EARNINGS ANNOUNCEMENT CLUSTERING, LIMITED ATTENTION, AND ANALYST FORECAST BEHAVIOR

By

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To my parents, Jude & Donna Driskill

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Abstract of Dissertation Presented to the Graduate School
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This study investigates whether earnings announcement clustering creates a limited attention effect that impairs analyst forecast performance. I find that concurrent, same-day earnings announcements within an analyst's coverage portfolio occur quite frequently and negatively affect initial analyst forecasting performance. "Busy" analysts are less likely to issue timely (day 0-1) forecasts immediately after that firm's earnings announcement, and these forecasts are less timely and less bold when they do actually forecast. Busy analysts are also more likely to issue forecasts later in the quarter, suggesting that busy analysts increase their forecasting activity once the constraints have loosened, but I find no evidence that these non-timely (non-day 0-1) forecasts are any more or less informative relative to their non-busy peers. These results are consistent with limited analyst attention impairing initial forecast responses and subsequent efforts by analysts to increase forecasting activity and informativeness later in the quarter. Finally, I find that firms with more busy analysts have smaller magnitude earnings announcement returns, and that investors appear to react less strongly to the non-timely forecasts of busy analysts relative to those of their non-busy peers. The results have implications for the

literature on limited attention theory, analysts' role in facilitating price discovery, and the cycle of analyst information production.

CHAPTER 1
INTRODUCTION

Bounded rationality posits that limits on the information-processing capacities of individuals, brought about by task complexity and/or time constraints, may impair fully rational decision-making and thereby lead to sub-optimal outcomes (Simon, 1955, 1972; Hirshleifer, 2001). Building upon this theory, Hirshleifer & Teoh (2003) suggest that cognitive limitations and high information loads can create a limited attention effect which impairs investors' ability to fully process earnings information upon arrival, potentially resulting in delayed price responses and underreactions. More recently, Hirshleifer, Lim, & Teoh (2009) find that firms which announce earnings on days with more (less) competing earnings announcements have smaller (larger) magnitude immediate earnings-announcement [-1, +1] returns and experience larger (smaller) magnitude post-earnings announcement drift, and attribute this result to limited investor attention with respect to firms that announce earnings on "high-news" days. This paper applies a similar logic to analysts by investigating the relationship between earnings announcement clustering, limited analyst attention, and analyst forecast behavior. Specifically, I investigate the effect of concurrent (that is, two or more), same-day earnings announcements on the timing and magnitude of subsequent analyst forecast activity.

A wide body of prior research highlights the dual information intermediary roles that analysts serve as both disseminators of public information and generators of private information, and the tradeoffs between forecast timeliness and informativeness (e.g., Clement & Tse, 2003; Ivkovic & Jegadeesh, 2004; Chen, Cheng & Lo, 2010; Livnat & Zhang, 2012, Keskek, Tse & Tucker, 2014). Investors value more timely analyst

forecasts and associate timeliness with leader characteristics and "better" analysts, suggesting that, all things equal, analysts have incentives to produce forecasts in a timely fashion (e.g., Cooper, Day, & Lewis, 2001; Mozes, 2003; Keskek et al., 2014). Analysts then focus their efforts on generating private information throughout the remainder of the quarter, reflected in the fact that non-timely forecasts issued in the weeks and months between earnings announcements are more informative and generate larger price responses from investors (Ivkovic & Jegadeesh, 2004; Chen et al., 2010). While this forecast behavior on the part of analysts appears driven by investor demand for both timely and informative analyst forecasts, the effects of earnings announcement clustering on analyst forecast behavior is less understood.

About 75% of all firms covered by analysts announce their quarterly earnings within a four-week window from roughly three to six weeks (days 16-40) after the beginning of a typical thirteen-week calendar quarter (i.e., calendar quarters beginning January 1st, April 1st, July 1st, and October 1st). This suggests that a substantial portion of all publicly available information arriving to analysts occurs in a relatively small window of time, and raises the possibility that analysts may find themselves with multiple earnings announcements occurring on the same day quite frequently. The presence of concurrent, same-day earnings announcements within an analyst's coverage portfolio, which suggests increased information processing demands, coupled with market expectations to produce timely analyst forecasts, together suggest the possibility of a limited analyst attention effect. Using concurrent, same-day earnings announcements within an analyst's coverage portfolio as a proxy for limited analyst attention, I examine whether the presence of concurrent, same-day earnings announcements affects analyst

forecast behavior in terms of forecast likelihood, timeliness, and boldness within the immediate earnings announcement return (EAR) window [-1, +1]. I then examine whether this initial forecast behavior influences subsequent forecast behavior throughout the remainder of the quarter in terms of subsequent forecast likelihood and boldness, and whether investors differentially price forecasts issued by busy and non-busy analysts.

Over my sample period from 1999 to 2014, I find that busy analysts are less likely to issue timely (day 0-1) forecasts following earnings announcements compared to non-busy analysts. Of analysts who do choose to issue a timely forecast, I find that busy analysts issue less timely forecasts relative to non-busy analysts within this window, and that these forecasts are less informative relative to the prevailing analyst consensus estimate. Collectively, these results suggests that the presence of concurrent earnings announcements impairs an analyst's ability to respond to an earnings announcement in a timely and informative fashion. With respect to non-timely forecasts issued from day 2 until two days before the next earnings announcement, I find that busy analysts are more likely to issue forecasts later in the quarter, regardless of whether or not they issued an initial timely forecast, but that these non-timely forecasts are no more or less informative than the non-timely forecasts of their non-busy peers. Finally, despite evidence that busy analysts appear to be of no poorer quality than their non-busy peers once the constraints of limited attention have loosened, investors appear to price forecasts by busy analysts at a discount relative to their non-busy peers. In particular, firms with more busy analysts have lower earnings announcement returns [-1, +1], and investors appear to react less strongly to non-timely forecasts issued by busy analysts.

Collectively these results suggest a pattern of analyst behavior which resembles the pattern of investor behavior documented by Hirshleifer et al. (2009). When confronted with heightened information processing demands, analysts appear to initially underreact to earnings announcement information, both in magnitude and in time, and then increase their forecasting activity at a later date when the constraints have loosened. My results thus inform literature documenting underreactions to widely available and salient information disclosures, limited attention in particular, by using a unique setting to test the effects of information load and information processing on analyst performance. My results also provide additional evidence on the role that analyst play in facilitating market (in)efficiency and price discovery. Zhang (2008) finds that firms with timely (day 0, 1) analyst forecasts display larger magnitude earnings announcement returns and less subsequent post-earnings announcement drift, and attributes these results to analyst forecasts mitigating price drift. Given that prior research finds that analyst forecasts throughout the quarter generate significant market reactions, and that a substantial portion of price drift in a given quarter occurs in short windows around subsequent analyst forecasts (Gleason & Lee, 2003), this suggests that earnings announcement clustering, and the effect it has on analyst forecast behavior, may play a role in terms of the speed with which prices impound the information contained in earnings announcements.[1] Finally, while prior research has investigated earnings announcement clustering in terms of intra-industry information transfer between earlier and later announcing firms

[1] I do not examine "leader" and "follower" analysts in terms of non-timely forecasts, but a number of papers have investigated the differential forecast characteristics and market reactions to these analysts (e.g., Cooper et al., 2001; Gleason & Lee, 2003; Keskek et al., 2014). While these papers find that the market reacts more strongly to forecasts by leader analysts, forecasts by follower analysts are still found to generate significant price impacts (Shroff, Venkataraman & Xin, 2014).

(Ramnath, 2002; Thomas & Zhang, 2008), my study documents the substantial nature of earnings announcement clustering, the resulting frequency of concurrent earnings announcements within analyst's coverage portfolios, and the effect that this clustering has on analyst forecast behavior and performance, particularly with respect to the timing and the production cycle of analyst forecasts.

The paper proceeds as follows. Chapter 2 provides a review of the relevant literature and hypothesis development. Chapter 3 discusses the sample, tests and research design. Chapter 4 provides results. Chapter 5 provides supplemental tests. Chapter 6 summarizes and concludes.

CHAPTER 2
PRIOR RESEARCH, INSTITUTIONAL SETTING, AND HYPOTHESIS DEVELOPMENT

The (semi-strong) efficient markets hypothesis (EMH) holds that stock prices reflect all public information without bias and that new information is priced instantaneously, thus effectively assuming information processing as unbiased and instantaneous. Bounded rationality relaxes this assumption regarding instantaneous information processing and posits that individuals are subject to cognitive limitations and time constraints, and that these forces impair fully rational decision-making (Simon, 1955, 1972; Hirshleifer, 2001). Stated simply, information acquisition and processing can be difficult and time consuming, and therefore may be impaired depending on the difficulty of the task or the time available to complete the task. In a market context, bounded rationality can lead to limited investor attention—where investors are unable to process information immediately, completely, and without bias due to the presence of other, distracting information—and that this limited investor attention can manifest as an underreaction where information is gradually impounded into stock prices over time in a delayed fashion (Hirshleifer & Teoh, 2003; DellaVigna & Pollet, 2009; Hirshleifer et al., 2009).

While much previous research regarding information processing has focused on how investors price information, I apply limited attention theory to an analyst's coverage portfolio: limited analyst attention may arise due to the confluence of increased information processing demands brought about by concurrent earnings announcements (cognitive constraints due to increased information load) coupled with the analyst desire/market expectation of timely forecasts (time constraints). Assuming that interpreting the information contained in an earnings announcement is somewhat

complex (i.e., not instantaneous), a small expected forecast response window suggests that the presence of concurrent (two or more, three or more, etc.) earnings announcements, which may essentially double or triple the effective workload for an analyst, represents an unique setting to test whether and how an increased workload affects the attention and cognitive resources that the analyst is able to employ with respect to a given earnings announcement when the expected response time approaches "immediate." Examining analyst performance in this context provides some unique benefits. Analysts are widely regarded as financial experts and sophisticated information processors, so finding evidence that such highly sophisticated market participants are susceptible to limited attention effects provides further support for the theory and our understanding of information processing in general. Further, while market event studies suffer from the issue of what constitutes abnormal returns when linking an information event to the processing of that information event, the relatively precise nature of analyst data—detailed information about analyst resources and coverage portfolios, exact dates, times, and actual EPS values of earnings announcements and forecasts—may provide a cleaner test of the relationship between an information event and factors which influence the processing of that information event.

Sell-side analysts play a variety of roles in financial markets, primarily as disseminators of public information, producers of private information, and as facilitators of contact between institutional investor clients and firm managers (e.g., Ivkovic & Jegadeesh, 2004; Chen et al., 2010; Brown, Call, Clement & Sharp, 2015). While this latter role highlights the very real economic imperatives and incentives which analysts face, the former two roles highlight the important position which analysts play in

facilitating market efficiency, particularly with respect to analyst forecast activity.[2] Analysts interpreting and disseminating newly released public information to the broader investment public promotes market efficiency, while generating new private information helps investors value market securities as efficiently as possible. While a substantial body of prior research finds that analyst forecasts and recommendations are consistently useful to investors (e.g., Lys & Sohn, 1990, Francis & Soffer, 1997), subsequent investigations have more specifically identified the importance of timeliness and informativeness with respect to analyst forecasts at both the individual analyst and firm levels. Zhang (2008) finds that firms with at least one analyst forecast issued in the day 0-1 window following an earnings announcement experience larger magnitude earnings announcement returns and less subsequent post-earnings announcement drift, suggesting that timely analyst forecast responses after earnings announcements mitigates the drift and facilitates market efficiency. Cooper et al. (2001) find that the more timely forecasts of leader analysts generate more trading activity and have a greater impact on stock prices than the forecasts of follower analysts. Clement & Tse (2003) find that investors respond more strongly to annual earnings forecasts released earlier in the year, despite the fact that these forecasts tend to be less accurate than forecasts issued later in the year. Keskek et al. (2014) find that forecasts issued earlier within both the information discovery and information interpretation (analysis) phases of a given quarter tend to be bolder and generate larger price reactions relative to forecasts issued later in each phase, suggesting that higher quality analysts are more likely to participate at an earlier stage.

[2] Prior literature suggests that analysts are largely compensated indirectly via their institutional investor base, who appear to place great value on analysts for their access to management (Maber, Groysberg & Healy, 2014; Brown et al., 2015).

Prior research also suggests that investors prefer forecasts that contain more new information, in terms of updating existing earnings expectations, forecast boldness or general forecast quality. Gleason & Lee (2003) and Clement & Tse (2003) both find that bolder analyst forecasts generate larger return response coefficients, and Clement & Tse (2005) suggests that bolder forecasts more completely incorporate analysts' private information set. Chen et al. (2010) find that price reactions to forecasts issued in the weeks before an earnings announcement are larger than price reactions to forecasts issued in the weeks after an earnings announcement, and suggest that this reflects the larger information content associated with analyst information discovery rather than analyst information interpretation. Keskek et al. (2014) provides further support for the linkage between forecast boldness and stock returns, as well as the larger information content of forecasts issued in the information discovery phase relative to the information interpretation phase.

Given an increased workload resulting from concurrent, same-day earnings announcements, one potential analyst response would be to not produce a forecast in the days after the earnings announcement at all, and simply generate a forecast later in the quarter when the constraints have loosened. Another potential response would be to generate a forecast in the days immediately after the earnings announcement, yet given the constraints involved, one might expect the forecast to be either less timely, less informative, or both less timely and less informative.[3] Combining the predictions of limited attention theory with commonly accepted indicators of analyst performance, I

[3] I do not directly investigate herding, but herding should work against me finding results by allowing busy analysts to quickly incorporate the information of other analysts into their forecasts.

investigate the following hypotheses in relation to the likelihood, timeliness, and boldness of analysts' initial forecast behavior immediately following the earnings announcement:

- H1a: Limited analyst attention negatively affects the likelihood of an analyst issuing a timely forecast.
- H1b: Among analysts who do issue timely forecasts, limited analyst attention negatively affects analyst forecast timeliness.
- H1c: Among analysts who do issue timely forecasts, limited analyst attention negatively affects analyst forecast boldness.

