Firm Heterogeneity and Investor Inattention to Friday Earnings Announcements

Roni Michaely, Amir Rubin, and Alexander Vedrashko*

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Abstract:

DellaVigna and Pollet (2009) argue that the documented underreaction to Friday earnings announcements can be attributed to investors' inattention on Friday relative to other days of the week. Using four approaches, we examine the impact of firm heterogeneity on the immediate reaction and drift for Friday earnings announcements. First, we identify that Friday underreaction is generated only by announcements made after trading hours on Friday and find that firms that have made a Friday evening announcement experience a reduced reaction to earnings news announced not only on Friday but also on non-Friday weekdays. Second, we match Friday evening announcements to other weekday-evening announcements based on firm characteristics, such as market capitalization, institutional holdings, and analyst following. There is no difference in the response to earnings announcements between the two groups. Third, we find that firm fixed effects eliminate the Friday effect. Fourth, the market response to Friday evening earnings announcements is not different from the market response to earnings announcements of the very same firms on other evenings of the week. Finally, we find that the smaller trading volume found by DellaVigna and Pollet for Friday announcements is not earnings-related. We conclude that while inattention may explain certain patterns in the behavior of investors and prices in financial markets, it is not the reason for the reduced reaction to earnings announced on Friday.

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*Michaely is from Cornell University and IDC (rm34@cornell.edu). Rubin is from Simon Fraser University and IDC (arubin@sfu.ca). Vedrashko is from Simon Fraser University (awv@sfu.ca). We would like to thank Yelena Larkin, David Matsa, Laura Field, Pamela Moulton, Jill Popadak, and seminar participants at Cornell University, National University of Singapore, Penn State University, Singapore Management University and University of Columbia Missouri, for valuable comments and suggestions.

Can limited attention among investors explain the market response to Friday earnings announcements? Damodaran (1989) and DellaVigna and Pollet (2009) provide evidence that the immediate reaction to earnings news made on Friday is significantly lower compared to other weekdays. For example, DellaVigna and Pollet show that the immediate abnormal return for the top two quantiles of earnings surprise (most positive surprises) is on average 15% smaller for announcements on Friday compared to announcements on other weekdays and trading volume is 8% lower immediately following Friday announcements. Examining the post-announcement drift, they report a significantly stronger delayed response to Friday announcements. DellaVigna and Pollet conclude that these results confirm that investors' inattention is relatively high on Friday, which could be because some investors are distracted from work-related activities by the upcoming weekend. They further suggest that their empirical evidence of investor inattention is less likely to be driven by earnings that are announced after trading hours on Friday.

In this paper we show that it is not limited attention that explains the lower immediate reaction or the drift for Friday earnings announcements. Rather, the differential reaction is due to Friday announcing firms having different characteristics than the other firms. We first show that the reduced Friday reaction result is fully generated by announcements made on Friday evenings (after the market closes at 4 PM EST). We then show that once we control for firms' heterogeneity, there is no difference in terms of immediate reaction, trading volume, and post-announcement drift regardless of whether firms announce their earnings on Friday or other weekdays.

The first step in our empirical strategy is to examine more precisely the association between the timing of the earnings announcement and the market reaction to it. Using the I/B/E/S time stamp dataset for the time of earnings announcements,[1] we show that the reduced immediate reaction to Friday is limited only to Friday evening announcements. While there are relatively few announcements on Friday evening (fewer than 1700 observations out of

[1] Prior to the appearance of time stamp data in I/B/E/S, large-scale data were unavailable for studying Friday morning, Friday during-trading, and Friday after-hours announcements separately. Since the time of the day data were made available by I/B/E/S after DellaVigna and Pollet paper was published, they were unable to directly differentiate between Friday announcements occurring at different times.

approximately 165,000 announcements during the years 1999-2010), only these announcements are associated with a significant reduced reaction compared to evening announcements on other weekdays. There is no significant difference in reaction between the 8,895 announcements in the morning and during-trading hours on Friday and the corresponding announcements on other weekdays.

We then examine the impact of firm heterogeneity on announcement returns using four empirical approaches. First, we compare announcement response for firms that have announced at least once on Friday evening to that for firms that have never announced on Friday evening. We find that the reaction to earnings announcements by the Friday evening announcing firms, even if those announcements are made on days other than Friday, is smaller than the average reaction for firms that have never announced on Friday evening. These findings suggest that the smaller reaction to Friday evening announcements is not related to the announcement weekday *per se*, but is associated with differences between firms that occasionally announce on Friday evening and the other firms.

Second, we examine which firm characteristics produce the differences between Friday evening announcements and non-Friday evening announcements. We find that firms that announced at least once on Friday are smaller, associated with lower institutional ownership, and are followed by fewer analysts than firms that have never announced on Friday evening. We therefore match each Friday evening announcement with a non-Friday evening announcement based on the magnitude of the earnings announcements and market capitalization, institutional ownership, and number of analysts' forecasts. The results show that the market response to the earnings announcements in the matched sample is indeed not different from the market reaction to the Friday evening announcements.

Third, we introduce firm fixed effects in an empirical model analyzing the immediate reaction to Friday evening announcements. Using firm fixed effects in the regression analysis eliminates the evidence of reduced reaction to Friday evening announcements, suggesting that the reduced reaction is associated with firm heterogeneity.

Finally, since the Friday evening announcing firms (i.e., at least one announcement on Friday evening) are a different kind of firms, we analyze them separately. After controlling for heterogeneity among them using the same firm characteristics as in the full sample, we find that there is no reduced reaction to Friday earnings announcements for firms in this group.

In sum, using a battery of tests, we show the smaller reaction to Friday earnings announcements is due to these firms' characteristics. This smaller reaction can be an outcome of behavioral biases, perhaps because these firms lack glamour (Barber and Odean, 2007), or due to rational reasons such as risk and transaction costs; however, it is not due to inattention to earnings that are announced on Friday.

The Friday inattention hypothesis also predicts that Friday announcements should be associated with lower trading volume and followed by a stronger long-term post-announcement drift. We do not find any abnormally low trading volume for Friday earnings announcements once we control for earnings surprise. We find that the previously documented smaller volume for Friday announcements is unrelated to earnings announcements and is a consequence of variation in trading volume across weekdays. We also show that once we control for firm heterogeneity using matched sample and firm-fixed effect specifications, the long-term drift is the same regardless of the announcement weekday.

The finding of the lack of investor inattention to Friday earnings announcements does not contradict other instances of investor inattention found in the literature, e.g., Hirshleifer, Lim, and Teoh (2009) or Chakrabarty and Moulton (2012). There are good reasons to believe that cognitive constraints and limited attention affect investors decisions and perhaps even prices in financial markets, such as the preference for local firms (Coval and Moskowitz, 1999), neglected stocks (Merton, 1987), under-reaction to information due to cognitive limits (Hong and Stein, 1999), and more; however, investors' reaction to Friday earnings news is not another manifestation of this phenomena. Our results also shed light on forces that generate investors' inattention. As there are almost 15 times fewer announcements on Fridays than on other weekdays, the interpretation of DellaVigna and Pollet's results as inattention on Friday seems to contradict Hirshleifer, Lim, and Teoh (2009) results that investor distraction is higher on days

with many announcements. Our findings that Friday announcements are not associated with inattention resolve these seemingly contradictory findings.

The rest of the paper proceeds as follows. In section I, we provide the descriptive statistics of our sample. Section II replicates DellaVigna and Pollet's results for the more recent sample used in this study and analyzes the immediate market reaction to announcements at different times of day. Section III analyzes the impact of firm heterogeneity on the differential market reaction to Friday and non-Friday announcements. Section IV considers abnormal volume and analyzes the post-announcement drift. Section V concludes.

I. Data and Descriptive Statistics

A. Data

In constructing our sample, we follow the procedures of DellaVigna and Pollet in order to, first, replicate their sample and results and, second, test our alternative explanation on the same data. Earnings announcements are from I/B/E/S, and prices and daily stock returns data are from CRSP. Announcements on weekends (0.2% of the sample) are excluded. We are able to obtain earnings and return data for 233,357 firm-quarter announcements in 1995-2010. Standardized unexpected earnings (SUE) is the difference between announced earnings-per-share and the median analyst forecast as reported by I/B/E/S Summary file, normalized by the stock price five trading days prior to the announcement date. For multiple forecasts in a given quarter, the consensus forecast used is the most recent one prior to the announcement, but is at least one day prior to the announcement day. Earnings estimates and actual earnings are adjusted for splits using the daily cumulative adjustment factor from CRSP (Glushkov and Robinson, 2006).

Following DellaVigna and Pollet, one measure of market reaction to the announcements is the two-day buy-and-hold abnormal return over the announcement day and the next trading day. Abnormal returns are calculated using the market model. A drawback of this measure is that it always includes either the daily return before the announcement for evening announcements or the return on the day after the announcement for announcements before 4 PM EST. Therefore,

we use this variable only to verify that we can replicate DellaVigna and Pollet's results. In its place, we introduce one-day abnormal announcement returns that utilize all available time stamp data of the I/B/E/S US sample for quarterly earnings announcements during the years 1999-2010.[2] This allows us to determine immediate market reaction more precisely than the two-day measure. We calculate one-day abnormal announcement returns as the abnormal return on the announcement day for morning and during-trading announcements and the abnormal return on the next trading day for evening announcements.[3] During-trading hours are 9:30 AM – 4 PM EST, morning is from midnight to 9:30 AM, and evening is from 4 PM to midnight.

B. Other Variables

One-day abnormal announcement volume is calculated as the CRSP log volume on the trading day of the announcement minus the average log volume during -20 to -11 trading days before the announcement. Size is the market value of the firm's equity at the end of the quarter prior to the announcement quarter based on Compustat. Institutional Ownership is the fraction of common shares outstanding owned by institutional investors at the end of the quarter and obtained from the Thomson-Reuters Institutional Holdings (13F) Database. Number of Forecasts is the number of analysts who made forecasts of the quarter's earnings. We delete observations (2.5% of the sample) in which institutional ownership is greater than 100% or the number of forecasts is zero. Forecast Dispersion is the standard deviation of earnings forecasts of the quarter's earnings. The number of forecasts and forecast dispersion variables are obtained from the I/B/E/S Summary file.

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[2] The time stamp data on the I/B/E/S data file goes back to 1998; however, the time stamp data prior to 1999 indicates not the announcement time, but rather the activation time (the time Thomson Reuters recorded the announcement). Page 16 of the Detailed History manual states: "The date reflected on this file prior to January 1999 is the activation date. After January 1999, the announcement date is used." Since the time stamp data on the I/B/E/S data file begins in January 1999, we can obtain the correct one-day announcement reaction for announcements only after that date.

[3] Bradley, Clarke, Lee, and Ornthanalai (2012) find that a significant portion of earnings announcements occurred up to one hour earlier than the I/B/E/S time stamp indicates. Since they find that delayed evening announcements have never actually taken place during the trading hours, our identification of the announcement day based on I/B/E/S time stamps is robust.

