Earnings Announcement Timing and Intra-Industry Information Transfers

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ABSTRACT

This paper examines whether, and if so how, changes in earnings announcement timing affect intra-industry information transfers. A large literature documents that earnings announcements result in information transfers to non-announcing peer firms. Prior studies also document that managers strategically choose when to issue earnings news, for example, by delaying (advancing) the release of bad (good) news. We argue that changes in earnings announcement timing are likely to signal to investors that the announcement contains relatively less industry-specific news, leading to a muted stock price reaction from peer firms. Consistent with the above argument, we document an attenuation (decrease) in information transfers of about 20% for both advances and delays in the release of earnings news. Examining potential explanations for the observed attenuation, our empirical tests support the notion that both advances and delays contain more firm-specific rather than industry-specific news.

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1. Introduction

This paper examines how changes in the expected timing of earnings announcements affect intra-industry information transfers. Earnings announcements are a recurring mandatory disclosure for publicly traded firms to communicate their periodic performance. There is overwhelming evidence that capital market participants find earnings announcements to be informative about the future prospects of not only the announcing firm but also its non-announcing industry peers.[1] While a majority of firms follow a predictable schedule of quarterly earnings releases, there are occasional deviations from the expected timing of earnings announcements. Prior evidence suggests that changes in announcement timing contain incremental information over and above the information content of earnings themselves. However, there is no evidence to date on whether the value implications of earnings announcements for non-announcing peer firms differ between timely announcements versus announcements that deviate from the expected schedule. This paper juxtaposes the literature on earnings announcement timing with the literature on intra-industry information transfers to investigate whether, and if so how, changes in when firms announce their earnings influence the amount and nature of information transfer to their non-announcing industry peers. Given that investors impound value relevant news from earnings announcements into the stock prices of non-announcing firms, it is important to know if changes in announcement timing affect such information transfers. To our knowledge, this is the first large scale empirical investigation of its kind that adds new insights on intra-industry information transfers.

Prior evidence on the *timing* of earnings announcements finds that while on average firms tend to follow a fixed schedule, firms occasionally alter the release of earnings reports due to

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[1] See Foster (1981), Baginski (1987) and others for the view that industry commonalities lead to information transfers.

strategic considerations.[2] For example, prior studies report that firms advance (delay) the release of good (bad) earnings (Chambers and Penman 1984; Kross and Schroeder 1984; Begley and Fischer 1998). Other studies find that deviations from the expected announcement schedule are affected by potentially firm-specific factors such as audit delays, restatements, and so on (e.g., Bagnoli, Kross and Watts 2002). Another stream of the literature examines *information transfer* from firms that announce earnings to their non-announcing industry peers based on the argument that an earnings announcement may contain information that is potentially value relevant for other firms in the industry (Foster 1981; Han and Wild 1990; Freeman and Tse 1992; Ramnath 2002; Thomas and Zhang 2008; and Drake et al. 2012). This body of research documents that the information transfer is larger in magnitude when the announcing firm has more unexpected news (Han and Wild, 1990), and that the stock price reaction of non-announcing firms does not fully incorporate information in the announcing firm's earnings release.[3] Delving into the components of earnings information, Asthana and Mishra (2001) propose a conceptual model where information transfers are mainly driven by the industry specific, and not firm specific, component of the announcing firm's earnings news. In a recent study on earnings announcement premiums, Savor and Wilson (2016) argue that earnings announcements contain information on aggregate earnings, however investors are unable to distinguish between the common (industry or economy-wide) component versus the firm-specific component of announcer returns. In other words, investors are unable to parse out how much of the information in the earnings announcement is industry-specific and how much is firm-specific.

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[2] For example, Brown et al. (2012), deHaan et al. (2015), and Michaely et al. (2016) focus on the exact time of the day or week when earnings announcement is made. These studies find that managers release earnings information during periods of low investor attention when the reported earnings fall short of the market's expectation. Gong et al. (2019) report that managers strategically time earnings announcements in response to relative performance evaluation.
[3] Ramnath (2002) provides evidence of investor underreaction. In contrast, Thomas and Zhang (2008) show investors in non-announcing firms overreact to the announcing firm's news and this overreaction is corrected when the non-announcing firm releases its own earnings.

To the extent that earnings announcements contain both firm and industry information (Savor and Wilson 2016), and information transfers are mainly driven by the industry specific, and not firm specific, component of the announcing firm's earnings news (Asthana and Mishra 2001), changes in earnings release timing potentially have implications for information transfer. This is predicated on the evidence that the choice of when to release earnings is primarily driven by strategic considerations or firm-specific factors such as internal control issues or audit delays, which suggests that any changes in timing are likely to contain more firm-specific rather than industry-specific information. We exploit this attribute to conjecture that changes in earnings announcement timings can potentially reveal the relative proportion of firm versus industry specific information in the total earnings news.[4] Specifically, information transfers stemming from earnings announcements could be muted (augmented) if investors believe a change in announcement timing conveys relatively more information about firm-specific (industry wide) shocks. Based on this premise, this paper examines if and how the timing of the earnings announcement affects intra-industry information transfers.

Recent work on information transfers around earnings announcements has focused on customers and supplier's earnings announcements (Pandit, Wasley and Zach 2011), post-earnings announcement drift (Kovacs 2015), systematic risk (Savor and Wilson 2016), changes in implied volatility (Hann et al. 2018), management earnings forecasts (Kim et al. 2008), and ETFs (Bhojraj et al. 2018). However, these papers do not examine the effects of changes in earnings announcement timing on intra-industry information transfers, which is the primary focus in this paper. While there is documented evidence on the information content of early versus late

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[4] An alternative to this is the notion that managers have incentives to choose announcement strategies that overstate industry wide factors when they face earnings shortfalls (Tse and Tucker 2010). This alternative proposition provides some tension in our argument.

earnings announcements, and on information transfer to non-announcing peer firms in the industry, there is no prior analytical or empirical guidance on how advances and delays in earnings announcements influence intra-industry information transfers. [5]

Our results indicate that advances and delays in the earnings announcement timing attenuate the magnitude of information transfers to non-announcing industry peers. Specifically, any change in announcement timing – advance or delay – reduces the amount of information transfer by about 20% (base information transfer of 6.1%, with the incremental effect of delays and advances to the order of -1.3% and -1.2%, respectively). We do not find that such attenuation is driven by the nature of the earnings news: the attenuation in information transfer for unexpectedly good (bad) earnings news ranges from 18.1% to 23.3% regardless of whether the announcement timing was advanced or delayed. This evidence of an attenuation in information transfers due to a change in earnings announcement timing is new to the literature. Additionally, our results indicate that stock prices of non-announcing firms systematically overreact to untimely earnings announcements, and the effect is significantly stronger if the unexpected earnings of announcing and non-announcing firms are in the same direction.

We explore several potential explanations of how off-schedule earnings announcement might lead to attenuations in information transfers: (i) predominance of firm-specific rather than industry-specific information; (ii) pre-announcement information leakage; and (iii) investor inattention due to timing change. Overall, our results are consistent with the notion that both advances and delays contain relatively more firm-specific rather than industry-specific news, thus leading to a decrease in the amount of information transferred to non-announcing peers.

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[5] For purposes of this paper, 'early' or 'advance' ('late' or 'delayed') announcers are those who announce earlier (later) than their expected announcement date. They still might be among the first (earliest) to announce relative to their peers in the industry,

Our results have several implications. First, researchers and firm stakeholders should note that it is not only the information content of a firm's earnings announcement but also its timing that affects the valuation of peer firms. In particular, non-announcing peer firms should be aware that while on average their stock price tends to move in the same direction as the news contained in announcing firms' earnings release, it is timely earnings announcements that have the greatest effect; earnings announcements that are either advanced or delayed can result in a smaller immediate impact on the peer firms' stock price. Our evidence on systematic overreaction of non-announcing peers implies that when faced with other firms' earnings announcement that are not on the expected schedule, non-announcing peers can consider taking actions to inform their investors and bridge the information asymmetry, e.g., through voluntary disclosures. Conversely, absent supplementary information from non-announcing firms, savvy investors may be able to exploit the apparent market overreaction for non-announcing firms.

The remainder of the paper is organized as follows. Section 2 reviews the existing literature. Section 3 discusses our data, sample selection and research design. Section 4 discusses the results and section 5 discusses additional tests. Section 6 summarizes and concludes the paper.

2. Review of Prior Literature

Since our research combines two streams of the literature, earnings announcement timing and intra-industry information transfers, we first review these two streams separately before discussing how we integrate them in this paper.

2.1 Earnings Announcement Timing

Using five different models of expected earnings release timing Kross (1981) finds firms that advance (delay) their earnings releases relative to the expected date tend to announce good (bad) news. Givoly and Palmon (1982) also document that delayed earnings announcements reveal

poor earnings. Kross and Schroeder (1984) find evidence supporting the good-news-early-bad-news-late hypothesis and that this pattern holds for both interim and annual reports. Chambers and Penman (1984) focus on the variability of returns around earnings announcements and find that early announcements are characterized by higher return variability and positive earnings. Subsequent studies such as Ashton et al. (1987) and Michaely et al. (2014) document that variation in the schedule of earnings announcements is driven by audit lags and governance quality. Sengupta (2004) documents that the reporting lag is shorter for firms that have greater demand for information from investors and firms with higher litigation costs, but longer for firms with greater block ownership and those with more complex operations.