If an analyst is initially unable to issue a timely forecast after an earnings announcement due to increased workload, this analyst may be more likely to issue forecasts later in the quarter once the constraints have loosened.[4] Given the fact that the constraints no longer hold, one might expect no difference between the non-timely forecast boldness of busy and non-busy analysts. If a busy analyst issues an initial timely forecast, and if the initial forecast is less informative than optimal for that analyst due to limited attention, another strategy available to the analyst is to choose to issue a revised, more informative forecast at a later date after the constraints have loosened. For busy analysts, this subsequent, revised forecast may reflect more private information relative to the initial forecast, and thus may manifest as a larger forecast revision relative to the revisions of non-busy analysts. I investigate the following hypotheses in relation to the likelihood and boldness of analysts' forecast and revision behavior throughout the remainder of the quarter:

- H2a: Limited analyst attention positively affects the likelihood of an analyst issuing a non-timely forecast.
- H2b: Among analysts who issue non-timely forecasts, limited analyst attention has no effect on analyst forecast boldness.

[4] My sample includes analysts who do not forecast at all during the quarter, so not issuing a forecast over day 0-1 does not imply the existence of a forecast later in the quarter.

- H2c: Among analysts who initially issued timely forecasts, limited analyst attention positively affects the likelihood of an analyst issuing a non-timely forecast revision.
- H2d: Among analysts who issue non-timely forecast revisions, limited analyst attention positively affects analyst revision boldness.

While it is difficult to assess the impact of individual timely analyst forecasts following earnings announcements due to the confounding information events of the earnings announcement and as well as other timely analyst forecasts, if limited analyst attention leads to reduced (increased) (non-)timely forecast likelihood and boldness on the part of individual analysts, it suggests that firms with more busy analysts may display smaller absolute earnings announcement returns, since timely analyst forecast activity has been previously linked to EAR and drift (Zhang, 2008). With respect to non-timely forecasts at the individual analyst level, prior research finds that investors price analyst forecasts differently depending on such factors as forecast timeliness or analyst quality (Cooper et al., 2001; Gleason & Lee, 2003; Clement & Tse, 2003, Keskek et al., 2014). While heightened information load may lead to impaired performance by busy analysts with respect to initial timely forecasts, it is unclear whether investors consider this information with respect to subsequent forecasts by that analyst. I investigate the following hypotheses in relation to how investors price the timely forecast activity of busy analysts at the firm level, as well as the non-timely forecast activity of busy analysts at individual analyst level:

- H3a: Firms covered by more busy analysts display smaller absolute earnings announcement returns.
-
- H3b: Investors do not differentially price non-timely forecasts affected by limited analyst attention.

CHAPTER 3
SAMPLE AND RESEARCH DESIGN

Sample

The primary analyst and forecast data source is the I/B/E/S adjusted detail file. I establish a quarterly window between consecutive (q_{t-1} and q_t) firm earnings announcement dates and times via the I/B/E/S actuals file, and refer to this as the quarter q_t forecast window which culminates in the q_t earnings announcement. I then capture all quarterly q_t EPS forecast dates, times, and values issued during q_t from the I/B/E/S details file, beginning immediately following the q_{t-1} earnings announcement and continuing until one day before the q_t earnings announcement date. I also include analysts who do not issue a quarterly q_t EPS forecast during q_t (for example, some analysts may issue forecasts other than a quarterly q_t EPS forecast, or no forecast at all). In order to capture these "inactive" analysts, I capture the existence of any analyst activity in the year prior to the q_{t-1} earnings announcement, as well as in the quarter after the q_t earnings announcement, thereby indicating that a given analyst covered the firm in q_t even if that analyst did not issue a quarterly q_t EPS forecast during the q_t forecast window. I then add these "inactive" q_t analysts to the sample of active q_t analysts. I drop analysts who initiate or drop firm coverage during q_t, as well unidentifiable analysts ('000000').[5] I begin the sample in 1999 because of the widespread introduction of I/B/E/S timestamps in this year, both in terms of earnings announcements and forecasts.[6] I exclude observations lacking either earnings announcement or forecast time stamps, as well as

[5] We also delete analysts coded as '000001'; this identifier appears between 2007 and 2011, and appears to be unidentifiable in a similar nature to the '000000' code.

[6] I/B/E/S timestamps are highly prevalent beginning in 1999, representing nearly 100% of the sample.

observations lacking at least two unique analysts issuing quarterly qt EPS forecasts during the q_t forecast window, since this precludes firm-quarter comparability between analysts. I also exclude observations where the number of calendar days between earnings announcements is less than 60 or more than 120 calendar days, as well as observations where the earnings announcement occurs more than 90 calendar days after the end of the fiscal quarter (e.g., deHaan, Shevlin & Thornock, 2015). I do so to avoid firms that change fiscal quarter dates, have restatements or postpone earnings announcements due to financial reporting quality concerns. This file form the basis of my tests of forecast characteristics (e.g., forecast likelihood, timeliness, and boldness).

In terms of additional data items used in the statistical tests, I capture managerial guidance to accompany the q_{t-1} earnings announcement from the IBES guidance file. I capture relevant firm characteristics from the Compustat quarterly fundamentals file (firm size, book-to-market, and fiscal quarter) and annual fundamentals file (SIC), and join these characteristics to the forecast file after deleting firms lacking positive book value.[7] I capture trading days, price, and returns data from the CRSP. I delete observations with stock prices under $5. Finally, I delete the extreme 1% of observations on quarterly q_t EPS individual forecast accuracy in case these outlier values are due to data errors, and then winsorize all continuous variables at the 1% and 99% levels.

Research Design

I divide all quarterly q_t EPS analyst forecasts into timely forecasts (TFCAST)—forecasts issued on day 0 or day 1 following the q_{t-1} earnings announcement—and non-

[7] Since sometimes SIC's are missing, I capture historical SIC's from the Compustat company file.

timely forecasts (NTFCAST)—all other quarterly q_t EPS forecasts issued in the quarter.[8] Timely forecasts comprise (39.5%) of all analyst quarterly q_t EPS forecast activity, and this day 0-1 response window corresponds to the earnings announcement return (EAR) window typically employed in earnings announcement event studies. I use CRSP trading days to avoid counting holidays and weekends in the calculation of forecast timeliness following the q_{t-1} earnings announcement. If a forecast is not issued on a trading day, the first trading day after the forecast date is used as the forecast date. I measure continuous trading-day forecast lag using I/B/E/S timestamps for both the q_{t-1} earnings announcement and all quarterly q_t EPS forecasts issued throughout the remainder of q_t (e.g., TFCAST_LAG). I/B/E/S timestamps allow more precise measurement of analyst forecast timeliness across shorter (intraday) timeframes.

I capture timely forecast boldness (TFCAST_BOLD) as the magnitude of the difference between the forecast value of analyst i's timely firm j quarterly q_t EPS forecast and the consensus analyst quarterly q_t EPS estimate on the eve of the q_{t-1} earnings announcement. I capture non-timely forecast boldness (NTFCAST_BOLD) as the magnitude of the difference between the forecast value of analyst i's timely firm j quarterly q_t EPS forecast and the most recent, prior quarterly q_t EPS forecast. I use price information from CRSP in order to deflate earnings and forecast related variables as necessary (e.g., unexpected earnings, analyst forecast dispersion, forecast boldness, etc.).

In line with prior research on analyst timeliness and accuracy, I capture analyst characteristics—brokerage size, analyst portfolio size, analyst industry coverage, and

[8] We classify forecasts issued on day 1 after the market close as day 2 forecasts since they have no bearing on day 1 price activity.

analyst firm-specific experience—from IBES, along with Institutional Investor All-Star status, as proxies for analyst ability and resources. I capture firm-level characteristics such as market value of equity, book-to-market, fiscal quarter, and SIC from Compustat, and capture firm-level analyst characteristics such as analyst coverage and analyst dispersion for q_{t-1} from the I/B/E/S details file from all analysts covering the firm during q_{t-1}. I calculate the firm-level consensus analyst quarterly q_{t-1} and q_t EPS earnings estimates prior to the q_{t-1} earnings announcement (to establish both q_{t-1} and q_t expected earnings on the eve of the q_{t-1} earnings announcement) from the most recent forecast for each analyst issued in the sixty days prior to the q_{t-1} earnings announcement. I calculate firm-level earnings announcement characteristics from the IBES actuals file (unexpected earnings, meeting/beating expected earnings, and losses). I also capture the presence of quarterly q_t EPS managerial guidance in concert with the q_{t-1} earnings announcement from the I/B/E/S guidance file.

In terms of variable construction, I draw upon prior research by Clement & Tse (2003, 2005) on analyst timeliness, boldness, and accuracy by scaling all continuous variables from 0 to 1 per firm-quarter, according to the following form:[9]

$$\text{Characteristic\_Scaled}_{ijt-1} = \frac{(\text{Raw\_Characteristic}_{ijt-1} - \text{Raw\_Characteristic\_min}_{jt-1})}{(\text{Raw\_Characteristic\_max}_{jt-1} - \text{Raw\_Characteristic\_min}_{jt-1})}. \quad (3\text{-}1)$$

where a raw characteristic (e.g., firm size, brokerage size, absolute earnings surprise, etc.) corresponding to individual analyst i, for firm j, in quarter t-1, is scaled against the

[9] Clement & Tse (2003, 2005) scale variables by firm-year since they are examining annual earnings forecasts over the course of the year leading up to the year-end earnings announcement; Kim, Lobo & Song (2011) scale by quarter rather than firm-quarter. I do not scale continuous trading-day forecast lag or returns due to the ease of interpreting daily timeliness or stock returns.

minimum and maximum values of the raw characteristic for firm j in quarter t-1. This compares an individual analyst relative to all other analysts who produce any forecast for the same firm during the same quarter, rather than simply other analysts who produce a forecast for that same firm.

My initial hypotheses test the effect of limited analyst attention (BUSY) on analyst forecast behavior in terms of timely forecast likelihood, forecast timeliness, and forecast boldness. I indicate whether the q_t EPS forecast is on day 0-1 following q_{t-1} earnings announcement, forming the basis of the timely forecast likelihood variable (TFCAST) for H1a. The continuous forecast lag from each observation leads to the formation of the timely forecast lag variable (TFCAST_LAG) for H1b.

I capture timely forecast boldness (TFCAST_BOLD) for H1c as the magnitude of the difference between the forecast value of analyst i's timely firm j quarterly q_t EPS forecast and the consensus analyst quarterly q_t EPS estimate on the eve of the q_{t-1} earnings announcement:

$$TFCAST\_BOLD_{ijt} = (Forecast_{ijt} - Consensus\_Estimate_{jt})/Price_{jt-1}.$$

I capture limited analyst attention (BUSY) as the presence (1) or lack of (0) concurrent, same-day earnings announcements for analyst i on the firm j q_{t-1} earnings announcement date. The basic regression equation for these tests is specified as follows:

$$\begin{aligned} Prob(TFCAST_{ijt} = 1), TFCAST\_LAG_{ijt,}, TFCAST\_BOLD_{ijt} = \quad (3\text{-}2) \\ f(\beta_0 + \textstyle\sum_k \alpha_k * YearDummy_k + \beta_1 * BUSY_{ijt-1} + \beta_2 * SIZE_{jt-1} + \\ \beta_3 * BtM_{jt-1} + \beta_4 * COV_{jt-1} + \beta_5 * DISP_{jt} + \beta_6 * BSIZE_{it-1} + \\ \beta_7 * APSIZE_{it-1} + B_8 * AIND_{it-1} + \beta_9 * AFEXP_{ijt-1} + \\ \beta_{10} * DAYS\_ELAPSED_{ijt-1} + \beta_{11} * AUE_{jt-1} + \beta_{12} * BNEWS_{jt-1} + \\ \beta_{13} * LOSS_{jt-1} + \beta_{14} * GUIDE_{jt-1} + \beta_{15} * QTR4_{jt-1} + \varepsilon_{ijt}). \end{aligned}$$

where each observation corresponds to individual analyst i, firm j in quarter t or t-1.[10] Detailed variable descriptions are provided in the appendix. I control for firm, analyst and earnings announcement determinants of analyst forecast timeliness and boldness. I use Compustat data to calculate firm size (SIZE) and book-to-market (BtM). These variables capture primary firm characteristics associated with firm complexity and information environment, and are commonly associated with stock returns and firm valuation (e.g., Fama & French, 2015). I employ analyst coverage (COV) and analyst dispersion (DISP) as additional proxies for firm-level information environment and information uncertainty (Zhang, 2006a; Zhang, 2008). These variables tend to capture similar information, but analyst coverage can be more directly linked to possible herding activity by analysts when analyst dispersion is included. I control for analyst characteristics previously identified in the literatures on analyst timeliness, boldness, and accuracy, in particular brokerage size (BSIZE), analyst portfolio size (APSIZE), the number of industries covered by an analyst (AIND), analyst firm-specific experience (AFEXP), Institutional Investor All-Star status (STAR), and days elapsed since the analyst's most recent quarterly q_t EPS forecast prior to the q_{t-1} earnings announcement (DAYS_ELAPSED) (Clement, 1999; Jacob et al., 1999; Clement & Tse, 2003, 2005). Earnings announcement variables are selected from prior research on analyst forecast timeliness (Stickel, 1989; Zhang, 2008). I use absolute firm j q_{t-1} unexpected earnings scaled by firm j stock price at the end of q_{t-1} (AUE) to control for the amount of new information in the firm j q_{t-1} earnings announcement. I include categorical variables for the presence of a loss (LOSS)

[10] The moment of the q_{t-1} earnings announcement marks the shift from q_{t-1} to q_t, hence, all variables are constructed from the q_{t-1} fiscal quarter and earnings announcement, and are then used to model the characteristics of a q_t forecast issued within the first week following this q_{t-1} earnings announcement.

or missing consensus analyst expectations (BNEWS) in q_{t-1}. I also include categorical variables for q_{t-1} earnings announcements accompanied by managerial guidance (GUIDE) or that mark a fiscal year end (QTR4).