Table 1 shows that Friday announcements are relatively uncommon and constitute less than 6.4% (i.e., 10,570/165,643) of announcements, while the unconditional expectation for any weekday is 20%. Out of 8,999 firms in the sample, 3,812 had a Friday announcement, with half of them (1950) announcing on Friday more than once. The distribution of announcements by time of the day is quite different on Friday relative to other weekdays. Monday-Thursday announcements have relatively many evening announcements (42%) with relatively few during-trading announcements (17%). In a stark contrast to other weekdays, evening announcements represent only 16% of all Friday announcements

II. Replication of the results in DellaVigna and Pollet

The reactions to Friday and non-Friday announcements should be compared to announcements with similar magnitudes of earnings surprise. Following DellaVigna and Pollet, each year we sort announcements into eleven portfolios based on SUE (five positive SUE, one zero, and five negative SUE portfolios), and calculate average announcement returns for each portfolio. Figures 1.A and 1.B depict the results for two-day BHARs and one-day abnormal announcement returns for Friday and non-Friday announcements. Figure 1.A reproduces the result in Figure 1a of DellaVigna and Pollet, using their two-day BHAR measure over their sample time period of January 1995 to June 2006. Figure 1.B shows that this result stands when we rely on our more precisely defined, time-stamped one-day abnormal announcement return measure during the more recent time period, 1999-2010. Since the precise timing of the announcement is important for examining the limited attention hypothesis, we use this sample in our empirical tests. It is clear that announcement reaction is smaller on Fridays for both sample periods—it is less negative in the negative SUE portfolios 1-5 and less positive in the positive SUE portfolios 7-11 than for announcements on other weekdays.

The visual analysis of Figure 1 is supported by t-tests of one-day and two-day announcement returns. The results for our one-day return measure show strongly significant differences between non-Friday and Friday for both positive SUE (t-statistic of 2.54) and

negative SUE (t-statistic of -4.25) during our sample period. In contrast, t-tests of two-day announcement returns during the 1995-2006 period illustrate a weakness of the two-day measure. They indicate a less significant difference between non-Friday and Friday announcements for positive SUE (t-statistic of 2.39), and the difference in the negative part of SUE (t-statistic of -1.68) is just marginally significant at the 10% p-value threshold.

A. Empirical Methodology and Replication

As the starting point, we reproduce DellaVigna and Pollet's main regression results showing a reduced immediate reaction on Friday for both their and our sample periods and announcement return definitions. The model we estimate is:

$$R_{t,k} = \beta_0 + \beta^{top,F} d_{t,k}^{top} \times d_{t,k}^{F} + \beta^{bot,F} d_{t,k}^{bot} \times d_{t,k}^{F} + \beta^{top} d_{t,k}^{top} + \Gamma_1 X_{t,k} \times d_{t,k}^{top} + \Gamma_2 X_{t,k} \times d_{t,k}^{bot} + \varepsilon_{t,k} \quad (1)$$

where $R_{t,k}$ is the abnormal announcement return for company k in quarter t. $d_{t,k}^{top}$ ($d_{t,k}^{bot}$) is equal to one if the announcement's earnings surprise is in the top (bottom) two SUE portfolios and zero if it is in the bottom (top) two SUE portfolios. $d_{t,k}^{F}$ is equal to one for announcements on Fridays and zero for other weekdays. $X_{t,k}$ are control variables that can be included in certain regressions: industry and firm fixed effects, firm size, institutional ownership, and number of analysts' forecasts. When present, the controls are interacted with the indicator variables $d_{t,k}^{top}$ and $d_{t,k}^{bot}$. We also run the regressions with a specification that includes all observations, similar to the one in equation (8) of DellaVigna and Pollet. When doing so, the only change we make in our equation (1) is that the top two and bottom two SUE portfolio indicators, $d_{t,k}^{top}$ and $d_{t,k}^{bot}$, are replaced with positive and negative SUE indicators, $d_{t,k}^{pos}$ and $d_{t,k}^{neg}$, respectively. $d_{t,k}^{pos}$ ($d_{t,k}^{neg}$) is equal to one if SUE is positive (negative) and zero otherwise.

Our specification in equation (1) is fundamentally the same as equation (5) of DellaVigna and Pollet, but allows for testing the Friday effect separately for announcements with positive

and negative SUEs. This is an improvement over an otherwise similar model specification in DellaVigna and Pollet because while a reduced reaction for positive surprises is associated with a negative coefficient on Friday × Two Top Groups ($\beta^{top,F}$) in both models, a reduced reaction for negative surprises should be associated with a positive coefficient on Friday × Two Bottom Groups ($\beta^{bot,F}$), which is not in the model estimated in DellaVigna and Pollet.[4]

Table 2 replicates DellaVigna and Pollet results for the immediate announcement reaction. In columns (1) and (2), the dependent variable (two-day BHAR) and sample period (1995-2006) are the same as in DellaVigna and Pollet. In columns (3) and (4), we run the regression with the more precise one-day abnormal announcement return during our sample period (1999-2010). Column (1) replicates column (5) in Table II, Panel A of DellaVigna and Pollet. Similar to them, we find that the interaction of the Friday indicator with the top two SUE groups indicator is negative and significant. While not reported in DellaVigna and Pollet, the results reveal that the bottom two SUE groups are not associated with a reduced reaction compared to other weekdays (i.e., the coefficient of Friday × Two Bottom Groups is positive, but not significant). Column (2) provides similar results when estimating the regression with all observations: There is a significant reduced reaction for positive news, but the reduced reaction to negative news on Friday is only marginally significant. The lack of reduced reaction for negative SUE is also evident when these two regressions are estimated for the 1999-2010 period.

When we employ the more precise one-day abnormal announcement return in columns (3) and (4) of Table 2 as the dependent variable, the Friday reduced reaction is significant for both the top two and the bottom two SUE groups. Similar results are obtained in specification (4) that uses all observations.[5] Hence, the more precise estimation of the market response associated

[4] Instead of the Friday × Two Bottom Groups cross-term, DellaVigna and Pollet's model has a standalone Friday indicator variable, resulting in contradictory predictions about its sign to make it consistent with reduced reaction on Friday—positive for the bottom two SUE portfolios and negative for the top two SUE portfolios. Therefore, we do not rely on the Friday indicator by itself, but rather interact it with both the Top Two and Bottom Two Groups indicators. Naturally, to avoid singularity, a standalone Friday indicator must be omitted in the presence of its two crossterms that cover all observations.

[5] We have also verified that we can reproduce the other columns of Table II, Panel A and columns (1) - (3) of Table III in DellaVigna and Pollet using their control variables. Because we find, as in DellaVigna and Pollet, that the control variables lead to a very small reduction in the cross-term variables that test the Friday differential reaction (note the similarity of results in columns (5) and (6) of Table II, Panel A), we choose not to include them in our

with earning announcements shows that the Friday reduced reaction is present for both positive and negative earnings surprises.

B. Friday announcements at different times of day

Since the differential reaction to Friday announcements was confirmed for the new sample period 1999-2010, we can utilize the availability of the time stamps for earnings announcements during that period. Following Michaely, Rubin, and Vedrashko (2011) and Doyle and Magilke (2009), we divide announcements into three groups—morning (before 9:30 AM), during-trading (9:30 AM – 4 PM), and evening (from 4 PM to midnight)—and analyze the Friday effect separately for each group.

Figure 2 provides a graphical illustration of the findings. Panels A and B of the figure show that the reactions to morning and during-trading announcements are similar for Friday and other weekdays, but a reduced reaction to Friday evening announcements with both positive and negative SUE is clear in Panel C. This is fully supported by t-tests, which show significant differences between non-Friday and Friday returns only for evening announcements (t-statistics of 4.81 and -5.69 for both positive and negative SUE, respectively). Together, these charts indicate that the smaller market reaction to Friday announcements arises exclusively due to Friday evening announcements.

The estimation results of equation (1) for the three time-of-day periods are presented in Table 3. We cluster standard errors by firm and verify that all the results are unaffected if we cluster by announcement date as in DellaVigna and Pollet or do two-way clustering by firm and announcement date. While the choice of clustering variable does not affect our results, clustering by firm should be more appropriate than clustering by announcement date in this data because, as we show in the following sections, it is firm characteristics and the similarity among the reactions to announcements by the same firm that are behind the finding of the reduced reaction to Friday announcements.

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further analysis. Furthermore, not including these controls sets the bar higher for our tests that seek to eliminate the significance of the Friday effect coefficients.

Table 3 reveals that the Friday reduced reaction is generated only by Friday evening announcements, while market reactions to morning and during-trading announcements are not statistically different for Friday versus other weekdays. Friday evening announcements with both positive and negative earnings surprises are associated with a significant reduced reaction compared to the other evening announcements. Thus, while only a small fraction (16%, as shown in Table 1) of Friday announcements happen in the evening, it is these relatively infrequent announcements that cause the overall weaker reaction to earnings announcements on Fridays reported in the literature (DellaVigna and Pollet, 2009; Bagnoli, Clement, and Watts, 2005).

The key role of Friday evening announcements for Friday underreaction could be inconsistent with the Friday limited attention story. Since investors have two days to react to Friday evening announcements, DellaVigna and Pollet suggest that it is less likely that Friday evening announcements are driving the Friday reduced reaction results. The empirical evidence in Table 3 suggests the contrary: the Friday underreaction is generated by Friday evening announcements. It is still possible, however, that investors' attention may not be sufficiently geared towards their investment portfolios during the weekend and on Monday morning, and therefore, the reduced reaction to Friday evening earnings announcements may be a manifestation of limited attention to Friday evening announcements, and hence the delayed reaction.

III. Firm heterogeneity and the reduced reaction to Friday earnings announcements

A. Friday announcing firms and non-Friday announcing firms

We next test whether the reduced reaction on Friday is caused by the announcement being on Friday evening or by the characteristics of the announcing firms that differentiate firms that announce on Friday evening from firms that do not do so. In the latter case, the day of the announcement does not matter for announcement reaction, so that firms that exhibit a reduced reaction on Friday evenings should also experience a reduced reaction on other weekdays. For example, First Federal Financial Corp. of Kentucky announced its earnings on Friday evening in two out of seventeen quarters during our sample period. In contrast, Bank of America has never

announced its earnings on Friday evening. In this test, we compare the market reaction to announcements by First Federal Financial Corp. of Kentucky made at any day and time except on Friday evening and the reaction to all Bank of America's announcements.

