Non-Deal Roadshows, Informed Trading, and Analyst Bias

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Abstract

Non-deal roadshows (NDRs) are private meetings between management and institutional investors, often organized by analysts. Using a novel hand-collected sample of NDRs, we show that local institutions trade heavily and profitably in NDR firms. Brokers are rewarded for hosting NDRs through increased commissions creating a potential conflict of interest for analysts. Consistent with misaligned incentives, NDR analysts issue significantly more optimistic recommendations and target prices, but less optimistic earnings forecasts, suggesting strategic bias. Collectively, NDRs create significant informational advantages for institutional investors and are an important source of analyst bias; both of which have potential adverse consequences for less-sophisticated investors.

Keywords: Non-deal roadshows, informed trading, analyst bias, management access, private meetings

JEL classifications: G20, G23

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1. Introduction

A company "roadshow" is a series of targeted private meetings over several days across different cities where firm management meets with investors to provide them with information regarding their firm. Roadshows are commonly associated with presentations given by firms seeking to issue securities, such as in an initial public offering. However, firms frequently go on roadshows unrelated to securities issuance, which are referred to as non-deal roadshows (NDRs). NDRs involve one-on-one meetings between corporate managers and investors, held at the offices of current and potential institutional investors.

While there is growing evidence that firms value NDRs as an important investor relations tool,[1] critics argue that they give institutional investors a significant information advantage and create perverse incentives for sell-side analysts. In particular, ample anecdotal evidence suggests that sell-side analysts have strong incentives to issue overly optimistic research in order to arrange private meetings with management, and such incentives are likely particularly strong for NDRs, which have been documented as the largest driver of broker votes (Groysberg, Healy and Maber, 2011).[2] Further, while most investor outreach channels such as broker-hosted conferences (Green et al., 2014a) or analyst investor days (Kirk and Markov, 2016) are disclosed well in advance, information on NDRs is generally not publically disclosed. The private nature of NDRs makes it far more difficult for smaller investors to recognize that they may be at a potential informational disadvantage and limits their ability to adjust for biases in analyst research.

Our analysis relies on a novel hand-collected sample of over 52,000 NDRs from 2013-2017. We observe not only the firm and city locations where the firm visits during its NDR, but perhaps more importantly, we also identify if a broker accompanies the firm during these meetings. Indeed, most roadshows are sponsored by a broker (65%). With the broker's identity, we can then match the sell-side analyst employed by the broker that covers the firm.

We begin by examining whether institutions trade more during a calendar quarter when a firm conducts an NDR near the institution's headquarters (hereafter Local Institution). We find an

[1] Brown et al. (2018) polls investor relations officers (IROs) at 610 publicly-traded firms and finds that out of the 12 most common information disclosure channels that firms use to convey the company's message to institutional investors, NDRs rank as the 2nd most valuable form of investor outreach channels just behind earnings conference calls (and ahead of press releases, private phone calls, sell-side analysts, 10-K/10-Q/8-K filings, on-site visits, media, management forecasts, informal settings such as golf and social media). Green et al. (2014a) also cites a practitioner survey that suggests NDRs are the most important investor relations mechanism. Finally, Ryan and Jacobs (2005) quote IROs as stating, "the non-deal roadshow is the most effective forum to develop interest in a stock because the portfolio manager can ask questions, look management in the eye, and share concerns in a private setting" (p.205).

[2] See, for example, https://www.wsj.com/articles/new-wall-street-conflict-analysts-say-buy-to-win-special-access-for-their-clients-1484840659.

economically large 122% increase in local institutional trading (*t*-stat=20.19) during the quarter when a firm conducts a local NDR. More interestingly, we find that local institutional trading is significantly more informative. For example, the 20% of stocks most heavily purchased by local institutions following an NDR outperform the 20% of stocks most heavily sold by local institutions following an NDR by roughly 0.44% per month over the subsequent three months, and this difference grows to 0.92% per month in smaller stocks. These findings suggest that NDRs provide an information advantage to local institutions at the expense of other investors who are not privy to management access.

We next examine the implications of NDRs for the hosting broker and the broker's analyst that covers the firm. Using a large sample of institutional transaction data to identify brokerage commissions, we first document that commission revenue increases by 24% for the hosting broker during the week of the NDR and continues to remain elevated over the subsequent two weeks. This is consistent with the view that invited institutions direct trades to the broker as payment for management access vis-à-vis the firm's NDR. This provides support for the view that hosting analysts have strong incentives to organize NDRs.

Given that NDRs are valuable to the broker sponsoring the NDR (and implicitly the broker's analyst that arranges these meetings), we examine the possible conflicts that they may create. The incentives created from NDRs are similar to investment banking conflicts. That is, analysts may issue overly optimistic forecasts around NDR clients, like banking clients, to secure business. In fact, unlike banking business where the analyst's bank can easily be verified, NDRs are under the radar and therefore analysts may feel less fear of detection from issuing biased forecasts.

We find that brokers that have hosted a firm on an NDR in the past six months (hereafter *NDR Brokers*) have substantially more optimistic investment recommendations and target prices compared to other analysts. This difference holds when we include broker and analyst characteristics and include firm-time fixed effects. This difference peaks immediately surrounding the NDR-month. The economic magnitudes are substantial. For example, while we find that brokerage firms with an investment banking affiliation or a conference-hosting affiliation also issue more optimistic investment recommendations and target prices, the magnitudes we document for NDR analysts are roughly 3 times as large as the optimism associated with investment banking or hosting a conference.

The optimism bias we document is consistent with analysts attempting to gain favor with management to increase their likelihood of taking the firm on an NDR. However, there are more benign interpretations. First, it is possible that their more optimistic research is ex-post justified with

superior firm performance. We do not find empirical support for this view. For example, while NDR Brokers have target prices that imply returns that are roughly 9.4% higher than other brokers over the subsequent 12 months, the realized returns for these firms are actually 2% lower.[3]

A second view is that analysts behave honestly and NDR firms naturally gravitate towards analysts who have sincerely optimistic views of the company. While this explanation is difficult to definitively rule out, we find that brokerage houses that are more likely to be competing for the NDR (i.e., brokers that have taken the firm on an NDR in the past) are significantly more likely to issue more optimistic research in the period leading up to the NDR. This pattern is consistent with analysts intentionally biasing their forecasts to increase the likelihood that they are chosen for the upcoming NDR. We also find that NDR Brokers have quarterly earnings forecasts that the firm is more likely to meet or beat. Malmendier and Shanthikumar (2014) suggest that analysts' earnings forecasts that deviate from their recommendations (i.e., pessimistic earnings and optimistic recommendations) signal strategically distorted analysts that cater to firm management.

Our final set of tests examines the market reaction to recommendation changes around NDRs. In particular, if NDR Brokers are generally reluctant to issue downgrades and eager to issue upgrades, then both downgrades and upgrades by NDR Brokers should be associated with more negative returns relative to upgrades or downgrades by non-NDR Brokers. We find some modest support for this notion. For example, over the [0,63] day window, the incremental returns associated with NDR broker upgrades and downgrades for smaller firms is -2.23% (t=-1.44) and -3.03% (t=-2.15), respectively.

Our paper contributes to the nascent literature on the importance of private meetings in capital markets for information flow. Prior research has focused on private meetings between investors and management at analyst investor days (Kirk and Markov, 2016), broker-hosted conferences (Green et al., 2014a and 2014b) and analyst site visits (Cheng et al., 2016). Solomon and Soltes (2015) examine all one-on-one meetings (including NDRs) between senior management of a publicly traded firm and investors over a six year period, and they document some evidence that hedge funds make informed trades following these meetings. However, their results are difficult to generalize because their data is only from one firm. Perhaps closest in spirit to our work, Bushee, Gerakos and Lee (2018) develop a clever approach to identify possible NDR activity—they track corporate flight patterns by forming non-overlapping three-day flight windows to financial money centers and non-money centers where firm-specific institutional ownership is high. Our paper differs in two important ways: first, we exploit

[3] We also note that many of our tests include firm*month fixed effects, which allows us to abstract from any differences in future performance.

a unique large observable sample of NDRs that is less susceptible to measurement error. This likely explains why we find significantly stronger results for both the intensity and profitability of institutional trading around NDRs compared to their study. Second, and more importantly, our data allow us to distinguish between broker-sponsored and company-sponsored NDRs. In the case of broker-sponsored NDRs, we are able to examine the impact of NDRs on trading commissions, analyst bias, and the market reactions to the hosting analyst's research.

More generally, our paper contributes to our understanding of conflicts of interest in financial institutions. It has long been recognized that investment research creates conflicts of interest for investment banks. For example, an internal Morgan Stanley memo from the 1990s stated that their objective "is to adopt a policy, fully understood by the entire firm, including the Research Department, that we do not make negative or controversial comments about our clients as a matter of sound business practice" (Mishkin and Eakins, 2018, page 158). Lin and McNichols (1998) and Michaely and Womack (1999) document that the relationship between investment banking and analyst optimism is systematic. Regulators responded to such abuses by imposing severe fines on major financial institutions (2003 Global Analyst Research Settlement) and requiring that there be a "Chinese wall" between investment banking and investment research. As part of the Global Settlement (GS), research analysts were prohibited from participating, either directly or indirectly, in roadshows where security issuances are pitched to investors. Our findings suggest that broker-sponsored, non-deal roadshows also pose serious conflicts of interest that result in optimistic equity research. Yet, these private meetings do not fall under the GS or other regulatory purviews and thus should be of great interest to policy makers.

Our paper also has implications for Regulation Fair Disclosure (Reg FD), which was enacted in 2000. Reg FD prohibits managers from disclosing material, non-public information to analysts and institutional investors. However, managers are allowed to disclose non-material information. Our finding that institutional investors are able to profitably trade a firm's stock after meeting with its managers suggests that Reg FD might not be effective in leveling the informational playing field between institutional and retail investors.

2. Data, Descriptive Statistics and NDR determinants

2.1. Data and Descriptive Statistics

We hand-collect NDR data from theflyonthewall.com (FLY), which is a subscription-based publisher of real-time financial news.[4] For each NDR, the FLY data reports the date, the firm, the location, whether the NDR is company-sponsored or broker-sponsored, and the brokerage firm organizing the NDR (when applicable). The sample spans from 2013, the first year for which FLY reports NDR data, through 2017.

Panel A of Table 1 provides descriptive statistics of our NDR sample after merging the sample with CRSP and Compustat. The sample contains 52,000 unique firm-date observations (hereafter: NDRs) and 58,705 firm-date-locations. The sample includes NDRs organized by 110 brokerage firms for over 5,700 firms. The location variable provides a valid US city for 44,720 observations, of which more than 70% are concentrated within 30 cities.[5] The majority of NDRs (~65%) are sponsored by a broker. We are able to match 82% of broker-sponsored NDRs with I/B/E/S, resulting in a final sample of 85 I/B/E/S brokers.

In Panel B, we provide statistics on the top 30 cities visited by firm management during their NDR. For each city, we also compute the fraction of total institutional trading that is driven by local institutional investors. Specifically, we merge institutional quarterly holdings from form 13-F with the data on fund headquarters location provided on Form ADV.[6] Following Coval and Moskowitz (1999), we define an institutional investor as local if its headquarters are within 100 kilometers of the downtown of the city. For each institution-firm-quarter, we compute *total trading* as the absolute value of the change in institutions holdings across the adjacent quarters scaled by shares outstanding, and we aggregate to a city-firm-quarter level by summing across all local institutions.[7] We report the average across all firm-quarters for each city.