Begley and Fischer (1998) revisit earlier work and find that firms which advance (delay) their announcements tend to release better (worse) news. Bagnoli, Kross, and Watts (2002) extend Begley and Fischer (1998) using managers' own estimates of the date of earnings releases as the expected earnings announcement date (EAD) and find substantial evidence for the bad-news-late hypothesis but little evidence for the good-news-early hypothesis.[6] Among recent studies, Doyle and Magilke (2009) challenge prior findings of opportunistic disclosure and document that there are no differences in unexpected earnings either between before- or after-market hours, or between Friday and non-Friday announcements. deHaan et al. (2015) investigate the information environment surrounding potentially opportunistic earnings release and document lower (higher) investor attention after (before) market close and on busy (slow) reporting days.[7] Johnson and So (2018) use a sample of firms that significantly advance their previously estimated EAD and

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[6] This measurement of expected EAD is distinct from prior research which used the same-quarter, prior-year reporting lag for estimated current quarter reporting lag. Data on management's expected earnings announcement date was not available until 1995, and not reliably available for about two-thirds of firms until 1998. This data was originally kept by First Call, which was purchased by Thompson Reuters. There is no identifiable reference to this dataset on WRDS or Thomson Reuters' websites.

[7] This is contrary to other studies such as DellaVigna and Pollet (2009), they do not find evidence that the market is less attentive on Friday.

provide additional evidence that changes in firm earnings release dates are associated with (i) better earnings reports, and (ii) a 260-basis point higher one-month stock return after revisions to expected EAD compared with firms that delay.

In sum, the evidence to date suggests that variations in earnings announcement timing are driven by firms strategically choosing when to disclose their earnings, as well as by other firm-specific factors such as litigation or internal control issues, and that investors do not appear to accurately price these changes in earnings announcement timing.

2.2   Information Transfers

In early work, Foster (1981) using stock returns and Han and Wild (1990) using analysts' expectations documented information transfer from earlier announcing firms to later announcing firms. Freeman and Tse (1992) sort firms by industry-specific earnings news models (autoregressive, seasonal random walk, and cumulative industry news) and document that the order of earnings announcement within an industry influences the amount of information transfer. Ramnath (2002) and Easton et al. (2010) find evidence that both analysts and investors underreact to the information in the first announcer's earnings release. In contrast, Thomas and Zhang (2008) document that investors overreact to early announcer's information, and this overreaction is corrected at the time of the subsequent announcer's earning release. Kovacs (2015), on the other hand, documents information transfer in the opposite direction – from the late announcer into the early announcer's security price. She proposes a reversal of the direction of the information transfer as an explanation for post-earnings announcement drift (PEAD) and finds PEAD is concentrated on days when later-announcing peer firms announce their own earnings.[8]

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[8] Kovacs (2015) also finds this effect depends on whether or not the later announcing firm's earnings are consistent with or contradictory to the earlier announcer's earnings surprise, and that results are strongest in industries with a history of larger magnitude information transfer.

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The preceding evidence supports the existence of net intra-industry information transfers at the time of earnings announcements. Kim et al. (2008) challenge this assumption by distinguishing between positive and negative information transfers surrounding management forecasts. Using *Hoover's* and 10-K reports to classify industry peers as rivals or non-rivals, they document a positive correlation between early announcer's earnings news and stock returns of non-rival subsequent announcers, but a negative correlation for rival subsequent announcers. Similarly, other researchers have focused on information transfers for complementary firms by examining the reaction of suppliers' securities to customer's quarterly earnings announcement (Pandit, et al. 2011) and investors' attention to a supplier's major customers prior to the supplier's scheduled earnings announcements (Madsen 2017).

Overall, the research to date on information transfer consistently finds that the information contained in a firm's earnings release is incorporated into the prices of other non-announcing firms in the same industry.[9] However, none of the above studies examines whether changes in EAD affect intra-industry information transfers, which is the primary focus of this study.

2.3   Earnings Announcement Timings and Intra-Industry Information Transfer

The preceding findings on the timing of earnings announcements may lead investors to impute information about related firms based on whether the announcing firm accelerates or delays its earnings announcement. In an early analytical study, Trueman (1990) models factors that can delay earnings releases, including potential earnings management and the desire to observe other firms' earnings first. As discussed above, there is also prior evidence on factors such as audit lags and governance issues influencing the timing of earnings releases (e.g., Ashton et al. 1987;

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[9] While the literature to date is silent on whether the information transfers are primarily a contagion effect or a competitive effect, there appears to be an implicit assumption that they are primarily driven by contagion effects. Koo et al (2017) is an exception.

Sengupta 2004; Michaely et al. 2014).[10] Such factors are likely to be specific to the announcing firm rather than being broadly applicable to its industry peers. In addition, there is also a greater potential for pre-announcement information leakage in the case of delays since investors are likely to investigate the reasons when the firm does not announce earnings at the expected time. This implies that to the extent there is industry-relevant news in the announcing firm's earnings, a significant part of it would have already been incorporated in peer firms' stock prices prior to the announcement.[11] The above discussion suggests that delayed earnings announcement are likely to result in reduced information transfers. A similar argument applies to earnings announcements that are made prior to the expected date, i.e., advanced announcements. Prior studies document find that managers strategically advance the timing of earnings release when they have good news to share. Such earnings news is likely to have a larger firm-specific component and, because it is released when investors are not expecting it, is likely to impede efficient information processing and dissemination to peer firms. In sum, we expect that a change in the earnings announcement timing, whether advance or delay, is likely to have relatively less value relevant content for peer firms and, therefore, would result in potentially attenuated information transfers.

Savor and Wilson (2016) investigate the earnings announcement premium and argue that the returns of early announcers in an industry forecast aggregate earnings. But since investors are unable to distinguish between the firm-specific vs. common components, announcer returns bear a disproportionate part of the aggregate risk leading to a risk premium. In other related work, Tse and Tucker (2010) document intra-industry clustering of earnings warnings by releasing news of

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[10] For example, in 2017 Synchronoss Technologies Inc. [SNCR] disclosed an Audit Committee investigation that delayed the filing of their annual report.

[11] Investors may interpret an earnings announcement delay as a sign of wider problems if the delaying firm is typically among the first few in its industry to announce earnings and its delay signals that all firms in the industry are choosing to delay filing their earnings reports.

poor earnings results around the same time as similar warnings from peer firms, supposedly to "reduce their apparent responsibility for bad news". However, no prior work has explicitly examined the impact of changes in earnings announcement timing on the nature and amount of intra-industry information transfer.[12]

Given that intra-industry information transfers typically relate to industry specific information, and at the time of the earnings announcement investors do not have an easy way to disentangle the firm-specific component from the industry-specific component of the news, we argue that the timing of the earnings announcement can potentially reveal the relative proportion of the two types of information. Increased industry specific information is likely to lead to an increase in the magnitude of information transfer while a greater proportion of firm-specific information is likely to lead to an attenuation. Building on this argument, we investigate the role of earnings announcement timing on intra-industry information transfers.

3.   Data, Sample Selection and Research Methodology

3.1   Data and Sample Selection

Our sample period extends from January 1998 through June 2018. We begin our sample in 1998 because of the sparseness of I/B/E/S analyst data before that time. Stock price and return data are obtained from CRSP. We filter out firms with stock price less than a dollar and firms not listed on the New York Stock Exchange, American Stock Exchange, or NASDAQ. Firms with fewer than 225 trading days in a year (roughly 90% of eligible trading days each year) are excluded.

Data on the number of analysts covering a firm, analyst earnings per share forecasts, and earnings announcement date and time is gathered from I/B/E/S summary file. Only quarterly

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[12] Thomas and Zhang (2008) are an exception who refer to untabulated results indicating that the timeliness of earnings (based on a seasonal random walk model) does not drive their results, and that strong information transfers exist across all reporting lag quintiles.

periodicity and the most recent summary data preceding an earnings announcement are retained. Management forecast dates are obtained from the I/B/E/S guidance file.

Firm characteristics are obtained from Compustat. Firms with fiscal year ends not matching calendar quarter ends are excluded.[13] Firms with quarterly total assets or revenue less than zero are excluded from the sample. Institutional holding data is obtained from Thomson Reuters 13f database. Data for classifying the type of institutional investor is based on Bushee (2001) and obtained from Brian Bushee's data site.[14]

3.2   Research Design and Measurement of Variables

Our research design hinges on two key parameters: we first need to identify firms that first release earnings announcements ('announcing firms' or 'announcers') which affect the stock prices of their industry peers who have not yet announced their earnings ('non-announcing firms' or 'non-announcers'). In other words, our analysis is focused on information transfers from announcing firms to non-announcing firms over a narrow time window surrounding the earnings releases of announcing firms. We next need to identify instances when an announcing firm chooses to alter the timing of its earnings announcements relative to when it would be expected to report earnings in the normal course.

