Continuous Disclosure Requirements and the Investor Distraction Hypothesis

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April 4, 2014

Keywords: distraction, continuous disclosure, underreaction.

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Abstract

Hirshleifer et al. (2009) support their investor distraction hypothesis by evidence that investors underreact to earnings announcement surprises when there are many other earnings announcements on the same day. Using a broader scope of announcements in the Australian market that has a continuous disclosure requirement and a centralized news platform, we measure abnormal market activity and compare the reaction across days with varying levels of other distracting announcements. Our results support the investor distraction hypothesis and we also find that the announcements released later during the day may suffer more from investor distraction and information overload. Market reaction delays are not caused by either additional company information releases or by analyst recommendation revisions. The distraction effect is still present even in a market that has actions designed to reduce the impact of investor distraction, such as labeling certain announcements as market sensitive and using trading halts to attract investor attention.

Continuous Disclosure Requirements and the Investor Distraction Hypothesis

1. Introduction

Every trading day, the volume of information released in the market may exceed what a typical investor can gather and process. The concurrent volume of information is likely to affect the level of attention investors can pay to specific information releases by individual firms. Hirshleifer et al. (2009) propose the *investor distraction hypothesis* that predicts that with more concurrent news events, investors will be distracted and will underreact to news. They confirm their hypothesis by examining quarterly earnings announcement surprises between 1995 and 2004.

The bulk of the time period Hirshleifer et al. (2009) examine is before Regulation Fair Disclosure (RFD) came into effect in the U.S. and their research focuses on a subset of the multitude of information that reaches the market each day. Are investors distracted in the same way when reacting to announcements other than earnings announcements where there is often a quantifiable market expectation? Do investors react to good and bad news in the same way? Does the timing of the announcement matter to how much investors are distracted? Are there regulatory procedures that can be used to reduce investor distraction? In this paper we study these questions by examining the market reaction to a much broader set of announcements in a market with characteristics that resemble the U.S. post-RFD environment.

We use all announcements released by companies trading on the Australian Securities Exchange (ASX) between 2005 and 2009. There are five distinct advantages of using these announcements to examine the investor distraction hypothesis. First, through the Company Announcements Platform (CAP), the ASX provides a centrally organized system where all announcements are made available to investors (ASX 2008). Regardless of the level of media coverage of announcements disclosed by certain firms, CAP gives equal access of disclosures by firms of all sizes and industries to all market participants. This feature allows us to be

precise about when an announcement is widely released to the market, much like the post-RFD environment in the U.S. Second, there are strict immediacy requirements, where ASX Rule 3.1 states that: "Once an entity is or becomes aware of any information concerning it that a reasonable person would expect to have a material effect on the price or value of the entity's securities, the entity must immediately tell the ASX that information"[1]. This feature ensures that information is widely disseminated immediately when known with less opportunity to strategically time announcements. Third, announcements submitted by firms to the ASX are analyzed and classified by the ASX as either market sensitive (MSA) or non-market sensitive (non-MSA) thereby providing investors with an indication of the importance of the news. Over the period 2005 – 2009, the average number of daily announcements is 425. This total includes a daily average of 104 market sensitive announcements, diminishing the amount of potentially distracting information by highlighting the information identified as market sensitive. Fourth, announcements are categorized into one or many of 19 different announcement types, providing a classification system to assist investors with identifying relevant information. Finally, a trading halt is imposed when a market sensitive announcement is released[2]. This feature of the market focuses attention on the stock after an announcement.

This paper contributes to the literature in several ways. First, we expand testing on the investor distraction hypothesis by developing and calibrating abnormal trading activity metrics to examine the immediate and long term market reaction to announcements while testing investor distraction. Second, the new metrics allow us to use a much broader set of announcements than only earnings announcement surprises when analyzing investor

[1] Exclusions to disclosure apply when information meets all of the following three requirements: i) a reasonable person would not expect the information to be disclosed; ii) the information is confidential; and iii) either disclosing the information would be a breach of a law; or the information is an unfinished proposal or negotiation, a matter of supposition, generated for internal management purposes, or a trade secret.

[2] These trading interruptions can take one of two forms. One is an ordinary procedure followed by the ASX placing a company's securities into a Pre-Opening Phase when it receives an announcement and considers it to be market sensitive. This trade interruption is 10 minutes long for most announcements and it is 60 minutes long for takeover announcements. The other kind of trade interruption is a proper trading halt requested by a company when it expects the occurrence of an announcement but is not in a position to accurately inform the market. These trading halts last until the announcement is made or the commencement of trading on the second day after the trading halt was imposed.

distraction. Third, we incorporate the individual announcement timing in our analysis and find that the relative order in which announcements are released during the day is more relevant than the number of announcements in explaining underreaction, especially for those announcements which are non-periodic (ie not earnings announcements).

The paper is organized as follows. Section 2 identifies the literature that motivates this research while section 3 develops the hypotheses. Section 4 presents the methodology. Section 5 describes the data. The results are discussed in Section 6 and section 7 summarizes and concludes.

2. Background

There are several strands of the literature that contribute to framing the investor distraction hypothesis. First, we examine limitations on the ability to follow stocks from different perspectives. Second, we survey evidence about the presentation and timing of announcements. Third, some of the changes in and the effect of disclosure are reviewed. Fourth, we detail the evidence regarding the investor distraction hypothesis.

i. Restrictions on the number of stocks that can be followed

Kahneman's (1973) idea that humans have limited cognitive resources that hinder their ability to perform multiple tasks simultaneously implies market participants may not always be making optimal decisions. In the behavioral finance literature, Agnew and Szykman (2005) identify information overload as a constraint that affects financial decision making. Sims (2003) suggests that investors may be overwhelmed and simply underreact if they cannot process all the information. Facing an overload of information, individuals may decide to focus on some information while neglecting others. For specialists, Corwin and Coughenour (2008) find that effort is allocated to the most active stocks during periods of increased activity, resulting in worse pricing for the other assigned stocks. For market makers, Chakrabarty and Moulton (2012) show that on earnings announcement days, a market

makers' attention is focused on those stocks with announcements to the detriment of the level of liquidity of other stocks traded on their panel.

Individual investors also have to decide where to allocate their attention. In the psychology literature, Wright (1974) shows through experimental evidence that when facing time constraints or distraction, individuals tend to overweight negative information compared to decision makers not subject to the time constraints or distraction. Investors may also focus on only a subset of stocks. Similarly, Barber and Odean (2008) find that the level of public exposure of firms affects investors' buying decisions. They suggest that when facing many investing alternatives, investors reduce their choice set to stocks associated with attention-grabbing events. They use three proxies for attention-grabbing events: unusual trading volume, high abnormal returns and news reported on the Dow Jones News Service.

The number of different securities an investor can follow may also be limited by information gathering costs. Merton (1987) suggests that high information gathering costs drive investors to hold a set of assets with which they are familiar. In this view, investors only pay attention to the firms they follow and ignore information about other firms even if they can profit from that information. This argument does not explicitly recognize cognitive limitations, but rather financial costs are the driving force behind a limited focus by investors. This argument by Merton is consistent with Arbel et al.'s (1983) findings of a neglected firm effect. Arbel et al. report that firms that have low institutional holdings and are barely followed by analysts show superior returns compared to firms widely held by institutional investors or followed by a large number of analysts. In contrast, Beard and Sias (1997) find that, in a later period, the neglected firm effect disappears after controlling for the correlation between neglect and market capitalization. The relative importance of information gathering costs may be reduced now with improved information dissemination and more transparent disclosure policies requiring less effort (and cost) to follow a larger number of securities.

ii. Presentation and timing of information

The impact of investor limited attention on the way information is presented may influence how and when firms make announcements. Modeling information disclosure, Hirshleifer and Teoh (2003) argue that under limited investor attention, disclosures with equal information value can have different effects on investors depending on the structure of presentation, or the place in the report where information is located.

The timing of an announcement may change the market reaction. Dellavigna and Pollet (2009) use both price and market activity and find a lower immediate response and a higher delayed response (drift) to earnings surprises on Friday. One limitation to their results is that they do not control for concurrent news on announcements days, mainly because they argue that it is the day of the week that determines the level of investor attention.

There are mixed findings for managers strategically timing announcements. Patell and Wolfson (1982) find that the likelihood of disclosing bad news increases after the close of trading and they interpret this behavior as managers' attempt to disclose unfavorable news when there is less public attention. Also, Kasznik and Kremer (2009) find managers are more likely to release bad news earnings forecasts on days in which the level of concurrent news is higher. They proxy investor inattention as days with Federal Open Market Committee meetings and the number of other concurrent news announcements in the media. Among other specific firm characteristics, they find this likelihood is greater for small firms because they get less media attention. Strategic timing by managers is also supported by Gennotte and Trueman (1996) who argue that announcements issued after trading hours have a lower impact on prices than announcements issued during trading hours. They expect managers will make positive earnings announcements during trading hours and negative earnings announcements outside trading hours. Second, they also expect a strategic behavior when disclosing several pieces of information, indicating that managers will tend to split good news into separate announcements, and to communicate bad news in aggregate.

Evidence against strategic timing is shown by Doyle and Magilke (2009) who find that reporting after the market close is related to the level of complexity of the firms' operations, since complex firms require more time to interpret the results, rather than being related to

management's opportunistic behavior trying to release bad news when there is less investor attention. Their proxies for the level of attention are the size of the firm, the number of analysts following and the level of institutional ownership. Additional evidence against strategic timing is by Abad et al. (2009) who find that firms included in the Spanish IBEX 35 index issue about two thirds of negative earnings surprises during trading hours while they disclose two thirds of positive earnings after hours, in contrast to Gennotte and Trueman's (1996) prediction.

iii. Disclosure effects

Regulation may also inadvertently contribute to the information overload. Disclosure regulation attempts to equate information access by promoting transparency. However, higher transparency standards since the implementation of Regulation Fair Disclosure in 2001/2002 mean that more information reaches the market, potentially leading to an increase in the level of investor distraction and the inability to process all information. Hirshleifer et al. (2004) suggest disclosure by one firm can distract investors' attention away from other disclosures by the same firm or from the information implicit in non-disclosure by other firms. They conclude that regulatory attempts to increase disclosure under limited attention could diminish investor discernment and it cannot be assured that more disclosure is desirable.

iv. Investor distraction hypothesis

Building on earlier work, Hirshleifer et al. (2009) propose the *investor distraction hypothesis*, which predicts that the confounding effect of concurrent information will decrease the response to new information by investors who are already attention constrained. They test their hypothesis using earnings announcements and find that the return and volume reaction to earnings announcements are less sensitive on days with a higher level of concurrent earnings announcements than on days with a lower number of earnings announcements. Also

confirming their hypothesis, earnings announcements on high news days have a higher return drift than earnings announcements issued on low news days over a 60 day period, indicating that the initial underreaction is subsequently corrected. They find several characteristics that produce a more deleterious impact on investor attention. A higher level of investor distraction is related to industry announcements, big earnings surprises, and to earnings announcements by smaller firms.

Additional support for the investor distraction hypothesis comes from Peress (2008) who examines media coverage in conjunction with earnings announcement surprises. He finds that more media coverage generates a stronger price and trading volume reaction at the announcement date and less subsequent drift.

3. Hypotheses development

The underlying assumption of the investor distraction hypothesis is that, given investors' limited cognitive processing capacity, the market reaction to information releases will be affected by the level of competing information faced by investors. Following Hirshleifer et al. (2009), there are two observable consequences of the *investor distraction* hypothesis that we can test using abnormal market activity. The first prediction of the *investor distraction* hypothesis is that short term abnormal activity following MSAs should be negatively related to the level of distracting information in the market on the release date. Therefore, the first hypothesis to be tested is:

H_1: The magnitude of the short term abnormal activity following MSAs is negatively related to the amount of news released on the announcement day.

The second prediction of the investor distraction hypothesis is that following the immediate under-reaction to information released on days with a higher number of concurrent announcements, a correction is expected to occur in the post-announcement period. Therefore, an additional test of the impact of distraction on investor behavior is related to the delayed response to MSAs.

