Investor Attention to Stock Recommendations*

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Abstract

This study investigates the role of investor attention to stock recommendations on explaining the post-recommendation price drift. We construct a measure of attention to stock recommendations based on the abnormal trading volume on the days surrounding the recommendation. Our findings suggest that stock-recommendations which attract high investor attention consistently generate more pronounced post-announcement drifts than recommendations which receive low investor attention. In addition, we provide evidence that this phenomenon is mainly driven by upgrades rather than downgrades, consistent with the idea that increased volume leads to higher visibility and an increased number of unsophisticated investors buying the stock. Our findings remain robust when we control for firm-attention, analyst characteristics, recommendation characteristics and earnings announcements around the recommendation date.

Keywords: Investor Attention, Analyst Recommendations, Abnormal Trading Volume
JEL classification: G14, G20, G24

1 Introduction

The existing literature provides strong evidence of a price drift following stock recommendations (Elton, Gruber, and Grossman, 1986; Stickel, 1995; Womack, 1996; Barber, Lehavy, McNichols, and Trueman, 2001; Loh, 2010). Even though an immediate price reaction to stock recommendations is in line with the notion of efficient capital markets, a predictable drift following stock-recommendations questions the degree to which the market reacts efficiently to new information. In fact, Barber et al. (2001) suggest that stock returns are predictable using public information, such as stock recommendations, implying that markets are not efficient in the semi-strong sense.

One of the explanations proposed in the literature for the observed post-recommendation drift is investor inattention, which may lead to price under-reaction. In particular, Loh (2010) uses prior turnover as a proxy for investors' attention on stocks and finds that firms with low investor attention react less to stock recommendations than high-attention stocks during the three-day event window. More importantly, low-attention stocks exhibit a higher post-recommendation drift than high-attention stocks. Loh (2010) postulates that this evidence is consistent with investors under-reacting to news about firms that are not attention grabbing. He further posits that his results are in line with theoretical models, such as those of Peng and Xiong (2006) and Hirshleifer, Lim, and Teoh (2011), where investors neglect certain firm-specific news and hence the stock price under-reacts.

In this paper, we focus on the role of the attention to the recommendation per se for explaining the post-recommendation drift. To this end, we construct a measure of attention to stock recommendation that stems from the abnormal trading volume on the day of the recommendation. Our measure is motivated by Barber and Odean (2008) who assert that increased trading volume related to a news release is an indication of a higher number of investors paying attention to the stock.

Our empirical evidence suggests that recommendations that are accompanied by high attention generate consistently more pronounced post-announcement drifts than otherwise similar announcements. We further show that this effect mainly stems from upgrades rather than downgrades. This is in line with the idea that positive news about a stock accompanied by an increase in stock visibility will attract uninformed buyers and hence will lead to a higher positive post-announcement drift (Gervais, Kaniel, and Mingelgrin, 2001; Vega, 2006). The same argument does not hold in the case of negative news due to binding short sale constraints (Miller, 1977; Mayshar, 1983). In particular, uninformed

investors who observe negative news for a stock that attracts their attention cannot short sell the stock easily and hence stay out of the market (Barber and Odean (2008)).

Our results further demonstrate that the recommendation attention effect that we document in this study is distinct from and complementary to the stock attention effect reported by Loh (2010). More specifically, a double-sort analysis shows that low-attention stocks generate a more pronounced post-announcement drift than high-attention stocks within each recommendation attention quintile. However, high recommendation attention stocks generate a drift that is more pronounced than that of low recommendation attention stocks and this holds for each stock attention quintile, as well. Therefore, both mechanisms help explain the post-recommendation drift.

In a related study, Loh and Stulz (2011) analyze the analyst characteristics which make a recommendation influential. They find, for example, that a recommendation is more likely to generate a sizable stock reaction if it comes from a leader analyst. It is possible, therefore, that uninformed investors are more attracted by the recommendations of specific analysts that have performed well in the past and hence tend to follow their recommendations closely and create a post-announcement drift. In our study, we control for analyst experience and for analyst being a leader, in the sense of providing recommendations that make other analysts revise their recommendations. We find that the recommendation attention effect is not mechanically generated by a subsample of leading analysts. Moreover, we show that the effect is pronounced for all types of analysts and hence cannot be fully captured by analyst characteristics.

We further examine whether other factors related to the recommendation or the firm can explain our findings. It is possible, for example, that major recommendation changes (e.g. from sell directly to strong buy) or recommendations that generate extreme event returns also grab the attention of the investors and hence can account for the observed relationship between abnormal trading volume and post-recommendation drift. We show, however, that our effect is robust to controlling for the event cumulative return and the size of the analyst's revision, meaning that the abnormal trading activity encapsulates important information that is not embedded in other measures related to the recommendation.

Finally, we demonstrate that our results are not driven by a subset of small firms or by cases where an earnings announcement coincides with the analyst recommendation. In fact, our results are stronger when no earnings announcement takes place close to the recommendation.

Overall, our study provides new important evidence regarding the determinants of

the post-recommendation stock price drift. It shows that a simple and intuitive proxy of attention to recommendation, such as the abnormal event period trading volume, is a strong predictor of the subsequent months' cumulative abnormal returns and is robust to controlling for several analyst, recommendation and firm characteristics. This implies that the drift can be, to a large extent, explained by the visibility that the event attracts, with higher visibility leading to an increased interest for the stock on behalf of unsophisticated investors.

Our paper contributes to a broad literature that investigates the sources of differential stock price reaction to analyst recommendations. Francis and Soffer (1997) and Jegadeesh, Kim, and Krische (2004) show that the change in the recommendation is more informative than the recommendation level regarding the stock price reaction. Loh and Mian (2006) find that analysts who provide more accurate earnings forecasts tend to provide also more profitable recommendations. Sorescu and Subrahmanyam (2006) demonstrate that the reputation and experience of the analyst is more important than the strength of the recommendation in generating a return drift. Kecskes, Michaely, and Womack (2010) show that recommendations that are associated with changes in earnings expectations lead to higher stock price reactions. Li, Lockwood, Lockwood, and Uddin (2015) find that analyst recommendations play an important role in generating the momentum effect.

The paper is also related to a series of studies that utilize different proxies of investor (in)attention and investigate their impact on stock prices. For example, Chen, Noronha, and Singal (2004) document an asymmetric price affect around additions to and deletions from the S&P500 index which is attributed to increased attention to a stock that becomes part of the index. In the same spirit, DellaVigna and Pollet (2009) demonstrate that the stock price response to earnings announcements on Fridays is weaker than on other weekdays because investors are destructed by the upcoming weekend. Hirshleifer, Lim, and Teoh (2009) show that price reactions to earnings surprises are weaker on days where investors observe multiple earnings announcements. Drake, Roulstone, and Thornock (2012) demonstrate that the price reaction to earnings announcements is relatively decreased when there is abnormal Google search activity in the days before the announcement. Yuan (2015) shows that attention-grabbing events, such as record levels for the Dow and front-page articles about the stock market, can predict future stock market returns especially when its level is already high.

Finally, our study contributes to a literature that investigate the information content of trading volume for stock returns. Lee and Swaminathan (2000) demonstrate that the

strength and the persistence of the stock price momentum can be predicted by trading volume. Chordia, Subrahmanyam, and Anshuman (2001) find that both the level and the volatility of the trading activity exhibit negative predictability for future stock returns. Gervais et al. (2001) and Kaniel, Ozoguz, and Starks (2012) show that abnormal trading volume is associated with increased future stock returns. Berkman, Dimitrov, Jain, Koch, and Tice (2009) find that increased trading activity prior to an earnings announcement is associated with negative returns in the days right after the announcement. Akbas (2016) shows that unusually low trading activity during the days before an earnings announcement is related to abnormal negative returns around the event.

The rest of the study is organized as follows. Section 2 describes the data and method used. Section 3 presents the empirical results and Section 4 concludes.

2 Data and Research Design

2.1 Data

We use data of analyst recommendations from Thomson Financial I/B/E/S for the 1994-2013 period.[1] I/B/E/S stock recommendations are coded in integers from 1 (for strong buy) to 5 (for strong sell). We focus on individual analysts' recommendation revisions, that is the difference between the current and the most recent recommendation level. Zero changes (recommendation reiterations) are discarded in the analysis of recommendation revisions.[2] For coverage initiations (first recommendation in a stock by an analyst), we calculate a recommendation revision as the difference between the recommendation level and the I/B/E/S neutral/hold recommendation level 3.[3]

We define the day of a recommendation revision as the event day 0, except when a revision falls on a non-trading day. In the latter case, the event day is defined as the trading day following the day the recommendation was issued or updated. Lastly, because of changes to regulations pertaining to the work of equity research analysts in 2002, a recommendation revision within the period 8 May 2002 to 9 September 2002 is discarded

[1]Though available, the 1993 analyst recommendation data is rather limited and patchy and therefore discarded. We only use 1993 data when determining analyst experience by identifying analysts' first recommendation dates.

[2]Observations where I/B/E/S provides no analyst id or affiliation are also discarded.

[3]Discarding initiations of coverage from the revisions data does not materially affect our results.

if it updates a recommendation issued before 8 May 2002.[4].

The I/B/E/S recommendations data is merged with data on daily stock data for all NYSE, AMEX and NASDAQ common stocks from the Center for Research in Security Prices (CRSP). The two data sets are merged based on either CUSIP or exchange tickers combined with the requirement that the period these identifiers are used in the data sets overlap.[5] We drop stocks with share prices below $1.00.

2.2 Research Design

Our main analysis considers the relationship between abnormal turnover patterns around the recommendation revision and (event and post-event) stock returns. We define daily *raw turnover* as the number of shares traded on a day divided by the number of shares outstanding in a stock. To improve the distributional characteristics of the turnover measure (see, e.g., Ajinkya and Jain, 1989; Lo and Wang, 2000), we then calculate the daily *stock turnover* as $log(\text{raw turnover} + 0.00000255)$.[6] For each recommendation revision, we then define *normal turnover* as the average stock turnover during trading days $[-52, -11]$, that is, during the two months preceding the two-week window before the revision event. Revisions are dropped from the sample if more than two trading weeks of volume data is missing (over 25% of the period considered). Daily *abnormal turnover* is then the difference between stock turnover and normal turnover. For our analysis, we use *cumulative abnormal turnover* as our *recommendation attention* proxy, defined by the sum of abnormal turnover in the three-day event window $[-1, +1]$.