More generally, we classify firms into two types based on whether they had a Friday evening announcement and compare the average market reactions for the two types of firms when they announce on days and times other than Friday evening. We define "Friday Evening Announcers" as firms that have had at least one Friday evening announcement and "Non-Friday Evening Announcers" as firms that have never had a Friday evening announcement in our sample. There are 1026 firms that announced their earnings on Friday evening, and the other 7973 firms are the Non-Friday Evening Announcers**.** Thus, Friday evening announcing firms constitute 11.4% of the firms in the sample. Almost all Friday evening announcers (over 90%) had announced on Friday evening only three times or fewer.

If Friday evening announcements are associated with Friday inattention we would expect to find on average no difference between reaction to announcements made by the Friday Evening Announcers (at times other than Friday evening) and announcements by the Non-Friday Evening Announcers at all weekdays and times.[6] Alternatively, if firm heterogeneity is what drives the results of the reduced reaction to Friday evening announcements, we should find a reduced reaction to announcements made by the Friday Evening Announcers at all days and times.

Table 4, Panel A presents descriptive statistics for announcements by the Friday Evening and Non-Friday Evening Announcers for the three time-of-day sub-samples: morning, during-trading hours, and evening. Panel A shows that for all three sub-samples, the announcements made by the Friday Evening Announcers firms are associated with a reduced reaction for positive SUE announcements and reduced reaction (i.e., less negative) reaction for negative SUE announcements. For the morning announcements, the reaction is reduced by 19% (i.e., 1.46/1.23-1) and 22% (i.e., 2.27/1.85-1) for positive and negative surprises, respectively. For during-

[6] When we compare the market response for the Friday Evening Announcers and Non-Friday Evening Announcers, we discard Friday evening announcement observations. This is necessary for the differences in response between the two firm types not to be contaminated by the original observation that Friday evening announcements are associated with reduced response.

trading announcements the reaction is reduced by 43% and 69% for positive and negative surprises, respectively, and for evening announcements it is reduced by 30% and 18% for positive and negative surprises, respectively.

Figure 3 provides a graphical illustration of the reduced reaction to announcements made by the Friday Evening Announcers on weekdays and times other than Friday evening as opposed to those made by the Non-Friday Evening Announcers. The three panels depict the reaction for the announcements by two groups of firms made in the morning, during-trading, and evening (other than Friday evening), respectively. All panels show that for all SUE portfolios, announcements by the Friday Evening Announcers are always associated with a reduced reaction compared to those made by the Non-Friday Evening Announcers.

Next, we use the regression framework to study whether Friday Evening Announcers have a smaller immediate reaction than the Non-Friday Evening Announcers on all weekdays. We replace the Friday indicator in equation (1) with the firm type indicator (the Friday Evening Announcer indicator). The regressions are estimated on the sample that includes all announcements except those made on Friday evening.

The results are reported in Table 4, panel B. Firms in the Friday Evening Announcer group exhibit a reduced reaction for both positive and negative earnings surprises in the three time-of-day announcement subsamples. Columns (1) – (3) indicate that for the top two and bottom two groups of SUE, one-day abnormal returns are, respectively, less positive and less negative following announcements made by the Friday Evening Announcers compared to the Non-Friday Evening Announcers. Panel B also reports regressions that include all SUE portfolios in columns (4), (5), and (6). The coefficients on the cross-terms of Friday Evening Announcer indicators with Positive SUE and Negative SUE are significant for all announcement times, and their negative signs are consistent with the results for the top two and bottom two SUE portfolios.

The results in Table 4 indicate that firms that announce on Friday evenings exhibit a similarly reduced reaction to their announcements on other weekdays and times of the day. Clearly, the differential reaction to announcements both on Fridays and on other weekdays

cannot be explained by Friday inattention. The reduced reaction for all announcements by the Friday Evening Announcers implies that these firms are different from other firms.

B. *Firm characteristics explaining the differential response to Friday evening announcements*

Table 5 shows that the Friday Evening Announcers have quite different characteristics than the Non-Friday Evening Announcers. In particular, the Friday Evening Announcers are associated with a smaller size, lower number of analysts' quarterly earnings forecasts, less institutional ownership in the firm, and higher dispersion of analysts' forecasts. These variables can be associated (to a different degree) with information asymmetry, governance, and liquidity, all of which are plausible explanations to a smaller reaction to announcements by the Friday Evening Announcers.[7] The differences in institutional ownership and the number of forecasts are particularly large both in magnitude and significance in each of the three subsamples (morning, during-trading, and evening).

We analyze whether firm characteristics identified in Table 5 can explain the market response to announcements on Friday evenings versus those on other weekday evenings. Because of the evidence in Table 5 that low institutional ownership and the low number of forecasts can be associated with the reduced reaction to Friday evening announcements, we use these variables to construct a matched sample for Friday evening announcements. We follow Michaely and Roberts (2011) and run a probit regression for all evening announcements, where the dependent variable is an indicator that equals one if the announcement is on Friday and zero otherwise. The independent variables are year and industry indicators, size, and the deciles of the distributions of institutional ownership and number of analysts' forecasts.[8] We then estimate the

[7] One firm stands apart from this tendency—Berkshire Hathaway, which announced 75% of its earnings on Friday evenings. Market reaction to its announcements is not smaller than that for firms with similar institutional holdings, analysts' forecasts, and size, even if they announce not on Friday evening; this is consistent with our overall conclusion that firm characteristics, rather than the announcement's day of the week determine announcement reaction. Our results in all tables do not change if Berkshire Hathaway is excluded from the sample.

[8] We do not use dispersion of analysts' forecasts in the regressions because it is not defined if the number of estimates is 1, which cuts the sample by approximately 25%. When included, its statistical significance is less robust relative to institutional ownership and the number of forecasts.

propensity score (the predicted value) for all these announcements and match every Friday evening announcement with a non-Friday evening announcement that belongs to the same SUE portfolio and has the closest propensity score to that of the Friday evening announcement. Columns (1) and (2) of Table 6, Panel A show the probit regression results before and after the matching. The matching procedure reduces the Pseudo R-squared from 14.15% to less than 1%, i.e., it eliminates the characteristic differences that are inherently associated with the Friday evening/weekday evening classification.

Figure 4 provides a graphical comparison of the mean one-day abnormal announcement returns for Friday evening announcements and the matched announcements on other weekday evenings. The two lines intersect six times, and there is no significant difference in reaction for any of the SUE portfolios. These results are confirmed econometrically for the Friday evening and matched non-Friday evening announcement sample in Panel B of Table 6, where the coefficients on the Friday cross-terms are not significant. Hence, the differences in the reaction to earnings news on Friday evening and other evenings can be explained with institutional ownership and the number of analysts' forecasts.

C. *Industry and Firm Fixed Effects*

We also examine whether including industry and firm fixed effects in DellaVigna and Pollet's regressions eliminates the primary evidence of the inattention to Friday earnings announcements. Firm fixed effects do not impose a restriction on which specific firm characteristics impact announcement reaction and represent a typical method to control for unobserved firm heterogeneity. Since smaller reaction on Friday is observed only for evening announcements in Table 3, we focus on the evening regressions and augment them by fixed effects. Columns 1 and 2 in Table 7 report the results with industry fixed effects (based on 2-digit SICs), and columns 3 and 4 report the results with firm fixed effects. We ultimately find that firm fixed effects are important explanatory variables for the immediate market reaction and render insignificant any influence of the announcement's day of the week.

As with the Friday indicator in our previous regressions, the industry and firm fixed effects are interacted with the top two and bottom two SUE group indicators (or with positive and negative SUE indicators). The motivation for this is the same as in DellaVigna and Pollet, who interact all their control variables with SUE group indicators. This allows the impact of fixed effects and controls on announcement returns to be different for positive and negative earnings surprises. For example, if a firm tends to have a relatively small announcement reaction, its firm dummy variable has a negative impact on the announcement return for positive SUE and a positive impact on the announcement return for negative SUE. In general, standalone firm fixed effect dummies would not be sufficient for capturing different relations between SUE and announcement reaction, and the cross-terms of firm dummies with positive and negative SUE indicators address this in our regressions.

The first two columns of Table 7 introduce industry fixed effects into the model. The addition of industry fixed effects reduces the magnitude and significance of the coefficients on the Friday-SUE cross-terms relative to their counterparts in the evening regressions in Table 3. For example, the Friday × Top Two SUE coefficient declines from -0.012 in column (3) of Table 3 to -0.009 in column (1) of Table 7. The reduction is virtually the same for the Friday × Bottom Two SUE coefficient in these columns. In the regressions for the full sample of evening announcements in column (2) in Table 7 and column (6) in Table 3, the coefficients on the Friday-SUE cross-terms are also 25% to 50% smaller in the presence of industry fixed effects than without them. This means that some portion of variation in market reaction to earnings announcements is due to systematically different reactions to announcements across industries, while the weekday of the announcement is not as important as it seemed without industry controls.

Finally, we estimate equation (1) with firm fixed effects in columns (3) and (4) of Table 7. The addition of firm fixed effects completely eliminates the Friday evening effect for both the top two and bottom two SUE groups in column (2) and positive and negative SUE in column (4)

of Table 7, where all the Friday-SUE cross terms become insignificant.[9] This reinforces the conclusion in this section that it is firm characteristics, rather than the announcement's day of the week, that determine the relative magnitude of announcement reaction on different days of the week.

D. The differential reaction among the Friday Evening Announcers

Our tests using matched sample and fixed effects were based on all evening announcements (by both the Friday Evening Announcers and the non-Friday Evening Announcers) and showed that announcement reaction depends on firms' characteristics rather than the announcement weekday. In this sub-section, we take a different approach and concentrate only on firms that have announced at least once on Friday evening. This sample consists of 11% of the firms in the full sample. We compare the market response to their announcements on Friday evening to that on other days of the week. While this smaller sample (only the Friday Evening Announcers) is more homogeneous than the entire sample, there are cross-sectional differences in size, institutional holdings and number of forecast among these firms as well.[10] We therefore control for these differences in the analysis below.

We analyze firms in the Friday Evening Announcer subsample in Table 8. Column (1) of Table 8 shows there is no differential reaction on Friday in the top two and bottom two SUE portfolios. Column (2) of Table 8 is based on all SUE portfolios and shows that without control for firms' characteristics, Friday evening announcements are associated with reduced reaction. However, once we include institutional ownership and the number of analysts' forecasts

[9] A reasonable concern could be that the Friday cross-terms are insignificant because the large number of explanatory variables in the model could eliminate all the meaningful variation in announcement returns. To address this, in untabulated results, we added institutional holdings and the number of analyst forecasts variables to the regressions in Table 7 and found that these variables were statistically significant with signs correctly showing their positive effect on announcement returns. This suggests that announcement returns retain their economic properties in the presence of firm fixed effects in Table 7. Gormley and Matsa (2012) provide further evidence in support of the firm fixed effect method of addressing firm heterogeneity,

[10] By analogy with Table 4, Panel A for all announcers, we find that Friday Evening Announcers that announce relatively more frequently (above the median frequency) on Friday evening experience a smaller announcement reaction for their announcements not only on Friday evening, but also on non-Friday evenings. This is consistent with the firm heterogeneity explanation: we find that the frequent Friday Evening Announcers are followed by fewer analysts and have lower institutional ownership than the less frequent Friday Evening Announcers. (To conserve space, these results are untabulated and available upon request.)

variables, the Friday interaction terms become insignificant in columns (3) and (4). The same outcome is shown in column (5), in which all three firm characteristics are included. To summarize, once we control for heterogeneity among Friday evening announcing firms, there is no difference in the market response when they announce on Friday or on other weekdays.