To identify the first few announcing firms in each industry, we rank all firms by their reporting lag in each industry-quarter. Firms in the bottom quintile of revenue for the industry-quarter or with less than two analysts following are ineligible to be designated as announcers. After this ranking, the first five eligible firms in each industry-quarter are labelled announcing firms.[15]

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[13] For example, a firm with a March 31st fiscal year-end will be included in our sample since the fiscal year-end coincides with a calendar quarter-end, but a firm with an April 30th fiscal year-end will be excluded.
[14] http://acct.wharton.upenn.edu/faculty/bushee/IIclass.html, accessed 18 June 2019.
[15] Industry-year-quarters with less than 3 firms are omitted.

We designate the remaining firms in the same industry which announce at least five calendar days after each announcer as non-announcing peer firms.

To evaluate the effect that announcers' earnings news has on non-announcers, we then create announcer-non announcer pairs at the announcer-quarter level. Each announcing firm is matched with all other firms in its industry that announce their own earnings at least five calendar days before or after the announcer's earnings release date. In this manner, a hypothetical industry with ten firms could have as many as 35 announcer-non announcer pairs.[16] An announcing firm can be labelled as a non-announcer to another firm if it meets the criteria of being an announcer and also announces five calendar days or more before another firm in the same industry.[17] Appendix B provides details of our matching procedure using hypothetical announcements.

We next focus on a firm's decision to change the timing of its earnings announcement relative to prior quarters. Consistent with prior research, we define reporting lag as the number of calendar days between the end of the firm's fiscal quarter and its earnings announcement date. To determine whether a firm has advanced or delayed its announcement in the current period, we use a seasonal random walk model. Specifically, we measure a firm's expected announcement date based on the firm's reporting lag in the same quarter in the prior year. We classify a firm as advancing (delaying) its earnings announcement if its reporting lag is at least five days shorter (longer) than the reporting lag in the same quarter in the prior year.[18] From a measurement perspective, determining the 'normal' or expected announcement date is key to defining early, on-

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[16] The first PA could match to the other 9 firms, the second PA could match the other 8 firms, etc.

[17] While an early announcing firm can be classified as a non-announcer to a later announcer, the later announcing firm's earnings release should add little new information to the earlier announcing firm's information environment. This should bias against our findings.

[18] It is possible that a firm has a one-time advance or delay in its quarterly earnings announcement and subsequently reverts to its original earnings announcement schedule. Such firm-quarters would lead to a misclassification in the following year. While we are in the process of checking whether our results are sensitive to this misclassification, our *a priori* intuition suggests that such cases are likely to bias against our findings.

time and delayed earnings announcements. [19] If the actual announcement date (variable *anndats_act*) and time (*anntims_act*) are available from the I/B/E/S database, we use that information as the earnings announcement date. If the announcement time is after 16:00 Hours US Eastern Time (market close), we adjust the announcement day to the next trading day (Kovacs 2015). If no announcement date is available from I/B/E/S, we use the announcement date from Compustat (*rdq*). Further, if the difference between the I/B/E/S and Compustat announcement date is more than four days, we remove the observation from our sample.

Unexpected earnings are measured as the actual earnings per share minus the median analyst estimate, divided by the share price at the end of the fiscal quarter. Firms with unexpected earnings less than (greater than or equal to) zero are classified as having bad (good) earnings. Three-day returns represent the average daily return over the three-day window centered on the earnings announcement date. All returns are adjusted using the CRSP calculated daily value-weighted market return (*vwret*). Other control variables are defined consistent with prior studies and are detailed in Appendix B. We define our industry classification using Fama-French 49 (FF49) industry definitions.[20] Our classification procedure modifies the FF49 following Kovacs (2015). Details of these procedures are provided in Appendix C. Following prior studies such as Brochet et al. (2018) all regression models include industry and year-quarter fixed effects.

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[19] Some firms disclose in advance an annual calendar of scheduled earnings announcements and recent work (e.g., Johnson and So 2018) has relied on sources like Wall Street Horizon to identify delays/advances in earnings releases based on market expectations. Prior studies such as Kovacs (2016) and Savor and Wilson (2016) have also used alternative ways of measuring deviations from the expected date. Our seasonal random walk model for such firms with a pre-scheduled calendar is based on prior studies and could potentially introduce noise in the classification of firms into advances and delays. However, such potential misclassification is likely to bias against our findings.
[20] Industry definitions are available at Kenneth French's website:
http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_49_ind_port.html.

4. Empirical Results

4.1 Descriptive Statistics

Table 1 shows the descriptive statistics of the firms in our sample. The table splits the sample by announcing firms (top panel) and non-announcing peer firms (bottom panel). As expected, announcing firms are significantly larger by all measures (total assets, common equity, net income, quarterly revenue, and market capitalization). Further, announcers have a lower book-to-market ratio (more growth oriented), and have more leverage compared with their non-announcing peers. The average reporting lag is 32 days for early and 45 days for non-announcers.

[Tables 1 and 2 About Here]

4.2 Univariate Results

Table 2 presents the summary statistics for the abnormal returns of the announcing firm (*CAR_ANN*) and the non-announcing peer (*CAR_PEER*) around the announcer's earnings announcement. Panel A disaggregates the announcer's returns by EA timing changes. Consistent with prior work, announcers have significantly higher (lower) returns when they advance (delay) their announcements, 96 bp (34 bp), compared to 39 bp when they announce on-time. Non-announcing peers' responses are also affected by the announcer's timing changes, although by a smaller magnitude: advances have larger information transfers (16 bp) compared with on-time and delays (3 bp).

Panel B reports descriptive statistics based on whether the announcing firm reported unexpectedly good or bad news. As expected, announcing firms' returns are significantly larger when they report good news compared with bad news. Further, advancing of good news leads to significantly more positive returns than good news reported on-time or delayed (2.08% vs. 1.43% and 1.47%, respectively). When announcing firms report bad news, their stock return is

14

significantly less (more) negative if they advance (delay) their announcement than if they report on-time. Non-announcer returns surrounding any advancement of good or bad news by announcers are significantly more positive than for on-time or delayed announcements (20 bp vs. 4 bp and 4 bp, respectively, for good news, and 7 bp vs. 0 bp and 1 bp, respectively, for bad news). Moreover, information transfers for non-announcing peers appear to be stronger for advances than for delays. Overall, the above results are consistent with the good-news-early, bad-news-late findings in prior research (e.g., Chambers and Penman 1984; Kross and Schroeder 1984; Begley and Fischer 1998; Bagnoli et al. 2002).

4.3   *Effect of Earnings Announcement Timing*

Table 3 presents our main results. In Panel A, we replicate prior work on intra-industry information transfer without controlling for EA timing delays and advances. Consistent with prior work, we find a significant and positive information transfer of about 5.8%. Panel B reports results on information transfer after controlling for the effect of changes in announcement timing. Specifically, we find that a change in announcement timing by the early announcers, whether advance or delay, reduces the amount of intra-industry information transfer by about 20%. Specifically, the on-time information transfer of 6.1% is incrementally attenuated for delays(advances) by -1.3% (-1.2%). To the extent that advances (delays) are more likely due to firm specific factors rather than industry wide events, these attenuated information transfers are consistent with deviations from expected EA dates containing relatively more firm-specific and less industry-specific information.

[Table 3 About Here]

4.4   Cross-sectional Tests: Effect of Sign of Unexpected Earnings

A potential alternative explanation for the findings of differential information transfers for advances and delays is that the information transfer is related to the nature of the unexpected earnings rather than changes in the announcement timing. Since firms tend to advance the release of good news and delay bad news, it is possible that the observed market reaction reflects the nature of the news rather than the timing of its release. To address this possibility Table 4 presents an analysis similar to Table 3, Panel B, by partitioning the sample based on whether the announcing firm has unexpected good or bad news. Consistent with prior evidence, we find significantly greater information transfer when the announcing firm releases good news than when it releases bad news (7.9% vs. 6.1%). However, regardless of the nature of the news, good or bad, we find that changes in the announcer's EA timing weaken the amount of information transfer by approximately 20% (ranging from 18.1% to 23.3%).

[Tables 4 About Here]

5.   Additional Tests: The Why and How of Attenuation

As discussed above, information transfer from an announcing firm's EA to a non-announcing peer firm is a function of the amount of peer value relevant information released during the EA and efficient processing by investors to incorporate such information into the valuation of the non-announcing peer. The results reported above confirm earlier evidence on the existence of information transfer from announcing firms to non-announcing firms. Additionally, we provide evidence of an attenuation in the magnitude of information transfer when the announcing firm advances or delays its earnings announcement from the expected date. This evidence of attenuation due to changes in announcement time has not been previously documented. In this section, we examine alternative mechanisms that provide potential explanations for the observed attenuation.

Specifically, we propose and test three non-mutually exclusive explanations for the attenuation in information transfer.

The first explanation for dampened information transfers is that untimely or off-schedule earnings announcements contain relatively more firm-specific and less industry-specific information, which makes such earnings announcements less value relevant for non-announcing peers. The second explanation involves potential information leakage for off-schedule earnings announcements, particularly for delays. In this case, when a firm does not announce earnings on time investors may actively seek to uncover additional information which could be incorporated into non-announcing peers' valuation prior to the EA. Thus, when the earnings announcement eventually takes place it would contain less incremental information relevant for industry peers, leading to the observed attenuation in information transfers. Finally, it is possible that information released during untimely earnings announcements is not efficiently processed by investors. In the case of advanced announcements, investors would not anticipate such announcements and may not be able to fully incorporate the information into peer firms' sock prices. This phenomenon could lead to the same outcome as above, i.e., a reduced magnitude of information transfer. Below we develop each of these explanations, which are non-mutually exclusive, and describe our empirical research design for testing them.

