THE INFORMATIONAL EFFECTS OF NON-DEAL ROADSHOWS

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Non-deal roadshows (NDR) are privately held one-on-one meetings between the buy-side of financial institutions and firm management. Using a novel dataset of these meetings, I examine the effects that NDR meetings have on the outcomes of two important corporate events: seasoned equity offerings (SEOs) and mergers and acquisitions (M&As). I also study the potential implications of the information content in NDRs on the behavior of stock returns following earnings announcements, which has been the subject of much academic work.

I structure the dissertation in three essays. In the first essay, I examine the relationship between NDR activity and the underpricing of SEOs. I find that NDRs are associated with lower SEO underpricing. This association is stronger for firms with infrequent NDR activity, for smaller firms, and for firms with higher analysts' forecast errors. These findings suggest that NDRs reduce the level of asymmetric information between firms and investors, which results in a lower cost of raising equity. In Essay 2, I investigate whether the occurrence of NDR meetings affects post-earnings-announcement drift (PEAD). I find that PEAD declines after NDR activity when the most recent NDR meeting occurs within one month before the earnings announcement. This decline is most pronounced among smaller firms, firms with high idiosyncratic volatility, and firms with Friday earnings announcements. These findings suggest that NDRs are mechanisms to convey earnings-specific information about forthcoming earnings. In the third essay I explore the relationship between NDRs, the medium of exchange used in M&As and the value created by this important corporate event. I show that NDR activity is important to understand the cross-sectional variation of the excess returns around M&As, and the bid premium. NDRs are also relevant to understand the medium of exchange. This relevance of NDR is more pronounced when the firms

involved have higher levels of asymmetric information. My findings suggest that NDRs convey relevant information about acquiring and target firms, and this information affects the financing of M&As and the value created by these combinations.

Taken together, the results reported in this dissertation highlight the relevance of the NDR as a mechanism to reveal information.

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I would like to dedicate this dissertation to my wife, Cassidy Howell, and my son, Nolan Howell. Thank you very much for always encouraging, supporting, and motivating me. I love you and I know that I couldn’t have done it without you.

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INTRODUCTION: NON-DEAL ROADSHOWS

What is a Non-Deal Roadshow?

Private meetings between investors and firm management are a mechanism by which the informational environment of a firm is significantly affected (Solomon & Soltes, 2015; Bushee et al., 2018; Bowen et al., 2018). One such type of private interaction that receives little documentation in the prevailing literature is the Non-Deal Roadshow (NDR). NDRs are one-on-one meetings between the buy-side of financial institutions and firm management over one or more days, which may occur in multiple cities. The NDR 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" (Ryan & Jacobs, 2005). These meetings are quite frequent in nature, thus suggesting their relevance in disseminating meaningful information to institutional investors. One analyst even posited that NDRs are "the most valuable channel for access to management" due to them being on the analyst's "home turf" and the facetime allowed with the managers being far greater than any other investor event or earnings call (Bradley et al., 2022). The flattery with which these meetings are addressed, paired with their frequency, bring to question the reason for their occurrence and their subsequent impact on firms, which is primary to this dissertation.

NDRs are not mandatory, and managers use them to selectively disclose information by answering the questions and addressing the concerns of institutional investors. Most of these meetings occur after earnings announcements and are set up many months in advance, but managers may also hold these meetings at other times within a quarter to convey new information, based on new circumstances within the company (Ryan & Jacobs, 2005). Given this voluntary nature of disclosure in a private setting, these meetings challenge the efficacy of Regulation Fair Disclosure (Reg. FD). Reg. FD was adopted by the U.S. Securities and Exchange Commission in

October 2000 and was intended to stop the practice of "selective disclosure", in which companies give material information only to a few analysts and institutional investors prior to disclosing it publicly. There has been much research done on the negative informational impact of Reg. FD (Gomes et al., 2007; Bailey et al., 2003; Eleswarapu et al., 2004), and this dissertation questions whether or not NDRs are strengthening the informational environment that this prior literature argues Reg. FD splintered.

Non-Deal Roadshow Literature

The literature on Non-Deal Roadshows is limited. Some argue that private meetings, in general, do not involve information that is unavailable to the public, but private meetings have been shown to help a select group of investors make more informed trading decisions (Solomon & Soltes, 2015). This is corroborated in the work of Bradley et al. (2022) who find that around NDRs, local institutional investors trade heavily and profitably, while retail trading is significantly less informative. Analysts who sponsor NDRs issue significantly more optimistic recommendations and target prices, coupled with more "beatable" earnings forecasts, consistent with analysts issuing strategically biased forecasts in order to win NDR business. The results of Bradley et al. (2022) suggest that NDRs result in wealth transfers from small retail investors to large institutional investors and create significant conflicts of interests for the analysts that organize them. This implies that private meetings with management do, in fact, involve information not made available to the public. Their findings also make clear the material impact being had by these meetings. They also establish what types of firm characteristics and firm activities impose a greater likelihood of an NDR occurring but do not examine the firm-specific outcomes of these events after NDR meetings have occurred. I seek to build upon their study by examining how the outcome of such firm activities (i.e. SEOs, mergers, & earnings

announcements) are impacted by the firm's decision to engage in NDR meetings.

Bushee et al. (2018) uses corporate jet flight patterns to test whether managers use jets for private, face-to-face meetings (NDRs) with investors. Their evidence suggests that these private meetings are an important information event for the participating investors. This study has limited information about what corporate jet flights are actually being used for, but it supports the fact that firms are traveling to financial "hub" cities while, in turn, affecting the information environment around their company's stock, specifically in firms with infrequent NDR activity.

Park & Soltes (2018) attempt to provide clarity about what goes on in these private meetings by isolating the questions being asked by potential investors in all private interactions (i.e. non-deal roadshows, trips to a firm's corporate headquarters, etc.) between firms and their investors. They show that investors seek to acquire more timely information, more depth and clarity of public news, and feedback on their investment theses. Numerous questions asked in private seek information that–if provided by managers–potentially violates Regulation Fair Disclosure (Reg. FD).

