Mi Casa Es Su Casa: Analyst Days, Stock Prices, and Firm Performance

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ABSTRACT

Analyst/investor days are firm-hosted gatherings where information is disclosed to stock analysts and institutional (and often simultaneously retail) investors. We construct a comprehensive dataset of 4,000 analyst days from 2003 to 2015, and demonstrate that firms holding these events have significantly higher abnormal returns after these events. A simple, buy-and-hold strategy that holds these stocks for 20 days earns a market-adjusted return of 1.6%, and a similar calendar-time portfolio has a one-month four-factor alpha of 1.8%. We find no evidence of mean reversion after analyst days, and abnormal returns remain significantly positive for up to six months. We classify analyst days into four major types according to the textual content of their announcements, and demonstrate that events conveying different types of information have significantly different market reactions. Finally, firms holding analyst days have significantly higher revenue growth, earnings per share, and dividend yields up to two years after these events. Analyst coverage, earning estimates and price targets also increase, and these estimates have lower dispersion. Our results thus suggest that firms use analyst days to convey positive incremental information that are not ex-ante incorporated in their stock prices, and market participants significantly underreact to this information.

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Modern firms have an ever-expanding set of channels to disclose information to investors. A large literature in finance and accounting examine the market impact of earnings announcements (Bernard and Thomas (1989)), conference calls (Frankel, Johnson, and Skinner (1999)), textual content of corporate filings (Loughran and McDonald (2011)), broker-hosted investor conferences (Green, Jame, Markov, and Subasi (2014)), etc. However, over the past 15 years, firms have increasingly used analyst and/or investor days (hereafter referred to as analyst days or AID events) as an important information disclosure channel. An analyst day is a firm-hosted event where the firm invites select equity analysts and institutional investors in a conference-style gathering with presentations and discussions of corporate strategy, financial performance, and product development, often by key personnel in the C-suite. Per Regulation Fair Disclosure, the full content of these events should be simultaneously disclosed to the general public. Over 4,000 of these events have been held in the United States since 2003. In contrast to other channels, the informativeness and market impact of this increasingly popular channel are much less studied, with Kirk and Markov (2016) is the only other paper to our knowledge.

In this paper, we construct a comprehensive sample of about 4,000 analyst day events from 2004 to 2015, as well as the announcements of these events, from firms' 8-Ks filings from EDGAR, press releases, and headline news items from the Capital IQ Key Developments database. We track both the evemt date and the date when the event is first announced. Our main economic questions are: (1) do analyst days convey incremental information to the market? (2) what type of information do these events convey? (3) how do market participants react to the information?

We develop three main hypotheses. First, firms that are willing to incur the cost of holding analyst days are more likely to disclose positive than negative information, because bad news can be disclosed via less conspicuous means e.g. press releases. Second, if market participants do not believe all the information revealed during analyst days to be credible, or otherwise could not process the information immediately upon announcement, then abnormal returns would adjust slowly after analyst days, resulting in profitable trading opportunities. Lastly, if information revealed on analyst days is incremental to the market participants' existing information set, then the stock price change after these events would be relatively permanent and would not revert afterwards.

We find several new results related to these hypotheses. First, consistent with our first hypothesis, we find that post-AID abnormal returns are significantly higher. In the month after AID events, average market-adjusted cumulative abnormal returns are about 1.5%. In addition, average daily abnormal

returns are significantly positive in most of the first 20 days. In addition, the market does not seem to anticipate the nature of analyst days upon their announcement. Abnormal returns are not significantly different from zero during the pre-event window of $[t-20, t]$. Therefore, trading in advance of AIDs does not yield significantly higher returns compared to trading on the AIDs themselves. Our results are significant after controlling for other risk factors, and are robust to using alternative specifications such as buy-and-hold abnormal returns, and calendar-time portfolios.

Second, market participants significantly underreact to the information conveyed in analyst days. There is a persistent upward trend in CARs, and daily abnormal returns are significantly positive for most of the 20 trading days after the events. This suggests that the market is not fully cognizant of the fact that AID events on average convey positive information, and profitable trading opportunities are possible for investors more adept at processing the information revealed on analyst days.

Moreover, we find no evidence of mean reversion in the short and intermediate terms. Calendar-time portfolio analysis using daily and monthly data suggests that post-AID abnormal returns do not subsequently revert in the following year. Simple event-study CARs remain significantly positive 6 months after AID events and become statistically insignificant after 250 trading days.

Our next set of tests examine, in a granular setting, the nature of information revealed during analyst days, and whether the market responds differently to different types of information. We fit the Latent Dirichlet Allocation (LDA) model first developed by Blei, Ng, and Jordan (2003) on the announcement texts of analyst days, to classify these announcements into different categories, according to the vocabulary used in the texts. We identify four major types of analyst days: new product announcements and breakthroughs in existing product developments, reviews of financial results, strategic discussions, and marketing-related discussions. Product-related analyst days have the highest post-event abnormal returns (up to 8% two-month CAR), while events revealing less new information, such as reviews of regular financial results, do not generate significantly positive returns.

Finally, we find suggestive evidence that some cash flow-related metrics, such as sales growth and margins, significantly increase after analyst days. We also examine equity analysts' responses to analyst days, as they are the primary target audience of these events. We find that analyst coverage, EPS estimates, and price targets significantly increase after analyst days, while forecast dispersion is significantly reduced. These results offer suggestive evidence that information revealed during analyst days are credibly related to firms' cash flows, thus leading to relatively permanent valuation changes.

The next section describe our data sources and variable construction. Section II presents our main empirical tests and results. Section III further discusses these results and concludes.

I. Data

We derive the main empirical inferences in this paper from an extensive dataset on analyst day events constructed from firms' 8-K filings, press releases, and data from Standard and Poor's Capital IQ Key Developments database. This section describes our methodology to construct these datasets, and discusses the source of additional financial, accounting, and analyst-related data.

A. Analyst Day Data

In 2000, the SEC adopted Regulation FD ("Fair Disclosure") under the Securities Exchange Act of 1934. This new disclosure rule stipulates that all disclosures of material nonpublic information to "securities market professionals, such as stock analysts," must be accompanied by simultaneous public disclosure of that information. Consequently, firms holding analyst days must announce them and promptly disclose any information revealed in these events. In reality, firms holding analyst days often file an 8-K and/or a press release on the analyst day, announcing the event and discussing the information disclosed during these events. Many firms also announce these events by an average of 2 days in advance. Any material used in AID events, such as presentation slides and supplementary data, are usually simultaneously released to the public, via press releases, 8-Ks, and firms' own web sites. Larger firms often also publicly broadcast these events live on the Internet.

As a result, AID events are easily tracked using publicly available information. We compile the list of these events from 2004 and 2015 in the following steps. We first download all 8-K forms filed in SEC's EDGAR system with item codes 7.01 (Regulation FD) and 8.01 (Other Events). We then use an HTML parser to extract the raw texts from these forms, and search within the texts of each document for strings related to analyst and investor days.[1] We then manually examine these filings to ensure that they are indeed reference to specific AID events. We complement these filings with analyst day announcements compiled by Capital IQ Key Developments, where we extract all firm-specific news

[1]We use regular expressions to search for the terms related to "analyst", "investor", etc., that occur within a distance of 5 words of the terms "day", "conference", "gathering", etc.

tagged as "analyst/investor days" by Capital IQ. Finally, we record the dates when each event is first announced as the earlier of the 8-K filing date and the event announcement date in Capital IQ (if an event is present in both datasets.) On average, firms announce AID events 2 days in advance, with the majority (77%) of announcement dates being the analyst days themselves. To rule out the possibility of mis-capturing the announcement dates, we use a conservative approach and base our main event study analyses on the actual event dates rather than the announcement dates. These steps result in 4,136 AID events from January 2004 to December 2015. Figure 1 plots the frequency of these events.

[Insert Figure 1 about here.]

This figure indicates that analyst days have become an increasingly popular channel of information disclosure among firms, having grown from less than 100 events per year in 2004 to about 1,100 events per year in 2015. By contrast, the total number of 8-K filings has grown only by 35% during the same period. However, for each individual firm, analyst days are relatively rare events. Figure 2 plots the distribution between the firm-level average number of days between each event, for the sample of firms that have held more than one event, and Panel A of Table I presents additional summary statistics. On average, 676 days elapse between each successive AID events, and firms in our sample hold 2.26 events in the sample period, with nine being the the maxinum number of events per firm. This suggests that, in contrast to other channels such as earnings conference calls, firms do not usually treat analyst days as a regular disclosure channel, but might use them to disclose more important information. This is intuitive given the costs of holding these events.

[Insert Figure 2 and Table I about here.]

Furthermore, a subsample of AID event announcements in our sample have associated texts (or the corresponding news headlines in Capital IQ) that describe the nature of these events. For example, some analyst days are used to further discuss firms' earnings and financial positions, while others are used as new product announcements, marketing analyses, or presentations of the firms' strategies. Since different languages are used to describe these different types of AID events, we store the text string of all event descriptions for further analysis in Section II.D. We are able to extract detailed text descriptions for 1,933 of 4,136 events in the sample.

B. *Data on Stock Prices, Accounting Variables, and Analysts*

The EDGAR filings firms are identified by the SEC Central Index Key (CIK) while the Capital IQ firms are identified by GVKEY. Because our main tests require daily stock returns, we develop a name matching algorithm that links CIK to the PERMNO identifier used by the CRSP. The GVKEY-PERMNO links are provided by the Merged CRSP-Compustat database. After this procedure, our sample contains 3,890 AID events held by 1,804 unique firms. We report the mean and median values of these firms' characteristics related to cash flow, leverage, and analysts in Table I. Compared to average Compustat firms, firms in our sample seem to be slightly larger and more profitable. We examine in detail the determinants of holding AID events in the next section.