In order to analyze returns, we compute abnormal returns using a CAPM expected returns model. For this, we regress for each event excess stock returns (over a 3 month risk-free rate) on a constant and the market excess return. The market return is calculated using a value-weighted average return for all US stocks in the sample with stock prices greater than $1.00. The *expected daily return* for a stock is then the risk-free rate plus the stock's market beta times the market excess return on that day. We use trading days $[-262, -11]$ for the return regression, and require at least 75% of return observations (that is, for nine months out of the 12 months sample period).[7]

[4]See Loh (2010) for details of the regulation implementation.

[5]The full, unmerged CRSP stock data is used when calculating total market returns.

[6]Similar to other analyses (see, e.g. Llorente, Michaely, Saar, and Wang, 2002), we add a small constant to the raw turnover so that zero turnover observations are not dropped.

[7]We used a variety of expected return models, including a single factor model, the Fama-French 3 factor

Daily *abnormal returns* are the stock's return minus the expected return. *Cumulative abnormal returns* (CARs) are then calculated as the sum of abnormal returns over the specified period. When calculating and comparing CARs for both upgrades and downgrades in a joint sample, we use *signed CARs* by multiplying the abnormal returns of downgrades by -1 before aggregation.

Panel A in Table 1 presents the descriptive statistics for the recommendations of our sample over the 1994-2013 period. Overall, there are 365,299 recommendations for 9,901 firms issued by 11,369 analysts from 754 brokerage firms. The mean recommendation (2.26) is close to a Buy recommendation, and the mean recommendation change over our sample period is -0.18 (an upgrade). The average number of firms covered by brokerage firms is 59.6 while the average number of analysts employed by brokerage firms is 12.8.

[INSERT TABLE 1 HERE]

Over time, the recommendation sample reflects various developments in the market. For example, there is an increase in the number of observations as well as more positive recommendations (lower recommendation levels) during the dot-com bubble and a corresponding reversal once it burst. Also, recommendations were less positive (higher recommendation levels) during the 2007-2009 financial crisis. In terms of the brokerage industry, the sample shows a steady decline in coverage numbers and, at least since the dot-com bubble, in the mean number of analysts employed per brokerage house.

Panel B in Table 1 presents the descriptive statistics for the event volume data. For ease of interpretation, all turnover variables are based on raw turnover (that is, before the logarithmic transformations). The mean turnover in stocks on recommendation days is 1.7% of the shares outstanding, whereas the mean normal turnover in the two month period before the event (trading days $[-52, -11]$) is only 0.8%. Over all years, the mean event-turnover is considerably larger than the normal turnover.

Another important pattern in the volume data is the increase in turnover (both event and normal turnover) over the years. For example, the event turnover increases five-fold from 0.5% of shares outstanding in 1994 to to 2.5% in 2011. In order to avoid this trend to affect our groupings of stocks, we use monthly sub-samples in order to classify stocks into attention groups based on volume.

model, or market-adjusted returns. None of our key results are affected by the choice of return model.

3 Empirical Analysis

3.1 Recommendation Attention Effect

In this first step, we analyse mean cumulative abnormal returns (CARs) for stock grouped by our recommendation attention measure. For each calendar month, we group recommendation revision during that month into quintiles based on the recommendation attention measure for the revision, the cumulative abnormal turnover over trading days $[-1, +1]$. Figure 1 shows the plot of the signed CARs for each of the five recommendation attention groups (1 being the lowest and 5 the highest) and for up to forty-five trading days.

[INSERT FIGURE 1 HERE]

One can observe that on the days of recommendations there is a reaction on the stock prices of the recommended firms. This is consistent with the notion of efficient capital markets as analyst recommendations reflect newly released information about firms and stock prices should adjust accordingly. Nevertheless, there is a colossal difference among the magnitude of the CAR reactions across the five attention groups; particularly between the two extreme levels of recommendation attention. On the one hand, stocks with low-attention recommendations appear to adjust their prices around the event date since there is no considerable price drift over the following days. On the other hand, stocks with high-attention recommendations appear to have a higher price reaction around the event date, which is followed by a further positive drift over the following days.

Next, Panel A in Table 2 presents the event, one, three and six-month CARs for each of the five recommendation-attention groups (shown in columns) and tests whether these differ significantly among them. In the event date [-1, 1], price reactions to high-attention recommendations are significantly higher than those to low-attention recommendations. More specifically, stocks with the lowest-attention recommendations (column 1) exhibit an average CAR of 0.72%, while stocks with the highest-attention recommendations (column 5) have an average CAR of 7.86% (their difference is statistically significant at the 1% level).

[INSERT TABLE 2 HERE]

Furthermore, stocks related to high-attention recommendations appear to exhibit a positive price drift over the one, three and six-month period. For instance, the average

1-month post event CAR for the lowest-attention group is 0.02%, while it is 0.96% for the highest-attention group. The average 3-month CAR for the lowest attention group is negative (-0.03%), while for the highest-attention group the average CAR appears positive (1.54%). Regarding the six-month period, the picture is similar with the lowest-attention group having an average CAR of -0.088% and the highest-attention group an average CAR of 1.92%. The differences in all the above mentioned cases are statistically significant at the 1% level.

In order to test whether these findings are driven by a specific time period, we break our sample into four five-year periods and we repeat our estimations. The results are presented in Table 3 and appear identical to those reported above for the whole sample period. In all sub-periods, stocks with high-attention recommendations exhibit significantly higher event CARs than stocks with low-attention recommendations. In addition, the former do have a positive and significant price drift over the one, three and six-month periods.

[INSERT TABLE 3 HERE]

So far the analysis has been conducted by pooling together downgrades and upgrades. However, if the attention to the recommendation is the source of the observed subsequent drift, we would expect to find a more pronounced attention to recommendation effect for upgrades rather than downgrades. This is because uninformed investors, who are usually individual investors, find it easier to buy a stock that grabs their attention following good news rather than sell a stock that grabs their attention following bad news (Barber and Odean (2008)). The reason is that short sales constraints are more binding for individual than for institutional investors[8]. Therefore, while it is possible for them to buy any stock that catches their attention, most of the times it is possible to sell a stock that catches their attention only if it is already included in their portfolios.

To test the above premise, we conduct the previous analysis separately for upgrades and downgrades using unsigned CARs. Results are reported in Panels B (upgrades) and C (downgrades) of Table 2. The results for upgrades closely resemble those of Panel A in the same table. As expected, stocks in the highest recommendation-attention quantile exhibit a much higher event period CAR than stocks in the lowest recommendation-attention quantile (5.61%versus 0.32%). More importantly, stocks with high attention to recommendations exhibit a much higher (or less negative) post-recommendation drift than stocks with low attention. The difference is 1.77% for the one-month horizon and grows to 3.90%

[8]Barber and Odean (2008) find that in their sample only 0.29% of the positions are short positions.

for the six-month horizon, while it is statistically significant at the 1% level in all cases. This result is consistent with the idea that new uninformed investors start buying the stock after a positive recommendation catches their attention through increased trading activity.

The results for downgrades show a completely different pattern. While, as expected, the event period CARs are much lower for high attention to recommendation stocks than for low attention stocks (-9.65% versus -1.33%), the post-recommendation drift exhibits the opposite pattern. In particular, stocks with high attention to recommendations exhibit a drift that is less negative than that of stocks with low attention to recommendation. However, the difference is relatively small (in the range of 0.43% and 0.66% depending on the horizon) and is statistically significant at the 1% level only in the case of the one month-horizon. This result is in line with the idea that uninformed investors cannot short sell easily stocks after a negative recommendation catches their attention. If anything, we find evidence that such investors will buy rather than sell the stock in the months following the recommendation, consistent with Barber and Odean's (2008) conclusion that individual investors are on average net buyers of stocks that grab their attention irrespective of whether the stocks are accompanied by good or bad news.

Overall, the results of this section suggest that not all analyst recommendations have the same impact on stock prices. It appears that stocks with high-attention recommendations exhibit a pronounced stock price drift over the subsequent one, three and six-month periods. This is line with the idea that increased trading activity around an analyst recommendation attracts the attention of uninformed investors leading to a post-recommendation price drift (Gervais, et al., 2001; Vega, 2006). Further evidence suggests that this effect stems from mainly from upgrades rather than downgrades. This is reasonable since uninformed investors are mostly individual investors who face short sale constraints and hence tend to be buyers of stocks that catch their attention rather than sellers.

3.2 Recommendation Attention vs. Stock Attention

In a related study, Loh (2010) finds that low-attention stocks react less to stock recommendations than high-attention stocks, during the three-day event window; in addition, the author finds that low-attention stocks exhibit a higher post-recommendation drift than high-attention stocks. Contrary to Loh's study, which examines investor attention at the firm level, ours focuses on investor attention at the recommendation level. In order to test whether it is investor attention at the stock or recommendation-level which drives our

results we repeat our estimations following the approach by Loh (2010) and group revisions in each calendar month also into quintiles based on their (pre-event) normal turnover. We then double-sort the CARs based on Loh's attention measure and ours. Results are reported in Table 4. On the left column is Loh's stock-attention measure (1 being lowest-attention stocks and 5 being the highest-attention stocks) and horizontally is our own recommendation-attention measure.

[INSERT TABLE 4 HERE]

Starting with our results on the event date (Panel A), these support Loh's findings that high-attention stocks have significantly higher returns than low-attention stocks on the event date. However, when observing our own measure, stocks with high recommendation-attention have significantly higher abnormal returns than those with low recommendation-attention, independently from whether these are high or low-attention stocks. For instance, low-attention stocks with low recommendation-attention have a CAR of 0.73%, while low-attention stocks with high recommendation-attention have a CAR of 5.70%. Similarly, high attention stocks with low recommendation-attention have a CAR of 0.80%, while high-attention stocks with high recommendation-attention have a CAR of 11.83%. This pattern is consistent among all attention groups.

Panels B-D present the CARs over the one, three and six-month periods using the same double-sorting procedure. Our findings support those of Loh (2010), who finds a positive price drift on low attention stocks. Nevertheless, when taking into consideration our attention measure, stocks with higher recommendation-attention show significantly higher CARs than those with low recommendation-attention. For instance, for the one-month period (Panel B), low stock-attention firms with low recommendation-attention have a CAR of 0.55%, while those with high recommendation-attention have a CAR of 1.51%. Panel C shows the results for the three-month period. In this case, low attention stocks with low recommendation-attention have a CAR of 0.92%, while those with high recommendation-attention have a CAR of 2.24%. Similarly, for the three-month period (Panel D), low attention stocks with low recommendation-attention exhibit a CAR of 1.18%, while those with high recommendation-attention have a CAR of 2.72%. The differences in CARs across groups of similar stock attention but different (high-low) recommendation attention is significant at the 1% level in all cases.