Ryan & Jacobs (2005) posit that firms may hold institutions accountable for their trading volumes in the firm's stock by only choosing to travel further from headquarters for NDRs with firms that trade their stock more regularly. This speaks to the relational and selective nature of NDRs as well as firms only engaging when they have something to gain. Firms are building relationships with institutions and will choose to cater to those with the most to offer them for their time and information in an NDR meeting. NDRs also tend to occur post-earnings announcement (see figure on p. 11) so that firms are not questioned about potential violations of Reg. FD (Ryan & Jacobs, 2005), which implies that the timing of NDRs, relative to corporate events, is vital in understanding their impact. My research takes this into account by both examining the impact of

NDRs over differing time periods, relative to corporate events, and finding the effects these meetings may have on market reactions to earnings announcements.

Non-Deal Roadshow Data

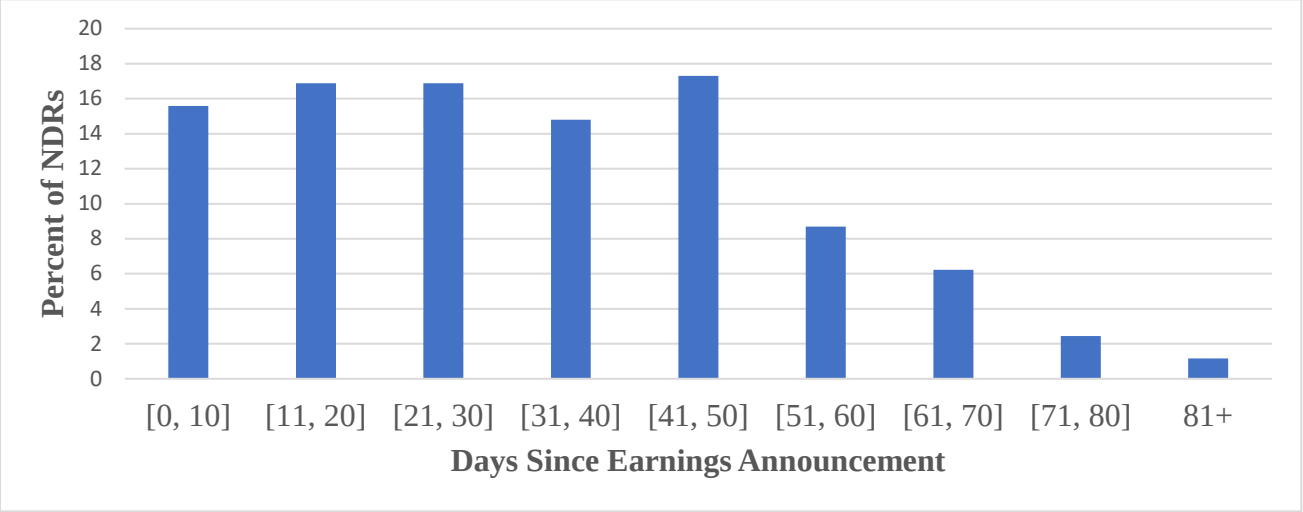
The Non-Deal Roadshow (NDR) data used in this research is a novel dataset collected directly from thefly.com (FLY). This website self-proclaims as "a leading digital publisher of real-time financial news." They rely on several non-public sources, including leaks from brokerage firms and buy-side funds, to obtain information on NDRs. Below is an example of one datapoint in the NDR (FLY) data sample. This includes the date of the meeting, name of the firm involved, that firm's ticker symbol, the name of the sponsoring financial institution, a sponsor symbol identifier (not the ticker), the type of meeting (if applicable), and the city and state of the NDR meetings.

Date	Firm Name	Ticker	Sponsor Name	Sponsor Symbol	Meeting Type	City	State
12/9/19	AT&T	T	UBS	UBSW	MEETING WITH CEO	NEW YORK	NY

I collected this data manually by accessing the "Events" calendar from thefly.com. This calendar includes a number of events that firms take part in regularly (i.e. Conferences, Industry Meetings, Conference Calls, Firm Sponsored Meetings, etc.). I collected the "Firm Sponsored Meetings", as this is the category under which NDRs fall. For each datapoint, I opened the hyperlink of a firm's ticker symbol and documented all information in the text box that appeared, resulting in datapoints like the one in the table above. This data was collected by day and compiled into an Excel workbook. This data is combined with all other datasets I use (described later) by the "Ticker" and "Date" fields.

In the figure below, all NDRs are sorted based on the timing of the NDR relative to the most recent earnings announcement. The figure reports the fraction of all NDRs that occur over

different event windows. For example, Group 1 ([0, +10]) reports the fraction of all NDRs that occur within 10 calendar days after an earnings announcement, Group 2 ([+11, +20]) reports the fraction of all NDRs that occur between 11 and 20 calendar days after the earnings announcement, etc.



The dataset encompasses NDRs occurring from 2013 to 2020. This sample only reports NDR activity that is obtained through the sources that the company (FLY) accesses. One potential concern is that FLY may redact or disclose more important NDRs ex post. Bradley et. al (2022) explore this possibility, and every day during the month of August 2020 they recorded all NDRs that occurred or were scheduled to occur between August 1, 2020 and December 31, 2020. During this process, they found zero cases where FLY either redacted or added NDRs post-meeting. A more general concern is that FLY coverage might not be representative of the universe of NDRs. Bradley et. al (2022) also examine this possibility. They collected NDR data from two alternative sources, and their analysis[1] provided no evidence that their main results were biased due to FLY's incomplete coverage of NDRs. Therefore, I employ this dataset and consider it to be indicative of

[1] Bradley, D., Jame, R. and Williams, J. (2022), Non-Deal Roadshows, Informed Trading, and Analyst Conflicts of Interest. The Journal of Finance, 77, 265-315. (see Internet Appendix for description and analysis for bias in FLY data).

the complete universe of NDR meetings.

