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Investor Overreaction to Analyst Reference Points

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Abstract:
In this paper, I document analysts' reliance on the company issued guidance range as a frame of reference in making their EPS forecasts. Analysts who use the guidance range as a reference may limit information diffusion to market participants by keeping their true beliefs private. I therefore analyze the stock market's reaction to analyst forecasting decisions, and find that investors overreact to forecasts that are exactly equal to the minimum or maximum of the guidance range, but do not overreact to other types of forecasts. The evidence presented is most consistent with overreaction driven by overconfident investors who trade too much in the face of information uncertainty.

Keywords: Overreaction, Stock Returns, Reference Point, Analyst Earnings Forecasts

JEL Classification: G02, G12, G14, G24

1 Introduction

In this paper, I document that analysts use the company issued guidance range as a reference when forecasting the firm's earnings per share (EPS). In the week following company issued EPS guidance, over one third of analyst forecasts are that are exactly equal to the minimum or maximum of the guidance range. Analyst forecasts within the guidance range (including the endpoints) are less biased and more accurate than forecasts outside of the guidance range. Indeed, if staying within the reference range is beneficial to analysts in terms of their reputation, why don't all analysts do it? I find that analysts' decision to forecast outside of the guidance range is related to analysts' experience and skill. Analysts with less experience or less skill are more likely to exceed the guidance range than analysts with more experience or more skill.

While using the guidance range as a reference is advantageous to analysts, it also suggests that in the absence of company issued guidance, an analyst whose forecast equals the guidance range minimum (maximum) would have provided an even lower (higher) EPS forecast. As such, the reference range may limit information diffusion to market participants. I therefore analyze the stock market reaction to analyst forecasting decisions, and find that investors overreact to analyst forecasts that are exactly equal to the minimum or maximum of the company issued guidance range. This result is not due to the magnitude of the forecast; when comparing the forecasts equal to the guidance range endpoints to

those that exceed the guidance range endpoints, the overreaction is even more pronounced.

Investors' overreaction in the face of reference point induced information uncertainty may be due to overconfidence as in Odean (1998, 1999). Consistent with this explanation, I find that there is excessive share turnover when forecasts are exactly equal to the guidance range endpoints are given. Again, this is not due to the magnitude of the forecast since I also find excessive share turnover for forecasts equal to the guidance range endpoints relative to forecasts that exceed the guidance range endpoints. Importantly, when there are analyst forecasts that equal both the minimum and maximum of the company issued guidance range on the same day, firms experience the largest amount of share turnover, but no reliably abnormal stock market returns. This suggests that in situations where information uncertainty is at its highest, investor overconfidence is also at its highest, but the overreaction to forecasts equal to the minimum of the company issued guidance is offset by the overreaction to forecasts equal to the maximum.

Recent papers have documented the impact of reference points when making important investing and financing decisions. Baker, Pan, and Wurgler (2012) find that higher recent peak prices are associated with a higher offer premium and a higher likelihood of deal success in mergers and acquisitions. Loughran and Ritter (2002) propose a prospect theory explanation for why issuers leave money on the table in initial public offerings (IPOs). They argue that executives calculate gains and losses

relative to the midpoint of the file range; a reference point that executives of the issuing firm have anchored on. Ljungqvist and Wilhelm Jr. (2005) further show that chief executive officers of recent IPO firms make subsequent decisions consistent with a reference point measure of their perception of the IPOs outcome. Dougal, Engelberg, Parsons, and Van Wesep (2012) document that the path of credit spreads since a firm's last loan influences the level at which it can currently borrow. The authors attribute this finding to anchoring on past deal terms. Reference points have even been found to impact sell-side analysts. Campbell and Sharpe (2009) find that consensus forecasts of monthly economic releases are systematically biased toward the value of previous months' releases, consistent with an anchoring and adjustment heuristic. Cen, Hilary, and Wei (2013) document that analysts make optimistic (pessimistic) forecasts when a firm's forecasted EPS is lower (higher) than the industry median, consistent with the idea that analysts anchor on the industry norm. This paper contributes to this literature by documenting for the first time analysts' reliance on the company issued guidance range as a frame of reference in making their EPS forecasts. This literature is largely based on the works of Tversky and Kahneman (1974) and Kahneman and Tversky (1979), which document several experimental results where individuals do not act in accordance with expected utility theory. To account for individuals' decision making under risk, Kahneman and Tversky (1979) develops a prospect theory whereby individuals derive utility from changes in wealth relative to particular reference points

instead of final asset positions. The reference point in their theory is derived from the context at hand.[1]

This paper also contributes to the literature on the overreaction of stock prices to various events. Empirically, a number of papers have found that returns are negatively autocorrelated over a 3-5 year horizon in various markets (e.g. Fama and French, 1988; Poterba and Summers, 1988; Cutler, Poterba, and Summers, 1991). De Bondt and Thaler (1985, 1987) find that portfolios of stocks with extremely poor returns over the previous five years dramatically outperform portfolios of stocks with extremely high returns, even after making the standard risk adjustments. La Porta (1996) finds that stocks with the highest growth forecasts earn much lower future returns than stocks with the lowest growth forecasts. Moreover, on average, stocks with high growth forecasts earn negative returns when they subsequently announce earnings. La Porta, Lakonishok, Shleifer, and Vishny (1997) find that glamour stocks also earn negative returns on the days of their future earnings announcements, and value stocks earn positive returns. Lakonishok, Shleifer, and Vishny (1994) find large differences between the returns of extreme value and glamour deciles. Chopra, Lakonishok, and Ritter (1992) find in portfolios formed on prior five-year returns that past losers outperform past

[1]The terms "reference point" and "anchor point" are generally used synonymously in the finance literature. However, Kahneman (1992) draws a sharp distinction between the two terms. The author notes that the term "reference point" denotes salient neutral points on evaluation scales, at which the slope of the value function shows an sharp transition, in contrast to the effects of anchors, which are graded. I therefore use the term "reference point" throughout this paper to denote the minimum or maximum of the company issued guidance range, which should indeed be a salient neutral point on the EPS evaluation scale where there are sharp transitions in analysts' value function.

winners during the subsequent five years. Moreover, the authors find overreaction for short windows around quarterly earnings announcements. All of this evidence is consistent with stock market overreaction. Several models have been proposed to explain the overreaction phenomenon. Barberis, Shleifer, and Vishny (1998) develop a model of investor sentiment which is consistent with overreaction of stock prices to a series of good or bad news. Hong and Stein (1999) model a market populated by news watchers and momentum traders. If information diffuses gradually across investors and momentum traders only implement simple strategies, then the overall effect is for investors to overreact to stock prices. In the Daniel, Hirshleifer, and Subrahmanyam (1998) model, overconfident and informed investors overweight their private signal, causing the stock price to overreact. Furthermore, Ko and Huang (2007) find in their model that the degree of overreaction in prices is increasing in overconfidence. Overconfidence is also associated with greater trading volume. Odean (1998) finds that trading volume increases when price takers, insiders, or market-makers are overconfident. Odean (1999) and Statman, Thorley, and Vorkink (2006) find that investor overconfidence can explain high observed trading volume. The evidence presented in this paper is most consistent with overreaction driven by overconfident investors who trade too much in situations of high information uncertainty.

The rest of this paper is structured as follows. Section 2 presents the research design and summarizes the data. Analyst reference points as

well as forecasting decisions in the presence of these reference points are examined in section 3. Investors' stock market reaction to analyst reference points is presented in section 4. Conclusions are drawn in section 5.