My second set of tests investigate non-timely forecast characteristics. I first investigate non-timely forecast likelihood in a manner similar to my initial tests of timely forecast likelihood (NTFCAST) for H2a.[11] I include a categorical variable for whether (1) or not (0) the analyst issued a timely forecast (TFCAST), since the presence of a previous forecast in the quarter is likely a substantial determinant of subsequent quarterly forecasting activity. I then investigate non-timely forecast boldness (NTFCAST_BOLD) for H2b, which I define as the as the absolute value of the difference between analyst i's non-timely firm j q_t EPS forecast and the most recent prior firm j q_t EPS forecast, deflated by firm j stock price at the end of q_{t-1}:

$NTFCAST\_BOLD_{ijt} = (Forecast_{ijt} – Most\_Recent\_Prior\_Forecast_{jt})/Price_{jt-1}$. Since prior research documents a trade-off between forecast timeliness and magnitude (boldness, accuracy), I control for the timeliness of the analyst forecasts when assessing magnitude (Cooper et al., 2001). I capture the amount of time between the first firm forecast and analyst i's forecast (HERD_LAG), scaled from 0 to 1 as with the other continuous variables. The regression below mimics the basic regression model (1) above, but includes TFCAST and HERD_LAG as additional controls:

$$\text{Prob}\,(NTFCAST_{ijt} = 1),\ NTFCAST\_BOLD_{ijt} = \qquad (3\text{-}3)$$

$$f\,(\beta_0 + \textstyle\sum_k \alpha_k * YearDummy_k + \beta_1 * BUSY_{ijt-1} + \beta_2 * SIZE_{jt-1} + \beta_3 * BtM_{jt-1} + \beta_4 * COV_{jt-1} + \beta_5 * DISP_{jt} + \beta_6 * BSIZE_{it-1} +$$

[11] I do not investigate NTFCAST_LAG in terms of formal hypotheses. Timeliness is less of a concern for non-timely forecasts, which more reflect private information generation more so than timely responses to public disclosures.

β_7*$APSIZE_{it-1}$ + B_8*$AIND_{it-1}$ + β_9*$AFEXP_{ijt-1}$ + β_{10}*$DAYS\_ELAPSED_{ijt-1}$ + β_{11}*$TFCAST_{ijt}$ + β_{12}*$HERD\_LAG_{ijt}$ + β_{13}*AUE_{jt-1} + β_{15}*$BNEWS_{jt-1}$ + β_{15}*$LOSS_{jt-1}$ + β_{16}*$GUIDE_{jt-1}$ + β_{17}*$QTR4_{jt-1}$ + ε_{ijt}).

While the above sample includes all analysts regardless of whether they issued an initial timely forecast (TFCAST), I perform similar analyses on the subsample of analysts who initially issued a timely forecast (TFCAST = 1) in order to assess revision activity rather than simply forecast activity. Given the presence of an initial timely forecast, I investigate the influence of limited attention on non-timely revision likelihood (NTREV) for H2c. I then investigate non-timely revision boldness (NTREV_BOLD) for H2d, which I define as the as the absolute value of the difference between analyst i's initial timely firm j q_t EPS forecast and subsequent analyst i non-timely firm j q_t EPS forecasts, deflated by firm j stock price at the end of q_{t-1}:

$NTREV\_BOLD_{ijt}$ = ($NonTimely\_Forecast_{ijt}$ – $Timely\_Forecast_{ijt}$)/$Price_{jt-1}$.

NTREV_BOLD thus investigates analyst i forecast boldness relative to that same analyst's prior forecast boldness rather than relative to the forecast boldness of other analysts. The regression equation for H2c and H2d is otherwise similar to regression equation 3-3 above, but lacks TFCAST as a control since the tests examine specifically those analysts for whom TFCAST = 1.

My final set of hypotheses investigate the price reactions surrounding busy analysts, both at the firm and individual analyst level. Due to the difficulty of assessing the unique impact of multiple firm j forecasts occurring simultaneously with an earnings announcement, my H3a pricing tests aggregate individual analyst-level limited attention affects at the firm-level. The NUM_BUSY variable captures the number of busy analysts for the firm j q_{t-1} earnings announcement, and represents a test of limited attention on

immediate absolute earnings announcement returns (A_EAR). Following Zhang (2008), I take the median value of individual analyst characteristics such as brokerage size, analyst portfolio size, etc. for all analysts following firm j. I include a categorical variable (DRESP) for the presence of at least one timely forecast for firm j, given the previous linkage between timely forecast responses, earnings announcement returns, and post-earnings announcement drift (Zhang, 2008).

$$A\_EAR_{jt} = f(\beta_0 + \sum_k \alpha_k * YearDummy_k + \beta_1 * NUM\_BUSY_{jt-1} + \beta_2 * DRESP_{jt-1} + \beta_3 * SIZE_{jt-1} + \beta_4 * BtM_{jt-1} + B_5 * COV_{jt-1} + \beta_6 * DISP_{jt-1} + \beta_7 * FIRM\_BSIZE_{jt-1} + \beta_8 * FIRM\_APSIZE_{jt-1} + B_9 * FIRM\_AIND_{jt-1} + \beta_{10} * FIRM\_AFEXP_{jt-1} + \beta_{11} * AUE_{jt-1} + \beta_{12} * BNEWS_{jt-1} + \beta_{13} * LOSS_{jt-1} + \beta_{14} * GUIDE_{jt-1} + \beta_{15} * QTR4_{jt-1} + \varepsilon_{jt}). \quad (3\text{-}4)$$

My H3b test investigates whether investors differentially price the non-timely forecasts of busy and non-busy analysts at the individual analyst level. The regression equation for H3b is identical to regression (2), but additionally controls for the new information content of analyst i's non-timely forecast (NTFCAST_BOLD). Finally, I scale all non-categorical results from 0 to 1 throughout, and include analyst-quarter-fixed effects and cluster standard errors by analyst-firm for all regressions (Peterson, 2008; Zhang, 2008).

CHAPTER 4
RESULTS

I begin my analysis with basic descriptive statistics on the nature of earnings announcement clustering, concurrent earnings announcement frequency, and analyst forecast responses. Figure 4-1 indicates that over the sample period from 1999 to 2014, about 75% of all earnings announcements covered by analysts occur within a four-week window from roughly three to six weeks after the beginning of a typical thirteen-week calendar quarter. Figure 4-2 indicates analyst forecast lag following earnings announcements, highlighting the fact that a substantial percentage (41%) of all forecasts issued in the quarter are issued the day of, or after, the earnings announcement. Thus not only are earnings announcements highly clustered in calendar time, but analysts are responding to these earnings announcements in increasingly rapid fashion. Table 4-1 highlights the increases in analyst coverage portfolios size, the frequency of concurrent, same-day earnings announcements within analysts' coverage portfolios, and the increasing timeliness of analyst forecast responses after earnings announcements over time. In particular, analyst coverage portfolios have increased from a mean of roughly 10.5 firms in 1999 to over 15 firms by 2014. The percentage of concurrent, same-day earnings announcements within analysts' coverage portfolios has increased from just under 40% in 1999 to over 50% in 2014, and the improved analyst responsiveness documented by Zhang (2008) over the period from 1996 to 2002 has continued to increase over time. From the sample of all timely (day 0-10 forecasts by analysts issued

during the quarter, mean forecast lag has declined from about 1.43 days in 1999 to 0.91 days in 2014 (Table 4-1).[12]

For the entire sample, 45% of all earnings announcements covered by analysts occur concurrently with another earnings announcement covered by that same analyst.[13] In untabulated results, of this 45%, about 24% of observations occur concurrently with exactly one other same-day earnings announcement, 12% of observations occur concurrently with exactly two other same-day earnings announcements, and 8% of observations occur concurrently with three or more same-day earnings announcements. In terms of concurrent earnings announcements (four or more) over a three-day window [-1, +1], a similar pattern emerges: 29% of observations occur concurrently with three other three-day earnings announcements. More specifically, 11% of observations occur concurrently with three other three-day earnings announcements, 7% of observations occur concurrently with four other three-day earnings announcements, 4.5% of observations occur concurrently with five other three-day earnings announcements, and the remaining 6.5% of observations occur concurrently with six or more other three-day earnings announcements.

Tables 4-2, 4-3, and 4-4 respectively provide the distribution and means of raw forecast, analyst, and firm characteristics for the entire sample; since firms can be covered by multiple analysts, and each analyst can issue multiple forecasts, means are calculated separately for each level of analysis (for example, when calculating firm

[12] If one considers all first forecasts issued in the first month, mean forecast lag has declined from about 15 days to 6.7 days.

[13] So, for example, if an analyst covers five firms, and two of the five firms in the analyst's portfolio announce earnings on the same day, then 40% of the firms that analyst covers occur on the same day.

characteristics, I count each firm observation once rather than repeatedly for each analyst or analyst forecast). Table 4-5 includes the means of scaled forecast, analyst and firm characteristics conditional on an analyst being busy (1) or not (0). Busy analysts tend to work at larger brokerage houses, have larger coverage portfolios, cover more industries and have more firm-specific experience. Thus busy analysts appear to share some characteristics associated with better forecast performance—working for larger brokerage houses and having more firm-specific experience—and some characteristics associated with weaker forecast performance—having larger coverage portfolios and covering more industries.

Figure 4-3 presents Pearson correlations of regression variables. The concurrent earnings announcement categorical variable (BUSY) is positively correlated with continuous trading-day forecast lag (TFCAST_LAG) and negatively correlated with forecast likelihood (TFCAST) and forecast boldness (TFCAST_BOLD). BUSY is positively correlated with non-timely forecast likelihood (NTFCAST), non-timely forecast boldness (NTFCAST_BOLD), non-timely revision likelihood (NTREV), and non-timely revision boldness (NTREV_BOLD). BUSY is negatively correlated with all three stock return windows (A_EAR, A_DRIFT, and A_CAR). These correlations provide preliminary evidence that concurrent, same-day earnings announcements negatively (positively) affect initial (subsequent) analyst forecasting behavior and investor price responses. Despite this, BUSY is positively correlated with Institutional Investor All-Star status (STAR), brokerage size (BSIZE), analyst portfolio size (APSIZE), and analyst firm-specific experience (AFEXP), and negatively correlated with the number of industries an analyst covers (AIND), suggesting that busy analysts may be

better (resourced) analysts. BUSY is positively correlated with HERD_LAG and negatively correlated with DAYS_ELAPSED since the last analyst i firm j forecast. In terms of firm-specific characteristics, BUSY is positively correlated with SIZE, BtM, analyst coverage (COV), analyst dispersion (DISP), absolute unexpected earnings (AUE), and missing analyst consensus expectations (BNEWS). Finally, BUSY is negatively correlated with the presence of a loss (LOSS), managerial guidance (GUIDE) and fiscal fourth quarter earnings announcements (QTR4).

Timely Forecast Characteristics

Given the importance of analysts promptly issuing timely forecasts following important public disclosures such as earnings announcements, my first set of hypotheses investigates whether earnings announcement clustering influences initial analyst forecast behavior immediately following the earnings announcement. Table 4-6 provides results for H1a, the likelihood of an analyst issuing a timely forecast (TFCAST = 1) given the presence (or lack) of concurrent, same-day earnings announcements. The coefficient on BUSY is significant and negative, as predicted, suggesting that concurrent, same-day earnings announcements may create a limited attention effect that impairs an analyst's ability to issue a forecast in the days immediately following the q_{t-1} earnings announcement. SIZE, BtM, DISP, and DAYS_ELAPSED all have substantial positive associations with the likelihood of a timely forecast, while COV and BSIZE have substantial negative associations with the likelihood of a timely forecast. STAR, AIND, and AFEXP are also negatively associated with the likelihood of a timely forecast, while APSIZE is insignificant. AUE and BNEWS are negatively associated with timely forecast likelihood. LOSS, GUIDE, and QTR4 are positively associated with timely forecast likelihood.

Table 4-7 provides results for timely (day 0-1) forecast timeliness (TFCAST_LAG) given the presence (or lack) of concurrent earnings announcements (H1b). If busy analysts show a delayed response in terms of forecast timeliness relative to their non-busy peers, it suggests that busy analysts may be engaged in additional information processing (consuming more time), or more willing to wait for other analysts to forecast first before issuing their own forecasts (producing less new information). As expected, the presence of concurrent, same-day earnings announcements (BUSY) is significant and in the predicted positive direction—that is, increasing timely forecast lag (i.e., decreasing timeliness)—suggesting that concurrent, same-day earnings announcements lead to delayed timely forecasts. BSIZE, AFEXP, and interestingly APSIZE, are associated with more timely forecasts, while AIND is associated with less timely forecasts. The largest coefficient magnitude is on BSIZE (-0.18) suggesting that brokerage size has a substantial impact with respect to determining forecast timeliness in the days after an earnings announcement. Interestingly, while BSIZE and COV decrease the likelihood of an analyst issuing a timely forecast (Table 4-6), if the analyst chooses to issue a timely forecast, BSIZE and COV increase the timeliness of the analyst forecast (Table 4-7). While both H1a and H1b captures elements of analyst forecast timeliness, these results highlight the distinction between whether or not to issue a timely forecast, versus the subsequent timeliness of that forecast if an analyst does.