The next table shows the descriptive statistics for the NDR dataset. In Panel A, I show that 49,165 NDR-day observations were collected, and they occurred amongst 4,537 unique companies that used 139 different financial institutions as sponsors. Though one company may be on the same multi-day NDR, each day is collected as an individual observation in this dataset. Therefore, the indication of NDR occurrence in my later analysis indicates smaller numbers of NDR meetings, based on them occurring within a specific time period and not every daily occurrence being counted. Of the years in my dataset, Panel B shows 2019 to be the year with the most NDR meetings, and 2020 was the year with the fewest. The result for 2020 is not surprising, given the COVID-19 pandemic. Further, Panel C shows that New York, NY, Boston, MA, and Chicago, IL top the list for the most NDR meeting observations. This suggests that these meetings are most common in financial "hub" cities (i.e. Bushee et al., 2018). The table provides a clear view of what is included in the NDR (FLY) dataset and what the breakdown of the number of NDR observations is by year and city.

Panel A: Number of NDRs, Firms, & Brokers (Total & Top 30 Cities)

	Total NDRs	**Firms**	**Brokers**
Full Sample	49,165	4,537	139
Top 30 Cities	40,547	4,238	129

Panel B: Number of NDRs by Year

Year	**Number of NDRs**
2013	5,392
2014	6,771
2015	6,962
2016	5,893
2017	6,140
2018	6,633
2019	7,329
2020	4,025
Total	***49,145***

Panel C: Top 10 Cities of NDR Occurrence

Location of NDR	Number of NDRs	Percent of Total NDRs	Cumulative Percent of NDRs
NEW YORK	11,696	23.79%	23.79%
BOSTON	7,076	14.39%	38.18%
CHICAGO	3,324	6.76%	44.94%
SAN FRANCISCO	3,326	6.76%	51.71%
LOS ANGELES	1,940	3.95%	55.65%
DENVER	1,393	2.83%	58.49%
TORONTO	1,342	2.73%	61.22%
MINNEAPOLIS	1,108	2.25%	63.47%
KANSAS CITY	1,050	2.14%	65.61%
LONDON	957	1.95%	67.55%

To better understand what firms are taking part in NDRs, the following table reports the 20 companies and the financial institutions that engaged in NDR activity the most. Many of the companies engaging in NDRs are familiar firms, and the financial institutions are almost exclusively well-known investment banks. This table speaks to how relevant and common NDR meetings are among the firms and financial institutions that we know well.

Most Common NDR Firms			*Most Common NDR Sponsors*	
Firm Name	**Ticker**	**NDR-Day Observations**	**Sponsor Name**	**NDR-Day Observations**
COSTAR GROUP	CSGP	132	JPMORGAN	4,971
NICE	NICE	118	JEFFERIES	4,622
MONOLITHIC POWER	MPWR	103	OPPENHEIMER	3,339
ECOLAB	ECL	103	DEUTSCHE BANK	2,413
HP INC	HPQ	93	SUNTRUST	2,209
AT&T	T	93	JMP SECURITIES	2,163
AKAMAI	AKAM	84	NEEDHAM	2,146
FEDEX	FDX	83	WILLIAM BLAIR	1,909
UPS	UPS	81	SIDOTI	1,890
TELEFLEX	TFX	77	PIPER JAFFRAY	1,703
EQUIFAX	EFX	77	ROTH CAPITAL	1,611
CENTENE	CNC	73	STEPHENS	1,580
AVIS BUDGET	CAR	71	UBS	1,461
SALESFORCE	CRM	70	B. RILEY	1,426
LIGAND	LGND	70	BARRINGTON	1,328
MICRON	MU	70	RBC CAPITAL	1,305
KORN/FERRY	KFY	69	CRAIG-HALLUM	1,241
PERFICIENT	PRFT	68	SANDLER ONEILL	904
CARMAX	KMX	67	STERNE AGEE	903
VERIZON	VZ	67	LEERINK	810

ESSAY 1

NON-DEAL ROADSHOWS AND THE UNDERPRICING IN SEASONED EQUITY OFFERINGS

1.1 Introduction

Seasoned Equity Offerings (SEOs) are significant events that require sell-side analysts to engage in the marketing of a firm's shares. Such marketing relies heavily on the relationships that are built between sell-side analysts and institutional investors. These analysts seek to provide their institutional clients with the most information possible about the stocks of specific firms, even going as far as to provide private access to firm management through NDR meetings (Bradley et al., 2022). Academic literature has devoted little to the firm-specific benefits that may be fostered through these private interactions. One potential benefit to firms is decreased costs associated with raising new equity, which is at the heart of this essay.

The occurrence of SEO underpricing has been established in prior empirical literature (Loughran & Ritter, 1995; Corwin, 2003; Altinkilic & Hansen, 2003; Mola & Loughran, 2004). A common argument for this discount in both SEOs and IPOs is the presence of asymmetric information between firms and investors. As we know from Myers & Majluf (1984), the existence of asymmetric information between a firm and investors increases costs of raising equity to the firm. Theoretical models (Parsons & Raviv, 1985; Rock, 1986; Benveniste & Spindt, 1989) provide differing assumptions and rationalizations for SEO underpricing, but they find common ground in information asymmetry being the primary driver of the observed underpricing.

The goal of this essay is to investigate whether NDRs convey information that reduces the cost of raising equity, in specific underpricing. Firms differ greatly in their willingness and ability to disclose new information and are most likely to do so when it is beneficial to the firm or its

managers (Verrecchia, 1983; Dye, 1985). They may also disclose to minimize the effects of future bad news (i.e. Skinner, 1994). NDR activity is a firm-specific decision and a part of a firm's self-determined optimal disclosure policies. Such disclosures prior to significant corporate events, like SEOs, are unlikely to be done in jest and may materially benefit the firms engaging in them.

This study utilizes the SEO event for specific reasons. First, SEOs occur on one date and provide an event by which we can base NDR timing and effects. Second, the underpricing of the SEO is a tangible measure of the cost of equity capital and is not based on model assumptions. In all, SEOs are a unique environment around which I can identify the firm-specific outcomes of NDRs. Therefore, I posit that NDRs, as a private voluntary disclosure mechanism, reduce the level of information asymmetry between managers and investors and benefit firms by reducing their cost of raising equity, captured by the underpricing of SEOs.