Overall, our findings in Table 4 are in line with those of Loh (2010). Nevertheless, our measure seems to be more informative given the higher CARs exhibited in stocks with

higher recommendation-attention. In fact, it is worth noting here that even in cases where Loh's measure suggests a negative price drift (high-attention stocks), we do not observe such a pattern when controlling for our measure. For all three time periods, high attention stocks with low recommendation-attention exhibit negative CARs, while those with high recommendation-attention exhibit significantly positive returns of 0.56%, 1.50% and 2.41% for the one, three and six-month periods respectively.

3.3 Analysts' Characteristics

Prior research by Loh and Stulz (2011) demonstrates that analysts' characteristics play a significant role for the impact of the recommendation on the stock price reaction. If this is the case, it is possible that the post-recommendation drift can be driven by certain recommendations provided by influential analysts. For example it may be the case that uninformed investors are attracted by the recommendations of a subgroup of top analysts and hence generate a price drift only for the stocks that are covered by analysts with specific characteristics.

To examine this premise, we begin our analysis with the leader/follower ratio, as developed in Cooper, Day, and Lewis (2001). To generate this ratio, we sum up, for each revision in a stock, the number of trading days since the two most recent revisions prior to the event revision, respectively. Similarly, we sum up the number of trading days until the next two revisions following the event revision. The ratio of trading days before and after the revision yields the leader/follower ratio. A ratio of greater than one indicates a leading revision, as it leads to other revisions following it more closely in time than it follows earlier revisions. A ratio below one indicates a follower revision. For each analyst, we then calculate the analyst leader/follower ratio as the mean ratio of all revisions by this analyst.[9]

Table 5 presents our results. On the first column there is the classification of the analyst as a follower or leader, as well as their difference (Leader -âĂŞ Follower). Horizontally, it is our measure of recommendation attention (1 being the lowest and 5 being the highest) and the difference between the two extreme quintiles. On the day of the event (Panel A), one can observe that, independently from whether the recommendation was a leading one

[9]We remove all revisions where three or more revisions happen at the same time as well as revisions where the most distant revision is over 6 months away from the event. Also, it is important to note that the leader/follower ratio is not an ex ante measure, as it uses post-event information.

or not, stocks with high recommendation-attention have significantly higher returns than those with low recommendation-attention. Moreover, recommendations provided by leader analysts exhibit on average significantly higher event CARs than those issued by analysts that are considered followers.

[INSERT TABLE 5 HERE]

Panels B-D present the results for the one, three and six-month CARs. In all cases, stocks with high recommendation attention exhibit significantly higher drift than those with low attention. Furthermore, in all cases, the difference in CARs between the high recommendation-attention stocks and the low recommendation-attention stocks is statistically significant at either the 1% or 5% level. In contrast with our results for the event-date, stocks with recommendations issued by leader analysts do not exhibit consistently higher CARs than those issued by follower analysts. In fact, leaders' recommendations generate more pronounced drifts than followers' recommendations across all post-event periods considered only when low recommendation-attention stocks are considered. While there is also some evidence of significant difference in CARs between leaders and followers for recommendation-attention quintiles 2 and 3 as well, it is clear that there is no statistically significant difference for high recommendation-attention stocks.

The next characteristic that we consider in the analyst's experience (Mikhail, Walther, and Willis (1997)). In order to determine analyst experience, we group analysts by the number of trading days since their first recorded recommendation in the data set (which starts in 1993). Table 6 presents the results. On the first column is the classification of recommendations conditioned upon the experience of the issuing analysts (1 being the less experienced and 5 being the most experienced) and their difference (High-Low experience), while horizontally is our attention measure.

[INSERT TABLE 6 HERE]

Panel A in Table 6 presents the event CARs. In all cases, one can observe that stocks with high recommendation-attention exhibit significantly higher returns than those with low recommendation-attention, independently from whether the recommendations were issued by more or less experienced analysts. Nevertheless, recommendations issued by more experienced analysts tend to exhibit significantly higher event CARs than those issued by less experienced analysts.

A similar picture is seen in Panels B-D for the one, three and six-month periods after the event. More specifically, for all post-events periods, stocks with high attention-recommendation exhibit significantly higher CARs (all positive) than stocks with low attention-recommendation; this is independent from the experience of the issuing analysts. Similar to the case of leader and follower analysts, stocks with recommendations issued by experienced analysts do not exhibit significantly and consistently higher CARs than those issued by less experienced analysts; this is the case for all the three post-events periods examined. More specifically, the experience of the issuing analysts appears to have an impact only on stocks with low attention-recommendation, while analyst experience seems less important for stocks with high attention-recommendation.

Overall, the results of this section suggest that the relationship between the post-recommenation drift and the attention to recommendation, as proxied by the abnormal event period trading volume, is not driven by a subset of influential analysts. In addition, analysts' characteristics such as their experience or whether they can be considered leaders or not, explains the difference in post-recommendation drifts only for stocks that exhibit low attention to recommendation.

3.4 Alternative Explanations

In this section we investigate whether our empirical evidence regarding a strong relationship between the event abnormal trading volume and the post-recommendation price drift is robust to controlling for other factors related to the recommendation or the firm.

We start by testing whether our results continue to hold once we control for the magnitude of the event CAR. Intuitively, the magnitude of the cumulative abnormal return around the days of the recommendation might be regarded as another proxy of attention (Barber and Odean, 2008; Seasholes and Wu, 2008). Therefore, it is of particular interest to investigate whether the price drift is also related to extreme returns around the recommendation days. Table 7 presents the results. In the first column we rank the event (signed) CARs (1 being the lowest and 5 being the highest), while horizontally is our attention measure.

[INSERT TABLE 7 HERE]

Panel A presents the event-date CARs. By construction, there is a monotonically increasing pattern in event CARs across CAR quintiles. Moreover, the higher the attention

a recommendation receives on the event-date, the more extreme the CAR is. For instance, low event CAR stocks with high-attention recommendations exhibit significantly more negative CARs (-13.51%) than those with low attention (-4.61%). Similarly, high event CAR stocks with high-attention recommendations have significantly higher CARs (21.59%) than those with low attention (11.10%).

Panels B-D present the one, three and six-month period CARs. One could observe that stocks with recommendations receiving higher attention, as proxied by the abnormal trading volume, exhibit significantly more pronounced CARS, than those with low-attention recommendations. This is the case for all the post-event periods examined and for all event CAR quintiles apart from one case (1-month returns for the high CAR portfolio). On the other hand, there does not seem to be any consistent relation between the magnitude of the event CAR and the post-recommendation drift. This means that even though extreme returns have been used in prior literature as another proxy for attention, they do not exhibit the same effect with abnormal trading volume in our setting.

Next, we investigate whether the size of the revisions affect the event and subsequent months' price drift. Intuitively, a more extreme revision (e.g. from sell to strong buy or the opposite) could also increase the visibility of the stock. Alternatively, such extreme recommendations might contain important new information about the future prospects of the firm. If on average investors under-react to new information, it is possible that our results are driven by a subset of extreme revisions in recommendations.

Table 8 presents the results. On the first column we classify revisions into small (revisions of size ± 1)and large ones (revision size ± 2 or more) and we also report their difference (Large-Small), while horizontally we present our attention measure.

[INSERT TABLE 8 HERE]

Panel A presents the results on the event-date CARs. As expected, stocks with large revisions appear to have significantly higher CARs than those associated with small revisions. The only exception is the case of stocks with high recommendation attention, where the difference between large and small revisions is insignificant. Having said that, stocks with high recommendation-attention always exhibit higher CARs than those with low attention, independently of the size of the revision.

Panels B-D present the results for the one, three and six-month post-event CARs. In all cases, stocks with recommendation receiving high attention exhibit significantly (at the 1% level) higher CARs than those with low attention. This is irrespective of the size of the

revision. Hence, whether the revision is large or small bears no effect upon our results. On the other hand, we do not observe any consistent relation between the size of the revision and the post-recommendation drift. This means that our results are not driven by firms that experience extreme revisions in their recommendations. Moreover, the size of the revision does not seem to operate as an effective proxy of attention in our setting.

We further check whether the size of firms has any impact on the attention that recommendations receive and the subsequent returns of the stocks. Table 9 presents our findings. On the first column there are five groups of our sample firms based on their market value (1 being the smallest firms and 5 being the largest ones) as well as the difference between the two extreme groups (Large-Small), while horizontally there is our attention measure.

[INSERT TABLE 9 HERE]

On the event-date (Panel A), small firms appear to have significantly higher (in absolute terms) CARs than large firms. Regarding our attention measure, stocks with high recommendation-attention exhibit significantly higher CARs than stocks with low attention; this is the case across all size quintiles.

Panels B-D present the CARs for the one, three and six-month periods respectively, where we get to see a similar picture. Particularly, small firms exhibit significantly higher post-recommendation drifts than large firms for all post-event periods, while stocks with high recommendation-attention exhibit significantly (at the 1% level in all cases) higher drifts than those with low attention. Our findings indicate the presence of a size effect; nevertheless, our findings regarding our attention measure are quite robust since we continue to observe the same pattern as before (i.e. stocks with high recommendation-attention exhibit a stronger price drift than those with low attention).

Finally, we investigate whether earnings announcements have an impact on our results, by rerunning our model for days with and without earnings announcements around the event-date. Table 10 presents the results. On the first column there is the classification of whether the recommendation event is surrounded by an earnings announcement, while horizontally there is our attention to recommendation measure.

[INSERT TABLE 10 HERE]

On the event date (Panel A), we observe that stocks with recommendations around days with earnings announcements exhibit significantly higher CARs than stocks with recommendations taken place in days with no earnings announcements. In addition, high

recommendation-attention stocks have more pronounced CARs than low-recommendation-attention stocks.