Not surprisingly, typical money centers where institutional investors are concentrated dominate the most visited cities. For instance, New York City comprises approximately 19% of NDRs, and accounts for 34% of total institutional trading. This is followed by Boston, which is also the second highest locale for institutional trading. More generally, across the 30 cities, we document a

[4] Unlike conference calls or investor conferences that can easily be found on firms' investor relations websites or advertised through hosting brokers, NDRs are not publicized through traditional sources. Thus our sample captures a subset of NDRs that FLY is able to obtain from both public and private sources.

[5] The remaining 15% of observations include non-us observations (e.g., London), broad US regions (e.g., "Mid Atlantic"), or missing data.

[6] We thank Stephen Dimmock, Will Gerken and Joe Farizo for making the Form ADV data available here: https://uknowledge.uky.edu/finance_data/1/. Additional details are available in Dimmock and Gerken (2012) and Dimmock, Farizo, and Gerken (2018).

[7] We note this measure does not capture intra-quarter round-trip trading and thus understates total institutional trading.

correlation between *Total NDRs* and *Local Inst. Trading* of 97%. Panel B also provides a breakdown of company versus broker sponsored NDRs by top 30 cities. There is considerable variation. For instance, approximately 95% of NDRs in Kansas City are broker sponsored compared to 5% in San Jose. We examine what might explain these discrepancies in the next subsection.

2.2. Determinants of NDRs

We begin our analysis by examining the determinants of NDRs. We expect the number of NDRs to be determined in equilibrium by both institutional investor demand for information and firms' incentives to supply information. Following Green et al. (2014a), we conjecture that institutional demand for management access is likely greater for firms that are harder to value with more complex information environments. We thus conjecture that firms with higher levels of intangibles (*Recognized Intangibles*), high R&D expenses ((*R&D + ADV)/OE*), greater growth opportunities, as proxied by market-to-book ratios (*MB*), and high idiosyncratic volatility (*IVOL)* are more likely to attend NDRs.

Given that NDRs are opportunities for firms to meet with current institutional investors, we expect the number of NDRs to be positively correlated with the percentage of the firm owned by institutional investors (*Institutional Ownership).* In addition, we expect that the benefits of NDRs might be larger for younger firms with lower visibility *(Age*), firms that recently issued new shares (*SEO*) or firms with a recent acquisition (*M&A - Acquirer*).

We also control for *Analyst Coverage* as a proxy for demand for published analyst research, as well as several additional factors known to influence the magnitude of published analyst research including *Number of Institutions*, *Size, Turnover*, and R^2 (Bhushan, 1989). Finally, we explore whether a firms' tendency to go on an NDR varies with recent performance as measured by their return over the prior month (*Mom1)* or prior two to twelve months *(Mom2_12*). A detailed description of all variables can be found in the Appendix.

To examine the relation between NDR and the set of firm characteristics (X), we estimate a linear probability model that takes the following form:

$$\text{Prob}\ (NDR_{i,t} = 1 \mid x_{i,t}), \tag{1}$$

where the dependent variable, *NDR*, equals 1 if the firm participated in a NDR in the firm-month, and zero otherwise. All independent variables are standardized to have zero mean and unit variance. Month fixed effects are included and standard errors are clustered by firm.

Insert Table 2 about here

Table 2 reports the results. Column 1 provides results for the full sample of NDRs, while columns 2 and 3 separate broker and company sponsored NDRs. As predicted, firms that are harder to value are more likely to do NDRs. For instance, the coefficient in column 1 on both *Recognized Intangibles* and $(R\&D + ADV)/OE$ implies a one standard deviation increase in either of these values is associated with approximately a 1.3% increase in the probability of participating in an NDR. We also find that NDRs are positively correlated with both *MB* and *IVOL*.

The other estimates are also largely consistent with our predictions. In particular, we find that *Institutional Ownership* is a strong predictor of NDRs. We also find that younger firms, firms that recently issued new shares, or firms that are about to make an acquisition are more likely to do an *NDR*, although we do not find any relation between *NDRs* and *SEO*. We also find that firms with greater analyst coverage and firms with strong returns over the prior year are more likely to attend *NDRs*.

In columns 2 and 3 we separately analyze broker-organized NDRs and company-sponsored NDRs. Some interesting differences emerge. Consistent with the view that firms that are harder to value have a greater need for the provision of research services, firms with more intangible assets, more R&D expenses, and greater growth opportunities are more likely to choose a broker to host their NDR. Likewise, analysts cater to institutional investors and, as expected, firms with higher levels of institutional investor ownership and analyst coverage are more likely to have a broker host its NDR.

Overall, our results from this section are generally consistent with expectations. Firms are more likely to participate in NDRs when the demand for private access to management is high and when the expected benefits of providing private management access are greater. Moreover, firms are more likely to cooperate with brokers with their NDR when this demand for information disclosure is highest.

3. NDRs and Local Institutional Trading

3.1 Changes in institutional ownership around Local NDRs

In this section, we examine if NDRs facilitate local institutional trading in a firm's stock. For instance, on January 9, 2017, Community Healthcare (CHCT) participated in a two-day roadshow to St. Louis, Dallas and Houston. We examine if institutions headquartered in (or near) these three cities increase trading in Community Healthcare in Q1, 2017 relative to other institutional investors outside of these three cities.

For each fund *f*, firm *i*, and quarter *t*, we measure $Trading_{fit}$ as the absolute value of the difference in split-adjusted shares held from quarter *t-1* to quarter *t*. For each of the top 30 NDR destinations (see Panel A of Table 1), we aggregate $Trading_{fit}$ to a city-level measure (*Total* $Trading_{cit}$) by summing across all local institutions, defined as any institutional investors headquartered within 100 kilometers of the downtown of the city. Similarly, for each fund *f*, firm *i*, and quarter *t*, we measure $NetITrading_{fit}$ as the signed value of the difference in split-adjusted shares held from quarter *t-1* to quarter *t*, and we aggregate this measure to a city-level measure (*Total Net* $Trading_{cit}$) by summing across all local institutions and then taking the absolute value. Thus, *Total* $Trading_{cit}$ measures whether local institutional investors are trading in any direction, while *Total Net* $Trading_{cit}$ measures whether local institutional investors are trading in a correlated direction.[8]

Insert Table 3 about here

In Panel A of Table 3 we provide a univariate comparison of local institutional trading during a local NDR firm-quarter compared to a firm-quarter in which there was no NDR. Total trading volume by institutions in a firm overlapping with a local NDR is 1.96% of total shares outstanding compared to 0.34% of shares outstanding when a NDR does not occur. Likewise, the difference in *Total Net Trading* is also larger when Local NDR=1 compared to Local NDR=0 (1.19% versus 0.25%, respectively). While these differences are indeed economically large, firms tend to participate in NDRs when information demanded by institutions is high. Thus, the increase in trading volume may be attributed to an information shock corresponding to a change in the firm's information environment. We control for this possibility by estimating the following OLS model:

$$Trading_{cit} = \beta_1 Local\ NDR_{cit} + \beta_2 NDR_{ct} + FE + \varepsilon_{cit} \quad (2)$$

The dependent variable is *Total Trading* in columns 1 to 3 and *Total Net Trading* in columns 4 to 6. The independent variable of interest is *Local NDR*. *NDR* is also included, which captures if a firm participates in a NDR in any city. All regressions include city fixed effects and either include firm and quarter fixed effects or firm * quarter fixed effects. Standard errors are clustered by quarter.

Panel B of Table 3 presents these results. In model 1, the coefficient on *Local NDR* is 0.42% and highly statistically significant (*t*-stat=20.2). Economically, this point estimate implies an increase of over 120% (0.42%/0.34%) in local institutional trading. Interestingly, when an NDR occurs in a non-local city, trading in the institutions locality is significantly lower (*t*-stat=-6.7). Specification 2

[8] For example, if one local institutional purchased 1% of shares outstanding in a firm and a second institution sold 1% of the share outstanding in the firm, *Total Trading* would equal 2% while *Total Net Trading* would equal 0%.

confirms that the results are very similar if we include firm*quarter fixed effects, which helps rule out that other omitted factors are driving both the firms decision to attend an NDR in a given quarter and local institutional trading. Model 3 shows a symmetric impact on local trading if the NDR was hosted by a broker or company sponsored. Specifications 4-6 show that local NDRs are also strongly correlated with *Total Net Trading,* suggesting that local institutional investors are often on the same side of trade (either buying or selling) during a local NDR quarter.

Bushee, Gerakos and Lee (2018) also examine local institutional trading around private meetings and find results that are directionally consistent, but economically weaker. For example, Bushee, Gerakos and Lee (2018) find that when a firm's corporate jet visits a money center city during a 3-day window *Total Net Trading* for local institutions increase by 0.054%, which is less than one fourth of our estimated effect of 0.22%. Our larger economic magnitudes are not surprising; while the approach employed by Bushee, Gerakos, and Lee (2018) is a clever proxy for NDRs, it likely suffers from considerable measurement error.

3.2 Informed institutional trading through NDRs?

The prior section documents that local institutional trading dramatically increases when a firm meets privately with investors. In this section, we examine whether this increased trading is also more informed. To examine the informativeness of local institutional trading, we estimate the following Fama-Macbeth (1973) monthly panel regressions:

$$Ret_{it} = a + \beta_1 Inst\ OIB\ Rank_{cit-1} + \beta_2 Inst\ OIB\ Rank_{cit-1} * Local\ NDR_{cit-1} + \beta_3 Local NDR_{cit-1} + \beta_4 Char_{it-1} + \varepsilon_{cit.} \quad (3)$$

The dependent variable, *Ret*, is the monthly raw return. *Inst Oib* is computed as the total shares of firm *i* bought by all institutions local to city *c* in in quarter *t-1* less the total shares sold, scaled by shares outstanding. Since there is significant heteroscedasticity in the magnitude of *Inst Oib* across cities (e.g., the variance in *Inst Oib* is far greater in New York City than Cincinnati), we convert *Inst OIB* to a quintile ranking (*Inst Oib Rank*) relative to other firms in the same city-quarter. *Local NDR* is a dummy equal to one if a firm attended an NDR in that city in the previous quarter and *Local NDR*Inst Oib Rank* is our key variable of interest. *Char* is a vector of firm characteristics known to influence the cross-section of returns. We follow Fama and French (2008) and include the following firm characteristics: *Size*, *Momentum*, *BM*, *Zero Net Shares*, *Net Shares, Neg Accruals*, *Pos Accruals*, *Asset Growth, Neg Prof Dummy*, and *Positive Profitability*. Detailed definitions of each variable are provided in

the Appendix. We estimate equation 3 month-by-month (where *t* ranges from April 2013 to March 2018).

Insert Table 4 about here

Table 4 reports these results. Reported coefficients are the monthly average slope coefficients and *t*-statistics are based on the time series standard errors. Specification 1 reports the results prior to controlling for other firm characteristics. We find the coefficient on *Inst OIB Rank* is economically small and statistically significant suggesting that institutions' order imbalances do not generally forecast future returns. However, the coefficient on *Inst OIB Rank*Local NDR* is 0.11% and statistically significant (*t*-stat=3.55) implying that institutional trading is significantly more informed for the subset of firms that attended a local NDR. The economic magnitude implies that the stocks most heavily purchased by local institutions following an NDR (i.e., quintile 5) outperform the stocks most heavily sold by local institutions (i.e., quintile 1) following an NDR by roughly 0.44% per month over the subsequent three months.[9] In model 2, we include other firm characteristics as controls. The coefficient increases modestly to 0.14% and remains highly significant. In model 3, we examine if there is a return differential between company sponsored and broker organized NDRs. The difference in economic magnitude is small: 0.13% versus 0.16% for broker versus company sponsored, respectively, albeit the statistical significance for company sponsored NDRs weakens (*t*-stat=1.74).