Primarily, this study contributes to the literature on private interactions between firms and financial institutions (i.e. Solomon & Soltes, 2015; Bushee et al., 2018; Bowen et al., 2018) as well as the SEO underpricing literature (i.e. Corwin, 2003; Bowen et al., 2008; Li & Zhuang, 2012; etc.). I show that one type of private interaction, the NDR, has a significant negative relationship with SEO underpricing. This research provides a new mechanism (the NDR) by which we can better understand the underpricing of SEOs. Further, I add to the disclosure literature by showing that NDRs reduce underpricing, similar to public voluntary disclosures (i.e. Li & Zhuang, 2012). Examining the effects of NDRs on underpricing, specifically, takes advantage of a measure of the cost of equity capital that avoids being subject to the same measurement errors (Li & Zhuang, 2012) that implied cost of equity capital measures (Gebhardt et al., 2001; Claus & Thomas 2001; Easton, 2004; Gode & Mohanram, 2003) succumb to since underpricing measures an observable cost that the firm incurs by issuing equity (i.e. the money they leave on the table). Further, I provide

evidence suggesting that the amount that NDRs reduce underpricing differs based on the information asymmetry levels of the SEO firms, as some firms benefit more from NDR activity reducing asymmetric information than others. Finally, I provide evidence that the amount of NDRs a firm engages in matters. NDRs that occur less frequently (i.e Bushee et al., 2018) drive my results and show that having sparse NDR activity is advantageous to the firm. This is consistent with managers disclosing private information only as they have something to gain from said disclosure (i.e. Verrechia, 1983).

The rest of this essay proceeds as follows. Section 1.2 reviews the related literature. Section 1.3 develops the hypotheses. Section 1.4 describes the data and sample selection. Section 1.5 reports empirical design, results, and additional/robustness tests. Section 1.6 concludes, and Section 1.7 reports the tables for this essay.

1.2 Literature Review

1.2.1 Seasoned Equity Offering (SEO) Underpricing

Underpricing (discounting) in SEOs is a direct cost to firms issuing new equity. Prior theoretical work illustrates the underpricing of SEOs. Parsons & Raviv (1985) show that underpricing reflects the reaction of the market to the anticipated offer price. Benveniste & Spindt (1989) suggest that underwriting banks improve the offer price by paying for information provided by better-informed investors. These theories are at the center of the information asymmetry argument of SEO underpricing. Further, the value uncertainty theory shows investors to receive more compensation in the form of underpricing as valuing the firm becomes more difficult (Rock, 1986). Additionally, Giammarino & Lewis (1989) show that underpricing is consistent with the "signaling hypothesis" of firms discounting their issues to signal perceived quality and entice investors.

In addition to the theoretical work, there are several potential determinants of SEO underpricing that have been studied in the empirical literature, including price uncertainty (Corwin, 2003), short selling regulations (Kim & Shin, 2004), and earnings management (Kim & Park, 2005). Reasons for this underpricing include the degree of uncertainty about firm value and acquiring information that displays itself in the SEO offer price (Altinkilic & Hansen, 2003). Therefore, I expect new information from NDR meetings to have a material effect on SEO underpricing. I add to the underpricing literature by arguing that NDRs can reduce this cost of underpricing.

Bradley et al. (2022) consider SEOs a significant reason that an NDR may occur. Chemmanur et al. (2009a) express that institutions possess private information about SEOs and take on an information production instead of a manipulative trading role for institutional investors in SEOs. This coincides with the findings of Bowen et al. (2008) that find the cost of raising equity to be negatively related to both the "quantity and quality of analyst coverage." This implies that the more that institutions involve themselves with a firm in private interactions (e.g. NDRs), the more they produce information that can lead to decreased underpricing of SEOs. Also, Altinkilic & Hansen (2003) explain the discounting of SEOs as compensating investors for uncertainty about firm value and do not find that they use their private information to raise the discount and expropriate rents from other investors. Together, these studies suggest that the information that institutions have is impactful in decreasing informational gaps when firms want to issue new equity, which is central to this essay.

Zhang (2001) argue, though, that "private information production … has the effect of widening the information gap between informed and uninformed investors and increasing the firm's cost of capital." This is a similar argument to the work of Bradley et al. (2022) who find

institutional investors to trade profitably around NDRs, with retail traders being significantly less informed. Though this is the case, information that underwriting institutions have is what is used to set SEO offer prices (i.e. Altinkilic & Hansen, 2003), thus the change in the informational gap between managers and institutions, through NDRs, should reveal itself in the discounting of SEO offer prices. I argue that managers are not engaging in these private meetings to the detriment of their firm's value, rather they are only engaging in NDR activity if there is value in doing so (e.g. Verrecchia, 1983; Dye, 1985; Ryan & Jacobs, 2005).

Public disclosures are well-documented to impact SEO underpricing, as well. Schroff et al. (2013) find that pre-offering disclosures are associated with a decrease in information asymmetry and a reduction in the cost of raising equity capital. This suggests that disclosures, such as NDRs, can have an impact on the cost of raising new equity through SEOs. Consistent with this finding is that of Lang & Lundholm (2000) who show that companies significantly increase disclosure activity prior to the announcement of upcoming equity offerings, and this increased disclosure may hype the firm's stock and have a negative effect on the cost of raising new equity capital. Similarly, Li & Zhuang (2012) find that management guidance reduces the magnitude of SEO underpricing. This finding is congruent with the primary question of this essay, but I seek to explain SEO underpricing with private, not public, disclosures. This essay looks to take these impacts on SEOs from public information and apply them to a single private information production mechanism, the NDR.

1.2.2 Private Information, Non-Deal Roadshows, and Asymmetric Information

Private meetings with investors help a select group of investors to make informed trading decisions (Solomon & Soltes, 2015). If this is true, then private meetings are narrowing the informational gap between firms and investors. NDRs are one such type of private meeting.

Investors can meet with management face-to-face without transcription of the conversation, which has been shown to be quite advantageous to institutional investors in terms of their trading around these meetings (Bradley et al., 2022). Bushee et al. (2018) suggests that private meetings are an important information event for the participating investors. Their findings support the fact that private meetings are affecting a firm's information environment, specifically in firms with infrequent NDR activity. It has not been studied, though, the extent to which NDRs, specifically, decrease informational asymmetries and how that impact compares to other information-producing mechanisms that decrease the underpricing of equity offerings.

