Are analysts' forecasts informative to the general public?

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Abstract

Contrary to the common view that analysts are important information agents, intraday returns evidence shows that announcements of analysts' forecast revisions release little new information, on average. Further cross-sectional evidence from returns around the announcements confirms that revisions are virtually information-free. Daily announcement returns used in the literature appear to overstate the analyst's role as information agent, because forecast announcements often are issued directly after reports of significant news about the followed firm. We document that forecast revisions frequently piggyback on recent events. The evidence reveals a sequential relationship between events and news and forecast revisions indicative of analyst piggybacking, not prophecy. These new findings about the most sought-after analyst report broaden significantly the evidence indicating that price reactions to analysts' reports reveal little new information.

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1. Introduction

Security analysts' forecasts of corporate earnings play important economic roles. They provide diverse market participants who often decide how to allocate substantial resources with reliable benchmarks for firms' expected future earnings and related cash flows. Forecasts provide investors and financial institutions with external assessments of firms' expected operating performance and thus an independent metric for monitoring top management. Because realized earnings make grading forecast accuracy easy, each analyst is under continual pressure to provide accurate forecasts, and thus to stay well-informed about the followed firms. Forecasts are thus a central determinant of analysts' career outcomes and a key indicator of brokerage firm research quality.[1] This article examines yet another forecast role, the supply of new information for brokerage clients. Researchers and practitioners often suggest that analysts are information agents who revise their forecasts to supply clients with new information, which analysts discover by processing public information about the firm. Large and significant stock price reactions around forecast announcements agree with the information agent view.[2]

Of primary interest is the hypothesis that analysts tend to piggyback their reports on public information from recent events and news about the firm, while delivering little incremental information. By piggybacking we mean that analysts convert public information into a forecast revision, which is not very informative beyond the information itself. Forecasts are commonly updated based on significant events and other new public information which multi-day returns used in earlier research often credit to analysts' information, thus overstating analysts' output, on average. Using intraday stock returns around forecast revisions to measure analysts' information allows isolating investor reactions to the forecasts from the reactions to other news. New findings reveal the forecasts release little new information, while prior multiday returns agree with analysts piggybacking on recent public information. This is the first study we are aware of that examines intraday stock returns around forecast revisions.

New evidence establishes that analysts' forecasts often follow recent events and news. The time soon before the forecast announcement is searched for new public information which could overstate analysts' information when using multi-day returns. Surprising findings show the vast majority of forecasts follow recent events and news. For example, over 50% of forecasts in the daytime and 70% of forecasts in the nighttime follow a recent key event. A key event in this study is an earnings or guidance report found in common commercial sources [Center for Research in Security Prices (CRSP), Compustat, or First Call Historical Database, FC)]. For the forecasts that have no key event, searches of Dow Jones & Company

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[1] See Trueman (1994), Mikhail et al. (1999), Healy and Palepu (2001), Lim (2001), Hong and Kubik (2003), Asquith, et al. (2005), Jackson (2005), Groysberg et al. (2011).

[2] See Lys and Sohn (1990), Stickle (1992), Francis and Soffer (1997), Brav and Lehavy (2003), Gleason and Lee (2003), Ivkovic and Jegadeesh (2004), Asquith, et al. (2005).

Factiva (Factiva) for several distinct samples reveal Factiva events in over 80% of the cases, including reports of earnings, guidance, investment projects, restructurings, and other news. This new evidence validates that forecasts frequently track notable public information about the firm, suggesting that lengthy announcement period returns could overstate analysts' information.

To assess analyst information, the announcement return, R(ann), is examined first. R(ann) is measured over a window of four 10-minute intervals around the forecast announcement, where non-trading nighttime (or weekend or holiday) periods are folded into one interval. The narrow 40-minute window helps isolate the measured forecast return from reactions to recent news. For forecasts with no key event, the daytime mean announcement returns are clearly muted indicating little information is supplied to the general public. They average 2 basis points (bps) for revisions upward and 0 bps for revisions downwards. For nighttime forecasts, which in real time have a significantly longer announcement window exposure to public information, the mean announcement returns are 18 bps and 3 bps respectively. These returns are below transaction costs. Further results show that when there is no key event and no Factiva event, the forecast announcement has little information.

That forecasts do not appear particularly impactful is a surprise in light of the large body of evidence indicating they are informative, and the common belief that analysts are information agents in securities markets. Three plausible reinterpretations are investigated that could reconcile the information agent view with the finding of little new information from forecasts. One reinterpretation is that while most analysts are usually uninformed, some analysts are informed in particular cases. A key case is forecasts that are associated with extreme return reactions, which could be driven by a subset of informed analysts. Findings show that 60% of the extreme return cases are crowded with key events. This agrees with more piggybacking when returns are more extreme. Factiva events are searched for samples of the other 40% of the extreme return forecasts that have no key event. The pattern is again surprising, as nearly all of these forecasts follow significant public information. We see the tight temporal linkage between events and news and forecast revisions most likely exemplifies not analyst prescience but analyst piggybacking.

Another vital case is forecasts from superior analysts; the bold, the first-movers, the accurate, and those employed by reputable brokerage firms. This case is expanded to include forecasts for widely followed stocks, which could be more informative because their stock prices may adjust most quickly to new information.[3] Gleason and Lee (2003) and Clement and Tse (2005) find bold forecasts are more informed; Hong and Kubik (2003) find accurate forecasts are better informed; Cooper, et al. (2001) report first mover forecasts are more informative; and Stickel (1992) finds greater price impacts for reputable

[3] See Brennan and Subrahmanyam (1995), Hong, et al. (2000), Gleason and Lee (2003).

brokerage forecasts. The mean announcement reactions for superior forecast traits do not contain high price responses that are different from the reactions for the other revisions. These forecast types do not seem to provide new information. However, further new findings show these traits occur at times when the pre-announcement return is larger in absolute value, which will make the forecasts appear more informed when using multi-day returns. Additional results show that analysts can follow events swiftly with their forecast revisions, confirming their responsiveness, as implied by piggybacking. These findings have implications for a number of studies on analysts' traits, especially those examining the traits in conjunction with the cross-sectional return reactions around forecast revisions.

The second reinterpretation is that the weakly informed announcements are not informative because investors have already anticipated most of analysts' information, which should thus be evident in the pre-return, R(pre), not R(ann). Forecasts could be leaked or tipped to clients before they are announced, or FC time stamps could be late. However, we know of no evidence of the kind of widespread leaking presumed in this reinterpretation. Note anticipation also assumes savvy investors trade promptly before the announcement based on the leaked information. R(pre) is examined for evidence of anticipation evidence. While R(pre) agrees with anticipation on average, it is also inundated with events and news. Many tests of the R(pre) cross-section fail to provide consistent evidence that agrees with analysts' new information. At the least, these new findings suggest that, on average, analysts are not informative to the general public, a substantial departure from the information agent view.

In the third and last reinterpretation analysts' forecasts convey new information on time, but investors react slowly to integrate the information into stock price. Pervasive delay is plausibly a secondary concern to the extent that brokerage clients and vigilant arbitrageurs are savvy enough to trade promptly on any new information. Although the post-return, R(post), average drifts modestly with the revisions, hardly half of the return signs agree with the revision direction. Nor is R(post) different for any superior forecast type. Average R(post) is similar for revisions in the daytime and nighttime, yet investors have far more time to react to nighttime forecast announcements. These findings disagree with much analyst information in the post-return and thus with the delay notion. Further cross-section tests show revisions are correlated with familiar predictors of return drift (e.g., post-earnings or -guidance announcement drift; PEAD and PGAD). This evidence of co-movement between forecasts and drift predictors agrees with analysts also combining return prediction into their forecasts, which can give the appearance of delayed reaction to new forecast information, even when analysts are uninformed. When the influence of return predictors is controlled, the correlation between post-returns and forecasts weakens sizably, and there is no strong evidence that post forecast drift agrees with the forecasts, contrary to the delay notion.

We underscore two clarifications about our interpretations. First, we do not interpret our results as implying that analysts do not add value. The large annual research expenditures by many competitive brokerage firms provide convincing evidence of analysts' value added. Further evidence appears when analysts initiate coverage, which agrees with analysts raising investor awareness about followed stocks.[4] Second, our findings are not enough to support the broad conclusion that analysts never supply new information. The findings do not rule out the innovative interpretation that analysts convey new information not in their report but through selective leaks to some market participants who reap most of the rents from the research. They could hold back such information from typical participants such as retail investors who use the publicly released forecast revisions. A central contribution of this study is to show that forecast announcements are not a regular source for useful new information for public customers. This has implications for a wide range of studies on the value of analysts' outputs, including those that analyze cross-sectional variation in market reactions to analysts forecast revisions.

2. Public news and intraday stock return behavior around the forecasts

The data employed in the empirical tests are drawn from the population of 6,360,415 quarterly and annual earnings forecasts found on the First Call Historical Database for 1997 through 2007 (Table 1). Daily TAQ (Trade and Quote) file stock returns posted every 10-minutes, based on the FC forecast announcement time, are examined. This method follows Altınkılıç and Hansen (2009) who use narrow return windows. Because the FC population is too large for intraday analyses, a random sample of 250,000 revisions is drawn using SAS Procedure SURVEYSELECT, which draws a corresponding sample from the population while preserving the population's analyst following frequencies. This yields the TAQ sample of 197,052 revisions. As Rows 8–12 of Table 1 show, the mean annual following proportions are similar for each level in all three samples. Most forecasts have a prior forecast and over 97% have a prior earnings announcement by the followed firm.

The sample spans three reform eras. In Period 1, before Reg FD (January 1997 through October 2000), management could selectively disclose information to analysts and institutional investors. Studies find some analyst information could have come from firm managers before Reg FD took effect (see Bailey, et al., 2003; Cohen, et al. 2009). Period 3 follows the Global Research Analysts Settlement (GRAS) from December 2002 through 2007. Period 2 is between Reg FD and GRAS. The population and sample proportions are similar within each era.

Batch forecasts are not real time and aggregate forecasts of varying frequency (e.g., weekly) or FC *systime*, and are thus not used. Womack (1996) and Green (2006) find in earlier sample years, report

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[4] See Bhushan (1989), Hayes (1998), Altınkılıç and Hansen (2000), Irvine, et al. (2007).

delay is rare. In early communications, FC (the original company) notes it directly transmits its research to all institutional clients and investors learn of the reports promptly. Authors also point out that time stamps are often timely. Brav and Lehavy (footnote 3, 2003) detail FC coding of analyst reports in real time (see also Green, 2006; Christophe, et al. 2009). Sample revision representations are similar to those in the population. It is thus unlikely that the findings are influenced by the sampling method.

2.1 Returns around the forecast announcements and forecast volume

TAQ trade-by-trade prices are first converted into a series of 10-minute interval prices. The opening (closing) price P_{open} (P_{close}) is the price before 9:35 (after 15:55) that is nearest to the 9:30 opening (16:00 closing) time or the mean price in the first (last) second of trading. Remaining interval prices are formed at times ending in 0 ($P_{9:40}$, …, $P_{15:40}$, $P_{15:50}$) using the nearest TAQ price within ±5 minutes of the interval time. For brevity nighttimes, weekends, and holidays (hence non-trading hours), are collectively called nights. Since intraday prices do not exists during nights, each night is treated as a 10-minute interval with prices formed from its P_{close} and P_{open}. For each forecast, 10-minute interval returns are identified around the announcement interval which starts with price p_0 and ends with price p_1. The announcement window has four intervals and the announcement period return is R(ann) = $p_3/p_{-1} - 1$. Both the pre-return, R(pre) = p_{-1}/p_{-81} - 1, and the post-return, R(post) = $p_{83}/p_3 - 1$, have 80 intervals and thus span two calendar days (Figure 1, Panel A). Also considered at times is the all-in return, R(all) = $p_{83}/p_{-81} - 1$.