H_2: The magnitude of the delayed abnormal activity following MSAs is positively related to the number of concurrent MSAs released on the announcement day.

4. Methodology

The benchmark values for both groups of dependent variables, the short term response and the delayed response, are calculated from the 10 trading days before the announcement day. The short term response is measured for one trading day starting after the MSA is released. This shorter window is a substantial improvement over Hirshleifer et al.'s (2009) two-day window. Using intraday data, the response to MSAs is crucial because the speed of adjustment to prices after some MSAs is expected to be very quick and would make it difficult to distinguish them from other announcements when using a less timely response over a two-day window. The delayed market reaction is also measured for a shorter period than in Hirshleifer et al. since they measure delayed response initially using a 60 day window, and they also vary the size to 30 and 90 days. Because our study includes all MSAs, a long post-announcement window would significantly reduce the number of events. For that reason the post-announcement window is chosen to be 10 trading days. For each window, only those company-announcements that do not overlap with previous announcements are included in the analysis.

Hirshleifer et al. (2009) estimate the market reaction by measuring the cumulative abnormal return and the abnormal volume. Since their study is limited to earnings announcements, they are able to control for the magnitude of new information disclosed using a measure of earnings surprise. We include all types of MSAs in our study, and since we do not have an estimate of the market expectation we cannot control for the expected return reaction to each announcement.

We focus on the magnitude of the market response, measuring the abnormal number of trades and the abnormal volume for both the one-day and ten-day periods:

- Abnormal One-Day Number of Trades: number of trades on day one divided by the average number of trades for the benchmark period.

- Abnormal One-Day Trading Volume: trading volume on day one divided by the average trading volume for the benchmark period.
- Abnormal Ten-Day Number of Trades: average number of trades for the post-announcement period divided by the average number of trades for the benchmark period.
- Abnormal Ten-Day Trading Volume: average trading volume for the post-announcement period divided by the average trading volume for the benchmark period.

The fundamental independent variable to examine the investor distraction hypothesis is the total number of concurrent MSAs released on the announcement day. For any given day, the total number of MSAs is the count of MSAs released between the market close on the previous day and the last trading minute on the announcement day. Distraction does not affect all announcements released during the day in the same way. Announcements released later in the day are expected to suffer more from MSAs previously released during day. For this reason we include a variable measuring the relative order in which each MSA is released during the day.

Several other control variables are included to determine whether firm specific characteristics (size, industry), announcements specific characteristics (type of announcement, good/bad news) and time-specific characteristics (time of the day, day of the week, month of the year) have an impact on the magnitude of the market reaction to MSAs. Despite the indication of announcements as market sensitive, the impact on the market of an announcement made by a large firm is expected to be higher than the impact of another market sensitive announcement issued by a small firm. The type of announcements is also expected to cause differential effects. Both a takeover announcement and an on-market buy-back can be market sensitive. But if both are disclosed on the same day, the relative impact of the buy-back announcement is expected to be much lower. Finally, considering the timing of MSAs as well as the sign of the return reaction will provide evidence on whether managers strategically disclose good and bad news. Even though Australia's continuous disclosure

requirements leave little space to let managers decide when to disclose market relevant information, there is some room for management's discretionary disclosure throughout the day. Firms can also request a trading halt when they have an impending announcement but they cannot accurately inform the market. This type of trading halt may increase investor attention at the time the announcement is finally released. For this reason we control for those MSAs that are preceded by a trading halt request made by the company.

5. Sample Description

The final sample is composed of 24,519 MSAs that are not preceded or followed by another MSA released by the same company for at least ten trading days[3]. Announcements, stock prices and trading information for firms trading on the ASX between 2005 and 2009 are sourced from Securities Industry Research Centre of Asia-Pacific (SIRCA). Table 1 and Figure 1 summarize the distribution of MSAs across days of the week, time of day and distraction quintiles measured by the number of MSAs released on the announcement day. The proportion of MSAs released either on Mondays (18.4%) or Fridays (19%) is only slightly lower that the proportion of MSAs released on other weekdays, contradicting Dellavigna and Pollet's (2009) finding that only 6% of earnings announcements are released on Fridays. Furthermore, when only periodic MSAs are considered, the proportion of MSAs released on Fridays is slightly higher than on other days (22% for bad news and 21.2% for good news).

[Insert Table 1 about here]

Dellavigna and Pollet (2009) explain the low proportion of earnings announcements on Fridays, arguing firms would not choose a high inattention day (Friday) to release a scheduled announcement. Remarkably, Panel A in Table 1 reports that the one-day return, in response to both good and bad news periodic MSAs released on Fridays, is significantly higher than the one-day return in response to periodic MSAs released from Monday to Thursday. Even

[3] The only exception is MSAs released within two trading days after a trading halt or a suspension from quotation. These MSAs are kept and identified as announcements preceded by a halt or suspension.

though our focus is not on the return[4], it is noteworthy that these findings reject the idea of Fridays as a high inattention day.

Regarding disclosure across the time of day, the proportion of bad news released during market hours (55%) is slightly lower than the proportion of good news released during market hours (58%). As shown in Table 1 Panel B, this difference is consistent across periodic MSAs, non-periodic MSAs and multiple MSAs. There may be an incentive to release good news MSAs during trading hours. Mean and median one-day returns are significantly higher in response to good news MSAs released during market hours than in response to MSAs released before or after hours. The higher return response to MSAs released during market hours compared to the return response to MSAs released before trading hours is significant for multiple and periodic MSAs. The higher return response to MSAs released during market hours compared to after market hours is significant for multiple MSAs and non-periodic MSAs. For bad news MSAs, mean and median one-day returns in response to MSAs released during market hours are significantly higher (more negative) than returns following MSAs released before market hours. These findings suggest there may be some selective disclosure of bad news after trading hours (19% of bad news and only 14% of good news are released after hours). However, median returns following MSAs released during market hours are significantly lower (less negative) than returns in response to after-hours MSAs. Therefore, trying to disguise bad news by releasing it after market hours does not seem to be an effective practice.

The distribution of MSAs across investor distraction quintiles measured by the number of MSAs released on the announcement day is different for good and bad news. As reported in Table 1, Panel C, the proportion of bad news MSAs released on high distraction days (Quintile 5) is considerably larger (25%) than the proportion of bad news MSAs (18%) released on low distraction days (Quintile 1). For good news MSAs high distraction days (Quintile 5) is the least populated quintile with 17% of all observations. For both good and

[4] As was noted in Section 3, we cannot measure return reaction in a proper way because we cannot control for the expected return reaction to all MSA types. For this reason we focus on the magnitude of the market reaction.

bad news MSAs, the market reaction on high distraction days is significantly lower than the market reaction on low distraction days (mean one-day return is 41 basis points lower for bad news and 102 basis points for good news). However, median one-day returns are not significantly different between announcements released on the top and bottom distraction level quintiles. Since periodic MSAs tend to be clustered in time, their distribution is much more concentrated on high distraction days. In this context, the proportion of periodic MSAs released during high distraction days is indeed higher for bad news (48.5%) than for good news (44.2%). The mean one-day return in response to bad news MSAs is 99 basis points smaller on high distraction days (-6.16%) than on low distraction days (-7.15%). There is, however, no significant difference in median returns. For multiple MSAs the proportion of MSAs increases monotonically across distraction quintiles. The proportion of bad news multiple MSAs (35.2%) is considerably higher than the proportion of goods news multiple MSAs (26.1%) released on high distraction days. The mean one-day return response to both good and bad news multiple MSAs on high distraction days are significantly lower than on low distraction day, but no difference in median returns is found.

The distribution of non-periodic MSAs across distraction quintiles is the opposite of that for periodic and multiple MSAs. The proportion of bad news non-periodic MSAs drops from 24.3% on low distraction days to 6.3% on high distraction days. Similarly, the proportion of good news non-periodic MSAs drops from 26.9% on low distraction days to 5.8% on high distraction days. The presence of different levels of investor distraction seems to have an impact on the return response to non-periodic MSAs. Both mean and median one-day return responses to good and bad news non-periodic MSAs on high distraction days are significantly lower than one-day responses on low distraction days.

[Insert Figure 1 about here]

6. Results

To analyze the magnitude of the market response to MSAs, the sample is first divided by the sign of the one-day return into good news and bad news MSAs. Second, the sample is

partitioned into level of distraction quintiles. Finally, within each news sign and distraction quintile, the sample is divided into one-day return quintiles.

6.1. Magnitude of the market response

The amount of trading after the release of MSAs is compared to the average daily trading during the benchmark period in Tables 2 and 3. Table 2, Panel A compares the one-day abnormal trading compared to the benchmark period and the results indicate that as the level of distraction increases, there is a decline in the abnormal number of trades. Comparing distraction quintiles 1 and 5 shows that the abnormal number of trades on high distraction days is significantly lower than the abnormal number of trades on low distraction days. These findings are consistent across return quintiles and support the investor distraction hypothesis. The impact of distraction is more significant for good news MSAs. For these announcements, the median abnormal number of trades on high distraction days across return quintiles is between 32% and 53% lower than on low distraction days. For bad news MSAs the median abnormal number of trades on high distraction days drops by 15% to 42% compared to low distraction days.

On low distraction days the level of distraction affects the magnitude of the short term response to MSAs[5] and the impact is more acute for bad news MSAs. Median one-day abnormal number of trades in response to bad news MSAs is above 1 only for MSAs in the top two return quintiles. Even though median one-day returns for the lowest three quintiles are economically significant (-1.47%, -2.55%, and -4.01%), the median number of trades during the first day after the bad news MSAs in these quintiles is between 86% and 49% of the number of trades executed in the ten days before the announcement. The pattern across distraction quintiles indicates that as the level of distraction increases, the number of abnormal trades declines even within each return quintile. A similar pattern is present for good news MSAs in return quintiles 1 and 2. With median one-day returns of 1.58% and 2.98%, respectively, the median number of trades during the first day is between 93% and

[5] This finding is plausible considering that the median number of MSAs released on low distraction days is 64.

59% of the number of trades executed in the ten days before the announcement. Panel B of Table 2 confirms the findings in Panel A. The ten-day abnormal number of trades after MSAs for most distraction quintiles and return quintiles is higher than 1. These results show investor attention increases during the days that follow the release of MSAs, making up in many cases for the poor initial attention. There is not, however, a clear pattern showing that groups of MSAs initially ignored the most are the ones receiving the most attention in the ten days that follow the announcement. Return quintiles 2 and 5 for bad news MSAs and return quintiles 3 and 5 for good news MSAs experience significant differences in the subsequent abnormal number of trades across high and low distraction days. The sign of these differences is not what is expected, suggesting that the impact of the level of distraction on the announcement day persists during the days that follow the announcement.

Table 3 provides further support for the investor distraction hypothesis using abnormal trading volume. One-day abnormal trading volumes with MSAs on low distraction days are significantly higher than abnormal trading volumes following MSAs on high distraction days. For good news MSAs the market reaction measured by one-day abnormal volume across return quintiles is very similar to the pattern observed for the abnormal number of trades. For bad news though, median one-day abnormal values above 1 are only observed for MSAs in the high return quintile, showing trading volume is more sensitive than the number of trades to the level of distraction.

The delayed market reaction measured in Panel B by the ten-day abnormal trading volume shows that trading volumes pick up in the ten days that follow the release of a MSA. Within bad news MSAs this is more evident for announcements released during days with low or mid levels of distraction, and for MSAs in the two top return quintiles. For good news MSAs, ten-day abnormal trading volume values above 1 are also found in almost every distraction quintile and return quintile. The delayed trading volume response is not differentially affected by the level of distraction on the announcement day with the exception of the high return quintile for the good news MSAs. Differences between the ten-day

abnormal trading after MSAs released on high distraction days is not significantly different from the ten-day abnormal trading after MSAs released on low distraction days.