Next, for each analyst day event for firm i and date t in our sample, we first extract the daily stock returns from $t-20$ to $t+250$ trading days from CRSP. We then compute two sets of daily abnormal returns of the stock. We first compute the standard market-adjusted return ($AR^{M}_{i,t}$) as the difference between the realized daily total return of the stock and that of CRSP value-weighted index. We also compute abnormal returns for each stock using the Carhart (1997) four factor model. We first fit the standard four-factor regression using data from the window of $[t-255, t-46]$ days before the event, and obtain the conditional expectation of return $E^{FF4}[R_{i,t}]$. We then compute the four-factor abnormal return from $[t-0, t+250]$as the difference between the raw and expected returns: $AR^{FF4}_{i,t} = R_{i,t} - E^{FF4}[R_{i,t}]$. Then, given any window $[t+w_b, t+w_e]$ (where $w_b, w_e \in [-20, 250]$ and $w_b < w_e$,) we can compute the cumulative abnormal return (CAR) of a given stock as:

Then, for each window $[t+j, t+k]$ within these dates (where $j, k \in (-20, 250)$ and $j < k$,), we compute the cumulative abnormal returns (CAR) as

$$CAR_{i,[t+w_b,t+w_e]} = \sum_{s=0}^{w_e-w_b} AR_{i,t+w_b+s}, \tag{1}$$

where AR is computed either as $AR^{M}_{i,t}$ or $AR^{FF4}_{i,t}$. For robustness, we also present results obtained using the buy-and-hold abnormal returns (BHAR) computed as follows:

$$BHAR_{i,[t+w_b,t+w_e]} = \prod_{s=0}^{w_e-w_b} (1+AR_{i,t+w_b+s}) - 1. \tag{2}$$

Our main window of analysis is the seven-month period from one month (20 trading days) before to

six months (125 trading days) after each analyst day. Additional windows of longer and shorter lengths are also discussed in the next section.

II. Empirical Tests and Results

This section examines the market reaction to AID events, as well as analyst behavior and firm performance after these events. We first pinpoint the cross-sectional determinants of AID events. We then examine the short and long-term market reaction, in terms of abnormal stock returns and trading volume, around the analyst days. Next, we classify AID events into four distinct types based on the textual content of their announcements, and separately quantify the market reaction to each type of content. Finally, we assess the changes in firm performance and analyst behavior, such as price targets and forecast dispersion, following analyst days.

A. Determinants of Analyst Day Events

Before discussing the informativeness of AID events, we first explore, in the cross section, what types of firms are more likely to hold analyst day events. Specifically, we first obtain annual accounting data for all Compustat North America firms for the sample period of 2004-2015. For each firm-year (i,t), we construct a dummy variable, $AID_{i,t}$, which has value 1 if firm i holds at least one AID event in year t. We then fit the following pooled probit regression:

$$AID_{i,t} = \alpha + \beta X_{i,t-1} + \epsilon_{i,t}, \tag{3}$$

where $X_{i,t-1}$ is the vector of firm-level characteristics available as of the beginning of year t. We use the following characteristics in the regression. $Size$: Market capitalization of the firm computed as stock price×number of shares outstanding; BM: book-to-market ratio; *ROA*: the ratio of net income to total assets; $\Delta Sales$: the annual sales growth rate; $Leverage$: the ratio of total debt to total book equity; $CAPEX$: the ratio of capital expenditures to total assets; $Acquisition$: the ratio of capital acquisitions to total assets; $DivYld$: the ratio of annual dividends per share to the end-of-year stock price; $Coverage$: the number of analysts covering the stock idenfitied by I/B/E/S.

[Insert Table II about here.]

Table II presents the results. All independent variables with the exception of $Coverage$ are normalized to a zero mean and unit variance. For robustness, Column (2) of this table also presents the results from the logit model, which are similar. Intuitively, the coefficient estimates for $Size$ and *ROA* are both significantly positive. Because analyst days are relatively costly events, firms that are larger and more profitable are more likely to afford them. In addition, the coefficient estimates for $Acquisition$ are significantly positive. This suggests that firms that are more active in the M&A market are more likely to hold analyst day events. Interestingly, the estimate for $Coverage$ is not statistically significant, once $Size$ is controlled for. This suggest that firms do not hold AID events just to cater to their own analysts. Firms with fewer analysts following them might hold AID events to attract more analyst coverage.

B. Market Reactions to Analyst Day Events

How would the market react to AID events? First, analyst days are a relatively expensive information disclosure channel. Compared to other methods such as press releases and conference calls, analyst days are large events that require extensive pre-planning and often upscale venues. Also due to Regulation FD, any information disclosed during these events must be simultaneously made available to the public, and investments in IT and compliance must be made to ensure prompt public disclosure. Therefore, firms probably would not incur these costs just to disclose bad news, because these news can be legally disclosed using less conspicuous and less expensive means e.g. simple press releases. Intuitively then, on average, information disclosed during AID events should be positive in either nature or tone, e.g. actual good news or positive spins over neutral or bad news. We therefore expect the direction of stock price reaction to AID events to be significantly positive.

Less obvious is the *speed* of market reaction. We hypothesize three scenarios. First, if the market can fully anticipate the (on average positive) nature of information released during AID events upon their announcement, then there would be no significant stock price change on or after analyst days. By contrast, prices would immediately adjust upward on the day of the *announcement* of AID events. Second, if the market cannot anticipate the nature of AID events, but can immediately process the information actually disclosed during these events, then stock prices would immediately adjust upward on the actual analyst days, and there would not be any positive price drift after these events. Finally, market participants might not immediately and fully process the nature of information disclosed during

analyst days. For example,

Finally, we examine the *permanency* of market reactions to AID events. On one extreme, no real information is disclosed during analyst days and market participants. In this case, barring any other cash flow change at the same time, any market reaction on (or before) analyst days would be due to erroneous investor expectations or irrationality, and would thus quickly revert. By contrast, if firms do reveal information that lead to permanent changes in investors' expectation about the firms' future cash flows and/or growth prospects, then price changes around AID events would not revert, as this newly-revealed information leads to a permanent change in the firm's valuation.

[Insert Figure 3 about here.]

The top panel of Figure 3 above plots the mean cumulative abnormal returns (CARs) during the two-month window of [t-20, t+20] around analyst days (t), computed using market-adjusted returns. The shaded areas in these graphs represents 95% confidence bands. These graphs demonstrate a surprisingly strong pattern in market reactions that relates to all of our three hypotheses above. First, the average firm does seem to reveal positive information during analyst days. The 40-day CAR from $t-20$ to $t+20$ is 1.5% above market. This relation is probably not explained by firm size, as firms holding analyst days are more likely to be larger in market capitalization. Second, market participants significantly underreact to AID events. Information revealed during analyst days does not seem to be immediately priced in, as abnormal returns are significantly positive for most of the 20 trading days after the events. In addition, the CARs start to trend above zero roughly three days before the analyst days, to about 0.25% on the day prior. This suggests some possible information leakage prior to the actual events. Recall that, analyst days are often announced in advance. It is possible that upon their announcement, some market participants are able to deduce the nature of these events, leading to revisions in valuation. However, the change in CARs is very small compared to post-AID price changes. Therefore, although we capture the announcement dates from a subset of the events, we use the actual event date for our analysis, with the understanding that our results would be stronger if we use the announcement dates as the event date. Finally, we find no evidence of immediate mean reversion in CARs after analyst days. The CARs become statistically insignificant after 125 trading days, but the mean values do not trend downwards. This is suggestive evidence that information revealed during analyst days seems to lead to permanent valuation changes. Therefore, the information are more likely to be substantial and

informative, rather than cheap talks or non-credible signals. We examine the granular nature of this information in Section II.D.

In particular, note the magnitude of the market underreaction. An investor does not need advance knowledge of analyst days to take advantage of our strategy. All he/she needs to do is to buy the stock on the analyst day itself, and by doing so realizing an average abnormal return of 1.6% per month. In fact, the long positions can be entered even a week after the analyst days, as the CAR from $t+5$ to $t+20$ is still around the 1% range. This suggests the presence of significantly profitable arbitrage opportunities during this relatively long event window.

Also note that the results are consistent across different specifications and alternate event windows. The bottom panel of Figure 3 plots the mean CARs computed AR^{FF4}, i.e. the abnormal returns from the Carhart (1997) four-factor model. The cumulative returns are about 60% in magnitude relative to market-adjusted returns, and the positive trending pattern is very similar. In addition, Table III reports the results computed using BHARs from various windows from $t-20$ to $t+60$. In this table, we compute BHARs using market-adjusted returns, as well as the four-factor model with both value-weighted and equal-weighted market portfolios. The results are very similar: abnormal returns are significantly positive throughout the first 60 days. In addition, there seems to be a slight mean reversion from 30 to 60 days from BHARs computed using the four-factor abnormal returns. The standard errors are on the high side, and as a result, we cannot reliably argue that we find definitive evidence of mean reversion.

[Insert Table III about here.]

Our next set of analysis extend our analysis to longer terms, using daily and monthly returns and the calendar-time portfolio approach. Specifically, we first form a portfolio of all firms holding AID events, and we hold the stocks from 1 day to 60 months before selling, in various windows. To rule out leakage, we also construct pre-event windows from 20 trading days (or 1 month) before the event to the day of the event. For each portfolio, we estimate its excess returns using the four-factor model, and report the regression intercepts (alphas), as well as the loadings on the rest of the factors MKTRF, SMB, HML and MOM. We report the estimates in Table IV below.