2 Research Design and Data

The primary source of data used in this paper is the company issued EPS guidance from First Call. I only retain range estimates, although point estimates and qualitative guidance is also available in this dataset.[2] I use data on analyst EPS forecasts from the I/B/E/S unadjusted detail dataset, data on standardized unexpected earnings surprises from the I/B/E/S surprise dataset, and data on realized EPS from the I/B/E/S actual dataset. Returns, prices and shares outstanding are obtained from CRSP and book values are obtained from Compustat. Finally, the Fama and French (1993) three factors and the Carhart (1997) momentum factor are obtained from Professor Kenneth French's website.[3]

I examine the data in two different ways throughout this paper. First, I examine analysts' decision to use the company issued guidance range as a reference as well as the determinants at that decision. As such, I merge the I/B/E/S unadjusted detail dataset, which contains individual EPS forecasts for firms being covered by at least one analyst, to the

[2] It is possible that analysts use the company issued guidance point estimate as a reference, but I do not explore this possibility since there is no clear prediction with regards to the stock market reaction.

[3] `http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html`.

First Call company issued guidance dataset. In order to calculate forecast errors and accuracy, I merge in realized EPS from the I/B/E/S actual dataset. Firm specific data is then merged in to control for company specific attributes. This sample has 144,566 observations, which represent individual analyst forecasts of various firms from January 2000 to June 2011.

Second, I examine investors' reaction to analyst forecasts decisions. Since multiple analysts sometimes make forecasts for the same firm on the same day, but daily stock market returns are the same for all of the analysts making these forecasts, I aggregate analyst forecasting decisions at the firm level. Specifically, I consider a firm's analysts to have used the company issued guidance range as a reference if at least one analyst has provided a forecast equal to the company guidance range low or high. Using this firm-level measure, I examine the daily factor-adjusted returns and share turnover surrounding this event, which are merged in from CRSP. This sample has 45,714 observations, which represent individual forecast days of various firms from January 2000 to June 2011.

3 Analyst Forecasting Behavior

This section documents analysts' tendency to rely on the company issued EPS guidance range as a reference by providing forecasts that exactly equal the minimum or maximum point provided in the guidance. To capture this tendency, I create five mutually exclusive categories for

analyst forecasts relative to the company issued guidance (CIG) range: (i) Analyst Forecast < CIG Low; (ii) Analyst Forecast = CIG Low; (iii) CIG Low < Analyst Forecast < CIG High; (iv) Analyst Forecast = CIG High; and (v) Analyst Forecast > CIG High. I also examine analysts' errors and accuracy to determine whether the decision to provide a forecast in a particular category is beneficial. Finally, I examine the determinants of analysts' decision to provide forecasts within a particular category.

Figure 1 shows the yearly distribution of forecasts in the above-mentioned categories, as well as the overall number of forecasts in the sample each year.[4] The figure shows that there is not much variation for each category from year to year. In particular, the percentage of forecasts lower (higher) than the CIG Low (High) hovers at around 5% (15%) over the sample period, while the percentage of forecasts between the CIG Low and High hovers around 50%. Similarly, the percentage of forecasts exactly equal to the CIG Low (High) are around 15% (20%) over the sample period. However, there are some noticeable trends. The percentage of forecasts exactly equal to the CIG Low has become slightly less prevalent over time, while the percentage of forecasts between the CIG Low and High has become slightly more prevalent over time. One possible explanation for this result is that analysts have become slightly more optimistic over the sample period, although there is no corresponding increase in the prevalence of analyst forecasts above the CIG High. In terms of the yearly number of forecasts, the frequency increases in the

[4]Note that the number of observations in the year 2011 is lower than in any other year because the sample ends in June of that year.

first four years of the sample, but remains relatively flat thereafter.

The first two columns of table 1 report the frequency and percentage of forecasts within the afore-mentioned five categories. Surprisingly, 22.06% of forecasts are exactly equal to the maximum of the CIG range. A further 11.99% of forecasts are exactly equal to the minimum of the CIG range. 48.31% of analyst forecast can be found within the CIG endpoints. Finally, 6.13% (11.51%) of forecasts are below (above) the minimum (maximum) of the CIG range. Overall, over 80% of forecasts are within the CIG range and about one third are exactly equal to the minimum or maximum endpoint. These results show that analysts have a clear preference for providing forecasts within the CIG range. Columns 3 and 4 provide the error and accuracy of these forecasts, respectively. Analyst error is the percentage difference between the analyst EPS forecast and the firm's realized EPS for the quarterly EPS being forecasted, while analyst accuracy is the absolute value of analyst error. Analyst errors within the CIG endpoints range from –0.47% to –2.31%. Analyst forecasts above the CIG maximum are slightly optimistic with an average error of 3.97%, while forecasts below the CIG minimum are noticeably pessimistic with an average error of –19.03%. Meanwhile, analyst unsigned errors within the CIG endpoints range from 20.76% to 28.52%.[5] Forecasts above the CIG maximum are less accurate with an average unsigned error of 30.92%, while forecasts below the CIG minimum are even more inaccurate with an average unsigned error of

[5]Since the accuracy measure is the unsigned error, a higher (lower) number means that the forecast is less (more) accurate.

52.54%.

Table 2 reports multivariate regressions of analyst performance on forecasting categories and firm control variables. Model 1 reports the impact of the control variables, while in model 2, I add the forecasting categories to determine their incremental impact. The control variables are mainly to insure that the impact of forecasting categories on error and accuracy is not due to known characteristics that make forecasting EPS difficult, such as past EPS volatility, recent unexpected EPS, firm size and growth, among others. The regression with forecast error as the dependent variable reveals that providing a forecast below the CIG Low leads to more pessimistic forecasts than providing a forecast within the CIG range.[6] Similarly, providing a forecast above the CIG High leads to more optimistic forecasts than providing a forecast within the CIG range. However, providing a forecast exactly equal to the minimum or maximum of the CIG range does not lead to any incremental error. This suggests that, on average, managers providing company issued guidance are correct in their EPS projections. The regression with accuracy as the dependent variable shows that providing a forecast below the CIG Low or above the CIG High lead to more inaccurate forecasts than providing a forecast within the CIG range. Providing a forecast exactly equal to the minimum of the CIG range does not lead to any change in accuracy, while providing a forecast exactly equal to the maximum of the CIG

[6]This result is not tautological since the ex post realized EPS could be even further below the CIG range than the analyst forecast, in which case the analyst would be relatively optimistic instead of relatively pessimistic.

range does lead to better accuracy. This may be due to managers' tendency to provide a conservative maximum EPS in order to obtain positive EPS surprises. Economically, forecasting below the low endpoint of the CIG range leads to errors that are 14.22 percentage points lower and accuracy that is 18.48 percentage points higher, while forecasting above the high endpoint of the CIG range leads to errors that are 3.41 percentage points higher and accuracy that is 4.58 percentage points higher. The economic significance is qualitatively similar to that in table 1.

It is important to note that while providing a forecast outside of the CIG range is detrimental to analysts on average, since it reduces their reputation by inducing to more bias and more inaccuracy, it may still be worthwhile for some analysts to engage in this behavior. In particular, inexperienced analysts with no track record or analysts that have performed poorly in the past may feel that they need to make bold forecasts as in Clement and Tse (2005) in order to establish or reestablish their reputation. We explore this possibility in table 3 by examining analysts' decision to provide a forecast in a particular category using logistic regressions. Specifically, I am interested in the analyst characteristics that might explain why analysts provide forecasts outside of the CIG range. I use the number of years the analyst has been providing forecasts to measure the analyst's experience, analyst error over the past year to measure the analyst's bias, and analyst accuracy over the past year to measure the analyst's level of skill. A clear distinction can be seen between analysts who provide forecast within the CIG range and analysts who pro-

vide forecast outside of the CIG range. Analysts forecasting outside of the CIG range have significantly less experience and significantly worse past accuracy than analysts forecasting within the CIG range.