Table 4-8 provides results on forecast boldness (TFCAST_BOLD), and thus can be interpreted as the amount of information which an analyst impounds into the timely q_t EPS forecast as a result of the q_{t-1} earnings announcement (H1c). As predicted, busy analysts forecast more conservatively relative to non-busy analysts (-0.003). DISP

(0.287) and AUE (0.160) represent the most economically meaningful coefficients by a substantial margin, suggesting that they play an important role in explaining the information content of an earnings announcement. The R-squared for the regression is 34.88%, which suggests that the model has substantial explanatory power. Taken together, the evidence suggests that busy analysts generally perform more poorly than non-busy analysts with respect to the likelihood, timeliness, and informativeness of forecasts in the day 0-1 window immediately following earnings announcements.

Non-timely Forecast Characteristics

My second set of hypotheses investigates whether earnings announcement clustering influences analyst forecast behavior throughout the remainder of the quarter, even after the limited attention-inducing constraints have loosened. For example, if an analyst does not issue an initial timely forecast following the earnings announcement because of the presence of concurrent, same-day earnings announcements, the analyst may be more likely to forecast in the weeks and months following the earnings announcement when the constraint has loosened. Similarly, an analyst who produces a sub-optimal timely forecast due to limited attention may be more likely to revise this forecast later in the quarter when the constraints have loosened, and one would expect this to manifest as a larger revision relative to non-busy peers who also choose to revise their initial timely forecasts.

Table 4-9 provides results for H2a, the likelihood of an analyst issuing a non-timely forecast (NTFCAST = 1) given the presence (or lack) of concurrent earnings announcements. The coefficient on BUSY is significant and positive, as predicted, suggesting that concurrent earnings announcements increases an analyst's non-timely forecast activity over the remainder of the quarter. BtM is associated with a substantially

reduced likelihood of non-timely forecast likelihood, suggesting that growth firms are much more likely to enjoy increased non-timely forecast activity throughout the remainder of the quarter. AIND, AFEXP, and DAYS_ELAPSED are all significant predictors of increased non-timely forecast likelihood. As expected, the presence of a previous timely forecast (TFCAST) is an overwhelming predictor of reduced non-timely forecast likelihood. Table 4-10 provides results for H2b, evaluating the boldness of non-timely forecasts from busy analysts versus non-busy analysts. I capture non-timely forecast boldness (NTFCAST_BOLD) as the difference between analyst i's q_t EPS forecast and the most recent q_t EPS forecast issued for that firm, thus effectively comparing busy analysts against their non-busy peers in terms of the informativeness of non-timely forecasts. I find that non-timely forecasts by busy analysts are significantly less bold at the 10% significance level, in contrast to my prediction. As with timely forecasts, DISP (0.43) and AUE (0.17) are the most significant predictors of non-timely forecast boldness.

Table 4-11 provides results for H2c, comparing the likelihood of a busy analyst issuing a non-timely revision (NTREV = 1) given an initial timely forecast (TFCAST = 1), relative to a non-busy analyst. The coefficient on BUSY is significant and positive, as predicted, and of a similar magnitude as the results for H2a, suggesting that busy analysts are more likely to produce initially suboptimal timely forecasts relative to non-busy analysts, and therefore our more likely to revise that timely forecast when the constraints have loosened. Table 4-12 provides results for H2d, evaluating the boldness of non-timely revisions from busy analysts versus non-busy analysts. I capture non-timely revision boldness (NTREV_BOLD) as the difference between analyst i's initial timely q_t

EPS forecast and subsequent non-timely q_t EPS forecast issued for that firm, thus effectively comparing busy and non-busy analysts against themselves in terms of informativeness relative to their previous timely forecast. In contrast to my predictions, I find no difference between the revision boldness of busy and non-busy analysts, as the coefficient on BUSY is insignificantly positive. Despite the negative impairments to busy analyst forecast behavior with respect to timely forecasts, these mixed results suggest that busy analysts are only modestly affected by a limited attention effect with respect to non-timely forecast activity. The evidence suggests that busy analysts are more likely to issue non-timely forecasts or revisions, but that these forecasts or revisions do not appear to incorporate any more information than the non-timely forecasts of their non-busy peers.

Investor Pricing of Busy Analyst Forecasts

Table 4-13 provides results for H3a. I test whether firms with more busy analysts experience weaker earnings announcement returns relative to firms with fewer busy analysts. I include all firm-specific information as before, and aggregate individual analyst-specific characteristics at the firm level by calculating median BSIZE, APSIZE, AIND, & AFEXP from all analysts covering a given firm. I also include a categorical variable (DRESP) to account for the presence of at least one timely analyst forecast for the firm (Zhang, 2008). Confirming the results of prior research, I find that the presence of at least one timely forecast (DRESP) increases absolute EAR (1.3%), as does COV (4.1%) and AUE (4.1%), as expected. I find that the number of busy analysts for a given firm leads significantly smaller earnings announcement returns (-0.8%) at the 1% level of statistical significance. Thus the number of busy analysts appears to represent about a 20% reduction in the increase in EAR as a result the number of analysts covering a given firm. Finally, I test whether investors price the information content of non-timely

forecasts issued by busy analysts relative to forecasts issued by non-busy analysts. Table 4-14 provides results for H3b. Using an event study (day 0,1) approach with the controls listed above, and further controlling for the information content of the forecast (NTFCAST_BOLD), I regress size-adjusted absolute cumulative abnormal returns (A_CAR) on BUSY, and find that the forecasts of non-busy analysts generate smaller stock returns at the 1% level of statistical significance, yet these smaller stock returns are economically insignificant in practical terms (0.04%). The results suggest that even if investors appear to price non-timely forecasts of busy analysts at a slight discount relative to their non-busy peers, the practical effect appears to be largely insignificant.

All in all, the results suggest initial analyst forecast activity is significantly impaired by the presence of concurrent, same-day earnings announcements, but that other than leading to increased non-timely forecast activity by busy analysts, the longer term effects of earnings announcement clustering appear to be more limited in terms of their information content and pricing implications. Section 5 provides further tests to shed some light on three additional issues: 1.) How does variation in limited attention effect analyst performance? 2.) Are busy analysts better, or worse, analysts? 3.) Does the limited attention effect vary with respect to more (or less) similar concurrent earnings announcements?

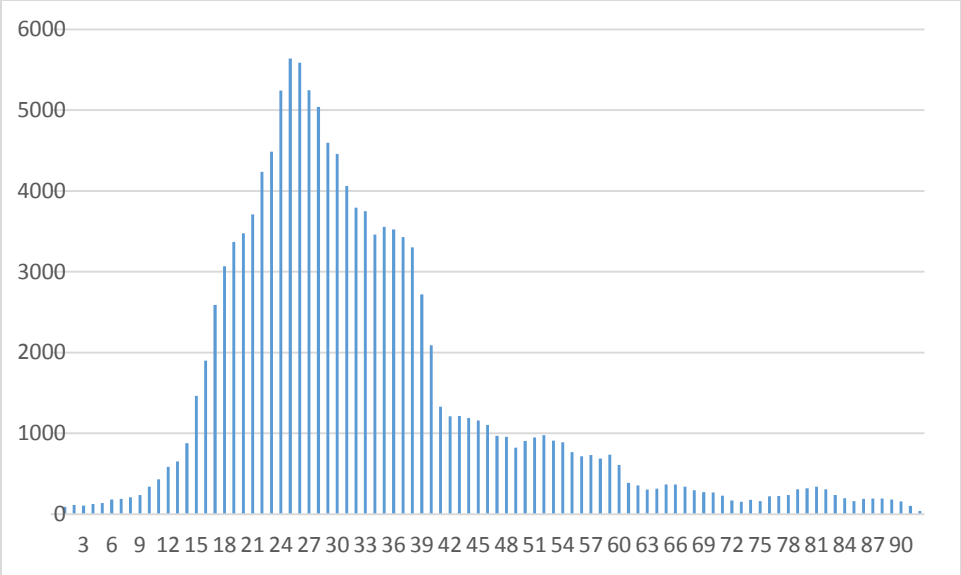

Figure 4-1. Earnings announcement frequency throughout a calendar quarter

Panel A counts all firm earnings announcements for which at least one analyst issues a qt forecast between the qt-1 and qt earnings announcement dates. The x-axis indicates calendar day per quarter (from day 1 to day 92). The y-axis indicates the frequency of earnings announcements per calendar day over the sample (1999-2014). Calendar day is the distance of the earnings announcement beginning of the calendar quarter (e.g., January 1st, April 1st, etc. = 1). For example, an earnings announcement on January 4th would have a value of 4. The graph indicates that the majority of earnings announcements occur in the peak of the graph, roughly days 15-40.

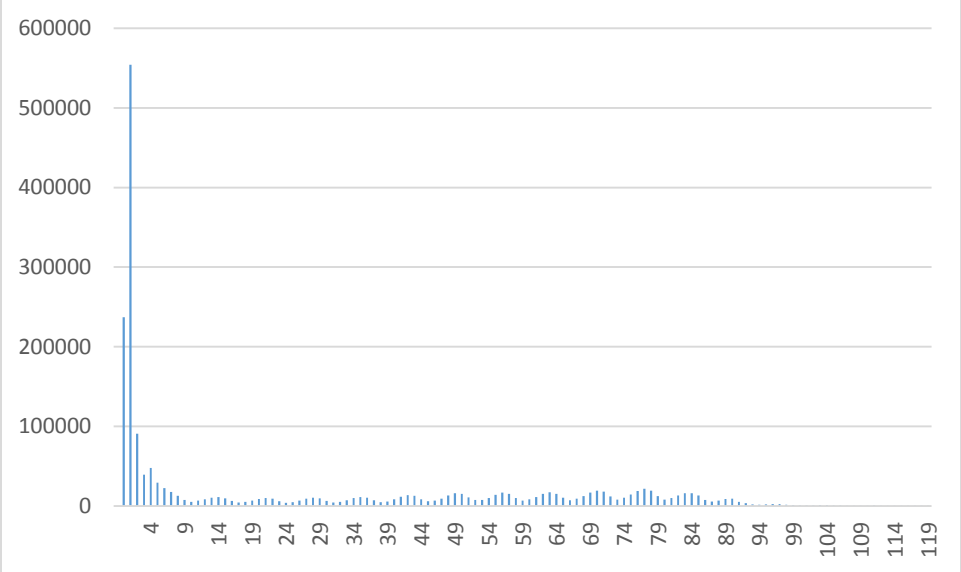

Figure 4-2. Forecast lag following earnings announcements (all forecasts)

Panel B counts all forecasts issued by analysts for qt between the qt-1 and qt earnings announcement dates. The x-axis indicates calendar-day analyst forecast lag following earnings announcements. The y-axis indicates the forecast lag frequency on a given calendar day (day 0, day, 1, etc.).

Table 4-1. Selected characteristics over time.

FQE_year	APSIZE	BUSY_%	TFCAST _LAG
1999	10.5	39.52	1.43
2000	9.6	39.71	1.40
2001	10.5	41.93	1.22
2002	11.1	43.68	1.05
2003	11.6	44.07	0.96
2004	11.6	43.80	0.94
2005	11.9	44.59	0.91
2006	12.1	45.36	0.91
2007	12.2	44.25	0.91
2008	12.9	45.35	0.95
2009	13.3	46.74	0.95
2010	13.4	47.22	0.95
2011	13.7	48.50	0.93
2012	14.2	49.39	0.90
2013	14.8	50.43	0.91
2014	15.3	53.57	0.91

Table 1 sample is first forecasts issued by analyst i for q_t between the q_{t-1} and q_t earnings announcement dates, as well as inactive analysts, and thus includes one observation per analyst-firm-quarter. Column 1 indicates the year of the fiscal quarter end (FQE_year) for the q_{t-1} earnings announcement. Column 2 indicates mean analyst portfolio size (APSIZE). Column 3 indicates mean trading-day forecast lag just for forecasts issued on days 0-1 after the q_{t-1} earnings announcement (TFCAST_LAG). Column 4 indicates the frequency (BUSY_%) of concurrent, same-day earnings announcements (BUSY = 1).

Table 4-2. Raw univariate means, forecast characteristics

Variable	Mean	Min	25th Percentile	Median	75th Percentile	Max
TFCAST	0.35	0	0	0	1	1
TFCAST_LAG	0.66	0.00	0.40	0.66	0.89	1.65
TFCAST_BOLD*100	0.23	0	0.03	0.10	0.25	3.23
NTFCAST	0.51	0	0	1	1	1
NTFCAST_BOLD*100	0.35	0	0.05	0.14	0.39	3.23
NTREV	0.40	0	0	0	1	1
NTREV_BOLD*100	0.30	0	0.04	0.12	0.31	3.44
DAYS_ELAPSED	76.96	1	36	89	121	121
HERD_LAG	17.42	0	0.32	1.72	37.04	83.11
A_CAR*100	3.54	0.00	0.91	2.13	4.52	19.96

Variables are provided in raw form (i.e., before scaling from 0 to 1).
Panel A: TFCAST is the presence (1) or lack of (0) a timely firm j q_t EPS forecast by analyst i. $TFCAST\_LAG_{ijt}$ is the continuous trading-day lag of analyst i's timely firm j q_t EPS forecast, calculated from I/B/E/S timestamps and CRSP trading days to eliminate weekends and holidays. TFCAST_BOLD is the absolute value of the difference between analyst i's timely firm j q_t EPS forecast and the firm j q_t analyst consensus EPS estimate at the time of the q_{t-1} earnings announcement, deflated by firm j stock price at the end of q_{t-1}. NTFCAST is the presence (1) or lack of (0) a non-timely firm j q_t EPS forecast by analyst i. NTFCAST_BOLD is the absolute value of the difference between analyst i's non-timely firm j q_t EPS forecast and the most recent firm j q_t EPS forecast, deflated by firm j stock price at the end of q_{t-1}. NTREV is the presence (1) or lack of (0) a non-timely firm j q_t revision by analyst i. NTREV_BOLD is the absolute value of the difference between analyst i's non-timely firm j q_t EPS forecast and timely firm j q_t EPS forecast, deflated by firm j stock price at the end of q_{t-1}. $DAYS\_ELAPSED_{ijt-1}$ is the number of days between analyst i's firm j q_t EPS forecast issued prior to q_{t-1} earnings announcement; set to maximum (121 days) if no prior forecast exists. $HERD\_LAG_{ijt}$ is the number of days between first firm j q_t EPS forecast and analyst i's firm j q_t EPS forecast.