Private meetings with management are perhaps more valuable for smaller firms with more severe information problems. Further, the ability to detect informed trading is likely higher for smaller firms where large deviations in normal trading patterns are more likely to move the stock. Thus, we separately examine small versus large firms in specifications 4 and 5, respectively. As postulated, for the small firm sample in specification 4, the coefficient estimate on *Inst OIM Rank*Local NDR* is 0.23% and highly significant. On the other hand, the analogous coefficient estimate for large firms is 0.03% and insignificant (*t*-stat=0.78).

4. NDRs and trading commissions

The prior section documents that NDRs generate a substantial increase in trading for nearby institutions, and such trading is particularly informative. We expect institutions will reward brokers

[9] In untabulated analysis, we confirm that we obtain very similar estimates using a portfolio sort approach. In particular, we sort firms into quintiles based on within city-quarter institutional order imbalances and regress the average portfolio returns on the Fama and French (2015) five-factor model plus the Carhart (1997) momentum factor. We find that this generates a statistically significant monthly alpha of 0.42% for firms that attended a local NDR compared to a statistically insignificant -0.06% monthly alpha for all other firms.

for arranging and inviting institutions to these face-to-face meetings through increased commission revenue (Goldstein et al., 2009). Specifically, we expect to observe an increase in commission revenue for hosting brokers surrounding the NDRs.

We measure brokerage commissions using transaction data from Abel Noser (formerly known as Ancerno), a consulting firm that helps institutional investors monitor their transaction costs.[10] Each observation in Abel Noser corresponds to an executed trade. For each trade, Abel Noser provides information on the date of the trade, the firm traded, the commission paid, and the broker who executed the trade.[11] The data stops in June of 2014, so the analysis of trading commissions is limited to broker-sponsored NDRs between January 2013 and June of 2014. We merge the Abel Noser dataset with I/B/E/S by broker name, resulting in a merged sample of 42 I/B/E/S brokers for 6,843 broker-sponsored NDRs.

As a benchmark, we also examine the impact of broker-hosted conferences on commissions. Following Green et al. (2014a), we collect broker-hosted conferences from the Bloomberg Corporate Events Database. This database includes information on the date of the conference, the hosting broker, and the names of each of the presenting companies. The sample includes 16,739 conference presentations from January 2013 through June of 2014.

To examine whether the broker received increased commission during the week of the NDR (or broker-hosted conference) we estimate the following panel regression:

$$Com_{jit} = \beta_1 NDR_{jit} + \beta_2 Conf_{jit} + Broker\text{-}Firm_{ji} + \varepsilon_{jit} \quad (4)$$

The dependent variable, *Com,* is a measure of commissions for brokerage firm *j*, in stock *i*, in week *t*. We consider two measures of commissions: *$Commissions*, defined as the natural log of 1 plus the total dollar commissions for broker *j* in stock *i* during week *t*, and *Commission Share*, defined as the total commissions for broker *j* in stock *i* during week *t* scaled by total Abel Noser commissions across all IBES-Ancerno matched brokers for stock *i* in week *t*. Thus, *$Commissions* allows us to examine whether NDR brokers generate an increase in commission revenue, either due to increased aggregate commissions or a higher percentage of total commissions, while *Commission Share* focuses exclusively on the percentage of total commissions.

Insert Table 5 about here

[10] See Hu, Jo, Wang, and Xie (2018) for a more detailed description of the Abel Noser dataset.

[11] Prior vintages of the Abel Noser data included information on the identity of the institutional investor making the trade, allowing for tests of institutional trading skill (see, e.g., Jame, 2018). However more recent versions that overlap with our NDR sample time period are anonymous.

Our independent variables of interest are *NDR*, a dummy equal to one if a brokerage firm *j* organized an NDR for firm *i*, in week *t*, and *Conf*, a dummy equal to one if a brokerage firm *j* hosted firm *i* at an investor conference in week *t*. All regressions also include broker*firm fixed effects to control for the fact that some brokers tend to have persistently higher level of commissions in certain stocks. We limit the sample to broker-firm pairs with at least one NDR or *Conf* event, and we cluster standard errors by firm and week.[12]

Specifications 1 and 2 report the results for $*Commissions* and *Commission Share*, respectively. We find that *$Commissions* increases by roughly 24% and *Commission Share* increases by 1.23% during the week of the NDR. Both estimates are economically large and statistically significant at a 1% level. The magnitudes are also very similar to the estimates for *Conf* (20% and 1.32%, respectively). The comparable magnitudes are perhaps surprising since a much smaller set of investors attend NDRs relative to conferences, and highlight the perceived value of NDRs to institutional clients.

To paint a more complete pictures of the dynamics of commissions around NDRs, we re-estimate equation 4 after including dummies for whether there was an NDR of the prior two weeks (*NDR [-1,-2]*), prior three to four weeks (*NDR [-3,-4]*), or prior five to eight weeks (*NDR [-5,-8]*). We also examine whether institutions reward brokers for hosting an NDR in advance of the meeting by adding dummies for whether there will be an NDR in the subsequent two weeks (*NDR [1,2]*), subsequent three to four weeks (*NDR [3,4]*), or subsequent five to eight weeks (*NDR [5,8]*). We also include analogous measures for conferences. Specifications 3 and 4 report the results $*Commissions* and *Commission Share*, respectively. We find some evidence of elevated $*Commissions* in the two weeks following the NDR, but no other evidence that institutions reward NDR brokers prior to the NDR. The patterns for broker-hosted conferences are very similar. This is consistent with the view that institutions reward brokers for value-add services with realizations only known *ex post*. In other words, if an institution participated in the NDR, but it was not valuable (i.e., poorly organized, uninformative, etc.) it is unlikely that the institution would reward the broker.

5. NDRs and Analyst Optimism

In the last two sections, we demonstrated that NDRs are valuable to institutions, and, in exchange for valuable management access, institutions allocate commission dollars as payment to the brokerage houses providing these services. In this section, we examine if NDRs are associated with

[12] Due to the inclusion of broker*firm fixed effects, *NDR* and *Conf* cannot be estimated for broker-firm pairs with zero NDRs or Conferences.

analyst bias. The broker's analyst that covers the firm is the responsible agent for NDRs—they organize the logistics, determine invitation lists and make sure the meetings run smoothly. As a result, any commission revenue allocated to the broker from institutions is credited to the sponsoring analyst.[13] Because analyst compensation is based upon the revenue they generate for the broker firm (Groysberg, Healy and Maber, 2011), organizing NDRs can be lucrative to the analyst.

The incentives created by NDRs are similar to the misaligned incentives created by investment banking business. That is, banking business (or NDR business) has the potential to cloud analysts' opinions because analysts may use optimistic ratings as a way to curry favor to management in choosing them for their next deal (Michaely and Womack, 1999; Ljungqvist, Marston and Wilhelm, 2006). However, recent reforms as part of the Global Research Settlement are directed at curbing analyst bias stemming from investment banking including, but not limited to, prohibiting analyst compensation tied to banking business (Corwin, Larocque, and Stegemoller, 2017). No such policies apply to NDRs. Further, in comparison to banking deals or broker-hosted conferences that are well publicized, NDRs are under the radar, making it much more difficult for investors (particularly smaller, less-sophisticated investors) to detect and adjust for this bias.

5.1 Univariate statistics of NDR versus Non-NDR Brokers

We begin this section by reporting univariate statistics of analyst and broker characteristics, including measures of analyst bias. The sample includes all broker-firm-months where the broker is covering a firm. We report summary statistics where a broker took a firm on an NDR in the past 6 months (NDR6=1 or *NDR Brokers*) versus all other broker-firm months (NDR6=0 or *Non-NDR Brokers*). The sample includes 2,431,875 broker-firm-month observations of which roughly 4.5% are *NDR Broker*s.

Panel A reports analyst and broker characteristics. Detailed definitions of the analyst and broker characteristics are available in the Appendix. The largest difference between the groups is that *NDR Brokers* are also significantly more likely to host the firm at a broker-hosted conference. Interestingly, there is no meaningful difference between *NDR Brokers* and *Non-NDR Brokers* with respect to banking affiliation status (2.84% versus 2.97%, respectively).

Insert Table 6 about here

[13] Our discussions with a buy-side investor confirmed the commission allocation dynamics. He noted that he allocates trades for broker services that he finds valuable. He has the ability to insert "notes" that the Director of Research can observe. For instance, if he was invited to participate in an NDR that he found valuable, he would direct trades to the sponsoring analysts' firm and indicate the reason (i.e., analyst *A's* roadshow with firm *X*).

Panel B provides statistics on three measures of analyst optimism: recommendation level (*Rec Level), Target Return*, and *Target Return Bias.*[14] *Rec Level* is a rating from 1 to 5 using the following scale: 1=strong buy, 2=buy, 3=hold, 4=sell/underperform, and 5=strong sell. *Target Return* is the 12-month expected return (excluding dividends) implied from broker *j*'s most recent 12-month price forecast of firm *i* as of month *t*, computed as (Forecast $\text{Price}_{jit}/\text{Price}_{it-1}$)-1.[15] Lastly, *Target Return Bias* is the difference between the *Target Return* and the 12-month realized return (excluding dividends).

Across all three measures, we find that *NDR Brokers* are significantly more optimistic than *Non-NDR Brokers*. For instance, the mean average recommendation level for *NDR Brokers* is 1.98 compared to 2.40 for *Non-NDR Brokers*. This difference is economically large, particularly relative to the cross-sectional standard deviation of *Rec Level* of 0.89. Similarly, *NDR Brokers'* price targets imply an expected return of 28.34% compared to only 18.93% for *Non-NDR Broker.*, a spread of 9.41%. The spread in *Target Return Bias* actually increases slightly to 11.46%, suggesting that the higher target prices of *NDR* brokers are not associated with higher realized returns.

5.2 Multivariate regressions of analyst optimism

To more thoroughly examine the univariate results from the previous section, we consider a multivariate regression model that controls for other determinants that are likely to influence analyst research optimism. The formal model is below:

$$\text{Analyst Optimism}_{jit} = \beta_1 \text{NDR6}_{jit} + \beta_2 \text{Conf6}_{jit} + \beta_3 \text{Affiliated6}_{jit} + \text{Controls} + \text{FE} + \varepsilon_{jit} \quad (5)$$

where *Analyst Optimism*$_{jit}$ is either *Rec Level* (Specifications 1 and 2) or *Target Return* (Specification 3 and 4).[16] Specifications include either month or paired firm-month fixed effects with standard errors clustered by firm and month.

The main variable of interest is *NDR6*. We also include other brokerage activities that have the potential to impact analyst bias. *Conf6* (*Affiliated6*) is a dummy variable equal to one if the firm participated in the broker's conference (was a banking client) in the past 6 months, zero otherwise. Not only are *Conf6* and *Affiliated6* important controls, but they also provide a useful benchmark for gauging the magnitude of the bias associated with NDRs.

[14] We also examine measures of optimism based on quarterly earnings forecasts in Section 5.4.2.
[15] The exclusion of dividends from estimated target returns follows recent literature (e.g., Loudis, 2018; and Bali, Hu, and Murray, 2017).
[16] In untabulated analysis, we find that use *Target Return Bias* yields virtually identical estimates to *Target Return*.

The remaining variables in the specification (Controls) are common broker and analyst-specific controls. *Log (Broker Size)* is the natural log of the number of active analysts that a broker employs and is used as a measure of broker prestige and reputation. *Log (Firm experience)* and *Log (Experience)* are the natural logs of the analysts' firm-specific forecasting experience and overall analyst experience, respectively. Both are designed to capture expertise and accuracy. *Log (Firms Followed)* is the natural log of the analysts' coverage portfolio. Analysts with larger coverage portfolios, i.e., busy analysts, have less time to allocate to each individual firm in their portfolio and therefore their accuracy may be hindered. Finally, *All-Star* is an indicator variable equal to one if the analyst was chosen for *Individual Investor's* annual all-star poll, zero otherwise. All-stars have reputational capital to protect and generally are thought to be less inclined to issue biased forecasts (Stickel, 1992, Fang and Yasuda, 2009).