[Insert Table IV about here.]

Results in this table again confirms the robust positive abnormal returns on the event day and up to 6 months afterward. The one-day abnormal return on the analyst day itself is 0.16%, and even up to two months, the portfolios earn annualized positive abnormal returns up to 8%. Results using monthly data are of similar magnitudes. In addition, the alphas revert to close to zero only when we extend the holding period to over 250 trading days. This evidence again refutes the hypothesis of market overreaction, and supports the hypothesis of market underreaction. Finally, the factor loadings indicate that, despite consisting of larger firms, the post-AID portfolio returns comove with small firms. However, there is no correlation between the portfolio returns and value stocks, and there is negative comovement with momentum stocks.

C. Trading Volume Around Analyst Days

To further establish the informativeness of AID events, we examine the abnormal trading volume around analyst days. If the market does not care about the information revealed by these events, or do not believe the information to be credible, then trading volume would not be significantly higher during and after these events. By contrast, the magnitude of abnormal trading volume provides additional evidence on both the informativeness of the information and the speed of market reaction. High trading volume on the event day would suggest that market participants notice the event and trade on it, and positive abnormal trading volume after the event offer suggestive evidence of continued market underreaction. For each stock-event i, t in our sample, we use the stock's average trading volume from $[t-100, t-46]$ as a proxy for the normal trading volume of that stock, denoted as $NVol_{i,[t-100,t-46]}$. We then compute the daily abnormal trading volume as the ratio between the stock's realized daily volume and the normal volume: $AVol_{i,t} = Vol_{i,t}/NVol_{i,[t-125,t-46]}$. We plot the average abnormal volume from $t-20$ toi $t+60$ in Figure 4 below.

[Insert Figure 4 about here.]

The abnormal trading volume is not significantly different from zero until one to two days prior to the analyst day. Volume then spike to about 7% above normal on the analyst day itself, and 9% above normal the day after. This result suggests that the market is indeed more active around analyst days. Interestingly, this elevated trading volume pattern does not subside until about 20 days after the event, with the average daily volume being 3.4% higher during this period. This again supports

the underreaction hypothesis. Perhaps during the days after the event, additional market participants would be attracted to the stock due to either new information or additional post-event analyst research, leading to persistently positive abnormal returns.

D. Market Reaction to Different Information Conveyed in Analyst Days

Having documented the overall pattern of significantly positive market underreaction to analyst days, we now examine, in a more granular setting, the source of the informativeness of these events. Recall that firms can hold analyst days for various reasons. Some firms use these events to further discuss recently announced earnings numbers, others use them to introduce new products, discuss strategic updates, and provide information on new markets and marketing strategies. Appendix A presents the announcement texts of analyst days in several of these categories. Results in the previous subsection have demonstrated that information revealed during AID events are more likely to be positive than negative. Given this, the next natural question to ask is that, what kind of information is revealed, and does the market respond differently to different types of information?

It is possible that analyst days held with different purposes might reveal information with different amounts of new information and different levels of credibility. For example, suppose an analyst day is used by a firm to review its recent financial results. Because most of the information (the earnings numbers and forecasts, etc.) has already been released,[2] the amount of new information revealed during the event would likely be lower than during, say, an analyst day used to announce a new product, or one that is used to discuss a change in corporate strategy or market conditions. We therefore hypothesize that analyst days used to review recent results would have relatively muted market reactions. In addition, AID events announcing (on average positively) new products or breakthroughs in existing product development should be followed by significantly positive abnormal returns. Events discussing strategic plans and new markets would also be associated with positive abnormal returns. However, because of the murky definitions of strategy and markets, these events might contain higher amounts of cheap talk. Abnormal returns after these events would probably be lower than those following product-related analyst days.

However, *a priori* we do not observe the primary purpose of analyst days until after these events.

[2]Recall that we specifically exclude from the sample AID events held within a week before earnings announcements to rule out the contaminating effect of earnings releases on market reactions.

We therefore perform additional analysis on the texts of the events' *announcements* to infer the nature of these events in a *probabilistic* fashion. Specifically, we fit the Latent Dirichlet Allocation (LDA) model first developed by Blei et al. (2003) on the announcement texts, to classify these announcements into different categories, according to the vocabulary used in the texts. The LDA belongs to a broader class of probabilistic topic models that use hierarchical Bayesian analysis to uncover the underlying semantic structure of textual documents. For example, the texts of an analyst day used to announce a new product would be represented by a distribution that places large weights on words such as "product", "launch", etc. By contrast, one used to review recent financial results would place large weights on terms such as "results", "guidance", etc., but smaller weights on words such as "product". The LDA infers these latent topical structure based on the words used in the collection of announcement texts, and researchers then label the topics based on the output topic-word vectors. Papers such as Hanley and Hoberg (2016), Jegadeesh and Wu (2017), and Wu (2017) have also used LDA in the contexts of finance and risk management.

We implement the LDA as follows. We first select all AID event announcements with more than 50 English words and more than two sentences. We then fit a 4-topic LDA model[3] to jointly infer (1) the top words in the English vocabulary that produce the most distinct identification of the topics and (2) for each event announcement (i,t), the document-level topic mixture, i.e. the probabilities that announcement (i,t) belongs to each of the 4 topics, which by construction sum up to one. We then keep only the announcements with a single dominant topic, that is, those having a probability $P_{i,t,k} > 50\%$ of belonging to a single topic $k = 1,\ldots,4$. This step reduces the overall sample size to 1,933 announcements. Finally, we construct $k = 4$ separate subsamples of AID events corresponding to the 4 dominant topics. For each of the subsample, we then reproduce the CAR and BHAR analysis in the previous subsection.

[Insert Table V about here.]

First, Panel A of Table V above presents the top 10 keywords identifying each of the 4 dominant analyst day topics. First, this table suggests that the LDA performs satisfactorily in our setting, as the top keywords for each topic are relatively unique and distinct, with little overlap across topics, making topic labeling an easy task. The topics themselves are relatively well identified. The first topic has top

[3]Using $k > 4$ topics seemingly produces "sub-topics" of the "review financial results" topic. The "strategy" topic is eliminated when using $k < 4$ topics. Therefore, a 4-topic model seems to provide the best intuitive classification of the texts.

keywords such as “development”, “product” and “launch”, indicating that analyst days with announcements classified into this topic are likely used to announce new products, or breakthroughs in existing product development. We therefore label this type of AID events as product-related. We then label the second topic, with top keywords such as “results” and “guidance”. as results-related AID event that are most likely used to review recent financial results. Similarly, the third and fourth topics can be labeled as strategy-related (i.e. analyst days used by firms to discuss new strategic directions and initiatives) and marketing-related (i.e. analyst days used to discuss new market opportunities and customer segmentation.) A majority of our sample is comprised of strategy-related AID events, and the rest of the three categories has about 150 events each.

[Insert Figure 5 and Table VI about here.]

Figure 5 plots the CARs from $t-20$ to $t+60$ for each of the four types of analyst days. This figure reveals a striking difference in the post-event pattern in abnormal returns for different event types. First, for results-related analyst days, the post-event CARs are not significantly different from zero. This indicates that, if a firm holds an analyst day primarily to explain past results, market participants are more likely to view it as a form of cheap talk with limited informational value. Therefore, they do not subsequently change the valuation of the firm after this type of AID events. By contrast, the rest of the analyst day types all exhibit significantly positive abnormal returns, as well as similar magnitudes of market underreaction. If a firm uses the analyst day to announce changes in corporate strategy, as is the case for the majority of our sample, post-event abnormal returns exhibit a positive drift in the first 20 trading days up to 1.6% above market, and do not seem to subsequently revert. CARs for product- and marketing-related analyst days are much higher in magnitude–up to 8% and 4% above market in the first 60 trading days–and also do not seem to revert. This result suggests that analyst days used as new product announcements, updates in existing product developments, and new market opportunities, are the most informative types. Because firms going through the trouble of setting up analyst days are more likely to announce positive news, they would be more likely to announce good products, or positive breakthroughs in product developments (e.g. successful drug trials), or tapping into new markets. This information would then slowly diffuse in the next 20 trading days and garner positive abnormal returns. Finally, as Table VI demonstrates, this set of results are also consistent using BHARs, as well as using abnormal returns computed from the four-factor model with both value- and equal-weighted market

portfolios.

E. Changes in Firm Performance After Analyst Days

Having examined the market reaction to analyst days, we now focus on the firm's own performance after these events. LDA results from the previous subsection indicate that most analyst days address cash flow-related topics such as new products and markets, strategy, and financial results. Therefore, the positive abnormal returns after analyst days suggest that market participants positively adjust their expectations of these firms' future cash flows (or cash flow growth.) Therefore, a pertinent question is whether firms' cash flow-related metrics indeed improve after they reveal positive information during analyst days. If their signals are completely uninformative, then their actual performance would not significantly change after analyst days, and the positive abnormal returns that we observe might be due to the irrationality of market participants.

Our tests have two important caveats. First, our tests are not designed to rule out discount rate-related explanations to the observed return patterns. It is possible that analyst days reveal some information on the firms' risk exposures, thus effecting returns through the discount rate channel. Our goal here is to uncover the positive information itself and possible market underreaction to this information, rather than the channel through which the information affect prices. Therefore, results that we document in this subsection should be viewed as suggestive evidence of cash flow changes.