Table 4-3. Raw univariate means, analyst characteristics

Variable	Mean	Min	25th Percentile	Median	75th Percentile	Max
BUSY	0.46	0	0	0	1	1
STAR	0.03	0	0	0	0	1
BSIZE	47.44	1	17	39	76	163
APSIZE	13.51	1	9	13	17	111
AIND	3.13	1	1	3	4	20
AFEXP	2.84	0	0.5	1.75	4.25	15.75

Variables are provided in raw form (i.e., before scaling from 0 to 1).
Panel B: $BUSY_{ijt-1}$ is the presence (1) or lack of (0) of concurrent, same-day q_{t-1} earnings announcements for analyst i. $STAR_{it-1}$ indicates whether (1) or not (0) analyst i was an Institutional Investor All-Star analyst during that calendar year. $BSIZE_{it-1}$ is the total number of analysts employed by analyst i's brokerage house at the end of $q_{t-1.}$ $APSIZE_{it-1}$ is the number of firms covered by analyst i at the end of $q_{t-1.}$ $AIND_{it-1}$ is the number of industries covered by analyst i at the end of $q_{t-1.}$ $AFEXP_{ijt-1}$ is the number of years of firm j experience for analyst i at the end of q_{t-1}

Table 4-4. Raw univariate means, firm characteristics

Variable	Mean	Min	25th Percentile	Median	75th Percentile	Max
SIZE	6,141	115	433	1,194	3,720	185,452
BtM	0.54	0.04	0.28	0.47	0.72	1.84
COV	9.84	1	4	8	14	59
NUM_BUSY	4.53	0	1	3	6	41
DISP*100	0.51	0	0.08	0.20	0.51	5.79
AUE*100	0.30	0	0.04	0.12	0.33	1.95
BNEWS	0.28	0	0	0	1	1
LOSS	0.13	0	0	0	0	1
GUIDE	0.18	0	0	0	0	1
QTR4	0.23	0	0	0	0	1
BSIZE_FIRM	41.02	1	24.5	37	56	160
APSIZE_FIRM	12.74	1	10	12.5	15	82
AIND_FIRM	2.98	1	2	3	4	18
AFEXP_FIRM	2.24	0	0.875	1.75	3.25	15.75
A_EAR*100	5.64	0	1.70	3.97	7.85	22.76
A_DRIFT*100	13.17	0	4.25	9.37	18.03	53.59

Variables are provided in raw form (i.e., before scaling from 0 to 1).
Panel C: $SIZE_{jt-1}$ is the market capitalization of firm j at the end of q_{t-1}. BtM_{jt-1} is the book-to-market ratio of firm j at the end of q_{t-1}. COV_{jt-1} is the number of analysts covering firm j at the end of q_{t-1}. NUM_BUSY_{jt-1} is the number of busy analysts for firm j on the firm j q_{t-1} earnings announcement date. $DISP_{jt}$ is the dispersion of q_t analyst forecasts for firm j at the end of q_{t-1}, scaled by firm j stock price at the end of q_{t-1}. AUE_{jt-1} is the absolute magnitude of the firm j q_{t-1} earnings surprise, deflated by firm j stock price end of q_{t-1}. $BNEWS_{jt-1}$ indicates whether firm j meets or beats (0) or misses (1) consensus analyst earnings expectations for q_{t-1}. $LOSS_{jt-1}$ indicates whether (1) or not (0) the firm j q_{t-1} earnings announcement is a loss. $GUIDE_{jt-1}$ indicates whether (1) or not (0) the firm j q_{t-1} earnings announcement is accompanied by managerial guidance. $QTR4_{jt-1}$ indicates whether (1) or not (0) the firm j q_{t-1} earnings announcement is a fiscal year end. $FIRM\_BSIZE_{it-1}$, $FIRM\_APSIZE_{it-1}$, $FIRM\_AIND_{it-1}$ & $FIRM\_AFEXP_{ijt-1}$ represent the median firm j values of all analysts covering firm j at the end of q_{t-1}.

Values for TFCAST_BOLD, NTFCAST_BOLD, NTREV_BOLD, DISP, AUE, A_EAR, A_DRIFT, & A_CAR are multiplied by 100 so that the values are meaningful within two decimal places.

Table 4-5. Scaled univariate means on BUSY, all forecasts

Variable	BUSY = 0	BUSY = 1
FCAST	0.86	0.88
TFCAST	0.36	0.34
TFCAST_LAG	0.65	0.66
TFCAST_BOLD	0.07	0.07
NTFCAST	0.49	0.53
NTFCAST_BOLD	0.12	0.13
NTREV_BOLD	0.08	0.09
A_EAR	0.06	0.05
A_DRIFT	0.13	0.12
A_CAR	0.03	0.03
STAR	0.03	0.04
BSIZE	0.38	0.41
APSIZE	0.17	0.24
AIND	0.14	0.15
AFEXP	0.37	0.40
DAYS_ELAPSED	0.65	0.61
HERD_LAG	0.21	0.22
ln_SIZE	0.46	0.47
BtM	0.24	0.27
ln_COV	0.66	0.67
DISP	0.09	0.09
BSIZE_FIRM	0.37	0.39
APSIZE_FIRM	0.26	0.28
AIND_FIRM	0.17	0.16
AFEXP_FIRM	0.37	0.37
AUE	0.12	0.12
BNEWS	0.24	0.25
LOSS	0.10	0.09
GUIDE	0.22	0.20
QTR4	0.28	0.20

All non-categorical variables, except TFCAST_LAG and absolute returns, are scaled from 0 to 1. TFCAST is the presence (1) or lack of (0) a timely firm j q_t EPS forecast by analyst i. $TFCAST\_LAG_{ijt}$ is the continuous trading-day lag of analyst i's timely firm j q_t EPS forecast, calculated from I/B/E/S timestamps and CRSP trading days to eliminate weekends and holidays. TFCAST_BOLD is the absolute value of the difference between analyst i's timely firm j q_t EPS forecast and the firm j q_t analyst consensus EPS estimate at the time of the q_{t-1} earnings announcement, deflated by firm j stock price at the end of q_{t-1}. NTFCAST is the presence (1) or lack of (0) a non-timely firm j q_t EPS forecast by analyst i. NTFCAST_BOLD is the absolute value of the difference between analyst i's non-timely firm j q_t EPS forecast and the most recent firm j q_t EPS forecast, deflated by firm j stock price at the end of q_{t-1}. NTREV is the presence (1) or lack of (0) a non-timely firm j q_t revision by analyst i. NTREV_BOLD is the absolute value of the difference between analyst i's non-timely firm j q_t EPS forecast and timely firm j q_t EPS forecast, deflated by firm j stock price at the end of q_{t-1}. $DAYS\_ELAPSED_{ijt-1}$ is the number of days between analyst i's firm j q_t EPS forecast issued prior to q_{t-1} earnings announcement; set to maximum (121 days) if no prior forecast exists. $HERD\_LAG_{ijt}$ is the

number of days between first firm j q_t EPS forecast and analyst i's firm j q_t EPS forecast. $STAR_{it-1}$ indicates whether (1) or not (0) analyst i was an Institutional Investor All-Star analyst during that calendar year. $BSIZE_{it-1}$ is the total number of analysts employed by analyst i's brokerage house at the end of q_{t-1}. $APSIZE_{it-1}$ is the number of firms covered by analyst i at the end of q_{t-1}. $AIND_{it-1}$ is the number of industries covered by analyst i at the end of q_{t-1}. $AFEXP_{ijt-1}$ is the number of years of firm j experience for analyst i at the end of q_{t-1}. $SIZE_{jt-1}$ is the log of the market capitalization of firm j at the end of q_{t-1}. BtM_{jt-1} is the book-to-market ratio of firm j at the end of q_{t-1}. COV_{jt-1} is the log of the number of analysts covering firm j at the end of q_{t-1}. NUM_BUSY_{jt-1} is the number of busy analysts for firm j on the firm j q_{t-1} earnings announcement date. $DISP_{jt}$ is the dispersion of q_t analyst forecasts for firm j at the end of q_{t-1}, scaled by firm j stock price at the end of q_{t-1}. $FIRM\_BSIZE_{it-1}$, $FIRM\_APSIZE_{it-1}$, $FIRM\_AIND_{it-1}$ & $FIRM\_AFEXP_{ijt-1}$ represent the median firm j values of all analysts covering firm j at the end of q_{t-1}. AUE_{jt-1} is the absolute magnitude of the firm j q_{t-1} earnings surprise, deflated by firm j stock price end of q_{t-1}. $BNEWS_{jt-1}$ indicates whether firm j meets or beats (0) or misses (1) consensus analyst earnings expectations for q_{t-1}. $LOSS_{jt-1}$ indicates whether (1) or not (0) the firm j q_{t-1} earnings announcement is a loss. $GUIDE_{jt-1}$ indicates whether (1) or not (0) the firm j q_{t-1} earnings announcement is accompanied by managerial guidance. $QTR4_{jt-1}$ indicates whether (1) or not (0) the firm j q_{t-1} earnings announcement is a fiscal year end. *** indicates 1% significance. ** indicates 5% significance. * indicates 10% significance.

	BUSY	TFCAST	TFCAST_LAG	TFCAST_BOLD	NTFCAST	NTFCAST_BOLD	NTREV_BOLD	A_EAR	A_DRIFT	A_CAR	STAR	BSIZE	APSIZE	AIND	AFEXP	DAYS_ELAPSED	HERD_LAG	SIZE	BtM	COV	DISP	BSIZE_firm	APSIZE_firm	AIND_firm	AFEXP_firm	AUE	BNEWS	LOSS	GUIDE	QTR4
BUSY	1																													
TFCAST	-0.02	1																												
TFCAST_LAG	0.01	.	1																											
TFCAST_BOLD	-0.02	.	0.02	1.00																										
NTFCAST	0.04	-0.75	.	.	1																									
NTFCAST_BOLD	0.01	.	.	.	.	1																								
NTREV_BOLD	0.01	-0.02	0.00	0.69	0.02	0.81	1																							
A_EAR	-0.05	.	-0.02	0.17	.	.	0.11	1																						
A_DRIFT	-0.04	-0.03	0.04	0.15	0.03	0.18	0.19	0.21	1																					
A_CAR	-0.04	.	.	.	.	0.18	0.19	.	0.32	1																				
STAR	0.04	0.00	-0.01	-0.01	0.01	-0.01	-0.02	-0.03	-0.02	-0.01	1																			
BSIZE	0.06	0.03	-0.15	-0.03	0.01	-0.01	-0.03	-0.06	-0.05	-0.03	0.20	1																		
APSIZE	0.26	0.00	-0.04	-0.03	0.01	-0.02	-0.02	-0.08	-0.09	-0.07	0.14	0.14	1																	
AIND	0.05	0.04	0.00	-0.01	-0.05	-0.02	-0.04	0.02	-0.03	-0.01	0.07	0.00	0.33	1																
AFEXP	0.05	0.01	0.06	-0.05	-0.02	-0.01	0.00	-0.07	-0.01	0.01	0.12	0.07	0.14	0.04	1															
DAYS_ELAPSED	-0.06	-0.02	0.00	-0.06	-0.06	-0.07	-0.03	0.03	0.01	0.01	0.01	-0.02	-0.03	0.01	-0.01	1														
HERD_LAG	0.03	-0.65	0.70	-0.02	0.65	0.10	0.07	-0.04	0.03	0.05	0.01	0.02	-0.01	-0.07	-0.01	-0.04	1													
SIZE	0.03	-0.01	-0.02	-0.22	0.01	-0.16	-0.17	-0.20	-0.20	-0.17	0.06	0.16	0.03	-0.04	0.17	-0.08	0.11	1												
BtM	0.08	-0.06	0.05	0.23	0.09	0.25	0.25	-0.06	-0.03	-0.06	0.01	0.00	0.07	-0.05	0.00	-0.06	0.04	-0.20	1											
COV	0.03	0.02	-0.05	-0.13	-0.01	-0.09	-0.12	-0.06	-0.08	-0.07	0.03	0.09	0.02	-0.07	0.15	-0.11	0.09	0.69	-0.15	1										
DISP	0.01	-0.03	0.00	0.50	0.05	0.48	0.44	0.07	0.11	0.06	0.00	0.00	-0.01	-0.06	-0.05	-0.10	0.04	-0.08	0.32	0.04	1									
BSIZE_firm	0.05	-0.01	-0.02	-0.05	0.01	-0.02	-0.01	-0.15	-0.12	-0.11	0.09	0.34	0.09	0.03	0.09	0.00	0.04	0.28	0.03	0.09	0.01	1								
APSIZE_firm	0.14	0.01	-0.04	-0.03	0.02	-0.03	-0.02	-0.12	-0.15	-0.13	0.03	0.06	0.50	0.10	0.00	-0.02	0.00	0.05	0.12	0.04	0.00	0.17	1							
AIND_firm	-0.04	0.06	0.01	0.00	-0.05	-0.02	-0.05	0.03	-0.04	-0.01	0.03	0.01	0.06	0.65	-0.02	0.01	-0.08	-0.06	-0.05	-0.11	-0.07	0.05	0.15	1						
AFEXP_firm	0.00	-0.05	0.14	-0.06	0.04	-0.03	0.00	-0.09	0.02	0.02	0.06	0.07	0.04	-0.01	0.54	0.05	0.05	0.21	-0.01	0.18	-0.09	0.14	-0.02	-0.04	1					
AUE	0.00	-0.01	0.01	0.48	0.03	0.40	0.35	0.15	0.09	0.05	-0.01	-0.02	-0.02	-0.02	-0.09	-0.03	-0.01	-0.20	0.31	-0.17	0.55	-0.02	0.00	-0.01	-0.13	1				
BNEWS	0.01	-0.02	0.01	0.18	0.05	0.15	0.09	0.06	0.02	0.00	-0.01	-0.01	0.01	-0.01	-0.05	-0.03	0.01	-0.08	0.10	-0.10	0.15	-0.01	0.03	-0.01	-0.08	0.15	1			
LOSS	-0.02	0.01	0.00	0.30	0.00	0.25	0.23	0.08	0.17	0.12	-0.01	-0.03	-0.04	-0.04	-0.06	-0.01	-0.02	-0.22	0.10	-0.12	0.35	-0.06	-0.07	-0.05	-0.08	0.31	0.20	1		
GUIDE	-0.03	0.11	-0.07	-0.02	-0.10	-0.03	-0.07	0.08	0.00	0.04	0.00	-0.01	-0.01	0.07	0.01	0.04	-0.07	0.01	-0.13	0.10	-0.13	-0.03	-0.01	0.09	0.00	-0.12	-0.13	-0.07	1	
QTR4	-0.08	0.02	0.02	0.02	-0.01	-0.02	-0.04	-0.01	-0.04	-0.03	0.00	0.00	0.06	0.00	0.00	0.11	-0.06	0.02	0.01	0.03	0.02	0.04	0.14	0.01	0.00	0.01	0.01	-0.01	0.00	1