As early as Leland & Pyle (1977), it has been argued that informational asymmetries between management and shareholders do have an impact on firm value, with reduced informational asymmetries having a positive effect on firm value. Therefore, I posit that when engaging in NDRs, firms are passing private information on to a broader set of investors, namely, those who could afford access to the NDR and become informed (i.e. institutional investors). This information is then used by investors to determine firm value, and I argue that it decreases the uncertainty of valuation that Altinkilic & Hansen (2003) argue to be a reason for SEO discounting.

Specific ways that NDRs may be impacting a firm can be speculated using the literature on private meetings between investors and managers. Easley & O'Hara (2004) suggest that "firms can influence their cost of capital by affecting the precision and quantity of information available to investors." The mechanisms by which they suggest this occurring are through accounting disclosure, analyst coverage, and market microstructure, which are all relevant mechanisms when it comes to the occurrence of NDRs (i.e. Ryan & Jacobs, 2005; Bradley et al., 2022). Since NDRs impact both the precision and quantity of information that investors may have (e.g. Parks & Soltes, 2018), they may be a mechanism through which the cost of raising equity is materially affected. It

is likely that NDRs have similar effects on firms as do other types of voluntary disclosure by management. For instance, corporate disclosures have been shown to impact the firm's cost of equity (i.e. Diamond & Verrecchia, 1991; Lambert et al. 2007; Lambert et al., 2012; Levi & Zhang, 2015). These findings suggest that the cost of raising equity may be materially affected by changes in the private information environment (e.g. NDR activity).

Prior literature also provides evidence of a firm's disclosures decreasing information asymmetries between the firm and investors and subsequently impacting firm value (Botosan et al., 2004; Easley & O'Hara, 2004; Jo & Kim, 2007; Francis et al., 2008; Bharath et al., 2009; Bertomeu et al., 2011; Levi & Zhang, 2015). There is yet to be evidence, though, on the decreasing of informational asymmetries by NDRs and the impacts that they may have on firm value, specifically through the channel of the cost of raising equity. This essay seeks to increase our understanding of how and why firms choose to engage in NDR activity. I investigate the power of NDRs to decrease the cost of raising equity, measured by SEO underpricing. This is important because the "Non-Deal" nature of NDRs suggests no ties to security offerings, but the potential information advantage to be gained by investors through NDRs leaves open the question of their relevance to major corporate events, such as SEOs. As investors receive more information or clarity of information from NDRs, I expect this change in the information environment to reflect itself (i.e. Easley & O'Hara, 2004; Gomes et al., 2007) in the underpricing of SEOs.

1.3 Hypothesis Development

The literature summarized previously suggests that the more information investors have about firms, the less compensation they will require in the form of a pricing discount. NDRs appear as potential mechanism to reduce informational problems. Thus, I should find a negative association between NDRs and SEO underpricing.

Hypothesis 1: Firms that engage in NDRs experience less SEO underpricing.

This essay makes a similar argument to Li & Zhuang (2012) regarding SEO underpricing. I extend that argument to the examination of the impact of private information, through NDRs. They also suggest that the amount and timing of public guidance is important to measuring this impact that it has on underpricing, therefore the same could be true for NDRs. Bushee et al. (2018) show that infrequent NDR activity is related to higher abnormal returns around the NDR meeting for firms engaging in NDRs. This suggests that the informational impact of NDR meetings may be in those that occur less often. These findings prompt the second hypothesis of this essay:

Hypothesis 2: The negative relationship between NDRs and SEO underpricing is greater for firms with infrequent NDR activity.

The impact of NDR meetings may be strengthened by a firm's level of information asymmetry. If NDRs convey valuable information, then this information should be more relevant for firms with higher degrees of information asymmetries. This motivates the third hypothesis of this essay:

Hypothesis 3: The negative relationship between NDRs and SEO underpricing is stronger for firms with greater information asymmetry measures.

1.4 Data and Sample Construction

1.4.1 Data Sources

I identify the SEO sample used in this essay from the Securities Data Company's (SDC) Global New Issues database. I begin with the full sample of U.S. SEOs from January 1, 2013 to December 31, 2020. I exclude units, rights, closed-end funds, REITs, and issues by non-U.S. firms. I supplement the SEO data with following data sources in this analysis: Center for Research in Security Prices (CRSP) for stock return data, the COMPUSTAT Fundamentals Quarterly database for financial/accounting variables, FLY for NDR data (see section 2.3), and the IBES Detail

History file for analyst coverage and forecast error data.

The final sample contains 7,141 seasoned equity offerings, of which 2,421 were preceded with an NDR meeting within one year (7,049 NDR meetings), and 713 were preceded with an NDR meeting within three months (1,997 NDR meetings). Observations are only eliminated if they do not have data available in the sources listed above, other than the NDR data since all firms do not have NDRs.

1.4.2 Measuring SEO Underpricing

Here, I describe the SEO underpricing measure that is used in my analysis. Following prior studies, I treat the SEO filing date as the SEO announcement date (e.g., Datta et al., 2005; Li & Zhuang, 2012) and use this date to merge other supplementary datasets. As in prior literature (Corwin, 2003; Bowen et al., 2008; Li & Zhuang, 2012), I define SEO underpricing as negative one times the return from the closing price on the day prior to the offer date to the offer price and denote it as *Underpricing*. This is commonly referred to as the "discount" or "close-to-offer return". I use this as opposed to the "offer-to-close" return since the information that institutions, specifically the underwriting institution, have is used exclusively in determining the discount of the SEO (Altinkilic & Hansen, 2003), whereas the "offer-to-close" return may be determined by more than the informational gaps between investors and firms, upon which the measure of underpricing I use is based.