4 Investor Reaction to Analyst Reference Points

As mentioned above in section 2, forecasting decisions are aggregated at the firm and event day level in order to examine the market's reaction to them. This leads to a different categorization of analyst forecasts relative to the CIG range than in section 3. In particular, I consider a firm's analysts to have used the company issued guidance range as a reference if at least one analyst has provided a forecast equal to the company guidance range low or high.[7] I denote these two categories as Low Reference Point (RP) and High RP, respectively. If at least one analyst has provided a forecast equal to the company guidance range low and high, then I denote this category as Low & High RP. Finally, if no analyst has provided a forecast equal to the company guidance range low or high, then I denote this category as No RP. Also, I want to ensure that the documented results are not due to the level of the forecast being made. Therefore, I create three mutually exclusive subcategories in order to more strictly benchmark the abnormal returns. The first subcategory is No RP (Low) which equals 1 when all analyst quarterly EPS forecasts are less than the low point of the company issued quarterly EPS guidance range on

[7]Note that this categorization is quite conservative and potentially underestimates the stock market's reaction to analyst reference points.

the day of the event, and 0 otherwise. The second subcategory is No RP (High) which equals 1 when all analyst quarterly EPS forecasts are greater than the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. The third subcategory is No RP (Mid) which equals 1 when all analyst quarterly EPS forecasts are more than the low point and less than the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise.

4.1 Stock Market Reaction

I examine stock market returns in this subsection to see whether investors react to analyst forecasting behavior relative to the company issued guidance range when assessing the firm's value. Abnormal returns are calculated by using a Fama-French-Carhart four factor model as a benchmark. Figure 2 shows the abnormal returns for each day of the period surrounding the event. Graph (a) reports the abnormal event-time returns for the four categories defined above. First note that all four categories have abnormal returns close to zero away from the event day. Indeed, the abnormal returns are only noticeably different from zero in the [–1,+1] event window. On the day of the event in particular, there is a large negative abnormal return for the Low RP category and a small positive abnormal return. As for the Low & High RP and No RP categories, there is no discernible abnormal return. Graph (b) reports the abnormal event-time returns for the cases of interest, Low RP and High RP, relative to the No

PR (Low) and No RP (High) subsets, respectively. The negative abnormal return documented for the Low RP category is more negative than that of the No RP (Low) category, suggesting that low forecasts generate negative abnormal returns, although not as negative as when there is at least one forecast equal to the CIG low point. As for the High RP positive abnormal returns, they are much higher than the negative abnormal returns associated with forecasts in the No RP (High) category.

Table 4 examines the statistical significance of the event day (t=0) abnormal returns (AR) and standardized abnormal returns (SAR) for the various analyst forecasting categories and subcategories.[8] These results confirm statistically the informal results in figure 2. In panel A, when analysts forecast at the low reference point of the CIG range, investors' reaction is to cut the stock price by 0.59%. This abnormal return is statistically different from zero at the 1% level of significance. When analysts forecast at the high reference point of the CIG range, investors' reaction is to increase the stock price by 0.10%. While this result is statistically different from zero at the 10% level of significance, its magnitude is not very significant economically. Not surprisingly, when analysts forecast at the low and high reference points of the CIG range, investors' reaction is to decrease the stock price by 0.22%, which is about half way between the Low RP and High RP category returns. Finally, when analysts forecast away from the CIG range endpoints, investors' reaction is

[8]The results are similar if I use a [–1,+1] event window as opposed to using a [0] event day, but I report the event day results in order to avoid overlapping event windows, which pose a problem for determining the statistical significance correctly.

insignificantly different from zero. In panel B, I use the No RP category as an additional benchmark. The results from panel A do not change much given that the No RP portfolio's abnormal returns are very close to zero. Panel C reports the results of the No RP portfolio subsets, split into Low, High, and Mid. The No RP (Low) sub portfolio has an abnormal return of –0.19%, while the No RP (Mid) sub portfolio has no abnormal return. Of note however is the No RP (High) sub portfolio, which has a significantly negative abnormal return of –0.37%. One explanation for this result is that investors believe that analysts who forecast above the CIG high point are "hyping" the firm's stock. These investors might then sell their shares to avoid holding overvalued stock. Panel D reports the differences between the Low, High and Low & High RP categories, and the No RP sub categories. Relative to the No RP subcategories, the Low and High RP abnormal returns are more balanced, with Low RP – No RP (Low) yielding an abnormal return of –0.40% and High RP – No RP (High) yielding an abnormal return of 0.47%. I also report standardized abnormal returns, which produce qualitatively similar results to those of abnormal returns.

The table 4 results confirm that investors react more strongly to analyst forecasts equal to salient reference points than to other forecasts. In table 5, I examine abnormal returns in a multivariate framework in order to control for other variables which may influence them. Specifically, I add the mean analyst forecast and CIG range midpoint to control for the level of expected EPS from both the analysts' and managers' point

of view, respectively. I also control for the amount of coverage a firm receives using the number of analysts following the firm in the past year. Finally, I control earnings uncertainty using the prior standardized unexpected EPS and EPS volatility over the past year.[9] Abnormal returns are examined in the first two columns and standardized abnormal returns are examined in the last two columns. Model 1 looks at the control variables in isolation, while model 2 includes Low RP, High RP and Low & High RP indicator variables to determine the incremental effect on abnormal returns of using the CIG range endpoints as references. The results are consistent with the univariate results in table 4. The coefficients on Low RP are significantly negative at the 1% level, indicating that abnormal returns are reliably lower when analysts use the low endpoint of the CIG range as a reference. The coefficients on High RP are significantly positive at the 5% level, indicating that abnormal returns are reliably higher when analysts use the high endpoint of the CIG range as a reference. Finally, the coefficient on Low & High RP is not reliably significant. Economically, using the low endpoint of the CIG range as a reference leads to a 0.41% decrease in abnormal returns on the day of the event, while using the high endpoint of the CIG range as a reference leads to a 0.14% increase. The economic significance is qualitatively similar to that in panel B of table 4.

[9]The abnormal returns already control for the excess market return, size, book-to-market, and momentum factors. Therefore, I do not include these variables again in the regression.

4.2 Stock Market Correction

I now turn to the short-run cumulative abnormal returns after the event to determine whether investors overreacted to analyst reference points in the first place. Figure 3 shows the cumulative abnormal returns starting 10 days before the event, and ending 30 days after the event. The base cases are presented in graph A, while the bases cases of interest (i.e. Low RP and High RP) and the comparable sub cases (i.e. No RP (Low) and No RP (High)) are presented in graph B. These graphical results clearly indicate that investors overreact to analysts who use the low endpoint or the high endpoint of the CIG range as a reference, but not both at the same time. In the Low RP category, returns increase by about 0.15 percentage points around the event, but decrease by about 0.9 percentage points in the subsequent month. In the High RP category, returns decrease by about 2 percentage points around the event, but increase by about 0.75 percentage points in the subsequent month. Even relative to the No RP sub categories, Low RP forecasts and High RP forecasts appear to illicit stock market overreaction. Indeed, while there is an negative initial market reaction of about 1% for both the No RP (Low) and No RP (High) sub categories, there appears to be no correction for either of them in the subsequent month.