Regarding the post-recommendation behavior, Panels B-D show that, in the majority of the cases, stocks with high recommendation-attention exhibit significantly higher CARs than those with low attention. In fact, our results are stronger when there is no earnings announcement around the recommendation date. In particular, the difference in post-recommendation CARs is always significant at the 1% level when there is no earnings announcement close to the recommendation, while it is significant at the 1% level only in the case of the three-month period when an earnings announcement is present. This finding demonstrates clearly that the attention to recommendation drift is not driven by earnings announcements. If anything, earnings announcements work against a post-recommendation drift probably because they constitute a new event that provides additional and distinct information to the market.

Overall, the results of this section show that are our results are robust to controlling for the magnitude of the event return, the size of the recommendation, the size of the firm and whether analyst recommendations are accompanied by earnings announcements. Therefore, it turns out that the abnormal trading volume around an analyst recommendation is a robust measure of the visibility that the stock attracts and contains distinct information that cannot be subsumed by other variables.

4 Conclusion

This study examines the impact of investor attention to analyst recommendations on the subsequent stock returns. Prior literature mainly examines investor attention at the firm level and finds a positive price drift on stocks with low investor attention. We use abnormal turnover around the day of recommendations as a measure of investor attention to specific recommendations, and examine whether this has any impact on the post-recommendation price drift.

We find that recommendations that attract high investor attention exhibit significantly more pronounced post-recommendation price drift than otherwise similar low-attention recommendations. We further show that the effect is driven by upgrades rather than downgrades. This is consistent with the idea that uninformed investors tend to buy stocks with positive recommendations that catch their attention but, due to short sale constraints, they cannot sell easily attention-grabbing stocks with negative recommendations. Our results

remain robust when controlling for attention to the stock rather than the recommendation event, analyst characteristics, other recommendation characteristics, days with earnings announcements and firm size.

Our study has distinct implications both for academics and practitioners. From an academic point of view, our results show that the post-recommendation price drift can be attributed – to a large extent – to the visibility that the recommendation attracts. Moreover, we show that the abnormal trading volume surrounding the recommendation date is the most suitable measure for capturing the attention that the recommendation receives. From a practitioner's point of view, our results indicate that investors can incorporate information from the abnormal trading activity around recommendation events to form profitable trading strategies. Since the information content of the abnormal trading activity is not subsumed by any of the alternative variables considered in the study, further research could focus on investigating the mechanism that makes some recommendations attract more attention than others.

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Table 1: Descriptive Statistics

This table reports descriptive statistics for the sample of recommendations (in Panel A) and the volume sample (in Panel B). Recommendations are coded from 1 (Strong Buy) to 5 (Strong Sell). In Panel A, under *Recommendations*, *Mean revision* denotes the mean change in analyst recommendations where the change is calculated as the difference between a broker's current and previous recommendation or, for a recommendation initiation, as the difference to a recommendation of 3 (Neutral/Hold). N denotes the number of recommendations. Under *Brokerages*, *Coverage* denotes the cross-brokerage mean number of distinct stocks with recommendations. *Analysts employed* reports the mean number of analysts issuing recommendations in a brokerage. N denotes the number of brokerage firms. Panel B reports turnover statistics based on daily raw turnover (number of shares traded divided by number of shares outstanding) for all stock-days with analyst recommendations (event days). Statistics under *Event turnover* are based on the daily raw turnover on the event day. *Normal turnover* is the mean daily raw turnover over tradings days $[-52, -11]$ relative to the event.

Panel A

	Recommendations			Brokerages		
Year	Mean	Mean revision	N	Coverage	Analysts employed	N
All	2.26	-0.18	365299	59.6	12.8	754
1994	2.12	-0.40	18306	85.6	13.7	144
1995	2.18	-0.13	19565	88.2	14.5	145
1996	2.09	-0.28	17945	73.8	14.0	171
1997	2.04	-0.28	18452	66.4	13.6	205
1998	2.03	-0.27	21840	70.4	14.1	224
1999	1.98	-0.36	21448	74.4	15.7	217
2000	1.97	-0.24	20533	73.0	16.4	211
2001	2.08	-0.11	19475	72.4	16.5	192
2002	2.36	0.09	18588	67.9	15.0	200
2003	2.48	-0.06	19396	59.7	12.4	227
2004	2.41	-0.15	18689	52.7	11.3	262
2005	2.37	-0.21	17802	48.3	11.1	276
2006	2.43	-0.10	18002	53.4	12.0	255
2007	2.43	-0.17	17755	54.1	12.3	240
2008	2.54	-0.06	19274	53.7	11.8	244
2009	2.42	-0.22	17210	48.7	10.3	259
2010	2.29	-0.30	15940	47.0	11.0	268
2011	2.33	-0.22	16702	48.7	11.7	260
2012	2.44	-0.02	15399	48.3	11.6	243
2013	2.44	-0.05	12978	45.9	11.1	236

Continued on next page

Table 1 – *Continued from previous page*

Panel B

		Event turnover					Normal turnover	
Year	N	Mean	Median	StdDev	Min	Max	Mean	Median
All	365299	0.017	0.008	0.040	0.000	1.966	0.008	0.005
1994	18306	0.005	0.003	0.011	0.000	0.330	0.004	0.003
1995	19565	0.007	0.003	0.014	0.000	0.440	0.004	0.003
1996	17945	0.010	0.004	0.022	0.000	0.487	0.005	0.003
1997	18452	0.010	0.004	0.022	0.000	0.418	0.005	0.004
1998	21840	0.012	0.004	0.029	0.000	0.931	0.005	0.004
1999	21448	0.017	0.006	0.043	0.000	1.581	0.006	0.004
2000	20533	0.016	0.007	0.032	0.000	0.480	0.007	0.005
2001	19475	0.015	0.007	0.027	0.000	0.683	0.008	0.005
2002	18588	0.016	0.007	0.034	0.000	0.810	0.007	0.005
2003	19396	0.018	0.009	0.031	0.000	0.574	0.007	0.006
2004	18689	0.020	0.009	0.043	0.000	1.274	0.007	0.006
2005	17802	0.021	0.009	0.040	0.000	0.803	0.007	0.006
2006	18002	0.022	0.010	0.048	0.000	0.852	0.008	0.006
2007	17755	0.023	0.012	0.042	0.000	1.021	0.009	0.007
2008	19274	0.024	0.014	0.044	0.000	1.583	0.013	0.010
2009	17210	0.023	0.013	0.046	0.000	1.210	0.013	0.010
2010	15940	0.025	0.011	0.061	0.000	1.279	0.011	0.008
2011	16702	0.025	0.011	0.065	0.000	1.966	0.010	0.008
2012	15399	0.023	0.010	0.053	0.000	1.612	0.010	0.007
2013	12978	0.022	0.009	0.048	0.000	1.164	0.009	0.006

Figure 1: Signed CARs around Revisions for Recommendation Attention Groups

This figure reports mean signed cumulative abnormal returns (signed CARs) over trading days $[-1, +42]$ relative to recommendation revisions for stocks grouped by recommendation attention. Recommendation attention is measured as the cumulative abnormal turnover in a stock over trading days $[-1, +1]$ around a recommendation revision. All observations within a calendar month are grouped into quintiles based on recommendation attention, with stocks in group 5 (group 1) having highest (lowest) measures of attention. Abnormal returns are calculated as daily excess returns (over the 3-month risk-free rate) minus the beta-adjusted market excess return. Betas stem from CAPM regressions over trading days $[-262, -11]$. Signed CARs are mean cumulative abnormal returns with abnormal returns multiplied by -1 for revision downgrades.

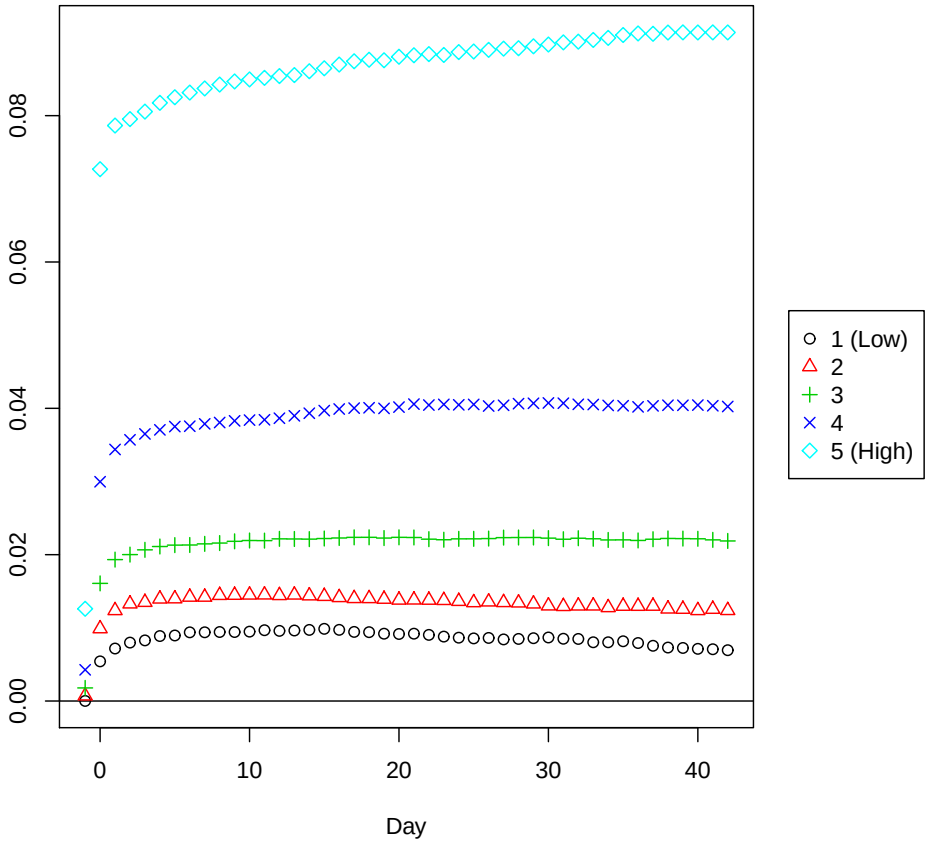

Table 2: CARs for Recommendation Attention Groups

This table reports mean cumulative abnormal returns (CARs) around recommendation revisions for stocks grouped by recommendation attention. Panel A reports signed CARs for all recommendations; Panel B (Panel C) reports unadjusted CARs for upgrades (downgrades). The final column in each panel depicts the difference in mean returns between the high and low recommendation attention groups. Recommendation attention is measured as the cumulative abnormal turnover in a stock over trading days $[-1, +1]$ around a recommendation revision. All observations within a calendar month are grouped into quintiles based on recommendation attention, with stocks in group 5 (group 1) having highest (lowest) measures of attention. Abnormal returns are calculated as daily excess returns (over the 3-month risk-free rate) minus the beta-adjusted market excess return. Betas stem from CAPM regressions over trading days $[-262, -11]$. Signed CARs are mean cumulative abnormal returns with abnormal returns multiplied by -1 for revision downgrades. t-statistics are given in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: Signed CARs for Full Sample