E. Robustness

In most of the analysis thus far we used the exact time stamp data from I/B/E/S, which allows us to identify that only Friday evening announcements are associated with reduced reaction on Friday. It also enables us to measure the market response more precisely by one-day announcement returns. This leads to two relevant questions we now address: first, whether our results hold with the two-day announcement return measure used in DellaVigna and Pollet (2009), and second, whether our conclusion about Friday inattention holds if we were to do the analysis for all Friday announcements (as opposed to only Friday evening announcements).

We first replicate all of our results for evening announcements with announcement reaction measured over two days rather than one day in columns (1)-(4) of Table 9. To conserve space, we present only the results with the matched sample and firm fixed effect regressions. Comparing the results for one-day returns (columns (1) and (2) in Table 6, Panel B) to two-day returns (columns (1) and (2) in Table 9) suggests that the Friday effect is insignificant with both measures when we use the matched sample technique. Likewise, the firm fixed effect regressions of the one day return (Table 7, columns (3) and (4)) and the two day return (Table 9, columns (3) and (4)) also lead to the same conclusion. Once we control for firm heterogeneity, regardless of the return interval, there is no evidence of inattention to Friday announcements.

Next, to ensure our results are not driven by using only evening announcements, we now use all announcements in matching Friday and non-Friday announcements following the same procedure for announcement day returns as in Table 6. Our candidate variables for calculating the propensity scores are unchanged: firm size, institutional ownership, and the number of analysts' forecasts. The results of the matched sample analysis for all Friday announcements are

reported in columns (5) and (6) of Table 9.[11] We find no difference in immediate reaction between Friday announcements and other weekday announcements.[12]

IV. Trading Volume and Post-Announcement Drift

The Friday limited attention hypothesis has three predictions concerning market response and investors' participation. The most important one is the reduced reaction to Friday announcements. The second one is that the limited participation should result in a lower trading volume associated with Friday earnings announcements. The third prediction is that the reduced Friday response should correct itself over time. Our results so far show that the most important element, the immediate market response, is attributed to firm heterogeneity and not to inattention. This section considers the second and third predictions of the Friday inattention hypothesis.

Starting with investors' participation, we first reproduce the trading volume regressions in DellaVigna and Pollet during our sample period (1999-2010), which allows us to use announcement time stamps and ensure that abnormal post-announcement volume is indeed measured over one day, rather than two days after the announcement. Since abnormal volume is caused by earnings surprise, our volume regressions follow the method in the announcement return regressions, i.e., the Friday indicator is interacted with the earnings surprise, and this

[11] We also find that industry fixed-effects are sufficient to eliminate evidence of reduced reaction on Friday. If industry fixed effects are included in the regressions in column (1) of our Table 2 and in regressions in Table II, Panel A of DellaVigna and Pollet, all Friday cross-term variables become statistically insignificant, indicating no evidence of reduced reaction on Friday.

[12] We note a caveat that the first day return on the announcement day does not fully measure immediate response for at least a portion of during-trading announcements—the closer they are to 4pm. Thanks to the suggestion by DellaVigna and Pollet, we also measured the immediate response to during-trading announcements using the return on the day following the announcement day and the sum of returns on the announcement day and the following day. Consistent with Table 3, we found no difference between reactions to earnings news announced during-trading on Friday and on other weekdays. Our results for trading volume in the next section are also robust to the two-day measure.

cross-term is the variable of interest.[13] The model we use for testing inattention based on trading volume is:

$$AV_{t,k} = \beta_0 + \beta^F d^F_{t,k} + \beta^{F,SUE} AbsSUE_{t,k} \times d^F_{t,k} + \beta^{SUE} AbsSUE_{t,k} + \Gamma X_{t,k} + \varepsilon_{t,k} \qquad (2)$$

where $AV_{t,k}$ is the abnormal announcement volume for company k in quarter t, $d^F_{t,k}$ is equal to one for announcements on Fridays and zero for other weekdays, and $X_{t,k}$ are firm fixed effects. Since both greater positive and greater negative earnings surprises should lead to higher trading volume, we use the absolute earnings surprise group, $AbsSUE_{t,k}$, in the model, similarly to the volume regressions in Hirshleifer, Lim, and Teoh (2009). The variable Absolute SUE Group denoted as $AbsSUE_{t,k}$ is $|d^{SUE}_{t,k} - 6|$, where $d^{SUE}_{t,k}$ is the SUE group number. It is increasing in SUE because SUE increases in both directions from SUE portfolios 6. For instance, Absolute SUE Group is equal to 5 for the top and bottom SUE groups (portfolios 1 and 11) and is 0 for the zero-surprise SUE group (portfolio 6).

The coefficient β^{SUE} on Abs SUE Group is expected to be positive, since greater earnings surprises are supposed to be followed by higher trading volume. From the perspective of the Friday inattention hypothesis, the coefficient of interest is $\beta^{F,SUE}$ on the cross-term Friday × Abs SUE Group. Just as in the model for announcement returns, it should be negative if there is reduced reaction to earnings news announced on Friday.

[13] DellaVigna and Pollet do not include the Friday-SUE cross-term in their volume regressions and consider the Friday indicator their variable of interest. However, this interpretation is problematic if Friday and/or Monday trading volume is systematically lower than trading volume on other days, which is actually the case (Jain and Joh (1988) and Foster and Viswanathan (1993)). Thus, DellaVigna and Pollet's finding that one-day post-announcement volume is less on Friday than other days of the week is due to a natural variation in volume during the week regardless of earnings announcements happening on those days. An implication of the smaller volume on Friday being due to normal variation (and not inattention to announcements made on Friday) is that we should be able to show that Thursday evening announcements are also associated with a smaller volume because the volume associated with Thursday evening announcements is measured on Friday. This is what we find. If the Friday indicator is replaced by the Thursday indicator in the regression, the latter variable is also negative and significant in our untabulated results. The significant standalone Friday or Thursday indicators should not be interpreted as investor inattention to earnings news on those days, but are merely evidence of normal variation in trading volume across weekdays.

We first estimate the model without firm fixed effects in columns (1)-(3) of Table 10 and then with firm fixed effects in columns (4)-(6). The coefficient on Abs SUE Group is positive and significant, which is consistent with the positive effect of earnings surprise on announcement volume. For morning and during-trading announcements, we find no differential volume for announcements on Friday vs. other weekdays. The Friday × Abs SUE cross-term is significant only for Friday evening (column (3)), but its positive sign implies a stronger volume reaction to earnings surprises announced on Fridays, in contradiction to the inattention hypothesis. We explain this differential volume by introducing firm fixed effects in columns (4)-(6). In these specifications, the Friday × Abs SUE cross-term is not significant for announcements in any time–of-day period, which means that the stronger volume response to earnings surprises on Friday evenings is due to firm heterogeneity. To summarize, our analysis of abnormal volume response to earnings announcements produces evidence contradicting the Friday inattention hypothesis. The relatively small trading volume following Friday announcements is not related to earnings announcements.

The last prediction of the inattention hypothesis is a greater post-announcement drift after Friday announcements, consistent with a delayed reaction and reduced attention to those announcements. This prediction is pertinent only to announcements on Friday evening, since the previous section showed that a reduced immediate reaction exists only for these announcements. We first estimate the long-term drift as in DellaVigna and Pollet and successfully reproduced their results. We then use the time stamp data to measure the post-announcement drift more precisely[14] and estimate the regression in equation (1) with the drift as the dependent variable. The results are reported in columns (1) and (2) of Table 11. Column (1) shows that the long-term drift is significantly more negative for Friday evening announcements in the bottom two SUE portfolios, but it is not different for Friday announcements in the top two SUE portfolios. This is

[14] DellaVigna and Pollet consider a drift over the 74 calendar days after the announcement, from day 2 to day 75 (approximately 50 trading days), where day 0 is the announcement day. We follow suit, but use the earnings announcement time stamp data to start calculating the drift from day 1 for morning and during trading announcements and from day 2 for evening announcements. Separately, we find that for approximately 15% of announcements, the next earnings announcement happens in less than 75 calendar days, which can confound the measurement of the long-term drift; therefore, we exclude these announcements from the long-term drift analysis.

consistent with Figure 1b in DellaVigna and Pollet, which shows that the bulk of the difference between the drifts after Friday and non-Friday announcements is due to the announcements with the most negative surprise. When we use the sample of all SUE portfolios in column (2), the significant Friday × Positive SUE shows a stronger long-term drift for Friday announcements on the positive side of the SUE distribution as well. However, just like in the tests of the immediate response, when we account for firm heterogeneity by including firm fixed effects in columns (3) and (4) of Table 11 the results show no significant coefficients on the Friday cross-term variables. This means that the differences in long-term drifts between Friday and non-Friday announcements are explained by the different characteristics of firms that announce on Fridays vs. other weekdays, rather than by investor inattention on Fridays.

Finally, we determine which firm characteristics lead to the different long-term drift for Friday announcements and use the matching procedure as in Table 6. After obtaining matching firms for the Friday evening announcing firms using institutional ownership, the number of analysts' forecasts, and firm size, we expose the long-term drift to the same test as the one-day announcement returns in Table 6, Panel B. We find in columns (5) and (6) of Table 11 that Friday evenings announcements have no significant differences in terms of post-announcement drift from the matching non-Friday evening announcements.

V. Conclusion

The paper shows that the Friday effect for earnings announcements found by DellaVigna and Pollet (2009) is in fact a Friday evening effect, as the reaction to announcements made at other times on Friday is no different than the reaction to similar announcements made on other weekdays. Further, we show that the Friday evening effect is attributed to firm heterogeneity. We use four empirical approaches: (1) compare the responses to earning announcements on days other than Friday between Friday evening announcing firms and firms that have never announced on Friday, (2) match Friday evening announcements to announcements made on other weekday evenings based on the announcing firms' characteristics; (3) control for firm fixed

effects in regressions; and (4) compare the earning announcement reaction of Friday evening announcing firms on Friday to the reaction of the very same firms to announcements on other days of the week. All of these approaches lead to the same conclusion: the variation in the immediate market reaction to earnings announcements, the post-announcement drift, and trading volume are not related to the weekday of the announcement, but rather to the characteristics of the announcements and the announcing firms.