Insert Table 7 about here

Table 7 reports the estimates. In specification 1, *NDR6* has a coefficient value of -0.39 with a t-statistic of -36.4. This implies that analysts are close to a ½ recommendation–level more optimistic for firms that they have taken on an NDR in the past six months. To put this in perspective, the coefficient on *Conf6* is -0.13 and highly significant. Likewise, *Affiliated6* is a comparable -0.14 and also highly significant. Thus, when controlling for brokers' other activities and broker and analyst characteristics, excess optimism for *NDR Brokers* is roughly three times as large as the excess optimism for brokers with a conference-hosting or banking affiliation. The coefficients on the remaining controls are largely consistent with prior research. For example, more reputable analysts, as proxied by broker size or all-star status, issue less optimistic ratings, while more experienced analysts tend to issue more optimistic recommendations.

In specification 2, we include firm-month paired fixed effects. This specification compares NDR Brokers research to Non-NDR Brokers research for the same firm at the same time.[17] The estimate on *NDR6* declines, but remains economically large at -0.26 and highly statistically significant (*t*-stat=27.7).[18] The inclusion of firm-month fixed effects has a more severe impact on the coefficients *Conf6* and *Affiliated6*. The point estimates now suggest that the excess optimism for *NDR Brokers* is more than six times as large as the excess optimism for brokers with a conference-hosting relation, and nearly four times as large as brokers with an investment banking affiliation.

[17] The inclusion of firm-time fixed effects also control for any confounding firm characteristics (e.g., firm size or book-to-market) that may influence bias.

[18] If other brokers are also competing for NDR business, they may also become optimistic for NDR firms, which would reduce the relative bias of NDR Brokers. We explore the behavior of other brokers around NDRs in Table 8.

Specifications 3 and 4 present analogous results where *Target Return* is the dependent variable. Similar to recommendation levels, *NDR Brokers* issue significantly more optimistic target prices. For example, in Specification 4, the coefficient estimate implies that NDR analysts issue 12-month target prices that are 4.5% more optimistic than non-NDR analysts. The economic magnitudes continue to be more than three times as large as the optimism associated with hosting a firm at a conference (1.28%) or being the lead underwriting for an investment banking deal (1.47%).

To offer a richer description of the dynamic relation between analyst optimism and NDRs, we also examine differences in *Rec Level* of *NDR Brokers* relative to *Non-NDR Brokers* covering the same firm at the same time in event time.[19] Figure 1 plots the *Abnormal Rec Level* of *NDR Brokers* from months – 36 to +36, when month 0 is the month of the NDR. Across all months, we find that *NDR Brokers* issue more optimistic recommendations. However, we find that the optimism steadily increases in the three years prior to the roadshow and then gradually declines in the three years following the roadshow. The event-time patterns are consistent with *NDR Brokers* attempting to curry favor with management in the period immediately prior to the *NDR* by issuing even more optimistic research.

Insert Figure 1 about here

5.3 NDR Broker Optimism: Strategic or Sincere?

The evidence from the previous section suggests that *NDR Brokers* issue significantly more optimistic research than other brokers covering the same firm at the same time, and this optimism peaks in the period immediately surrounding the NDR. Further, the evidence analyzing *Target Return Bias* suggests that the differences cannot be justified by ex-post superior performance. Collectively, these findings are consistent with NDR Brokers strategically issuing optimistically biased research in order to gain favor with management and increase the likelihood that they take the firm on an NDR (hereafter *Strategic Optimism*). However, an alternative explanation is that some analysts are sincerely optimistic about a firm's prospect and firms (perhaps unsurprisingly) select these optimistic firms to organize their NDRs (hereafter *Sincere Optimism* or *Selection*).[20] Unfortunately, the analysts' mindset while making a recommendation is unobservable, which makes distinguishing these explanations with certainty very difficult. Nevertheless, in this section we offer two empirical tests aimed at disentangling *Strategic* versus *Sincere Optimism*.

[19] Results using *Target Prices* are qualitatively similar.

[20] We note that even the more innocuous *Sincere Optimism* explanation implies that brokers face strong incentives to issue optimistic research to win NDRs, but argues that brokers (for whatever reason) do not respond to these incentives.

5.3.1. Optimism of Competing versus *Non-Competing Brokers around NDRs*

Our first test builds on the findings in Figure 1 that *NDR Brokers* increase their optimism in the year leading up to the NDR. Because this test is *ex-post* (i.e., it focuses on the broker that was ultimately selected) it is difficult to distinguish *Strategic Optimism* from *Selection*. A superior test would be to compare brokers that were competing for the *NDR* (but were not necessarily selected) versus brokers that were not competing for the *NDR*. The *Strategic Optimism* explanation would predict that brokers that are competing for *NDR* should increase their optimism more than otherwise similar brokers that are not competing for the *NDR*.

This test requires identifying brokers that are ex-ante more likely to be competing for the NDR business. We conjecture that brokers that have taken the firm on an NDR in the past are more likely to win *NDR* business again, and we find strong empirical support for this prediction in the data.[21] Thus, our empirical test compares changes in recommendation optimism from *t-12* to *t* for brokers that have taken the firm on an NDR at any point prior to month *t-12 (Competing NDR Brokers*) relative to all other brokers that are covering the same firm at the same time and have the same recommendation level as of *t-12* (hereafter *matched brokers*). We match on recommendation level as of *t-12* to control for the fact that changes in optimism will be a function of existing optimism.

As a reference point, Panel A of Table 8 first tabulates the results for the brokers that were ultimately selected. Specifically, it compares the changes in optimism of the brokerage firm that was selected for the NDR relative to all other brokers with the same recommendation level as of *t-12*. We find that the NDR broker revised its recommendation upwards from month *t-12* to month *t* in 16.87% of cases, compared to only 7.54% of cases for matched brokers, and the difference of 9.32% is highly significant. Similarly, the NDR broker revise downwards in only 9.13% cases compared to 14.54% for matched brokers, and the difference of -5.41% is also highly significant.

Panel B of Table 8 reports analogous results, after replacing the selected broker with *Competing NDR Brokers*. We find strong evidence that *Competing NDR Brokers* increase their optimism relative to non-competing matched brokers. For example, in the year preceding the NDR, C*ompeting NDR Brokers* issues upgrades 12.52% of the time compared to only 6.52% for matched brokers, and the difference of 9.32% is highly significant. Similarly, C*ompeting NDR Brokers* are less likely to issue downgrades

[21] For example, we find the probability of an *NDR6 Broker* taking the same firm on the road over the subsequent six months (i.e., t+1, t+7) is 27%, compared to only 3% for *Non-NDR6 Brokers*. The difference of 24% is highly significant (t=58.80).

relative to non-competing matched brokers. The evidence from Panel B of Table 8 is consistent with brokers that are competing for NDR business increasing their optimism in the period leading up to the NDR in order to curry favor with management. Further, because the analysis does not condition on ex-post selection, the evidence is harder to reconcile with a selection effect.

5.3.2. Optimism of Earnings Forecasts

Our second approach to disentangling strategic versus sincere optimism builds off of the intuition of Malmendier and Shanthikumar (2014). They argue that sincerely optimistic brokers will issue both optimistic recommendations and optimistic earnings forecasts, while strategically optimistic brokers will issue optimistic recommendations coupled with more negative (or "beatable") earnings forecasts. Intuitively, since earnings forecasts are a critical input into recommendation levels (see, e.g., Brown et al., 2015), a broker with sincerely optimistic recommendation will tend to have more optimistic earnings projections as well. On the other hand, since managers generally like both optimistic recommendations and beatable earnings targets (Richardson, Teoh, and Wysocki, 2004), brokers attempting to curry favor with management have incentives to issue optimistic recommendations coupled with more pessimistic quarterly earnings forecasts.

To distinguish between these explanations, we re-estimate equation 5 after replacing the dependent variable with two measures of pessimism from quarterly earnings forecasts. The first, *MBE*, is a dummy variable equal to one if the firm's realized earnings meets or beats the analyst's estimated earnings. The second, *Relative Earnings Pessimism*, is computed: [(*Rank* – 1)/ (*Number of Analysts* -1)].[22] *Rank* is the rank of the analysts' forecasted earnings estimate, where the highest estimate is given a rank of 1, the second highest estimate is given a rank of 2, etc., and *Number of Analysts* is the number of analysts issuing a forecast in the firm-quarter.[23] Thus, higher values of *MBE* and *Relative Earnings Pessimism* indicate greater pessimism.

Table 9 reports the results. Specifications 1 and 2 document a significant positive relation between *NDR6* and *MBE*. Similarly, Specifications 3 and 4 document a positive relation between *NDR6* and *Relative Earnings Pessimism*. Both results suggest that *NDR Brokers* tend to issue overly pessimistic quarterly earnings forecasts. This finding is consistent with *Strategic Optimism* and inconsistent with *Sincere Optimism*.

[22] In untabulated analysis, we also consider a third measure of pessimism, Bias/Prc, defined as the difference between realized earnings and an analyst's forecasted earnings, scaled by price in the prior year. Results are qualitatively similar.
[23] This measure is analogous to the relative accuracy measure developed in Hong and Kubik (2003).

5.4 Market reactions to recommendations changes

Our final set of tests examine the market reaction to the recommendation changes of *NDR Brokers*. Given the existing evidence, we expect that *NDR Brokers* are relatively eager to issue upgrades and relatively reluctant to issue downgrades. Accordingly, upgrades may be less informative (and thus associated with less positive returns relative to other upgrades), while downgrades may be more informative (and thus associated with more negative returns relative to other downgrades).[24]

To test this possibility, we examine the market reaction to upgrades and downgrades by *NDR Brokers* relative to other brokers. Since analysts often change their recommendations in response to publicly announced information, it is important to purge observations that overlap with important confounding events. Accordingly, we follow Loh and Stulz (2011) and Bradley et al. (2014) and delete observations that occur within +/- 1 day of earnings announcements and earnings guidance, and we also delete observations when multiple analysts change their recommendation on the same firm-day. We estimate the market response to *NDR Brokers* downgrades (or upgrades) using the following model:

$$Ret_{it} = \beta_1 NDR6_{jit} + \beta_2 Conf6_{jit} + \beta_3 Affiliated6_{jit} + \beta Controls + FE + \varepsilon_{jit} \quad (6)$$

The dependent variable is the buy-and-hold DGTW-adjusted return estimated over both a 2-day window [0, 1], as well as a longer [2, 63] day window.[25] We consider both a shorter and longer window, because it is unclear if the market will immediately detect potential biases associated with NDR recommendations. As discussed previously, unlike banking affiliations where participating underwriters are easily verifiable through many sources (including now required explicit disclosure), NDRs are not well publicized so it is unlikely that all market participants are unaware of the relationship, suggesting there may be a possible drift following the recommendation changes.

The key independent variable is *NDR6*, as defined previously. We also continue to include *Conf6* and *Affiliated6* as benchmarks. Controls is a vector of controls similar to those in equation 5 with a few exceptions. We include the absolute value of the recommendation change, *Abs (Rec Change)* (i.e., upgrade from hold to strong buy equals 2 notches on the 5-point scale). Additionally, we include a series of firm-specific characteristics that may help explain the market return. These are short-term

[24] This intuition is similar in spirit to the large literature beginning with Michaely and Womack (1999) that examines the price reaction following recommendation changes by affiliated brokers. Other related work includes Bradley, Jordan, and Ritter (2008), Barber, Lehavy, and Trueman (2007), and Kadan, Madureira, Wang, and Zach (2009).