	Recommendation attention					
CAR period	1 (Low)	2	3	4	5 (High)	(High - Low)
(-1:1)	0.0072***	0.0124***	0.0193***	0.0344***	0.0786***	0.0715***
	[44.24]	[68.81]	[88.20]	[112.47]	[108.73]	[96.42]
(2:21)	0.0020***	0.0015***	0.0030***	0.0062***	0.0096***	0.0076***
	[3.89]	[3.14]	[6.57]	[12.84]	[17.08]	[9.86]
(2:63)	-0.0030***	-0.0020**	0.0009	0.0054***	0.0154***	0.0184***
	[-3.34]	[-2.48]	[1.05]	[6.26]	[15.66]	[13.84]
(2:126)	-0.0088***	-0.0085***	-0.0058***	0.0014	0.0192***	0.0279***
	[-6.81]	[-7.24]	[-4.96]	[1.10]	[14.02]	[14.87]

Panel B: CARs for Upgrades

CAR period	1 (Low)	2	3	4	5 (High)	(High - Low)
(-1:1)	0.0032***	0.0099***	0.0181***	0.0319***	0.0561***	0.0529***
	[15.82]	[43.91]	[65.04]	[82.78]	[64.31]	[59.14]
(2:21)	-0.0062***	-0.0061***	-0.0034***	0.0009	0.0114***	0.0177***
	[-9.49]	[-10.18]	[-5.63]	[1.39]	[14.02]	[16.87]
(2:63)	-0.0214***	-0.0229***	-0.0197***	-0.0136***	0.0088***	0.0302***
	[-18.55]	[-21.35]	[-18.12]	[-11.73]	[5.95]	[16.09]
(2:126)	-0.0441***	-0.0504***	-0.0457***	-0.0372***	-0.0052**	0.0390***
	[-26.59]	[-32.47]	[-29.25]	[-22.11]	[-2.48]	[14.64]

Panel C: CARs for Downgrades

CAR period	1 (Low)	2	3	4	5 (High)	(High - Low)
(-1:1)	-0.0133***	-0.0159***	-0.0210***	-0.0375***	-0.0965***	-0.0832***
	[-49.42]	[-54.12]	[-59.62]	[-76.49]	[-88.68]	[-74.26]
(2:21)	-0.0146***	-0.0122***	-0.0118***	-0.0127***	-0.0081***	0.0065***
	[-17.22]	[-17.00]	[-16.71]	[-17.46]	[-10.54]	[5.66]
(2:63)	-0.0250***	-0.0276***	-0.0291***	-0.0289***	-0.0207***	0.0043**
	[-17.78]	[-22.29]	[-23.53]	[-22.39]	[-15.67]	[2.23]
(2:126)	-0.0450***	-0.0510***	-0.0488***	-0.0489***	-0.0384***	0.0066**
	[-22.49]	[-29.03]	[-28.02]	[-26.82]	[-21.27]	[2.44]

Table 3: Signed CARs for Sub-periods

This table reports mean signed cumulative abnormal returns (signed CARs) around recommendation revisions for stocks grouped by recommendation attention over various sub-periods. The final column in each panel depicts the difference in mean returns between the high and low recommendation attention groups. Signed CARs and recommendation attention are defined in Table 2. t-statistics are given in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: 1994 to 1998

	Recommendation attention					
CAR period	1 (Low)	2	3	4	5 (High)	(High - Low)
(-1:1)	0.0017***	0.0045***	0.0092***	0.0211***	0.0606***	0.0589***
	[6.01]	[15.31]	[25.19]	[41.24]	[54.12]	[50.88]
(2:21)	0.0035***	0.0020**	0.0047***	0.0075***	0.0114***	0.0079***
	[3.72]	[2.39]	[5.77]	[8.44]	[11.37]	[5.77]
(2:63)	0.0025	-0.0012	0.0016	0.0067***	0.0194***	0.0169***
	[1.48]	[-0.81]	[1.09]	[4.13]	[10.73]	[6.86]
(2:126)	-0.0005	-0.0098***	-0.0053**	0.0032	0.0247***	0.0251***
	[-0.19]	[-4.43]	[-2.37]	[1.36]	[9.40]	[6.97]

Panel B: 1999 to 2003

	Recommendation attention					
CAR period	1 (Low)	2	3	4	5 (High)	(High - Low)
(-1:1)	0.0065***	0.0135***	0.0241***	0.0465***	0.1151***	0.1086***
	[16.65]	[30.00]	[44.21]	[61.90]	[76.88]	[70.23]
(2:21)	0.0041***	0.0026**	0.0067***	0.0111***	0.0155***	0.0115***
	[3.23]	[2.36]	[5.99]	[9.49]	[11.48]	[6.22]
(2:63)	-0.0074***	-0.0046**	0.0002	0.0094***	0.0224***	0.0298***
	[-3.49]	[-2.37]	[0.10]	[4.52]	[9.73]	[9.52]
(2:126)	-0.0194***	-0.0147***	-0.0123***	0.0031	0.0269***	0.0463***
	[-6.50]	[-5.27]	[-4.39]	[1.04]	[8.63]	[10.73]

Panel C: 2004 to 2008

CAR period	1 (Low)	2	3	4	5 (High)	(High - Low)
(-1:1)	0.0115***	0.0176***	0.0250***	0.0393***	0.0745***	0.0630***
	[37.97]	[52.73]	[62.18]	[70.86]	[52.12]	[43.16]
(2:21)	0.0000	0.0011	0.0001	0.0033***	0.0040***	0.0040***
	[0.02]	[1.24]	[0.12]	[3.92]	[4.00]	[2.88]
(2:63)	-0.0045***	-0.0004	0.0008	0.0021	0.0106***	0.0151***
	[-2.72]	[-0.25]	[0.52]	[1.34]	[5.81]	[6.13]
(2:126)	-0.0103***	-0.0065***	-0.0030	0.0001	0.0129***	0.0232***
	[-4.28]	[-2.94]	[-1.37]	[0.06]	[5.13]	[6.67]

Panel D: 2009 to 2013

CAR period	1 (Low)	2	3	4	5 (High)	(High - Low)
(-1:1)	0.0094***	0.0143***	0.0190***	0.0295***	0.0590***	0.0496***
	[34.34]	[48.07]	[51.66]	[55.05]	[34.81]	[28.88]
(2:21)	0.0002	-0.0001	-0.0002	0.0020**	0.0065***	0.0063***
	[0.20]	[-0.18]	[-0.23]	[2.30]	[6.43]	[4.62]
(2:63)	-0.0022	-0.0017	0.0008	0.0028*	0.0076***	0.0097***
	[-1.43]	[-1.21]	[0.60]	[1.92]	[4.29]	[4.20]
(2:126)	-0.0035	-0.0018	-0.0019	-0.0016	0.0101***	0.0136***
	[-1.59]	[-0.89]	[-0.97]	[-0.76]	[4.15]	[4.15]

Table 4: Signed CARs for Recommendation versus Stock Attention Groups

This table reports mean signed cumulative abnormal returns (signed CARs) around recommendation revisions for stocks grouped by recommendation attention and stock attention over various return periods. The final column in each panel depicts the difference in mean returns between the high and low recommendation attention groups. The final pair of rows in in each panel depicts the difference in mean returns between the high and low stock attention groups. Signed CARs and recommendation attention are defined in Table 2. Stock attention is measured as the mean turnover in a stock during trading days $[-52, -11]$ relative to the revision. All observations within a calendar month are grouped into quintiles based on stock attention, with stocks in group 5 (group 1) having highest (lowest) measures of attention. t-statistics are given in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: Event Returns (Trading Days $[-1, 1]$)

	Recommendation attention					
Stock attention	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Low)	0.0073***	0.0126***	0.0179***	0.0295***	0.0570***	0.0497***
	[18.64]	[27.44]	[35.53]	[49.45]	[45.36]	[37.75]
2	0.0069***	0.0099***	0.0163***	0.0293***	0.0705***	0.0636***
	[20.45]	[29.81]	[41.69]	[52.37]	[49.22]	[43.21]
3	0.0062***	0.0105***	0.0169***	0.0323***	0.0769***	0.0707***
	[18.38]	[30.89]	[41.65]	[53.30]	[48.74]	[43.85]
4	0.0071***	0.0119***	0.0196***	0.0363***	0.0892***	0.0821***
	[20.56]	[31.39]	[40.10]	[51.20]	[47.07]	[42.61]
5 (High)	0.0080***	0.0167***	0.0257***	0.0452***	0.1183***	0.1102***
	[21.49]	[35.15]	[41.25]	[49.39]	[54.78]	[50.31]
(High - Low)	0.0007	0.0041***	0.0077***	0.0157***	0.0613***	0.0606***
	[1.36]	[6.27]	[9.65]	[14.35]	[24.54]	[23.69]

Panel B: 1 Month Returns (Trading Days $[2, 21]$)

	Recommendation attention					
Stock attention	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Low)	0.0055***	0.0079***	0.0069***	0.0129***	0.0151***	0.0096***
	[4.85]	[6.99]	[6.39]	[12.71]	[15.13]	[6.34]
2	0.0034***	0.0022**	0.0030***	0.0067***	0.0085***	0.0051***
	[3.02]	[2.50]	[3.66]	[7.35]	[7.66]	[3.25]
3	0.0021*	0.0009	0.0035***	0.0043***	0.0069***	0.0049***
	[1.95]	[1.08]	[3.94]	[4.35]	[5.77]	[3.05]
4	-0.0008	-0.0011	0.0023**	0.0051***	0.0089***	0.0097***
	[-0.73]	[-1.14]	[2.22]	[4.60]	[6.55]	[5.51]
5 (High)	-0.0001	-0.0005	0.0005	0.0022	0.0056***	0.0057***
	[-0.09]	[-0.43]	[0.39]	[1.64]	[3.14]	[2.63]
(High - Low)	-0.0056***	-0.0084***	-0.0064***	-0.0107***	-0.0095***	-0.0038
	[-3.32]	[-5.04]	[-3.81]	[-6.31]	[-4.61]	[-1.44]