[Insert Tables 2 and 3 about here]

We also perform a robustness check on the quintiles by redoing the same testing but using the absolute value of the return ranges. Tables 4 and 5 indicate the same pattern and levels of significance are present when absolute return levels are used to establish the return groups.

[Insert Tables 4 and 5 about here]

6.2. Comparison with Forecast Errors

Prior research used only earnings announcements that could be compared to market expectations by finding analysts' earnings forecasts. We test the consistency of the pattern of abnormal trading when using the number of trades and trading volume but instead of using quintiles of returns, we use the absolute value of the earnings forecast error as a measure of surprise. Over the entire period of the sample, we are able to locate 352 earnings announcements that also have a market forecast available from analysts' reports. We use the absolute value of the forecast error ranges to form three groups for each of the positive and negative surprises: absolute forecast errors that are less than 1%, between 1% and 5% and greater than 5%. The Tables 6 and 7 report that the pattern as the distraction quintiles increase is similar to the full sample, but the small size reduces the statistical significance levels. In Table 6 using the abnormal number of trades, for bad news forecasts the one-day measures indicate that these low forecast errors have less of a reaction when there is a high level of distraction. Using the 10-day measure, for positive forecast errors of less than 1%, higher levels of distraction reduce the reaction when using non-parametric tests. When the trading volume is examined, Table 7 reports an increase in the level of statistical significance and further support for the distraction hypothesis. Using the one day metric, negative forecast errors have much less of a reaction when there are high levels of distraction using both parametric and non-parametric tests. Using the 10 day metric, positive forecast errors in both the under 1% range and the 1%-5% range show that there is less of a reaction when there are

high levels of distraction. These results support the metrics created in this paper to examine the effects of distraction on a much wider set of announcements than simply earnings announcement.

6.3. Investor Distraction and the Short Term Response to MSAs

This section analyzes the extent to which the total number of MSAs released on the announcement day affect the market response to MSAs when other firm, announcement and information environment characteristics are considered. In Tables 8 and 9, the magnitude of the market response measure is regressed against the level of distraction measured by the number of MSAs released on the announcement days and a number of control variables.

$$\begin{aligned} Short\ Term\ Reaction = {} & a_1 + b_1 \cdot Size + b_2 \cdot Number\ of\ MSAs \\ & + b_3 \cdot Relative\ order\ + b_4 \cdot Good\ News \\ & + b_5 \cdot Before/after\ hours + b_6 \cdot Friday + b_7 \cdot Halt + \varepsilon_i \end{aligned} \quad (1)$$

where Size is the logarithm of market capitalization. Number of MSAs is the total number of MSAs released on the announcement day. Relative order uses the time stamp to determine the order of the MSAs relative to all the MSAs released on the announcement day. Good News is an indicator variable taking the value 1 if the sign of the one-day return reaction is positive and 0 otherwise. Outside market hours is a dummy variable taking the value 1 if the MSA is released either before or after hours and 0 otherwise. Friday is a dummy variable equal to 1 if the MSA is released on a Friday. Halt is a dummy variable taking the value 1 if the firm requested a trading halt in anticipation of the release of the MSA and 0 otherwise.

[Insert Table 8 about here]

The impact of the number of MSAs released on the announcement day has the expected sign in the magnitude of market response regressions. Panel A of Table 8 reports that the magnitude of the short term market response to MSAs, both measured by the abnormal

number of trades and the abnormal trading volume, is negatively related to the number of MSAs released on the announcement day. Panels B and C show that of the different MSA types, only the magnitude of market response to periodic and multiple MSAs is negatively affected by the level of competing information in the market. The magnitude of the one-day reaction to non-periodic MSAs does not weaken regardless of the amount of competing information released on the announcement day.

[Insert Table 9 about here]

Panel A of Table 9 strengthens the argument in favor of the investor distraction hypothesis. The coefficient of the number of MSAs variable is the expected sign and is statistically significant in the regressions across return quintiles. The relative order in which a MSA is released (i.e. lateness in the day) reduces the magnitude of the short term market response. The negative and statistically significant coefficients of the relative order variable in Panel A of Table 8 indicates that the amount of market sensitive information present at the moment a MSA is released affects investors' awareness even after considering the total amount of information disclosed on the announcement date. The importance of the relative order on the magnitude of market reaction is also present across MSA types (Table 8, Panels B and C) and return quintiles (Table 9).

6.4. Investor Distraction and the Delayed Response to MSAs

This section analyzes the second observable consequence of the investor distraction hypothesis: the extent to which the total number of MSAs released on the announcement day affects the relation between the delayed market response to MSAs and the short term market response to MSAs. Panel A of Table 10 reports coefficients for Equation 1 using the delayed abnormal number of trades differential and the delayed abnormal trading volume differential as dependent variables. The differential is the difference between the delayed (ten-day) and the short term (one-day) magnitude of the market reaction (number of trades and trading

volume). Positive values of the delayed differentials are associated with a higher magnitude of delayed market reaction and negative values of the delayed differentials are associated with a higher magnitude of initial market response. The coefficients of the number of MSAs released on the announcement day are positive and statistically significant. These results support the investor distraction hypothesis by showing that the difference between the delayed market reaction and the short term market reaction to MSAs increases with the level of distraction on the announcement day. The coefficient of the relative order variable is also positive and statistically significant.

[Insert Table 10 about here]

The positive relation between the level of distraction and the incremental delayed market reaction to MSAs could be partially explained by incremental information produced after the announcement release. Since the sample only includes MSAs with no other announcements overlapping in the post-event window, the additional information could be that produced by analysts. Panel B of Table 10 reports the coefficients of the regression of the incremental delayed market reaction to MSAs on the same variables included in Panel A of Table 10 and allowing for an additional dummy variable taking the value 1 when an analyst recommendation revision is released on the announcements date or in the following three days. A positive coefficient for the revision variable would suggest analyst recommendation revisions contribute to the increased investor attention during the days that follow the release of MSAs. However, the coefficients of the revision dummy variable are negative and statistically significant in both the incremental delayed one-day number of trades and the incremental delayed one-day trading volume regressions. These findings suggest analyst revisions are just another way in which higher attention to certain announcements is revealed rather than being the cause of abnormal trading in the days that follow the release of MSAs.

6.5. Investor Distraction and Firm Selective Disclosure

The impact of disclosing MSAs outside market hours is measured by including a dummy variable taking the value 1 for MSAs released either before or after market hours. In earlier tables the coefficient for this variable is insignificant, indicating there is no consistent impact of the outside market hours dummy variable on the magnitude of the market response to MSAs. To analyze the reason for this lack of consistency, indicator variables for MSAs released before market hours and MSAs released after market hours are separately included in the regressions. Table 11 indicates that MSAs released before market hours are associated with a higher magnitude of market reaction. This finding is consistent with the slightly higher proportion of good news MSAs released before market hours (Panel B of Table 1 shows that 28% of good news and 26% of bad news are released before market hours). In Table 11, Panels B and C, the influence of before hours MSAs is not present across all MSA types.

[Insert Table 11 about here]

The higher proportion of bad news released after trading hours suggests there may be selective disclosure of bad news after trading hours (19% of bad news and only 14% of good news are released after hours). These findings are corroborated in Table 12, Panel A, where MSAs released after trading hours are associated with a smaller magnitude of market reaction. Regarding MSA types, Panels B and C of Table 12 provide evidence that the effect of releasing MSAs after trading hours remains for non-periodic MSAs and for multiple MSAs. There is, however, very little impact on the market reaction to periodic MSAs.

[Insert Table 12 about here]

6.6. Market Mechanisms to Reduce Investor Distraction

Each time a firm releases a MSA, the ASX places a company's securities into the Pre-Opening Phase for at least 10 minutes to give investors the opportunity to digest the new

information before trading resumes. The other kind of trade interruption is a trading halt requested by a company when it expects the occurrence of an event but is not in a position to accurately inform the market. These trading halts last until the announcement is made or the commencement of trading on the second day after the trading halt was initially imposed. This second trading halt type could also be a means by which companies could increase investor awareness of an incoming announcement. To test how effective this mechanism is we include a dummy variable in all models to identify those MSAs that were preceded by a trading halt request by the company.

Indeed, Panel A of Table 8 reports positive and significant coefficients for the trading halt variable. That is, for the one-day abnormal number of trades these results suggest firms increase investor attention by requesting trading halts in anticipation of MSAs. Panels B and C of Table 9 provide evidence that trading halts requested before non-periodic and multiple MSAs are more effective than trading halts in anticipation of periodic MSAs. There are two plausible explanations for this finding that are not mutually exclusive. One is that the increase in investor awareness produced by trading halts is only marginal among periodic MSAs which are already expected. Another possible explanation is related to the fact that periodic MSAs tend to be clustered in time and therefore subject to higher levels of investor distraction that cannot be offset by a trading halt request. The impact of trading halts in reducing the impact of investor distraction is also observed in the delayed market reaction to MSAs. Coefficients for the halt indicator variable in Table 10, where the dependent variables are the delayed abnormal number of trades differential and the delayed abnormal trading volume differential, are negative and statistically significant.

7. Conclusion

This research provides additional evidence on the investor distraction hypothesis. We examine the change in the level of activity in the market using all announcements that are identified as market sensitive on the Australian Securities Exchange over the 2005-2009 period. This is an improvement over earlier testing that focused only on earnings

announcement surprises. Prior papers found evidence of a price and activity response. We focus on the abnormal activity response and confirm the validity of the abnormal activity metrics by verifying patterns with the smaller sample of earnings announcement surprises.

We confirm the earlier finding that the level of investor distraction reduces the magnitude of the short-term reaction in the stock market and increases the long term reaction (or drift), consistent with earlier research that only examined earnings surprise announcements. Furthermore, we find that the order of the announcement compared to all announcements on that day is significant in explaining the short-term underreaction. For non-periodic (ie. unscheduled) announcements, the ordering effect is significant while the total number of other announcements is not significant suggesting that investors may become fatigued by all the distracting, earlier announcements, while for periodic (scheduled) announcements, their anticipation allows investors to retain attention.

The Australian regulatory environment allows firms to request an additional trading halt in advance of news releases and our results demonstrate that by requesting a trading halt, firms attract investor attention and partially offset the impact of the level of distraction produced by the volume of competing information. Regulators and exchanges may want to consider introducing this type of trading halt in other markets to compensate for investor distraction.

References

Abad, D., Sanabria, S. and Yagüe, J. 2009, 'Strategic Timing of Annual Earnings Announcements: Evidence From an Order-Driven Market', *Review of Quantitative Finance & Accounting*, vol. 32, no. 3, pp. 287-308.

Agnew, J.R. and Szykman, L.R. 2005, "Asset Allocation and Information Overload: The Influence of Information Display, Asset Choice, and Investor Experience,' *Journal of Behavioral Finance*, vol. 6, no. 2, pp. 57-70.

Arbel, A., Carvell, S. and Strebel, P. 1983, 'Giraffes, Institutions and Neglected Firms', *Financial Analysts Journal*, vol. 39, no. 3, pp. 57-63.

Barber, B.M. and Odean, T. 2008, 'All That Glitters: The Effect of Attention and News on the Buying Behavior of Individual and Institutional Investors', *Review of Financial Studies*, vol. 21, no. 2, pp. 785-818.

Beard, C.G. and Sias, R.W. 1997, 'Is There a Neglected-Firm Effect?', *Financial Analysts Journal*, vol. 53, no. 5, pp. 19-23.

Brown, P., Howitt, B. and Wee, M. 2005, 'Order Flow and Price Effects Surrounding an ASX Announcement', *Accounting and Finance Association of Australia and New Zealand Conference*, Melbourne, Australia, pp. 1-38.

Brown, P., Forbes, C. and Wee, M. 2004, 'Liquidity Differences Surrounding Announcements Classified by ASX According to their Market Sensitivity', *Working Paper*, University of Western Australia.

Chakrabarty, B. and Moulton, P.C. 2012, 'Earnings Announcements and Attention Constraints: The Role of Market Design', *Journal of Accounting and Economics* vol. 53, 612-634.