When R(ann) contains a night return interval it is exposed to 18 hours of real time (and more for weekends and holidays), from 16:00 to 9:30 plus the ten minutes before and 20 minutes after announcement. The exposure is information enriched since most earnings reports are released in the night. There may be some selection if the long information exposure attracts piggybacking analysts, causing more nighttime forecasts. We call these phenomena nighttime bias. Indicative of the bias nighttime forecasts are more plentiful and have more big news. Forecasts are therefore separated into nighttime forecasts, those with a night interval in the announcement window, and daytime forecasts whose entire announcement window is in trading hours (Figure 1, Panel B). To the extent nighttime news is partially absorbed in opening prices it also impacts morning returns, an impact we call morning bias. Another notable pattern is that while each forecast has two nights in the pre- and the post-period, for daytime forecasts the nights are dispersed over the 80 pre- and post-period intervals. For nighttime forecasts, the nights cluster around 40 and 80 intervals from the announcement window (hence, at one and two days).

On a typical trading day hourly forecast volume rises significantly after 6:00 AM and the prior low volume since midnight, peaking around the market opening. Just over 40% of the forecasts are from 6:00 AM and 11:00 AM (Figure 1, Panel C). Early morning forecasts are a significant majority (63%) of all forecasts and could contain morning bias. Weekend and holiday nighttime forecast volume is very light, less than 1% of all forecasts (Figure 1, Panel D).

2.2 Evidence of events and news ahead of the forecast announcement

Consider next the presence of recent events and news that could be allied with forecast announcements. Enough events prior to the forecasts is distinct evidence that agrees with piggybacking that is not entangled with concerns with causality. This is because the forecasts do not cause the events and news. The findings could also reveal how promptly analysts respond to events and news.

Consider first the key events. For daytime revisions 44% of the up and 45% of the down forecasts follow a key event in days -3 to 0. Key events are more common before nighttime revisions, agreeing with nighttime bias (Table 2, Panel A).

More evidence of fresh events and news is provided by Factiva for the Table 2 forecasts that do not follow a key event. Four random samples are drawn from the revisions with no key event: 150 up and 150 down daytime revisions, and 150 up 150 down nighttime revisions. A Factiva event is present for 83% to 89% of the revisions in these samples (Table 2, Panel B). Most common is earnings news, then new business, then other news. This agrees with analysts quickly issuing reports that recast the news.

Piggybacking suggests events and news could be especially common when forecasts ally with more extreme stock returns. While mean returns for these revisions could reflect analysts' new information, piggybacking suggests more analysts will be attracted to revise their forecast after key events with more extreme returns. Key event frequency for forecasts associated with the most extreme returns is examined for 1,500 up and 1,500 down daytime revisions, and similarly for nighttime revisions. For daytime forecasts with extreme pre-returns, a key event is present for 61% of the up revisions and 56% of the down revisions (Table 2 Panel C). For the nighttime extreme return revisions, a key event is present for a striking 93% of the up and 90% of the down revisions.

Further evidence of the event piggybacking can be identified from a search for Factiva events for the extreme return forecasts that do not have a key event. Four samples of 150 forecasts are drawn from each of the above four (N = 1,500) extreme return samples that do not have a event. An overwhelming majority (97% on average) of revisions in each sample has at least one significant Factiva event (Table 2, Panel D). Earnings news is most common, then new business, then other news.

A fifth check for close links between forecasts and events and news is performed for 100 of the most widely followed stocks and 100 of the most recommended stocks, for those forecasts that have no key event over relative days -2 to 0. The search reveals a very high rate of Factiva events, as these revisions follow earnings-related news reported in the media 90% of the time (Table 2, Panel E).

2.3 Stock return behavior

Given the evidence of ample events and news in the pre-period, consider the key issue of assessing analysts' new information reflected in stock prices around the forecasts. Figure 2 reports mean cumulative returns over the four trading days around the revision announcements.[5] For the figure, revisions are sorted into three groups: Up revisions exceed +5%, down revisions are below -5%, and the remainder have absolute change under +5%, relative to the previous brokerage forecast. Up revisions follow positive pre-returns and down revisions follow negative pre-returns, on average. These patterns agree with revisions tracking pre-period stock returns and the events that drive them. It also agrees with anticipation of analysts' information. Distinct jumps in mean returns in the direction of the respective forecasts are evident, and are driven by clustered nighttime jumps for the nighttime revisions. A second and even larger jump is evident the night before the announcement night. Recall each nighttime announcement window contains one night. Correspondingly, in the surrounding pre- and post-periods are clustered around the other four nights. Nighttime return jumps and particularly the prior night jump agree with nighttime bias as analyst forecasts' track night returns and news.

For all revisions, the up revision mean announcement return of +26 bps is statistically and economically significantly positive, as are the mean pre- and post-returns (Table 3). The down revision mean announcement return (-28 bps) and mean pre- and post-returns are significantly negative. The all-in returns show that when informativeness is measured using a surrounding multi-day return, analyst revisions appear to release economically large information, averaging over 1.5%.

While the announcement period returns agree with modest information release, on average, the averages are driven largely by nighttime revision returns. The respective daytime mean announcement reactions are an economically small +4 bps and -4 bps, or a half penny on a $10 dollar stock, and for nighttime are larger: ±50 bps, or 6¢ on a $10 dollar stock (Table 3). The returns are not driven by a few particular months because they are confirmed in the 130 within-month mean returns. The results are similar for the firm-days sample, in which similar same day revisions are counted as one observation. They are alike across quarterly and yearly earnings forecast horizons (Table 3). In all cases the nighttime revision announcement period return is relatively large. Moreover, the percent of forecasts associated with announcement returns greater than 1% (0.5%) in absolute value is 45.7% (66.0%) in the nighttime and 15.0% (38.4%) in the daytime (not reported). These results show the nighttime forecast is associated

[5] For revision i the interval t cumulative return is $CR_{it} = p_{it}/p_{i\text{-}81}$. Risk-adjusted returns are not examined because the return intervals are short, so the impacts of expected returns are small and can be ignored (see, Fama, 1998). In unreported results we document our findings are robust to using market adjusted returns.

with bigger news, on average. Moreover, 62% of the forecasts are in the nighttime (Table 1), which could partly reflect a selection effect, in which bigger night news attracts piggybacking analysts.

The return findings include other evidence of piggybacking. When the announcement window is extended back an hour, R(ann -1 hr) = p_3/p_{-7} -1, piggybacking predicts the longer return expands in the direction of the forecast due to other events and news. The daytime back-extended mean returns are a significant 23 bps larger for up revisions and 25 bps smaller for down revisions (Table 4, Panel A). However, after deleting the early morning revisions the returns shrink to +6 bps and -4 bps, respectively. This agrees with revisions tightly following other news, especially near the start of the day after bigger news nights. Anticipation of analysts' information could also explain the larger back-extended returns. The nighttime announcement return also could be driven by nighttime bias. In agreement, weekend all-in returns and announcement returns are more modest than those on weeknights (Table 4, Panel B).

Further piggybacking evidence may be found in the pre-period returns. Key event revisions drive much of the daytime pre-returns as their all-in mean returns, +2.03% and – 3.34%, are over 50% larger than in the no key event case; 1.29% and -0.45%, respectively. Also, nighttime pre-returns expand significantly when there is a key event, as do announcement returns, reflecting the longer announcement window exposure to real time. The all-in mean returns for the respective no key event forecasts are significantly smaller in absolute value, and their announcement returns are small and inconsistent, +18 bps and +3 bps. Overall, the presence of a key event accounts for much of the mean returns. We again see a close relationship between events in the pre-period and the forecasts, and how most of the multi-day return before the forecast is linked to these other events.

Panels C and D of Table 4 report return behavior for the no key event sample forecasts in Table 2 Panel B, when a Factiva event is present, and when there is no Factiva event. Note that a Factiva event is present for over 80% of these non-key event forecasts. R(pre) typically reacts to Factiva events in the direction of the forecast, which also agrees with piggybacking on the event news. R(ann) is generally small and insignificant in the daytime, while for nighttime it is significantly different from zero in the direction of the revision given Factiva events. This pattern of relatively greater agreement between forecasts and R(ann) in the night than in the day also agrees with nighttime bias. For these samples there is little reaction to forecasts when there is no key event or media news.

A concern is that the announcement window is too short. This could censor price reactions to new information, biasing average R(ann) toward zero. Yet, studies report investors react within 15 minutes and often faster to real time news releases, like announcements of dividends, earnings, equity offerings, and stock recommendations.[6] The likelihood of speedy investor reaction is compelling in the case of revisions because savvy investors know analysts' reports occur repeatedly, allowing learning to trade quickly and profit from new information. Still, to check for shortness bias the daytime announcement interval is extended forward one full hour (the post-return interval is correspondingly shortened); R(ann +1 hr) = p_7/p_{-1} -1. If significant shortness bias is present, the extended return will increase significantly, revealing announcement reaction censoring. However, the mean extended announcement return grows by at most +3 bps for the up revisions and does not change for the down revisions (Table 4).

3. Special, informed analysts

Consider next possible reinterpretations that could reconcile the findings with the information agent view. The small mean forecast announcement reaction can be reconciled with analysts as information agents if only a subset of forecasts are informed, which are not common enough to have measurable impact on the average announcement return. Four types of influential forecasts are examined.

HYPOTHESIS 1. *Special cases of forecasts are more informed than others.*

One possible informed forecast type is those issued by analysts with superior traits that enhance their skill for finding new information. Four superior traits are examined. First are bold forecasts, which are intended to reflect analysts' greater confidence in their own abilities. A bold forecast is defined as above both the analyst's prior forecast and the prevailing consensus forecast for the firm, or below the two. Authors conclude that bold forecasts convey more information than other forecasts (Gleason and Lee, 2003; Clement and Tse, 2005). To distinguish bolder forecasts the focus is on the relatively high and low bold. Note, also, that because bold forecasts are often mechanically tied with large pre-returns, by construction they can also indicate piggybacking. For example, analysts' forecasts piggyback on striking news, such as a large positive earnings surprise, aiding forecasts to move above the consensus forecast and their prior forecast. Thus, evidence of boldness may not faithfully confirm or reject the information hypothesis. High and low bold forecasts show no significant announcement impacts (Table 5).

Superior information discovery has also been associated with the first forecast that is issued with others at the same proximate time in the semiconductor and restaurant industries (Cooper, et al., 2001). However, this result is not expected by piggybacking. When there is larger price reaction to other events and news, each analyst is more inclined to piggyback on the news and the events, updating her forecast. Thus, piggybacking suggests greater price reactions will be associated with multiple revisions, and weaker news with one revision. First mover announcements also contain little information (Table 5).

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[6] See Busse and Green (2002), Chordia, et al. (2008).

Studies report the best-informed analysts have greater forecast accuracy, based on association between accuracy and greater multi-day stock returns around forecasts.[7] However, this finding also can be explained by piggybacking. To improve forecast accuracy rational analysts are inclined to update outstanding forecasts to reflect changes in expected earnings and reduce possible forecast errors, all else the same. Thus, entirely independent of analysts' information and forecasting abilities, there is a natural association between piggybacking and accuracy. The accuracy test focuses on the most accurate forecasts; those in the top accuracy quartile. Accuracy appears to have little announcement return impact (Table 5).

Another possible superior forecast is one by analysts at reputable brokerage firms. Authors report that reputable brokerage firms provide more accurate forecasts (Stickel, 1992; Clement, 1999; Malloy, 2005; and Cowen, et al., 2006). Reputable brokerages are defined as the top 20 brokerages ranked by forecasting frequency. Reputable brokerage forecast announcements are not found to be more informative than those by other brokerages (Table5).

In a third case, authors report superior information is associated with forecasts for widely followed firms, as stock prices adjust more quickly to new information for these firms. In the information agent view, this suggests more new information is reflected in forecast announcement reactions for widely held firms. Contrary to the information agent view, the data show that wide following is not associated with a greater average announcement return.