In order to determine the statistical significance of the return reversal, table 6 reports the cumulative abnormal returns and standardized cumulative abnormal returns from day 1 after the event to 30 days after the

event. In panel A, when analysts forecast at the low point of the CIG range, abnormal returns increase by 0.7% in the subsequent month, thus eliminating investors' initially negative reaction. This abnormal return is statistically different from zero at the 1% level of significance. When analysts forecast at the high point of the CIG range, abnormal returns decrease by 0.93% in the subsequent month, more than offsetting investors' initially positive reaction. When analysts forecast at the low and high points of the CIG range, abnormal returns decrease by 0.13% in the subsequent month. Finally, when analysts forecast away from the endpoints of the CIG range, abnormal returns decrease by 0.06% in the subsequent month. While these last two results are statistically different from zero at the 1% level of significance, their magnitude is not very significant economically. In panel B, I use the No RP category as an additional benchmark. The results from panel A do not change much given that the No RP portfolio's abnormal returns are very close to zero. Panel C reports the results of the No RP portfolio subsets, split into Low, High, and Mid. The No RP (Low) sub portfolio has an abnormal return of 0.29%, while the No RP (High) sub portfolio has an abnormal return of –0.21%. The No RP (Mid) sub portfolio has no significant abnormal return. Panel D reports the differences between the Low, High and Low & High RP categories, and the No RP sub categories. Relative to the No RP subcategories, the Low and High RP abnormal returns are qualitatively similar to those in panel B, with Low RP – No RP (Low) yielding an abnormal return of 0.42% and High RP – No RP (High) yielding an

abnormal return of –0.72%. I also report standardized abnormal returns, which produce qualitatively similar results to those of abnormal returns.

Table 7 reports the cumulative abnormal returns in a multivariate framework using the same control variables as in table 5. Cumulative abnormal returns are examined in the first two columns and standardized cumulative abnormal returns are examined in the last two columns. Model 1 looks at the control variables in isolation, while model 2 includes Low RP, High RP and Low & High RP indicator variables to determine the incremental effect of using the CIG range endpoints as references. The results, which show a reversal from the announcement effects documented in tables 4 and 5, are consistent with the univariate results in table 6. The coefficients on Low RP are significantly positive at the 1% level, indicating that cumulative abnormal returns are reliably higher in the month following analyst forecasts at the low point of the CIG range. The coefficients on High RP are significantly positive at the 1% level, indicating that abnormal returns are reliably lower in the month following analyst forecasts at the high point of the CIG range. Finally, the coefficient on Low & High RP is insignificant. Economically, using the low point of the CIG range as a reference leads to a 0.67% increase in abnormal returns in the month after the event, while using the high point of the CIG range as a reference leads to a 0.94% decrease. The economic significance is qualitatively similar to that in panel B of table 6.

4.3 Share Turnover

Odean (1998) finds in his theoretical model that overconfidence increases expected trading volume, increases market depth, and decreases the expected utility of overconfident traders. Moreover, overconfident traders can cause markets to overreact to salient, anecdotal, and less relevant information. In this subsection, I investigate whether the overreaction documented above may be due to overconfident traders by examining share turnover when analysts forecast at the low or high points of the CIG range. Table 8 reports share turnover, defined as the ratio of volume to shares outstanding in percent, on the day of the event. In panel A, when analysts forecast at the low (high) point of the CIG range, share turnover is 2.67% (2.64%). When analysts forecast at the low and high points of the CIG range, share turnover is much higher at 4.16%. Finally, when analysts forecast away from the points of the CIG range, share turnover is lower than the other three categories at 2.09%. In panel B, I use the No RP category as a benchmark to determine whether the differences are statistically significant. The Low RP category has 0.59 percentage points more turnover than the No RP category, while the High RP category has 0.55 percentage points more turnover than the No RP category. The Low & High RP share turnover is substantially higher that the No RP category, with a difference of 2.08 percentage points. These differences are statistically significant at the 1% level. To put these numbers in perspective, the Low (High) RP category has 28% (26%) more

share turnover than the No RP category, while the Low & High RP has 100% more share turnover than the No RP category. Panel C reports the results of the No RP sub categories, split into Low, High, and Mid. The No RP (Low) sub category has share turnover of 1.9%, while the No RP (High) sub category has share turnover of 2.02%, and the No RP (Mid) sub category has share turnover of 1.98%. Panel D reports the differences between the Low, High and Low & High RP categories, and the No RP sub categories. Relative to the No RP subcategories, the Low and High RP share turnover are qualitatively similar to those in panel B, with Low RP – No RP (Low) yielding a share turnover difference of 0.77 percentage points and High RP – No RP (High) yielding a share turnover difference of 0.62 percentage points. The Low & High RP share turnover is again substantially higher that the No RP (Mid) category, with a difference of 2.19 percentage points. These differences represent 41%, 31% and 111% more share turnover than the respective benchmarks.

Table 9 verifies the robustness of the share turnover results in table 8 in a multivariate regression framework. Along with the control variables included in table 5 and table 7 regressions, I also include the natural logarithm of the firm's market capitalization in millions of dollars to capture size, the ratio of book equity to market capitalization to capture growth/value, and the firm's stock market return in the year prior to the event to capture momentum. Model 1 looks at the control variables in isolation, while model 2 includes Low RP, High RP and Low & High RP indicator variables to determine the incremental effect of using the

CIG range endpoints as references. The results are consistent with the univariate results in table 8. The coefficient on Low RP, High RP, and Low & High RP are all significantly positive at the 1% level, indicating that share turnover is reliably higher when analysts forecast at the low, high, an low & high points of the CIG range, respectively. Economically, forecasting at the low point of the CIG range leads to a 0.53 percentage point increase in share turnover during the event, while forecasting at the high point of the CIG range leads to a 0.4 percentage point increase, and forecasting at both the low & high points of the CIG range leads to a 1.83 percentage point increase. The economic significance is qualitatively similar to that in panel B of table 8.

The results in this section show that investors overreact to analyst reference points. Indeed, investors bid down (up) the prices of stocks for which analysts have provided a forecast exactly equal to the low (high) endpoint of the CIG range more so than for other comparable forecasts. Moreover, the stock prices of firms for which analysts have provided a forecast exactly equal to the low (high) point of the CIG range correct upward (downward) in the subsequent month, suggesting that investors' reaction was too pronounced to begin with. Furthermore, investors tend to make too many trades when they are faced with analyst reference points, suggesting that they may be overconfident in situations where information uncertainty is greater.

5 Conclusions

This paper contributes to the discussion on analysts' role in disseminating information to the public. All of the evidence supports the notion that analysts use the company guidance range as a reference. It may seem obvious that analysts use the company issued guidance in order to make their forecasts. However, the material point is that there is a sharp change in analysts' forecasting behavior around the endpoints of the company issued guidance. Inexperienced or unskilled analysts tend to be the ones who forecast outside of the guidance range, and this is to the detriment of their reputation given the lower accuracy associated with these forecasts. There are various incentives which may induce analysts to engage in this type of forecasting behavior. Inexperienced analysts have no reputation to speak of, and therefore have no disincentive to be bold with their forecasts. Furthermore, if inexperienced analysts are trying to distinguish themselves from other analysts in order to increase the likelihood of having a long career, they may have a direct incentive to provide bold forecasts. Another possibility is that some analysts may have performed poorly in the past, which negatively affects their reputation. In order to reestablish this reputation, they may find it worthwhile to issue bold forecasts. Lastly, some analysts may lack the skill to be good forecasters or may not understand the informational content in company issued guidance.