[25] See Daniel, Grinblattt, Titman, and Wermers (1997) for a detailed discussion of the construction of DGTW-adjusted returns.

and long-term momentum (*Mom1* and *Mom2-12*, respectively), the natural logs of book-to-market (*Log BM*), turnover (*Log Turn*), total analyst coverage (*Log Coverage*), firm age (*Log Age*) and idiosyncratic volatility (*IVOL*). Year and analyst fixed effects are included in each specification and standard errors are clustered by firm.

Panel A of Table 10 presents the results for downgrades. Specification 1 reports estimates for the (0,1)-day window for the full sample. The coefficient estimate on *NDR6* is negative and statistically significant. The estimate implies that NDR analysts' downgrades are associated with a -0.75% more negative market reaction. This finding is consistent with the market viewing downgrades from *NDR Brokers* as particularly informative. We find no evidence of a drift over the subsequent quarter (Specification 2), which is consistent with the markets efficiently incorporating the information embedded in downgrades by *NDR Brokers*. The other estimates are largely consistent with prior literature. For example, market reactions are greater for larger recommendations changes, smaller stocks, stocks with less coverage, and more volatile stocks.

Specifications 4-6 report the results for small stocks, defined as those below the NYSE median-year breakpoint. The motivation for examining small stocks is two-fold. First, analysts' research tends to be more impactful among smaller stocks (Loh and Stulz, 2011), suggesting the impact of *NDR Broke*r bias may be particularly large among smaller stocks. Second, smaller stocks tend to be held by a less sophisticated investor base, pointing to the possibility that the market may be less efficient in incorporating *NDR Brokers'* bias, suggesting greater scope for a potential downward drift.

We confirm the average market reaction to downgrades is stronger among smaller stocks (-3.05% for small stocks compared to -2.01% for the full sample). Likewise, the market reaction to *NDR Brokers* recommendation changes is larger in economic magnitude (-1.29% vs -0.75%). The incremental post-recommendation drift is also larger, -1.85%, but still statistically insignificant. However, the cumulative effect [0,63] is statistically significant and economically meaningful (-3.03%).

Panel B presents analogous results for upgrades. The immediate market reaction for *NDR Upgrades* is small and statistically insignificant, and there is some weak evidence of a downward drift in smaller stocks. The cumulative [0,63] returns associated with NDR Upgrades are -0.57% for the full sample (Specification 3) and -2.23% for the subset of smaller firms (Specification 6). The negative point estimates are directionally consistent with our prediction that upgrades by *NDR Brokers* are less

informative, however the estimates are not reliably different from zero.[26] In sum, we find *NDR Downgrades* are significantly more informative than other downgrades, while *NDR Upgrades* are not more informative. These patterns are consistent with the pessimistic research of *NDR Brokers* being more influenced by informational reasons relative to their optimistic research.

6. Conclusion

We examine the capital market consequences of NDRs for institutional trading and analyst conflicts of interest. We find that institutions located close to a city where a firm attends an NDR substantially increase their trading in the firm. Moreover, the order imbalances of local institutions forecasts future returns, suggesting that NDRs provide local institutional investors a significant informational edge. We also document that institutions reward the analysts that organizes the NDR for providing valuable management access through increased commission revenues.

The commission revenues result suggests that NDRs can be lucrative for analysts and thus create incentives for analyst conflicts in the same fashion that banking business creates potential for bias. Our remaining tests provide evidence consistent with this view. Specifically, we show that brokerages that recently took a firm on a roadshow have significantly more optimistic recommendations and target price forecasts, and the optimism peaks in the NDR event month. We also find that brokerage firms that are more likely to be competing for NDR business are significantly more optimistic in the period leading up to the NDR, consistent with analysts intentionally biasing their forecasts to increase the likelihood that they are chosen for the upcoming NDR. Finally, we document that while NDR brokers issue *more* optimistic recommendations and target price, they issue *less* optimistic short-term earnings forecasts. This seemingly incongruent pattern is consistent with *NDR Brokers* research suffering from strategic distortions aimed at currying favor with management (Malmendier and Shanthikumar, 2014).

Our findings have direct implications regarding two of the most important regulatory reforms pertaining to sell-side analysts in the past several decades: Regulation Fair Disclosure (Reg FD) and the Global Research Settlement. In the interest of providing more equal access to information across investors, Reg FD prohibits the selective disclosure of material information. However, it does continue to allow for private meetings between investors and management provided material, non-public information is not disclosed. Our results suggests that NDRs are providing an informational

[26] We do, however, find that the coefficient on *NDR6* is significantly less than the coefficient on *Conf6* suggesting that *NDR Brokers* upgrades are less informative relative to other brokers with recent access to management.

advantage to local institutional investors that are more likely to attend these meetings. We acknowledge that this information advantage need to not relate to material information. For example private meetings may allow institutional investors to benefit by combining public information with nonmaterial nonpublic information (i.e., the "mosaic theory"). Nevertheless, at a minimum, our results suggests that NDRs run counter to Reg FD's stated objective of creating a more level playing field.

The Global Research Settlement (and other related regulation including NYSE Rule 472 and NASD Rule 2711), aims to minimize analyst conflicts of interest by severing the ties between the corporate finance and research divisions of investment banks, including analyst compensation tied to generating banking business. The regulations also mandates improved disclosure, including disclosing whether the brokerage house has an investment banking affiliation with the firm. Importantly, NDRs do not fall under the Global Research Settlement or related regulations, yet our evidence suggests the potential conflicts are just as economically large. Further, in comparison to banking deals where the organizing broker is already publically available, NDRs are generally not publically disclosed, making it much more difficult for investors to recognize this bias. This raises the important question of whether brokers should also be required to disclose any NDR affiliation with a firm.

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Appendix: Variable Definitions

A.1 Firm Characteristics

- *Recognized Intangibles*: recognized intangibles (33) divided by total assets (6) Winsorized at the 99th percentile. (Source: Compustat)
- *(R&D + ADV)/OE*: R&D expense (46) plus advertising expense (45) divided by total operating expenses. Missing values of R&D and Advertisting are set equal to zero. Winsorized at the 99th percentile. (Source: Compustat)
- *Institutional Ownership*: the percentage of the firm's shares held by institutions at year end. Winsorized at 100%. (Source: Thomson Reuters S34)
- *Number of Institutions*: the number of institutions holding firm shares at year end. (Source: Thomson Reuters S34)
- *Turnover*: the average daily turnover (i.e., share volume scaled by shares outstanding) over all trading days in the year. Winsorized at 99th percentile. (Source: CRSP)
- *R-squared*: the r-squared from an annual regression of a firm's daily returns on the market (value-weighted CRSP index) returns. Winsorized at the 99th percentile. (Source: CRSP)
- *Firm Age*: the number of years since the firm first appeared on CRSP. (Source: CRSP)
- *SEO*: a dummy variable equal to one if a firm will issue a Seasoned Equity Offering in the next two years. (Source: SDC)
- *M&A Acquirer*: a dummy variable equal to one if a firm will acquire another firm in the next two years (Source: SDC)
- *Idiosyncratic Risk:* the square root of the mean squared residual from an annual regression of a firm's daily returns on the market (value-weighted CRSP index) returns.
- *Size*: the market capitalization computed as share prices times total shares outstanding at the end of June (Source: CRSP).
- *Book-to-Market (BM):* the book-to-market ratio computed as the book value of equity during year *t-1* scaled by the market capitalization at the end of the calendar year. Negative values are deleted and positive values are winsorized at the 99th percentile. (Source: CRSP/Compustat).
- *Mom1:* the return in the prior month. (Source: CRSP).
- *Mom2_12:* the return in the prior two to twelve months. (Source: CRSP).
- *Net Shares*: the natural log of the ratio of the split-adjusted share outstanding at the fiscal year end in *t-1* divided by the split adjusted shares outstanding at the fiscal year end in *t-2*. (Source: Compustat).
    - *Zero Net Shares:* a dummy equal to one for firms with zero *Net Shares*, and zero otherwise.
- *Accruals:* the change in operating working capital per split-adjusted share from *t-2* to *t-1* divided by book equity (60) per split adjusted share at *t-1*. Operating working capital is current assets (4) minus cash and short-term investments (1) minus current liabilities (5) plus debt in current liabilities (34). (Source: Compustat).
    - *Pos. Accruals:* this equals *Accruals* for firms with positive *Accruals* and 0 otherwise.
    - *Neg. Accruals:* this equals *Accruals* for firms with negative *Accruals* and 0 otherwise.
- *Asset Growth:* the natural log of the ratio of total assets (6) per split-adjusted shares at the fiscal year in *t-1* divided by total assets per split-adjusted share at the fiscal year end in *t-2*. (Source: Compustat).

- *Profitability:* equity income before extraordinary items (18) minus dividends on preferred (19) plus income statement deferred taxes (50), scaled by book equity (60). (Source: Compustat).
    - *Pos. Profitability:* this equals *Profitability* for firms with positive *Profitability* and 0 otherwise.
    - *Neg. Profitability:* this equals *Profitability* for firms with negative *Profitability* and 0 otherwise.

A.2 Institutional Trading Measures

Note: in all tests, institutional trading measures are computed at the firm-quarter-city level. In computing institutional trading measures, we limit the sample to local institutional investors, defined as institutional investors that are headquartered within 100 kilometers of the city's downtown.

- *Total Trading*: institutional share trading volume, scaled by shares outstanding. (Source: Thomson Reuters S34)
- *Abs Net Trading*: The absolute value of institutional buy volume less institutional sell volume, scaled by shares outstanding. (Source: Thomson Reuters S34).
- *Net Trading*: Institutional buy volume less institutional sell volume, scaled by shares outstanding. (Source: Thomson Reuters S34)
- *Institutional OIB Rank:* a quintile ranking of net trading. The ranking is computed at the city-quarter level. (Source: Thomson Reuters S34).

A.3 Commission Measures

- *$Commissions:* the natural log of 1 plus the total dollar commissions for broker *j* in stock *i* during week *t*. (Source: Abel Noser).
- *Commission Share:* the total commissions for broker *j* in stock *i* during week *t* scaled by total Ancerno commissions across all IBES-Ancerno matched brokers for stock *i* in week *t*. (Source: Abel Noser).

A.4 Analyst and Broker Characteristics

- *NDR6:* A dummy variable equal to one if broker *j* has taken stock *i* on an NDR over the past six months (i.e., t through t-5), and zero otherwise. (Source: FLY).
- *Conf6:* A dummy variable equal to one if broker *j* hosted stock *i* at one of its investor conferences of the past six months (i.e., t through t-5), and zero otherwise. (Source: Bloomberg Corporate Events Database).
- *Affiliated6:* A dummy variable equal to one if broker *j* was a lead underwriter for firm *i* for an equity (IPO or SEO) offering or debt offering, or was the lead advisor on an M&A over the past six months, and zero otherwise. (Source: SDC).
- *Broker Size:* the total number of analysts issuing an earnings forecasts for brokerage firm *j* during year *t*. (Source I/B/E/S).

- *Total Experience:* the number of years since analyst *j* first issued an earnings forecast for any firm. (Source I/B/E/S).
- *Firm Experience:* the number of years since analyst *j* first issued an earnings forecast for firm *i*. (Source I/B/E/S).
- *All-Star:* a dummy variable equal to one if analyst *j* is ranked as an All-American (first, second, third, or runner-up) in the annual polls. (Source: *Institutional Investor Magazine*).
- *Firms Followed*: the number of firms followed by analyst *j* in year *t*. (Source I/B/E/S).