A fourth case could be forecasts by analysts who have privileged access to inside information. However, it is not possible to directly observe when the analyst has access to private information. Arguably returns before and after Reg FD could be compared, since Reg FD prohibits management from selectively providing analysts with inside information. However, such a test has low statistical power since it does not identify those analysts who have, and those who do not have, inside information.

Note also if superior revisions speed up investor reaction, then reduced underreaction to their news should result in larger announcement returns. Yet, no significant evidence shows superior revision announcements release more information, in daytime or nighttime, whether up or down (Table 5).

All else the same, larger return reactions should be evident among forecasts that provide new information. This suggests that larger reactions could reflect new information (e.g., Loh and Stulz, 2011). However, earlier results show that 60% of the revisions associated with extreme returns are also linked with key events. Factiva searches also show that significant events are present for almost all of the other 40% of the forecasts. Thus, extreme returns do not faithfully identify whether the forecast is informed or instead associated with a powerful event.

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[7] See Stickel (1992), Clement (1999), Mikhail, et al. (1999), Cooper, et al. (2001), Gleason and Lee (2003), Hong and Kubik (2003), Clement and Tse (2005), Jackson (2005).

4. Anticipation of analysts' information

Another plausible explanation for little new information in the average R(ann) is that investors learn of analysts' information before the forecast is announced. For example, there could be anticipation. Analysts might leak or tip their information to clients who quickly trade on it before the forecast is announced. Or, the time stamps do not correspond to the time the analyst's clients were told of the revision, so the announcement window is a little late. Early learning may occur if report announcement times are innately sluggish, so that the new information has time to unfold publicly before the formal announcement is made. In these cases, the lack of a forecast announcement price reaction is not due to lack of analysts' new information, as their information is already accounted for in the pre-period return.

HYPOTHESIS 2. *Analysts' information is anticipated in the pre-returns.*

Note that the tests of the anticipation reinterpretation require the strong assumption that an overwhelming majority of the forecasts are anticipated. Otherwise, the information released by the remaining unanticipated forecasts would be evident in the average announcement returns—a result that is contradicted by the announcement return evidence. It is important to note that the tests do not require analysts' information to be released solely in R(ann) or in R(pre). They allow detecting the information release and its incorporation into stock price *sometime* over the full two-day pre-period and the announcement period. Thus, the tests do not depend on the time stamp accuracy. To be clear, tests are also reported for information in R(sum) = R(pre) + R(ann), which is independent of the time stamp concern or when leaks could occur. Note further that the average R(pre) is not a statistically reliable summary of the returns that can be used to test the information hypothesis. As shown above, analysts frequently piggyback promptly on pre-period events and news that impact their forecasts, and thus the average R(pre) also agrees with piggybacking. To avoid this measurement error issue, the tests examine new information hypotheses using the R(pre) cross-section.

Pre-announcement release of analyst information could arise if the analyst leaks or tips the information to clients before announcing the forecast. Here, results from testing several predictions of the anticipation hypotheses are reported. The tests focus on the release of new information in cross-section regressions of R(pre). They include four control variables: firm size (SIZE) (outstanding shares times stock price six days before the revision); cumulative return performance over the 120 days before the pre-period (MOMENTUM)[8]; a dummy variable equal to 1 if there is a pre-period key-event (KEYEVENT); and in the initial estimation, a dummy variable equal to 1 for the pre Reg FD era (REGFD). To address the possibility that unobserved factors related to forecasting difficulties and specializations among

[8] See Bernard and Thomas (1989, 1990), Jegadeesh and Titman (1993), Cooper, et al. (2001), Vega (2006)

analysts could exist over the sample years and across followed firm industries, firm industry fixed effects are used where industries are defined based on the Fama and French (1997) industry classification. To address possible unobserved factors associated with the brokerage firm research abilities, expertise, specializations, and performance differences, brokerage firm fixed effects are included in the regressions.

The hypotheses focus on the implication that if analysts provide new information that is anticipated, then the R(pre) cross-section should reveal evidence of the information. R(pre) should be larger before Reg FD when selective disclosure allowed inside information benefits. While some analysts received inside information before Reg FD, no consistent evidence is found in larger samples of more information in the average R(pre) before Reg FD than after (Table 2). This result is confirmed by the insignificant REGFD impact in the R(pre) cross-section, in each of the four samples (Table 6, Column 1). While some analysts benefited from inside information before Reg FD, this new information source does not appear to be widespread. We note further the caveat that the Reg FD dichotomy is likely a low power test because the indicator variable does not identify analysts who have inside information.

If superior analysts excel at finding new information, the anticipation story predicts that R(pre) is more informative for analysts who display a superior trait. The R(pre) pattern for bold forecasts agrees with anticipation (Table 5 and Table 6, Column 2). However, the boldness evidence does not faithfully confirm or reject the anticipation reinterpretation because a bold forecast could also be a piggybacking forecast by construction. High accuracy for up revisions associates with more positive average R(pre), and for down revisions with a less negative average R(pre), in daytime and nighttime forecasts (Table 5). These inconsistent findings are replicated in the R(pre) multivariate cross-sections (Table 6, Column 3). First movers have economically significant mean absolute average R(pre), but the average is even greater for late movers, for both daytime and nighttime forecasts (Table 5). This new finding is supported in the cross-section regressions (Table 6, Column 4), and contradicts the proposition that first movers' information is more widely anticipated among investors. Absolute pre-returns are greater for less reputable forecasts daytime and nighttime (Table 5). Results from the cross-section regressions also fail to support a significant link between reputation and the anticipation of more new information (Table 6, Column 5). These results agree with the view that less reputable brokerage analysts tend to piggyback more on greater price impacts.

If analysts' new information is anticipated, maybe the information leaks out before the forecast announcement, then more information is likely present in R(pre) for widely followed stocks, all else the same. In the daytime up revisions, R(pre) is smaller for the widely followed firms. For down revisions, R(pre) is less negative for widely followed firms (Table 5). These findings are confirmed in the R(pre) cross-section regressions in the four samples (Table 6, Column 6). The results disagree with anticipation.

The superior analyst traits reported in the literature, therefore, do not have the consistently significant impact on R(pre) that one might expect under the anticipation reinterpretation. Also, they are associated with times when the average pre-announcement return is great (e.g., the bold and accurate forecasts). Thus, when the announcement return is measured using a long window that includes returns over the days just before the announcement, the great average R(pre) could account for why forecasts linked with a particular trait reported in the literature appear to produce high price responses using multi-day returns, even though they actually indicate piggybacking.

The time stamp could be an imprecise indicator of the actual information release, and in turn could cause measurement error in the cross-section because some information is released in the announcement window and some in the pre-period. To address this concern, the regressions are also performed using the dependent variable R(sum). The findings for the corresponding four superior traits and for wide following are not qualitatively different (Table 6, Columns 7 through 11). These results show that the exact relative location of the time stamp is not a major concern.

The results from estimating models that seek to identify analyst new information in the R(pre) cross-section, after controlling for the unobserved fixed factors, do not provide consistent evidence to support the view that analysts regularly supply new information in their forecast reports.

A variation of the anticipation reinterpretation is that anticipation in the pre-period is only partial. That is, if analysts release new information that is not fully anticipated, then stocks with less anticipated releases should be more prevalent among stocks with small pre-returns (e.g., -1% < R(pre) < +1%). Thus, the announcement of these revisions should be more informative, on average. Yet, average R(ann) after small R(pre) is not significantly different from the typical reaction, in any of the four samples (Table 7). These results are confirmed in the cross-section regressions (Table 6, Column 12).

Contrarian revisions, in which investors evidently anticipated wrong information, should elicit a greater announcement reaction, reflecting the correction plus the right information. Still, the revision mean R(ann) for contrarian and trending revisions are similarly below 5 bps in absolute value, in daytime and nighttime, up or down (Table 7). This evidence is confirmed in the regressions (Table 6, Column 14).

Another form of anticipation could arise if analysts tend to issue forecasts sluggishly in response to an event or a significant return. For example, practical frictions might stall the release time of piggybacking reports even though the reports are basically completed soon after the triggering other news or events. In such situations, the bulk of the pre-revision price responses occur too close to the revision time stamp to be attributed to piggybacking. If piggybacking from start to finish does not happen within 24 hours, then observed large absolute pre-returns just before the revisions are less likely to have resulted from piggybacked events and news, and as such could imply that anticipation of analysts' information is driving the pre-returns. Specific tests are reported that should reveal sluggishness that focus on the speed of forecast response to earnings reports.

Specifically, the cumulative frequency of forecast timing is examined over the four trading days centered on the 10-minute earnings announcement interval, or in its absence the 10 minute guidance interval (two 2-day periods of 80 10-minute intervals), identified by the FC earnings announcement time stamp. If forecasts tend to be sluggish and respond after a lengthy delay, the cumulative frequency should be low and flat over the day after the earnings announcement and into the following day. If forecasts are not sluggish and respond quickly to the earnings reports, the cumulative forecast announcement frequency should rise sharply the day after the announcement.

Figure 4 reports the cumulative forecast report frequency, before and after Reg FD, after reports of earnings guidance or other earnings on relative days -2 or -1 are removed from the sample. For the daytime earnings reports, before Reg FD, 22.5% of the forecasts were announced before the earnings report. This percentage climbs quickly to 81.7% on the earnings announcement day, leaving 18.3% on the next day. Thus, over 80% of the forecasts are issued in the first 24 hours after the earnings announcement. After Reg FD, 83.6% of all forecasts are issued in the first 24 hours, and only 5.1% are issued before the earnings report. Thus, a very large fraction of the forecasts is issued within 24 hours after the news--and the majority of those 24 hours are nighttime. This evidence shows that days do not pass between the occurrence of significant events and analysts' announcement of their reports.

Conclusions are qualitatively similar for response time for nighttime earnings announcements. There is a huge fraction of forecasts at the open after an earnings report, 93.1% before Reg FD and 95.6% after.

Note also that a greater fraction of forecasts was issued before the earnings announcement prior to Reg FD than after, although the fractions are small. This agrees with Ivkovic and Jegadeesh (2004) and Cohen, et al. (2009) who find that some analysts benefited from private information before Reg FD.

5. Delayed investor reaction

The appearance of limited or insufficient announcement information could instead be the result of persistent widespread delayed reaction to timely analyst reports, a scenario that aligns with analysts as providers of new information. Yet, reasons for delay could also be a secondary concern to the extent that brokerage clients are likely to include savvy, repeat investors who are poised to jump at the chance to profit from new information. Thus, delayed reactions require the caveat that most brokerage clients are not savvy, despite the opportunities for their benefit from analysts' new information, month after month.[9]

HYPOTHESIS 3. *Investor reaction is delayed.*

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[9] In a behavioral view investors may need time to mull over the report, adjust beliefs, and get more information. See Baker and Wurgler (2002) and the discussion therein

5.1. Testing special cases

If key events amplify returns and there is underreaction, post-returns should be bigger when key events precede the forecast announcement. However, this is not the case for up or down revisions, in daytime or nighttime. Because the nighttime announcement window allows more mulling time than the daytime window, the nighttime return reaction on average should be larger—but it is not, either for up or down forecasts, when nighttimes with key events are removed (Table 4). Daytime and nighttime post-returns also do not differ significantly for up revisions or down revisions, even after controlling for key events and nighttime bias (Table 4).

Perhaps investors are split—some anticipate analysts' information and others underreact to other analysts' information—thus creating little announcement reaction. Because little information is anticipated for stocks with low pre-returns, in the split investor notion there should be more underreaction to forecast announcements for low pre-return stocks and, under the delay scenario, more evidence of analysts' information in the post-returns. However, the post-returns for these revisions are not more informed in the daytime or in the nighttime, whether up or down (Table 7).