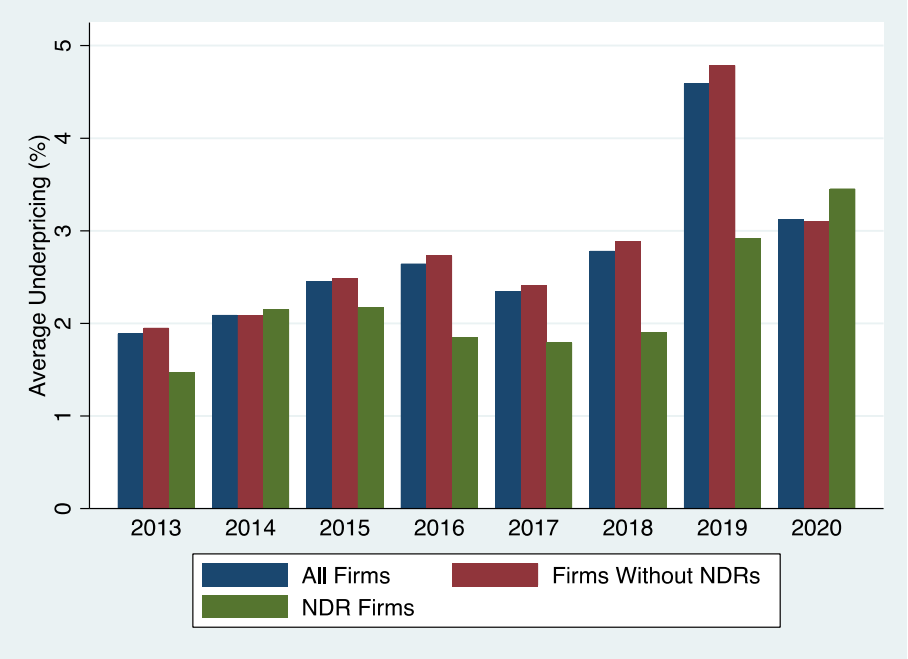
1.4.3 Measures of NDR Activity

I measure the occurrence of NDRs in three ways:

First, it is measured with the variables *NDR_3, NDR_6, & NDR_12*, which equal one if the firm has an NDR in the three, six, or twelve-month period, respectively, prior to the firm's SEO and zero otherwise. These variables signify NDR occurrence.

Second, I measure the amount of NDR occurrence with the variables *ln_NDRs*, *ln_NDRs_6*, & *ln_NDRs_12*, which are equal to the natural log of one plus the number of NDR meetings a firm has in the three, six, or twelve-month period, respectively, prior to the firm's SEO. These variables are useful in identifying NDR volume over specific time periods, since more disclosure has been shown to decrease the cost of capital to a greater extent (Francis et al., 2008).

FIGURE 1-1: Average underpricing per year by NDR activity



This figure shows the average underpricing of SEOs partitioned into firms that had NDRs within 3 months before the SEO (*NDR Firms*), those that had no NDR within 3 months before the SEO (*Firms Without NDRs*), & all firms combined (*All Firms*).

Third, I identify NDR occurrence by how frequently they occur, using *InfrequentNDR_qtr* and *InfrequentNDR_half* as indicator variables equal to one if the firm has an NDR meeting in the three-month period prior to the SEO but had no NDR activity in the prior quarter (*InfrequentNDR_qtr*) or two quarters (*InfrequentNDR_half*) and zero otherwise. These indicator variables are specifically motivated by the findings of Bushee et al. (2018) regarding infrequent private interactions and stock reactions. These variables also signify NDR occurrence, but they do so as a subsample of the *NDR_3* variable.

1.4.4 Measures of SEO Characteristics

I consider different SEO deal-level variables that have been used in the prior underpricing literature (i.e. Corwin, 2003; Bowen et al., 2008; Li & Zhuang, 2012). All variable definitions are included in Appendix A. In my analysis, *Price_Below_3* controls for all SEOs with offer prices below $3, *SharesOffered_SharesOut* controls for the relative size of the offering, *Log_OfferAmount* controls for the dollar value of the offering, *NegativeCAR* controls for the firm's abnormal returns prior to the SEO, *Log_SinceEarn* controls for the SEO's proximity to the most recent earnings announcement, *Integer* controls for the specificity of the offer price, *Reputation* controls for the underwriter of the SEO, and *IPOUnderpricing* controls for that year's underpricing of new equity issues.

1.4.5 Measures of Firm Characteristics

Following other studies on SEOs, I include the following firm-level characteristics in my analysis: *Log_MV* to control for firm size, *Log_Price* to control for the firm's stock price, *Volatility* to control for the fluctuations of a firm's stock, *Log_AnalystCoverage* to control for a firm's level of analyst following, *Intangibles* to control for firm complexity, *ROA* to control for operating profitability, *Leverage* to control for a firm's relative debt level, and *NYSE* to control for firms being included on a major stock exchange. I winsorize all continuous variables at the top and bottom 1% of the distribution.

1.4.6 Descriptive Statistics

Descriptive statistics on SEO characteristics and underpricing are provided in Table 1-1. Panel A indicates a mean SEO offer price of $29.28, a mean SEO offer proceeds of $242.26 million, and a mean level of SEO underpricing of 2.741%. These statistics are similar to Li & Zhuang's (2012) study of SEOs from 1997 to 2006.

Panel B indicates the magnitude of underpricing by year from 2013 to 2020. There is no discernable pattern of SEO underpricing over time, though the last two years of the panel have notably greater underpricing than the years previous.

Panel C of Table 1-1 shows how many firms held NDR meetings within three months, six months, and twelve months of the SEO. Only 9.98% (713 observations) of firms held NDR meetings within three months of their SEO, but 33.90% (2,421 observations) of firms held NDR meetings within a year of their offering. The SEOs in all of the stated time intervals had lower mean underpricing for NDR firms than firms that did not hold NDR meetings within that time interval. Among the firms that did not have NDR meetings, the mean underpricing of those with no NDR three, six, and twelve months prior to the SEO is 2.805%, 2.825%, and 3.925%, respectively.

Table 1-2 presents descriptive statistics for the variables used in my regression analyses. Panel A shows summary statistics for all firms that had SEOs. This panel shows summary statistics for all variables used in my regression analyses. Notable statistics in this panel, not noted previously, include 12.9% of firms having an offer price below $3, most of the NDRs occurring within three months of the SEO being infrequent (see *NDR_3*, *InfrequentNDR_qtr*, & *InfrequentNDR_half)*, and the average firm being unprofitable (mean ROA of -4.9%) and only followed by approximately four analysts. My multivariate analysis will control for the low-priced offers. Also, most of the NDRs being infrequent in occurrence suggest that firms may be engaging in them for a specific reason (i.e. the SEO) that can benefit the firm at that specific time (i.e. Ryan & Jacobs, 2005), instead of having NDRs frequently. Additionally, the average firm having negative operating profitability suggests that the type of firm looking to issue equity is not yet

profitable. Further, only four analysts covering the average SEO firm suggests that the sampled firms may have relatively small analyst followings.