Corwin, S.A. and Coughenour, J.F. 2008, 'Limited Attention and the Allocation of Effort in Securities Trading', *Journal of Finance*, vol. 63, no. 6, pp. 3031-3067.

Dellavigna, S. and Pollet, J.M. 2009, 'Investor Inattention and Friday Earnings Announcements', *Journal of Finance*, vol. 64, no. 2, pp. 709-49.

Doyle, J.T. and Magilke, M.J. 2009, 'The Timing of Earnings Announcements: An Examination of the Strategic Disclosure Hypothesis', *Accounting Review*, vol. 84, no. 1, pp. 157-82.

Gennotte, G. and Trueman, B. 1996, 'The Strategic Timing of Corporate Disclosures', *Review of Financial Studies*, vol. 9, no. 2, pp. 665-90.

Hirshleifer, D., Lim, S.S. and Teoh, S.H. 2009, 'Driven to Distraction: Extraneous Events and Underreaction to Earnings News', *Journal of Finance*, vol. 64, no. 5, pp. 2289-325.

Hirshleifer, D.A., Lim, S.S. and Teoh, S.H. October 11, 2004, 'Disclosure to an Audience with Limited Attention', *SSRN*, viewed 29/01/2010, <Available at SSRN: http://ssrn.com/abstract=604142>.

Hirshleifer, D. and Teoh, S.H. 2003. 'Limited Attention, Information Disclosure, and Financial Reporting', *Journal of Accounting and Economics*, vol. 36, no. 1-3, pp. 337-86.

Kahneman, D. 1973, *Attention and Effort*, Prentice-Hall, Englewood Cliffs, New Jersey.

Kasznik, R. and Kremer, I. 2009, 'The Timing of Management Earnings Forecasts and Investor Inattention', *2009 Tel Aviv Conference in Accounting*.

Merton, R.C. 1987, 'A Simple Model of Capital Market Equilibrium with Incomplete Information', *Journal of Finance*, vol. 42, no. 3, pp. 483-510.

Patell, J.M. and Wolfson, M.A. 1982, 'Good News, Bad News, and the Intraday Timing of Corporate Disclosures', *Accounting Review*, vol. 57, no. 3, pp. 509-27.

Peress, J. 2008, ‘Media Coverage and Investors’ Attention to Earnings Announcements’, *working paper INSEAD and London School of Economics*.

Wright, P. 1974, ‘The Harassed Decision Maker: Time Pressures, Distraction, and the Use of Evidence’, *Journal of Applied Psychology*, vol. 59, no. 5, pp. 555-61.

Table 1
Sample and Descriptive Statistics

This table reports the distribution of the sample of 24,519 MSAs during the period 2005-2009. In Panel A MSAs are grouped by day of the week. In Panel B MSAs are grouped according to the time of the day they are released. In Panel C MSAs are grouped into quintiles according to the level of distraction measured by the total number of MSAs released on the announcement day. One-day returns are calculated using the last price before the MSA is released as the base price. ***, **, and * indicate difference in means (medians) are statistically significant at the 1%, 5% and 10%, respectively.

Panel A. Distribution and Market Reaction across MSA types by the Day of the Week

Day of the Week	Bad News								Good News							
	Periodic MSAs		Non-Periodic MSAs		Multiple MSAs		Total		Periodic MSAs		Non-Periodic MSAs		Multiple MSAs		Total	
	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return
Monday	511	-6.40% [-4.48%]	952	-5.62% [-3.85%]	473	-5.89% [-4.28%]	1,936	-5.89% [-4.14%]	463	6.42% [4.55%]	1,492	8.34% [5.00%]	630	7.92% [5.19%]	2,585	7.89% [5.00%]
Tuesday	524	-6.32% [-4.47%]	1,130	-6.07% [-4.17%]	521	-6.02% [-3.69%]	2,175	-6.12% [-4.13%]	445	6.28% [4.48%]	1,760	7.93% [5.13%]	641	8.11% [4.35%]	2,846	7.71% [4.79%]
Wednesday	513	-6.30% [-4.17%]	1,151	-5.59% [-3.81%]	548	-5.76% [-4.00%]	2,212	-5.80% [-3.96%]	481	7.02% [4.76%]	1,766	8.06% [4.82%]	723	8.42% [4.71%]	2,970	7.98% [4.76%]
Thursday	538	-6.14% [-4.37%]	1,099	-5.38% [-3.70%]	467	-5.40% [-3.55%]	2,104	-5.58% [-3.84%]	557	7.44% [4.82%]	1,733	7.56% [4.78%]	748	7.03% [4.47%]	3,038	7.41% [4.76%]
Friday	588	-7.10% [-4.76%]	923	-5.34% [-3.55%]	510	-6.21% [-4.11%]	2,021	-6.07% [-4.02%]	522	7.88% [5.25%]	1,443	8.72% [4.88%]	667	7.81% [4.76%]	2,632	8.32% [5.00%]
Total	2,674	-6.47% [-4.47%]	5,255	-5.61% [-3.85%]	2,519	-5.86% [-3.92%]	10,448	-5.89% [-4.00%]	2,468	7.05% [4.78%]	8,194	8.09% [4.96%]	3,409	7.84% [4.74%]	14,071	7.85% [4.84%]
								Test of Differences								
Friday – Other Days		-0.81%*** [-0.39%**]		0.33% [0.34%***]		-0.43% [-0.24%***]		-0.22% [-0.02%]		1.05%*** [0.59%***]		0.76%** [-0.05%]		-0.04% [0.09%]		0.58%** [0.21%*]

Table 1 (Continued)
Descriptive Statistics

This table reports the distribution of the sample of 24,519 MSAs during the period 2005-2009. In Panel A MSAs are grouped by day of the week. In Panel B MSAs are grouped according to the time of the day they are released. In Panel C MSAs are grouped into quintiles according to the level of distraction measured by the total number of MSAs released on the announcement day. One-day returns are calculated using the last price before the MSA is released as the base price. ***, **, and * indicate difference in means (medians) are statistically significant at the 1%, 5% and 10%, respectively.

Panel B. By the Time of the Day

Day of the Week	Bad News								Good News							
	Periodic MSAs		Non-Periodic MSAs		Multiple MSAs		Total		Periodic MSAs		Non-Periodic MSAs		Multiple MSAs		Total	
	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return
After Hours	711	-6.78% [-4.76%]	758	-5.74% [-3.84%]	495	-5.83% [-3.90%]	1,964	-6.14% [-4.24%]	570	6.78% [5.00%]	810	7.55% [4.36%]	522	6.89% [4.50%]	1,902	7.14% [4.55%]
Before Hours	628	-6.18% [-4.00%]	1,376	-5.36% [-3.57%]	723	-5.54% [-3.85%]	2,727	-5.60% [-3.75%]	581	6.73% [4.29%]	2,362	8.04% [4.91%]	1,009	6.86% [4.25%]	3,952	7.55% [4.68%]
Trading Hours	1,335	-6.43% [-4.48%]	3,121	-5.69% [-3.88%]	1,301	-6.05% [-4.00%]	5,757	-5.94% [-4.03%]	1,317	7.31% [4.95%]	5,022	8.20% [5.00%]	1,878	8.64% [5.13%]	8,217	8.16% [5.00%]

Test of Differences

Trading Hours-Before Hours	-0.25% [-0.48%*]	-0.32%* [-0.31%**]	-0.52%** [-0.15%]	-0.34%** [-0.28%***]	0.59% [0.66%***]	0.16% [0.09%]	1.78%*** [0.88%***]	0.61%*** [0.32%***]
Trading Hours – After Hours	0.35% [0.28%**]	0.05% [-0.04%]	-0.23% [-0.10%]	0.20% [0.21%**]	0.53% [-0.05%]	0.65% [0.64%***]	1.75%*** [0.63%***]	1.02%*** [0.45%***]

Table 1 (Continued)
Descriptive Statistics

This table reports the distribution of the sample of 24,519 MSAs during the period 2005-2009. In Panel A MSAs are grouped by day of the week. In Panel B MSAs are grouped according to the time of the day they are released. In Panel C MSAs are grouped into quintiles according to the level of distraction measured by the total number of MSAs released on the announcement day. One-day returns are calculated using the last price before the MSA is released as the base price. ***, **, and * indicate difference in means (medians) are statistically significant at the 1%, 5% and 10%, respectively.

Panel C. Distribution and Market Reaction across MSA types by Distraction Quintile

Distraction Quintile	Bad News									Good News								
	Periodic MSAs		Non-Periodic MSAs		Multiple MSAs		Total			Periodic MSAs		Non-Periodic MSAs		Multiple MSAs		Total		
	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Number of MSAs	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Obs.	One-Day Return	Number of MSAs
1 (Low)	283	-7.15% [-4.48%]	1,279	-5.72% [-3.85%]	287	-7.00% [-4.11%]	1,849	-6.14% [-4.00%]	61 [64]	280	6.58% [4.40%]	2,206	8.41% [5.00%]	500	8.32% [4.78%]	2,986	8.22% [4.88%]	61 [63]
2	265	-6.13% [-4.35%]	1,353	-5.63% [-3.92%]	367	-6.15% [-3.91%]	1,985	-5.79% [-4.00%]	82 [82]	309	6.98% [4.73%]	2,025	8.40% [5.00%]	600	9.14% [5.00%]	2,934	8.40% [5.00%]	82 [83]
3	350	-6.73% [-4.35%]	1,259	-5.60% [-3.85%]	403	-6.11% [-3.99%]	2,012	-5.90% [-3.96%]	99 [98]	350	6.63% [4.36%]	1,955	7.94% [5.00%]	589	7.99% [4.55%]	2,894	7.79% [4.84%]	99 [99]
4	479	-6.88% [-4.48%]	1,035	-5.68% [-3.70%]	575	-5.64% [-3.67%]	2,089	-5.94% [-3.85%]	129 [127]	438	7.38% [4.93%]	1,536	7.70% [4.87%]	829	7.18% [4.53%]	2,803	7.50% [4.76%]	129 [127]
5 (High)	1,297	-6.16% [-4.55%]	329	-4.88% [-3.13%]	887	-5.40% [-4.05%]	2,513	-5.72% [-4.19%]	333 [310]	1,091	7.20% [5.00%]	472	7.20% [4.35%]	891	7.22% [4.76%]	2,454	7.21% [4.76%]	324 [284]
High-Low Distraction		0.99%** [-0.06%]		0.84%** [0.72%***]		1.60%*** [0.06%]		0.41%** [-0.19%]			0.62% [0.60%]		-1.21%** [-0.65%**]		-1.10%* [-0.02%]		-1.02%*** [-0.12%]	

Table 2

Abnormal Number of Trades in Response to MSAs

This table reports mean (median) abnormal number of trades in response to the sample of 24,519 MSAs during the period 2005-2009. In Panel A, the abnormal number of trades is measured as the number of trades on day one divided by the average number of trades for the ten-day benchmark period. In Panel B abnormal number of trades is measured as the average number of trades for the ten-day post-announcement period divided by the average number of trades for the ten-day benchmark period. Difference between the top and the bottom quintiles are reported. ***, **, and * indicate difference in means (medians) are statistically significant at the 1%, 5% and 10%, respectively.