5.1   *Firm versus Industry Specific Information Transfer*

Asthana and Mishra (2001) develop a conceptual model arguing that information transfers are mainly driven by the industry specific, and not the firm specific, component of earnings news but do not provide any empirical evidence. Han and Wild (1990) document that large announcing firms experience smaller transfers while Schoderbek (1995) shows that there is information transfer from dominant (bellwether) firms to fringe firms. Therefore, the general interpretation has

been that intra-industry information is a contagion effect.[21] In recent work Koo et al. (2017) attempt to separate out firm versus industry-specific information using the textual content of press releases on management earnings forecasts, however they do not directly dissect earnings news into firm versus industry components. If changes in earnings announcement timing are due to firm-specific factors, this would give investors reason to discount the relevance of earnings information for industry peers. When a firm changes its EA timing, the relative proportion of firm-specific vs. industry information in its EA could be systematically different from that in a regularly scheduled EA. To the extent changes in the EA timing are driven by idiosyncratic factors that are not value relevant to non-announcing peers, we would expect the magnitude of information transfer to be comparatively smaller.

To investigate the above explanation, we employ the traditional earnings response model and use the residuals from the regression to represent the firm specific component of the information in earnings announcements. Specifically, we construct residuals for each firm based on a regression of abnormal returns (*CAR_ANN*) on analyst forecast-based unexpected earnings, by estimating the following specification:

$$CAR\_ANN_{it} = \alpha + \beta * (AF - AE)_{it} + \varepsilon_{it}$$

where *AF* represents the consensus analysts' consensus forecast and *AE* represents the actual reported earnings. We estimate this model as a pooled cross-sectional time series but include industry-quarter-year fixed effects.[22] We argue that the estimated residuals (ε_{it}) proxy for firm-specific information. These results are reported in Table 5. We find that both signed and unsigned

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[21] Two notable exceptions can be found in the finance literature. Lang and Stulz (1992) investigate contagion and competitive intra-industry effects with respect to bankruptcy announcements, and Laux, Starks, and Yoon (1998) examine the relative importance of these two different intra-industry effects in relation to large dividend revisions.
[22] We note that these are not firm-specific time series regressions which is an alternative estimation approach, albeit one that places significant data availability restrictions on the sample.

residuals are significantly different when there is a change in earnings announcement timing compared with the residuals for on time announcements. This suggests that both advances and delays contain relatively more firm-specific, rather than industry-specific, information. Therefore, the evidence is supportive of increased firm-specific information for EAs with changed timing as a rational explanation of the reduced information transfer for such announcements.

[Table 5 About Here]

5.2 *Information Leakage*

An alternative explanation for the attenuated information transfers is that there is information leakage prior to the change in announcement timing, and hence the reduction in information transfer. We examine this using two potential avenues: management forecasts prior to the earnings announcement (preannouncements), and pre-earnings announcement drift (Pre-EAD).

5.2.1 *Effect of Management Preannouncements*

Managers occasionally issue earnings forecasts after the end of the fiscal quarter but prior to earnings announcement. Such forecasts are referred to as earnings preannouncements and serve to alert investors to information in the upcoming earnings announcement.[23] If a firm intending to change its EA timing releases preannouncements, and if investors impound the industry-relevant component of such news into the non-announcing peers' stock valuations, then we would observe a muted information transfer at the time of the subsequent earnings announcement. To examine this explanation, we restrict our sample to firms who release earnings forecasts between 45 and 10 days prior to the EA. Table 6 presents results for this subsample of announcer-non announcer pairs. We find that when management presents a forecast prior to the end of the fiscal quarter, followed by an on-time earnings announcement, then there is greater information transfer for non-

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[23] Pre-announcements are typically not subject to bundling concerns.

announcing firms (10.0% vs 6.1% in our benchmark model). At the same time, the dampening effect on information transfer due to the announcer's departure from its expected EA timing, is significantly larger than that for the benchmark model, i.e., a 52.1% (79.5%) reduction in information transfer for advances (delays). Therefore, while preannouncements appear to play a role in pre-empting industry-specific information transfers, the net magnitude of the information transfer even for advances and delays appears to be in the same range as that in the benchmark case. In sum, our evidence does not support preannouncements as being a primer driver of attenuated information transfers.

[Table 6 About Here]

5.2.2 Stock Price Run-up Prior to Changes in Announcement Timing

Potential information leakages through channels other than preannouncements could also explain the relatively smaller information transfers for off-schedule EAs, particularly when the announcing firm delays its EA. If a firm does not announce its earnings on-time, then investors are likely to investigate the reasons for the delay and uncover information about issues that caused the delay.[24] Such information leakages would reduce the amount of information released during the actual EA that would be value relevant to SAs. In other words, if investors gain access to some value relevant information prior to the EA, then there would be less incremental information remaining in the EA. If this explanation holds true, we should find that a greater proportion of the news contained in the announcer's EA is impounded in its stock price prior to the EA in cases where the firm changes its EA timing compared with on-time EAs.

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[24] See Bagnoli et al. (2002) that document a negative market response to delayed bad news.

To explore this explanation, we look at the percentage of the return in the [–N, +1] day interval which occurs in the [–N, –2] window. [25] If information were to leak prior to the announcement at a different rate when the announcing firm changes its announcement timing, we would expect to find a significant difference in the percentage of returns in the pre-announcement window based on timing changes. These results are presented in Table 7. The results indicate that advanced (delayed) announcements have significantly greater (lower) returns compared with on-time announcements. The fact that for advanced (delayed) EAs the percentage of pre-announcement return run-up is more (less) than that for 'on-time' EAs suggests that while there appears to be some leakage for the advancing EAs, there is no apparent leakage for delayed EAs. Therefore, the evidence on leakage, at least based on the above test, appears to be mixed.

[Table 7 About Here]

5.3   *Investor Inattention*

Finally, inefficient information processing by investors for off-schedule EAs could be another factor contributing to the attenuated information transfers. Prior studies examine limited investor attention as potential reasons for inefficient pricing in the capital markets (e.g., Hirshleifer and Teoh 2003, Hirshleifer et al. 2011). When a firm does not announce earnings at the expected time and instead advances or delays its EA, the change in timing may lead to some investors paying less attention to the information released during such EA compared to timely EAs. Changes in EA timing could catch investors off-guard, making them less likely to process information in the earnings release. A change in the anticipated EA date could also make it likely that it coincides

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[25] Specifically, we calculate the pre-announcement abnormal return as a percentage of the total abnormal return from 40 days prior through one day after the earnings announcement as follows: $\% \ Pre-Announcement \ Response = \frac{r_{[-N,-2]}+1}{r_{[-N,+1]}+1}$, where we choose N to be 10, 20 or 40 days. The numerator and denominator in the above formula is scaled by one to limit the effect of zero and near-zero returns.

21

with EAs of other firms, thus dividing investor resources and attention. This could explain the reduced information transfers and have implications for the post-earnings announcement drift documented in prior studies (e.g. Bernard and Thomas 1989). We use two alternative approaches to test this explanation.

5.3.1   Role of Institutional Investors

Bushee (2001) argues that institutional investors are more sophisticated users of financial information and have different investing objectives compared with retail investors. Therefore, we investigate if the extent of institutional holding influences information transfers surrounding off-schedule EAs. Specifically, we expect that institutional investors would be more attentive to earnings news releases and hence any advancing or delay in the EA timing should not change the amount of information transfer compared with on-time announcements. In contrast, non-institutional (retail) investors are more likely to be inattentive to changes in the announcement day and may be caught off-guard, leading to reduced or attenuated information transfers. To investigate this explanation, we sort firms into quintiles of institutional holding and examine our primary information transfer model within each quintile.[26] We expect higher institutional holdings (upper quintile) to be associated with a greater amount of information transfer in the face of earnings announcement timing changes. Table 8 reports information transfers across the highest and the lowest quintile of institutional holding.

[Table 8 About Here]

Firms in the lowest quintile of institutional holding, which are likely to have a greater share of retail investors, have an average information transfer that is lower than our baseline results (3.9% vs. baseline of 6.0%) and there does not appear to be any effect of announcement timing

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[26] Quintile ranks are assigned each year. Firms with no institutional holding are omitted from the ranking.

change. On the other hand, the top quintile of institutional holding has significantly positive information transfers that are comparable to our baseline results (7.1% compared with the baseline of 6.0%). Further, advancing or delaying the EA timing appears to result in attenuation that is similar in magnitude to the overall sample. Specifically, there is a significant reduction in information transfer for advances (delays) of 22.7% (18.5%).

The significantly lower information transfers along with a lack of attenuation in the low institutional holding quartile, compared with the top institutional holding quartile, suggests that our results for the overall sample are driven by firms that have relatively large institutional shareholding. Furthermore, even for firms with a relatively larger base of sophisticated institutional investors with the skill and resources to evaluate financial information, any change in the EA timing appears to dampen the information transfers. Such investors are less likely to be inattentive or taken unawares by changes in EA timing and can incorporate any peer-relevant information immediately. Therefore, these results are not supportive of the argument that the observed attenuation is due to investor inattention. Instead, the evidence appears to provide support for our prior inference that off-schedule earnings announcements are likely to contain more firm specific and less industry specific information. In other words, our evidence appears to suggest that the primary driver of the observed attenuation in information transfers for advanced and delayed announcements is due to such earnings releases having more firm-specific and less industry specific information.