Second, the *timing* of performance changes related to analyst days is also unclear. We assume that most changes will be concentrated in the short term, because the firms can hold another analyst day in 1.5 years on average to announce the next batch of positive information. However, analyst days might also reveal long-term changes in firms' cash flow and profitability, particularly if they are related to changes in firms' long-term strategy. Because long-term growth rate data on most financial metrics are quite noisy, we focus on the short-term changes in firm performance (i.e. within two years after the event,) with the caveat that the lack of short-term evidence does not necessarily mean the absence of long-term effects.

Our tests focus on annual metrics related to firms' operating performance, investments and acquisitions, as well as financing decisions. Specifically, suppose that year t is the year when a firm holds an analyst day. The first year of our data collection is $t-2$, i.e. two years before the event. For op-

erating performance, we collect the sales growth rate (as a percentage of year $t-1$ value,) earnings per share (EPS), and gross margin, defined as (sales-cost of goods sold)/sales. On the investment side, we compute the ratio of capital expenditures to total assets, the ratio of acquisitions to total assets, as well as R&D intensity, defined as the ratio of R&D expenditures to sales. Finally on the financing side, we compute the leverage ratio, dividend yield, and cash-to-assets ratio, defined in Section I. For each of the metrics, we first compute the difference between their $t-2$ and $t-1$ values as the pre-event benchmark. We then compute the difference between their $t-1$ values and their values in year t (the AID event year), $t+1$, and $t+2$. We then compute the sample average of these differences, and report the estimates, t-Statistics, and the Wilcoxon signed-rank test statistic in Table VII below.

[Insert Table VII about here.]

Panel A of this table indicates that after analyst days, firms on average have significantly improved operating performance. From $t-2$ to $t-1$, there is no significant change in most of the financial metrics. However, revenue growth increases by 26.3% during the event year, and increases by 68.3% in the three-year window from $t-1$ to $t+2$. Similarly, earnings per share increases by 5.8 cents and gross margin increases by 3.2%. All estimates are statistically significant at the 5% level. The estimates remain mildly significant two years after the event. This result offers suggestive evidence of positive cash flow change in the short term after analyst days. Second, we do not detect any significant change in investment policies after analyst days. Most estimates in Panel B are not statistically significant. For financing policies, firms become slightly more levered after analyst days and hold slightly less cash (roughly 1% lower cash-to-asset ratio), but have significantly higher dividend yields (up to 0.3% higher in the two years after the event.) These results suggest that firms might increase its shareholder payout through increases in dividends and/or share buybacks.

F. Changes in Analyst Coverage, Price Target, and Forecast Dispersion After Analyst Days

Our last set of tests examine the analysts' responses to analyst days. After all, analysts are the primary target audience of analyst days, and analysts covering the firm might be physically present at these events, thus having more opportunities to interact with its management. The (on average) positive information that analysts receive during analyst days might prompt them to positively update their ratings of the hosting firm, in the form of higher earnings forecasts and price targets. In addition,

the information released during these events might serve as an anchoring point for different analysts covering the same firm. Therefore, their forecasts might also be less dispersed. Furthermore, firms might use analyst events as a way to showcase of their facilities and to attract more analysts to cover the firm. If they are successful in doing so, then they would have a higher level of analyst coverage after AID events. Finally, firms might also use analyst days to build favors with analysts, which might also lead to a decrease in forecast dispersion, as in this case the analysts' forecasts would be more in line with the firm's own.

To test these hypotheses, we obtain data on multiple aspects of analyst coverage from I/B/E/S and merge these data with our event sample. Because analysts make forecasts over multiple horizons, we focus on their one-year earnings forecasts and price targets, as these are the most commonly followed metrics. Then, starting from year $t-2$, we collect the mean and median of EPS forecasts, price targets, as well as $Coverage$ defined in Section II.A. For firms with more than one analyst following them, we compute the $Dispersion$ measure as the standard deviation of the EPS forecasts scaled by the mean forecasts. Then, similar to the previous subsection, we construct the change in these forecasts from $t-2$ to $t-1$, and from $t-1$ to t, $t+1$, and $t+2$. We report the average values of these metrics, t-Statistics, and the Wilcoxon signed-rank test statistic in Table VIII below.

[Insert Table VIII about here.]

First, firms do seems to gain more analysts after AID events, with an average number of 0.44 added in the year of the events. This indicates that firms might indeed use AID events as a way to attract more analyst coverage. Second, both the mean and median EPS estimates, as well as the price targets, are significantly higher after AID events. This is consistent with the notion that positive information is indeed revealed to analysts, and are factored into their opinions. This result, combined with the fact that firms' operating performances do improve in the short term, are consistent with the revelation of credible information on cash flows.

III. Discussion of Results and Conclusion

The previous section presents two surprising results on the market reaction to analyst days. First, on average, abnormal returns are significantly positive (and economically large, up to 1.6% per month)

after analyst days. Second, there is a significant degree of market underreaction to analyst days. Abnormal returns remain elevated for up to 60 trading days after the events, and we do not find any evidence of mean reversion. This suggests that investors do not need advance knowledge of analyst days to take advantage of this strategy: they can simply buy the stocks even days after the events, and still realize significantly positive abnormal returns.

Our main interpretation for this result is that firms that incur the cost of holding analyst days are more likely to disclose positive than negative information. This interpretation is intuitive because a rational agent would prefer to have its bad news attract the least amount of attention possible, and maximize the attention for its good news. Therefore, firms would reserve higher-profile venues a such as analyst days to disclose good news, such as the launch of new products and markets, with fanfare.

The rest of our tests provide further support to this interpretation. Our LDA-based approach classifies AID events by their nature, and we indeed find that positive announcements, such as new product launches and breakthroughs in existing product developments, constitute a significant portion of AID events. These types of analyst days are associated with even higher abnormal returns than average, while events revealing less new information, such as reviews of regular financial results, do not generate significantly positive returns. Furthermore, we find suggestive evidence that some cash flow-related metrics, such as sales growth and margins, do significantly increase after analyst days. Analyst coverage, EPS estimates, and price targets all significantly increase, while forecast dispersion is significantly reduced. Both sets of results suggest that the information revealed during analyst days are credibly related to firms' cash flows. Obviously, the true quality of these signals are unobservable without additional data and analysis, and we plan to conduct more in-depth studies on the nature of information disclosed through these channels.

The market underreaction to analyst days requires a more nuanced explanation. Perhaps market participants do not believe all the information revealed during analyst days to be credible, and are only able to decipher its true impact over time. Another potential explanation is that analyst days do not receive enough market attention, and a significant portion of market participants either are not aware of them, or do not pay enough attention to them over regular disclosure channels such as SEC filings. This interpretation is further supported by the fact that abnormal returns between the announcement and event dates of analyst days are significantly less pronounced than post-event returns. Examining these behavioral channels requires additional data, but is an interesting future research direction that

we plan to pursue.

Overall, Our results uncover analyst days as an important information disclosure chanel. The presence of significantly profitable trading opportunities suggest that investors should be more attentive to these events, and managers should be more vigilant about the potential market impact of analyst days, and the nature of information that they choose to convey through these important disclosure channels.

Appendix A. Example of LDA-Tagged Analyst Day Announcements

Topic 1. Product (99% Probability)

RUTHERFORD, N.J. and RALEIGH, N.C., Sept. 24, 2014 (GLOBE NEWSWIRE) — Cancer Genetics Inc.(Nasdaq:CGIX) ("CGI" or "the Company"), an emerging leader in DNA-based cancer diagnostics, today released an agenda for its upcoming Analyst Day, to be held Thursday, September 25 in Raleigh, North Carolina.

The event will offer updated information on the Company's portfolio of disease-focused proprietary genomic tests, and will provide a comprehensive overview of proprietary test development plans, technology development and validation, and progress with research collaborations. The Analyst Day will focus on the Company's tests for B-cell cancers, including chronic lymphocytic leukemia (CLL), diffuse large B-cell lymphoma (DLBCL), and follicular lymphoma (FL), as well as the Company's tests in kidney cancer and cervical cancer. In addition, Cancer Genetics will review recent updates related to its joint venture with Mayo Clinic, OncoSpire Genomics, and the incorporation of pharmacogenomics into molecular profiling of tumor systems.

Topic 2. Review of Results (96% Probability)

First PacTrust Bancorp (NASDAQ: BANC) ("First PacTrust" or the "Company"), the holding company for Pacific Trust Bank and Beach Business Bank, today announced results for the quarter and the nine months ended September 30, 2012...the Company plans to discuss its third quarter earnings, among other items, at its Investor Day on November 9, 2012, from 9:00 a.m. to 1:00 p.m., Pacific Time.

Topic 3. Strategic Updates (99% Probability)

SEATTLE, Dec 4, 2014 — Starbucks Coffee Company (NASDAQ: SBUX) chairman, president and chief executive officer Howard Schultz and other company leaders will detail Starbucks five-year strategic growth plan today at its biennial Investor Day, hosted at the company's Support Center in Seattle for the first time in a decade.

Topic 3. Markets (95% Probability)

BURLINGTON, MA — December 3, 2014 — Attunity Ltd. (NASDAQ CM: ATTU), a leading provider of information availability software solutions, announced today that it will host an Analyst & Investor Day on Wednesday, December 10th, 2014 in New York City beginning at 9:00 am ET. The event will be held at the Convene Center located at 730 Third Avenue, New York, NY. The Company's management team, select customers, partners and leading industry analysts will host a series of presentations discussing trends in Big Data and the Cloud, and the impact of Attunity's solutions on these markets.

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Figure 1. Number of Analyst/Investor Day Events, 2004 and 2015.

This figure plots the annual frequency of analyst/investor day events and the number of firms hosting these events, from January 2004 to December 2015. The solid line plots the number of events and the dotted line plots the number of hosting firms.