Panel C: 3 Months Returns (Trading Days $[2, 63]$)

Stock attention	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Low)	0.0092***	0.0116***	0.0102***	0.0189***	0.0224***	0.0132***
	[4.69]	[6.05]	[5.58]	[10.75]	[12.52]	[4.97]
2	-0.0028	0.0006	0.0014	0.0057***	0.0136***	0.0164***
	[-1.52]	[0.39]	[0.95]	[3.49]	[6.86]	[6.04]
3	-0.0038**	-0.0035**	-0.0002	0.0034*	0.0105***	0.0143***
	[-2.10]	[-2.31]	[-0.11]	[1.92]	[4.98]	[5.13]
4	-0.0062***	-0.0063***	0.0004	0.0019	0.0120***	0.0182***
	[-3.28]	[-3.55]	[0.23]	[0.97]	[4.82]	[5.82]
5 (High)	-0.0086***	-0.0087***	-0.0036	-0.0030	0.0150***	0.0237***
	[-4.01]	[-3.91]	[-1.54]	[-1.24]	[4.88]	[6.29]
(High - Low)	-0.0179***	-0.0202***	-0.0138***	-0.0220***	-0.0074**	0.0104**
	[-6.12]	[-6.91]	[-4.65]	[-7.29]	[-2.09]	[2.27]

Panel D: 6 Months Returns (Trading Days $[2, 126]$)

Stock attention	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Low)	0.0118***	0.0118***	0.0080***	0.0160***	0.0272***	0.0154***
	[4.23]	[4.32]	[3.03]	[6.48]	[10.52]	[4.03]
2	-0.0063**	-0.0036*	-0.0053**	-0.0017	0.0166***	0.0229***
	[-2.43]	[-1.76]	[-2.55]	[-0.77]	[5.81]	[5.93]
3	-0.0115***	-0.0113***	-0.0054**	-0.0027	0.0133***	0.0248***
	[-4.48]	[-5.12]	[-2.45]	[-1.10]	[4.44]	[6.29]
4	-0.0160***	-0.0163***	-0.0109***	-0.0019	0.0182***	0.0342***
	[-6.02]	[-6.56]	[-4.30]	[-0.68]	[5.20]	[7.78]
5 (High)	-0.0195***	-0.0168***	-0.0128***	-0.0032	0.0241***	0.0435***
	[-6.20]	[-5.25]	[-3.80]	[-0.88]	[5.48]	[8.07]
(High - Low)	-0.0313***	-0.0287***	-0.0208***	-0.0192***	-0.0031	0.0282***
	[-7.45]	[-6.79]	[-4.86]	[-4.38]	[-0.61]	[4.27]

Table 5: Signed CARs for Recommendation Attention versus Leader/Follower Ratio

This table reports mean signed cumulative abnormal returns (signed CARs) around recommendation revisions for stocks grouped by recommendation attention and leader/follower ratio over various return periods. The final column in each panel depicts the difference in mean returns between the high and low recommendation attention groups. The final pair of rows in in each panel depicts the difference in mean returns between the leader and follower groups. Signed CARs and recommendation attention are defined in Table 2. The leader/follower ratio is calculated as the ratio of the sum of the number of trading days since the two most recent revisions prior to the event over the sum of the number of trading days until the next two revisions. For each analyst's revision the mean leader/follower is determined and an analyst with a mean ratio of greater than (less than or equal to) one is classified as a leader (follower). t-statistics are given in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: Event Returns (Trading Days $[-1, 1]$)

	Recommendation attention					
Leader/Follower	1 (Low)	2	3	4	5 (High)	(High - Low)
Follower	0.0030***	0.0086***	0.0138***	0.0196***	0.0461***	0.0431***
	[3.17]	[7.68]	[10.01]	[9.72]	[8.50]	[7.82]
Leader	0.0071***	0.0113***	0.0172***	0.0284***	0.0568***	0.0497***
	[38.93]	[57.91]	[70.12]	[80.14]	[64.61]	[55.38]
(Leader - Follower)	0.0040***	0.0027**	0.0034**	0.0088***	0.0107*	0.0066
	[4.14]	[2.39]	[2.45]	[4.29]	[1.94]	[1.19]

Panel B: 1 Month Returns (Trading Days $[2, 21]$)

	Recommendation attention					
Leader/Follower	1 (Low)	2	3	4	5 (High)	(High - Low)
Follower	-0.0061*	-0.0017	0.0017	0.0063*	0.0054	0.0115**
	[-1.95]	[-0.62]	[0.57]	[1.78]	[1.17]	[2.05]
Leader	0.0004	0.0006	0.0017***	0.0044***	0.0071***	0.0067***
	[0.57]	[1.05]	[3.09]	[7.28]	[8.29]	[6.40]
(Leader - Follower)	0.0064**	0.0023	0.0000	-0.0019	0.0017	-0.0047
	[2.02]	[0.80]	[0.00]	[-0.53]	[0.36]	[-0.83]

Panel C: 3 Months Returns (Trading Days $[2, 63]$)

Leader/Follower	1 (Low)	2	3	4	5 (High)	(High - Low)
Follower	-0.0189***	-0.0133**	-0.0121**	0.0073	0.0099	0.0288***
	[-3.33]	[-2.47]	[-2.15]	[1.07]	[1.16]	[2.81]
Leader	-0.0050***	-0.0040***	-0.0010	0.0021*	0.0103***	0.0152***
	[-4.72]	[-4.35]	[-1.07]	[1.95]	[6.90]	[8.36]
(Leader - Follower)	0.0139**	0.0093*	0.0111*	-0.0052	0.0004	-0.0135
	[2.41]	[1.69]	[1.94]	[-0.75]	[0.04]	[-1.30]

Panel D: 6 Months Returns (Trading Days $[2, 126]$)

Leader/Follower	1 (Low)	2	3	4	5 (High)	(High - Low)
Follower	-0.0348***	-0.0190**	-0.0251***	0.0001	0.0010	0.0358**
	[-4.35]	[-2.41]	[-3.17]	[0.01]	[0.08]	[2.43]
Leader	-0.0135***	-0.0112***	-0.0091***	-0.0036**	0.0097***	0.0232***
	[-9.05]	[-8.44]	[-6.61]	[-2.31]	[4.60]	[8.97]
(Leader - Follower)	0.0213***	0.0078	0.0160**	-0.0037	0.0087	-0.0126
	[2.61]	[0.98]	[1.99]	[-0.37]	[0.69]	[-0.84]

Table 6: Signed CARs for Recommendation Attention versus Analyst Experience

This table reports mean signed cumulative abnormal returns (signed CARs) around recommendation revisions for stocks grouped by recommendation attention and analyst experience over various return periods. The final column in each panel depicts the difference in mean returns between the high and low recommendation attention groups. The final pair of rows in in each panel depicts the difference in mean returns between analysts with high and low experience. Signed CARs and recommendation attention are defined in Table 2. Analyst experience is defined as the number of trading days since the first recorded recommendation by the analyst issuing the event recommendation. All observations within a calendar year are grouped into quintiles based on experience, with stocks in group 5 (group 1) denoting revisions issued by analysts with highest (lowest) experience levels. t-statistics are given in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: Event Returns (Trading Days $[-1, 1]$)

	Recommendation attention					
Experience	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Low)	0.0052***	0.0105***	0.0168***	0.0292***	0.0695***	0.0644***
	[15.10]	[25.43]	[32.65]	[39.74]	[40.15]	[36.46]
2	0.0079***	0.0124***	0.0193***	0.0339***	0.0821***	0.0742***
	[21.64]	[29.70]	[37.82]	[47.72]	[49.07]	[43.33]
3	0.0083***	0.0137***	0.0203***	0.0363***	0.0833***	0.0750***
	[21.88]	[32.95]	[40.85]	[52.98]	[51.54]	[45.18]
4	0.0081***	0.0127***	0.0208***	0.0364***	0.0781***	0.0700***
	[22.25]	[32.81]	[43.87]	[55.70]	[50.32]	[43.90]
5 (High)	0.0067***	0.0127***	0.0193***	0.0355***	0.0776***	0.0709***
	[18.65]	[33.83]	[42.77]	[56.11]	[51.34]	[45.59]
(High - Low)	0.0016***	0.0022***	0.0025***	0.0063***	0.0081***	0.0065***
	[3.17]	[3.89]	[3.70]	[6.53]	[3.52]	[2.77]

Panel B: 1 Month Returns (Trading Days $[2, 21]$)

	Recommendation attention					
Experience	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Low)	0.0004	-0.0004	-0.0006	0.0062***	0.0089***	0.0085***
	[0.35]	[-0.39]	[-0.55]	[5.13]	[6.33]	[4.76]
2	0.0024**	0.0015	0.0040***	0.0054***	0.0110***	0.0086***
	[2.04]	[1.41]	[3.71]	[4.83]	[8.61]	[4.96]
3	0.0019*	0.0011	0.0029***	0.0075***	0.0101***	0.0081***
	[1.66]	[1.10]	[2.88]	[7.24]	[8.18]	[4.83]
4	0.0013	0.0025**	0.0040***	0.0060***	0.0084***	0.0071***
	[1.10]	[2.53]	[4.15]	[5.92]	[7.23]	[4.24]
5 (High)	0.0032***	0.0024**	0.0049***	0.0061***	0.0098***	0.0067***
	[2.73]	[2.50]	[5.13]	[6.08]	[8.41]	[4.04]
(High - Low)	0.0028*	0.0028**	0.0055***	-0.0001	0.0010	-0.0018
	[1.74]	[1.96]	[3.76]	[-0.06]	[0.53]	[-0.75]

Panel C: 3 Months Returns (Trading Days $[2, 63]$)