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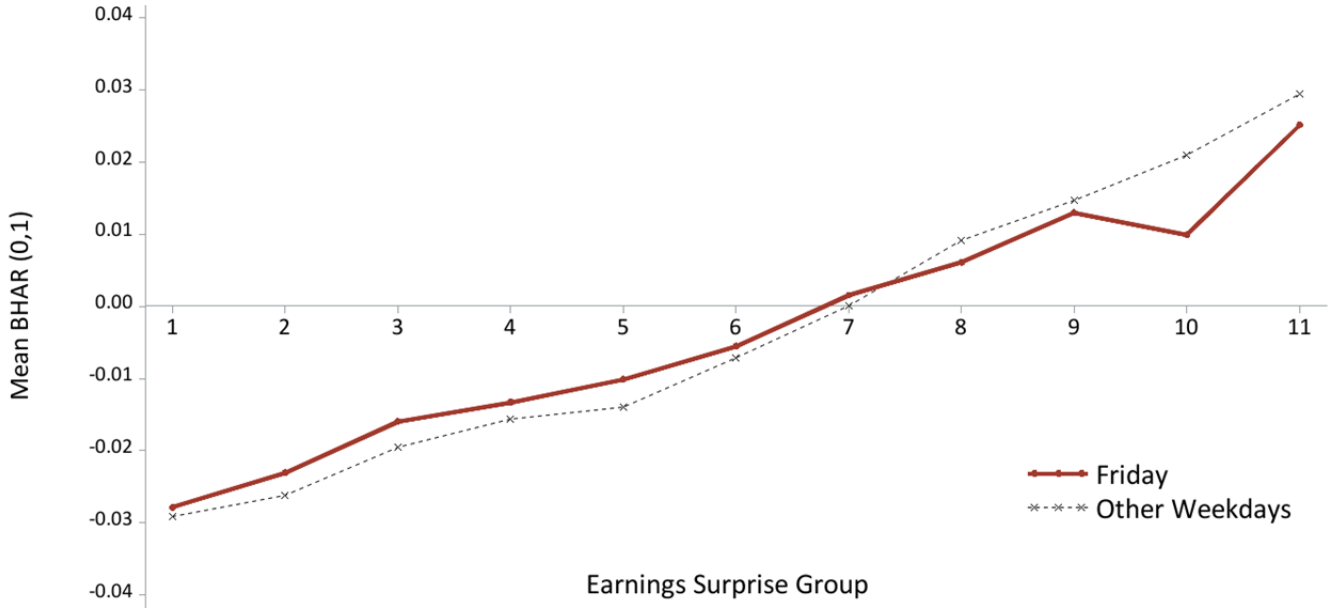
1.A



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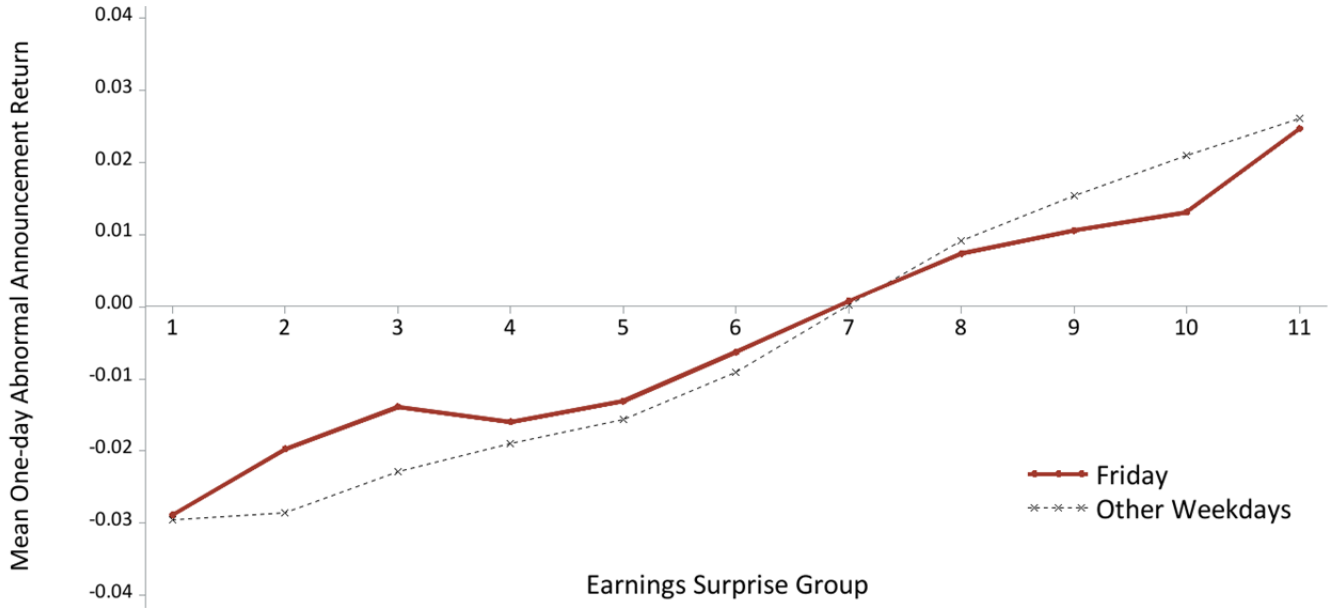
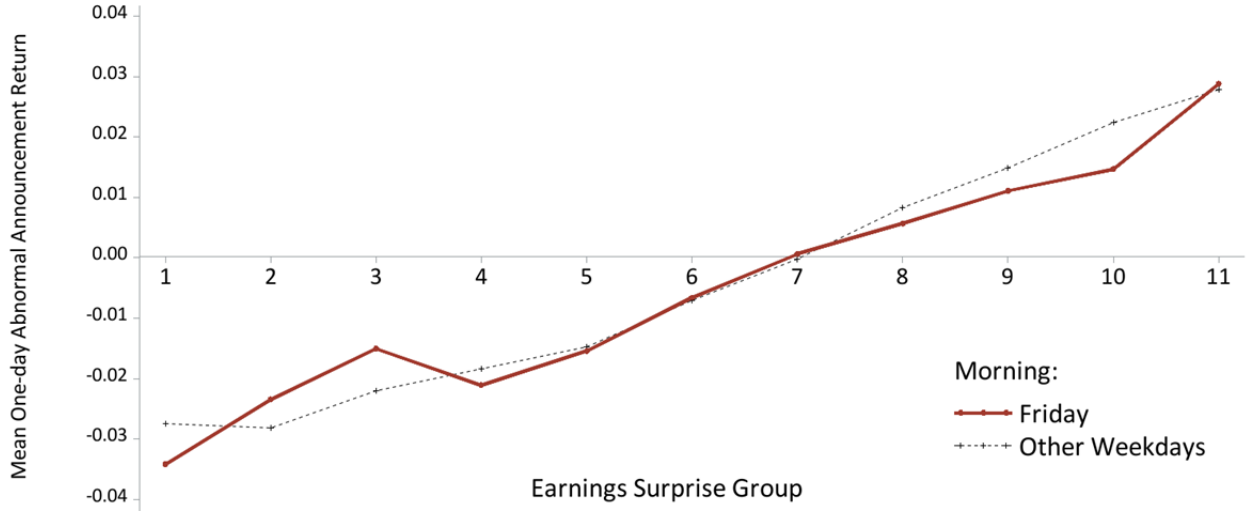


Figure 1. Two-day and one-day reactions to earnings announcements on Fridays and the other weekdays.
Earnings announcements are sorted into eleven portfolios based on earnings surprise each year. Portfolios 1-5 (7-11) are for negative (positive) surprises, respectively, and portfolio 6 is for a zero surprise. Figure 1.A shows two-day buy-and-hold abnormal returns on the announcement day and the next trading day, averaged within each earnings surprise SUE group during January 1995 - June 2006. Figure 1.B shows one-day abnormal announcement returns averaged within each SUE group during 1999-2010. Earnings surprise, two-day buy-and-hold abnormal announcement returns, and one-day abnormal announcement returns are defined in Table 2.

2.A



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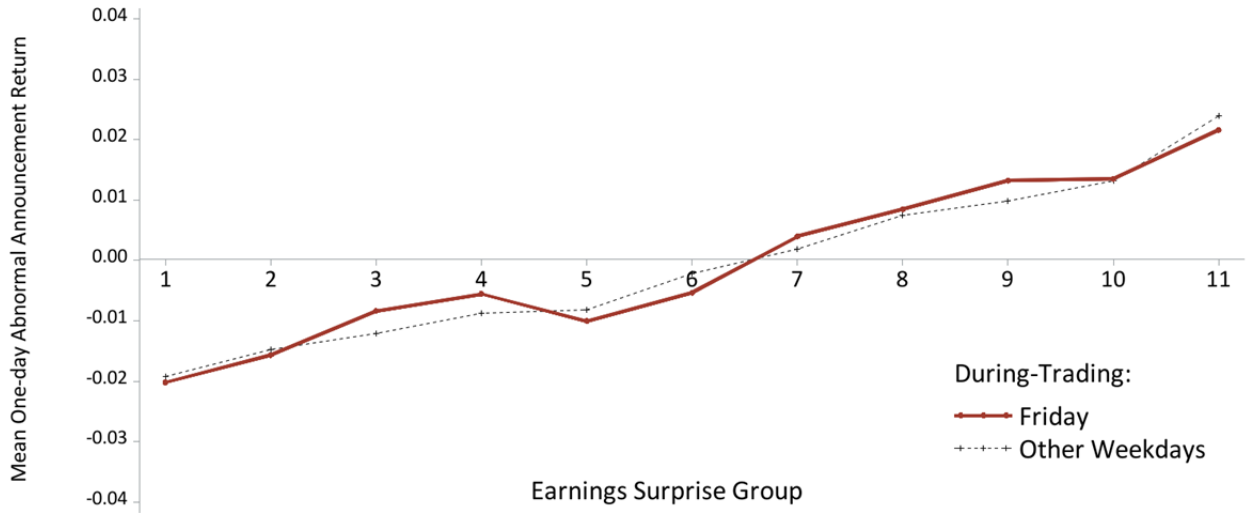