Figure 4-3. Pearson correlation table

Pearson coefficients. $BUSY_{ijt-1}$ is the presence (1) or lack of (0) of concurrent, same-day q_{t-1} earnings announcements for analyst i. TFCAST is the presence (1) or lack of (0) a timely firm j q_t EPS forecast by analyst i. $TFCAST\_LAG_{ijt}$ is the continuous trading-day lag of analyst i's timely firm j q_t EPS forecast, calculated from I/B/E/S timestamps and CRSP trading days to eliminate weekends and holidays. TFCAST_BOLD is the absolute value of the difference between analyst i's timely firm j q_t EPS forecast and the firm j q_t analyst consensus EPS estimate at the time of the q_{t-1} earnings announcement, deflated by firm j stock price at the end of q_{t-1}. NTFCAST is the presence (1) or lack of (0) a non-timely firm j q_t EPS forecast by analyst i. NTFCAST_BOLD is the absolute value of the difference between analyst i's non-timely firm j q_t EPS forecast and the most recent firm j q_t EPS forecast, deflated by firm j stock price at the end of q_{t-1}. NTREV is the presence (1) or lack of (0) a non-timely firm j q_t revision by analyst i. NTREV_BOLD is the absolute value of the difference between analyst i's non-timely firm j q_t EPS forecast and timely firm j q_t EPS forecast, deflated by firm j stock price at the end of q_{t-1}. $DAYS\_ELAPSED_{ijt-1}$ is the number of days between analyst i's firm j q_t EPS forecast issued prior to q_{t-1} earnings announcement; set to maximum (121 days) if no prior forecast exists. $HERD\_LAG_{ijt}$ is the number of days between first firm j q_t EPS forecast and analyst i's firm j q_t EPS forecast. $STAR_{it-1}$ indicates whether (1) or not (0) analyst i was an Institutional Investor All-Star analyst during that calendar year. $BSIZE_{it-1}$ is the total number of analysts employed by analyst i's brokerage house at the end of q_{t-1}. $APSIZE_{it-1}$ is the number of firms covered by analyst i at the end of q_{t-1}. $AIND_{it-1}$ is the number of industries covered by analyst i at the end of q_{t-1}. $AFEXP_{ijt-1}$ is the number of years of firm j experience for analyst i at the end of q_{t-1}. $SIZE_{jt-1}$ is the log of the market capitalization of firm j at the end of q_{t-1}. BtM_{jt-1} is the book-to-market ratio of firm j at the end of q_{t-1}. COV_{jt-1} is the log of the number of analysts covering firm j at the end of q_{t-1}. NUM_BUSY_{jt-1} is the number of busy analysts for firm j on the firm j q_{t-1} earnings announcement date. $DISP_{jt}$ is the dispersion of q_t analyst forecasts for firm j at the end of q_{t-1}, scaled by firm j stock price at the end of q_{t-1}. $FIRM\_BSIZE_{it-1}$, $FIRM\_APSIZE_{it-1}$, $FIRM\_AIND_{it-1}$ & $FIRM\_AFEXP_{ijt-1}$ represent the median firm j values of all analysts covering firm j at the end of q_{t-1}. AUE_{jt-1} is the absolute magnitude of the firm j q_{t-1} earnings surprise, deflated by firm j stock price end of q_{t-1}. $BNEWS_{jt-1}$ indicates whether firm j meets or beats (0) or misses (1) consensus analyst earnings expectations for q_{t-1}. $LOSS_{jt-1}$ indicates whether (1) or not (0) the firm j q_{t-1} earnings announcement is a loss. $GUIDE_{jt-1}$ indicates whether (1) or not (0) the firm j q_{t-1} earnings announcement is accompanied by managerial guidance. $QTR4_{jt-1}$ indicates whether (1) or not (0) the firm j q_{t-1} earnings announcement is a fiscal year end.

Table 4-6. The likelihood of a timely forecast (TFCAST) on busy analysts (BUSY) (H1a)

	Maximum Likelihood Estimates			Odds Ratio Estimates		
	Coeff. Est.	Z-stat		Point Est.	95% Wald Confidence Limits	
Intercept	-15.61	-54.07	***			
BUSY	-0.08	-7.44	***	0.92	0.90	0.94
SIZE	0.84	11.64	***	2.33	2.02	2.68
BtM	0.74	12.81	***	2.09	1.87	2.34
COV	-1.29	-13.51	***	0.28	0.23	0.33
DISP	0.61	11.31	***	1.83	1.65	2.04
STAR	-0.11	-5.69	***	0.90	0.86	0.93
BSIZE	-0.59	-29.64	***	0.55	0.53	0.58
APSIZE	0.09	1.67	*	1.09	0.98	1.22
AIND	-0.21	-3.33	***	0.81	0.72	0.92
AFEXP	-0.52	-31.27	***	0.60	0.58	0.62
DAYS_ELAPSED	0.71	41.25	***	2.03	1.96	2.10
AUE	-0.24	-8.24	***	0.79	0.74	0.83
BNEWS	-0.05	-4.81	***	0.95	0.93	0.97
LOSS	0.23	9.95	***	1.25	1.20	1.31
GUIDE	0.39	16.69	***	1.48	1.41	1.55
QTR4	0.14	21.74	***	1.15	1.13	1.16
Year-Fixed Effects	Yes					
n	1,417,249					

$$\text{Prob}(TFCAST_{ijt} = 1) = f(\beta_0 + \sum_k \alpha_k * YearDummy_k + \beta_1 * BUSY_{ijt-1} + \beta_2 * SIZE_{jt-1} + \beta_3 * BtM_{jt-1} + \beta_4 * COV_{jt-1} + \beta_5 * DISP_{jt-1} + \beta_6 * STAR_{it-1} + \beta_7 * BSIZE_{it-1} + \beta_8 * APSIZE_{it-1} + B_9 * AIND_{it-1} + \beta_{10} * AFEXP_{ijt-1} + \beta_{11} * DAYS\_ELAPSED_{ijt-1} + \beta_{12} * AUE_{jt-1} + \beta_{13} * BNEWS_{jt-1} + \beta_{14} * LOSS_{jt-1} + \beta_{15} * GUIDE_{jt-1} + \beta_{16} * QTR4_{jt-1} + \varepsilon_{ijt}).$$

Table 4-7. Timely forecast timeliness (TFCAST_LAG) on busy analysts (BUSY) (H1b)

	Coeff. Est.	t-Stat	
Intercept	0.98	118.74	***
BUSY	0.02	11.69	***
SIZE	0.10	8.73	***
BtM	0.11	12.35	***
COV	-0.12	-9.20	***
DISP	0.03	2.92	***
STAR	0.02	5.39	***
BSIZE	-0.18	-55.53	***
APSIZE	-0.09	-9.51	***
AIND	0.10	9.99	***
AFEXP	-0.02	-5.55	***
DAYS_ELAPSED	-0.01	-6.11	***
AUE	0.00	0.78	
BNEWS	0.01	9.31	***
LOSS	-0.03	-9.48	***
GUIDE	-0.03	-8.34	***
QTR4	0.02	14.89	***
Year Effects	Yes		
n	652,811		
R-Squared	9.99%		

$$TFCAST\_LAG_{ijt} = f(\beta_0 + \sum_k \alpha_k * YearDummy_k + \beta_1 * BUSY_{ijt-1} + \beta_2 * SIZE_{jt-1} + \beta_3 * BtM_{jt-1} + \beta_4 * COV_{jt-1} + \beta_5 * DISP_{jt-1} + \beta_6 * STAR_{it-1} + \beta_7 * BSIZE_{it-1} + \beta_8 * APSIZE_{it-1} + B_9 * AIND_{it-1} + \beta_{10} * AFEXP_{ijt-1} + \beta_{11} * DAYS\_ELAPSED_{ijt-1} + \beta_{12} * AUE_{jt-1} + \beta_{13} * BNEWS_{jt-1} + \beta_{14} * LOSS_{jt-1} + \beta_{15} * GUIDE_{jt-1} + \beta_{16} * QTR4_{jt-1} + \varepsilon_{ijt}).$$

Table 4-8. Timely forecast boldness (TFCAST_BOLD) on busy analysts (BUSY) (H1c)

	Coeff. Est.	t-Stat	
Intercept	0.053	15.71	***
BUSY	-0.003	-4.79	***
SIZE	-0.050	-12.3	***
BtM	0.026	6.48	***
COV	-0.017	-3.53	***
DISP	0.287	25.29	***
STAR	0.000	0.65	
BSIZE	0.004	5.25	***
APSIZE	-0.012	-4.62	***
AIND	0.019	6.57	***
AFEXP	0.003	3.82	***
DAYS_ELAPSED	-0.012	-15.27	***
AUE	0.160	33.57	***
BNEWS	0.023	21.07	***
LOSS	0.032	10.72	***
GUIDE	0.022	13.58	***
QTR4	0.004	5.28	***
Year Effects	Yes		
n	652,811		
R-Squared	34.88%		

$$TFCAST\_BOLD_{ijt} = f(\beta_0 + \sum_k \alpha_k * YearDummy_k + \beta_1 * BUSY_{ijt-1} + \beta_2 * SIZE_{jt-1} + \beta_3 * BtM_{jt-1} + \beta_4 * COV_{jt-1} + \beta_5 * DISP_{jt-1} + \beta_6 * STAR_{it-1} + \beta_7 * BSIZE_{it-1} + \beta_8 * APSIZE_{it-1} + B_9 * AIND_{it-1} + \beta_{10} * AFEXP_{ijt-1} + \beta_{11} * DAYS\_ELAPSED_{ijt-1} + \beta_{12} * AUE_{jt-1} + \beta_{13} * BNEWS_{jt-1} + \beta_{14} * LOSS_{jt-1} + \beta_{15} * GUIDE_{jt-1} + \beta_{16} * QTR4_{jt-1} + \varepsilon_{ijt}).$$

Table 4-9. The likelihood of a non-timely forecast (NTFCAST) on busy analysts (BUSY) (H2a)

	Maximum Likelihood Estimates			Odds Ratio Estimates		
	Coeff. Est.	Z-stat		Point Est.	95% Wald Confidence Limits	
Intercept	0.25	0.76				
BUSY	0.18	12.16	***	1.19	1.16	1.23
SIZE	0.10	1.19		1.11	0.94	1.32
BtM	-0.79	-11.65	***	0.45	0.40	0.52
COV	0.02	0.20		1.02	0.81	1.29
DISP	-0.15	-2.30	*	0.86	0.75	0.98
STAR	0.03	1.04		1.03	0.98	1.08
BSIZE	-0.25	-10.35	***	0.78	0.74	0.81
APSIZE	-0.32	-4.69	***	0.73	0.64	0.83
AIND	0.63	9.14	***	1.87	1.64	2.14
AFEXP	0.35	17.62	***	1.42	1.36	1.47
DAYS_ELAPSED	0.65	21.92	***	1.92	1.81	2.03
TFCAST	-17.67	-560.04	***	<0.001	<0.001	<0.001
AUE	-0.16	4.45	***	0.85	0.79	0.91
BNEWS	0.28	20.63	***	1.32	1.29	1.36
LOSS	-0.16	-6.00	***	0.85	0.80	0.90
GUIDE	-0.24	-7.33	***	0.79	0.74	0.84
QTR4	0.13	14.06	***	1.14	1.12	1.16
Year-Fixed Effects	Yes					
n	1,247,468					

$$\text{Prob}(NTFCAST_{ijt} = 1) = f(\beta_0 + \sum_k \alpha_k * YearDummy_k + \beta_1 * BUSY_{ijt-1} + \beta_2 * SIZE_{jt-1} + \beta_3 * BtM_{jt-1} + \beta_4 * COV_{jt-1} + \beta_5 * DISP_{jt-1} + \beta_6 * STAR_{it-1} + \beta_7 * BSIZE_{it-1} + \beta_8 * APSIZE_{it-1} + B_9 * AIND_{it-1} + \beta_{10} * AFEXP_{ijt-1} + \beta_{11} * DAYS\_ELAPSED_{ijt-1} + \beta_{12} * TFCAST_{jt} + \beta_{13} * AUE_{jt-1} + \beta_{14} * BNEWS_{jt-1} + \beta_{15} * LOSS_{jt-1} + \beta_{16} * GUIDE_{jt-1} + \beta_{17} * QTR4_{jt-1} + \varepsilon_{ijt}).$$