Panel A. One-Day

Distraction Quintiles	Bad News					Good News				
	Return Quintiles					Return Quintiles				
	1 (Low)	2	3	4	5 (High)	1 (Low)	2	3	4	5 (High)
1 (Low)	1.01 [0.75]	1.09 [0.84]	1.19 [0.78]	1.54 [1.03]	3.42 [1.64]	1.11 [0.87]	1.38 [0.93]	1.94 [1.19]	2.60 [1.41]	8.12 [2.72]
2	1.14 [0.72]	1.13 [0.76]	1.19 [0.76]	1.72 [0.93]	2.53 [1.35]	1.07 [0.76]	1.37 [0.87]	1.60 [0.98]	2.32 [1.27]	8.56 [2.62]
3	1.04 [0.75]	0.99 [0.82]	1.26 [0.75]	1.34 [0.83]	2.62 [1.50]	1.33 [0.83]	1.33 [0.81]	1.70 [1.04]	2.05 [1.21]	6.36 [2.23]
4	0.99 [0.72]	1.15 [0.86]	1.12 [0.84]	1.39 [0.88]	2.80 [1.41]	1.15 [0.78]	1.23 [0.78]	1.68 [0.98]	1.98 [1.19]	5.42 [2.00]
5 (High)	0.82 [0.64]	0.85 [0.49]	1.00 [0.62]	1.00 [0.69]	1.96 [1.09]	0.84 [0.59]	1.08 [0.59]	1.10 [0.70]	1.54 [0.89]	3.08 [1.29]
High – Low Distraction	0.19^{**} $[0.11^{**}]$	0.24^{***} $[0.35^{***}]$	0.19^{*} $[0.16^{***}]$	0.54^{***} $[0.34^{***}]$	1.46^{***} $[0.56^{***}]$	0.28^{***} $[0.28^{***}]$	0.29^{**} $[0.34^{***}]$	0.83^{***} $[0.48^{***}]$	1.05^{***} $[0.51^{***}]$	5.04^{***} $[1.44^{***}]$

Panel B. Ten-Day

Distraction Quintiles	Bad News					Good News				
	Return Quintiles					Return Quintiles				
	1 (Low)	2	3	4	5 (High)	1 (Low)	2	3	4	5 (High)
1 (Low)	1.30 [1.07]	1.36 [1.06]	1.36 [1.03]	1.40 [1.02]	1.71 [1.12]	1.25 [1.03]	1.41 [1.08]	1.61 [1.14]	1.84 [1.22]	3.09 [1.57]
2	1.17 [0.99]	1.25 [1.02]	1.37 [0.99]	1.29 [1.02]	1.47 [1.01]	1.24 [1.04]	2.04 [1.08]	1.50 [1.05]	2.12 [1.14]	3.06 [1.43]
3	1.22 [0.98]	1.19 [0.99]	1.19 [0.92]	1.25 [0.97]	1.41 [1.00]	1.32 [1.06]	1.36 [1.08]	1.33 [1.07]	1.53 [1.13]	2.60 [1.40]
4	1.24 [1.02]	1.13 [0.98]	2.30 [0.94]	1.23 [0.99]	1.44 [0.97]	1.23 [0.96]	1.31 [1.03]	1.58 [1.06]	1.44 [1.13]	2.24 [1.26]
5 (High)	1.22 [1.03]	1.17 [0.95]	1.40 [0.96]	1.31 [0.99]	1.42 [1.02]	1.27 [1.04]	1.34 [1.08]	1.35 [1.04]	1.65 [1.19]	1.94 [1.11]
High – Low Distraction	0.07 [0.04]	0.18^{*} $[0.11^{***}]$	-0.04 $[0.07^{*}]$	0.10 [0.02]	0.29^{**} $[0.10^{**}]$	-0.02 -0.02	0.06 [0.01]	0.26^{***} $[0.10^{***}]$	0.19 [0.03]	1.15^{**} $[0.46^{***}]$

Table 3

Abnormal Trading Volume in Response to MSAs

This table reports mean (median) abnormal trading volume in response to the sample of 24,519 MSAs during the period 2005-2009. In Panel A, the abnormal trading volume is measured as the trading volume on day one divided by the average trading volume for the ten-day benchmark period. In Panel B abnormal trading volume is measured as the average trading volume for the ten-day post-announcement period divided by the average trading volume for the ten-day benchmark period. Difference between the top and the bottom quintiles are reported. ***, **, and * indicate difference in means (medians) are statistically significant at the 1%, 5% and 10%, respectively.

Panel A. One-Day

Distraction Quintiles	Bad News					Good News				
	Return Quintiles					Return Quintiles				
	1 (Low)	2	3	4	5 (High)	1 (Low)	2	3	4	5 (High)
1 (Low)	1.13	1.22	1.35	1.98	6.06	1.24	1.50	2.16	2.95	10.74
	[0.64]	[0.78]	[0.73]	[0.92]	[1.74]	[0.75]	[0.90]	[1.03]	[1.43]	[2.72]
2	1.26	1.38	1.55	13.15	3.75	1.40	1.57	4.30	2.74	9.36
	[0.70]	[0.64]	[0.72]	[0.84]	[1.29]	[0.68]	[0.80]	[0.94]	[1.29]	[2.57]
3	1.54	1.06	2.05	1.66	3.91	1.77	1.73	1.96	2.42	6.99
	[0.64]	[0.67]	[0.73]	[0.79]	[1.37]	[0.77]	[0.68]	[0.94]	[1.25]	[2.45]
4	1.06	1.25	1.42	1.73	4.96	1.29	1.50	1.93	2.39	5.93
	[0.65]	[0.70]	[0.76]	[0.86]	[1.46]	[0.71]	[0.70]	[0.93]	[1.30]	[2.00]
5 (High)	0.94	0.91	1.36	1.20	3.08	0.97	1.20	1.55	1.84	3.98
	[0.54]	[0.44]	[0.50]	[0.59]	[1.03]	[0.52]	[0.49]	[0.68]	[0.91]	[1.15]
High – Low Distraction	0.19	0.32^{**}	-0.01	0.78^{***}	2.99^{***}	0.27^{**}	0.30^{**}	0.61^{**}	1.11^{***}	6.76^{**}
	[0.10^{*}]	[0.34^{***}]	[0.23^{***}]	[0.33^{***}]	[0.71^{***}]	[0.22^{***}]	[0.41^{***}]	[0.35^{***}]	[0.52^{***}]	[1.57^{***}]

Panel B. Ten-Day

Distraction Quintiles	Bad News					Good News				
	Return Quintiles					Return Quintiles				
	1 (Low)	2	3	4	5 (High)	1 (Low)	2	3	4	5 (High)
1 (Low)	1.45	1.51	1.45	1.50	2.48	1.43	1.50	2.01	2.40	3.47
	[1.07]	[1.09]	[1.07]	[1.16]	[1.40]	[1.06]	[1.12]	[1.24]	[1.33]	[1.92]
2	1.29	1.49	1.65	5.27	1.80	1.36	1.72	2.09	2.02	3.23
	[1.00]	[1.07]	[1.01]	[1.14]	[1.23]	[1.03]	[1.12]	[1.10]	[1.21]	[1.73]
3	1.53	1.34	1.47	1.45	2.14	1.65	1.61	1.46	1.67	3.68
	[1.01]	[1.00]	[0.92]	[1.06]	[1.33]	[1.05]	[1.09]	[1.07]	[1.25]	[1.73]
4	1.38	1.33	2.30	1.51	2.41	1.48	1.48	1.62	1.73	2.45
	[1.02]	[1.04]	[1.02]	[1.07]	[1.31]	[0.94]	[1.03]	[1.06]	[1.23]	[1.61]
5 (High)	1.48	2.42	3.12	1.51	2.56	1.46	1.62	1.66	1.88	2.16
	[1.05]	[0.99]	[0.97]	[1.05]	[1.30]	[1.02]	[1.10]	[1.10]	[1.31]	[1.23]
High – Low Distraction	-0.02	-0.90	-1.67	-0.01	-0.08	-0.03	-0.11	0.35	0.52	1.31^{*}
	[0.02]	[0.10^{*}]	[0.10]	[0.11]	[0.10]	[0.03]	[0.01]	[0.15]	[0.01]	[0.69^{***}]

Table 4

Abnormal Number of Trades in Response to MSAs – Absolute Return Ranges

This table reports mean (median) abnormal number of trades in response to the sample of 24,519 MSAs during the period 2005-2009. In Panel A, the abnormal number of trades is measured as the number of trades on day one divided by the average number of trades for the ten-day benchmark period. In Panel B abnormal number of trades is measured as the average number of trades for the ten-day post-announcement period divided by the average number of trades for the ten-day benchmark period. Difference between the top and the bottom quintiles are reported. ***, **, and * indicate difference in means (medians) are statistically significant at the 1%, 5% and 10%, respectively.

Panel A. One-Day

Distraction Quintiles	Bad News					Good News				
	Absolute Return Ranges					Absolute Return Ranges				
	1% - 2.5% n = 3,014	2.5% - 5% n = 3,240	5% - 7.5% n = 1,683	7.5% - 10% n = 923	> 10% n = 1,588	1% - 2.5% n = 3,348	2.5% - 5% n = 3,887	5% - 7.5% n = 2,289	7.5% - 10% n = 1,432	> 10% n = 3,115
1 (Low)	1.04 [0.79]	1.16 [0.78]	1.48 [1.00]	1.65 [1.06]	3.75 [1.75]	1.16 [0.87]	1.49 [0.99]	2.44 [1.35]	2.23 [1.29]	7.52 [2.56]
2	1.13 [0.74]	1.17 [0.77]	1.72 [0.87]	1.51 [1.00]	2.94 [1.56]	1.09 [0.78]	1.42 [0.89]	1.74 [1.08]	2.35 [1.27]	7.71 [2.38]
3	1.04 [0.78]	1.15 [0.75]	1.29 [0.82]	1.71 [1.24]	2.90 [1.70]	1.29 [0.83]	1.52 [0.91]	1.65 [1.06]	2.12 [1.20]	6.10 [2.22]
4	1.05 [0.75]	1.14 [0.84]	1.36 [0.86]	1.65 [1.02]	3.19 [1.61]	1.11 [0.77]	1.36 [0.85]	1.84 [1.11]	2.41 [1.37]	5.42 [2.01]
5 (High)	0.83 [0.63]	0.93 [0.53]	1.01 [0.66]	1.22 [0.77]	2.20 [1.27]	0.89 [0.60]	1.05 [0.59]	1.34 [0.86]	1.64 [0.83]	2.99 [1.30]
High – Low Distraction	0.21*** [0.16***]	0.23*** [0.25***]	0.46*** [0.34***]	0.43** [0.29***]	1.55*** [0.48***]	0.27*** [0.27***]	0.43*** [0.40***]	1.10*** [0.49***]	0.59** [0.46***]	4.53*** [1.26***]

Panel B. Ten-Day

Distraction Quintiles	Bad News					Good News				
	Absolute Return Ranges					Absolute Return Ranges				
	1% - 2.5% n = 3,014	2.5% - 5% n = 3,240	5% - 7.5% n = 1,683	7.5% - 10% n = 923	> 10% n = 1,588	1% - 2.5% n = 3,014	2.5% - 5% n = 3,240	5% - 7.5% n = 1,683	7.5% - 10% n = 923	> 10% n = 1,588
1 (Low)	1.34 [1.08]	1.34 [1.03]	1.34 [1.01]	1.47 [1.05]	1.78 [1.14]	1.27 [1.03]	1.46 [1.11]	1.74 [1.22]	1.65 [1.19]	3.02 [1.53]
2	1.18 [1.00]	1.34 [1.00]	1.30 [1.02]	1.24 [0.94]	1.56 [1.07]	1.26 [1.02]	1.87 [1.07]	1.57 [1.11]	2.64 [1.06]	2.88 [1.41]
3	1.20 [1.00]	1.20 [0.93]	1.26 [0.99]	1.28 [0.94]	1.44 [1.01]	1.32 [1.06]	1.36 [1.08]	1.35 [1.06]	1.53 [1.13]	2.55 [1.40]
4	1.20 [1.00]	1.89 [0.96]	1.25 [0.97]	1.20 [0.92]	1.52 [1.11]	1.26 [0.98]	1.31 [1.04]	1.59 [1.07]	1.59 [1.12]	2.24 [1.27]
5 (High)	1.20 [1.01]	1.31 [0.98]	1.33 [0.99]	1.35 [0.93]	1.42 [1.04]	1.25 [1.05]	1.36 [1.05]	1.54 [1.11]	1.58 [1.22]	1.94 [1.11]
High – Low Distraction	0.14* [0.07**]	0.03 [0.05**]	0.01 [0.02]	0.12 [0.12]	0.36** [0.10**]	0.01 [-0.02]	0.10 [0.05]	0.21 [0.11*]	0.07 [-0.03]	1.08** [0.41***]

Table 5

Abnormal Trading Volume in Response to MSAs – Absolute Return Ranges

This table reports mean (median) abnormal trading volume in response to the sample of 24,519 MSAs during the period 2005-2009. In Panel A, the abnormal trading volume is measured as the trading volume on day one divided by the average trading volume for the ten-day benchmark period. In Panel B abnormal trading volume is measured as the average trading volume for the ten-day post-announcement period divided by the average trading volume for the ten-day benchmark period. Difference between the top and the bottom quintiles are reported. ***, **, and * indicate difference in means (medians) are statistically significant at the 1%, 5% and 10%, respectively.