Underreaction could resolve the puzzling lack of reaction to contrarian revisions, if revisions are informative. Although investors could wrongly anticipate contrarian revisions, their correction of the wrong anticipation might not show up at the announcement due to delay. This underreaction prediction is not supported by the up and down revisions, in the daytime or nighttime (Table 7).

5.2. Cross-section testing of R(post)

R(post) appears to drift with the forecasts (Table 2). This could reflect analysts' incremental information. However, it could also reflect piggybacking on post-return predictors. For example, drift events are common over the year before the forecasts; five earnings reports, one guidance report, 122 new forecasts, and 13 recommendations, on average. They are common the prior quarter. For the sample, 95% of the forecasts follow an earnings reports, and thus PEAD, on average.[10]

For comparison, consider first the simple regression of the period *t+1* post-return on the period *t* forecast is reported, $R(post)_{j,t+1} = \gamma_0 + \gamma_1 \; REVISION_{j,t} + \varepsilon_{j,t+1}$, where firm *j's* revision is deflated by the stock price five days before the forecast announcement, $REVISION_{j,t} = \left(f_{i,j,t} - f_{i,j,t\text{-}1}\right)/\mathbf{p}_{j,t\text{-}5}$. The simple model ignores many known return predictors. To the extent analysts piggyback on some predictors, the revision could act like a proxy return predictor, having a positive impact on R(post), appearing informed.

[10] See Givoly and Lakonishok (1979), Elton, et al. (1986), Bernard and Thomas (1989, 1990), Lys and Sohn (1990), Bhushan (1994), Womack (1996), Berk, et al. (1999), Trueman (2001), Jegadeesh, et al., (2004), Barber and Odean (2008).

The revision is decomposed into its expected and residual parts. The expected revision positively impacts R(post) if analysts piggyback forecasts on the many predictors. Vega (2006) and Altınkılıç and Hansen (2009) find trading predicts drift. Abnormal pre-period turnover relative to mean turnover the prior 120 days (TURNOVER) is included. To control for scaling stock price inverse five days before the announcement is used, 1/PRICE. Bernard and Thomas (1990) show long-drift moves with standardized unexpected earning, SUE, which is quarterly earnings, $e_{j,t}$, less the prior eight quarterly mean earnings, $\mu_{j,t}$, relative to the earnings standard deviation, $\sigma_{j,t}$, $SUE_{j,t} = (e_{j,t} - \mu_{j,t})/\sigma_{j,t}$. Jegadeesh and Titman (1993), Cooper, et al. (2001), and Vega (2006) show return momentum predicts future returns. Returns over 120 days before the pre-period, R(-120 DAYS) are included. Bernard and Thomas (1989, 1990) and Vega (2006) show momentum is dampened by market value of equity, MVE (outstanding shares times stock price six days before). Consensus forecast change $CONCHANGE_{i,j,t} = (f_{con\,j,t} - f_{con\,j,t-1})/p_{j,-5}$, registers other analysts' expected earnings. Brennan and Subrahmanyam (1996) and Chordia, et al. (2009) show long-drift narrows with liquidity. Also used is Amihud's (2002) liquidity measure for 120 days before the pre-period (LIQUIDITY). The estimation follows Vega (2006) and Altınkılıç and Hansen (2009) and controls for the return direction. In model also includes the predicted revision, E[REVISION] and the residual revision, RES[REVISION]. The expected revision is based on public information before the forecast, and thus captures the part of analyst forecasts based on public news. Being public, the prediction has no incremental analyst information. If the prediction acts like other predictors it should raise positive (lower negative) post-returns. If forecasts provide analyst incremental information that information is likely captured in RES[REVISION]. If analysts are informed, the residual will also expand the post-return. However, such an effect also agrees with predictors omitted from the expected revision that cause spurious positive correlation between the residual and the post-return.

To identify the predicted revision and revision the estimated revision model includes six predictors and two revision determinants. UPDATE is the difference between the consensus forecast for firm *j* and analyst *i*'s most recent forecast;

$\text{Update}_{i,j,t} = (f_{con\,j,t} - f_{i,j,t-1})/p_{j,-5}$. Asquith, et al. (2005), Clement and Tse (2005), show analysts use other recent forecasts to form their forecasts. The second instrument is the earnings SURPRISE, firm *j*'s recent earnings less analyst *i*'s prior forecast,

$Surprise_{j,t} = (e_{j,t} - f_{i,j,t-1})/p_{j,-5}$. Lys and Sohn (1990) and Chan, et al. (1996) show revisions increase in the surprise.

To test for piggybacking the model includes R(pre) and R(pre) times a key event indicator. Under piggybacking the R(pre) should positively impact the revision and more so when there is a key event. The estimations use fixed effects for the forecast horizon, year, month and day of week, and firm industry using the Fama-French (1997) industry classifications. These coefficient estimates are not reported.

Consider first daytime forecasts (Table 8, Panel A). R(post) is positively impacted by the earnings surprise, momentum, the pre-return, the announcement return, and key events. The pre-return effect dampens with turnover and for larger firms. Nighttime revision estimates are qualitatively similar (Table 8, Panel A). Greater R(post) follows a greater earnings surprise, prior returns, turnover, and key events. Short-drift shows a tendency to reverse from the prior three-month return. These results generally agree with findings reported in the literature.

Consider next the incremental forecast information. For daytime forecasts, the predicted forecast positively impacts rising post-returns. A one-standard deviation prediction increase leads to a 16 bp fall (8.5 bp rise) in rising (falling) returns. However, the residual forecast is inconsistent, having no effect for upward returns and for downward return a significant effect. Moreover, these effects are economically small; one residual standard deviation raises post-return bps 4.9 for positive and 3.5 for negative. These effects are also noticeably littler than the predictions effects. For nighttime revisions the expected forecast also has significant prediction power. Also, the residual forecast is insignificant in all cases. This evidence weighs against the conclusion that forecasts produce significantly new incremental information.

The findings also contain evidence of piggybacking. First, they show analyst rely on public information that is known to predict the post-return. Predictor piggybacking could improve accuracy, but also can make the forecast appear to be informed. Second, the forecast responds significantly to news before the forecast announcement. The response is significantly amplified when the news is linked to a key event, for both the daytime forecasts and nighttime forecasts.

6. Conclusion

Intraday stock returns around the public announcement of analyst forecast revisions do not support forecasts in the information role. Many cross-section tests also show the two day returns before and after forecast announcements do not behave as expected by analysts' new information. Further new results show that a super majority of forecasts follow events and news, which are often not in machine form, and their impacts are not accounted for in studies that use long announcement return windows. In addition, new evidence shows that sorts across special forecast traits (e.g., bold, accurate, and those from reputable brokerages), do not have informative announcement period returns, but look informed when using mean multi-day returns. Findings from further cross-sections of these returns also do not support forecast information. This suggests that earlier evidence that associates the traits with new information is likely a reflection of their association with other Factiva events and news that impact multiday returns around the forecasts. Thus, the new evidence in this study showing that price reactions to forecasts are not particularly informative is the first significant evidence indicating that analysts are not vital information agents in the short run.

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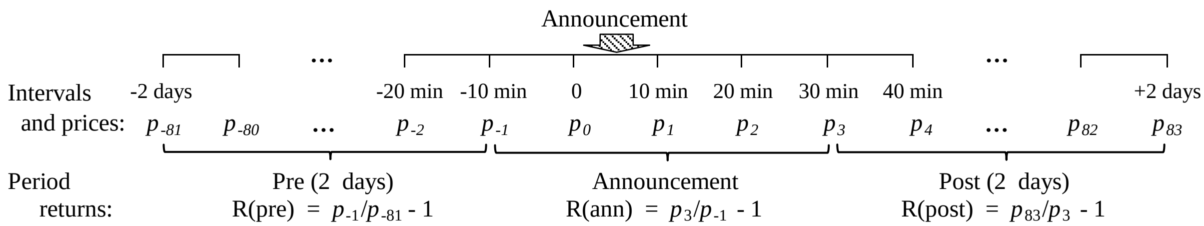
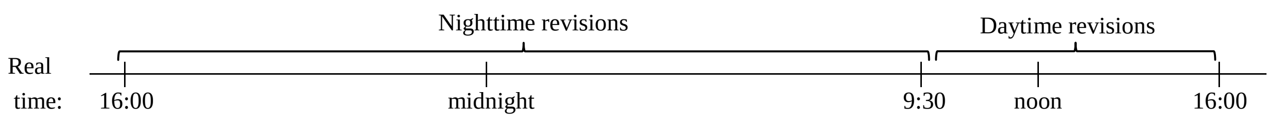
Figure 1. Forecast event time, period returns, and intraday frequencies

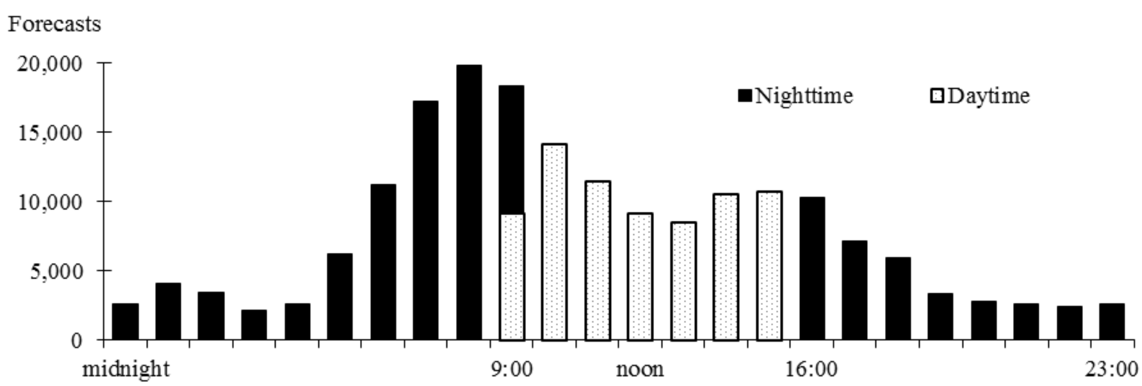
A. 10-minute interval prices and the period returns



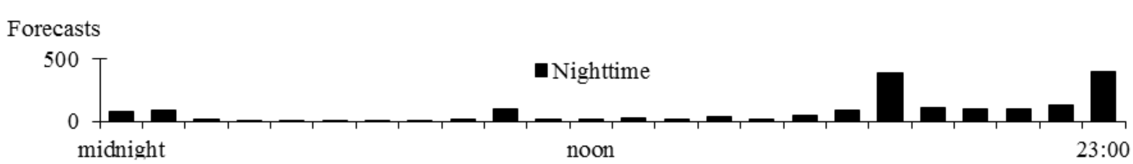
B. Nighttime revisions and daytime revisions



C. Hourly forecast frequency: Weekdays

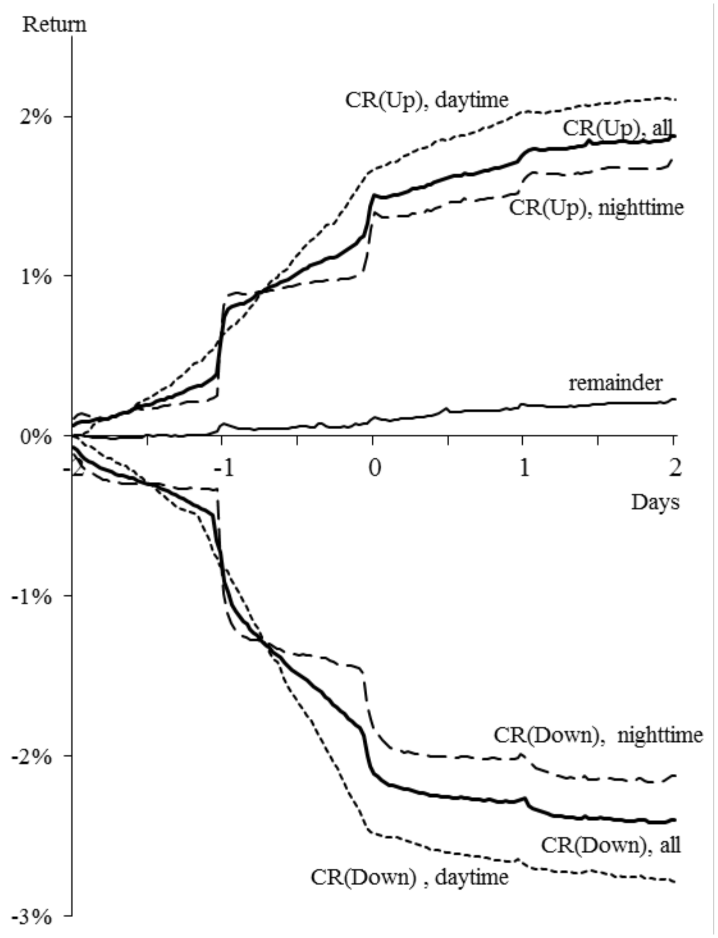


D. Hourly forecast frequency: Weekends and Holidays



Notes: Panel A reports relative forecast–event time ten-minute interval prices based on ten-minute intraday prices built from the Daily Trade and Quote (TAQ) trade-by-trade prices. Intraday prices are formed at each ten-minute interval ending in 0 ($P_{9:40}$,…, $P_{15:50}$) by selecting the nearest TAQ price within ±5 minutes of the interval time. The starting price in the ten-minute announcement interval is p_0. Relative prices p_{-81} to p_{-1} (p_1 to p_{83}) are start prices in the prior (subsequent) ten-minute intervals.