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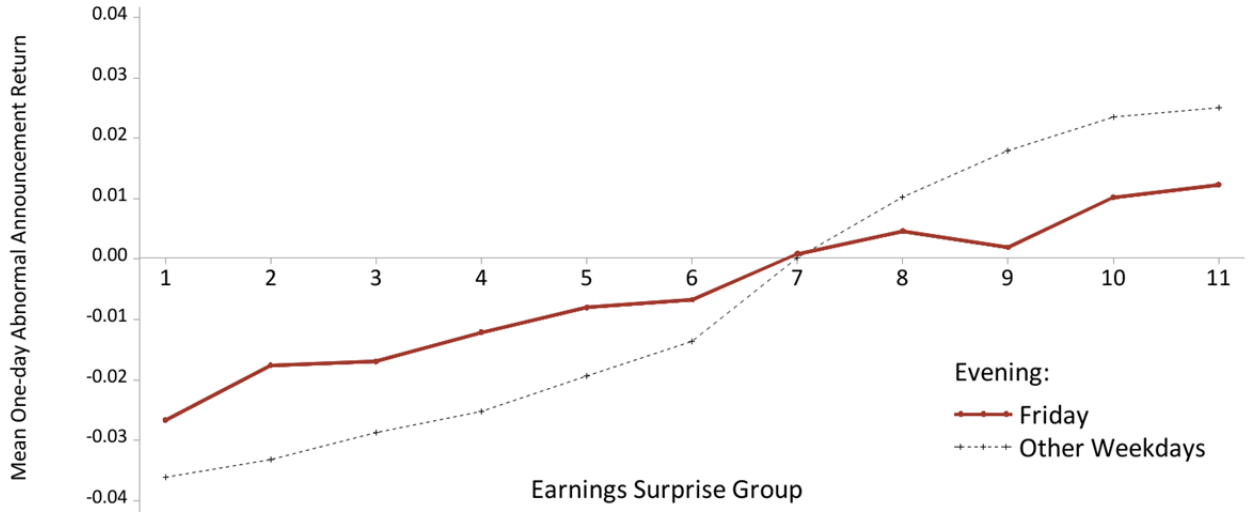
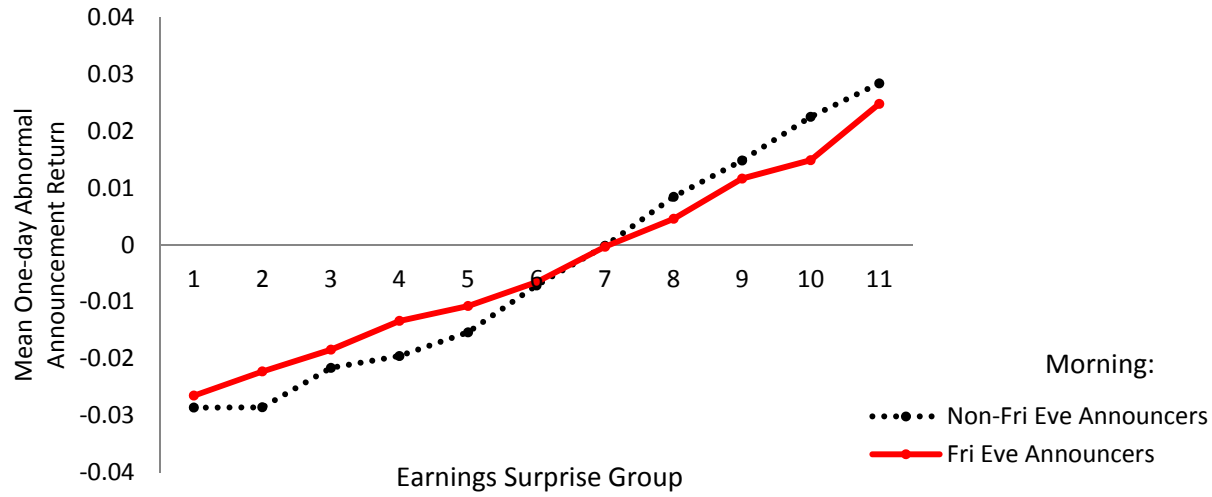
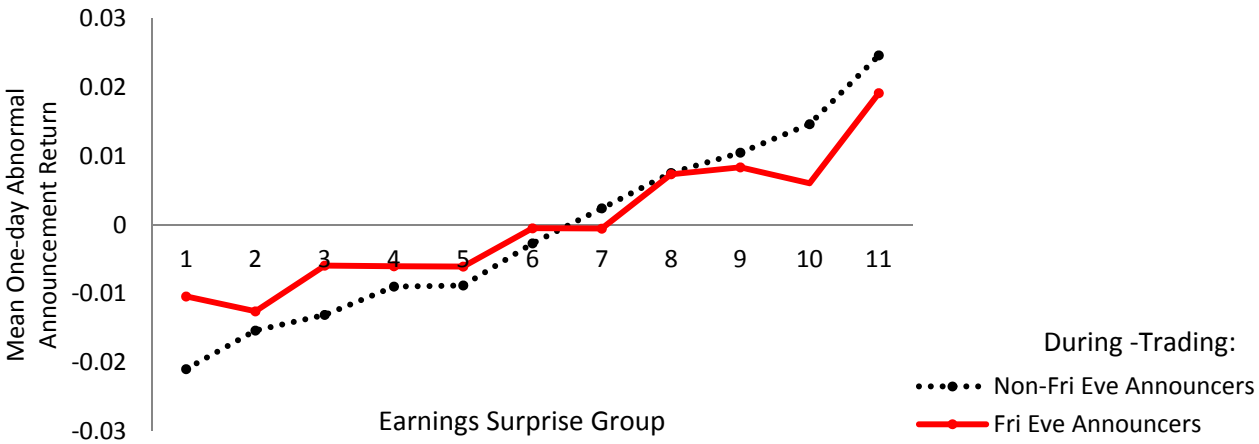


Figure 2. Response to earnings announcements at different times of the day on Friday and the other weekdays. Earnings announcements are sorted into eleven portfolios based on earnings surprise each year. Portfolios 1-5 (7-11) are for negative (positive) surprises, respectively, and portfolio 6 is for zero surprise. Panels A-C show one-day abnormal announcement returns averaged for each earnings surprise group for morning, during-trading, and evening announcements, respectively, during 1999-2010. Earnings surprise and abnormal announcement returns are defined in Table 2.

3.A



3.B



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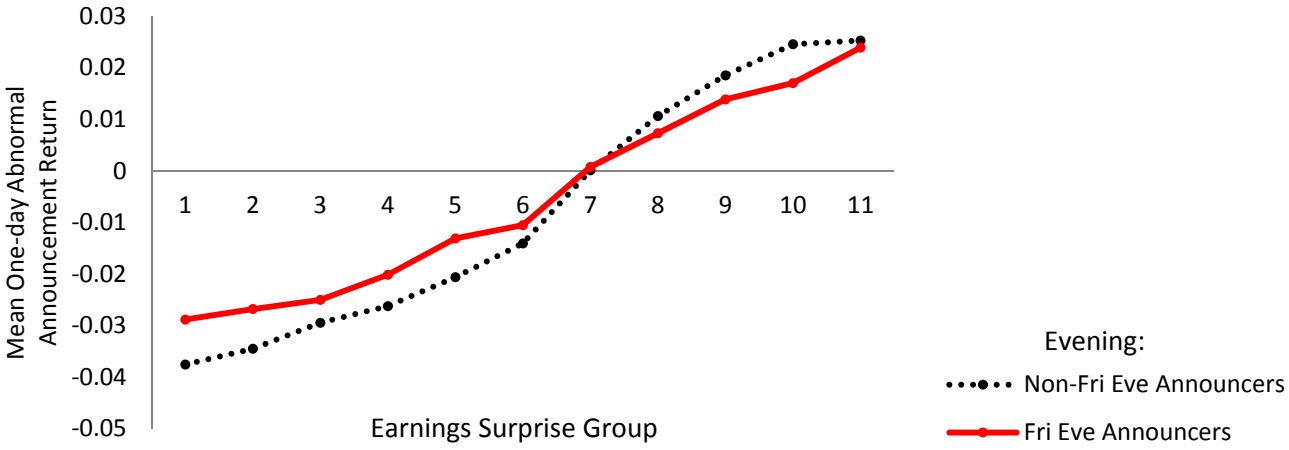

Figure 3. Response to earnings announcements at different times of the day for the Friday Evening Announcers and Non-Friday Evening Announcers.

Panels A, B, and C show one-day abnormal announcement returns averaged for each earnings surprise group for morning, during-trading, and evening announcements, respectively, during 1999-2010. The Friday Evening Announcers are firms that had at least one Friday evening announcement, and the non-Friday Evening Announcers are firms that have never had a Friday evening announcement. Friday evening announcements are excluded from the sample. Earnings surprise and abnormal announcement returns are defined in Table 2.

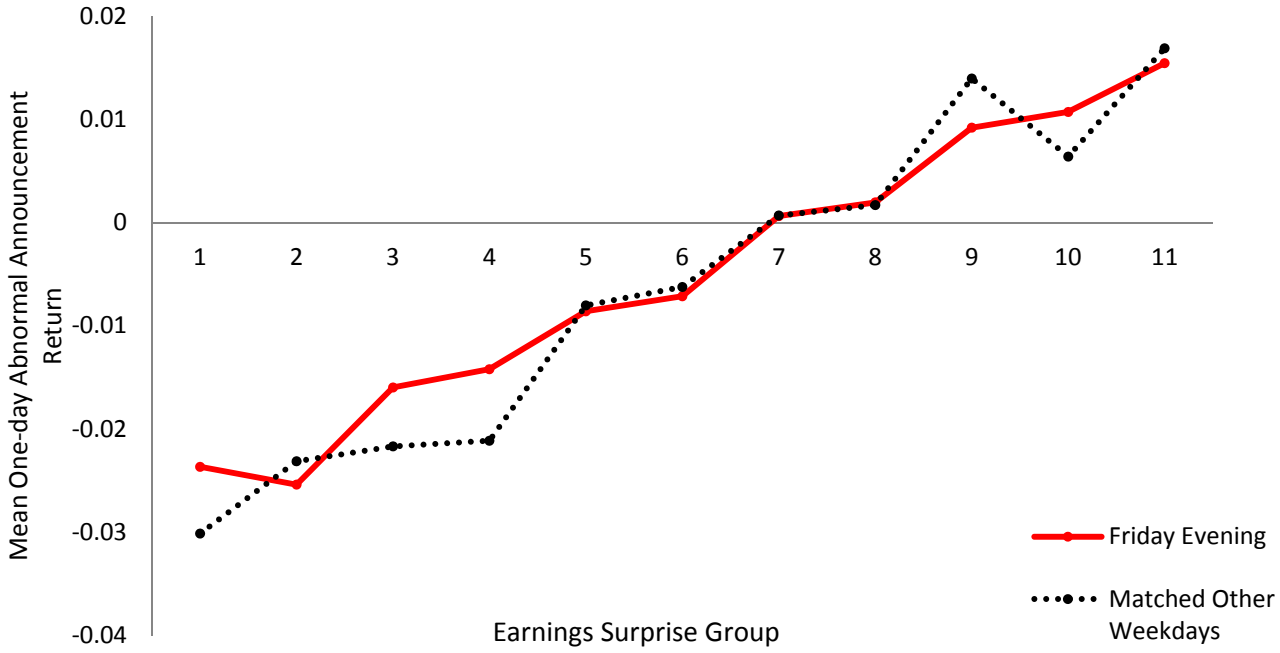

Figure 4. Response to earnings announcements for Friday evening announcements and matching announcements on other weekday evenings

The figure shows one-day abnormal announcement returns averaged for each earnings surprise portfolio for Friday evening announcements and matching weekday evening announcements. Matching is done based on the earnings surprise portfolio and the Friday announcement propensity score. The propensity score is calculated in a probit model with size, institutional ownership, the number of analysts' forecasts, industry, and year indicators as the explanatory variables. Earnings surprise and abnormal announcement returns are defined in Table 2.