Panel B of Table 1-2 compares firms that had NDRs within three months of their SEO to firms that did not. The first test in this panel is the difference of mean *Underpricing* among NDR versus non-NDR firms. I report a significant difference in mean underpricing, with NDR firms having 0.639% lower mean underpricing, but the median underpricing difference is quite low and statistically insignificant in the Wilcoxon signed rank test. This panel also shows NDR firms to have significantly greater analyst followings (*Analyst_Coverage*), higher instances of negative abnormal returns pre-SEO (*NegativeCAR*), lower instances of the SEO offer price being below $3 (*Price_Below_3*), greater litigation risk (*Litigation*), and higher likelihoods of having their SEO priced as an integer (*Integer*), relative to non-NDR firms.

From Table 1-2, we establish the characteristics for firms that have SEOs. Most important to my regression analysis, though, this table indicates that firms that engage in NDR activity are distinct from those that do not. This essay tests the impacts of NDR activity on SEO underpricing, so it is useful to know that SEO firms that engage in NDR activity differ from non-NDR firms on a number of firm and SEO deal characteristics.

1.5 Empirical Design and Results

1.5.1 NDRs and SEO Underpricing

I begin my multivariate analysis using OLS regressions to test the relationship between NDR meetings and SEO underpricing. This analysis accounts for several different factors that may impact the discount of the SEO offer price. The primary regression equation in this essay follows closely the estimation presented in Li & Zhuang (2012). Table 1-3 presents the main results of my

initial multivariate regression analysis, examining the effect of the presence of NDR meetings on the magnitude of SEO underpricing. In the multivariate analysis, I estimate the following equation:

$$Underpricing_{i,t} = \alpha_0 + \alpha_1 NDR_{i,t} + \sum_{n=2}^{N} \alpha_n Control\ Variables_{i,t} + Year\ \&\ Industry\ Fixed\ Effects + \epsilon_t \quad \text{(Eq. 1)}$$

where *Underpricing* is the close-to-offer return or "discount", as defined previously, and *NDR* takes on the value of one of the NDR indicator variables (*NDR_3, NDR_6, NDR_12*, *InfrequentNDR_qtr,* & *InfrequentNDR_half*) or one of the NDR count variables (*ln_NDRs*, *ln_NDRs_6*, & *ln_NDRs_12*), described previously. All regression analysis includes both year and industry fixed effects as well as deal-level and firm-level control variables.

Table 1-3 shows the tests of the relationship between having an NDR within three months of the SEO (*NDR_3),* or the natural log of the number of NDR meetings within three months of the SEO (*ln_NDRs*), and SEO underpricing. In Column (1), the presence of an NDR meeting within three months of the SEO is associated with a decrease in SEO underpricing of about 0.37%. This supports my Hypothesis 1 of a negative association between NDRs and SEO underpricing. Further, Column (2) shows that a greater number of NDR meetings is also associated with a decrease in SEO underpricing. Given the level-log specification, as the number of NDRs in the quarter leading to the SEO doubles (100% increase) SEO underpricing is estimated to decrease by 0.294%. This is, again, consistent with Hypothesis 1, and suggests that more NDRs decrease informational asymmetries and lead to lower SEO underpricing, similar to Francis et al. (2008).

The signs of the coefficients for most control variables in these regressions are consistent with the prior SEO underpricing literature (Corwin 2003; Mola & Laughran 2004; Li & Zhuang, 2012) and remain so throughout the regression analysis. *Price_Below_3*, *SharesOffered_SharesOut*, *Log_MV*, and *Integer* are positively and significantly related to

Underpricing, in Columns (1) & (2). Also, *Log_OfferAmount*, *Log_Price*, and *ROA* have significant negative relationships with *Underpricing*, in Columns (1) & (2). This indicates that low priced offering firms, firms with larger relative offering sizes, large firms, and firms with integer offering prices have higher underpricing, all else equal. Also, firms with greater operating profitability, higher stock prices, and greater offering amounts have lower underpricing, all else equal. *NegativeCAR* is also marginally negatively associated with *Underpricing* in Column (2), but none of the other explanatory variables have a significant relationship with *Underpricing* in either regression.

1.5.2 NDRs and SEO Underpricing – NDR Frequency

Table 1-4 reports the estimation of Equation (1) to analyze the relationship between SEO underpricing and having an NDR meeting within three months of the SEO, but not in the prior three months (*InfrequentNDR_qtr)* or having an NDR meeting within three months of the SEO, but not in the prior six months (*InfrequentNDR_half*).

In Columns (1) & (3), the presence of an NDR meeting when a firm did not have a meeting in the prior quarter is associated with a decrease in SEO underpricing by 0.379% and 0.450% in the full sample and NDR firm sample, respectively. This finding indicates that infrequent NDR meetings have a slightly greater statistical effect on *Underpricing* than just an NDR occurring within three months of the SEO and that this effect is greater in the NDR firm sample. This is consistent with Hypothesis 2.

Columns (2) & (4) show that the presence of an NDR meeting when a firm did not have an NDR meeting in the prior six months is associated with a decrease in SEO underpricing by 0.613% and 0.753% in the full sample and in the NDR firm sample, respectively. The economic significance of *InfrequentNDR_half* relative to *InfrequentNDR_qtr* is such that firms save 0.234%

more of their offering proceeds as their NDR meetings are less frequent by one quarter. These results are further in line with Hypothesis 2 that less frequent NDRs have a greater negative relationship with SEO underpricing and consistent with Bushee et al. (2018). This relationship is stronger in the NDR firm sample.

The findings in Table 1-5 reiterate the analysis from Tables 1-3 and 1-4 but do so using only firms with SEO offer prices above three dollars (e.g. Li & Zhuang, 2012). This omission of observations is to determine if the significant relationship between NDR meetings and SEO underpricing is concentrated in smaller, lower priced offerings that have higher levels of information asymmetry (Bowen et al. 2008).