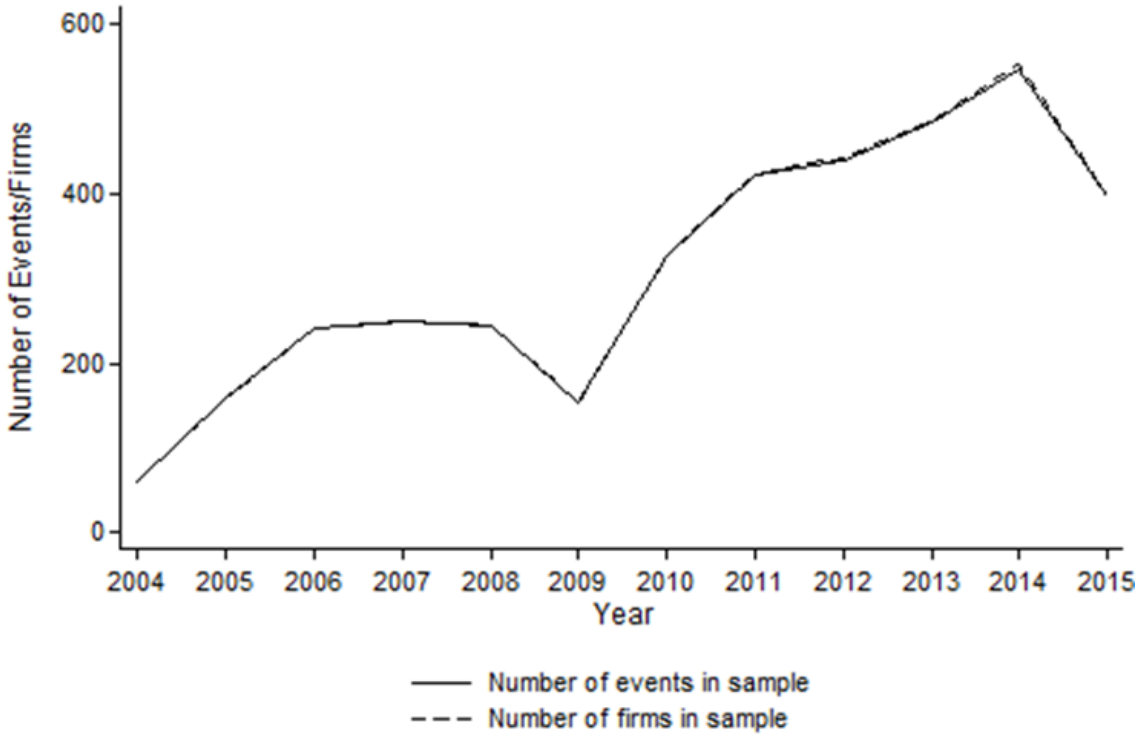


Figure 2. Number of Days Between Each Analyst Day Event

This figure plots the frequency distribution of days between each analyst day event, for the sample of firms holding more than one such events between 2004 and 2015. Specifically, we compute the average duration from the day after the previous event to the day of the next event. The bars in the graph plot the percentage distribution in terms of 100 calendar days.

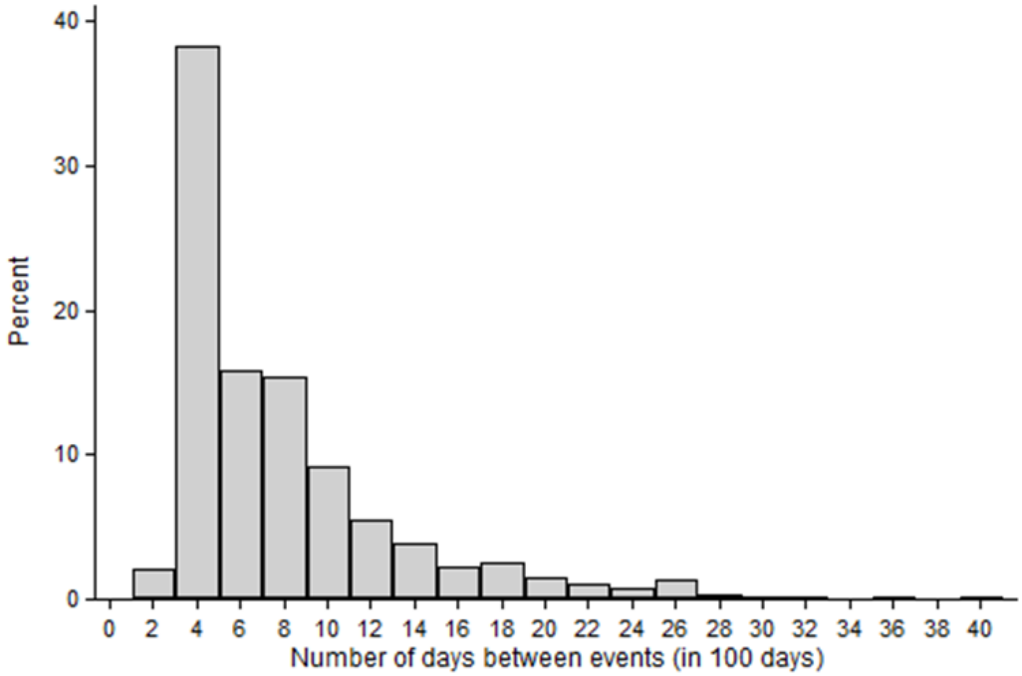
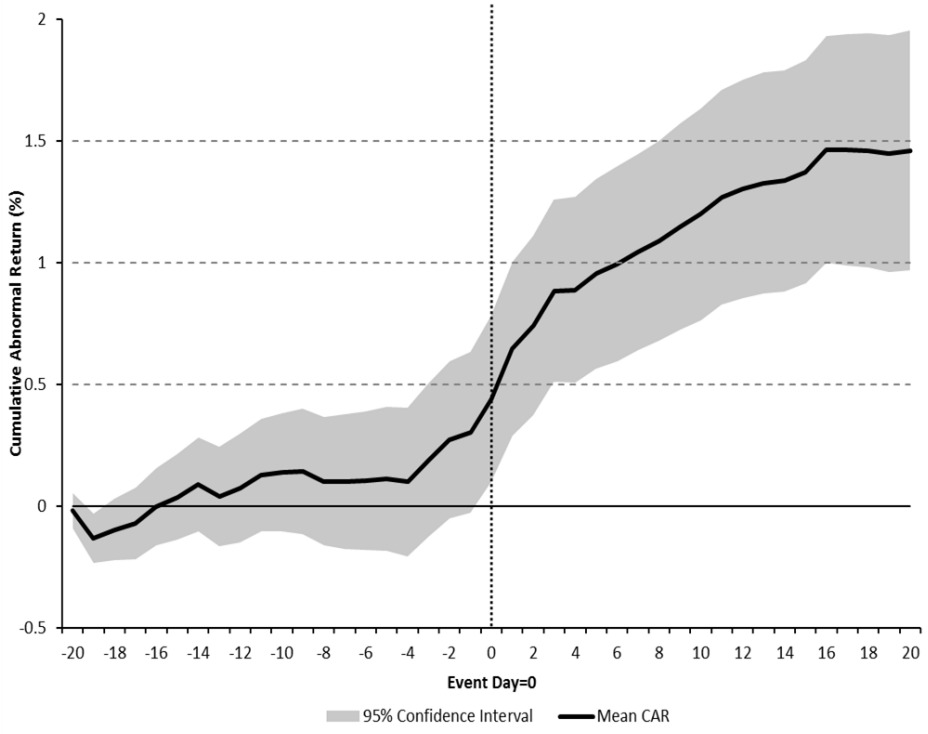


Figure 3. Short-Term Abnormal Returns Before and After AID Event

The top panel of this figure plots the average cumulative abnormal returns (CARs), where the daily abnormal returns are computed as the difference between the stock's return and the return on the CRSP equal-weighted market portfolio. The event period is from $t-20$ to $t+20$ of the actual AID event dates. The bottom panel plots the average Carhart (1997) four-factor alphas during the same period. The alphas are estimated using daily data from $[t-100, t-46]$ period, while requiring at least 30 non-missing daily returns. The sample period is from 2004 to 2015.



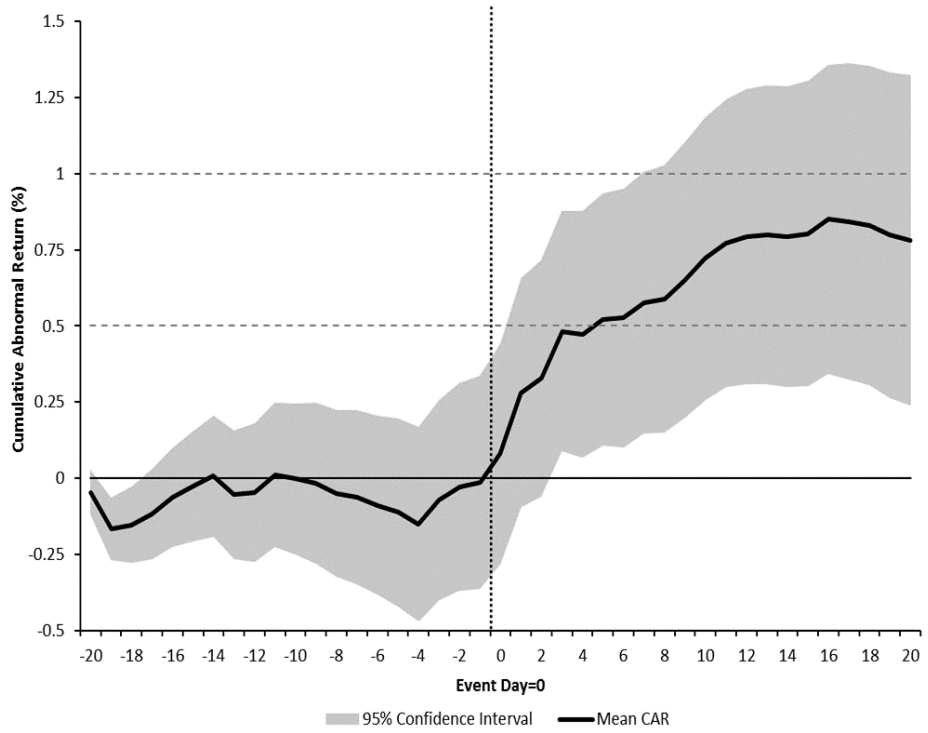


Figure 4. Abnormal Trading Volume Before and After AID Event

This figure plots the abnormal trading volume around AID events. The daily abnormal trading volume for each stock-event is computed as the ratio of the stock's daily trading volume (in number of shares) to the stock's average daily trading volume from $[t-100, t-46]$. The event window is $[t-20, t+60]$ and the sample period is from 2004 to 2015.