Table 1: Distribution of announcements by time and day of the week

The table reports the distribution of quarterly earnings announcements made on Fridays and other weekdays during 1999-2010. During-trading hours are 9:30 AM – 4 PM EST, morning is from midnight to 9:30 AM, and evening is from 4 PM to midnight.

	Morning	During-trading	Evening	Row Total
Other weekdays (Row %)	57366 (36.99%)	27880 (16.83%)	69827 (42.16%)	155073
Friday (Row %)	6295 (59.56%)	2600 (24.60%)	1675 (15.85%)	10570
Column Total	63661	30480	71502	165643

Table 2: The differential effect of Friday on announcement returns

The dependent variable in columns (1)-(2) is the two-day buy-and-hold abnormal return in January 1995-June 2006, and the dependent variable in columns (3)-(4) is the one-day abnormal announcement return in January 1999-December 2010. Abnormal returns are calculated based on the market model. BHAR (0,1) is the two-day buy-and-hold abnormal return on the announcement and the next trading days. One-day abnormal announcement return is defined as the return on the announcement day for morning and during-trading announcements and the next trading day for evening announcements. During-trading hours are 9:30 AM – 4 PM EST, morning is from midnight to 9:30 AM, and evening is from 4 PM to midnight. SUE is the earnings surprise for quarterly announcements equal to the difference between actual earnings and median analyst forecast for that quarter divided by the stock price five trading days before the announcement. Announcements are sorted into eleven portfolios (SUE groups) by earnings surprise each year, where SUE groups 1-5 and 7-11 contain announcements with negative and positive SUE, respectively. Friday is equal to one for announcements on Fridays and zero for other weekdays. Top Two Groups (Bottom Two Groups) is equal to one if the announcement's earnings surprise is in the top two (bottom two) portfolios and zero if it is in the bottom two (top two) portfolios. Positive (Negative) SUE is equal to one if SUE is positive (negative) and zero otherwise. Robust standard errors are clustered by firm. *t*-statistics are provided in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	BHAR(0,1)		One-day Announcement Return	
	(1)	(2)	(3)	(4)
Intercept	-0.0277***	-0.0209***	-0.0291***	-0.0231***
	(-38.72)	(-51.52)	(-45.97)	(-61.19)
Friday × Top Two SUE Groups	-0.0071***		-0.0043***	
	(-4.14)		(-2.70)	
Friday × Bottom Two SUE Groups	0.0022		0.0045**	
	(1.03)		(2.48)	
Top Two SUE Groups	0.0527***		0.0526***	
	(57.29)		(63.72)	
Friday × Positive SUE		-0.0024**		-0.0022**
		(-2.42)		(-2.42)
Friday × Negative SUE		0.0020*		0.0043***
		(1.67)		(4.00)
Positive SUE		0.0356***		0.0374***
		(69.07)		(76.68)
Observations	57,817	144,690	57,397	143,506
Adj. R-squared	0.072	0.044	0.095	0.063

Table 3: The effect of Friday on announcement returns at different times of day

The table reports regression results explaining one-day abnormal announcement returns in 1999-2010. The dependent and explanatory variables are defined in Table 2. Columns (1) and (4), (2) and (5), (3) and (6) are estimated on the subsamples of morning, during-trading, and evening announcements, respectively. During-trading hours are 9:30 AM – 4 PM EST, morning is from midnight to 9:30 AM, and evening is from 4 PM to midnight. The earnings surprise groups are obtained separately for each time-of-day subsample. Robust standard errors are clustered by firm. *t*-statistics are provided in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	Morning	During-trading	Evening	Morning	During-trading	Evening
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-0.0278***	-0.0170***	-0.0346***	-0.0221***	-0.0125***	-0.0284***
	(-28.74)	(-13.84)	(-35.45)	(-39.63)	(-18.95)	(-47.62)
Friday × Top Two SUE Groups	-0.0032	-0.0008	-0.0127***			
	(-1.46)	(-0.28)	(-4.37)			
Friday × Bottom Two SUE Groups	-0.0013	-0.0011	0.0121***			
	(-0.46)	(-0.32)	(3.86)			
Top Two SUE Groups	0.0529***	0.0355***	0.0588***			
	(41.95)	(23.36)	(46.50)			
Friday × Positive SUE				-0.0015	0.0016	-0.0084***
				(-1.24)	(0.94)	(-4.58)
Friday × Negative SUE				-0.0001	-0.0002	0.0108***
				(-0.04)	(-0.11)	(5.47)
Positive SUE				0.0367***	0.0237***	0.0437***
				(51.26)	(28.83)	(56.96)
Observations	22,188	10,399	24,813	55,474	26,000	62,032
Adj. R-squared	0.108	0.061	0.099	0.072	0.039	0.067

Table 4: Market Reaction for Friday Evening Announcers and non-Friday Evening Announcers

Panel A reports mean one-day abnormal announcement returns for Friday Evening Announcers and compares them to mean abnormal announcement return of Non-Friday Evening Announcers. Friday Evening Announcers are firms that have had at least one Friday evening announcement in 1999-2010. Firms that have never had a Friday evening announcement in the sample are defined as Non-Friday Evening Announcers. The numbers of observations are reported in parentheses. Panel B reports regressions of one-day abnormal announcement returns on the firm type and SUE indicators. The table distinguishes between earnings announcements made in the morning, during trading hours, and in the evening. During-trading hours are 9:30 AM – 4 PM EST, morning is from midnight to 9:30 AM, and evening is from 4 PM to midnight. Earnings surprise SUE and one-day abnormal announcement returns are defined in Table 2. The earnings surprise groups are obtained separately for each time-of-day subsample. The evening subsample in both panels excludes announcements on Friday evening. Difference in means *t*-statistics with unequal sample variances is provided in the last column in panel A. Standard errors are clustered by firm, and *t*-statistics are provided in parentheses in panel B. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Panel A: One-day abnormal announcement returns for the two types of announcing firms

	Friday Evening Announcers	Non-Friday Evening Announcers	Difference in means t-statistic
Morning			
Announcement Return, SUE>0	0.0123 (3368)	0.0146 (31384)	-2.25**
Announcement Return, SUE<0	-0.0185 (2660)	-0.0227 (18069)	3.26***
During Trading Hours			
Announcement Return, SUE>0	0.0083 (2424)	0.0119 (12977)	-3.42***
Announcement Return, SUE<0	-0.0080 (1869)	-0.0135 (8733)	4.08***
Evening			
Announcement Return, SUE>0	0.0132 (4955)	0.0156 (33512)	-3.22***
Announcement Return, SUE<0	-0.0228 (3858)	-0.0296 (18191)	6.85***

Panel B: Announcement returns explained by announcer type

	Morning	During-trading	Evening	Morning	During-trading	Evening
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-0.0285***	-0.0182***	-0.0360***	-0.0227***	-0.0135***	-0.0296***
	(-28.72)	(-14.14)	(-33.24)	(-39.40)	(-18.89)	(-44.06)
Friday Eve. Announcer × Top Two SUE Groups	-0.0055**	-0.0073***	-0.0044**			
	(-2.49)	(-3.35)	(-2.15)			
Friday Eve. Announcer × Bottom Two SUE Groups	0.0043*	0.0066**	0.0083***			
	(1.78)	(2.42)	(3.36)			
Top Two SUE Groups	0.0540***	0.0379***	0.0609***			
	(41.85)	(23.61)	(43.31)			
Friday Eve. Announcer × Positive SUE				-0.0024**	-0.0037***	-0.0024**
				(-1.93)	(-3.14)	(-2.09)
Friday Eve. Announcer × Negative SUE				0.0042***	0.0054***	0.0068***
				(2.89)	(3.97)	(4.80)
Positive SUE				0.0373***	0.0254***	0.0453***
				(50.88)	(28.52)	(52.99)
Observations	22,192	10,400	24,069	55,481	26,003	60,519
Adj. R-squared	0.108	0.062	0.100	0.072	0.040	0.068

Table 5: Characteristics of Friday Evening and non-Friday Evening Announcers

The table compares the mean values of firm characteristics for Friday Evening and non-Friday Evening Announcers. Friday Evening and non-Friday Evening Announcers are defined in Table 4. Numbers of announcement observations are reported in parentheses. The table partitions between earnings announcements made in the morning, during the trading hours, and in the evening. Number of Forecasts is the number of analysts who made forecasts of the quarter's earnings. Institutional Ownership is the fraction of common shares outstanding owned by institutional investors at the end of the quarter. Size is market capitalization (in $ million). Forecast Dispersion is the standard deviation of earnings forecasts of the quarter's earnings. Difference in means *t*-statistics with unequal sample variances is provided in the last column.

	Friday Evening Announcers	Non-Friday Evening Announcers	Difference in means t-statistic
Morning			
Number of Forecasts	5.19 (6749)	7.21 (56920)	-32.57
Institutional Ownership (%)	47.76 (6743)	56.41 (56577)	-25.03
Size ($M)	2527 (6749)	6116(56920)	-28.61
Forecast Dispersion	0.060 (5373)	0.045 (48467)	4.09
During Trading Hours			
Number of Forecasts	3.61 (4915)	5.34 (25568)	-27.61
Institutional Ownership (%)	35.76 (4911)	44.12 (25442)	-21.41
Size ($M)	1683 (4915)	3098 (25568)	-10.06
Forecast Dispersion	0.168 (3242)	0.042 (19411)	1.93
Evening			
Number of Forecasts	4.48 (9963)	6.85 (59864)	-47.45
Institutional Ownership (%)	46.48 (9939)	55.84 (59728)	-32.16
Size ($M)	1245 (9963)	3080 (59864)	-24.78
Forecast Dispersion	0.069 (7601)	0.042 (51599)	2.39

Table 6: Reaction to Friday evening earnings announcements and matched evenings

In Panel A, the dependent variable is equal to one if the announcement is made on Friday evening and zero if it is made on another weekday evening. The partitioning of the number of forecasts and institutional ownership into deciles is based on the empirical distribution of the evening announcements. The sample in column 2 of Panel A and in Panel B consists of pairs of Friday evening announcements and their matched non-Friday evening counterparts. The weekday evening announcement with the same SUE group number and propensity score (the predicted value of specification (1) of Panel A) closest to a respective Friday evening announcement is selected for the matched announcements sample. The dependent variable in Panel B is the one-day abnormal announcement return. SUE and abnormal announcement returns are defined in Table 2, and the remaining variables are defined in Table 5. Robust standard errors are clustered by firm. *t*-statistics are provided in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Panel A. Calculating propensity scores