5.3.2 Overreaction

Thomas and Zhang (2008) document an overreaction in the stock price of non-announcing peer firms around early announcer's earnings releases. If investors are less attentive due to changes in announcement timing, then we should observe relatively less overreaction when the announcing

firm changed its EA timing compared to on-time announcements. Following Thomas and Zhang (2008), we measure investor overreaction by the correlation between a non-announcing peer firm's return around the announcer's earnings release and the non-announcer's return around its own earnings announcement. These results reported in Table 9, suggest that there is a strong negative correlation between the peer's return around the announcer's EA as well as around the peer's own announcement (indicating a price reversal) when the announcer advances than when it announces on-time or delays.[27] This reversal is consistent with the overreaction documented in Thomas and Zhang (2008), but inconsistent with investor inattention.

[Table 9 About Here]

6.   Summary and Conclusion

Prior research has focused on either management's decisions to strategically alter the timing of earnings announcements or on information transfer to non-announcing peer firms during earnings announcements. In this study we investigate the intersection of these two branches of the literature. Specifically, we examine whether, and if so how, advances and delays in the timing of earnings announcement affect the transmission of value relevant information from one firm's earnings announcement to other firms in its industry.

The results in this paper provide evidence that investors view *changes* in the date of the earnings announcement as less informative about other non-announcing firms in the industry. Specifically, information transfers from announcing firms to their non-announcing peer firms are attenuated (decreased) for changes in earnings announcement timing for both advances and delays in the release of earnings news. Examining potential explanations for the observed attenuation, our empirical tests support the notion that both advances and delays in earnings news contain more

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[27] In the multivariate tests, un-tabulated for the sake of brevity, we find this effect to be insignificant.

firm-specific rather than industry-specific news leading to an attenuation in the magnitude of information transfer. Consistent with Thomas and Zhang (2008), we also provide evidence in support of overreaction to the announcing firm's earnings release, although this overreaction is independent of whether the firm advanced or delayed its earnings release. Additionally, our empirical tests do not provide support in favor of information leakage or investor inattention driving the observed attenuation. This evidence of an attenuation in the magnitude of information transfer due to changes in earnings announcement timing and that such timing differences contain more firm specific rather than industry specific information is new to the literature.

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Appendix A: Classification of Announcing and Non-Announcing Firms

We illustrate a hypothetical series of earnings announcements for two firms in an industry and how they are classified as early announcers versus peer firms using Figures 1A and 1B. In Year 1, Firm A announces five days earlier than Firm B, making Firm A the announcer and Firm B its non-announcing peer. As Year 1 is the first year presented, we have no expectation for when these firms should announce their quarterly earnings, so neither is marked as advancing or delaying their announcement. During Year 2, both firms adjust their earnings announcement timing, evidenced by changes in their reporting lag from the same quarter in the prior year to the current year. The roles of the announcer and the non-annouoncing peer firm are switched in Year 2, with Firm B announcing prior to Firm A. Since the difference in timing between the two announcement dates is at least five days, Firm B is now the announcing firm and firm A is the non-announcing peer. Further, since this is the second year in the sample, we can determine if either firm is classified as accelerating or delaying based on changes in the firm's reporting lag. In Year 2, Firm A's change in reporting lag is four days, going from a reporting lag of 18 days to 22 days. This difference of four days is less than the threshold of at least five days required to be classified as changing their EAD. As such, Firm A is classified as announcing on time. Firm B decreased its reporting lag by six days, from 23 in Year 1 to 17 days in Year 2. This exceeds the threshold of our methodology and, therefore, Firm B is classified as advancing its earnings announcement. While all firms are classified as advancing, delaying, or being on-time, only the classification of the announcers is material to our analysis.

Figure 1A Earnings Announcement Timing Illustration
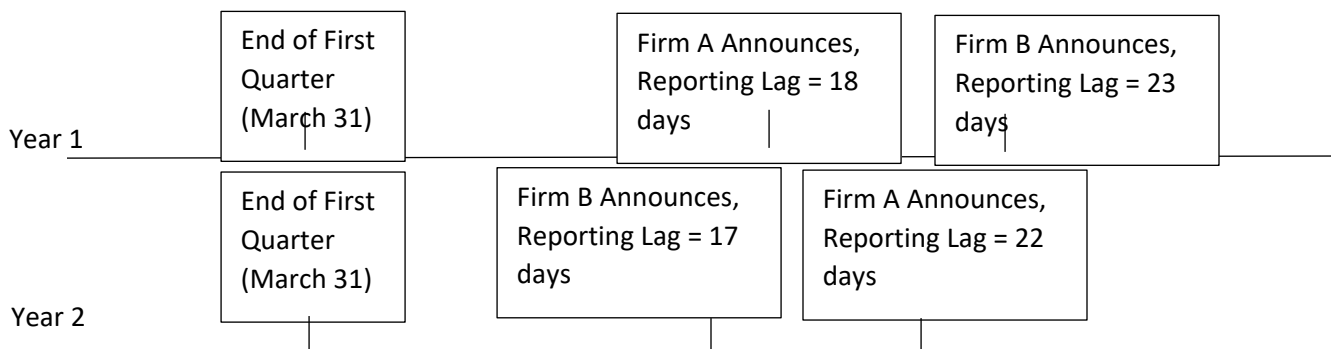
Figure 1B Timing Classifications Illustration

Year 1	Relative Timing	Change in Expected Announcement Date
Firm A	Announcer	n/a
Firm B	Non-Announcing Peer	n/a

Year 2	Relative Timing	Change in Expected Announcement Date
Firm B	Announcer	Advancing
Firm A	Non-Announcing Peer	On-Time (not material to analysis)

The unit of observation in our analyses is at the announcer-non announcer-fiscal quarter level. Figure 2 illustrates the matching process between announcers and their non-announcing peer firms. In this example, we have five firms in a hypothetical industry with varying reporting lags. Since there are only five firms in this industry, they are all eligible to be announcers (subject to not being in the bottom quintile of revenue). As such, any firm with another firm in the industry announcing at least five days after the announcer is matched to the latter as a non-announcing peer. In this situation, firm A is matched as an announcing firm to D and E, both of which are classified as non-announcing peers. Firm B is matched to the only firm announcing at least five days after it, firm E. Since no firm in the industry announces at least five days after their announcement dates, firms C, D, and E are not labelled as announcing firms in this example. Based on this matching criterion, there are 284,704 unique announcer-non announcer pairs. Our full sample includes 2.3 million announcer-non announcer-fiscal quarter level observations, indicating each announcer-non announcer pair appears in our sample for approximately 8 quarters on average.

Figure 2 Announcer and Non-Announcer Pairing Illustration

Firm	Order of Announcement	Reporting Lag	Announcer – Non Announcer Pairings	
A	1	10	A-D	-
B	2	11	A-E	B-E
C	3	14		
D	4	15		
E	5	17		

APPENDIX B – Variable Definitions

Variable Name	Variable Description	Computation
ABN_RET	Abnormal Return	RET – VWRETD
ABN_VOL	Abnormal trading volume for the current day with a training period of [–30, –5] trading days from the earnings announcement date	VOL/{(Average VOL[past 30 days]*30 – Average VOL[past 5 days])/25}
AMIHUD_250	Average daily liquidity for the 250 days prior (inclusive) to the earnings date (Amihud 2002)	Average(1,000,000*abs(RET)/(PRC*VOL))
BTM	Book-to-market value	ATQ/[(ATQ – LTQ) + MCAP]
CAR_ANN	3-Day Cumulative Abnormal Return	Sum of abn_ret for the [-1, +1] window around the earnings announcement date
LEV	Leverage	DLTTQ/ATQ
LMCAP	log(Market Capitalization)	log(MCAP)
MCAP	Market Capitalization	CSHOQ*PRCCQ
PCT_INST	Percent Institutional Holding	SUM(13f holdings)/(SHROUT2*1,000)
REP_LAG	Reporting Lag	EA_Date – DATADATE
RET_BH_40_2	Buy and hold return of the [-40, -2] trading day window before the earnings announcement day	$(PRC_{t-40} – PRC_{t-2})/PRC_{t-40}$
UNEX_ANALYST	Unexpected Earnings, Median Analyst Estimate	(ACTUAL – MEDEST)/PRCCQ

All continuous (non-categorical) variables are Winsorized at 1% and 99%. Variables preceded by 'PEER_' indicate the variables relates to the non-announcing peer firm. 'PEER_ANN_' indicates the non-announcing peer variable at the time of the announcer's earnings release. For example, PEER_ANN_RET_BH_40_2 is the buy and hold return of holding the peer firm's stock for the [–40, –2] day period preceding the announcer's earnings release.