Experience	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Low)	-0.0070***	-0.0077***	-0.0041**	0.0011	0.0111***	0.0181***
	[-3.66]	[-4.06]	[-2.08]	[0.51]	[4.44]	[5.75]
2	-0.0021	-0.0029	0.0034*	0.0042**	0.0137***	0.0158***
	[-1.03]	[-1.55]	[1.77]	[2.13]	[5.85]	[5.09]
3	-0.0036*	-0.0023	0.0003	0.0088***	0.0195***	0.0231***
	[-1.82]	[-1.26]	[0.17]	[4.76]	[8.94]	[7.85]
4	-0.0007	0.0022	0.0047***	0.0073***	0.0156***	0.0163***
	[-0.34]	[1.23]	[2.70]	[3.97]	[7.58]	[5.69]
5 (High)	-0.0004	-0.0003	0.0020	0.0052***	0.0164***	0.0168***
	[-0.19]	[-0.17]	[1.16]	[2.94]	[8.03]	[5.85]
(High - Low)	0.0066**	0.0074***	0.0061**	0.0041	0.0053	-0.0014
	[2.39]	[2.90]	[2.33]	[1.48]	[1.63]	[-0.32]

Panel D: 6 Months Returns (Trading Days $[2, 126]$)

Experience	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Low)	-0.0198***	-0.0167***	-0.0147***	-0.0051	0.0117***	0.0315***
	[-7.21]	[-6.07]	[-5.33]	[-1.64]	[3.28]	[6.99]
2	-0.0129***	-0.0094***	-0.0039	-0.0011	0.0188***	0.0317***
	[-4.49]	[-3.52]	[-1.45]	[-0.41]	[5.75]	[7.29]
3	-0.0022	-0.0073***	-0.0037	0.0055**	0.0253***	0.0275***
	[-0.80]	[-2.80]	[-1.42]	[2.05]	[8.08]	[6.57]
4	-0.0053*	-0.0020	-0.0011	0.0049*	0.0241***	0.0294***
	[-1.85]	[-0.81]	[-0.42]	[1.83]	[8.00]	[7.06]
5 (High)	-0.0030	-0.0076***	-0.0061**	0.0014	0.0203***	0.0233***
	[-1.05]	[-3.14]	[-2.54]	[0.55]	[7.02]	[5.77]
(High - Low)	0.0168***	0.0091**	0.0086**	0.0065	0.0087*	-0.0082
	[4.29]	[2.47]	[2.34]	[1.62]	[1.89]	[-1.35]

Table 7: Signed CARs for Recommendation Attention versus Event Returns

This table reports mean signed cumulative abnormal returns (signed CARs) around recommendation revisions for stocks grouped by recommendation attention and the (signed) event return over various return periods. The final column in each panel depicts the difference in mean returns between the high and low recommendation attention groups. The final pair of rows in in each panel depicts the difference in mean returns between revisions with high and low event returns. Signed CARs and recommendation attention are defined in Table 2. (Signed) Event returns are measured as the signed CAR over trading days $[-1, +1]$. All observations are grouped into quintiles based on the event return, with stocks in group 5 (group 1) composed of revisions with highest (lowest) event return. t-statistics are given in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: Event Returns (Trading Days $[-1, 1]$)

	Recommendation attention					
Event CAR	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Low)	-0.0461***	-0.0479***	-0.0532***	-0.0645***	-0.1351***	-0.0890***
	[-158.03]	[-156.64]	[-152.45]	[-150.76]	[-117.34]	[-74.92]
2	-0.0053***	-0.0053***	-0.0057***	-0.0059***	-0.0058***	-0.0005***
	[-116.84]	[-107.31]	[-100.25]	[-85.74]	[-62.16]	[-4.64]
3	0.0154***	0.0160***	0.0163***	0.0167***	0.0165***	0.0011***
	[334.20]	[339.17]	[319.42]	[268.90]	[190.03]	[10.98]
4	0.0433***	0.0444***	0.0455***	0.0472***	0.0485***	0.0053***
	[411.54]	[467.61]	[505.16]	[508.80]	[389.69]	[32.25]
5 (High)	0.1110***	0.1131***	0.1181***	0.1333***	0.2159***	0.1050***
	[136.23]	[159.25]	[205.61]	[262.38]	[260.37]	[90.28]
(High - Low)	0.1571***	0.1610***	0.1713***	0.1978***	0.3511***	0.1940***
	[181.55]	[208.20]	[254.86]	[297.80]	[247.37]	[116.69]

Panel B: 1 Month Returns (Trading Days $[2, 21]$)

	Recommendation attention					
Event CAR	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Low)	0.0026*	0.0025**	0.0036***	0.0072***	0.0071***	0.0046**
	[1.78]	[1.97]	[2.94]	[6.06]	[6.58]	[2.55]
2	0.0016**	0.0017**	0.0036***	0.0068***	0.0093***	0.0077***
	[2.11]	[2.39]	[4.35]	[6.36]	[5.75]	[4.31]
3	0.0016*	0.0011	0.0021***	0.0039***	0.0111***	0.0096***
	[1.92]	[1.51]	[2.78]	[4.04]	[7.17]	[5.47]
4	0.0006	0.0006	0.0033***	0.0060***	0.0099***	0.0093***
	[0.41]	[0.61]	[3.78]	[7.13]	[8.30]	[5.12]
5 (High)	0.0050	0.0012	0.0025	0.0068***	0.0106***	0.0056
	[1.44]	[0.47]	[1.49]	[6.00]	[11.58]	[1.55]
(High - Low)	0.0025	-0.0013	-0.0010	-0.0004	0.0035**	0.0010
	[0.65]	[-0.48]	[-0.50]	[-0.22]	[2.43]	[0.25]

Panel C: 3 Months Returns (Trading Days $[2, 63]$)

Event CAR	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Low)	-0.0087***	-0.0049**	-0.0009	0.0069***	0.0098***	0.0184***
	[-3.51]	[-2.22]	[-0.40]	[3.33]	[4.78]	[5.75]
2	-0.0022*	-0.0029**	0.0014	0.0064***	0.0102***	0.0124***
	[-1.68]	[-2.22]	[0.97]	[3.40]	[3.34]	[3.73]
3	-0.0013	0.0000	0.0003	0.0045**	0.0177***	0.0190***
	[-0.92]	[-0.02]	[0.22]	[2.55]	[6.29]	[6.03]
4	-0.0012	-0.0031*	0.0013	0.0061***	0.0177***	0.0189***
	[-0.52]	[-1.72]	[0.83]	[3.91]	[7.98]	[5.88]
5 (High)	-0.0008	0.0009	0.0055*	0.0036*	0.0177***	0.0185***
	[-0.15]	[0.20]	[1.83]	[1.78]	[11.24]	[3.16]
(High - Low)	0.0078	0.0058	0.0064*	-0.0033	0.0079***	0.0001
	[1.27]	[1.18]	[1.72]	[-1.13]	[3.07]	[0.02]

Panel D: 6 Months Returns (Trading Days $[2, 126]$)

Event CAR	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Low)	-0.0305***	-0.0193***	-0.0089***	0.0024	0.0093***	0.0398***
	[-8.83]	[-6.17]	[-2.99]	[0.81]	[3.03]	[8.62]
2	-0.0095***	-0.0090***	-0.0047**	0.0007	0.0120***	0.0216***
	[-4.93]	[-4.73]	[-2.20]	[0.25]	[2.66]	[4.39]
3	-0.0013	-0.0057***	-0.0068***	0.0011	0.0220***	0.0233***
	[-0.63]	[-3.01]	[-3.35]	[0.42]	[5.37]	[5.07]
4	0.0008	-0.0053**	-0.0019	0.0004	0.0188***	0.0181***
	[0.23]	[-2.05]	[-0.85]	[0.18]	[5.96]	[3.96]
5 (High)	-0.0047	-0.0017	-0.0091**	0.0015	0.0263***	0.0310***
	[-0.60]	[-0.28]	[-2.14]	[0.53]	[12.03]	[3.82]
(High - Low)	0.0258***	0.0176***	-0.0002	-0.0009	0.0170***	-0.0088
	[3.03]	[2.59]	[-0.03]	[-0.22]	[4.51]	[-0.95]

Table 8: Signed CARs for Recommendation Attention versus Revision Size

This table reports mean signed cumulative abnormal returns (signed CARs) around recommendation revisions for stocks grouped by recommendation attention and the revision size over various return periods. The final column in each panel depicts the difference in mean returns between the high and low recommendation attention groups. The final pair of rows in in each panel depicts the difference in mean returns between large and small revisions. Signed CARs and recommendation attention are defined in Table 2. Revision size is small (large) if the absolute value of the recommendation change is equal to (greater than) one. t-statistics are given in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: Event Returns (Trading Days $[-1, 1]$)

	Recommendation attention					
Revision size	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Small)	0.0067***	0.0120***	0.0187***	0.0337***	0.0784***	0.0716***
	[32.59]	[52.29]	[66.19]	[85.82]	[85.87]	[76.55]
2+ (Large)	0.0078***	0.0131***	0.0204***	0.0355***	0.0785***	0.0706***
	[30.07]	[45.03]	[59.04]	[73.11]	[66.68]	[58.59]
(Large - Small)	0.0011***	0.0011***	0.0017***	0.0019***	0.0001	-0.0010
	[3.33]	[2.96]	[3.91]	[2.97]	[0.06]	[-0.67]

Panel B: 1 Month Returns (Trading Days $[2, 21]$)

	Recommendation attention					
Revision size	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Small)	0.0016**	0.0019***	0.0031***	0.0063***	0.0082***	0.0066***
	[2.40]	[3.20]	[5.31]	[10.27]	[11.34]	[6.71]
2+ (Large)	0.0021**	0.0006	0.0030***	0.0062***	0.0119***	0.0098***
	[2.51]	[0.88]	[4.03]	[7.97]	[13.62]	[8.17]
(Large - Small)	0.0005	-0.0012	-0.0001	-0.0001	0.0036***	0.0032**
	[0.44]	[-1.31]	[-0.15]	[-0.14]	[3.21]	[2.04]

Panel C: 3 Months Returns (Trading Days $[2, 63]$)

	Recommendation attention					
Revision size	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Small)	-0.0033***	-0.0001	0.0022**	0.0062***	0.0151***	0.0184***
	[-2.89]	[-0.12]	[2.15]	[5.68]	[11.78]	[10.74]
2+ (Large)	-0.0024*	-0.0058***	-0.0004	0.0041***	0.0159***	0.0183***
	[-1.68]	[-4.49]	[-0.30]	[2.93]	[10.14]	[8.63]
(Large - Small)	0.0009	-0.0057***	-0.0026	-0.0021	0.0008	-0.0001
	[0.49]	[-3.43]	[-1.56]	[-1.21]	[0.38]	[-0.05]

Panel D: 6 Months Returns (Trading Days $[2, 126]$)