A.5 Research Outputs:

- *Rec Level:* The most recent outstanding recommendation of broker *j* for firm *i* in month *t*. If the brokerage firm *j* has not issued a recommendation for firm *i* in the previous 24 months, we set the value to missing. Recommendations are converted to numeric values using the following scale: 1 for strong buy, 2 for buy, 3 for hold, 4 for sell/underperform, and 5 for strong sell. (Source I/B/E/S).
- *Target Return:* the 12 month expected return (excluding dividends) implied from broker *j*'s most recent price forecast of firm *i* as of month *t*, computed as (Forecast $\text{Price}_{jit}/\text{Price}_{it-1}$) -1. The sample is limited to 12-month ahead forecasts. If the brokerage firm *j* has not issued a target price for firm *i* in the previous 24 months, we set the value to missing. We winsorize at the 1st and 99th percentile. (Source I/B/E/S).
- *Target Return Bias:* the difference between the *Target Return* and the 12-month realized return (excluding dividends). We winsorize at the 1st and 99th percentile. (Source IBES).
- *Meet or Beat*: A dummy variable equal to one if firm *i's* realized quarterly earnings are greater than analyst *j's* most recent quarterly earnings forecast for firm *i* as of month *t*. (Source I/B/E/S).
- *Relative Earnings Pessimism* : [(*Rank* – 1)/ (*Number of Analysts* -1)]. *Rank* is the rank of the analysts' forecasted earnings estimate, with the highest estimate value being given a ranking of 1, the second highest estimate is given a rank of 2, etc., and *Number of Analysts* is the number of analysts issuing a forecast in the firm-quarter. (Source I/B/E/S).

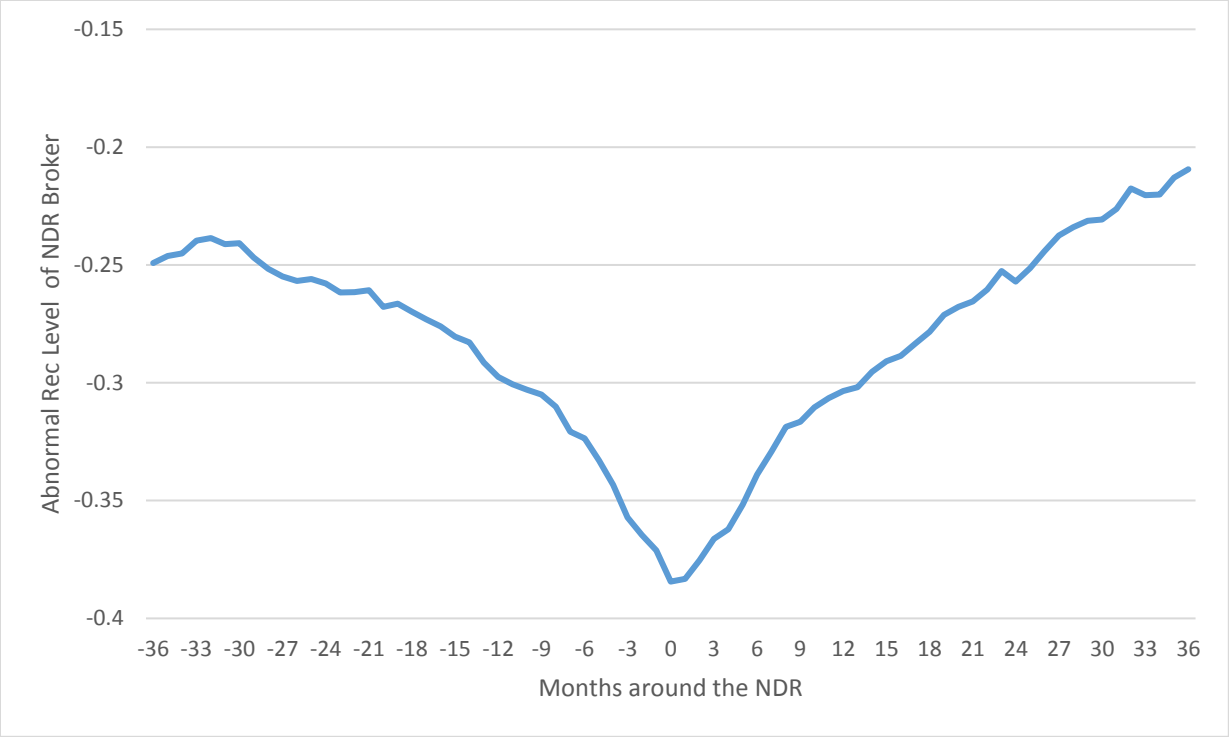

Figure 1: Relative Recommendation Optimism of NDR Broker around Non-Deal Roadshows
For each NDR, we report the recommendation level of the brokerage firm that takes the firm on the NDR (*NDR Broker)* relative to all other brokerage firms covering the same firm during the same month (*Abnormal Rec Level)*. We plot *Abn Rec Level* from three years prior to the roadshow (-36) to three years after the roadshow (+36).

Table 1: Non-Deal Roadshow (NDR) Summary Statistics

This table reports summary statistics for the sample of non-deal roadshows obtained from Theflyonthewall.com (FLY) for the period January 2013 to December 2017. NDR-Locations reports the total number of unique firm-date-location NDRs (i.e., Apple, 1/3/2013, New York City), NDR reports the number of unique firm-date NDRs (i.e., Apple 1/3/2013), firms is the number of unique firms that went on a roadshow, and brokers is the number of unique brokerage firms that organized a roadshow. We report summary statistics for the full FLY data that could be merged with CRSP (*Full Sample)*, the sample of roadshows that took place in the top 30 NDR Destinations (*Top 30 City),* roadshows organized by the company (*Company Sponsored*), by the broker (*Broker Sponsored*), and by brokers with coverage of the firm in I/B/E/S (*Broker Sponsored & IBES*). Panel B reports the frequency of NDRs for the top 30 NDR destinations. It also reports the fraction of total institutional trading that is driven by institutional investors that are located within 100 kilometers of the city (*Inst. Trading* (%)), averaged across all stocks.

Panel A: Roadshow Statistics

	NDR-Locations	NDRs	Firms	Brokers
Full Sample	58,705	52,000	5,743	110
Subsamples:				
Top 30 City	35,438	32,015	4,569	106
Company Sponsored	20,324	20,302	5,723	0
Broker Sponsored	40,238	33,590	4,310	110
Broker Sponsored & IBES	33,327	27,468	3,458	85

Panel B: Top 30 NDR Destinations

	Total NDRs	Broker Sponsored	Company Sponsored	Inst. Trading (%)
New York	11,382	8,221	3,161	34.38
Boston	5,268	4,850	418	11.82
Chicago	2,895	2,496	399	3.64
San Francisco	2,893	2,563	330	7.38
Los Angeles	1,728	1,527	201	4.34
Denver	1,242	1,062	180	1.65
Dallas	1,033	762	271	1.43
Minneapolis	1,019	922	97	1.11
Kansas City	1,001	957	44	1.17
Houston	995	436	559	1.44
Milwaukee	908	817	91	1.00
Philadelphia	816	631	185	2.17
San Diego	727	481	246	0.61
Atlanta	648	360	288	1.65
Baltimore	635	604	31	4.06
Portland	407	337	70	0.26
Seattle	383	264	119	1.31
Austin	366	233	133	0.83
St. Louis	296	229	67	1.50
Detroit	249	219	30	0.51
Salt Lake City	234	147	87	0.56
Las Vegas	217	87	130	0.03
San Jose	216	20	196	3.67
Orlando	188	108	80	0.67
Charlotte	186	73	113	0.65
Washington DC	173	32	141	3.86
Cleveland	147	71	76	0.13
Wilmington	144	82	62	1.90
Columbus	137	60	77	0.15
Cincinnati	131	48	83	0.64

Table 2: Determinants of Non-Deal Roadshows (NDRs)

This table presents results from a linear probability model. In Specification 1, the dependent variable is a dummy variable equal to one if the firm attends any Non-Deal Roadshows (NDRs) in the firm-month and zero otherwise. In Specifications 2 and 3, the dependent variable is a dummy variable equal to one if the firm attends any Broker-Sponsored NDR or Company-Sponsored NDR, respectively. All independent variables are defined in Appendix A. All continuous variables are standardized to have mean zero and unit variance. All specifications include time fixed effects and standard errors are clustered by firm, with t-statistics reported in parentheses below the corresponding coefficient estimate. The sample includes the universe of CRSP-Compustat firms with non-missing data for all the independent variables. The sample spans from 2013-2017 and includes 233,764 firm-month observations.

	ALL NDRs	Broker NDRs	Company NDRs
	[1]	[2]	[3]
Recognized Intangibles	1.29%	0.99%	0.41%
	(9.69)	(8.16)	(7.04)
(R&D + ADV)/OE	1.26%	1.19%	0.19%
	(9.72)	(9.76)	(3.62)
Log (MB)	1.65%	1.00%	0.73%
	(13.00)	(9.66)	(11.45)
Idiosyncratic Risk	0.31%	0.24%	0.08%
	(2.33)	(2.18)	(1.14)
Institutional Ownership	1.31%	1.39%	0.03%
	(7.26)	(8.52)	(0.39)
Log (Firm Age)	0.39%	0.05%	0.37%
	(3.42)	(0.44)	(7.03)
Net Shares	0.27%	0.12%	0.14%
	(2.97)	(1.50)	(3.13)
SEO	0.01%	-0.01%	0.00%
	(0.04)	(-0.04)	(0.02)
M&A - Acquirer	0.58%	0.52%	0.10%
	(2.80)	(2.71)	(1.14)
Log (Analyst Coverage)	2.13%	1.51%	0.77%
	(10.85)	(9.04)	(8.13)
Log (Number of Institutions)	0.48%	-0.15%	0.62%
	(1.82)	(-0.69)	(4.53)
Log (Firm Size)	0.33%	0.59%	-0.11%
	(1.27)	(2.67)	(-0.84)
Log (Turnover)	0.54%	0.42%	0.16%
	(3.78)	(3.59)	(2.16)
R-squared	0.67%	0.34%	0.32%
	(4.36)	(2.46)	(4.22)
Mom1	0.46%	0.32%	0.18%
	(7.37)	(7.08)	(3.84)
Mom2_12	1.17%	1.07%	0.20%
	(13.41)	(13.61)	(4.48)
Fixed Effects	Time	Time	Time
R-squared	7.95%	4.19%	8.42%
Mean of Dependent Variable	13.09%	7.09%	6.63%

Table 3: Intensity of Local Institutional Trading around NDRs

This table examine the intensity of institutional trading around local NDRs. The unit of observation is a firm-city-quarter. The sample spans from 2013-2017, includes all firms in the CRSP-Compustat universe, and includes the 30 cities reported in Panel A of Table 1. For each firm-city-quarter, we compute *Total Trading* as the total volume traded by institutions located within 100 kilometers of the city (*Local Institutions*), scaled by shares outstanding, and we compute *Total Net Trading* as Abs (Total Buying – Total Selling), where *Total Buying (Total Selling)* is the total volume purchased (sold) by local institutions, scaled by shares outstanding. Panel A presents a univariate comparison of *Total Trading* and *Total Net Trading* when the firm went on a NDR to that city in that quarter (i.e., Local NDR =1) versus all other firm-quarters (i.e., Local NDR =0). Panel B presents regression results that controls for city fixed effects and either firm or quarter fixed effects (Specifications 1 and 4) or firm*quarter fixed effects (Specification 2, 3, 5, and 6). Standard errors are clustered by quarter, with *t*-statistics reported in parentheses below the corresponding coefficient estimate. The sample includes 2,379,529 firm-city-quarter observations.