APPENDIX C: Industry Classifications

Following Kovacs (2015), we remove firms with SIC codes ending in 99 (unclassified category) or beginning with 6 (financials) or 46 (utilities). To avoid overweighting our results towards large industries and to be consistent with Kovacs (2015), we disaggregate FF49 industries with an average of more than 60 firms per quarter during our 20-year sample period. For each industry with an average of more than 60 announcements per quarter, we sort the industries by four-digit SIC code. We aggregate the smallest four-digit SIC codes to not exceed the average of 60 announcements per quarter. In our data, this is 4,800 announcements in the 20-year sample period (4 announcements per year*20 years*60 average announcement threshold). All the remaining four-digit SIC codes are given their own industry classification.

The following table presents the changes we made from the Fama-French 49 Industry classification scheme. We disaggregated certain industries with an average number of announcements per quarter greater than 60 to reduce the effect of highly populated industries on our results. This modified FF 49 classification scheme is consistent with Kovacs (2015).

FF49.SIC4	Industry Name	Firm-Qtrs	Avg / Qtr
1	Agric Agriculture	483	6.0
2	Food Food Products	2,970	37.1
3	Soda Candy & Soda	860	10.8
4	Beer Beer & Liquor	973	12.2
5	Smoke Tobacco Products	334	4.2
6	Toys Recreation	1,502	18.8
7	Fun Entertainment	3,074	38.4
8	Books Printing and Publishing	1,267	15.8
9	Hshld Consumer Goods	2,706	33.8
10	Clths Apparel	2,134	26.7
11	Hlth Healthcare	4,147	51.8
12	MedEq Medical Equipment	2,849	35.6
12.3841	Surgical and Medical Instruments and Appratus	2,132	26.7
12.3845	Elcectomedical and Electrotherapeutic Apparatus	3,122	39.0
13	Drugs Pharmaceutical Products	2,279	28.5
13.2834	Pharmaceutical Preparations	8,255	103.2
13.2836	Biological Products, except Diagnostic Substances	7,635	95.4
14	Chems Chemicals	4,614	57.7
15	Rubbr Rubber and Plastic Products	1,327	16.6
16	Txtls Textiles	649	8.1
17	BldMt Construction Materials	4,185	52.3
18	Cnstr Construction	2,648	33.1
19	Steel Steel Works Etc	2,896	36.2
20	FabPr Fabricated Products	314	3.9
21	Mach Machinery	4,214	52.7
21.3533	Oil and Gas Field Machinery and Equipment	820	10.3
21.3559	Special Industry Machinery, Not Elsewhere Classified	1,653	20.7
21.3585	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment	801	10.0
22	ElcEq Electrical Equipment	3,499	43.7
23	Autos Automobiles and Trucks	3,380	42.3
24	Aero Aircraft	1,365	17.1
25	Ships Shipbuilding, Railroad Equipment	600	7.5
26	Guns Defense	484	6.1
27	Gold Precious Metals	1,941	24.3
28	Mines Non-Metallic and Industrial Metal Mining	1,282	16.0
29	Coal Coal	490	6.1
30	Oil Petroleum and Natural Gas	4,444	55.6
30.1311	Crude Petroleum and Natural Gas	6,573	82.2
31	Util Utilities	4,120	51.5
31.4911	Electric Services	2,853	35.7
31.4931	Electric and other Services Combined	2,177	27.2
32	Telcm Communication	4,315	53.9
32.4812	Radiotelephone Communications	1,904	23.8
32.4813	Telephone Communications, except Radiotelephone	1,946	24.3

FF49.SIC4	Industry Name	Firm-Qtrs	Avg / Qtr
33	PerSv Personal Services	2,477	31.0
34	BusSv Business Services	4,370	54.6
34.7359	Equipment Rental and Leasing, Not Elsewhere Classified	877	11.0
34.7363	Help Supply Services	1,147	14.3
34.7374	Computer Processing and Data Preparation and Processing Services	1,736	21.7
34.7389	Business Services, Not Elsewhere Classified	1,725	21.6
34.8711	Engineering Services	620	7.8
34.8731	Commercial Physical and Biological Research	927	11.6
34.8742	Management Consulting Services	753	9.4
35	Hardw Computers	4,556	57.0
36	Softw Computer Software	3,479	43.5
36.7370	Sevices -Computer Programming, Data Processing, etc.	7,208	90.1
36.7372	Prepackaged Software	9,205	115.1
37	Chips Electronic Equipment	4,616	57.7
37.3663	Radio and Television Broadcasting and Communications Equipment	2,220	27.8
37.3674	Semiconductors and Related Devices	6,688	83.6
37.3679	Electronic Components, Not Elsewhere Classified	1,451	18.1
38	LabEq Measuring and Control Equipment	3,461	43.3
38.3823	Industrial Instruments for Measurement, Display, and Control of Process Variables; and Related Products	1,488	18.6
39	Paper Business Supplies	2,163	27.0
40	Boxes Shipping Containers	730	9.1
41	Trans Transportation	3,832	47.9
41.4213	Trucking, except Local	1,499	18.7
41.4412	Deep Sea Foreign Transportation of Freight	1,502	18.8
41.4512	Air Transportation, Scheduled	1,139	14.2
42	Whlsl Wholesale	4,569	57.1
42.5045	Computers and Computer Peripheral Equipment and Software	735	9.2
42.5065	Electronic Parts and Equipment, Not Elsewhere Classified	584	7.3
42.5122	Drugs, Drug Proprietaries, and Druggists' Sundries	662	8.3
42.5172	Petroleum and Petroleum Products Wholesalers, except Bulk Stations and Terminals	491	6.1
42.6211	Security Brokers, Dealers, and Flotation Companies	1,763	22.0
42.6282	Investment Advice	2,251	28.1
42.6311	Life Insurance	1,458	18.2
43	Rtail Retail	4,314	53.9
43.5961	Catalog and Mail-Order Houses	1,189	14.9
44	Meals Restaurants, Hotels, Motels	4,230	52.9
45	Banks Banking	3,144	39.3
46	Insur Insurance	4,145	51.8
46.6331	Fire, Marine, and Casualty Insurance	4,999	62.5
47	RlEst Real Estate	2,199	27.5
48	Fin Trading	3,412	42.7
48.6798	Real Estate Investment Trusts	12,628	157.9
49	Other Almost Nothing	1,502	18.8
	TOTAL	**236,360**	**2,954.5**

Table 1 Descriptive Statistics

Variable	N	Mean	Std. Dev.	Minimum	Median	Maximum
ATQ	31,566	11,953.10	349.41	1.36	1,694.38	2,243,289.61
CEQQ	31,503	3,056.06	55.18	-41,043.00	648.19	205,867.00
NIQ	31,557	86.41	3.96	-44,905.00	15.27	19,037.00
REVTQ	31,566	1,458.99	25.40	0.00	306.57	107,419.00
BTM	31,429	0.90	0.06	-1,500.72	0.66	608.30
MCAP	31,435	8,771.62	165.16	12.61	1,659.93	896,472.37
LMCAP	31,435	7.52	0.01	2.53	7.41	13.71
LEV	31,360	0.22	0.00	0.00	0.19	3.87
REP_LAG	31,566	31.95	0.06	-4.00	30.00	319.00

Variable	N	Mean	Std. Dev.	Minimum	Median	Maximum
PEER_ATQ	62,847	7,670.15	194.51	0.42	631.32	2,017,263.42
PEER_CEQQ	62,847	1,966.45	33.62	-59,939.00	256.28	201,244.00
PEER_NIQ	62,830	53.70	2.28	-44,905.00	3.42	47,840.23
PEER_REVTQ	62,847	953.07	17.17	0.00	104.15	207,307.33
PEER_BTM	65,263	0.95	0.00	0.00	0.67	12.49
PEER_MCAP	65,280	5,102.57	82.77	1.26	638.37	896,472.37
PEER_LMCAP	65,280	6.49	0.01	1.63	6.46	11.43
PEER_LEV	65,432	0.20	0.00	0.00	0.15	1.08
PEER_REP_LAG	65,963	44.59	0.08	8.00	40.00	715.00

Table 1 presents the summary statistics of the sample. These statistics are constructed at the firm-year level. Variables without (with) '*PEER_*' before the variable name relate to the announcing firm (non-announcing peer firm). Variables are as follows: total asset (*ATQ*), common equity (*CEQQ*), net income (*NIQ*), total revenue (*REVTQ*), book-to-market ratio (*BTM*), market capitalization (*MCAP*), logarithm of market capitalization (*LMCAP*), leverage (*LEV*), and reporting lag (*REP_LAG*). All variables are Winsorized at 1% and 99%.

Table 2 Univariate Analysis of Announcer and Non-Announcer Returns

Panel A: Returns based on Matched Announcer-Non Announcer Pairs with Changes in Announcer Earnings Announcement Timing

Variable	Announcer EA Timing	N	Mean	Std. Dev.	Diff (On-Time)	t(Diff)
CAR_ANN	*All*	*2,302,208*	*0.0049*	*0.0001*		
	Advance	428,982	0.0096	0.0001	0.0057	53.58
	On-Time	1,655,353	0.0039	0.0001	-	-
	Delay	217,873	0.0034	0.0002	-0.0006	-4.62
CAR_PEER	*All*	*2,302,208*	*0.0005*	*0.0000*		
	Advance	428,982	0.0016	0.0001	0.0013	20.11
	On-Time	1,655,353	0.0003	0.0000	-	-
	Delay	217,873	0.0003	0.0001	0.0000	0.49

Table 2, Panel A shows the univariate statistics for the returns of the predecessor announcer (*CAR_ANN*) and subsequent announcer (*CAR_PEER*) around the PA's earnings announcement date. Returns are for the 3-day window around the earnings announcement date (earnings announcement dates are chosen as described in Kovacs (2015), and Section 3.2). PA announcements are defined as advanced (on-time or delayed) if the reporting lag was five or more days earlier (within five days or five days later) than the reporting lag for the same quarter in the prior year. All variables are Winsorized at 1% and 99%.