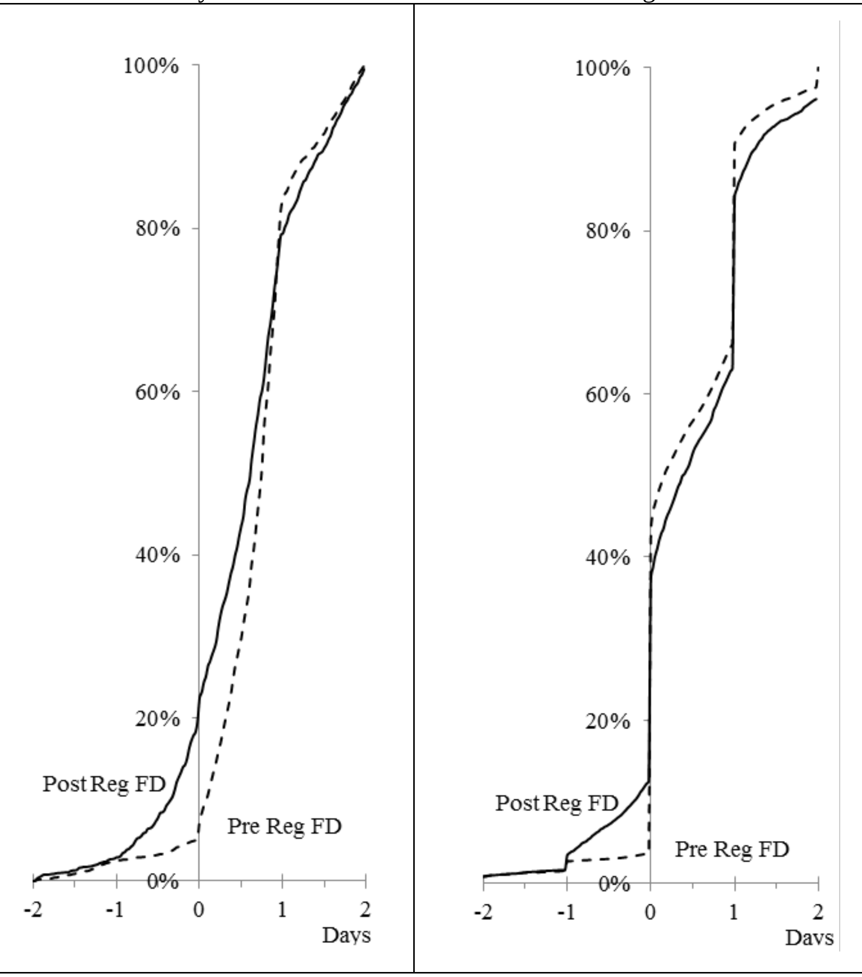
Figure 2 Mean cumulative ten-minute returns (CR) on the four trading days centered on the forecast revision announcement



Notes. Shown are returns around up, and down forecast revisions during daytime and nighttime, cumulated over ten-minute intervals from 80 before to 80 after (each two days) the interval 0 forecast announcement. A revision is Up (Down) if it is above (below) 5%, otherwise it is in the remainder.

Figure 3 Cumulative forecast frequencies around earnings and guidance event announcements

A. Daytime B. Nighttime



Notes. Shown are frequencies of daytime and nighttime forecasts, cumulated over 10-minute intervals from 80 before to 80 after (each two days) the interval 0 company announcement of earnings or guidance, pre- and post-Reg FD.

Table 1 Population and samples

Row	Item	FC population			Replicated sample			TAQ sample		
		All	Daytime	Nighttime	All	Daytime	Nighttime	All	Daytime	Nighttime
1	Forecasts	6,360,415	2,399,595	3,960,820	250,000	94,462	155,538	197,052	74,060	122,992
	(percent of all)	(100.0)	(37.7)	(62.3)	(100.0)	(37.8)	(62.4)	(100.0)	(37.6)	(62.4)
2	Q I earnings	16.0	16.0	17.3	16.4	16.3	17.4	17.2	16.3	17.4
3	Q II earnings	12.6	12.3	13.5	13.0	12.7	13.8	13.5	12.8	13.7
4	Q III earnings	10.3	10.1	10.7	10.6	10.3	10.9	10.9	10.4	11.2
5	Q IV earnings	8.0	7.9	8.1	8.3	8.2	8.5	8.5	8.3	8.6
6	FY 1 earnings	19.6	19.6	19.6	20.2	20.2	20.2	20.6	20.0	20.8
7	FY 2 earnings	14.9	14.9	14.9	15.2	15.4	15.1	14.9	15.1	14.6
8	0–25 yearly	7.6	8.8	6.9	7.5	8.9	6.6	7.7	9.1	6.9
9	25–50 yearly	8.6	9.7	8.0	8.6	9.7	7.9	8.8	9.9	7.8
10	50–100 yearly	15.3	16.5	14.6	15.5	16.6	14.9	15.2	16.6	14.9
11	100–200 yearly	23.2	23.1	23.2	23.2	23.1	23.2	23.2	23.1	23.2
12	Over 200 yearly	45.2	41.9	47.2	45.1	41.7	47.3	45.1	41.7	47.3
13	Prior forecast	73.9	74.1	73.8	74.6	74.7	76.6	75.2	75.2	76.5
14	Prior earnings	97.7	97.8	97.8	98.8	98.0	99.8	98.9	98.1	99.4
15	Before Reg FD	26.8	31.5	20.2	26.6	31.5	20.1	26.9	31.8	19.7
16	After GRAS	49.4	43.7	57.8	49.7	43.6	57.9	50.0	43.9	62.8
17	Top brokerage	54.7	41.8	61.6	54.5	41.7	61.8	54.6	41.5	62.5

Notes. Reported are selected statistics for the population of 6,360,415 analyst earnings forecasts found in the First Call Historical Database (FC) for 1997 through 2007, for a random sample of 250,000 from those forecasts, and for forecasts from the random sample found on Daily Trade and Quote (TAQ). Revisions are in the daytime if made on a trading day from 9:30 to 16:00 and in the nighttime otherwise. The replicated sample of 250,000 forecasts is obtained using the SAS Procedure SURVEYSELECT, which creates a sequence of random numbers without repetitions and draws the corresponding sample of observations from the population. Daytime forecasts are made on a trading day between 9:30 and 16:00. All row entries are expressed as a percent of the Row 1 number of forecasts. Row 1 is number of forecasts followed in parentheses by the fraction of the corresponding Row 1 number of all forecasts; Rows 2 through 7 are the fractions of forecasts of earnings at the end of one of the next four quarters (Q I to Q IV) and next two fiscal year-ends (FY 1 and FY 2); and Rows 8–12 report the mean annual fraction of forecasts by levels of analyst following. Rows 13 and 14 are the fraction of forecasts with a prior forecast by the same brokerage house and a prior earnings report, over the prior two years, respectively; Rows 15 and 16 are the fraction of forecasts made prior to the October 2000 enactment of Regulation Fair Disclosure (Reg FD) and after the December 2002 news of GRAS, respectively; and Row 17 is the fraction of forecasts by analysts employed at one of the top 20 brokerages, those with the most revisions in the sample period.

Table 2 Frequency (%) of key events and Factiva events for different revision samples

	Daytime				Nighttime			
Event	Revision up		Revision down		Revision up		Revision down	
Panel A: Key events overall								
Sample size	32,564	(100%)	31,496	(100%)	50,664	(100%)	62,859	(100%)
Key event	14,275	(44%)	18,509	(45%)	25,761	(51%)	29,779	(48%)
No key event	18,289	(56%)	22,987	(55%)	24,903	(49%)	33,080	(52%)
Panel B: Factiva events in random N = 150 samples from corresponding Panel A columns, that had no key event								
Sample size	150	(100%)	150	(100%)	150	(100%)	150	(100%)
Earnings & guidance	65	(43%)	76	(51%)	77	(51%)	65	(43%)
Financing	16	(11%)	15	(10%)	13	(9%)	14	(9%)
New business	50	(33%)	34	(23%)	48	(32%)	34	(23%)
Other news	27	(18%)	29	(19%)	39	(26%)	32	(21%)
Total with events	134	(89%)	126	(84%)	124	(86%)	132	(91%)
Panel C: Key events for N = 1,500 forecasts with the most extreme pre-returns								
Sample size	1,500	(100%)	1,500	(100%)	1,500	(100%)	1,500	(100%)
Earnings report	855	(57%)	605	(40%)	854	(57%)	1,176	(78%)
Guidance report	39	(3%)	137	(9%)	108	(7%)	28	(2%)
Total with key event	863	(61%)	799	(56%)	1,331	(89%)	1,343	(90%)
Panel D: Factiva events in random N = 150 samples from corresponding Panel C columns, that had no key event								
Sample size	150	(100%)	150	(100%)	150	(100%)	150	(100%)
Earnings & guidance	47	(32%)	67	(44%)	53	(35%)	84	(56%)
Financing	6	(4%)	4	(3%)	11	(7%)	8	(5%)
New business	52	(34%)	28	(19%)	51	(33%)	29	(19%)
Other news	40	(26%)	47	(30%)	33	(22%)	28	(18%)
Total with events	145	(96%)	147	(97%)	148	(98%)	148	(98%)

Event	100 most recommended		100 most forecasted	
Panel E: Factiva news in two samples of N = 100, for most recommended and forecasted stocks with no key event				
Sample size	100	(100%)	100	(100%)
Earnings & guidance	6	(6%)	96	(96%)
Hot stocks	17	(17%)	60	(60%)
Investment projects	14	(14%)	14	(14%)
Merger & acquisition	73	(73%)	8	(8%)
Other	26	(26%)	27	(27%)
Total with events	91	(91%)	100	(100%)

Notes. Daytime forecasts have their entire 40-minute announcement window in trading hours and nighttime forecasts have a night interval in the announcement window. Panels B & D Factiva event sorts follow Asquith, et al. (2005) and Altınkılıç and Hansen (2009): *Earnings news*: Earnings and guidance announcements. *Financing news:* Altered borrowing base, boosted debt reserves, debt financing, debt rating change, dividend change, private placement, stock repurchase, and stock split. *New business*: Asset sale, Food and Drug approval, merger, new client, new contract, new products, new projects, new strategic plan, product withdrawal or delay, sale of stake in another company, and stakeholder holding change. *Other news*: Accounting issue, CEO talk, Chapter 11 discussion, foreign stock market–related, governance action, industry wrap-up, insider trading, lawsuit, management change, award recipient, 52-week high and low (Dow Jones), and big movers. Panel C and D: Daytime (nighttime) revisions extreme return revisions are from the pre-returns (announcement returns). Panel D reports types are described above for the Panel C. Panel E: *Earnings & Guidance*: Earnings, sales, guidance, conference call reports; *Hot stock*: Big movers, hot stocks, and brokerage report stocks; *Investment projects*: New products, projects, strategic plans, deal closings, and workforce cuts; *Mergers & Acquisitions*: Merger, acquisition, and alliances.