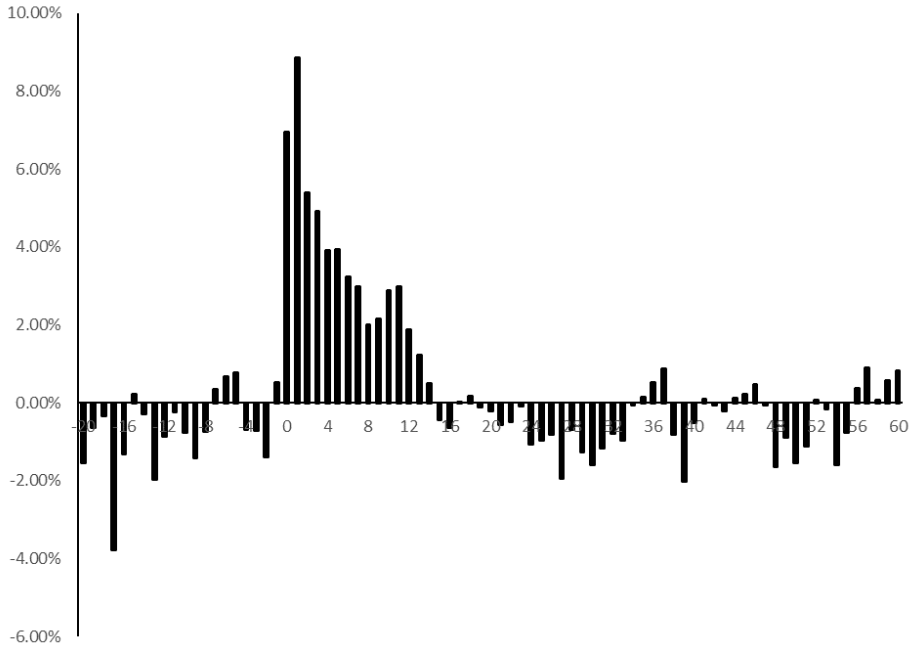


Figure 5. Short-Term Abnormal Returns Before and After AID Event By Topic

The top panel of this figure plots the average cumulative abnormal returns (CARs) for four main subgroups of AID events, characterized according to the LDA-based four-topic model discussed in Section II.D of the text. The sample events in each group consists of those whose announcement texts have 50% or higher probability of belonging to a single topic. The daily abnormal returns are computed as the difference between the stock's return and the return on the CRSP equal-weighted market portfolio. The event period is from $t-20$ to $t+60$ of the actual AID event dates. The sample consists of 1,933 events from 2004 to 2015.

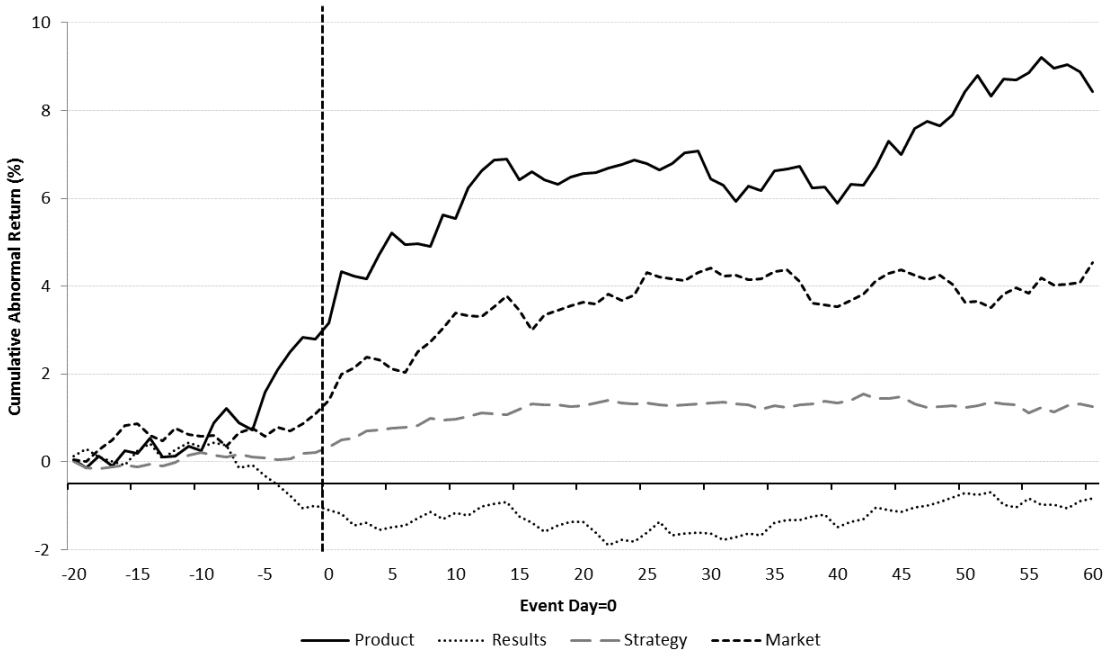


Table I. Characteristics of Firms Holding Analyst Day Events

The top panel of this table reports the summary statistics at the event level. The top four rows describes our sample selection procedure. The next four rows report the average number of calendar days between events, and average, median, and maximum number of events per firm in our sample. By sample construction the minimum number of events per firm is one. The next two panels reports, by year, the median and mean values of common firm-level financial characteristics. The variables are constructed as follows. $Size$: Market capitalization of the firm computed as stock price×number of shares outstanding; BM: book-to-market ratio; ROA: the ratio of net income to total assets; $\Delta Sales$: the annual sales growth rate; $Leverage$: the ratio of total debt to total book equity; $CAPEX$: the ratio of capital expenditures to total assets; $Acquisition$: the ratio of capital acquisitions to total assets; $DivYld$: the ratio of annual dividends per share to the end-of-year stock price; $Coverage$: the number of analysts covering the stock idenfitied by I/B/E/S.

Panel A: Event Summary Statistics	
Total # of Firms	1834
Total # of Events	4136
# of Events Matched to CRSP	4071
Matched to CRSP and Compustat	3890
Average # of Days between Events	676.23
Average # of Events Per Firm	2.26
Median # of Events Per Firm	2
Max # of Events Per Firm	9

Year	Panel B: Firm Summary Statistics (Median Values)								
	Size	BM	ROA	Gross Margin	Leverage	Cash	Div Yld	R&D	# of Analysts
2004	4.620	0.170	5.305%	39.754%	0.268	0.181	0.000	0.109	9.000
2005	3.130	0.209	5.846%	39.610%	0.267	0.176	0.000	0.084	9.000
2006	5.130	0.185	6.465%	40.085%	0.314	0.144	0.000	0.069	9.000
2007	6.320	0.190	6.471%	39.497%	0.290	0.142	0.000	0.064	9.000
2008	3.690	0.237	4.680%	37.084%	0.305	0.117	0.000	0.086	8.000
2009	4.040	0.238	5.200%	36.489%	0.398	0.146	0.000	0.056	8.000
2010	5.300	0.217	5.642%	39.336%	0.330	0.114	0.000	0.041	9.000
2011	5.210	0.236	6.343%	40.005%	0.292	0.116	0.002	0.051	10.000
2012	5.620	0.273	5.487%	39.793%	0.392	0.105	0.009	0.038	9.000
2013	6.870	0.208	5.482%	40.350%	0.442	0.093	0.007	0.042	10.000
2014	7.030	0.210	5.383%	39.890%	0.446	0.113	0.007	0.057	9.000
2015	5.500	0.196	5.055%	38.990%	0.435	0.126	0.002	0.066	8.000

Year	Panel C: Firm Summary Statistics (Mean Values)								
	Size	BM	ROA	Gross Margin	Leverage	Cash	Div Yld	R&D	# of Analysts
2004	9.720	0.271	3.875%	41.883%	0.475	0.233	0.003	0.435	11.552
2005	8.520	0.498	2.016%	41.678%	0.556	0.236	0.008	0.432	10.667
2006	12.900	0.291	5.820%	41.211%	0.641	0.222	0.008	0.204	10.628
2007	11.700	0.247	3.181%	39.996%	0.553	0.225	0.007	0.294	9.719
2008	10.800	0.372	1.712%	37.305%	0.584	0.186	0.019	0.151	9.088
2009	11.700	0.349	4.698%	37.401%	0.585	0.197	0.012	0.104	9.778
2010	14.700	0.313	5.637%	41.392%	0.610	0.173	0.010	0.102	10.605
2011	14.200	0.403	5.147%	42.520%	0.502	0.185	0.015	0.121	11.040
2012	12.400	0.450	3.701%	43.164%	0.629	0.175	0.017	0.096	10.752
2013	15.700	0.320	4.420%	43.767%	0.618	0.168	0.014	0.104	11.792
2014	15.100	0.316	2.588%	43.529%	0.726	0.193	0.015	0.155	10.882
2015	13.700	0.299	1.533%	36.225%	0.790	0.226	0.015	0.260	10.324

Table II. Determinants of AID Events

This table reports the coefficient estimates from the logit and probit regressions on the probability of holding an analyst day event, described by Equation (3) of the text. The sample period is 2004-2015. The dependent variable is a dummy that equals to one if a firm holds an AID event (or rarely, more than one) during a calendar year. The dependent variable The dependent variables are lagged values of common financial metrics constructed as follows. $Size$: Market capitalization of the firm computed as stock price×number of shares outstanding; BM: book-to-market ratio; ROA: the ratio of net income to total assets; $\Delta Sales$: the annual sales growth rate; $Leverage$: the ratio of total debt to total book equity; $CAPEX$: the ratio of capital expenditures to total assets; $Acquisition$: the ratio of capital acquisitions to total assets; $DivYld$: the ratio of annual dividends per share to the end-of-year stock price; $Coverage$: the number of analysts covering the stock idenfitied by I/B/E/S. All independent variables with the exception of $Coverage$ are normalized to a zero mean and unit variance.