Irrespective of the motivations which govern analysts' forecasting be-

havior, the fact that they use the company issued guidance endpoints as a frame of reference may have an impact on stock markets. For example, an analyst may have valuable private information about a firm. This private information could lead this analyst to make a forecast outside of the guidance range. However, given the various incentives mentioned above, it may be more beneficial for this analyst to make a forecast on one of the endpoints of the guidance range. Market participants, who may or may not realize this, are left with less information than if the analyst's true beliefs had been revealed. As such, this paper also adds to the discussion on market efficiency. Through its impact on investors, analyst reference points are associated with stock market overreaction followed by a correction. Moreover, this overreaction is accompanied by excessive trading. Together, these results suggests that in situations of information uncertainty, investor overconfidence can lead to temporary market inefficiencies.

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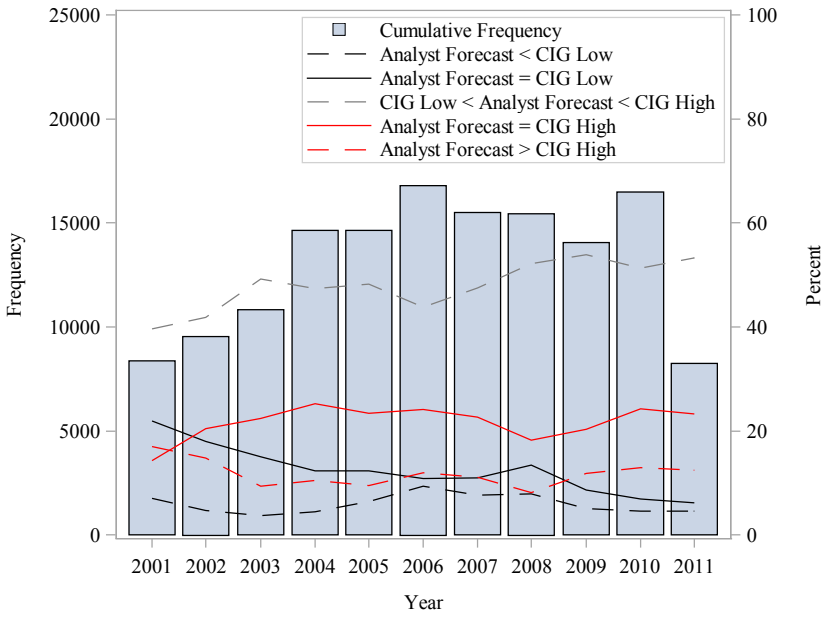
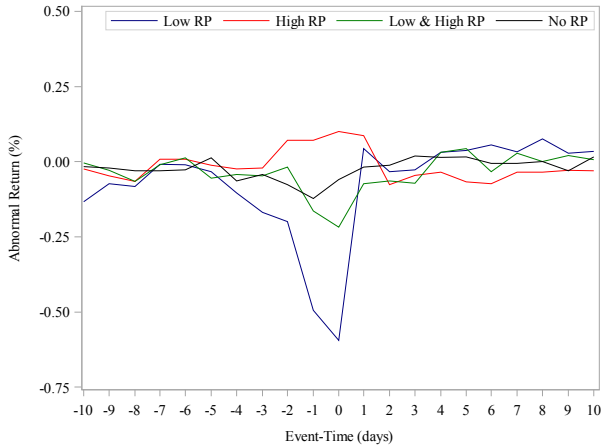
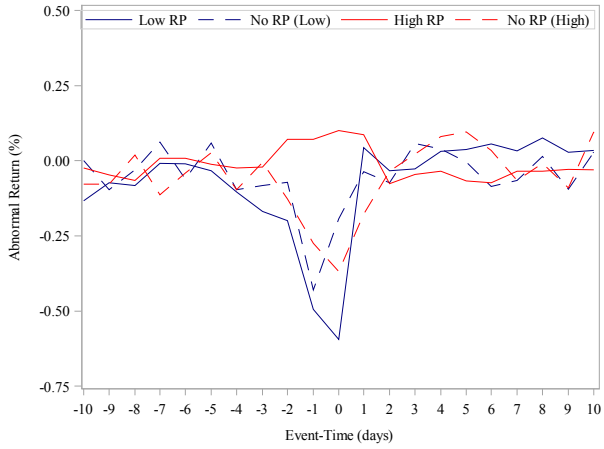


Figure 1: Yearly Frequencies of Analyst Forecasts Relative to Company Issued Guidance Endpoints

This figure reports the yearly frequency and percentage of analyst forecasts relative to the company issued guidance endpoints. Analyst Forecast is the analyst quarterly EPS forecast. CIG Low is the low point of the company issued quarterly EPS guidance range. CIG High is the high point of the company issued quarterly EPS guidance range.



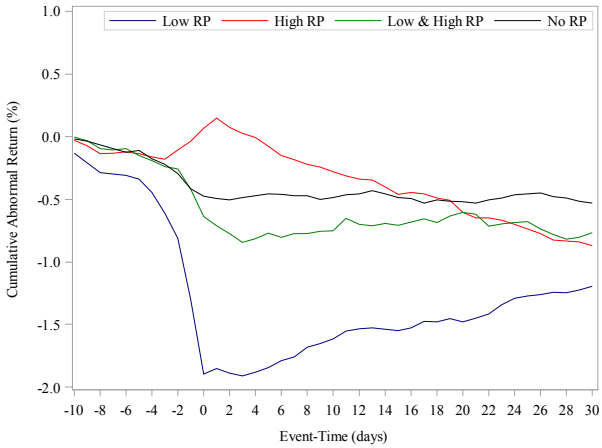
(a) Base Cases



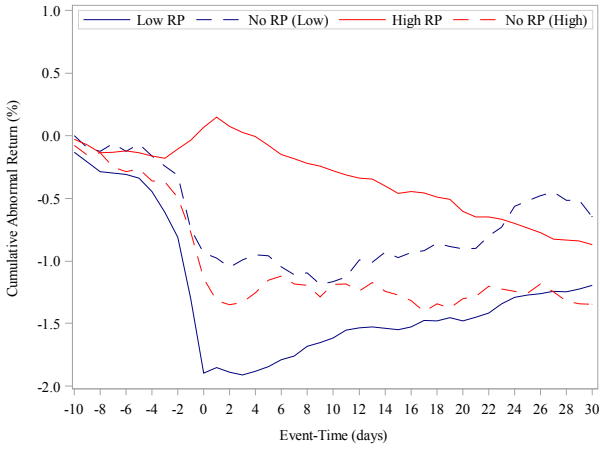
(b) Base and Sub Cases

Figure 2: Event-Window Average Abnormal Returns

This figure reports the mean abnormal return for each day of the [-10,+10] event window for various subsamples. Low RP equals 1 when at least one analyst quarterly EPS forecast equals the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. High RP equals 1 when at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. Low & High RP equals 1 when at least one analyst quarterly EPS forecast equals the low point and at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP equals 1 when no analyst quarterly EPS forecast equals the low or high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (Low) equals 1 when all analyst quarterly EPS forecasts are less than the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (High) equals 1 when all analyst quarterly EPS forecasts are greater than the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. The abnormal return is calculated using a Fama-French-Carhart 4-factor model to estimate the expected return.