Table 3 Percentage returns around revision announcements

	Revision up					Revision down				
Sample	Number	R(pre)	R(ann)	R(post)	R(all)	Number	R(pre)	R(ann)	R(post)	R(all)
Panel A: All revisions										
All	83,228	0.98[1]	0.26[1]	0.34[1]	1.57[1]	104,355	-1.19[1]	-0.28[1]	-0.10[1]	-1.56[1]
All Daytime	32,564	1.23[1]	0.04[1]	0.35[1]	1.62[1]	41,496	-1.57[1]	-0.04[1]	-0.13[1]	-1.74[1]
All Nighttime	50,664	0.73[1]	0.47[1]	0.32[1]	1.52[1]	62,859	-0.80[1]	-0.51[1]	-0.06[1]	-1.37[1]
Panel B: Daytime revisions										
Monthly means	130	1.13[1]	0.04[3]	0.36[2]	1.53[1]	130	-1.57[1]	-0.04[2]	-0.14[1]	-1.75[1]
Firm-days	27,963	1.17[1]	0.04[1]	0.36[1]	1.56[1]	35,962	-1.45[1]	-0.04[1]	-0.12[1]	-1.61[1]
Q I earnings	4,860	1.37[1]	0.04[1]	0.35[1]	1.76[1]	7,937	-1.45[1]	0.06[1]	0.13[1]	-1.65[1]
Q II earnings	4,062	1.27[1]	0.03[2]	0.33[1]	1.50[1]	4,452	-1.27[1]	-0.03[2]	-0.18[1]	-1.32[1]
FY 1 earnings	7,150	1.42[1]	0.04[1]	0.43[1]	1.89[1]	7,855	-1.84[1]	-0.06[1]	-0.22[1]	-2.12[1]
FY 2 earnings	5,171	1.35[1]	0.05[2]	0.33[1]	1.73[1]	5,821	-1.76[1]	-0.04[2]	-0.21[1]	-2.00[1]
Before Reg FD	8,679	1.10[1]	0.04[1]	0.20[1]	1.35[1]	11,824	-1.57[1]	-0.04[1]	-0.10[2]	-1.71[1]
FD to GRAS	5,102	0.90[1]	0.02	0.45[2]	1.38[1]	8,571	-1.88[1]	-0.05[1]	-0.11[1]	-2.04[1]
After GRAS	18,783	1.37[1]	0.05[1]	0.40[1]	1.81[1]	21,101	-1.45[1]	-0.04[1]	-0.15[1]	-1.63[1]
Panel C: Nighttime revisions										
Monthly means	130	0.70[1]	0.42[3]	0.30[2]	1.42[1]	130	-0.89[1]	-0.35[2]	-0.07[1]	-1.31[1]
Firm-days	39,159	0.66[1]	0.41[1]	0.34[1]	1.41[1]	49,547	-0.76[1]	-0.35[1]	-0.07[1]	-1.18[1]
Q I earnings	7,668	0.89[1]	0.43[1]	0.41[1]	1.73[1]	12,052	-0.86[1]	-0.31[1]	-0.03	-0.99[1]
Q II earnings	6,452	0.67[1]	0.32[2]	0.29[1]	1.30[1]	9,146	-0.89[1]	-0.37[2]	-0.07[3]	-1.32[1]
FY 1 earnings	11,542	0.88[1]	0.46[1]	0.33[1]	1.67[1]	12,085	-1.08[1]	-0.55[1]	-0.13[1]	-1.76[1]
FY 2 earnings	8,301	0.88[1]	0.46[2]	0.30[1]	1.64[1]	8,890	-0.92[1]	-0.44[2]	-0.12[1]	-1.48[1]
Before Reg FD	9,347	0.68[1]	0.47[1]	0.16[1]	1.31[1]	12,228	-0.86[1]	-0.39[1]	-0.11[2]	-1.06[1]
FD to GRAS	6,669	0.49[1]	0.39[1]	0.34[2]	1.21[1]	12,254	-1.36[1]	-0.58[1]	-0.01	-1.93[1]
After GRAS	35,204	0.81[1]	0.40[1]	0.35[1]	1.57[1]	39,036	-0.72[1]	-0.47[1]	-0.09[1]	-1.28[1]

Notes. Reported are three mean percentage returns: R(ann), from 10-minutes before through 20 minutes after the ten-minute announcement interval; R(pre), over two trading days before the announcement return; and R(post), over the two trading days after the announcement return. Revisions are in daytime if made on a trading day from 9:30 to 16:00 and are nighttime otherwise. Also reported is their cumulative sum, R(all). Up (down) revisions are forecasts above (below) the analyst's prior forecast. Monthly means is the mean of the 130 monthly returns. Firm-days treat similar forecasts changes on the same day as one, Q I (Q II) forecast is for one (two) quarter ahead earnings, and FY 1 (FY 2) is for one (two) fiscal year ahead earnings. Before Reg FD are forecasts made prior to the October 2000 enactment of Reg. FD, after GRAS are forecasts after the December 2002 news of the GRAS, and FD to GRAS are forecasts between the two reforms.

[1 (2, 3)] indicates statistical significance at the 1% (5%, 10%) level for two-sided student *t*-statistic

Table 4 Key events, short windows, and weekends

Revision direction:	Revision up					Revision down				
Item:	Number	R(pre)	R(ann)	R(post)	R(all)	Number	R(pre)	R(ann)	R(post)	R(all)
Panel A: Daytime revisions										
All daytime	32,564	1.23[1]	0.04[1]	0.35[1]	1.62[1]	41,496	-1.57[1]	-0.04[1]	-0.13[1]	-1.74[1]
All daytime °°	22,111	1.26[1]	0.03[1]	0.35[1]	1.65[1]	28,368	-1.59[1]	-0.02[1]	-0.17[1]	-1.78[1]
+1 hour	32,564	1.23[1]	0.07[1]	0.32[1]	1.62[1]	41,496	-1.58[1]	-0.04[1]	-0.12[1]	-1.75[1]
-1 hour	32,564	1.04[1]	0.23[1]	0.35[1]	1.62[1]	41,496	-1.37[1]	-0.25[1]	-0.13[1]	-1.75[1]
-1 hour°°	22,211	1.23[1]	0.06[1]	0.35[1]	1.65[1]	28,368	-1.58[1]	-0.04[1]	-0.17[1]	-1.78[1]
No key event	18,289	0.88[1]	0.03[1]	0.39[1]	1.29[1]	22,987	-0.42[1]	-0.01[3]	-0.02[1]	-0.45[1]
No key event°°	12,342	0.84[1]	0.02[2]	0.38[1]	1.24[1]	15,589	-0.43[1]	-0.00	-0.05	-0.49[1]
Has key event	14,275	1.67[1]	0.05[1]	0.31[1]	2.03[1]	18,509	-3.01[1]	-0.08[1]	-0.25[1]	-3.34[1]
Has key event°°	4,493	1.41[1]	0.04[2]	0.23[1]	1.68[1]	12,662	-3.02[1]	-0.04[1]	-0.31[1]	-3.38[1]
Panel B: Nighttime revisions										
All nighttime	50,664	0.73[1]	0.47[1]	0.32[1]	1.52[1]	62,859	-0.80[1]	-0.51[1]	-0.06[1]	-1.37[1]
Weeknight	45,052	0.74[1]	0.49[1]	0.31[1]	1.54[1]	55,053	-0.78[1]	-0.56[1]	-0.04[1]	-1.38[1]
Weekends, holidays	5,612	0.55[1]	0.28[1]	0.33[1]	1.16[1]	7,806	-0.81[1]	-0.13[1]	-0.21[1]	-1.15[1]
No key event	24,903	0.48[1]	0.18[1]	0.27[1]	0.92[1]	33,080	-0.30[1]	0.03[1]	0.03[3]	-0.24[1]
Has key event	25,761	1.01[1]	0.71[1]	0.38[1]	2.10[1]	29,779	-1.35[1]	-1.12[1]	-0.17[1]	-2.64[1]
Panel C: Daytime revisions: Factiva events when no key event for the Table 2 Panel B samples										
Factiva event	124	0.90[1]	0.02	-0.31[3]	0.61[1]	126	-1.48[1]	-0.05	0.09	-1.44[1]
No Factiva event	26	0.18	-0.09	1.20[3]	1.29[3]	24	-0.31	0.01	-0.14	-0.44
Panel D: Nighttime revisions: Factiva events when no key event for the Table 2 Panel B samples										
Factiva event	137	0.29	0.46[1]	-0.01	0.74[1]	132	-0.78[1]	-0.38[2]	-0.13	-1.29[1]
No Factiva event	13	0.21	0.02	-0.06	0.18	18	-0.83[3]	0.01	0.74	-0.08

Notes. Reported are three mean percentage returns, R(ann), R(pre), and R(post), and their cumulative sum, R(all), for up (down). Revisions are in daytime if made on a trading day from 9:30 to 16:00 and nighttime otherwise. An extended announcement period -1 (+1) hour indicates the period starts (ends) six ten-minute intervals before (after) the announcement interval. Weeknights are Monday through Thursday nights and extend to the next day's open, and the weekend is from the Friday close through the Monday open. The revision is associated with a key event if the followed firm announces either earnings or earnings guidance, as found in commercial data sets, on or within one day before the revision announcement day. Otherwise there is no key event. The samples used in Panels C and D are described in Table 2.

°° indicates that revisions announced before 11:00 are removed from the computations.

1 (2, 3) indicates statistical significance at the 1% (5%, 10%) level for two-sided student *t*-statistic.