Table 4-10. Non-timely forecast boldness (NTFCAST_BOLD) on busy analysts (BUSY) (H2b)

	Coeff. Est.	t-Stat	
Intercept	0.113	35.31	***
BUSY	-0.001	-1.76	*
SIZE	-0.031	-6.39	***
BtM	0.080	18.47	***
COV	-0.089	-16.23	***
DISP	0.428	52.3	***
STAR	-0.001	-0.82	
BSIZE	0.005	4.5	***
APSIZE	0.001	0.38	
AIND	-0.024	-6.67	***
AFEXP	0.001	0.92	
DAYS_ELAPSED	-0.013	-13.74	***
TFCAST	-0.015	-8.03	***
HERD_LAG	0.174	38.86	***
AUE	0.009	8.8	***
BNEWS	0.042	16.67	***
LOSS	-0.023	-18.88	***
GUIDE	-0.006	-7.32	***
QTR4	0.113	35.31	***
Year Effects	Yes		
n	721,648		
R-squared	31.66%		

$$NTFCAST\_BOLD_{ijt} = f(\beta_0 + \sum_k \alpha_k * YearDummy_k + \beta_1 * BUSY_{ijt-1} + \beta_2 * SIZE_{jt-1} + \beta_3 * BtM_{jt-1} + \beta_4 * COV_{jt-1} + \beta_5 * DISP_{jt-1} + \beta_6 * STAR_{it-1} + \beta_7 * BSIZE_{it-1} + \beta_8 * APSIZE_{it-1} + B_9 * AIND_{it-1} + \beta_{10} * AFEXP_{ijt-1} + \beta_{11} * DAYS\_ELAPSED_{ijt-1} + \beta_{12} * TFCAST_{jt} + \beta_{13} * HERD\_LAG_{jt} + \beta_{14} * AUE_{jt-1} + \beta_{15} * BNEWS_{jt-1} + \beta_{16} * LOSS_{jt-1} + \beta_{17} * GUIDE_{jt-1} + \beta_{18} * QTR4_{jt-1} + \varepsilon_{ijt}).$$

Table 4-11. The likelihood of a non-timely revision (NTREV) on busy analysts (BUSY) (H2c)

	Maximum Likelihood Estimates			Odds Ratio Estimates		
	Coeff. Est.	Z-stat		Point Est.	95% Wald Confidence Limits	
Intercept	-0.01	-0.01				
BUSY	0.10	5.54	***	1.11	1.07	1.15
SIZE	-1.08	-7.65	***	0.34	0.26	0.45
BtM	-0.99	-11.66	***	0.37	0.32	0.44
COV	-0.80	-4.51	***	0.45	0.32	0.64
DISP	-0.49	-6.40	***	0.62	0.53	0.71
STAR	0.03	1.38		1.03	0.99	1.08
BSIZE	-0.54	-22.48	***	0.58	0.56	0.61
APSIZE	-0.33	-4.73	***	0.72	0.62	0.82
AIND	0.41	-4.74	***	1.51	1.28	1.80
AFEXP	-0.07	-2.71	***	0.93	0.89	0.98
DAYS_ELAPSED	1.28	52.91	***	3.59	3.43	3.77
AUE	0.08	1.74	*	1.09	0.99	1.20
BNEWS	0.20	11.19	***	1.23	1.18	1.27
LOSS	-0.27	-8.22	***	0.77	0.72	0.82
GUIDE	-0.36	-9.08	***	0.70	0.64	0.75
QTR4	-0.01	-0.72		0.99	0.97	1.02
Year-Fixed Effects	Yes					
n	430,407					

$$\text{Prob}(NTREV_{ijt} = 1) = f(\beta_0 + \sum_k \alpha_k * YearDummy_k + \beta_1 * BUSY_{ijt-1} + \beta_2 * SIZE_{jt-1} + \beta_3 * BtM_{jt-1} + \beta_4 * COV_{jt-1} + \beta_5 * DISP_{jt-1} + \beta_6 * STAR_{it-1} + \beta_7 * BSIZE_{it-1} + \beta_8 * APSIZE_{it-1} + B_9 * AIND_{it-1} + \beta_{10} * AFEXP_{ijt-1} + \beta_{11} * TFCAST_{jt} + \beta_{12} * AUE_{jt-1} + \beta_{13} * BNEWS_{jt-1} + \beta_{14} * LOSS_{jt-1} + \beta_{15} * GUIDE_{jt-1} + \beta_{16} * QTR4_{jt-1} + \varepsilon_{ijt}).$$

Table 4-12. Non-timely revision magnitude (NTREV_BOLD) on busy analysts (BUSY) (H2d)

	Coeff. Est.	t-Stat	
Intercept	0.071	10.98	***
BUSY	0.000	0.34	
SIZE	-0.036	-5.34	***
BtM	0.072	10.04	***
COV	-0.061	-7.04	***
DISP	0.330	20.75	***
STAR	-0.008	-5.55	***
BSIZE	-0.007	-4.14	***
APSIZE	0.001	0.15	
AIND	0.003	0.47	
AFEXP	0.008	4.36	***
DAYS_ELAPSED	0.001	0.45	
HERD_LAG	0.060	21.32	***
AUE	0.086	11.1	***
BNEWS	0.004	2.01	**
LOSS	0.016	3.64	***
GUIDE	0.001	0.58	
QTR4	-0.010	-6.49	***
Year Effects	Yes		
n	294,285		
R-Squared	25.50%		

$$NTREV\_BOLD_{ijt} = f(\beta_0 + \sum_k \alpha_k * YearDummy_k + \beta_1 * BUSY_{ijt-1} + \beta_2 * SIZE_{jt-1} + \beta_3 * BtM_{jt-1} + \beta_4 * COV_{jt-1} + \beta_5 * DISP_{jt-1} + \beta_6 * STAR_{it-1} + \beta_7 * BSIZE_{it-1} + \beta_8 * APSIZE_{it-1} + B_9 * AIND_{it-1} + \beta_{10} * AFEXP_{ijt-1} + \beta_{11} * DAYS\_ELAPSED_{ijt-1} + \beta_{12} * HERD\_LAG_{jt} + \beta_{13} * AUE_{jt-1} + \beta_{14} * BNEWS_{jt-1} + \beta_{15} * LOSS_{jt-1} + \beta_{16} * GUIDE_{jt-1} + \beta_{17} * QTR4_{jt-1} + \varepsilon_{ijt}).$$

Table 4-13. Absolute earnings announcement returns (A_EAR) on number of busy analysts (NUM_BUSY), firm level (H3a)

	Coeff. Est.	t-Stat	
Intercept	0.064	44.51	***
NUM_BUSY	-0.008	-5.43	***
DRESP	0.013	25.25	***
SIZE	-0.053	-30.4	***
BtM	-0.033	-22.44	***
COV	0.041	20.8	***
DISP	-0.003	-1.64	
FIRM_BSIZE	-0.010	-7.24	***
FIRM_APSIZE	-0.038	-22.19	***
FIRM_AIND	0.022	13.12	***
FIRM_AFEXP	-0.010	-9.55	***
AUE	0.041	30.71	***
BNEWS	0.003	7.49	***
LOSS	0.001	0.84	
GUIDE	0.010	15.18	***
QTR4	0.000	-0.74	
Year Effects	Yes		
n	137,864		
R-Squared	10.27%		

$$A\_EAR_{jt} = f(\beta_0 + \sum_k \alpha_k * YearDummy_k + \beta_1 * NUM\_BUSY_{jt-1} + \beta_2 * DRESP_{jt-1} + \beta_3 * SIZE_{jt-1} + \beta_4 * BtM_{jt-1} + B_5 * COV_{jt-1} + \beta_6 * DISP_{jt-1} + \beta_7 * FIRM\_BSIZE_{jt-1} + \beta_8 * FIRM\_APSIZE_{jt-1} + B_9 * FIRM\_AIND_{jt-1} + \beta_{10} * FIRM\_AFEXP_{jt-1} + \beta_{11} * AUE_{jt-1} + \beta_{12} * BNEWS_{jt-1} + \beta_{13} * LOSS_{jt-1} + \beta_{14} * GUIDE_{jt-1} + \beta_{15} * QTR4_{jt-1} + \varepsilon_{jt}).$$

Table 4-14. Absolute cumulative abnormal returns (A_CAR) on busy analysts (BUSY) (H3b)

	Coeff. Est.	t-Stat	
Intercept	0.0481	69.08	***
BUSY	-0.0004	-2.7	***
NTFCAST_BOLD	0.0111	26.02	***
SIZE	-0.0322	-31.51	***
BtM	-0.0154	-19.66	***
COV	0.0133	11.43	***
DISP	0.0074	7.85	***
STAR	-0.0003	-1.36	
BSIZE	-0.0005	-2.81	***
APSIZE	-0.0081	-13.43	***
AIND	0.0029	3.91	***
AFEXP	-0.0021	-9.66	***
DAYS_ELAPSED	-0.0012	-7.2	***
TFCAST	0.0037	21.3	***
HERD_LAG	0.0083	24.84	***
AUE	0.0012	2.16	**
BNEWS	-0.0005	-2.53	**
LOSS	0.0066	14.94	***
GUIDE	0.0033	8.97	***
QTR4	-0.0010	-5.89	***
Year Effects	Yes		
n	904,875		
R-Squared	12.61%		

$$A\_CAR_{ijt} = f(\beta_0 + \sum_k \alpha_k * YearDummy_k + \beta_1 * BUSY_{jt-1} + \beta_2 * NTFCAST\_BOLD_{ijt-1} + \beta_3 * SIZE_{jt-1} + \beta_4 * BtM_{jt-1} + B_5 * COV_{jt-1} + \beta_6 * DISP_{jt-1} + \beta_7 * STAR_{jt-1} + \beta_8 * BSIZE_{jt-1} + \beta_9 * APSIZE_{ijt-1} + B_{10} * AIND_{ijt-1} + \beta_{11} * AFEXP_{ijt-1} + \beta_{12} * DAYS\_ELAPSED_{ijt-1} + \beta_{13} * HERD\_LAG_{ijt} + \beta_{14} * AUE_{jt-1} + \beta_{15} * BNEWS_{jt-1} + \beta_{16} * LOSS_{jt-1} + \beta_{17} * GUIDE_{jt-1} + \beta_{18} * QTR4_{jt-1} + \varepsilon_{jt}).$$

CHAPTER 5
SUPPLEMENTAL TESTS

Defining BUSY More Stringently

To provide further support for the primary tests, I define busy analysts more stringently and run further regressions defining BUSY more stringently as three or more, four or more, or five or more concurrent same-day earnings announcements. If the degree of analyst workload and the effect this has on attention is driving the impaired analyst forecasting behavior, then more strongly defined BUSY variables should generate larger effects on analyst forecast behavior. Table 5-1 provides results for both same-day (and three-day) concurrent earnings with respect to my hypothesized relations.[14] The first row of Table 5-1 reproduces the coefficients from earlier primary tests when BUSY was defined as two or more concurrent earnings announcements. Subsequent rows present the coefficients for BUSY when more stringently defined (e.g., three or more, or four or more, concurrent earnings announcements, etc.). The results hold throughout when defining BUSY more stringently, and corroborate the results of my primary tests. Increasing the degree of the limited attention effect generates substantially larger effects on timely forecast likelihood (H1a) and timeliness (H1b) in particular, but appears to have more modest, though still monotonically increasing effects on timely forecast boldness (H1c). The effects on non-timely forecast likelihood (H2a) and revision

[14] I also define concurrent earnings announcements as the presence of four or more, five or more, six or more or seven or more, concurrent earnings announcements occurring over the three-day [-1, +1] window both before and after the earnings announcement (BUSY2), as the presence of earnings announcements from the day before (or the day after) may impact an analyst's ability to respond to an earnings announcement in a timely or accurate fashion, due to possible task overlap both before and after the earnings announcement.

likelihood (H2c) remain consistent throughout, regardless of how BUSY is defined. While NTFCAST_BOLD (H2b) and NTREV_BOLD (H2d) are largely statistically insignificant throughout, the sign of the coefficient is for the most part positive and increases in size as BUSY is defined more stringently, despite lack of statistical significance. The firm-level pricing effect of busy analysts also holds throughout.

Institutional Investor All-Stars

Considering Institutional Investor All-Star status helps further assess the impact of limited attention on analyst forecasting behavior. Prior research suggests that II All-Star analysts appear to be perform better in terms of analyst metrics such as forecast timeliness, boldness, or accuracy, and investors appear to respond more strongly to forecasts made by II All-Star analysts. These findings suggest that II All-Star status is a reasonable proxy for analyst quality. In terms of assessing the quality of busy versus non-busy analysts thus far, the picture is somewhat unclear. For example, despite the fact that limited attention appears to impair the timely forecast likelihood, timeliness, and boldness of busy analysts relative to non-busy analysts, limited attention appears to have more modest effects on subsequent non-timely forecast behavior, despite the fact that busy analysts appear to issue non-timely forecasts more frequently. Further, busy analysts appear more likely to have more experience and work at larger brokerage houses, two analyst characteristics associated with better analyst quality. Thus the question of whether busy analysts are better analysts or not remains unresolved.