	Recommendation attention					
Revision size	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Small)	-0.0090***	-0.0030**	-0.0046***	0.0025	0.0216***	0.0307***
	[-5.56]	[-2.05]	[-3.09]	[1.60]	[11.85]	[12.55]
2+ (Large)	-0.0096***	-0.0182***	-0.0081***	-0.0009	0.0183***	0.0278***
	[-4.75]	[-9.66]	[-4.34]	[-0.45]	[8.18]	[9.25]
(Large - Small)	-0.0006	-0.0152***	-0.0036	-0.0034	-0.0034	-0.0028
	[-0.22]	[-6.34]	[-1.49]	[-1.34]	[-1.18]	[-0.73]

Table 9: Signed CARs for Recommendation Attention versus Firm Size

This table reports mean signed cumulative abnormal returns (signed CARs) around recommendation revisions for stocks grouped by recommendation attention and firm size over various return periods. The final column in each panel depicts the difference in mean returns between the high and low recommendation attention groups. The final pair of rows in in each panel depicts the difference in mean returns between revisions for large and small firms. Signed CARs and recommendation attention are defined in Table 2. Firm size is measured as market capitalization on the event day. All observations within a calendar month are grouped into quintiles based on the firm size, with stocks in group 5 (group 1) composed of revisions for stocks with highest (lowest) firm size. t-statistics are given in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: Event Returns (Trading Days $[-1, 1]$)

	Recommendation attention					
Firm size	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Small)	0.0106***	0.0212***	0.0308***	0.0483***	0.1121***	0.1015***
	[21.70]	[27.01]	[36.07]	[50.46]	[74.15]	[63.88]
2	0.0082***	0.0176***	0.0245***	0.0400***	0.0817***	0.0735***
	[20.44]	[32.74]	[40.10]	[55.58]	[56.80]	[49.21]
3	0.0068***	0.0127***	0.0198***	0.0327***	0.0627***	0.0559***
	[20.87]	[32.06]	[42.35]	[52.60]	[39.93]	[34.85]
4	0.0057***	0.0102***	0.0158***	0.0275***	0.0512***	0.0455***
	[20.44]	[32.34]	[39.61]	[48.69]	[32.54]	[28.46]
5 (Large)	0.0042***	0.0074***	0.0131***	0.0258***	0.0452***	0.0410***
	[18.67]	[32.90]	[41.96]	[46.64]	[27.39]	[24.61]
(Large - Small)	-0.0064***	-0.0138***	-0.0177***	-0.0225***	-0.0669***	-0.0605***
	[-11.87]	[-16.86]	[-19.47]	[-20.39]	[-29.88]	[-26.28]

Panel B: 1 Month Returns (Trading Days $[2, 21]$)

	Recommendation attention					
Firm size	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Small)	0.0094***	0.0080***	0.0100***	0.0149***	0.0131***	0.0038*
	[6.47]	[4.32]	[5.75]	[9.74]	[10.43]	[1.96]
2	0.0024*	0.0052***	0.0045***	0.0078***	0.0105***	0.0082***
	[1.84]	[3.80]	[3.45]	[6.53]	[9.27]	[4.73]
3	0.0011	-0.0013	0.0030***	0.0056***	0.0089***	0.0079***
	[0.91]	[-1.21]	[2.90]	[5.57]	[7.95]	[4.87]
4	-0.0017*	0.0009	0.0017**	0.0026***	0.0048***	0.0064***
	[-1.75]	[1.05]	[2.05]	[3.00]	[4.49]	[4.51]
5 (Large)	-0.0027***	-0.0010*	0.0000	0.0018**	0.0067***	0.0094***
	[-3.56]	[-1.71]	[-0.04]	[2.39]	[5.32]	[6.39]
(Large - Small)	-0.0121***	-0.0090***	-0.0100***	-0.0131***	-0.0065***	0.0056**
	[-7.38]	[-4.63]	[-5.41]	[-7.66]	[-3.64]	[2.34]

Panel C: 3 Months Returns (Trading Days $[2, 63]$)

Firm size	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Small)	0.0095***	0.0127***	0.0150***	0.0205***	0.0211***	0.0116***
	[3.94]	[4.08]	[5.11]	[7.89]	[9.56]	[3.54]
2	-0.0029	0.0036	0.0042*	0.0074***	0.0195***	0.0224***
	[-1.31]	[1.52]	[1.82]	[3.43]	[9.56]	[7.42]
3	-0.0071***	-0.0065***	0.0014	0.0013	0.0117***	0.0188***
	[-3.56]	[-3.40]	[0.74]	[0.70]	[5.69]	[6.56]
4	-0.0090***	-0.0067***	-0.0029*	-0.0002	0.0059***	0.0149***
	[-5.31]	[-4.24]	[-1.90]	[-0.09]	[2.93]	[5.68]
5 (Large)	-0.0060***	-0.0051***	-0.0037***	0.0011	0.0111***	0.0171***
	[-4.36]	[-4.65]	[-3.10]	[0.80]	[5.49]	[6.99]
(Large - Small)	-0.0155***	-0.0177***	-0.0187***	-0.0194***	-0.0101***	0.0055
	[-5.58]	[-5.39]	[-5.90]	[-6.54]	[-3.36]	[1.33]

Panel D: 6 Months Returns (Trading Days $[2, 126]$)

Firm size	1 (Low)	2	3	4	5 (High)	(High - Low)
1 (Small)	0.0177***	0.0137***	0.0106***	0.0197***	0.0322***	0.0145***
	[5.18]	[3.19]	[2.58]	[5.37]	[10.38]	[3.15]
2	-0.0138***	0.0020	-0.0028	0.0029	0.0234***	0.0371***
	[-4.33]	[0.57]	[-0.87]	[0.97]	[8.01]	[8.61]
3	-0.0187***	-0.0183***	-0.0060**	-0.0058**	0.0096***	0.0283***
	[-6.55]	[-6.62]	[-2.24]	[-2.22]	[3.27]	[6.91]
4	-0.0193***	-0.0137***	-0.0112***	-0.0059**	0.0060**	0.0253***
	[-7.80]	[-6.10]	[-5.00]	[-2.49]	[2.02]	[6.54]
5 (Large)	-0.0133***	-0.0128***	-0.0109***	-0.0002	0.0220***	0.0353***
	[-6.68]	[-7.85]	[-6.18]	[-0.08]	[7.46]	[9.92]
(Large - Small)	-0.0310***	-0.0266***	-0.0215***	-0.0199***	-0.0102**	0.0208***
	[-7.84]	[-5.77]	[-4.81]	[-4.67]	[-2.38]	[3.56]

Table 10: Signed CARs for Recommendation Attention and Earnings Announcements

This table reports mean signed cumulative abnormal returns (signed CARs) around recommendation revisions for stocks grouped by recommendation attention and the (signed) event return over various return periods. The final column in each panel depicts the difference in mean returns between the high and low recommendation attention groups. The final pair of rows in in each panel depicts the difference in mean returns between revisions on days around announcement days and those not around announcement days. Signed CARs and recommendation attention are defined in Table 2. A revision is deemed to be around an announcement (*1 (Announcement)*) day if a there is an earnings announcement for the same stock during trading days $[-1, +1]$ relative to the revision day, else a revision is categorized not to ahppen around an announcement (*0 (No announcement)*). t-statistics are given in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: Event Returns (Trading Days $[-1, 1]$)

	Recommendation attention					
Earnings announcement?	1 (Low)	2	3	4	5 (High)	(High - Low)
0 (No announcment)	0.0069***	0.0118***	0.0180***	0.0306***	0.0673***	0.0604***
	[42.41]	[65.45]	[79.09]	[91.50]	[75.49]	[66.68]
1 (Announcement)	0.0126***	0.0181***	0.0269***	0.0461***	0.1053***	0.0926***
	[12.51]	[22.05]	[39.43]	[66.17]	[89.16]	[59.65]
(Ann. - No ann.)	0.0057***	0.0063***	0.0090***	0.0155***	0.0379***	0.0322***
	[5.62]	[7.46]	[12.46]	[20.05]	[25.64]	[17.91]

Panel B: 1 Month Returns (Trading Days $[2, 21]$)

	Recommendation attention					
Earnings announcement?	1 (Low)	2	3	4	5 (High)	(High - Low)
0 (No announcment)	0.0016***	0.0010**	0.0030***	0.0069***	0.0106***	0.0090***
	[3.07]	[2.11]	[5.95]	[12.13]	[15.41]	[10.35]
1 (Announcement)	0.0048*	0.0059***	0.0033***	0.0042***	0.0073***	0.0026
	[1.93]	[3.77]	[3.08]	[4.79]	[8.03]	[0.98]
(Ann. - No ann.)	0.0031	0.0049***	0.0003	-0.0027***	-0.0033***	-0.0064**
	[1.24]	[2.98]	[0.24]	[-2.60]	[-2.88]	[-2.32]

Panel C: 3 Months Returns (Trading Days $[2, 63]$)

Earnings announcement?	1 (Low)	2	3	4	5 (High)	(High - Low)
0 (No announcment)	-0.0030***	-0.0030***	0.0012	0.0057***	0.0152***	0.0182***
	[-3.31]	[-3.55]	[1.29]	[5.68]	[12.38]	[11.92]
1 (Announcement)	-0.0020	0.0060**	0.0017	0.0046***	0.0160***	0.0180***
	[-0.43]	[2.04]	[0.87]	[2.77]	[9.64]	[3.71]
(Ann. - No ann.)	0.0010	0.0090***	0.0006	-0.0011	0.0009	-0.0001
	[0.22]	[2.94]	[0.27]	[-0.56]	[0.43]	[-0.03]

Panel D: 6 Months Returns (Trading Days $[2, 126]$)

Earnings announcement?	1 (Low)	2	3	4	5 (High)	(High - Low)
0 (No announcment)	-0.0101***	-0.0100***	-0.0061***	0.0006	0.0205***	0.0306***
	[-7.84]	[-8.26]	[-4.76]	[0.42]	[11.72]	[14.09]
1 (Announcement)	0.0082	0.0057	-0.0051*	0.0032	0.0200***	0.0118*
	[1.28]	[1.35]	[-1.79]	[1.37]	[8.40]	[1.73]
(Ann. - No ann.)	0.0183***	0.0156***	0.0009	0.0026	-0.0005	-0.0188***
	[2.80]	[3.58]	[0.29]	[0.95]	[-0.17]	[-2.62]