Table 5 **Percentage revision returns for superior revisions**

	Bold		Mover		Accuracy		Top broker		Wide follow	
Return	High	Low	First	Later	High	Low	Yes	No	Yes	No
Panel A: Daytime revisions up										
R(pre)	1.49[1,a]	1.08[1]	1.16[1,a]	1.64[1]	1.30[1,c]	1.21[1]	1.13[1,b]	1.25[1]	1.13[1,b]	1.25[1]
R(ann)	0.04[1]	0.04[1]	0.04[1]	0.05[1]	0.07[1]	0.03[1]	0.04[1]	0.04[1]	0.04[1]	0.04[1]
R(post)	0.41[1,b]	0.32[1]	0.34[1]	0.29[1]	0.38[1]	0.34[1]	0.25[1,b]	0.38[1]	0.25[1]	0.38[1]
R(all)	1.95[1,a]	1.44[1]	1.54[1,a]	1.98[1]	1.75[1,a]	1.58[1]	1.42[1]	1.67[1]	1.42[1]	1.67[1]
Contrarian	40.3	46.4	44.0	42.8	42.6	44.4	43.5	43.9	43.5	43.9
Panel B: Daytime revisions down										
R(pre)	-3.14[1,a]	-0.51[1]	-1.45[1,b]	-2.36[1]	-1.34[1,a]	-1.64[1]	-1.28[1,a]	-1.64[1]	-1.28[1,a]	-1.64[1]
R(ann)	-0.08[1,a]	-0.01[1]	-0.04[1]	-0.05[1]	-0.04[1]	-0.04[1]	-0.05[1]	-0.04[1]	-0.05[1]	-0.04[1]
R(post)	-0.27[1,a]	-0.02	-0.12[1]	-0.13[1]	-0.12[1]	-0.13[1]	-0.19[1,c]	-0.11[1]	-0.19[1]	-0.11[1]
R(all)	-3.49[1,a]	-0.55[1]	-1.62[1,a]	-2.54[1]	-1.50[1,a]	-1.81[1]	-1.53[1]	-1.79[1]	-1.53[1]	-1.79[1]
Contrarian	35.9	47.4	43.7[x]	40.1	44.1	43.0	44.0	43.0	44.0	43.0
Panel C: Nighttime revisions up										
R(pre)	0.82[1,b]	0.71[1]	0.71[1,b]	0.81[1]	0.77[1]	0.72[1]	0.70[1,c]	0.78[1]	0.70[1,c]	0.78[1]
R(ann)	0.62[1,a]	0.36[1]	0.45[1,b]	0.55[1]	0.46[1]	0.47[1]	0.46[1]	0.50[1]	0.46[1]	0.50[1]
R(post)	0.37[1,c]	0.29[1]	0.34[1]	0.26[1]	0.36[1]	0.31[1]	0.33[1]	0.32[1]	0.33[1]	0.32[1]
R(all)	1.81[1,a]	1.36[1]	1.50[1,a]	1.62[1]	1.59[1]	1.50[1]	1.49[1,c]	1.60[1]	1.49[1]	1.60[1]
Contrarian	43.6[x]	47.8	45.5	48.2	45.4	46.3	46.4	45.3	46.4	45.3
Panel D: Nighttime revisions down										
R(pre)	-1.52[1,a]	-0.32[1]	-0.74[1,a]	-1.07[1]	-0.68[1,a]	-0.84[1]	-0.75[1,c]	-0.82[1]	-0.75[1,c]	-0.82[1]
R(ann)	-0.94[1,a]	-0.22[1]	-0.40[1,a]	-0.96[1]	-0.49[1]	-0.52[1]	-0.51[1]	-0.51[1]	-0.51[1]	-0.51[1]
R(post)	-0.19[1,a]	0.02	-0.06[1]	-0.07[2]	-0.06[3]	-0.06[3]	-0.00[c]	-0.09[1]	-0.00	-0.09[1]
R(all)	-2.65[1,a]	-0.52[1]	-1.20[1,a]	-2.09[1]	-1.23[1,a]	-1.42[1]	-1.26[1,a]	-1.43[1]	-1.26[1]	-1.43[1]
Contrarian	39.6	53.1	44.6	45.3	44.9	44.6	44.9	44.6	44.9	44.6

Notes. Reported are mean percentage returns, R(ann), R(pre), and R(post), and their cumulative sum, R(all), for the daytime and nighttime samples from Table 1, by four forecast traits and analyst following. Revisions are in daytime hours if made on a trading day from 9:30 to 16:00 and in nighttime hours otherwise. High (low) bold forecasts are the top (bottom) third of forecasts sorted by boldness. First mover forecasts are the first forecast on the revision day, and others move later in the day. High (low) accuracy forecasts are in the top (bottom) 35% of forecasts sorted by forecast accuracy, measured following Hong and Kubik (2003), the absolute difference between the forecast for firm and its realized earnings, deflated by stock price five days before the forecast. Top brokerage forecasts are from one of the top 20 brokerages; Citigroup, CS, Morgan Stanley, Lehman Brothers, UBS, JP Morgan, Banc of America, Merrill Lynch, Deutsche Bank, Bear, Stearns, CIBC, A. G. Edwards, RBC Capital, Piper Jaffray, Raymond James, Wachovia, FBR & Co., Robert Baird, and Jefferies. Widely followed are the top third of firms in number of forecasts by different brokers in the quarter before the revision. Percent contrarian is the fraction of forecasts in opposite direction of R(pre).

[1 (2, 3)] indicates statistical significance at the 1% (5%, 10%) level for two-sided student *t*-statistic.

[x] indicates that contrarian for the first category is statistically significantly different from contrarian for the second category, at the 1% level for two-sided student *t*-statistic.

[a (b, c)] indicates statistical significance different from the mean return in the alternate category for the trait, at the 1% (5%, 10%) level for two-sided student *t*-statistic.

Table 6 Information tests in the R(pre) and R(ann) cross-sections

Dependent variable:	R(pre)						R(sum)					R(ann)	
Column no.:	1	2	3	4	5	6	7	8	9	10	11	12	14
							Panel A: Daytime revisions up						
Intercept	1.67[1]	1.39[1]	1.58[1]	1.83[1]	1.64[1]	1.60[1]	1.50[1]	1.69[1]	1.95[1]	1.75[1]	1.71[1]	0.06[1]	0.06[1]
SIZE	-0.56[1]	-0.46[1]	-0.56[1]	-0.56[1]	-0.55[1]	-0.49[1]	-0.49[1]	-0.59[1]	-0.58[1]	-0.58[1]	-0.51[1]	-0.24	-0.24
MOMENTUM	-0.17[2]	-0.14[2]	-0.15[2]	-0.16[3]	-0.14[3]	-0.15[3]	-0.15[3]	-0.16[2]	-0.17[3]	-0.15[3]	-0.17[3]	-0.01	-0.00
KEYEVENT	1.13[1]	1.09[1]	1.10[1]	1.08[1]	1.12[1]	1.11[1]	1.10[1]	1.10[1]	1.10[1]	1.13[1]	1.11[1]	-0.01	0.01
REGFD	0.08												
BOLDEST		0.52[2]					0.52[1]						
ACCURATE			0.19[2]					0.21[2]					
FIRSTMOVER				-0.22[2]					-0.23[2]				
TOPBROKER					-0.12					-0.18			
WIDEFOLLOW						-0.14[3]					-0.15[2]		
|R(pre)| < 1%												-0.01	
CONTRARIAN													-0.17
N	32,564	32,564	32,564	32,564	32,564	32,564	32,564	32,564	32,564	32,564	32,564	32,564	32,564
							Panel B: Daytime revisions down						
Intercept	-2.24[1]	-0.71	-2.25[1]	-2.72[1]	-2.21[1]	-2.12[1]	-0.79	-2.36[1]	-2.83[1]	-2.32[1]	-2.23[1]	-0.05[1]	-0.06[1]
SIZE	0.55[1]	-0.02	0.46[1]	0.53[1]	0.37[1]	0.47[1]	-0.03	0.45[1]	0.53[1]	0.57[1]	0.47[1]	0.02	0.02
MOMENTUM	0.58[1]	0.09	0.52[1]	0.55[1]	0.57[1]	0.56[1]	0.10	0.54[1]	0.58[1]	0.59[1]	0.59[1]	0.03[3]	0.03[3]
KEYEVENT	-0.63[1]	-0.49[1]	-0.61[1]	-0.56[1]	-0.64[1]	-0.61[1]	-0.53[1]	-0.65[1]	-0.60[1]	-0.68[1]	-0.65[1]	-0.04[1]	-0.04[1]
REGFD	-0.01												
BOLDEST		-2.59[1]					-2.64[1]						
ACCURATE			0.82[1]					0.86[1]					
FIRSTMOVER				0.66[1]					0.66[1]				
TOPBROKER					0.04					0.03			
WIDEFOLLOW						0.09					0.09		
|R(pre)| < 1%												0.00	
CONTRARIAN													0.02
N	41,496	41,496	41,496	41,496	41,496	41,496	41,496	41,496	41,496	41,496	41,496	41,496	41,496

continued

Table 6 (cont.)

Panel C: Nighttime revisions up

Intercept	0.58^{1}	0.53^{1}	0.65^{1}	0.62^{1}	0.63^{3}	0.60^{1}	0.33	0.59^{1}	0.54	0.64^{3}	0.51	0.34^{1}	0.33^{1}
SIZE	-0.04^{1}	-0.03^{1}	-0.03^{1}	-0.03^{1}	-0.04^{1}	-0.03^{1}	-0.04^{1}	-0.04^{1}	-0.01^{1}	-0.05^{1}	-0.04^{1}	-0.01^{1}	-0.01^{1}
MOMENTUM	-0.12^{2}	-0.09^{2}	-0.10^{2}	-0.10^{2}	-0.10^{2}	-0.10^{2}	-0.12^{2}	-0.12^{2}	-0.12^{2}	-0.13^{2}	-0.12^{2}	0.01	0.01
KEYEVENT	0.39^{1}	0.35^{1}	0.35^{1}	0.35^{1}	0.35^{1}	0.35^{1}	0.54^{1}	0.54^{1}	0.54^{1}	0.55^{1}	0.55^{1}	0.28^{1}	0.28^{1}
REGFD	-0.01												
BOLDEST		0.20^{1}					0.49^{1}						
ACCURATE			-0.05					-0.08					
FIRSTMOVER				-0.02					-0.01				
TOPBROKER					0.08^{3}					0.15^{1}			
WIDEFOLLOW						-0.03					-0.06		
|R(pre)| < 1%												-0.01^{1}	
CONTRARIAN													0.02
N	50,664	50,664	50,664	50,664	50,664	50,664	50,664	50,664	50,664	50,664	50,664	50,664	50,664

Panel D: Nighttime revisions down

Intercept	-0.91^{1}	-0.02	-0.62^{1}	-0.89^{1}	-0.69^{1}	-0.66^{1}	-0.02	-0.99^{1}	-1.58^{1}	-1.11^{1}	-1.08^{1}	-0.74^{1}	-0.74^{1}
SIZE	0.26^{1}	0.04	0.27^{1}	0.28^{1}	0.29^{1}	0.23^{1}	0.03	0.39^{1}	0.43^{1}	0.42^{1}	0.40^{1}	0.14^{1}	0.15^{1}
MOMENTUM	0.33^{1}	0.12^{2}	0.33^{1}	0.33^{1}	0.34^{1}	0.34^{1}	0.28^{2}	0.61^{1}	0.60^{1}	0.62^{1}	0.62^{1}	0.32^{1}	0.35^{1}
KEYEVENT	-0.12^{1}	-0.08^{2}	-0.13^{1}	-0.09^{2}	-0.13^{1}	-0.13^{1}	-0.57^{2}	-0.65^{1}	-0.57^{1}	-0.66^{1}	-0.65^{1}	-0.60^{1}	-0.61^{1}
REGFD	-0.02												
BOLDEST		-1.20^{1}					-1.87^{1}						
ACCURATE			-0.06^{1}					-0.11^{3}					
FIRSTMOVER				0.24^{1}					0.55^{1}				
TOPBROKER					-0.12^{2}					-0.07^{3}			
WIDEFOLLOW						0.09^{3}					-0.03		
|R(pre)| < 1%												0.08^{1}	
CONTRARIAN													0.06^{2}
N	62,859	62,859	62,859	62,859	62,859	62,859	62,859	62,859	62,859	62,859	62,859	62,859	62,859

Notes. Reported are regressions of R(pre), R(ann), and their sum R(sum), on several factors. The samples are described in Table 1. Revisions are in daytime if made on a trading day from 9:30 to 16:00 and nighttime otherwise. Independent variables are SIZE, common stock value five trading days before the revision; MOMENTUM, the 120-day cumulative return before the pre-period; R(pre), return over two trading days before the announcement period; KEYEVENT, dummy variable indicating if earnings or guidance is reported in the pre-period; REGFD, dummy variable indicating forecasts made before Regulation Fair Disclosure; BOLDEST, top (bottom) third of forecasts sorted by boldness; ACCURATE, in top third of forecasts sorted by forecast accuracy; FIRSTMOVER, the first forecast on the revision day; TOPBROKER, forecast is from one of the 20 largest brokerages in number of forecasts; WIDEFOLLOW, dummy variable indicating when the number of analysts following is above the median; |R(pre)| < 1% indicates -1% < R(pre) < +1%; and CONTRARIAN means a revision is in the opposite direction of R(pre). Column 1 replaces year fixed effects with REGFD, and Columns 6 and 11 replace brokerage fixed effects with TOPBROKER. Otherwise, estimations except in Columns 1, 6, and 11, have year, month, and firm industry fixed effects.