In untabulated results, I run logistic regressions of II All-Star (STAR) likelihood on busy analysts, defined increasingly more stringently, and find that busy analysts are consistently more likely to be II All-Star analysts than their non-busy peers. When combined with the fact that the likelihood of an analyst being busy is strongly correlated

with analyst portfolio size, this suggests, quite possibly, that higher quality analysts tend to have larger coverage portfolios because they are more effective analysts and thus are capable of more output relative to lower quality analysts. As a final investigation of II All-Star status on busy analysts, I split my sample into STAR and non-STAR analysts and run further untabulated tests of timely forecast likelihood, timeliness, and boldness, and find mixed results. While being an II All-Star appears to have no significant effect on timely forecast likelihood, timeliness, or boldness by busy analysts in economic terms, t-statistics for busy analysts who are not II All-Star analysts (STAR = 0) are consistently larger than those for busy analysts who are II All-Star analysts (STAR = 1): for example, the t-statistics are 11.92 and 3.87 respectively for timely forecast timeliness, and -4.79 and -1.86 respectively for timely forecast boldness, suggesting that the results in the full sample are driven more by busy analysts who are not II All-Star analysts.

Similar & Non-similar Concurrent Earnings Announcements

My final analysis investigates whether there is any differential effect between the concurrent earnings announcements of similar versus non-similar firms. While analysts tend to choose their coverage portfolios based upon industry expertise or firm similarities in general (e.g., size, growth, industry, etc.), it is reasonable to suspect that some firms within analysts' portfolios are more similar to each other than others along a variety of dimensions. For the sake of simplicity, I define "similar" earnings announcements as the presence of two or more concurrent, same-day earnings announcements from firms in the same industry according to two-digit SIC code (SIM_BUSY); any concurrent, same-day earnings announcements by firms not in the same industry by two-digit SIC code are considered "non-similar" earnings announcements (NONSIM_BUSY). Defining similar firms along this dimension, I re-run H1a, H1b, and H1c regressions as before, but

disaggregate the BUSY variable into unique categorical variables corresponding to each type of similar/non-similar firm earnings announcement overlap. I use a unique categorical variable for each scenario, using SIM_BUSY2, SIM_BUSY3, SIM_BUSY4, and SIM_BUSY5 to capture concurrent, same-day earnings announcements between two, three, four, and five firms from the same industry respectively, and I do the same for concurrent, same-day earnings announcements from non-similar firms (e.g., NONSIM_BUSY2, NONSIM_BUSY3, NONSIM_BUSY4, and NONSIM_BUSY5).

Table 5-2 presents results for busy analysts disaggregated on whether the firms or similar or not. While all similar/non-similar variables are significant with respect to H1a (timely forecast likelihood) and H1b (timely forecast timeliness), analysts busy with similar firms are more impaired in comparison to analysts busy with non-similar firms. Most interestingly, analysts busy with similar firms are significantly less bold with respect to timely forecasts, while analysts busy with non-similar firms are not (H1c). These results are somewhat surprising at first glance and possibly merit further investigation. For example, perhaps similar firms are more likely to be firms in an analyst's "core" industry of expertise, leading the analyst to spend more time and effort understanding the earnings announcement (or comparing it to the earnings announcement of other, similar firms). Similarly, perhaps analyst incentives are different for an analyst's core industry relative to more peripheral industries, leading an analyst to forecast more conservatively (or pessimistically) for some firms versus others.

Table 5-1. Hypothesis results with alternative definitions of busy analysts (BUSY, BUSY2)

Same-Day Earnings (BUSY)	TFCAST (H1a)	TFCAST _LAG (H1b)	TFCAST _BOLD (H1c)	NTFCAST (H2a)	NTFCAST _BOLD (H2b)	NTREV (H2c)	NTREV _BOLD (H2d)	A_CAR (H3b)
BUSY >= 2	-0.08***	0.02***	-0.003***	0.17***	-0.001*	0.10***	0.000	-0.0004***
Z-stat/t-Value	-7.44	11.69	-4.79	12.16	-1.76	5.54	0.34	-2.70
BUSY >= 3	-0.17***	0.03***	-0.003***	0.20***	0.001	0.13***	0.001	-0.0006***
Z-stat/t-Value	-14.00	13.89	-4.50	12.19	1.24	6.19	0.60	-3.87
BUSY >= 4	-0.30***	0.04***	-0.003***	0.20***	0.001	0.15***	0.000	-0.0007***
Z-stat/t-Value	-19.06	14.38	-4.00	10.39	0.66	6.08	0.23	-3.88
BUSY >= 5	-0.43***	0.04***	-0.004***	0.19***	0.002	0.13***	0.003	-0.0007***
Z-stat/t-Value	-20.52	12.65	-3.63	8.22	1.58	4.20	0.94	-3.00
Three-Day Earnings (BUSY2)	TFCAST (H1a)	TFCAST _LAG (H1b)	TFCAST _BOLD (H1c)	NTFCAST (H2a)	NTFCAST _BOLD (H2b)	NTREV (H2c)	NTREV _BOLD (H2d)	A_CAR (H3b)
BUSY2 >= 4	-0.12***	0.01***	-0.004***	0.23***	-0.000	0.16***	0.001	-0.0005***
Z-stat/t-Value	-9.18	6.39	-5.78	12.70	-0.04	7.46	0.56	-3.12
BUSY2 >= 5	-0.19***	0.02***	-0.004***	0.23***	0.000	0.16***	0.002	-0.0005***
Z-stat/t-Value	-13.22	7.63	-5.96	11.64	0.30	6.71	1.01	-2.89
BUSY2 >= 6	-0.27***	0.02***	-0.005***	0.24***	0.001	0.16***	0.002	-0.0006***
Z-stat/t-Value	-15.90	9.72	-5.70	11.03	0.44	6.26	1.11	-2.75
BUSY2 >= 7	-0.36***	0.03***	-0.005***	0.24***	0.001	0.17***	0.002	-0.0006***
Z-stat/t-Value	-17.52	11.24	-6.07	9.93	0.98	5.77	0.75	-2.84

This table presents coefficients for BUSY and BUSY2 when alternative definitions of busy are included in previous regressions. The top row reproduces results from previous tables; subsequent rows present coefficients for various definitions of BUSY & BUSY2. BUSY is the presence (1) or lack of (0) at least two (three/four/five) concurrent, same-day q_{t-1} earnings announcements. BUSY2 is the presence (1) or lack of (0) at least four (five/six/seven) concurrent, three-day [-1, +1] earnings announcements in the days surrounding the q_{t-1} earnings announcements. NTFCAST_BOLD & NTREV_BOLD coefficients are multiplied by 1,000.

Table 5-2. Regression results comparing analysts busy with similar firms (SIM_BUSY) versus analysts busy with non-similar firms (NONSIM_BUSY)

	TFCAST (H1a)	TFCAST _LAG (H1b)	TFCAST _BOLD (H1c)
SIM_BUSY2	-0.03***	0.01***	-0.072***
Z-stat/t-Value	-2.82	5.16	-3.48
SIM_BUSY3	-0.14***	0.02***	-0.130***
Z-stat/t-Value	-8.73	8.30	-4.01
SIM_BUSY4	-0.27***	0.04***	-0.185***
Z-stat/t-Value	-11.44	10.32	-4.11
SIM_BUSY5	-0.42***	0.05***	-0.180***
Z-stat/t-Value	-13.12	9.43	-2.75
NONSIM_BUSY2	0.02	0.02***	-0.002
Z-stat/t-Value	1.34	8.07	-0.08
NONSIM_BUSY3	-0.05***	0.03***	-0.035
Z-stat/t-Value	-2.93	7.95	-1.16
NONSIM_BUSY4	-0.18***	0.03***	-0.071
Z-stat/t-Value	-6.80	6.17	-1.60
NONSIM_BUSY5	-0.31***	0.03***	-0.074
Z-stat/t-Value	-7.86	4.13	-1.15

This table presents coefficients for different cases of busy analysts, involving concurrent, same-day earnings announcements from similar firms by industry (SIM_BUSY) and non-similar firms by industry (NONSIM_BUSY). SIM_BUSY2 (3/4/5) is the presence (1) or lack of (0) two (three/four/five) same-day, concurrent q_{t-1} earnings announcements from similar firms. NONSIM_BUSY2 (3/4/5) is the presence (1) or lack of (0) two (three/four/five) same-day, concurrent q_{t-1} earnings announcements from non-similar firms. TFCAST_BOLD coefficients are multiplied by 1,000.

CHAPTER 6
CONCLUSION

This paper investigates the relationship between earnings announcement clustering, limited analyst attention, and analyst forecasting behavior. I document that concurrent, same-day earnings announcements, which occur frequently and increasingly over time, impair analyst forecasting performance immediately following earnings announcement in terms of timely forecast likelihood, timeliness, and informativeness. Busy analysts also generate more forecasting (revision) activity later in the quarter relative to non-busy analysts, though I find no convincing evidence of a significant difference between the non-timely forecast (revision) informativeness of busy and non-busy analysts. While I find that the non-timely forecasts of busy analysts generate smaller price responses than their non-busy peers, the economic significance is inconsequential. I do find, however, that firms with more busy analysts generate smaller magnitude earnings announcement returns, suggesting that impaired analyst information processing has consequences for the speed with which the market prices new information. In supplemental tests, I find that defining busy more stringently leads to larger impairments of analyst forecasting behavior, particularly in terms of forecast likelihood, and that despite the fact that being busy impairs analyst forecast performance, busy analysts appear more likely to be Institutional Investor All-Stars. Surprisingly, I also find that analysts appear to be affected more by similar firms within their coverage portfolios than non-similar firms, suggesting further investigation into the role of information transfer within an analyst's coverage portfolio.

APPENDIX
VARIABLE DEFINITIONS

Dependent variables (calculated from I/B/E/S & CRSP):

TFCASTijt: the presence (1) or lack of (0) a timely (day 0-1) firm j qt EPS forecast following the qt-1 earnings announcement by analyst i.
TFCAST_LAGijt: analyst i's continuous trading-day lag for timely firm j qt EPS forecast, calculated from I/B/E/S timestamps and CRSP trading days to eliminate weekends and holidays.
TFCAST_BOLDijt: absolute value of the difference between analyst i's timely qt EPS forecast and analyst consensus qt EPS estimate prior to the qt-1 earnings announcement for firm j, deflated by firm j stock price at the end of qt-1.
NTFCASTijt: the presence (1) or lack of (0) a non-timely firm j qt EPS forecast following the qt-1 earnings announcement by analyst i.
NTFCAST_BOLDijt: absolute value of the difference between analyst i's non-timely firm j qt EPS forecast and the most recent firm j qt EPS forecast, deflated by firm j stock price at the end of qt-1.
NTREVijt: the presence (1) or lack of (0) a non-timely qt EPS revision for firm j by analyst i.
NTREV_BOLDijt: revision boldness, calculated as the difference between analyst i's timely qt EPS forecast and analyst i's non-timely qt EPS forecast for firm j, deflated by firm j stock price at the end of qt-1.
A_EARjt: absolute magnitude of size-adjusted earnings announcement [-1,+1] returns for firm j.
A_DRIFTjt: absolute magnitude of size-adjusted drift returns for firm j from day 2 after the qt-1 earnings announcement until 2 days before the qt earnings announcement.
A_CARjt: absolute magnitude of size-adjusted event study [0,+1] returns for analyst i forecast for firm j.

Explanatory variables (calculated from I/B/E/S):

BUSYijt-1: the presence (1) or lack of (0) at least two same-day, concurrent qt-1 earnings announcements for analyst i.
NUM_BUSYjt-1: the number of busy analysts for firm j at the qt-1 earnings announcement.

Firm-specific (calculated from Compustat & I/B/E/S):

SIZEjt-1: log of the market value of equity at the end of qt-1.
BtMjt-1: book-to-market ratio at the end of qt-1.
COVjt-1: the number of analysts covering the firm prior to qt-1 earnings announcement.
DISPjt-1: the dispersion in analyst qt forecasts prior to qt-1 earnings announcement, scaled by stock price at the end of qt-1.
DRESPjt: the presence (1) or lack of (0) at least one timely analyst qt EPS forecast following the qt-1 earnings announcement.
BSIZE_FIRMjt-1: median brokerage size for firm j, calculated from all analysts following firm j in qt-1.
APSIZE_FIRM jt-1: median analyst portfolio size for firm j, calculated from all analysts following firm j in qt-1.

AIND_FIRM jt-1: median number of industries covered by firm j analysts, calculated from all analysts following firm j in qt-1.
AFEXP_FIRM jt-1: median analyst firm-specific experience for all analysts following firm j in qt-1.

Analyst-specific (from I/B/E/S):

STARit-1: whether (1) or not (0) analyst i is classified as an Institutional Investor All-Star analyst during the calendar year containing the qt-1 fiscal quarter.
BSIZEit-1: total number of analysts employed by analyst i's brokerage house in qt-1.
APSIZEit-1: number of firms covered by analyst i in qt-1.
AINDit-1: number of industries covered by analyst i in qt-1.
AFEXPijt-1: number of quarters of analyst i's firm j experience in qt-1.
DAYS_ELAPSEDijt-1: number of days between an analyst i's most recent qt EPS forecast issued prior to the qt-1 earnings announcement; set to maximum (121 days) if no prior forecast exists.
HERD_LAGijt: number of days between first qt EPS firm forecast and analyst i's qt forecast.

Earnings Announcement-specific (calculated from I/B/E/S):

AUEjt-1: absolute magnitude of earnings surprise, deflated by stock price at the end of qt-1.
BNEWSjt-1: meeting or beating (0) or missing (1) consensus analyst EPS earnings expectations for qt-1.
LOSSjt-1: indicates the presence (1) or lack (0) of a loss in qt-1.
GUIDEjt-1: indicates whether (1) or not (0) the qt-1 earnings announcement is accompanied by managerial guidance.
QTR4jt-1: indicates whether (1) or not (0) the qt-1 earnings announcement is the fiscal year end.

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BIOGRAPHICAL SKETCH

Matthew grew up in New Orleans before attending the University of Texas at Austin, where he received his BA in history. He then attended New York University, receiving an MA in European studies. He received his MBA in finance from Baruch College (CUNY) in New York, where he discovered an interest in financial accounting. His research interests are analyst and investor information processing, the information content of earnings, market efficiency, and anomalies.