(a) Base Cases



(b) Base and Sub Cases

Figure 3: Event-Window Average Cumulative Abnormal Returns

This figure reports the mean cumulative abnormal return over the [-10,+30] event window for various subsamples. Low RP equals 1 when at least one analyst quarterly EPS forecast equals the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. High RP equals 1 when at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. Low & High RP equals 1 when at least one analyst quarterly EPS forecast equals the low point and at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP equals 1 when no analyst quarterly EPS forecast equals the low or high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (Low) equals 1 when all analyst quarterly EPS forecasts are less than the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (High) equals 1 when all analyst quarterly EPS forecasts are greater than the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise.

Table 1: Analyst Forecast Frequency and Performance Relative to Company Issued Guidance Endpoints

This table reports the frequency and percentage of analyst forecasts relative to the comapny issued guidance endpoints, as well as analyst ex post performance. Analyst Forecast is the analyst quarterly EPS forecast. CIG Low is the low point of the company issued quarterly EPS guidance range. CIG High is the high point of the company issued quarterly EPS guidance range. Error is the percentage difference between the analyst quarterly EPS forecast and realized quarterly EPS. Accuracy is the absolute value of the percentage difference between the analyst quarterly EPS forecast and realized quarterly EPS.

Subsample	Frequency	Percent	Error (%)	Accuracy (%)
Analyst Forecast < CIG Low	8,861	6.13	−19.02	52.54
Analyst Forecast = CIG Low	17,338	11.99	−2.31	28.52
CIG Low < Analyst Forecast < CIG High	69,838	48.31	−0.50	26.61
Analyst Forecast = CIG High	31,890	22.06	−0.47	20.76
Analyst Forecast > CIG High	16,639	11.51	3.97	30.92

Table 2: Analyst Performance Multivariate Regressions

This table reports the coefficients from a regression of analyst forecast errors and analyst forecast accuracy on multiple variables. Analyst Forecast is the analyst quarterly EPS forecast. CIG Low is the low point of the company issued quarterly EPS guidance range. CIG High is the high point of the company issued quarterly EPS guidance range. CIG Range Midpoint is the middle point of the company issued quarterly EPS guidance range. Market Cap is the number of shares outstanding multiplied by the price, in millions of dollars. Book-to-Market is the book value of common equity divided by the market capitalization. Momentum is the firm's monthly compounded stock return over the past year. Analyst Coverage is the number of analysts that have provided an EPS forecast for the firm over the past year. Standardized Unexpected EPS is the ratio of the quarterly earnings surprise to the standard deviation of earnings surprises over the past four quarters. EPS Volatility is the standard deviation of realized quarterly EPS over the past four quarters. Error is the percentage difference between the analyst quarterly EPS forecast and realized quarterly EPS. Accuracy is the absolute value of the percentage difference between the analyst quarterly EPS forecast and realized quarterly EPS. The numbers in parentheses are t-statistics based on simple t-tests. ***, ** or * signify that the test statistic is significant at the 1, 5 or 10% two-tailed level, respectively.

	Error (%)		Accuracy (%)	
	Model 1	Model 2	Model 1	Model 2
Analyst Forecast < CIG Low		-14.22^{***}		18.48^{***}
		(-12.53)		(17.26)
Analyst Forecast = CIG Low		-0.73		-0.62
		(-0.88)		(-0.80)
Analyst Forecast = CIG High		0.95		-4.54^{***}
		(1.45)		(-7.37)
Analyst Forecast > CIG High		3.41^{***}		4.58^{***}
		(4.05)		(5.79)
Analyst Forecast	45.39^{***}	36.65^{***}	-40.85^{***}	-33.06^{***}
	(22.02)	(16.96)	(-20.98)	(-16.23)
CIG Range Midpoint	-31.18^{***}	-22.86^{***}	10.85^{***}	3.39^{*}
	(-15.72)	(-11.01)	(5.80)	(1.73)
Ln(Market Cap)	-0.63^{***}	-0.54^{**}	-2.64^{***}	-2.76^{***}
	(-2.69)	(-2.31)	(-12.01)	(-12.61)
Book-to-Market	0.30	0.55	10.17^{***}	9.52^{***}
	(0.38)	(0.70)	(13.78)	(12.87)
Momentum	-2.29^{***}	-2.47^{***}	-2.51^{***}	-2.20^{***}
	(-4.51)	(-4.86)	(-5.23)	(-4.59)
Analyst Coverage	-0.09^{***}	-0.11^{***}	-0.19^{***}	-0.17^{***}
	(-2.67)	(-3.10)	(-5.75)	(-5.15)
Standardized Unexpected EPS	-0.54^{***}	-0.55^{***}	-0.10^{***}	-0.10^{***}
	(-19.69)	(-19.90)	(-3.98)	(-4.02)
EPS Volatility	-2.74^{*}	-2.59^{*}	45.48^{***}	43.77^{***}
	(-1.88)	(-1.77)	(33.04)	(31.73)
Intercept	5.18^{*}	4.55	70.61^{***}	71.96^{***}
	(1.66)	(1.45)	(23.96)	(24.33)
Adj. R^2 (%)	0.8	0.9	3.8	4.1
N	136,445	136,445	136,445	136,445

Table 3: Analyst Forecasting Decision Multivariate Logistic Regressions

This table reports the coefficients from logistic regressions of the decision to forecast within a specific category on analyst charcteristics and control variables. Analyst Forecast is the analyst quarterly EPS forecast. CIG Low is the low point of the company issued quarterly EPS guidance range. CIG High is the high point of the company issued quarterly EPS guidance range. Experience is the number of years between the analyst's first forecast and current forecast. Past Error is the analyst's average Error over the past year. Past Accuracy is the analyst's average Accuracy over the past year. Error is the difference between the analyst quarterly EPS forecast and realized quarterly EPS, scaled by the absolute value of realized quarterly EPS. Accuracy is the absolute value of the difference between the analyst quarterly EPS forecast and realized quarterly EPS, scaled by the absolute value of realized quarterly EPS. CIG Range Midpoint is the middle point of the company issued quarterly EPS guidance range. Market Cap is the number of shares outstanding multiplied by the price, in millions of dollars. Book-to-Market is the book value of common equity divided by the market capitalization. Momentum is the firm's monthly compounded stock return over the past year. Analyst Coverage is the number of analysts that have provided an EPS forecast for the firm over the past year. Standardized Unexpected EPS is the ratio of the quarterly earnings surprise to the standard deviation of earnings surprises over the past four quarters. EPS Volatility is the standard deviation of realized quarterly EPS over the past four quarters. The numbers in parentheses are Wald Chi Square statistics. ***, ** or * signify that the test statistic is significant at the 1, 5 or 10% two-tailed level, respectively.

	Analyst Forecast < CIG Low	Analyst Forecast = CIG Low	CIG Low < Analyst Forecast < CIG High	Analyst Forecast = CIG High	Analyst Forecast > CIG High
Experience	−0.021***	0.003**	0.004***	0.003**	−0.007***
	(85.62)	(4.34)	(17.65)	(5.46)	(16.30)
Past Error	−0.248***	0.215***	−0.009	0.061**	0.013
	(99.22)	(42.71)	(0.27)	(5.50)	(0.30)
Past Accuracy	0.451***	−0.236***	0.016	−0.294***	0.049**
	(333.85)	(54.26)	(0.97)	(137.39)	(4.35)
CIG Range Midpoint	0.420***	−0.271***	0.387***	−0.345***	−0.288***
	(185.42)	(101.98)	(534.36)	(251.83)	(154.65)
Ln(Market Cap)	0.001	−0.062***	0.012**	−0.008	0.048***
	(0.01)	(61.82)	(5.21)	(1.57)	(37.77)
Book-to-Market	0.238***	−0.187***	0.348***	−0.634***	0.013
	(53.71)	(46.60)	(349.88)	(578.36)	(0.23)
Momentum	−0.295***	−0.326***	−0.126***	0.295***	0.117***
	(109.71)	(250.97)	(118.70)	(510.23)	(56.15)
Analyst Coverage	−0.009***	0.003***	−0.009***	0.010***	0.005***
	(31.64)	(7.11)	(119.96)	(115.30)	(14.50)
Standardized Unexpected EPS	−0.003***	−0.008***	−0.002**	0.020***	0.014***
	(11.97)	(137.21)	(6.58)	(170.29)	(66.76)
EPS Volatility	0.046	−0.914***	−0.072**	−0.691***	1.112***
	(0.54)	(208.31)	(5.05)	(211.23)	(733.43)
Intercept	−2.922***	−0.736***	−0.401***	−0.817***	−2.903***
	(413.27)	(47.94)	(33.83)	(93.55)	(758.70)
AIC	59406.18	96524.81	184867.8	139093.7	94914.50
SC	59514.08	96632.70	184975.7	139201.6	95022.39
-2 Log L	59384.18	96502.81	184845.8	139071.7	94892.50
N	134,427	134,427	134,427	134,427	134,427