	Models	
	(1)	(2)
	Probit	Logit
Size	0.5587***	1.1374***
	(0.0208)	(0.0424)
BM	-0.0015	-0.0363
	(0.0226)	(0.0541)
ROA	-0.0559***	-0.1129***
	(0.0126)	(0.0257)
Leverage	0.0324**	0.0667***
	(0.0102)	(0.0201)
ΔSales	-0.0070	-0.0180
	(0.0103)	(0.0212)
CAPEX	-0.0179	-0.0375
	(0.0137)	(0.0282)
Acquisition	0.0492***	0.0982***
	(0.0086)	(0.0165)
DivYld	-0.0036	-0.0139
	(0.0143)	(0.0300)
Coverage	-0.0020	-0.0074
	(0.0020)	(0.0039)
N	46174	46174
Pseudo R2	0.1052	0.1026

Table III. Short-Term Buy-and-Hold Abnormal Returns Around Analyst Days

This table reports the average boy-and-hold abnormal returns (BHARs), where the daily abnormal returns are computed as the difference between the stock's return and the return on the CRSP equal-weighted market portfolio. The event period is from $t-20$ to $t+20$ of the actual AID event dates. The bottom panel plots the average Carhart (1997) four-factor alphas during the same period. The alphas are estimated using daily data from $[t-100, t-46]$ period, while requiring at least 30 non-missing daily returns. The sample period is from 2004 to 2015.

Panel A. BHAR Computed Using Value-Weighted Market Portfolio

Window	Market-Adjusted		Fama-French & MOM	
	BHAR (%)	Std. Err (%)	BHAR (%)	Std. Err (%)
(-20,-5)	0.12	0.1860	-0.26*	0.1660
(-5,-1)	0.21**	0.1014	0.07	0.0916
(-1,0)	0.18***	0.0627	0.13**	0.0591
(0,+1)	0.36***	0.0644	0.29***	0.0592
(0,+20)	1.41***	0.2261	0.69***	0.1990
(0,+30)	1.74***	0.2778	0.66***	0.2373
(0,+60)	1.38***	0.3626	-0.29*	0.1763
(+1,+5)	0.55***	0.1004	0.47***	0.0939
(+20,+30)	0.31*	0.1809	-0.03	0.1282
(+30,+60)	-0.19	0.2249	-0.96**	0.4161

Panel B. BHAR Computed Using Equal-Weighted Market Portfolio

Window	Market-Adjusted		Fama-French & MOM	
	BHAR (%)	Std. Err (%)	BHAR (%)	Std. Err (%)
(-20,-5)	0.00	0.2021	-0.20	0.1695
(-5,-1)	0.19*	0.1024	0.11	0.0962
(-1,0)	0.18***	0.0619	0.16***	0.0611
(0,+1)	0.36***	0.0632	0.32***	0.0592
(0,+20)	1.28***	0.2225	0.84***	0.1947
(0,+30)	1.44***	0.2694	0.79***	0.2382
(0,+60)	0.87**	0.3976	-0.35*	0.2097
(+1,+5)	0.58***	0.1021	0.55***	0.0944
(+20,+30)	0.14*	0.0807	-0.04	0.1347
(+30,+60)	-0.55*	0.3431	-1.07**	0.5129

Table IV. Long-Term Abnormal Returns Around Analyst Days: Calendar-Time Portfolios

This table reports the alphas and betas of the calendar-time portfolios formed by AID-holding stocks. The portfolio holding periods vary from 1 day to 60 months. To rule out leakage, we also construct pre-event windows from 20 trading days (or 1 month) before the event to the day of the event. Portfolio excess returns are estimated using the four-factor model, the tables report the regression intercepts (alphas), as well as the loadings on MKTRF, SMB, HML and MOM factors. We fit the regressions using both daily and monthly data and the numbers in brackets in each panel correspond to days the months, respectively.

Panel A: Calendar-Time Portfolio Regressions in Daily Frequency

Window	Alpha		Beta		SMB		HML		MOM	
	Estimate	Std. Err	Estimate	Std. Err	Estimate	Std. Err	Estimate	Std. Err	Estimate	Std. Err
(-20,0)	0.0002	0.0001	1.0694***	0.0223	1.0694***	0.0362	-0.0135	0.0466	-0.1354***	0.0223
(-1,0)	0.0010***	0.0004	1.0392***	0.0708	1.0392***	0.1148	-0.0609	0.1149	-0.0762***	0.0708
(0,1)	0.0016***	0.0004	1.0818***	0.0556	1.0818***	0.1083	-0.0178	0.1047	-0.1807***	0.0556
(0,30)	0.0006***	0.0001	1.0712***	0.0127	1.0712***	0.0257	-0.0161	0.0264	-0.1332***	0.0127
(0,60)	0.0003***	0.0001	1.0696***	0.0099	1.0696***	0.0187	-0.0103	0.0215	-0.1275***	0.0099
(0,90)	0.0002***	0.0001	1.0652***	0.0094	1.0652***	0.0177	-0.0172	0.0195	-0.1394***	0.0094
(0,125)	0.0002***	0.0001	1.0691***	0.0084	1.0691***	0.0155	-0.0233	0.0191	-0.1450***	0.0084
(0,250)	0.0002*	0.0001	1.0799***	0.0073	1.0799***	0.0136	-0.0275	0.0173	-0.1666***	0.0073
(0,500)	0.0002	0.0002	1.0772***	0.0080	1.0772***	0.0140	-0.0099	0.0171	-0.1712***	0.0080

Panel B: Calendar-Time Portfolio Regressions in Monthly Frequency

Window	Alpha		Beta		SMB		HML		MOM	
	Estimate	Std. Err	Estimate	Std. Err	Estimate	Std. Err	Estimate	Std. Err	Estimate	Std. Err
(-1,0)	0.0060*	0.0034	1.1504***	0.0515	0.7172***	0.1189	-0.0793	0.1149	-0.1982***	0.0526
(0,1)	0.0074***	0.0027	1.0762***	0.0580	0.6899***	0.1068	-0.1933	0.1933	-0.2363***	0.0872
(0,3)	0.0047**	0.0023	1.0755***	0.0435	0.6715***	0.0785	-0.2522*	0.1484	-0.2699***	0.0720
(0,6)	0.0041**	0.0021	1.1112***	0.0411	0.5906***	0.0816	-0.2655**	0.1201	-0.2780***	0.0855
(0,12)	0.0025	0.0022	1.1153***	0.0430	0.6004***	0.0884	-0.2145	0.1500	-0.3229***	0.0877
(0,24)	0.0019	0.0022	1.1115***	0.0385	0.6301***	0.0771	-0.2173	0.1563	-0.3327***	0.0828
(0,60)	0.0019	0.0021	1.1126***	0.0372	0.6104***	0.0769	-0.1788	0.1161	-0.3183***	0.0879

Table V. Summary Statistics of LDA-Derived Analyst Day Topics

The top panel of this table presents the top 10 keywords identifying each of the 4 dominant LDA topics, discussed in Section II.D of the text. The bottom panel reports the number of events whose announcement texts have 50% or higher probability of belonging to a single topic. The sample consists of 1,933 events from 2004 to 2015.

Panel A: Top Topic Keywords from Event Description Inferred Using LDA

Topic 1		Topic 2		Topic 3		Topic 4	
Weight	Word	Weight	Word	Weight	Word	Weight	Word
0.0286	development	0.0367	discuss	0.0658	strategy	0.0257	technology
0.0274	clinical	0.0237	results	0.0529	discuss	0.0130	solutions
0.0246	programs	0.0225	quarter	0.0524	provide	0.0129	opportunity
0.0238	provide	0.0221	fiscal	0.0449	business	0.0115	presentations
0.0187	launch	0.0214	update	0.0432	growth	0.0106	products
0.0184	discuss	0.0179	guidance	0.0328	update	0.0104	focus
0.0136	pipeline	0.0172	provide	0.0324	overview	0.0092	team
0.0127	product	0.0135	financial	0.0269	strategic	0.0090	markets
0.0116	research	0.0121	capital	0.0225	outlook	0.0086	management
0.0113	proprietary	0.0121	earnings	0.0224	initiatives	0.0079	services

Panel B: Number of Events in Each Topic (>=50% prob)

Topic 1: New Developments	150
Topic 2: Review Results	133
Topic 3: Discuss Strategy	1501
Topic 4: Technology and Markets	149

Table VI. Buy-and-Hold Abnormal Returns Around Analyst Days: By Event Topic

This table reports the average buy-and-hold abnormal returns (BHARs) for AID events classified as each of the four LDA topics, discussed in Section II.D of the text. Tcumulative returns are computed as the difference between the cumulatively-compounded stock return and the return on the CRSP value- (top panel) and equal-weighted (bottom panel) market portfolios, respectively. We report the BHARs ranging from from $t-20$ to $t+60$ of the actual AID event dates. The right columns in each column group report the average Carhart (1997) cumulative four-factor alphas during the same period. The alphas are estimated using daily data from $[t-100, t-46]$ period, while requiring at least 30 non-missing daily returns. The sample period is from 2004 to 2015.