Panel A. One-Day

Distraction Quintiles	Bad News					Good News				
	Absolute Return Ranges					Absolute Return Ranges				
	1% - 2.5% n = 3,014	2.5% - 5% n = 3,240	5% - 7.5% n = 1,683	7.5% - 10% n = 923	> 10% n = 1,588	1% - 2.5% n = 3,014	2.5% - 5% n = 3,240	5% - 7.5% n = 1,683	7.5% - 10% n = 923	> 10% n = 1,588
1 (Low)	1.13 [0.72]	1.33 [0.72]	1.80 [0.92]	2.21 [1.00]	6.79 [1.81]	1.31 [0.75]	1.58 [0.92]	2.78 [1.23]	2.34 [1.17]	9.95 [2.57]
2	1.34 [0.69]	1.45 [0.69]	15.49 [0.79]	2.19 [0.81]	4.24 [1.47]	1.41 [0.70]	3.44 [0.82]	1.94 [1.05]	2.81 [1.17]	8.50 [2.46]
3	1.42 [0.66]	1.66 [0.70]	1.54 [0.75]	2.29 [1.12]	4.44 [1.46]	1.70 [0.75]	1.83 [0.81]	1.95 [1.03]	2.76 [1.36]	6.64 [2.35]
4	1.09 [0.68]	1.40 [0.77]	1.71 [0.86]	1.95 [0.94]	6.05 [1.72]	1.22 [0.69]	1.67 [0.78]	2.18 [1.19]	2.70 [1.32]	5.99 [2.02]
5 (High)	0.95 [0.53]	1.02 [0.46]	1.38 [0.54]	1.83 [0.67]	3.48 [1.16]	1.08 [0.53]	1.18 [0.53]	2.03 [0.85]	1.69 [0.81]	3.84 [1.15]
High – Low Distraction	0.19 [0.18***]	0.31** [0.26***]	0.42 [0.38***]	0.38 [0.33**]	3.31** [0.66***]	0.23* [0.22***]	0.40*** [0.39***]	0.75* [0.37***]	0.65*** [0.36***]	6.11** [1.42***]

Panel B. Ten-Day

Distraction Quintiles	Bad News					Good News				
	Absolute Return Ranges					Absolute Return Ranges				
	1% - 2.5% n = 3,014	2.5% - 5% n = 3,240	5% - 7.5% n = 1,683	7.5% - 10% n = 923	> 10% n = 1,588	1% - 2.5% n = 3,014	2.5% - 5% n = 3,240	5% - 7.5% n = 1,683	7.5% - 10% n = 923	> 10% n = 1,588
1 (Low)	1.52 [1.08]	1.42 [1.03]	1.42 [1.00]	1.97 [1.13]	2.46 [1.26]	1.43 [1.02]	1.62 [1.10]	2.15 [1.22]	1.69 [1.19]	3.77 [1.48]
2	1.38 [0.99]	1.58 [1.04]	6.09 [1.03]	1.46 [0.97]	1.90 [1.14]	1.39 [1.03]	2.03 [1.05]	1.64 [1.06]	2.12 [0.99]	3.12 [1.37]
3	1.46 [1.00]	1.44 [0.93]	1.37 [1.01]	1.63 [0.98]	2.34 [1.07]	1.69 [1.03]	1.52 [1.03]	1.40 [1.00]	1.74 [1.14]	3.56 [1.41]
4	1.36 [1.02]	1.96 [0.98]	1.54 [1.03]	1.71 [0.91]	2.60 [1.23]	1.48 [0.94]	1.47 [1.02]	1.63 [1.05]	2.02 [1.08]	2.46 [1.29]
5 (High)	2.00 [1.01]	2.66 [0.96]	1.53 [1.03]	1.85 [1.06]	2.71 [1.15]	1.45 [1.03]	1.65 [1.04]	1.91 [1.13]	1.70 [1.22]	2.17 [1.14]
High – Low Distraction	-0.48 [0.07]	-1.24 [0.07]	-0.11 [-0.03]	0.12 [0.07]	-0.25 [0.11]	-0.01 [-0.01]	-0.03 [0.06]	0.24 [0.10]	-0.01 [-0.04]	1.60** [0.34***]

Table 6

Abnormal Number of Trades in Response to Earnings Surprises

This table reports mean [median] abnormal number of trades in response to the sample of 352 half-yearly earnings MSAs during the period 2005-2009. In Panel A, the abnormal number of trades is measured as the number of trades on day one divided by the average number of trades for the ten-day benchmark period. In Panel B abnormal number of trades is measured as the average number of trades for the ten-day post-announcement period divided by the average number of trades for the ten-day benchmark period. Difference between the top and the bottom quintiles are reported. ***, **, and * indicate difference in means (medians) are statistically significant at the 1%, 5% and 10%, respectively.

Panel A. One-Day

Distraction Quintiles	Bad News			Good News		
	Absolute Forecast Error Ranges			Absolute Forecast Error Ranges		
	<1% n = 79	1% - 5% n = 20	> 5% n = 22	<1% n = 166	1% - 5% n = 49	> 5% n = 16
1 (Low)	2.13 [1.83]	3.04 [3.92]	4.08 [4.08]	1.63 [1.48]	1.67 [0.49]	1.57 [1.57]
2	1.61 [1.52]	2.62 [2.09]	2.56 [3.08]	2.12 [1.62]	1.36 [0.71]	3.41 [2.97]
3	1.33 [1.11]	20.47 [20.47]	2.07 [1.93]	2.16 [1.40]	1.80 [1.44]	1.23 [1.23]
4	1.59 [1.28]	1.41 [1.33]	1.25 [1.25]	1.61 [1.46]	2.54 [1.14]	1.49 [0.88]
5 (High)	0.98 [0.96]	1.90 [1.90]	2.53 [1.79]	2.10 [0.97]	1.74 [0.91]	1.25 [0.98]
Low – High Distraction	1.16*** [0.87***]	1.15 [2.02]	1.55 [2.29]	-0.46 [0.51]	-0.07 [-0.42]	0.32 [0.59]

Panel B. Ten-Day

Distraction Quintiles	Bad News			Good News		
	Absolute Forecast Error Ranges			Absolute Forecast Error Ranges		
	<1% n = 79	1% - 5% n = 20	> 5% n = 22	<1% n = 166	1% - 5% n = 49	> 5% n = 16
1 (Low)	1.02 [1.01]	1.01 [1.02]	2.26 [2.26]	1.56 [1.28]	1.95 [1.34]	0.86 [0.86]
2	1.01 [1.05]	1.68 [1.36]	1.75 [1.72]	2.45 [1.36]	1.56 [1.24]	1.98 [2.14]
3	1.22 [1.15]	5.07 [5.07]	1.23 [1.17]	1.60 [1.21]	1.98 [2.02]	1.01 [1.01]
4	1.25 [1.15]	1.16 [1.14]	3.99 [3.99]	1.64 [1.15]	1.55 [1.12]	2.03 [2.06]
5 (High)	1.13 [0.98]	2.08 [2.08]	1.52 [1.34]	1.55 [0.94]	1.19 [1.02]	1.13 [1.02]
Low – High Distraction	-0.10 [0.04]	-1.07 [-1.06]	0.73 [0.92]	0.02 [0.33***]	0.76 [0.31]	-0.26 [-0.16]

Table 7

Abnormal Trading Volume in Response to Earnings Surprises

This table reports mean [median] abnormal trading volume in response to the sample of 352 half-yearly earnings MSAs during the period 2005-2009. In Panel A, the abnormal number of trades is measured as the number of trades on day one divided by the average number of trades for the ten-day benchmark period. In Panel B abnormal number of trades is measured as the average number of trades for the ten-day post-announcement period divided by the average number of trades for the ten-day benchmark period. Difference between the top and the bottom quintiles are reported. ***, **, and * indicate difference in means (medians) are statistically significant at the 1%, 5% and 10%, respectively.

Panel A. One-Day

Distraction Quintiles	Bad News			Good News		
	Absolute Forecast Error Ranges			Absolute Forecast Error Ranges		
	<1%	1% - 5%	> 5%	<1%	1% - 5%	> 5%
	n = 79	n = 20	n = 22	n = 166	n = 49	n = 16
1 (Low)	3.12	4.88	2.62	2.30	3.20	1.30
	[2.14]	[3.61]	[2.62]	[1.74]	[1.24]	[1.30]
2	2.26	2.99	3.82	2.77	2.59	2.22
	[1.79]	[2.43]	[2.44]	[1.93]	[1.07]	[2.28]
3	2.21	24.69	4.24	2.57	3.49	1.54
	[1.70]	[24.69]	[2.55]	[1.52]	[1.93]	[1.54]
4	2.05	2.82	1.21	2.66	3.45	3.78
	[1.79]	[2.14]	[1.21]	[1.35]	[1.05]	[4.19]
5 (High)	1.12	3.07	2.99	1.63	1.80	1.25
	[0.67]	[3.07]	[2.00]	[1.05]	[1.00]	[0.82]
Low – High Distraction	2.00***	1.82	-0.38	0.67	1.40	0.05
	[1.47***]	[0.55]	[0.62]	[0.69**]	[0.25]	[0.49]

Panel B. Ten-Day

Distraction Quintiles	Bad News			Good News		
	Absolute Forecast Error Ranges			Absolute Forecast Error Ranges		
	<1%	1% - 5%	> 5%	<1%	1% - 5%	> 5%
	n = 79	n = 20	n = 22	n = 166	n = 49	n = 16
1 (Low)	1.58	1.80	3.19	2.33	3.45	0.89
	[1.34]	[1.22]	[3.19]	[1.41]	[2.44]	[0.89]
2	1.18	5.11	2.46	3.54	1.70	1.65
	[1.33]	[1.59]	[1.83]	[1.75]	[1.37]	[1.95]
3	1.46	4.44	1.75	1.84	1.96	0.75
	[1.22]	[4.44]	[1.93]	[1.34]	[1.46]	[0.75]
4	1.42	1.30	4.26	2.69	1.85	2.90
	[1.23]	[1.26]	[4.26]	[1.09]	[1.53]	[3.14]
5 (High)	1.35	2.33	2.37	1.33	1.11	0.73
	[1.28]	[2.33]	[1.72]	[1.16]	[1.19]	[0.81]
Low – High Distraction	0.23	-0.53	0.82	0.99*	2.34*	0.15
	[0.06]	[-1.11]	[1.47]	[0.25*]	[1.25**]	[0.07]

Table 8
Investor Distraction and the Short Term Market Reaction to MSAs

This table reports regression results examining the sources of distraction on the short term magnitude of the market reaction for the sample of 24,519 MSAs during the period 2005-2009. The dependent variables are the abnormal number of trades and abnormal share volume on the announcement day. Panel A reports regressions including all MSAs while Panels B and C have separate regressions for each MSA type. Size is the logarithm of market capitalization. Number of MSAs is the total number of MSAs released on the announcement day. Relative order uses the time stamp to determine the position of the MSAs relative to all the MSAs released on the announcement day. Good News is a dummy variable taking the value 1 if the sign of the one-day return reaction is positive and 0 otherwise. Outside market hours is a dummy variable taking the value 1 if the MSA is released either before or after hours and 0 otherwise. Friday is a dummy variable equal to 1 if the MSA is released on a Friday. Halt is a dummy variable taking the value 1 if the firm requested a trading halt in anticipation of the release of the MSA and 0 otherwise. ***, **, * denotes that the coefficient is significantly different from zero at the 1%, 5% and 10% level, respectively.