Panel A: Univariate Comparison

	Local NDR = 1			Local NDR = 0		
	N	Mean	Median	N	Mean	Median
Total Trading	23,373	1.96%	0.37%	2,356,156	0.34%	0.00%
Total Net Trading	23,373	1.19%	0.21%	2,356,156	0.25%	0.00%

Panel B: Regression Results

	Total Trading			Total Net Trading		
	[1]	[2]	[3]	[4]	[5]	[6]
Local NDR	0.42%	0.43%		0.22%	0.22%	
	(20.19)	(20.40)		(16.01)	(16.50)	
NDR	-0.02%			-0.01%		
	(-6.68)			(-5.38)		
Local NDR - Broker			0.42%			0.22%
			(16.81)			(13.70)
Local NDR - Company			0.43%			0.22%
			(8.70)			(7.19)
City Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter Fixed Effects	Yes	No	No	Yes	No	No
Firm Fixed Effects	Yes	No	No	Yes	No	No
Firm * Quarter Fixed Effects	No	Yes	Yes	No	Yes	Yes

Table 4: NDRs and the Informativeness of Local Institutional Trading

This table reports average slopes and t-statistics from Fama-Macbeth monthly regressions to predict returns. Specifically, each month from January 2013 to December 2017, we estimate panel regressions where the unit of observation is a firm-city. The sample includes all firms in the CRSP-Compustat universe, and includes the 30 cities reported in Panel A of Table 1. The dependent variable is the one-month ahead stock return. The independent variable of primary interest is *Inst OIB Rank$_{ic}$ * Local NDR,* where *Local NDR is a* dummy variable equal to one if firm *i* attended a roadshow in city *c* in the previous quarter and zero otherwise and *Inst OIB Rank* is defined as (*Local Inst. Buying$_i$ - Local Inst. Selling*)/*Shares Outstanding* in the most recent quarter, and converted to a within city-quarter quintile ranking. Specification 3 replaces all roadshows (*Local NDR)* with broker-sponsored roadshows, *Local NDR (Broker)*, and company sponsored roadshows, *Local NDR (Company)*. All other independent variables are taken from Fama andFrench (2008) and defined in the Appendix. Specifications 4 (5) reports the estimates for the subsample of firms below (above) the median NYSE breakpoint of market capitalization. The t-statistics for the average regression slopes use the time-series standard deviation of the monthly slope estimates.

	[1]	[2]	[3]	[4]	[5]
Inst. OIB Rank	-0.02%	-0.02%	-0.02%	-0.03%	0.00%
	(-1.16)	(-1.35)	(-1.35)	(-2.07)	(-0.09)
*Inst. OIB Rank * Local NDR*	0.11%	0.14%		0.23%	0.03%
	(3.55)	(3.07)		(3.25)	(0.78)
Local NDR	-0.14%	-0.34%		-0.62%	-0.04%
	(-0.96)	(-2.46)		(-3.03)	(-0.29)
*Inst. OIB Rank * Local NDR (Broker)*			0.13%		
			(2.66)		
Local NDR (Broker)			-0.31%		
			(-2.08)		
*Inst. OIB Rank * Local NDR (Company)*			0.16%		
			(1.74)		
Local NDR (Company)			-0.40%		
			(-1.67)		
Log (Size)		-0.09%	-0.09%	-0.18%	-0.02%
		(-1.23)	(-1.23)	(-1.89)	(-0.24)
Momentum		0.10%	0.10%	0.05%	0.36%
		(0.18)	(0.18)	(0.10)	(0.52)
Log (BM)		-0.15%	-0.15%	-0.13%	-0.16%
		(-1.21)	(-1.21)	(-1.00)	(-1.10)
Zero Net Shares		0.11%	0.11%	0.15%	0.06%
		(0.37)	(0.37)	(0.47)	(0.13)
Net Shares		-1.55%	-1.55%	-1.39%	-1.97%
		(-1.86)	(-1.86)	(-1.24)	(-2.51)
Log (Neg. Accruals)		0.11%	0.11%	0.32%	-0.01%
		(0.00)	(0.00)	(0.00)	(0.00)
Log (Pos. Accruals)		-0.29%	-0.29%	-0.31%	-0.25%
		(-2.69)	(-2.69)	(-2.02)	(-2.28)
Asset Growth		-0.14%	-0.14%	-0.19%	0.11%
		(-0.37)	(-0.37)	(-0.43)	(0.25)
Neg Prof Dummy		-0.17%	-0.17%	-0.24%	-0.22%
		(-0.37)	(-0.37)	(-0.43)	(0.25)
Log (Pos. Profitability)		-0.16%	-0.16%	-0.59%	-0.10%
		(-0.36)	(-0.36)	(-1.03)	(-0.20)
Sample	All	All	All	Small Firms	Large Firms

Table 5: Weekly Commissions around NDRs

This table presents the estimates from of panel regressions. In Specifications 1 and 3 the dependent variable is *$Commissions$_{jit}$*, defined as the log (1 + Commissions) of broker *j* in firm *i* during week *t*, and in Specifications 2 and 4 the dependent variable is *Commission Share$_{jit}$*, computed as the total commission for of broker *j* in firm *i* during week *t* scaled by total Ancerno commissions (across all IBES-Ancerno matched broker) for stock *i* in period *t*. The independent variables are dummies equal to one if broker *j* took (or will take) firm *i on* an NDR or a conference during week t+x, and zero otherwise. For example, *NDR [0] is* a dummy equal to one if broker *j* took firm *i* on an NDR in week *t,* NDR [-1,-2] is a dummy equal to one if broker *j* took firm *i* on an NDR in week *t-1 or t-2, and* NDR [1,2] is a dummy equal to one if broker *j* will take firm *i* on an NDR in weeks *t+1 or t+2*. All specifications include broker-firm fixed effects and standard errors are clustered by firm and week, with t-statistics reported in parentheses below the corresponding coefficient estimate. The sample spans from January 2013 to June 2014 and includes all broker-firm pairs that went on at least one NDR or conference during the sample period (380,511 broker-firm-weeks).

	$Commissions	*Commission Share*	*$Commissions*	*Commission Share*
NDR [0]	0.24	1.23%	0.23	1.19%
	(4.40)	(3.43)	(4.29)	(3.16)
Conf. [0]	0.20	1.32	0.19	1.36%
	(3.50)	(6.10)	(3.25)	(5.27)
NDR [-1,-2]			0.16	0.53%
			(2.88)	(1.29)
NDR [-3,-4]			0.05	-0.09%
			(0.88)	(-0.22)
NDR [-5,-8]			0.03	0.33%
			(0.92)	(1.57)
NDR [1, 2]			-0.05	0.03%
			(-0.72)	(0.07)
NDR [3, 4]			0.02	0.01%
			(0.45)	(0.03)
NDR [5, 8]			-0.03	0.08%
			(-1.13)	(0.38)
Conf. [-1,-2]			0.17	0.43%
			(2.50)	(1.25)
Conf. [-3,-4]			0.04	0.22%
			(0.76)	(0.66)
Conf. [-5,-8]			0.00	-0.11%
			(-0.11)	(-0.58)
Conf. [1, 2]			-0.04	0.21%
			(-0.47)	(0.50)
Conf. [3, 4]			-0.05	-0.43%
			(-0.69)	(-1.31)
Conf. [5, 8]			-0.04	-0.32%
			(-1.19)	(-1.93)
Fixed Effects	Broker-Firm	Broker-Firm	Broker-Firm	Broker-Firm
R-squared	49.30%	15.47%	49.92%	15.72%
Mean of Dep Variable	1.92	6.84	1.92	6.84%

Table 6: Characteristics of NDR and Non-NDR Brokers

This table compares analyst/broker characteristics, and measure of research optimism for *NDR* and *Non-NDR Brokers*. The full sample includes all broker-firm-months from 2013-2017 where broker *j* is covering firm *i* on year *t*. We split this sample into broker-firm-months for which broker *j* took firm *i* on an NDR over the past 6 months (i.e., t, t-5) [*NDR6 =1*], and all other broker-firm-months [*NDR6 =0*]. The *NDR6=1* (*NDR6 =0*) sample includes 110,188 (2,321,687) observations. For each sample, we report the mean of analyst and broker characteristics (Panel A) and measures of research optimism (Panel B). All variables are defined in the Appendix. We also report the difference between the two means (Column 3), the standard deviation of the variable across the combined sample (Column 4), and the differences in the means scaled by the standard deviation (Column 5).

	NDR6 =1	NDR6 =0	Difference	Std. Dev	Scaled Difference
	[1]	[2]	[3]	[4]	[5]
Panel A: Analyst/Broker Characteristics					
Broker Size	55.85	65.51	-9.66	55.34	-17.45%
Firm Experience	4.26	4.17	0.09	4.95	1.77%
Total Experience	13.39	12.49	0.90	9.40	9.58%
Firms Followed	19.76	18.93	0.83	10.33	8.06%
All-Star	11.86%	11.56%	0.30%	31.99%	0.93%
Conf. Host6	12.93%	6.19%	6.74%	24.64%	27.36%
Affiliated6	2.84%	2.97%	-0.13%	16.96%	-0.76%
Panel B: Research Optimism					
Recommendation Level	1.98	2.40	-0.41	0.89	-45.98%
Target Return	28.34%	18.93%	9.41%	35.87%	26.23%
Target Return Bias	23.36%	11.89%	11.46%	52.42%	21.87%

Table 7: NDRs and Analyst Optimism

This table reports estimates from panel regressions of analyst research optimism on taking a firm on a non-deal roadshow in the past six months (*NDR6*) and other controls. The dependent variables are *Rec Level* (Specification 1 and 2), and *Target Return* (Specifications 3 and 4). All variables are defined in the Appendix. The unit of observation is at the firm-broker-month level and all regressions includes either time fixed effects or firm*time fixed effects. Standard errors are clustered by firm and time and *t*-statistics are reported in parentheses below the corresponding coefficient estimate.

	Rec Level		Target Return	
	[1]	[2]	[3]	[4]
NDR6	-0.39	-0.26	8.08%	4.52%
	(-36.44)	(-27.74)	(15.88)	(19.61)
Conf6	-0.13	-0.04	7.37%	1.28%
	(-14.41)	(-4.92)	(13.71)	(8.12)
Affiliated6	-0.14	-0.07	5.26%	1.47%
	(-9.77)	(-5.41)	(7.43)	(5.97)
Log (Broker Size)	0.06	0.04	-4.96%	-1.58%
	(18.64)	(14.30)	(-22.21)	(-18.97)
Firm Experience	0.00	0.00	0.75%	0.22%
	(0.05)	(0.81)	(1.35)	(1.50)
Experience	-0.04	-0.01	1.13%	0.33%
	(-9.34)	(-3.71)	(3.96)	(3.73)
Firms Followed	0.11	0.01	-5.24%	0.39%
	(22.64)	(2.31)	(-16.89)	(4.26)
All-Star	0.08	0.06	-2.86%	-0.98%
	(6.56)	(6.53)	(-6.30)	(-5.16)
Fixed Effects	Time	Time * Firm	Time	Time * Firm
R-squared	3.05%	31.16%	5.36%	74.80%
Observations	1,569,800	1,569,800	1,601,058	1,601,058
Mean of Dep, Variable	2.34	2.34	17.48%	17.48%

Table 8: Recommendation Changes in the year prior to the NDR: Actual Hosts and Competing Hosts

This table examines the recommendation levels for a firm on the month of the month of the roadshow (*month t)* compared to recommendation level in the prior year (month *t-12*). *Upgrade* is a dummy variable equal to one if the recommendation level improves from month t-12 to t (e.g., from a hold to a buy) and *Downgrade* is a dummy variable equal to one if the recommendation level deteriorates. Panel A reports the average of *Upgrade* and *Downgrade* for the NDR broker across all NDRs in the sample (*Actual Host*) and a sample of matched brokers (*Matched Brokers*). *Matched Brokers* include all brokerage firms covering the firm with the same outstanding recommendation level as of month *t-12*. *Difference* reports the difference between *Actual* and *Matched Brokers*, and *t (difference)* tests whether the difference is significant different from zero based on standard errors are clustered by firm and time. Panel B presents analogous results, but replaces *Actual Host* with *Competing Host*, defined as any broker who has already hosted the firm at an NDR at any point prior to month *t-12*.