Table 4: Event-Day Abnormal Returns

This table reports the mean 1-day abnormal returns and standardized abnormal returns, as well as mean differences with benchmark portfolios on various subsamples. Low RP equals 1 when at least one analyst quarterly EPS forecast equals the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. High RP equals 1 when at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. Low & High RP equals 1 when at least one analyst quarterly EPS forecast equals the low point and at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP equals 1 when no analyst quarterly EPS forecast equals the low or high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (Low) equals 1 when all analyst quarterly EPS forecasts are less than the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (Mid) equals 1 when all analyst quarterly EPS forecasts are more than the low point and less than the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (High) equals 1 when all analyst quarterly EPS forecasts are greater than the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. AR is the abnormal return during the event day, using a Fama-French-Carhart 4-factor model to estimate the expected return. SAR is the standardized abnormal return during the event day, using a Fama-French-Carhart 4-factor model to estimate the expected return.

	AR (%)			SAR (%)		
	Return	t-stat	p-value	Return	t-stat	p-value
Panel A: Base Cases						
Low RP	−0.59	−6.90	0.000	−25.84	−7.36	0.000
High RP	0.10	1.90	0.057	7.81	3.48	0.000
Low & High RP	−0.22	−1.74	0.082	−8.33	−1.58	0.114
No RP	−0.06	−1.63	0.104	−0.92	−0.62	0.538
Panel B: Base Case Differences						
Low RP − No RP	−0.53	−6.68	0.000	−24.92	−7.52	0.000
High RP − No RP	0.16	2.57	0.010	8.73	3.36	0.001
Low & High RP − No RP	−0.16	−1.62	0.105	−7.41	−1.81	0.070
Panel C: Sub Cases						
No RP (Low)	−0.19	−1.99	0.046	−6.77	−1.58	0.114
No RP (High)	−0.37	−3.63	0.000	−6.50	−1.88	0.061
No RP (Mid)	−0.01	−0.14	0.885	−0.23	−0.12	0.903
Panel D: Sub Case Differences						
Low RP − No RP (Low)	−0.40	−2.45	0.014	−19.07	−2.83	0.005
High RP − No RP (High)	0.47	3.89	0.000	14.30	2.85	0.004
Low & High RP − No RP (Mid)	−0.21	−2.01	0.044	−8.10	−1.83	0.068

Table 5: Event-Day Abnormal Return Multivariate Regressions

This table reports the coefficients from a regression of 1-day cumulative abnormal returns and standardized cululative abnormal returns on multiple variables. Low RP equals 1 when at least one analyst quarterly EPS forecast equals the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. High RP equals 1 when at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. Low & High RP equals 1 when at least one analyst quarterly EPS forecast equals the low point and at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. Mean Analyst Forecast is the average analyst quarterly EPS forecast on the event day. CIG Range Midpoint is the middle point of the company issued quarterly EPS guidance range. Analyst Coverage is the number of analysts that have provided an EPS forecast for the firm over the past year. Standardized Unexpected EPS is the ratio of the quarterly earnings surprise to the standard deviation of earnings surprises over the past four quarters. EPS Volatility is the standard deviation of realized quarterly EPS over the past four quarters. AR is the abnormal return during the event day, using a Fama-French-Carhart 4-factor model to estimate the expected return. SAR is the standardized abnormal return during the event day, using a Fama-French-Carhart 4-factor model to estimate the expected return. The numbers in parentheses are t-statistics based on simple t-tests. ***, ** or * signify that the test statistic is significant at the 1, 5 or 10% two-tailed level, respectively.

	AR (%)		SAR (%)	
	Model 1	Model 2	Model 1	Model 2
Low RP		-0.41^{***}		-20.55^{***}
		(-4.78)		(-5.56)
High RP		0.14^{**}		8.10^{***}
		(2.07)		(2.76)
Low & High RP		-0.16		-7.31^{*}
		(-1.51)		(-1.66)
Mean Analyst Forecast	0.59^{***}	0.51^{**}	19.45^{**}	15.06
	(2.62)	(2.25)	(2.02)	(1.56)
CIG Range Midpoint	0.11	0.18	4.96	8.19
	(0.53)	(0.80)	(0.53)	(0.88)
Analyst Coverage	0.00	0.00	-0.03	-0.02
	(0.27)	(0.32)	(-0.18)	(-0.15)
Standardized Unexpected EPS	0.05^{***}	0.05^{***}	2.38^{***}	2.33^{***}
	(16.36)	(16.04)	(17.23)	(16.85)
EPS Volatility	0.35^{**}	0.33^{**}	19.07^{***}	18.29^{***}
	(2.25)	(2.13)	(2.87)	(2.74)
Intercept	-0.54^{***}	-0.50^{***}	-19.09^{***}	-17.11^{***}
	(-8.44)	(-7.08)	(-6.98)	(-5.73)
Adj. R^2 (%)	0.9	1.0	0.9	1.0
N	42,737	42,737	42,737	42,737

Table 6: Short-Run Cumulative Abnormal Returns

This table reports the mean 30-day cumulative abnormal returns and standardized cumulative abnormal returns, as well as mean differences with benchmark portfolios on various subsamples. Low RP equals 1 when at least one analyst quarterly EPS forecast equals the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. High RP equals 1 when at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. Low & High RP equals 1 when at least one analyst quarterly EPS forecast equals the low point and at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP equals 1 when no analyst quarterly EPS forecast equals the low or high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (Low) equals 1 when all analyst quarterly EPS forecasts are less than the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (Mid) equals 1 when all analyst quarterly EPS forecasts are more than the low point and less than the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (High) equals 1 when all analyst quarterly EPS forecasts are greater than the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. CAR is the cumulative abnormal return during the [+1,+30] event window, using a Fama-French-Carhart 4-factor model to estimate the expected return. SCAR is the standardized cumulative abnormal return during the [+1,+30] event window, using a Fama-French-Carhart 4-factor model to estimate the expected return.