Table 2 Univariate Analysis of Announcer and Non-Announcer Returns (continued)

Panel B: Difference in Returns for Good and Bad Announcer Unexpected Earnings

	Variable	N	Announcer Good News		Announcer Bad News		Diff (Good - Bad)		
			Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	t-Diff
Advance	CAR_ANN	310,723	0.0208	0.0002	-0.0198	0.0003	0.0406	0.0002	189.03
On-Time	CAR_ANN	1,221,494	0.0143	0.0001	-0.0253	0.0001	0.0396	0.0001	446.41
Delay	CAR_ANN	158,201	0.0147	0.0002	-0.0265	0.0003	0.0412	0.0003	163.23

	Mean	t-Diff	Mean	t-Diff	Mean	t-Diff
Diff(Advance - On-Time)	0.0065	53.33	0.0054	27.75	0.0010	6.01
Diff(Delay - On-Time)	0.0004	2.63	-0.0012	-5.35	0.0016	8.42

	Variable	N	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	t-Diff
Advance	CAR_PEER	310,723	0.0020	0.0001	0.0007	0.0002	0.0012	0.0001	9.20
On-Time	CAR_PEER	1,221,494	0.0004	0.0000	0.0000	0.0001	0.0004	0.0001	6.78
Delay	CAR_PEER	158,201	0.0004	0.0001	0.0001	0.0002	0.0003	0.0002	2.03

	Mean	t-Diff	Mean	t-Diff	Mean	t-Diff
Diff(Advance - On-Time)	0.0016	20.07	0.0007	5.85	0.0008	8.04
Diff(Delay - On-Time)	0.0000	0.25	0.0001	0.65	-0.0001	-0.59

Table 2, Panel B shows the univariate statistics for the returns of the announcer (CAR_ANN) and non-announcer (CAR_PEER) around the announcing firm's earnings announcement date and based on whether the announcer released good news or bad news. Returns are for the 3-day window around the earnings announcement date (earnings announcement dates are chosen as described in Kovacs (2015), and Section 3.2). Earnings announcements are defined as advanced (on-time or delayed) if the reporting lag was five or more days earlier (within five days or five days later) than the reporting lag for the same quarter in the prior year. Earnings announcements are classified as good (bad) news if the firm reported earnings per share greater than or equal to (less than) the median analyst estimate. All variables are Winsorized at 1% and 99%.

Table 3 Primary Results

Panel A: Benchmark Information Transfer Regressions

Model: $CAR\_PEER = \alpha + \beta_1 CAR\_ANN + \beta_2 Controls + \varepsilon$

Variable	Estimate		t Value
CAR_ANN	0.0577	***	78.20
PEER_BTM	0.0007	***	9.63
PEER_LMCAP	-0.0002	***	-3.91
PEER_LEV	0.0001		0.45
PEER_ANN_RET_BH_40_2	0.0054	***	20.77
PEER_PCT_INST	-0.0009	***	-4.27
PEER_STDEV	-0.0015	***	-7.16
RELATIVE_MCAP	-0.0004		-1.52
PEER_ANN_AMIHUD_250	-0.0001	***	-3.42

N	
	674,946
R-sq	4.61%
FE?	Ind-Yr

Table 3, Panel A presents the benchmark information transfer regression results. The dependent variable is the non-announcing peer's return around the announcing firm's earnings announcement (*CAR_PEER*). Regressions are performed for each announcer-non announcer pair as matched based on the methodology defined in Section 3.2. The model includes industry-year fixed effects and OLS standard errors. All variables are winsorized at 1% and 99%. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels.

Panel B: Information Transfer Regressions with Change in PA Earnings Announcement Timing

Model: $CAR\_PEER = \alpha + \beta_1 CAR\_ANN*ANN\_ADVANCE + \beta_2 CAR\_ANN + \beta_3 CAR\_ANN*ANN\_DELAY + \beta_4 Controls + \varepsilon$

Variable	Estimate		t Value
CAR_ANN*ANN_ADVANCE	-0.0135	***	-7.62
CAR_ANN	0.0614	***	70.81
CAR_ANN*ANN_DELAY	-0.0123	***	-3.93
PEER_BTM	0.0007	***	9.62
PEER_LMCAP	-0.0002	***	-3.91
PEER_LEV	0.0001		0.45
PEER_ANN_RET_BH_40_2	0.0054	***	20.76
PEER_PCT_INST	-0.0009	***	-4.28
PEER_STDEV	-0.0015	***	-7.16
RELATIVE_MCAP	-0.0004		-1.53
PEER_ANN_AMIHUD_250	-0.0001	***	-3.41

N	674,946
R-sq	4.62%
FE?	Ind-Yr

ANN_ADVANCE as % Info Xfer	-22.0%	***
ANN_DELAY as % Info Xfer	-20.0%	***
Diff(Adv - Delay)	0.00	
t(Diff(Adv - Delay)	-0.47	

Table 3, Panel B presents the information transfer regression results including changes in announcement timing. The dependent variable is the non-announcing peer's return around the announcer's earnings release (*CAR_PEER*). Regressions are performed for each announcer-non announcer pair as matched based on the methodology defined in Section 3.2. *ANN_ADVANCE* (*ANN_DELAY*) is an indicator variable equal to one if the announcing firm released earnings five or more days earlier (later) than the same quarter in the prior year. The model includes industry-year fixed effects and OLS standard errors. All variables are Winsorized at 1% and 99%. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels.

Table 4 Effect of Changes in Earnings Announcement Timing for Different Unexpected Earnings

Model: $CAR\_PEER = \alpha + \beta_1 CAR\_ANN*ANN\_ADVANCE + \beta_2 CAR\_ANN + \beta_3 CAR\_ANN*ANN\_DELAY + \beta_4 Controls + \varepsilon$

Variable	UNEX ANALYST LT 0 (Bad News)			UNEX ANALYST GE 0 (Good News)			Diff	t-Diff
	Estimate		t Value	Estimate		t Value	Diff	t-Diff
CAR_ANN*ANN_ADVANCE	-0.0184	***	-4.78	-0.0132	***	-6.40	-0.0052	-1.67
CAR_ANN	0.0787	***	41.53	0.0611	***	58.57	0.0176	11.5
CAR_ANN*ANN_DELAY	-0.0143	**	-2.30	-0.0132	***	-3.52	-0.0010	-0.2
PEER_BTM	0.0005	***	4.17	0.0007	***	8.52		
PEER_LMCAP	-0.0004	***	-3.68	-0.0001		-1.17		
PEER_LEV	-0.0003		-0.45	0.0003		0.74		
PEER_ANN_RET_BH_40_2	0.0047	***	9.09	0.0055	***	18.50		
PEER_PCT_INST	-0.0011	***	-2.69	-0.0008	***	-3.43		
PEER_STDEV	-0.0011	***	-2.68	-0.0017	***	-6.62		
RELATIVE_MCAP	0.0023	***	4.35	-0.0018	***	-6.02		
PEER_ANN_AMIHUD_250	-0.0001	***	-3.26	-0.0001	**	-2.08		

N	170,387	504,559
R-Sq	7.21%	4.88%
FE?	Ind-Yr	Ind-Yr

ANN_ADVANCE as % Info Xfer	-23.3%	***	-21.6%	***
ANN_DELAY as % Info Xfer	-18.1%	**	-21.7%	***

Table 4 presents the information transfer regression results including changes in announcement timing and whether the announcing firm released good or bad news. The dependent variable is the non-announcing peer's return around the announcing firm's earnings release (*CAR_PEER*). Regressions are performed for each announcer-non announcer pair as matched based on the methodology defined in Section 3.2. *ANN_ADVANCE* (*ANN_DELAY*) is an indicator variable equal to one if the announcing form released earnings five or more days earlier (later) than the same quarter in the prior year. The announcer is classified as releasing good (bad) news if it reports earnings per share greater than or equal to (less than) the

median analyst estimate. The model includes industry-year fixed effects and OLS standard errors. All variables are Winsorized at 1% and 99%. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels.