$^{1\,(2,\,3)}$ indicates statistical significance at the 1% (5%, 10%) level for two-sided student *t*-statistic.

Table 6 **Information tests in the R(pre) and R(ann) cross-sections for the daytime and nighttime Up and Down samples**

	Daytime Forecasts revisions						Nighttime Forecasts					
	Up, N = 32,564			Down, N = 41,496			Up, N = 32,564			Down, N = 41,496		
Independent variable:	Dependent variable.: R(pre)	R(sum)	R(ann)	R(pre)	R(sum)	R(ann)	R(pre)	R(sum)	R(ann)	R(pre)	R(sum)	R(ann)
Intercept	1.67[1]	1.39[1]	1.58[1]	1.67[1]	1.39[1]	1.58[1]	1.67[1]	1.39[1]	1.58[1]	1.67[1]	1.39[1]	1.58[1]
SIZE	-0.56[1]	-0.46[1]	-0.56[1]	-0.56[1]	-0.46[1]	-0.56[1]	-0.56[1]	-0.46[1]	-0.56[1]	-0.56[1]	-0.46[1]	-0.56[1]
MOMENTUM	-0.17[2]	-0.14[2]	-0.15[2]	-0.17[2]	-0.14[2]	-0.15[2]	-0.17[2]	-0.14[2]	-0.15[2]	-0.17[2]	-0.14[2]	-0.15[2]
KEYEVENT	1.13[1]	1.09[1]	1.10[1]	1.13[1]	1.09[1]	1.10[1]	1.13[1]	1.09[1]	1.10[1]	1.13[1]	1.09[1]	1.10[1]
REGFD	0.08			0.08			0.08			0.08		
BOLDEST	0.52[2]	0.52[1]		0.52[2]	0.52[1]		0.52[2]	0.52[1]		0.52[2]	0.52[1]	
ACCURATE	0.19[2]	0.21[2]		0.19[2]	0.21[2]		0.19[2]	0.21[2]		0.19[2]	0.21[2]	
FIRSTMOVER	-0.22[2]	-0.23[2]		-0.22[2]	-0.23[2]		-0.22[2]	-0.23[2]		-0.22[2]	-0.23[2]	
TOPBROKER	-0.12	-0.18		-0.12	-0.18		-0.12	-0.18		-0.12	-0.18	
WIDEFOLLOW	-0.14[3]	-0.15[2]		-0.14[3]	-0.15[2]		-0.14[3]	-0.15[2]		-0.14[3]	-0.15[2]	
|R(pre)| < 1%			-0.01			-0.01			-0.01			-0.01
CONTRARIAN			-0.17			-0.17			-0.17			-0.17

Notes. Reported are regressions of R(pre), R(ann), and their sum R(sum), on four base independent variables and several factors. The samples are described in Table 1. Revisions are in daytime if made on a trading day from 9:30 to 16:00 and nighttime otherwise. Base independent variables are SIZE, common stock value five trading days before the revision; MOMENTUM, the 120-day cumulative return before the pre-period; R(pre), return over two trading days before the announcement period; KEYEVENT, dummy variable indicating if earnings or guidance is reported in the pre-period. The base variable coefficients are means of their respective values from individual regressions that include, one-by-one, each relevant independent factor; six [five, two] factors in the R(pre) [R(sum), R(ann)]. Mean coefficients are reported to save space, the individual coefficients are not statistically different across the individual regressions. The regression factors are REGFD, dummy variable indicating forecasts made before Regulation Fair Disclosure; BOLDEST, top (bottom) third of forecasts sorted by boldness; ACCURATE, in top third of forecasts sorted by forecast accuracy; FIRSTMOVER, the first forecast on the revision day; TOPBROKER, forecast is from one of the 20 largest brokerages in number of forecasts; WIDEFOLLOW, dummy variable indicating when the number of analysts following is above the median; |R(pre)| < 1% indicates -1% < R(pre) < +1%; and CONTRARIAN means a revision is in the opposite direction of R(pre). Column 1 replaces year fixed effects with REGFD, and Columns 6 and 11 replace brokerage fixed effects with TOPBROKER. Otherwise, estimations except in Columns 1, 6, and 11, have year, month, and firm industry fixed effects.

[1 (2, 3)] indicates statistical significance at the 1% (5%, 10%) level for two-sided student *t*-statistic.

Table 7 Anticipation and underreaction tests

Revision direction:	Revision up					Revision down				
Item:	Number (Percent)	R(pre)	R(ann)	R(post)	R(all)	Number (Percent)	R(pre)	R(ann)	R(post)	R(all)
Panel A: Daytime revisions										
|R(pre)| < 1%	7,679	0.02^{1}	0.03^{1}	0.27^{1}	0.32^{1}	9,387	-0.01	-0.04^{1}	-0.15^{1}	-0.19^{1}
Fraction trending	56.1	3.02^{1}	0.05^{1}	0.41^{1}	3.49^{1}	56.8	-4.68^{1}	-0.05^{1}	-0.21^{1}	-4.95^{1}
Fraction contrarian	43.9	-1.07^{1}	0.03^{1}	0.27^{1}	-0.77^{1}	43.2	2.51^{3}	-0.03^{1}	-0.01	2.47^{1}
Fraction same	52.1	1.28^{2}	0.05^{1}	1.79^{1}	3.13^{1}	52.9	-1.61^{1}	-0.05^{1}	-2.27^{1}	-3.93^{1}
Fraction opposite	47.9	1.17^{1}	0.03^{1}	-1.21^{1}	-0.02	47.1	-1.54^{1}	-0.03^{2}	2.29^{1}	0.72^{1}
Panel B: Nighttime revisions										
|R(pre)| < 1%	13,559	0.01^{3}	0.38^{1}	0.34^{1}	0.73^{1}	16,414	-0.02^{2}	-0.36^{2}	-0.09^{1}	-0.46^{1}
Fraction trending	54.0	2.29^{1}	0.41^{1}	0.31^{1}	3.01^{1}	55.4	-3.36^{1}	-0.44^{1}	-0.06^{1}	-3.87^{1}
Fraction contrarian	46.0	-1.06^{1}	0.41^{1}	0.32^{1}	-0.33^{1}	44.6	2.23^{3}	-0.39^{1}	-0.09^{1}	1.76^{1}
Fraction same	52.3	-0.84^{1}	-0.47^{1}	2.06^{1}	0.74^{1}	55.4	0.73^{1}	0.42^{1}	-1.05^{1}	0.10^{1}
Fraction opposite	47.7	-0.75^{1}	-0.54^{1}	-2.01^{1}	-3.32^{1}	47.8	0.73^{1}	0.52^{1}	1.57^{1}	2.22^{1}

Notes. The samples are described in Table 1. Revisions are in the daytime if made on a trading day from 9:30 to 16:00 and in the nighttime otherwise. Reported are three mean percentage returns, R(ann), R(pre), and R(post), and their cumulative sum, R(all), for up (down) revisions in the daytime or nighttime, as described in Table 2. |R(pre)| < 1% indicates -1% < R(pre) < +1%. A revision is trending (contrarian) if it is in the same (opposite) direction of R(pre). A revision is same (opposite) if it is in the same (opposite) direction of R(post).

$^{1\ (2,\ 3)}$ indicates statistical significance at the 1% (5%, 10%) level for two-sided student *t*-statistic.

Table 8 Forecast revision and post-return regressions

Dependent variable:	R(post)		Forecast revision		R(post)			
Sample:	Daytime	Nighttime	Daytime	Nighttime	Daytime		Nighttime	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	$6.07^{1} e^{-4}$	$1.34\ e^{-3}$	$1.56^{1} e^{-4}$	$1.75^{1} e^{-3}$	$-2.44^{2} e^{-2}$	$2.56^{1} e^{-2}$	$-2.56^{1} e^{-2}$	$2.42^{1} e^{-2}$
REVISION	$2.51^{1} e^{-1}$	$1.75^{3} e^{-2}$						
E[REVISION]					1.37^{1}	$6.70^{1} e^{-1}$	2.82^{1}	-2.96^{1}
RES[REVISION]					$1.37^{2} e^{-1}$	$3.65\ e^{-3}$	$2.31\ e^{-2}$	$8.01\ e^{-3}$
TURNOVER					$-1.62^{1} e^{-8}$	$2.78^{1} e^{-8}$	$-5.37^{1} e^{-9}$	$1.06^{1} e^{-8}$
1/PRICE			$-2.80^{1} e^{-2}$	$1.71^{1} e^{-2}$	$-2.21^{1} e^{-2}$	$4.45^{1} e^{-2}$	$-2.44^{2} e^{-2}$	$2.48^{1} e^{-2}$
SUE			$3.58^{1} e^{-4}$	$-2.48\ e^{-6}$	$-8.43^{1} e^{-4}$	$5.11^{1} e^{-4}$	$-1.68^{2} e^{-4}$	$2.64^{2} e^{-4}$
R(-120 DAYS) * MVE			$2.46^{1} e^{-3}$	$1.35^{1} e^{-4}$	$-1.83^{1} e^{-13}$	$-2.21^{1} e^{-13}$	$1.29^{1} e^{-13}$	$-1.46^{2} e^{-13}$
CONCHANGE			$5.00^{1} e^{-2}$	$1.92^{1} e^{-2}$	$-8.46^{1} e^{-2}$	$6.92^{1} e^{-2}$	$-5.77^{2} e^{-2}$	$6.41^{1} e^{-2}$
LIQUIDITY			$3.49^{1} e^{-1}$	$-4.92^{3} e^{-14}$	$-6.49\ e^{-2}$	$-6.17^{3} e^{-1}$	$-9.54^{2} e^{-1}$	$-4.49^{3} e^{1}$
UPDATE			$2.83^{1} e^{-2}$	$8.96^{1} e^{-2}$				
SURPRISE			$3.23^{1} e^{-1}$	$-7.63\ e^{-4}$				
R(pre)			$1.63^{1} e^{-2}$	$-5.56\ e^{-4}$				
R(pre) * KEYEVENT			$2.76^{1} e^{-3}$	$3.61^{1} e^{-3}$				
N	62,035	112,858	62,035	105,634	62,035		112,858	
R-squared	0.0047	0.0036	0.176	0.082	0.0054		0.0036	

Notes. Reported are regressions of the earnings forecast revision deflated by stock price and R(post). The samples are described in Table 1. Revisions are in trading hours if made on a trading day from 9:30 to 16:00 and non-trading hours otherwise. Independent variables are: REVISION, the change in the forecast of firm earnings deflated by the stock price five days before the forecast is announced; E[REVISION] the predicted revision measured using the column (3 & 5) model parameters; RES[REVISION] the revision residual from the column (3 & 5) model estimations; TURNOVER is the abnormal share turnover in the pre-period relative to mean turnover the prior 120 days; 1/PRICE, the inverse of stock price before the offer period; SUE, standardized unexpected earnings; R(-120 DAYS), cumulative return over the 120 days before the pre-period; R(-120 DAYS) * MVE is R(-120 DAYS) times the value of outstanding common stock as of five trading days before the revision; CONCHANGE, the change in analysts' consensus forecast for the followed firm just prior to the forecast; LIQUIDITY is Amihud's (2002) liquidity measure for the 120 days before the pre-period; UPDATE is the price-deflated difference between the consensus earnings forecast for firm *j* and analyst *i*'s most recent prior earnings forecast; SURPRISE is the firm's price-deflated recent earnings less analyst prior forecast (from FC); R(pre), return over two trading days before the announcement period; R(pre) * KEYEVENT is R(pre) times the dummy variable equal to one when earnings or guidance is reported in the pre-period; All estimations include among the independent variables fixed effects whose coefficients are not reported, for year, month, weekday, forecast horizon, and Fama and French industry. R(post) is negative in columns (5) and (7) and positive in columns (6) and (8).

[1 (2, 3)] indicates statistical significance at the 1% (5%, 10%) level for two-sided student *t*-statistic.