Panel A: Actual Hosts Relative

	Upgrade	*Downgrade*	*Up -Down*
Actual Host	16.87%	9.13%	7.74%
Matched Brokers	7.54%	14.54%	-7.00%
Difference	9.32%	-5.41%	14.73%
t (difference)	(25.23)	(-14.52)	(28.19)

Panel B: Competing Host

	Upgrade	*Downgrade*	*Up -Down*
Competing Host	12.52%	11.16%	1.36%
Matched Brokers	6.62%	14.85%	-8.23%
Difference	5.90%	-3.70%	9.59%
t (difference)	(14.99)	(-7.37)	(14.73)

Table 9: NDRs and Quarterly Earnings Forecast Pessimism

This table reports estimates from panel regressions of analyst quarterly earnings forecasts. The dependent variables are *MBE* (Specification 1 and 2), and *Relative Earnings Pessimism* (Specifications 3 and 4). All variables are defined in the Appendix. The unit of observation is at the firm-broker-month level and all regressions includes either time fixed effects or firm*time fixed effects. Standard errors are clustered by firm and time and t-statistics are reported in parentheses below the corresponding coefficient estimate.

	MBE		Relative Earnings Pessimism	
	[1]	[2]	[3]	[4]
NDR6	3.76%	1.52%	1.24%	1.51%
	(9.06)	(7.32)	(7.40)	(7.41)
Conf6	2.64%	0.46%	0.33%	0.43%
	(6.25)	(2.86)	(2.38)	(2.59)
Affiliated6	-3.24%	-0.09%	-0.25%	-0.35%
	(-4.63)	(-0.31)	(-1.27)	(-1.32)
Log (Broker Size)	0.64%	0.10%	0.29%	0.32%
	(5.08)	(1.73)	(5.24)	(4.94)
Firm Experience	-1.24%	0.24%	0.34%	0.43%
	(-3.71)	(2.09)	(4.22)	(3.98)
Experience	1.18%	0.23%	0.25%	0.28%
	(6.95)	(3.32)	(4.47)	(4.22)
Firms Followed	1.46%	0.20%	0.01%	0.00%
	(6.33)	(2.77)	(0.28)	(-0.01)
All-Star	0.29%	0.01%	-0.28%	-0.32%
	(0.68)	(0.07)	(-1.68)	(-1.70)
Fixed Effects	Time	Time * Firm	Time	Time * Firm
R-squared	0.45%	59.71%	0.05%	0.07%
Observations	1,491,494	1,491,494	1,491,494	1,491,494
Mean of Dep, Variable	66.12%	66.12%	48.94%	48.94%

Table 10: Market Reaction to Recommendation Changes by NDR Brokers

This table examines the market reaction around recommendation changes. The dependent variable is the buy-and-holdDGTW-adjusted return measured over the day of and the day after the recommendation change ([0,1], the two to 63 days after the recommendation change ([2,63]), or the combined response ([0,63)]. All independent variables are defined in the Appendix and all regressions include Year and Analyst fixed effects. The results are reported for the full sample of recommendation changes and for small firms, defined as firms below the NYSE median breakpoint. We excludes any recommendation changes that fall in the three-day window (-1,1) around quarterly earnings announcement dates or management earnings guidance days, and we also exclude recommendation changes in which multiple analysts issue a recommendation for a firm on the same day. Panel A reports the results for downgrades and Panel B reports the results for upgrades. Standard errors are clustered by firm, with t-statistics reported in parentheses below the corresponding coefficient estimates.

Panel A: Downgrades

	Full Sample			***Small Firms***		
	[0,1]	[2,63]	[0,63]	[0,1]	[2,63]	[0,63]
NDR6	-0.75%	-0.21%	-0.91%	-1.29%	-1.85%	-3.03%
	(-2.36)	(-0.26)	(-1.16)	(-2.04)	(-1.25)	(-2.15)
Conf6	-0.37%	1.37%	1.03%	-0.60%	0.77%	0.33%
	(-1.62)	(2.34)	(1.67)	(-1.33)	(0.64)	(0.26)
Affiliated6	0.09%	-0.86%	-1.01%	-0.75%	1.39%	-0.43%
	(0.35)	(-0.94)	(-1.20)	(-0.85)	(0.43)	(-0.15)
Abs (Rec Change)	-0.69%	-0.72%	-1.29%	-1.34%	-1.44%	-2.50%
	(-4.06)	(-1.60)	(-2.81)	(-3.51)	(-1.64)	(-2.72)
Log (Broker Size)	0.01%	-0.15%	-0.11%	-0.01%	0.09%	0.12%
	(0.30)	(-1.36)	(-0.95)	(-0.05)	(0.46)	(0.56)
Log (Firms Followed)	-0.05%	0.14%	0.09%	-0.05%	0.25%	0.17%
	(-0.76)	(0.94)	(0.61)	(-0.51)	(0.97)	(0.69)
Log (Experience)	-0.08%	-0.13%	-0.14%	0.01%	-0.33%	-0.27%
	(-1.02)	(-0.84)	(-0.90)	(0.06)	(-1.12)	(-0.95)
Log (Firm Experience)	-0.10%	0.07%	-0.03%	-0.24%	0.49%	0.26%
	(-2.16)	(0.58)	(-0.21)	(-2.67)	(1.99)	(1.03)
All-Star	-0.14%	1.46%	1.27%	-0.69%	2.94%	2.16%
	(-0.78)	(2.20)	(1.95)	(-1.33)	(1.59)	(1.20)
Log (Size)	0.18%	0.24%	0.46%	0.14%	0.57%	0.79%
	(2.17)	(1.03)	(1.97)	(0.99)	(1.54)	(2.12)
Mom1	0.26%	-0.42%	-0.16%	0.29%	-0.60%	-0.31%
	(3.17)	(-2.12)	(-0.77)	(2.09)	(-1.91)	(-0.96)
Mom2_12	0.14%	-0.12%	0.02%	0.15%	-0.14%	0.05%
	(2.16)	(-0.74)	(0.13)	(1.33)	(-0.55)	(0.20)
Log (BM)	0.05%	0.11%	0.20%	0.08%	0.39%	0.52%
	(1.02)	(0.74)	(1.39)	(0.71)	(1.27)	(1.69)
Log(Turn)	0.03%	-0.15%	-0.13%	0.02%	-0.44%	-0.40%
	(0.57)	(-0.86)	(-0.78)	(0.13)	(-1.51)	(-1.35)
Log (Coverage)	0.36%	-0.20%	0.16%	0.30%	-0.37%	-0.05%
	(4.48)	(-0.94)	(0.77)	(2.36)	(-1.16)	(-0.16)
Log (Age)	0.10%	0.20%	0.31%	0.30%	-0.19%	0.13%
	(1.75)	(1.32)	(2.03)	(2.91)	(-0.71)	(0.50)
IVOL	-0.47%	-0.54%	-0.90%	-0.39%	-0.56%	-0.76%
	(-6.32)	(-2.87)	(-4.75)	(-3.03)	(-1.98)	(-2.61)
Year & Analyst FE	Yes	Yes	Yes	Yes	Yes	Yes
Observation	21,221	21,221	21,221	8,955	8,955	8,955
NDR6 Obs.	684	684	684	357	357	357
Mean Ret	-2.01%	-0.72%	-2.74%	-3.05%	-1.67%	-4.71%

Panel B: Upgrades

	Full Sample			***Small Firms***		
	[0,1]	[2,63]	[0,63]	[0,1]	[2,63]	[0,63]
NDR6	0.14%	-0.72%	-0.57%	0.19%	-2.36%	-2.23%
	(0.67)	(-0.88)	(-0.65)	(0.49)	(-1.63)	(-1.44)
Conf6	0.11%	1.18%	1.40%	0.37%	2.02%	2.61%
	(0.57)	(2.01)	(2.15)	(0.97)	(1.78)	(1.98)
Affiliated6	-0.38%	-0.30%	-0.67%	-1.11%	-1.66%	-2.81%
	(-2.50)	(-0.46)	(-0.99)	(-2.44)	(-1.05)	(-1.65)
Abs (Rec Change)	0.51%	-0.74%	-0.30%	0.82%	-0.74%	-0.07%
	(3.99)	(-1.74)	(-0.69)	(2.54)	(-0.72)	(-0.06)
Log (Broker Size)	0.03%	0.10%	0.12%	0.00%	0.09%	0.08%
	(0.90)	(0.84)	(1.04)	(-0.01)	(0.43)	(0.38)
Log (Firms Followed)	-0.01%	0.05%	0.05%	0.02%	0.24%	0.26%
	(-0.23)	(0.39)	(0.35)	(0.34)	(1.01)	(1.03)
Log (Experience)	0.04%	-0.31%	-0.29%	0.17%	-0.10%	0.04%
	(0.99)	(-2.35)	(-2.06)	(1.51)	(-0.34)	(0.11)
Log (Firm Experience)	0.06%	0.25%	0.32%	0.07%	-0.11%	-0.03%
	(1.89)	(1.99)	(2.37)	(0.96)	(-0.43)	(-0.09)
All-Star	0.18%	0.62%	0.84%	-0.05%	-0.64%	-0.86%
	(1.15)	(0.95)	(1.21)	(-0.09)	(-0.34)	(-0.42)
Log (Size)	-0.50%	-0.30%	-0.80%	-0.36%	-0.36%	-0.75%
	(-8.25)	(-1.38)	(-3.40)	(-3.39)	(-1.00)	(-1.84)
Mom1	-0.09%	0.18%	0.12%	-0.15%	0.36%	0.24%
	(-1.20)	(1.03)	(0.64)	(-1.16)	(1.18)	(0.73)
Mom2_12	-0.18%	-0.29%	-0.45%	-0.16%	0.12%	0.01%
	(-3.33)	(-1.64)	(-2.34)	(-1.63)	(0.44)	(0.03)
Log (BM)	-0.01%	0.24%	0.22%	-0.04%	0.31%	0.25%
	(-0.29)	(1.77)	(1.49)	(-0.45)	(1.14)	(0.82)
Log(Turn)	-0.05%	-0.37%	-0.43%	0.12%	-0.66%	-0.58%
	(-1.26)	(-2.50)	(-2.77)	(1.64)	(-2.46)	(-2.01)
Log (Coverage)	-0.31%	0.10%	-0.20%	-0.31%	-0.03%	-0.31%
	(-6.07)	(0.51)	(-0.96)	(-3.53)	(-0.09)	(-0.91)
Log (Age)	0.09%	0.44%	0.53%	0.07%	0.57%	0.65%
	(2.31)	(3.03)	(3.39)	(1.00)	(2.14)	(2.26)
IVOL	0.34%	0.32%	0.69%	0.19%	0.41%	0.66%
	(5.88)	(1.63)	(3.19)	(1.84)	(1.36)	(1.85)
Year & Analyst FE	Yes	Yes	Yes	Yes	Yes	Yes
Observation	18,629	18,629	18,629	7,188	7,188	7,188
NDR6 Obs.	566	566	566	303	303	303
Mean Ret	2.08%	-0.07%	2.02%	3.37%	-0.22%	3.18%