	CAR (%)			SCAR (%)		
	Return	t-stat	p-value	Return	t-stat	p-value
Panel A: Base Cases						
Low RP	0.70	21.35	0.000	5.13	22.01	0.000
High RP	−0.93	−45.23	0.000	−7.65	−49.80	0.000
Low & High RP	−0.13	−3.48	0.000	−1.35	−4.99	0.000
No RP	−0.06	−3.24	0.001	−0.57	−4.40	0.000
Panel B: Base Case Differences						
Low RP − No RP	0.76	20.85	0.000	5.70	21.51	0.000
High RP − No RP	−0.87	−31.53	0.000	−7.08	−34.62	0.000
Low & High RP − No RP	−0.07	−1.64	0.101	−0.78	−2.50	0.012
Panel C: Sub Cases						
No RP (Low)	0.29	5.23	0.000	3.51	7.94	0.000
No RP (High)	−0.21	−3.45	0.001	−4.25	−12.16	0.000
No RP (Mid)	−0.01	−0.49	0.623	−0.08	−0.51	0.613
Panel D: Sub Case Differences						
Low RP − No RP Low	0.42	6.27	0.000	1.62	3.33	0.001
High RP − No RP High	−0.72	−13.90	0.000	−3.39	−9.31	0.000
Low & High RP − No RP Mid	−0.12	−2.75	0.006	−1.27	−3.97	0.000

Table 7: Short-Run Cumulative Abnormal Return Multivariate Regressions

This table reports the coefficients from a regression of 30-day cumulative abnormal returns and standardized cululative abnormal returns on multiple variables. Low RP equals 1 when at least one analyst quarterly EPS forecast equals the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. High RP equals 1 when at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. Low & High RP equals 1 when at least one analyst quarterly EPS forecast equals the low point and at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. Mean Analyst Forecast is the average analyst quarterly EPS forecast on the event day. CIG Range Midpoint is the middle point of the company issued quarterly EPS guidance range. Analyst Coverage is the number of analysts that have provided an EPS forecast for the firm over the past year. Standardized Unexpected EPS is the ratio of the quarterly earnings surprise to the standard deviation of earnings surprises over the past four quarters. EPS Volatility is the standard deviation of realized quarterly EPS over the past four quarters. CAR is the cumulative abnormal return during the [+1,+30] event window, using a Fama-French-Carhart 4-factor model to estimate the expected return. SCAR is the standardized cumulative abnormal return during the [+1,+30] event window, using a Fama-French-Carhart 4-factor model to estimate the expected return. The numbers in parentheses are t-statistics based on simple t-tests. ***, ** or * signify that the test statistic is significant at the 1, 5 or 10% two-tailed level, respectively.

	CAR (%)		SCAR (%)	
	Model 1	Model 2	Model 1	Model 2
Low RP		0.67^{***}		5.25^{***}
		(3.38)		(3.57)
High RP		-0.94^{***}		-7.05^{***}
		(−5.99)		(−6.03)
Low & High RP		−0.37		−1.83
		(−1.56)		(−1.04)
Mean Analyst Forecast	-2.46^{***}	-2.15^{***}	-20.54^{***}	-18.22^{***}
	(−4.80)	(−4.20)	(−5.38)	(−4.76)
CIG Range Midpoint	1.16^{**}	0.89^{*}	10.73^{***}	8.72^{**}
	(2.34)	(1.80)	(2.90)	(2.35)
Analyst Coverage	0.04^{***}	0.04^{***}	0.13^{**}	0.16^{***}
	(4.33)	(4.90)	(2.06)	(2.58)
Standardized Unexpected EPS	-0.02^{***}	-0.02^{**}	-0.11^{**}	-0.09^{*}
	(−2.69)	(−2.32)	(−2.04)	(−1.65)
EPS Volatility	−0.38	−0.45	−0.82	−1.25
	(−1.08)	(−1.27)	(−0.31)	(−0.47)
Intercept	−0.11	0.02	0.31	1.20
	(−0.78)	(0.10)	(0.29)	(1.01)
Adj. R^2 (%)				
N	42,737	42,737	42,737	42,737

Table 8: Event-Day Share Turnover

This table reports the mean share turnover, as well as mean differences with benchmark portfolios on various subsamples. Low RP equals 1 when at least one analyst quarterly EPS forecast equals the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. High RP equals 1 when at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. Low & High RP equals 1 when at least one analyst quarterly EPS forecast equals the low point and at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP equals 1 when no analyst quarterly EPS forecast equals the low or high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (Low) equals 1 when all analyst quarterly EPS forecasts are less than the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (Mid) equals 1 when all analyst quarterly EPS forecasts are more than the low point and less than the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. No RP (High) equals 1 when all analyst quarterly EPS forecasts are greater than the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. Turnover is the ratio of volume to shares outstanding in percent on the day of the event.

	Turnover	t-stat	p-value
Panel A: Base Cases			
Low RP	2.67	50.42	0.000
High RP	2.64	83.67	0.000
Low & High RP	4.16	50.18	0.000
No RP	2.09	103.17	0.000
Panel B: Base Case Differences			
Low RP − No RP	0.59	12.59	0.000
High RP − No RP	0.55	15.43	0.000
Low & High RP − No RP	2.08	35.55	0.000
Panel C: Sub Cases			
No RP (Low)	1.90	31.40	0.000
No RP (High)	2.02	39.04	0.000
No RP (Mid)	1.98	85.06	0.000
Panel D: Sub Case Differences			
Low RP − No RP (Low)	0.77	7.64	0.000
High RP − No RP (High)	0.62	8.75	0.000
Low & High RP − No RP (Mid)	2.19	35.13	0.000

Table 9: Event-Day Share Turnover Multivariate Regressions

This table reports the coefficients from a regression of share turnover on multiple variables. Low RP equals 1 when at least one analyst quarterly EPS forecast equals the low point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. High RP equals 1 when at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. Low & High RP equals 1 when at least one analyst quarterly EPS forecast equals the low point and at least one analyst quarterly EPS forecast equals the high point of the company issued quarterly EPS guidance range on the day of the event, and 0 otherwise. Mean Analyst Forecast is the average analyst quarterly EPS forecast on the event day. CIG Range Midpoint is the middle point of the company issued quarterly EPS guidance range. Market Cap is the number of shares outstanding multiplied by the price, in millions of dollars. Book-to-Market is the book value of common equity divided by the market capitalization. Momentum is the firm's monthly compounded stock return over the past year. Analyst Coverage is the number of analysts that have provided an EPS forecast for the firm over the past year. Standardized Unexpected EPS is the ratio of the quarterly earnings surprise to the standard deviation of earnings surprises over the past four quarters. EPS Volatility is the standard deviation of realized quarterly EPS over the past four quarters. Turnover is the ratio of volume to shares outstanding in percent on the day of the event. The numbers in parentheses are t-statistics based on simple t-tests. ***, ** or * signify that the test statistic is significant at the 1, 5 or 10% two-tailed level, respectively.

	Model 1	Model 2
Low RP		0.53^{***}
		(10.04)
High RP		0.40^{***}
		(9.45)
Low & High RP		1.83^{***}
		(29.23)
Mean Analyst Forecast	0.06	0.06
	(0.43)	(0.41)
CIG Range Midpoint	−0.07	−0.01
	(−0.53)	(−0.04)
Ln(Market Cap)	-0.62^{***}	-0.61^{***}
	(−37.24)	(−36.76)
Book-to-Market	-0.64^{***}	-0.56^{***}
	(−13.81)	(−12.24)
Momentum	0.90^{***}	0.89^{***}
	(26.38)	(26.27)
Analyst Coverage	0.11^{***}	0.09^{***}
	(37.90)	(33.44)
Standardized Unexpected EPS	0.01^{***}	0.01^{***}
	(3.37)	(3.58)
EPS Volatility	0.98^{***}	1.13^{***}
	(10.14)	(11.78)
Intercept	10.09^{***}	9.61^{***}
	(46.36)	(44.32)
Adj. R^2 (%)	6.1	8.0
N	42,039	42,039