Table 5 Earnings Response Coefficient Model Residuals

Model: $CAR\_ANN = \alpha + \beta_1 UNEX + \beta_2 FE + \varepsilon$

	Variable	N	Mean	Std. Dev.	Median	Diff (On-Time)	t-Diff
Advance	*resid*	33,917	0.0058	0.0005	0.0031	0.0031***	7.88
On-Time	*resid*	123,425	0.0027	0.0002	0.0016	-	-
Delay	*resid*	47,780	-0.0015	0.0004	-0.0014	-0.0042***	-12.22

Advance	*abs_resid*	33,917	0.0649	0.0004	0.0438	0.0057***	20.70
On-Time	*abs_resid*	123,425	0.0592	0.0002	0.0402	-	-
Delay	*abs_resid*	47,780	0.0646	0.0003	0.0435	0.0054***	22.30

Table 5 presents the univariate statistics for the residuals (*resid*) and absolute value of residuals (*abs_resid*) from the earnings response coefficient model of the announcing firm's earnings announcement returns (*CAR_ANN*) on unexpected earnings based on analyst estimated earnings per share. The ERC model is estimated with industry-year-quarter fixed effects. Earnings announcements are classified as advancing (on-time, delaying) if the current period reporting lag is five or more days earlier than (within five days, five or more days later than) the reporting lag from the same quarter in the prior year. All variables are Winsorized at 1% and 99%. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels.

Table 6 Effect of Earnings Pre-announcements by Announcing Firms

Model: $CAR\_PEER = \alpha + \beta_1 CAR\_ANN*ANN\_ADVANCE + \beta_2 CAR\_ANN + \beta_3 CAR\_ANN*ANN\_DELAY + \beta_4 Controls + \varepsilon$

EA_Date -45 <= MGMT_FCST_DATE <= EA_DATE – 10

Variable	Estimate		t Value	Pr > |t|
CAR_ANN*ANN_ADVANCE	-0.0520	***	-3.31	0.001
CAR_ANN	0.0998	***	11.51	<.0001
CAR_ANN*ANN_DELAY	-0.0794	***	-2.89	0.004
PEER_BTM	0.0002		0.42	0.673
PEER_LMCAP	-0.0005		-1.19	0.232
PEER_LEV	0.0013		0.54	0.588
PEER_ANN_RET_BH_40_2	0.0174	***	10.71	<.0001
PEER_PCT_INST	-0.0004		-0.30	0.768
PEER_STDEV	-0.0020		-0.85	0.396
RELATIVE_MCAP	-0.0036		-1.43	0.153
PEER_ANN_AMIHUD_250	-0.0003	**	-2.06	0.039

N	18,839
R-Sq	14.77%
FE?	Ind-Yr

% Less Info Xfer: Adv	-52.1%	***
% Less Info Xfer: Del	-79.5%	***

Table 6 presents the information transfer regression results including changes in announcement timing for those announcer-non announcer pairs where the announcing firm released a management forecast at least 10, but not more than 45, days prior to the earnings announcement date. The dependent variable is the non-announcing peer's return around the earnings announcement (*CAR_PEER*). Regressions are performed for each announcer-non announcer pair as matched based on the methodology defined in Section 3.2. *ANN_ADVANCE* (*ANN_DELAY*) is an indicator variable equal to one if the announcing firm released earnings five or more days earlier (later) than the same quarter in the prior year. The model includes industry-year fixed effects and OLS standard errors. All variables are Winsorized at 1% and 99%. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels.

Table 7 Pre-Earnings Announcement Drift for Announcing Firms with Changes in Announcement Timing

	Variable	N	Mean	Std. Dev.	Diff: On-Time	t-Diff
Advance	*PreEAD_40*	4,025	1.0204	0.0021	0.0070***	4.58
On-Time	*PreEAD_40*	30,890	1.0134	0.0006	-	-
Delay	*PreEAD_40*	4,032	1.0111	0.0017	-0.0023*	-1.86

	Variable	N	Mean	Std. Dev.	Diff: On-Time	t-Diff
Advance	*PreEAD_20*	4,025	1.0204	0.0016	0.0077***	6.47
On-Time	*PreEAD_20*	30,890	1.0127	0.0005	-	-
Delay	*PreEAD_20*	4,032	1.0101	0.0013	-0.0026***	-2.62

	Variable	N	Mean	Std. Dev.	Diff: On-Time	t-Diff
Advance	*PreEAD_10*	4,025	1.0184	0.0022	0.0030*	1.83
On-Time	*PreEAD_10*	30,890	1.0154	0.0007	-	-
Delay	*PreEAD_10*	4,032	1.0117	0.0020	-0.0036**	-2.48

Table 7 presents the ratio of pre-earnings announcement drift (preEAD) to the beginning of the preEAD period to the day after the earnings announcement date (EAD). preEAD is measured from 40 (20, 10) trading days before the EAD through two trading days before the EAD. The denominator is measured from 40 (20, 10) trading days before the EAD until the trading day after the EAD. To avoid outliers due to zero or near-zero returns, we add one to both the numerator and denominator. Returns are for announcing firms only. Earnings announcements are classified as advancing (on-time, delaying) if the current period reporting lag is five or more days earlier than (within five days, five or more days later than) the reporting lag from the same quarter in the prior year. All variables are Winsorized at 1% and 99%. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels.

Table 8: Effect of Institutional Holding

Model: $CAR\_PEER = \alpha + \beta_1 CAR\_ANN*ANN\_ADVANCE + \beta_2 CAR\_ANN + \beta_3 CAR\_ANN*ANN\_DELAY + \beta_4 Controls + \varepsilon$

Variable	INST_Holding_Rank = 0 (Bottom Quintile) Estimate		t Value	INST_Holding_Rank = 4 (Top Quintile) Estimate		t Value	Diff	t-Diff
CAR_ANN*ANN_ADVANCE	0.0047		0.70	-0.0161	***	-5.11	0.0208	3.97
CAR_ANN	0.0388	***	10.28	0.0710	***	44.15	-0.0322	-11.09
CAR_ANN*ANN_DELAY	0.0148		1.11	-0.0131	**	-2.24	0.0280	2.71
PEER_BTM	0.0001		0.43	0.0013	***	7.79		
PEER_LMCAP	-0.0002		-0.76	-0.0006	***	-5.48		
PEER_LEV	0.0012		0.93	0.0003		0.46		
PEER_ANN_RET_BH_40_2	0.0051	***	6.24	0.0080	***	13.59		
PEER_PCT_INST	-0.0014		-0.43	0.0029	***	3.28		
PEER_STDEV	-0.0024	***	-3.72	0.0036	***	4.54		
RELATIVE_MCAP	-0.0009		-0.75	0.0003		0.65		
PEER_ANN_AMIHUD_250	-0.0001	*	-1.74	0.0001		0.16		

N	49,915	174,561
R-Sq	9.56%	7.94%
FE?	Ind-Yr	Ind-Yr

% Less Info Xfer: Adv	12.1%	-22.7% ***
% Less Info Xfer: Del	38.2%	-18.5% **

Table 8 presents the information transfer regression results including changes in announcement timing, with separate regressions for the top and bottom quintile of institutional holding percentage. The dependent variable is the non-announcing peer's return around the announcing firm's earnings release (*CAR_PEER*). Regressions are performed for each announcer-non announcer pair as matched based on the methodology defined in Section 3.2. *ANN_ADVANCE* (*ANN_DELAY*) is an indicator variable equal to one if the announcing firm released earnings five or more days earlier (later) than the same quarter in the prior year. Institutional holding quintile groups are assigned on an annual basis and firms with zero or missing

institutional holding data are omitted from the quintile assignments. The model includes industry-year fixed effects and OLS standard errors. All variables are Winsorized at 1% and 99%. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels.

Table 9 SA's Over/Under Reaction to Earnings Announcement: Correlation of Announcer and Non-Announcer Returns

	Pearson Correlation Coefficients Number of Observations			Pearson Correlation Coefficients Number of Observations		
	Full-Sample				**Advance**	
	CAR_ANN	*CAR_PEER*	*CAR_PEER_OWN*	*CAR_ANN*	*CAR_PEER*	*CAR_PEER_OWN*
CAR_ANN	1	0.05048***	0.00753***	1	0.05324***	0.00779***
	4,319,852	4,193,044	4,318,265	708,485	683,876	708,189
CAR_PEER	0.05048***	1	**-0.01075*****	0.05324***	1	**-0.01235*****
	4,193,044	4,193,044**	**4,193,044**	683,876	683,876**	**683,876**
CAR_PEER_OWN	0.00753***	-0.01075	1	0.00779***	-0.01235	1
	4,318,265	4,193,044	4,318,265	708,189	683,876	708,189
	On-Time				**Delay**	
CAR_ANN	1	0.04999***	0.00787***	1	0.04568***	0.0013
	3,322,187	3,229,500	3,321,361	289,180**	279,668	288,715
CAR_PEER	0.04999***	1	**-0.01036*****	0.04568	1	**-0.01096*****
	3,229,500	3,229,500	**3,229,500**	279,668***	279,668	**279,668**
CAR_PEER_OWN	0.00787***	-0.01036***	1	0.0013	-0.01096***	1
	3,321,361	3,229,500	3,321,361	288,715	279,668	288,715

Table 9 presents the correlation matrix between the return variables for the announcer and non-announcer around the announcer's earnings announcement (*CAR_ANN* and *CAR_PEER*, respectively), as well as the non-announcer around its own earnings announcement (*CAR_PEER_OWN*). The correlation matrix is completed for the full-sample, as well as, separately, when the announcing firm advances, announces on-time, or delays its earnings release. The sample includes each announcer-non announcer pair as matched based on the methodology defined in Section 3.2. The earnings announcement is classified as advance (delay) if the announcing firm released earnings five or more days earlier (later) than the same quarter in the prior year. *** (**) indicates two-sided p-values less than 0.01 (0.05).