Panel A. BHAR Computed Using Value-Weighted Market Portfolio

Window	1. New Developments		2. Review Results		3. Discuss Strategy		4. Technology & Markets	
	MAR (%)	FF4 (%)	MAR (%)	FF4 (%)	MAR (%)	FF4 (%)	MAR (%)	FF4 (%)
(-20,-5)	1.06	-0.71	-0.16	0.50	0.11	-0.32	0.52	-0.15
	(1.4825)	(1.7884)	(0.7547)	(0.8993)	(0.2570)	(0.2379)	(0.8935)	(0.8475)
(-5,-1)	2.12**	1.57*	-0.91**	-1.05**	0.13***	-0.09	0.33	0.23
	(0.8310)	(0.9049)	(0.4270)	(0.4969)	(0.1418)	(0.1345)	(0.4948)	(0.4822)
(-1,0)	0.30	0.30	-0.03	-0.15	0.17***	0.04	0.56*	0.58*
	(0.5254)	(6.2500)	(0.2703)	(0.3219)	(0.0909)	(0.0957)	(0.3175)	(0.2984)
(0,+20)	3.95**	3.57**	-0.33	-0.18	1.30***	0.71**	2.53**	2.18**
	(1.7004)	(1.5179)	(0.8895)	(1.0405)	(0.2964)	(0.2835)	(1.0293)	(0.9715)
(0,+30)	4.34**	3.19**	-0.39	-0.55	1.39***	0.59*	3.39***	2.47**
	(2.0647)	(1.8104)	(1.0685)	(1.2387)	(0.3604)	(0.3403)	(1.2514)	(1.1841)
(0,+60)	5.35*	-1.13	0.15	1.05	1.14**	-0.58	3.66**	1.99
	(2.8982)	(3.4036)	(1.5464)	(1.7500)	(0.5044)	(0.4785)	(1.5320)	(1.6625)

Panel B. BHAR Computed Using Equal-Weighted Market Portfolio

Window	1. New Developments		2. Review Results		3. Discuss Strategy		4. Technology & Markets	
	MAR (%)	FF4 (%)	MAR (%)	FF4 (%)	MAR (%)	FF4 (%)	MAR (%)	FF4 (%)
(-20,-5)	0.94	-0.56	-0.11	-0.22	-0.02	-0.21	0.38	-0.02
	(1.4710)	(1.7284)	(0.7383)	(0.7383)	(0.2273)	(0.2462)	(0.9091)	(1.0000)
(-5,-1)	2.23***	1.91*	-0.89**	-1.05**	0.11	-0.03	0.24	0.33
	(0.8250)	(0.9695)	(0.4194)	(0.4052)	(0.1427)	(0.1190)	(0.5106)	(0.4681)
(-1,0)	0.41	0.11	0.02	-0.17	0.16*	0.08	0.60**	0.66**
	(0.5177)	(0.6180)	(0.3279)	(0.2628)	(0.0896)	(0.0905)	(0.3202)	(0.3004)
(0,+20)	3.71**	3.28***	-0.09	-0.21	1.18***	0.87***	2.56***	2.59***
	(1.6910)	(1.2476)	(0.8654)	(0.8140)	(0.2936)	(0.2774)	(1.0327)	(0.9700)
(0,+30)	4.07**	2.74**	-0.43	-0.55	1.13***	0.69**	3.43**	2.98**
	(2.0545)	(1.3282)	(1.0386)	(1.0110)	(0.3561)	(0.3366)	(1.2550)	(1.1802)
(0,+60)	4.93*	0.43	-0.32	-0.81	0.48**	-0.63	3.48*	2.53
	(2.8814)	(3.3858)	(1.4679)	(1.4186)	(0.2327)	(0.4773)	(1.6771)	(1.6536)

Table VII. Changes in Cash Flow and Firm Performance After Analyst Days

This table reports changes in annual metrics related to firms' operating performance, investments and acquisitions, as well as financing decisions, before and after analyst days. Specifically, we report the one-year change from $t-2$ to $t-1$ (prior change) and $t-1$ to t (current change), as well as from $t-1$ to $t+1$ (two-year change) and $t-1$ to $t+2$ (three-year change) of the following variables: sales growth rate, earnings per share (EPS), gross margin, defined as (sales-cost of goods sold)/sales; CAPEX: ratio of capital expenditures to total assets; Acquisition: ratio of acquisitions to total assets; R&D intensity: ratio of R&D expenditures to sales; Leverage ratio, dividend yield, and cash-to-assets ratio, all defined in Section I. We compute the sample average of these differences, and report the estimates, t-Statistics, and the Wilcoxon signed-rank test statistics. The sample period is from 2004 to 2015.

Panel A: Operating Performance

Period	Sales (% of Year t-1)			EPS			Gross Margin		
	Estimate	t-Stat	Wilcoxon	Estimate	t-Stat	Wilcoxon	Estimate	t-Stat	Wilcoxon
t-2,t-1	-0.0260	-1.02	-26.72	-0.1905	-7.44	-18.08	-0.0204	-1.32	-5.54
t-1,t	0.2630	4.78	25.79	0.0589	2.09	14.85	0.0316	1.91	3.37
t-1,t+1	0.3896	7.99	23.73	0.0607	1.30	12.86	0.0125	0.61	1.88
t-1,t+2	0.6827	4.90	22.26	0.1235	2.10	12.69	0.0380	1.68	2.77

Panel B: Investments

Period	RDS			CAPEX/Asset			Acquisitions and M&A/Asset		
	Estimate	t-Stat	Wilcoxon	Estimate	t-Stat	Wilcoxon	Estimate	t-Stat	Wilcoxon
t-2,t-1	0.0591	1.37	-0.77	0.0000	-0.10	-1.63	0.0001	0.19	-0.89
t-1,t	-0.0611	-1.68	1.85	0.0006	1.18	4.45	-0.0005	-1.17	-0.80
t-1,t+1	-0.0513	-1.11	3.24	-0.0005	-0.82	0.83	0.0000	0.05	0.47
t-1,t+2	-0.0685	-1.30	4.31	-0.0023	-3.50	-2.39	0.0002	0.43	1.53

Panel C: Financing and Payouts

Period	Leverage			Dividend Yield			Cash/Assets		
	Estimate	t-Stat	Wilcoxon	Estimate	t-Stat	Wilcoxon	Estimate	t-Stat	Wilcoxon
t-2,t-1	-0.0159	-0.70	2.95	-0.0002	-0.54	-3.42	0.0046	3.15	1.74
t-1,t	0.0117	0.51	1.94	0.0014	4.52	7.19	-0.0095	-6.91	-5.41
t-1,t+1	0.0703	2.51	6.41	0.0035	8.89	11.22	-0.0136	-7.69	-6.47
t-1,t+2	0.0826	2.54	6.69	0.0033	7.36	9.24	-0.0162	-7.00	-5.56

Table VIII. Changes in Analyst Coverage, Earnings Estimates and Price Targets After Analyst Days

This table reports changes in analyst-related coverages and staticstics for firms holding AID events. Specifically, we report the one-year change from $t-2$ to $t-1$ (prior change) and $t-1$ to t (current change), as well as from $t-1$ to $t+1$ (two-year change) and $t-1$ to $t+2$ (three-year change) of the following variables: mean and median values of earnings forecasts (in earnings per share), price targets, as well as the average $Coverage$, defined as the number of analysts following the firm. For firms with more than one analyst following them, this table reports the changes in $Dispersion$, measured as the standard deviation of the EPS forecasts scaled by the mean forecasts. We report both the t-Statistics, and the Wilcoxon signed-rank test statistics. The sample period is from 2004 to 2015.

Period	Analyst Coverage			Mean(Estimate)			Median(Estimate)		
	Estimate	t-Stat	Wilcoxon	Estimate	t-Stat	Wilcoxon	Estimate	t-Stat	Wilcoxon
t-2,t-1	-0.5059	-9.47	-10.19	-0.1678	-7.50	-18.11	-0.1671	-7.41	-18.02
t-1,t	0.4402	8.25	8.59	0.0899	3.42	15.93	0.0897	3.42	15.80
t-1,t+1	0.5575	7.56	7.66	0.1193	3.03	14.05	0.1195	3.03	14.01
t-1,t+2	0.7371	7.67	7.66	0.1279	2.35	13.22	0.1270	2.35	13.17

Period	Dispersion			Price Target		
	Estimate	t-Stat	Wilcoxon	Estimate	t-Stat	Wilcoxon
t-2,t-1	0.0072	1.65	2.62	-3.0188	-14.03	-21.59
t-1,t	0.0005	0.12	-1.50	3.5431	7.64	15.88
t-1,t+1	0.0020	0.41	-0.58	5.1368	6.70	12.45
t-1,t+2	-0.0005	-0.09	-2.10	5.3945	6.35	11.23