	05:46:30pm	2:40
6	8/2/07	Upcoming Items (Minneapolis: Brian Williams)	NBC	05:49:10pm	0:30
7	8/2/07	(Commercial: Purina; Imodium; Oral-B; Flomax.)	NBC	05:49:40pm	2:30
8	8/2/07	**Iraq / Gates**	NBC	05:52:10pm	0:30
9	8/2/07	Toy Recall / China / Tainted Products	NBC	05:52:40pm	1:50
10	8/2/07	Stock Market Report (Minneapolis: Brian Williams)	NBC	05:54:30pm	0:10
11	8/2/07	Upcoming Items (Minneapolis: Brian Williams)	NBC	05:54:40pm	0:10
12	8/2/07	(Commercial: Avodart; Serenity; Red Lobster; Viagra)	NBC	05:54:50pm	2:50
13	8/2/07	"Minneapolis, Minnesota / Bridge Collapse "	NBC	05:57:40pm	0:50
14	8/2/07	Good Night	NBC	05:58:30pm	0:10

Table B.2: Maximum DNP by year

Year	Date	Main News Story	DNP
1980	25-Apr	Failed rescue of U.S. hostages (Iran)	16.5
1981	30-Mar	President Reagan assassination attempt	22
1982	4-Aug	Mideast / Lebanon invasion	15
1983	25-Oct	United States / Grenada invasion	16
1984	12-Jul	Walter Mondale's selection of Ferraro as running mate	15
1985	8-Oct	Hijacked cruise ship Achille Lauro	15.3
1986	29-Jan	Space shuttle Challenger explosion	17.2
1987	26-Feb	Iran arms scandal / Commission report	17.2
1988	22-Dec	Pan Am plane crash (Lockerbie, Scotland)	16
1989	9-Mar	John Tower / Senate vote	14.2
1990	8-Aug	Iraq invasion of Kuwait	17.3
1991	27-Feb	Persian Gulf War / Kuwait City liberation	18.2
1992	16-Jul	Campaign '92 / Perot Quits	15.7
1993	20-Apr	Cult compound fire (Waco, Texas)	14.2
1994	17-Jan	Northridge, California earthquake	15.7
1995	3-Oct	O.J. Simpson Trial: The Verdict	16.5
1996	18-Jul	TWA Flight 800 Explosion	16.25
1997	23-Dec	Oklahoma City Bombing: Trial	20.5
1998	16-Dec	U.S. Missile Attack on Iraq	16.17
1999	1-Apr	Kosovo: U.S. Soldiers Captured	16.33
2000	26-Nov	Florida Recount - Certification by Katherine Harris	18.33
2001	13-Sep	9/11 Attack: Day 3	29.67
2002	11-Sep	9/11 Commemoration	26.17
2003	14-Aug	New York City Blackout	29.25
2004	18-Jan	Campaign 2004 / Iowa	15.92
2005	1-Sep	Hurricane Katrina	17.17
2006	20-Mar	Iraq War: Three Years Later	16
2007	16-Apr	Virginia Tech shooting	18.5
2008	27-Aug	Democratic national convention (Denver)	24.7
2009	20-Jan	President Obama inauguration	20.2
2010	14-Jan	Haiti earthquake	16.8
2011	2-May	Osama bin Laden killed (Pakistan)	19.2
2012	20-Jul	Movie theater massacre (Colorado)	18.3
2013	20-May	Deadly tornado (Oklahoma City)	19
2014	17-Jul	Malaysia Airlines crash (Ukraine)	17.5
2015	2-Dec	San Bernardino Shooting	25.8

Appendix C. Announcement event classification

We investigate a comprehensive set of corporate announcements: earnings announcements, management forecasts, dividend announcements, stock repurchases, merger and acquisition announcements, and announcements of other news not captured by the aforementioned categories. Table C.1 provides a detailed summary of all types of announcement events as defined by Capital IQ that we label as "Other."

Table C.1: Announcement events classified as "Other"

Reorganization	**Financial Reporting and Legal Issues**	**Capital Market Activity**
Bankruptcy - Conclusion	Auditor Changes	Composite Units Offerings
Bankruptcy - Emergence/Exit	Auditor Going Concern Doubts	Debt Defaults
Bankruptcy - Filing	Delayed SEC Filings	Debt Financing Related
Bankruptcy - Other	Impairments/Write Offs	Delistings
Bankruptcy Asset Sale/Liquidation	Restatements of Operating Results	Derivative/Other Instrument Offerings
Bankruptcy Financing	SEC Inquiries	Exchange Changes
Bankruptcy Reorganization		Fixed Income Offerings
Business Reorganizations		Follow-on Equity Offerings
Changes in Company Bylaws/Rules		IPOs
Discontinued Operations/Downsizings		Lawsuits & Legal Issues
Executive Changes - CEO		Private Placements
Executive Changes - CFO		Public Offering Lead Underwriter Change
Legal Structure Changes		Shelf Registration Filings
Spin-Off/Split-Off		Structured Products Offerings

Additional events		
Address Changes	Fiscal Year End Changes	Project Event
Analyst Investor Day	Guidance/Update Calls	Sales/Trading Statement Calls
Announcements of Sales/Trading Statement	Index Constituent Adds	Seeking Acquisitions/Investments
Annual General Meetings	Index Constituent Drops	Seeking Financing/Partners
Board Meetings	Investor Conference	Seeking to Sell/Divest
Client Announcements	Joint Filing and Solicitation	Settlement Agreement
Conference Presentation Calls	Labor-related Announcements	Settlement Offer
Confidentiality Agreement	Letter to Chairman and/or CEO	Shareholder/Analyst Calls
Considering Multiple Strategic Alternatives	Name Changes	Special Calls
Declaration of Voting Results 10Q/13D/Any SEC form	Nomination	Special/Extraordinary Shareholders Meetings
End of Lock-Up Period	Nomination Agreement	Standstill Agreement
Executive/Board Changes Other	Potential Privatization of Government Entities	Strategic Alliances
Expected Sales/Trading Statement Release Date	Product-Related Announcements	Ticker Changes