Panel A. Investor Distraction and the Magnitude of Reaction to MSAs

	Abnormal One-Day Number of Trades		Abnormal One-Day Trading Volume	
	Coefficient	t-value	Coefficient	t-value
Intercept	12.97	11.00***	18.38	5.32***
Size	-0.37	-10.05***	-0.44	-5.00***
Number of MSAs	-0.80	-9.40***	-1.16	-5.12***
Relative Order	-2.02	-5.31***	-4.14	-3.98***
Good News	0.98	10.33***	0.52	1.29
Outside Market Hours	-0.24	-0.98	-1.24	-1.71*
Friday	0.11	0.58	0.72	1.23
Halt	1.96	3.75***	1.94	3.30***
N	24,519		24,519	
Adj. R^2	0.0133		0.0022	
F-Value	48.36***		8.55***	

Panel B. Abnormal One-Day Number of Trades Across MSA Types

	Periodic MSAs		Non-Periodic MSAs		Multiple MSAs	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	10.59	2.98***	10.84	12.75***	17.97	3.74***
Size	-0.16	-2.22**	-0.42	-15.70***	-0.49	-3.30***
Number of MSAs	-1.05	-3.03***	-0.20	-1.21	-1.19	-4.30***
Relative Order	-1.87	-2.38**	-1.78	-5.37***	-2.67	-2.49***
Good News	0.30	1.15	1.17	13.39***	1.08	4.13***
Outside Market Hours	-0.09	-0.17	-0.10	-0.51	-0.56	-0.88
Friday	0.73	1.18	0.19	1.09	-0.49	-1.98*
Halt	1.31	2.17**	1.46	1.96*	1.81	2.33**
N	5,142		13,449		5,928	
Adj. R^2	0.0068		0.0319		0.0100	
F-Value	6.03***		63.18***		9.54***	

Panel C. Abnormal One-Day Trading Volume Across MSA Types

	Periodic MSAs		Non-Periodic MSAs		Multiple MSAs	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	18.95	2.09**	17.12	3.62***	18.26	6.47***
Size	-0.25	-1.35	-0.55	-3.82***	-0.47	-5.25***
Number of MSAs	-2.10	-2.35**	-0.18	-0.73	-1.37	-6.54***
Relative Order	-3.15	-1.57	-5.77	-3.25***	-2.06	-2.21**
Good News	0.07	0.11	0.52	0.72	1.00	4.55***
Outside Market Hours	-0.29	-0.20	-2.54	-2.05**	0.47	0.89
Friday	2.16	1.35	0.77	0.90	-0.37	-1.51
Halt	1.99	1.22	1.80	1.58	1.73	2.48**
N	5,142		13,449		5,928	
Adj. R^2	0.0033		0.0015		0.0209	
F-Value	3.42***		3.93***		19.10***	

Table 9

Investor Distraction and the Magnitude of the Short Term Reaction to MSAs by Return Quintiles on the Announcement Day

This table reports regression results examining the sources of distraction on the short term magnitude of the market reaction for the sample of 24,519 MSAs during the period 2005-2009. The dependent variables are the abnormal number of trades and abnormal share volume on the announcement day. Panel A reports regressions including all MSAs while Panels B and C have separate regressions for each MSA type. Size is the logarithm of market capitalization. Number of MSAs is the total number of MSAs released on the announcement day. Relative order uses the time stamp to determine the rank of the MSAs relative to all the MSAs released on the announcement day. Good News is a dummy variable taking the value 1 if the sign of the one-day return reaction is positive and 0 otherwise. Outside market hours is a dummy variable taking the value 1 if the MSA is released either before or after hours and 0 otherwise. Friday is a dummy variable equal to 1 if the MSA is released on a Friday. Halt is a dummy variable taking the value 1 if the firm requested a trading halt in anticipation of the release of the MSA and 0 otherwise. ***, **, * denotes that the coefficient is significantly different from zero at the 1%, 5% and 10% level, respectively.

Panel A. Abnormal One-Day Number of Trades

	Return Quintile 1		Return Quintile 2		Return Quintile 3		Return Quintile 4		Return Quintile 5	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	4.24	9.89***	4.21	10.47***	5.75	8.59***	6.78	11.00***	28.95	5.64***
Size	-0.09	-5.77***	-0.07	-5.99***	-0.11	-5.03***	-0.12	-5.21***	-0.73	-4.39***
Number of MSAs	-0.23	-6.87***	-0.28	-6.59***	-0.34	-5.69***	-0.58	-9.08***	-2.20	-5.90***
Relative Order	-0.94	-7.22***	-1.11	-6.83***	-1.56	-8.25***	-1.08	-4.93***	-5.44	-2.97***
Good News	0.09	1.79*	0.26	4.98***	0.43	5.82***	0.67	7.69***	3.37	8.40***
Outside Market Hours	0.04	0.55	0.01	0.13	-0.29	-2.12**	0.04	0.29	-0.93	-0.80
Friday	-0.13	-2.12**	-0.07	-1.15	-0.07	-0.58	0.03	0.21	0.47	0.56
Halt	1.44	2.18**	0.48	2.35**	1.03	1.91*	0.16	0.63	3.73	2.45**
N	4,884		4,906		4,908		4,896		4,925	
Adj. R^2	0.0406		0.0382		0.0305		0.0334		0.0185	
F-Value	30.49***		28.82***		23.08***		25.15***		14.23***	

Panel B. Abnormal One-Day Trading Volume

	Return Quintile 1		Return Quintile 2		Return Quintile 3		Return Quintile 4		Return Quintile 5	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	5.10	5.91***	4.69	7.81***	5.25	4.47***	26.38	1.77*	28.28	4.20***
Size	-0.11	-3.74***	-0.08	-3.95***	0.04	0.37	-0.60	-1.48	-0.36	-2.51**
Number of MSAs	-0.29	-4.61***	-0.32	-5.39***	-0.38	-2.74***	-1.63	-2.17**	-2.65	-3.83***
Relative Order	-0.95	-3.15***	-1.21	-4.87***	-3.57	-1.60	-5.60	-1.77*	-9.35	-2.76***
Good News	0.14	1.19	0.36	4.31***	0.79	1.52	-1.63	-0.90	2.99	4.31***
Outside Market Hours	0.22	1.66*	0.03	0.20	-1.58	-0.96	-2.98	-1.24	-1.87	-0.86
Friday	-0.08	-0.47	-0.11	-1.16	-0.39	-0.90	0.84	0.44	2.91	1.42
Halt	1.50	2.23**	0.43	1.92*	0.65	0.81	-1.12	-1.03	4.24	2.63***
N	4,884		4,906		4,908		4,896		4,925	
Adj. R^2	0.0121		0.0195		0.0001		0.0001		0.0089	
F-Value	9.52***		14.96***		0.95		1.07		7.32***	

Table 10
Investor Distraction and the Delayed Market Reaction to MSAs

This table reports the regression results examining the impact of sources of distraction on the delayed magnitude of the market reaction for the sample of 24,519 MSAs during the period 2005-2009. The dependent variables are the delayed abnormal number of trades differential and the delayed abnormal share volume differential. The differential is calculated as the difference between the ten-day and one-day magnitude of the number of trades and share volume. Size is the logarithm of market capitalization. Number of MSAs is the total number of MSAs released on the announcement day. Relative order uses the time stamp to determine the rank of the MSAs relative to all the MSAs released on the announcement day. Good News is a dummy variable taking the value 1 if the sign of the one-day return reaction is positive and 0 otherwise. Outside market hours is a dummy variable taking the value 1 if the MSA is released either before or after hours and 0 otherwise. Friday is a dummy variable equal to 1 if the MSA is released on a Friday. Halt is a dummy variable taking the value 1 if the firm requested a trading halt in anticipation of the release of the MSA and 0 otherwise. Revision is a dummy variable equal to 1 if the MSA is followed by an analyst recommendation revision.***, **, * denotes that the coefficient is significantly different from zero at the 1%, 5% and 10% level, respectively.

Panel A. Investor Distraction and the Delayed Market Reaction Differential to MSAs

	Delayed Abnormal Number of Trades Differential		Delayed Abnormal Share Volume Differential	
	Coefficient	t-value	Coefficient	t-value
Intercept	-8.73	-7.91***	-11.65	4.16***
Size	0.25	5.82***	0.21	2.84***
Number of MSAs	0.61	8.59***	1.11	4.77***
Relative Order	2.18	6.29***	3.69	4.43***
Good News	-0.65	-6.68***	0.52	-1.49
Outside Market Hours	0.25	1.19	0.74	1.25
Friday	-0.05	-0.36	-0.47	-1.12
Halt	-1.56	-3.40***	-1.67	-3.20***
N	24,519		24,519	
Adj. R^2	0.0092		0.0019	
F-Value	33.36***		7.52***	

Panel B. Investor Distraction and the Delayed Market Reaction Differential to MSAs by Analyst Recommendation Revisions

	Delayed Abnormal Number of Trades Differential		Delayed Abnormal Trading Volume Differential	
	Coefficient	t-value	Coefficient	t-value
Intercept	-8.85	-7.85***	-11.86	-4.21***
Size	0.26	5.77***	0.22	2.94***
Number of MSAs	0.62	8.59***	1.11	4.77***
Relative Order	2.19	6.30***	3.70	4.44***
Good News	-0.65	-6.69***	-0.52	-1.50
Outside Market Hours	0.25	1.21	0.75	1.27
Friday	-0.05	-0.36	-0.47	-1.12
Halt	-1.56	-3.39***	-1.66	-3.18***
Revision	-0.43	-3.15***	-0.77	-2.94***
N	24,519		24,519	
Adj. R^2	0.0092		0.0018	
F-Value	29.35***		6.65***	

Table 11

Investor Distraction and the Short Term Market Reaction to MSAs (Before Hours)

This table reports the regression results examining the impact of sources of distraction on the short term magnitude of the market reaction to the before trading hours sample in the 24,519 MSAs that occurred during the period 2005-2009. Size is the logarithm of market capitalization. Number of MSAs is the total number of MSAs released on the announcement day. Relative order uses the time stamp to determine the rank of the MSAs relative to all the MSAs released on the announcement day. Good News is a dummy variable taking the value 1 if the sign of the one-day return reaction is positive and 0 otherwise. Outside market hours is a dummy variable taking the value 1 if the MSA is released either before or after hours and 0 otherwise. Friday is a dummy variable equal to 1 if the MSA is released on a Friday. Halt is a dummy variable taking the value 1 if the firm requested a trading halt in anticipation of the release of the MSA and 0 otherwise. ***, **, * denotes that the coefficient is significantly different from zero at the 1%, 5% and 10% level, respectively.