	(1)	(2)
Intercept	-1.3795***	-1.0213
	(-3.58)	(-3.49)
Size	0.0263***	0.0694***
	(2.59)	(3.69)
Number of Forecasts Decile	-0.1004***	-0.0186
	(-16.42)	(-1.46)
Institutions Decile	-0.0615***	-0.0144
	(-11.59)	(-1.03)
Industry Fixed Effects	yes	yes
Year Fixed Effects	yes	yes
Observations	70,972	3,254
Pseudo R-squared	0.1414	0.0097

Panel B. One-day abnormal announcement returns for Friday evening announcements and matched announcements on other weekday evenings

	(1)	(2)
Intercept	-0.0250***	-0.0199***
	(-6.05)	(-9.09)
Friday × Top Two SUE Groups	0.0046	
	(0.81)	
Friday × Bottom Two SUE Groups	0.0005	
	(0.09)	
Top Two Groups	0.0335***	
	(5.27)	
Friday × Positive SUE		0.0013
		(0.40)
Friday × Negative SUE		0.0023
		(0.79)
Positive SUE		0.0262***
		7.62
Observations	1,174	2,948
Adj. R-squared	0.066	0.047

Table 7: The effect of controlling for fixed effects on announcement returns for evening announcements

The table reports regression results explaining one-day abnormal announcement returns in 1999-2010 for evening announcements, where evening is from 4 PM to midnight. Earnings surprise (SUE) group indicators and abnormal announcement returns are defined in Table 2. Industry and firm fixed effect indicators enter in interaction with Top Two SUE Group and Bottom Two SUE Group in columns (1) and (3) and with Positive SUE and Negative SUE in columns (2) and (4). Industry fixed effects are based on 2-digit SIC codes. *t*-statistics are provided in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Intercept	-0.0533***	-0.0446***	0.0133	-0.0171
	(-5.04)	(-5.42)	(0.16)	(-0.22)
Friday × Top Two SUE Group	-0.0093***		-0.0018	
	(-3.04)		(-0.25)	
Friday × Bottom Two SUE Group	0.0091***		0.0027	
	(2.84)		(0.43)	
Top Two SUE Group	0.0928***		0.1770	
	(3.03)		(1.52)	
Friday × Positive SUE		-0.0059***		-0.0010
		(-3.15)		(-0.24)
Friday × Negative SUE		0.0056***		0.0017
		(2.83)		(0.47)
Positive SUE		0.0890***		0.2074*
		(3.37)		(1.92)
Firm Fixed Effects (interacted)			yes	yes
Industry Fixed Effects (interacted)	yes	yes		
Observations	24,785	61,961	24,813	62,032
Adj. R-squared	0.110	0.076	0.146	0.097

Table 8: Market reaction to earnings announcements by the Friday Evening Announcers

The table reports regression results for all evening announcements of the Friday Evening Announcer firms. The dependent variable is the one-day abnormal announcement return. SUE and abnormal announcement returns are defined in Table 2, and the remaining variables are defined in Table 5. Robust standard errors are clustered by firm. *t*-statistics are provided in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Intercept	-0.0228***	-0.0228***	-0.0162***	-0.0146***	-0.0412***
	(-11.47)	(-18.33)	(-7.19)	(-5.28)	(-3.96)
Friday × Top Two SUE Group	-0.0055				
	(-1.40)				
Friday × Bottom Two SUE Group	0.0045				
	(0.90)				
Top Two SUE Group	0.0496***				
	(15.93)				
Friday × Positive SUE		-0.0042**	-0.0023	-0.0036	-0.0017
		(-2.00)	(-1.08)	(-1.69)	(-0.79)
Friday × Negative SUE		0.0047**	0.0030	0.0033	0.0024
		(1.98)	(1.24)	(1.35)	(0.98)
Positive SUE		0.0360***	0.0220***	0.0245***	0.0762***
		(21.34)	(7.62)	(6.55)	(5.12)
Institutions × Positive SUE			0.0154***		0.0194***
			(4.74)		(5.33)
Institutions × Negative SUE			-0.0155***		-0.0151***
			(-3.53)		(-3.20)
# of Forecasts × Positive SUE				0.0023	0.0015
				(1.63)	(0.85)
# of Forecasts × Negative SUE				-0.0059***	-0.0064***
				(-3.22)	(-2.98)
Size × Positive SUE					0.0027***
					(3.01)
Size × Negative SUE					-0.0025***
					(-3.27)
Observations	3,453	10,141	10,120	10,141	10,120
Adj. R-squared	0.093	0.067	0.072	0.069	0.074

Table 9: Robustness tests

The dependent variables in columns (1)-(4) and (5)-(6) are the two-day and one-day abnormal announcement returns, respectively. The sample in columns (1) and (2) consists of pairs of Friday evening announcements and their matched evening counterparts, where matching is done by the SUE group and closest propensity score. The propensity scores are calculated using probit regressions of the Friday indicator on the same variables as in Panel A of Table 6. The sample in columns (5) and (6) consists of pairs of Friday announcements and their matched counterparts, where matching is done by the time-of-day (morning, during-trading, evening), SUE group, and closest propensity score. The propensity scores for columns (5) and (6) are calculated using probit regressions of the Friday morning, during-trading, or evening announcement indicator on the same variables as in Panel A of Table 6 for morning, during-trading, and evening subsamples, respectively. SUE and abnormal announcement returns are defined in Table 2. Firm fixed effect indicators enter in interaction with Top Two SUE Group and Bottom Two SUE Group in column (3) and with Positive SUE and Negative SUE in column (4). Robust standard errors are clustered by firm in the matched sample regressions. *t*-statistics are provided in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	Two-day BHAR				One-day BHAR	
	Matched Evening		Fixed-effects		Matched all Friday	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-0.0250***	-0.0205***	-0.0163	0.0120	-0.0231***	-0.0173***
	(-5.55)	(-8.45)	(-0.19)	(0.15)	(-10.99)	(-15.54)
Friday Eve. Announcer × Top Two SUE Groups	0.0024		0.0028		-0.0016	
	(0.37)		(0.37)		(-1.04)	
Friday Eve. Announcer × Bottom Two SUE Groups	0.0023		0.0056		-0.0017	
	(0.38)		(0.84)		(-0.56)	
Top Two SUE Groups	0.0430***		0.1994		0.0295***	
	(6.37)		(1.60)		(12.48)	
Friday Eve. Announcer × Positive SUE		0.0010		0.0002		-0.0012
		(0.29)		(0.04)		(-1.07)
Friday Eve. Announcer × Negative SUE		0.0023		0.0023		-0.0008
		(0.72)		(0.61)		(-0.48)
Positive SUE		0.0315***		0.1711		0.0238***
		(8.43)		(1.48)		(17.12)
Firm Fixed Effects (interacted)			yes	yes		
Observations	1,174	2,948	24,812	62,031	10,796	18,674
Adj. R-squared	0.069	0.051	0.160	0.103	0.031	0.030

Table 10: The effects of earnings surprise and weekday on announcement trading volume

The table reports regression results explaining one-day abnormal announcement trading volume calculated as the average log volume on the trading day following the announcement minus the average log volume during -20 to -11 trading days before the announcement in 1999-2010. The trading day following the announcement is the announcement day for morning and during-trading announcements and the next trading day for evening announcements. During-trading hours are 9:30 AM – 4 PM EST, morning is from midnight to 9:30 AM, and evening is from 4 PM to midnight. The eleven earnings surprise (SUE) groups are defined in Table 2 and are calculated separately for each time-of-day subsample. Abs SUE Group measures the magnitude of the absolute value of earnings surprise and is calculated as the absolute value of (SUE Group minus 6). Columns (1) and (4), (2) and (5), (3) and (6) are estimated on the subsamples of morning, during-trading, and evening announcements, respectively. Robust standard errors are clustered by firm. *t*-statistics are provided in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	Morning	During-trading	Evening	Morning	During-trading	Evening
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.2893***	0.1809***	0.6646***	0.4419***	0.1397***	0.5552***
	(5.67)	(13.47)	(59.58)	(55.50)	(9.78)	(74.18)
Friday	-0.0939***	-0.1404***	-0.7261***	-0.0002	-0.0328	-0.1805***
	(-3.43)	(-3.00)	(-12.33)	(-0.01)	(-0.57)	(-2.79)
Friday × Abs SUE Group	0.0032	0.0088	0.0577***	-0.0049	-0.0093	0.0077
	(0.38)	(0.59)	(3.36)	(-0.58)	(-0.51)	(0.39)
Abs SUE Group	0.0285***	0.0403***	0.0110***	0.0574***	0.0545***	0.0495***
	(9.27)	(9.41)	(3.63)	(19.16)	(9.90)	(17.22)
Firm Fixed Effects				yes	yes	yes
Observations	63,661	30,480	71,502	63,661	30,480	71,502
Adj. R-squared	0.003	0.005	0.008	0.206	0.158	0.195

Table 11: Firm heterogeneity and post-announcement drift following Friday evening announcements

The table reports regression results explaining post-announcement buy-and-hold abnormal (based on the market model) returns for evening earnings announcements in 1999-2010. The returns are calculated for fifty trading days starting with the first trading day after the announcement day for morning and during-trading announcements and the second trading day for evening announcements. Earnings surprise (SUE) groups are defined in Table 2. The matched sample for evening announcements in columns (5) and (6) is constructed following the procedure described in Table 6. All fixed effects enter in interaction with Top Two SUE Groups and Bottom Two SUE Groups (Positive SUE and Negative SUE). Robust standard errors are clustered by firm. *t*-statistics are provided in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	All Evening Announcements				Matched Sample	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-0.0115***	-0.0215***	0.0620	0.0620	-0.0076	-0.0234**
	(-3.78)	(-13.30)	(0.27)	(0.30)	(-0.36)	(-2.22)
Friday × Top Two SUE Groups	0.0056		0.0071		-0.0081	
	(0.44)		(0.30)		(-0.33)	
Friday × Bottom Two SUE Groups	-0.0350***		-0.0155		-0.0390	
	(-2.90)		(-0.68)		(-1.53)	
Top Two SUE Groups	0.0049		0.1667		0.0249	
	(1.30)		(0.51)		(0.85)	
Friday × Positive SUE		0.0175**		0.0053		0.0146
		(2.22)		(0.43)		(1.07)
Friday × Negative SUE		-0.0161**		-0.0145		-0.0171
		(-2.19)		(-1.22)		(-1.26)
Positive SUE		-0.0095***		0.1666		0.0009
		(-4.64)		(0.57)		(0.06)
Firm Fixed Effects (interacted)			yes	yes		
Observations	18,909	49,438	18,909	49,438	912	2,296
Adj. R-squared	0.001	0.001	0.031	0.045	0.008	0.002