Panel A. Investor Distraction and the Magnitude of Reaction to MSAs

	Abnormal One-Day Number of Trades		Abnormal One-Day Trading Volume	
	Coefficient	t-value	Coefficient	t-value
Intercept	12.67	11.96***	17.35	5.71***
Size	-0.38	-10.34***	-0.46	-5.14***
Number of MSAs	-0.78	-8.66***	-1.19	-4.64***
Relative Order	-1.41	-8.78***	-2.28	-7.69***
Good News	0.97	9.92***	0.53	1.33
Before Market Hours	0.44	3.72***	0.23	0.79
Friday	0.12	0.65	0.74	1.26
Halt	2.00	3.83***	1.97	3.32***
N	24,519		24,519	
Adj. R^2	0.0136		0.0020	
F-Value	49.35***		7.98***	

Panel B. Abnormal One-Day Number of Trades Across MSA Types

	Periodic MSAs		Non-Periodic MSAs		Multiple MSAs	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	10.61	3.48***	10.63	12.26***	17.58	3.98***
Size	-0.19	-2.75***	-0.43	-15.98***	-0.51	-3.36***
Number of MSAs	-1.02	-2.79***	-0.21	-1.27	-1.19	-4.00***
Relative Order	-1.52	-7.96***	-1.33	-6.00***	-1.77	-4.19***
Good News	0.31	1.10	1.16	13.29***	1.08	4.00***
Before Market Hours	0.55	2.14**	0.39	2.60***	0.23	-1.04
Friday	0.73	1.14	0.19	1.12	-0.47	-1.90*
Halt	1.36	2.23**	1.53	2.06**	1.83	2.34**
N	5,142		13,449		5,928	
Adj. R^2	0.0072		0.0319		0.0099	
F-Value	6.34***		64.35***		9.45***	

Panel C. Abnormal One-Day Trading Volume Across MSA Types

	Periodic MSAs		Non-Periodic MSAs		Multiple MSAs	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	18.79	2.42**	15.11	3.75***	18.59	6.95***
Size	-0.28	-1.61	-0.57	-3.84***	-0.51	-5.43***
Number of MSAs	-2.07	-2.20**	-0.24	-0.94	-1.30	-5.92***
Relative Order	-2.55	-4.64***	-2.47	-5.23***	-2.10	-4.10**
Good News	0.08	0.11	0.54	0.76	0.98	4.47***
Before Market Hours	0.55	0.80	-0.37	-0.81	0.98	2.82***
Friday	2.18	1.30	0.73	0.85	-0.33	-1.35
Halt	1.93	1.24	1.91	1.68*	1.80	2.58**
N	5,142		13,449		5,928	
Adj. R^2	0.0033		0.0011		0.0222	
F-Value	3.46***		3.08***		20.21***	

Table 12

Investor Distraction and the Short Term Market Reaction to MSAs (After Hours)

This table reports the regression results examining the impact of sources of distraction on the short term magnitude of the market reaction to the after trading hours sample in the 24,519 MSAs that occurred during the period 2005-2009. Size is the logarithm of market capitalization. Number of MSAs is the total number of MSAs released on the announcement day. Relative order uses the time stamp to determine the rank of the MSAs relative to all the MSAs released on the announcement day. Good News is a dummy variable taking the value 1 if the sign of the one-day return reaction is positive and 0 otherwise. Outside market hours is a dummy variable taking the value 1 if the MSA is released either before or after hours and 0 otherwise. Friday is a dummy variable equal to 1 if the MSA is released on a Friday. Halt is a dummy variable taking the value 1 if the firm requested a trading halt in anticipation of the release of the MSA and 0 otherwise. ***, **, * denotes that the coefficient is significantly different from zero at the 1%, 5% and 10% level, respectively.

Panel A. Investor Distraction and the Magnitude of Reaction to MSAs

	Abnormal One-Day Number of Trades		Abnormal One-Day Trading Volume	
	Coefficient	t-value	Coefficient	t-value
Intercept	13.32	12.22***	18.28	5.83***
Size	-0.39	-9.74***	-0.49	-4.91***
Number of MSAs	-0.72	-8.55***	-1.07	-4.72***
Relative Order	-2.45	-13.63***	-3.66	-10.19***
Good News	0.94	10.01***	0.47	1.16
After Market Hours	-1.03	-7.14***	-1.68	-4.66***
Friday	0.13	0.69	0.77	1.29
Halt	2.05	3.92***	2.08	3.60***
N	24,519		24,519	
Adj. R^2	0.0143		0.0023	
F-Value	51.83***		9.02***	

Panel B. Abnormal One-Day Number of Trades

	Periodic MSAs		Non-Periodic MSAs		Multiple MSAs	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	11.49	3.44***	11.26	12.56***	18.25	3.93***
Size	-0.20	-2.33**	-0.43	-16.12***	-0.53	-3.13***
Number of MSAs	-0.98	-2.89***	-0.19	-1.18	-1.12	-4.22***
Relative Order	-2.53	-7.30***	-2.26	-10.83***	-2.63	-4.93***
Good News	0.28	1.04	1.14	12.90***	1.06	4.05***
After Market Hours	-0.86	-3.11***	-0.97	-4.93***	-0.97	-2.37**
Friday	0.69	1.08	0.22	1.27	-0.44	-1.93*
Halt	1.38	2.26**	1.57	2.12**	1.88	2.45**
N	5,142		13,449		5,928	
Adj. R^2	0.0075		0.0330		0.0103	
F-Value	6.59***		66.57***		9.80***	

Panel C. Abnormal One-Day Trading Volume

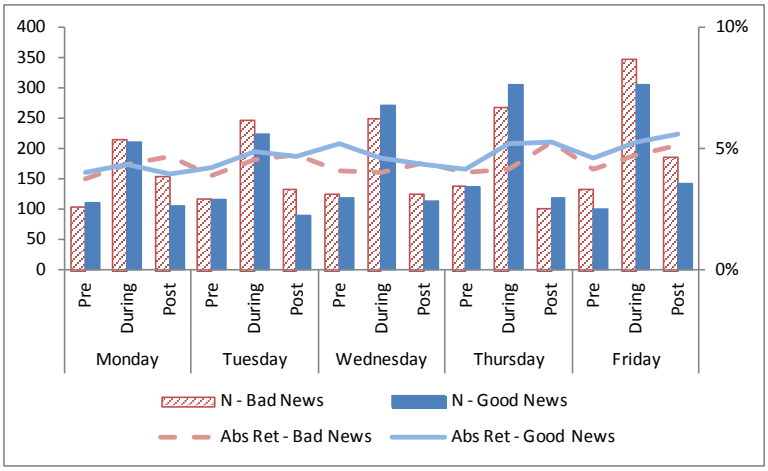
	Periodic MSAs		Non-Periodic MSAs		Multiple MSAs	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	19.87	2.34**	16.09	3.87***	18.38	6.97***
Size	-0.30	-1.37	-0.59	-3.80***	-0.49	-5.12***
Number of MSAs	-2.03	-2.30**	-0.22	-0.87	-1.26	-6.02***
Relative Order	-3.72	-4.27***	-3.56	-7.12***	-3.56	-5.95***
Good News	0.06	0.08	0.55	0.61	0.96	4.44***
After Market Hours	-1.04	-1.39	-2.13	-3.70***	-1.16	-3.02***
Friday	2.12	1.29	0.80	0.93	-0.33	-1.39
Halt	1.96	1.27	2.18	2.00**	1.82	2.61**
N	5,142		13,449		5,928	
Adj. R^2	0.0034		0.0013		0.0220	
F-Value	3.54***		3.59***		20.01***	

Figure 1
Distribution and Market Reaction to MSAs

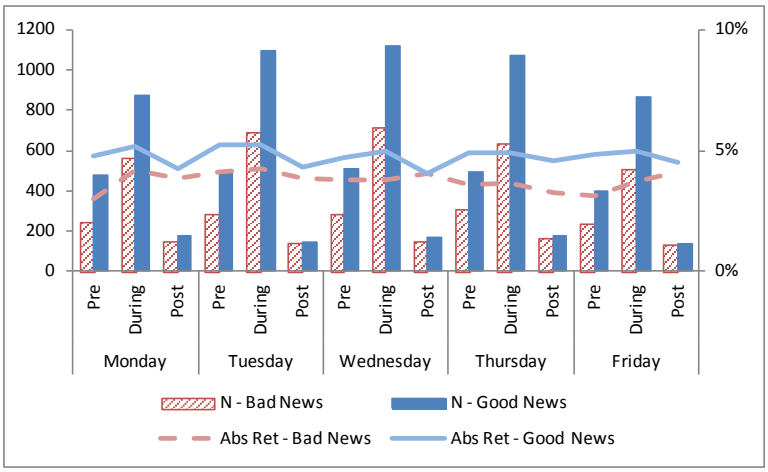
This figure shows the distribution and median of the one-day return response to MSAs. In Panel A MSAs are grouped by the day of the week and the time of the day of the announcement. In Panel B MSAs are grouped into quintiles according to the level of distraction as measured by the total number of MSAs released on the announcement day.

Panel A. Across Days of the Week and Times of the Day

Periodic MSAs



Non-Periodic MSAs



Multiple MSAs

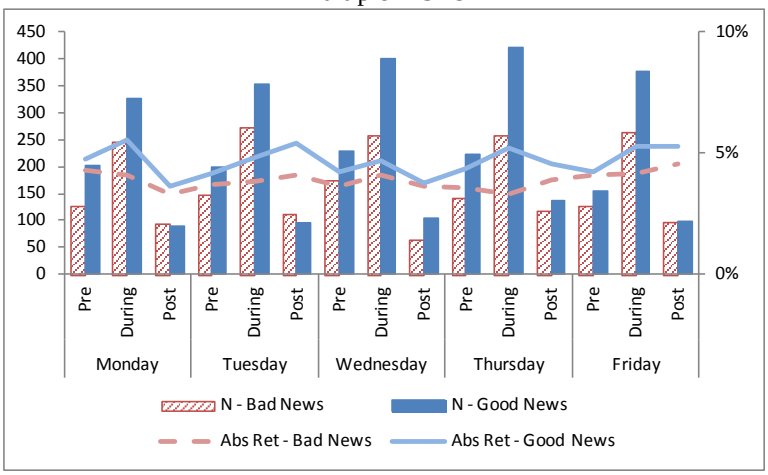
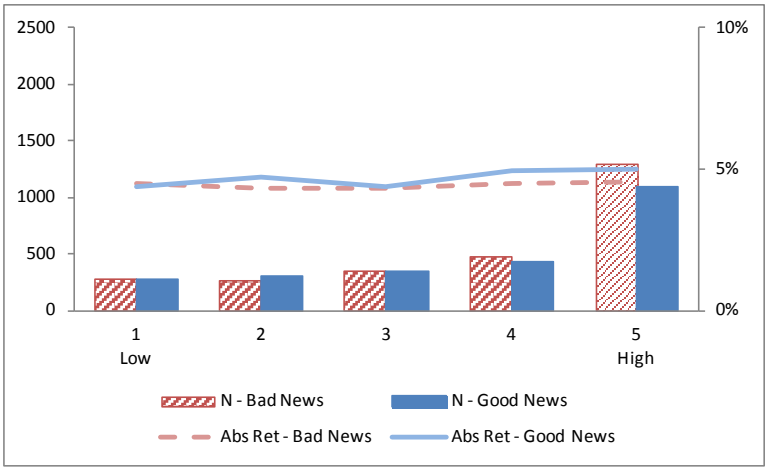


Figure 1 (Continued)
Distribution and Market Reaction to MSAs

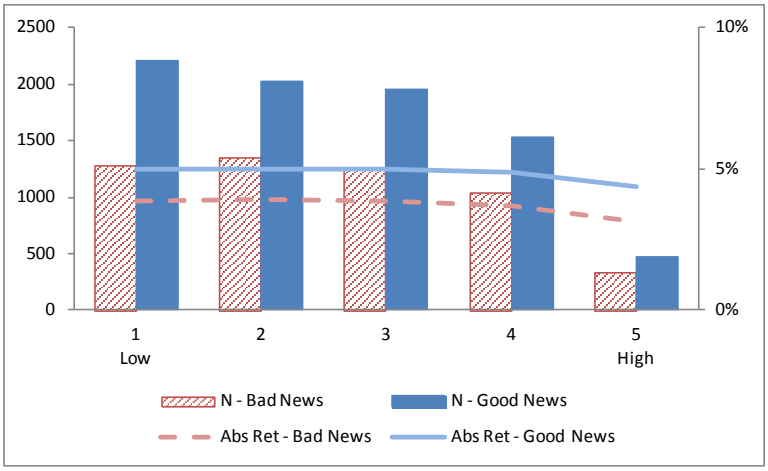
This figure shows the distribution of MSAs by the day of the week and the time of the day. The right hand side axis measures the median one-day absolute returns for good news an bad news MSAs. Panels A, B and C contain periodic, non-periodic and multiple MSAs, respectively.

Panel B. By Level of Distraction Quintile

Periodic MSAs



Non-Periodic MSAs



Multiple MSAs