In Column (1), the presence of an NDR meeting within three months of the SEO still has a negative coefficient (-0.218), but the estimate is not statistically significant. This is also the case with *InfrequentNDR_qtr* (Column (3)), which has a negative coefficient (-0.176) and no statistical significance. These findings indicate that simply having an NDR meeting within three months of an SEO and having an NDR meeting without one in the prior three months are associated with only smaller firm underpricing. This is again consistent with my Hypothesis 2 that the negative relationship between NDRs and SEO underpricing is greater for firms with infrequent NDR activity.

This finding does not persist, though, for the number of NDRs and firms that had an NDR meeting but did not have one in at least six months prior to the SEO. Column (2) shows that a greater number of NDR meetings is again associated with a decrease in SEO underpricing in firms with offer prices above three dollars. Given the level-log specification, as the number of NDRs in the quarter leading to the SEO doubles (100% increase) SEO underpricing decreases by 0.257%. This is a slightly lesser magnitude than in the full sample (0.294%), but the coefficient is still

significant at the 5% p-value level. Finally, Column (4) shows that the presence of an NDR meeting in the three months leading to the SEO, when a firm did not have a meeting in the prior six months, is associated with a 0.453% decrease in SEO underpricing in firms with offer prices above three dollars. This is also a slightly lesser magnitude than in the full sample (0.613%) and displays high statistical significance. The findings of Table 1-5 reiterate the relationship between NDR meetings and SEO underpricing, but they also reveal that the statistically significant relationships are, at least in part, concentrated in lower-priced firms (e.g. Li & Zhuang, 2012). Taken together, the results from this analysis are consistent with Hypothesis 2.

1.5.3 Endogeneity of NDR Variables – 2SLS Regressions

OLS models assume that error term for the dependent variable is not correlated with the independent variables. When this is not the case, OLS does not provides optimal coefficient estimates. Two-stage least-squares regression uses instrumental variables that are uncorrelated with the error terms to estimate values of the endogenous independent variable (first stage), and then uses those estimated values to estimate a model of the dependent variable (second stage). Since the estimated values are based on variables that are uncorrelated with the errors, the results of the two-stage model are optimal. This essay adopts two-stage least squares (2SLS) regressions to address the endogeneity of NDR occurrence, and further test Hypotheses 1 & 2. The endogeneity of NDRs is due to the self-selective nature of the meetings and it is possible that unobservable characteristics that affect SEO underpricing are correlated with the occurrence of NDRs. This would result in biased and inconsistent OLS estimates. To ameliorate this concern, I use instrumental variable (IV) regression analysis.

Following Li & Zhuang (2012), I use two variables that I believe to have the desired properties as instrumental variables (IVs). The first instrument is whether a firm faces a high

litigation risk. This variable is based on Francis et al. (1994) and is defined as an indicator variable (*Litigation*) that equals one for firms in the biotechnology (SIC Codes 2833–2836 & 8731–8734), computer (SIC Codes 3570–3577 & 7370–7374), electronics (SIC Codes 3600–3674), and retail (SIC Codes 5200–5961) industries, and zero otherwise. The rationale behind this choice of instrument is two-fold. First, firms with high litigation risk may not want to have NDR meetings and run the risk of being misleading. On the other hand, though, such firms may provide more information to investors in order to provide a positive signal and not appear as if they are withholding information from investors. The second IV is the percentage of firms in the same industry that have NDR meetings, represented by *IndustryNDRs*. There is a potential peer effect among firms who choose to meet with buy-side institutions, thus I expect that firms whose industry peers hold many NDR meetings would do so as well. These two variables are likely correlated with NDR meeting occurrence, though there is no indication that these variables will have a direct effect on a firm's SEO underpricing. The second stage results are estimated using Equation (2):

$$Underpricing_{i,t} = \alpha_0 + \alpha_1 \widehat{NDR}_{i,t} + \sum_{n=2}^{N} \alpha_n Control\ Variables_{i,t} + Year\ \&\ Industry\ Fixed\ Effects + \epsilon_t \quad \text{(Eq. 2)}$$

where *NDR_3, InfrequentNDR_half,* & *ln_NDRs* are the endogenous variables. I employ a probit first stage model when *NDR_3 & InfrequentNDR_half* are the endogenous variables, and I employ an OLS first stage model when *ln_NDRs* is the endogenous variable. The estimated values of $\widehat{NDR\_3}$, $\widehat{InfrequentNDR\_half}$, & $\widehat{\ln NDRs}$ are the independent variables of interest (denoted by $\widehat{NDR}_{i,t}$ in Equation (2)). This analysis employs *Litigation* and *IndustryNDRs* as instrumental variables.

In Table 1-6, Columns (1), (3), & (5) show the first stage results with *NDR_3, ln_NDRs,* & *InfrequentNDR_half* as the respective endogenous variables. In all three first stage regressions,

coefficients on *IndustryNDRs* are positive and significant, indicating that firms whose peers in the same industry have NDR meetings tend to have NDR meetings themselves (Columns (1) & (5)), and firms whose peers in the same industry have more NDR meetings tend to have a greater number of NDR meetings (Column 3). The pseudo R^2 of the three first-stage regressions are 0.15, 0.07, & 0.13, respectively. *Litigation* is positive and significant in Columns (1) & (3) but is positive and insignificant in Column (5). This shows that firms with more litigation risk are more likely to have an NDR meeting in the three months prior to the SEO, driven by the firms with NDR meetings in the previous quarter as well. This also suggests that firms with more litigation risk will have a greater number of NDR meetings.

In the second stage, having an NDR meeting is associated with a reduction in SEO underpricing. The magnitude of this reduction is about 1.475% when a firm has an NDR in the quarter leading up to the SEO, 1.586% when the number of NDR meetings doubles, and 1.673% when a firm has an NDR meeting in the quarter leading up to the SEO but not in the six months prior to that period. This again supports Hypotheses 1 & 2 that the presence of NDR meetings reduces the magnitude of SEO underpricing and that the association is stronger among less frequent NDRs.

I perform validity tests of the instruments to decrease any concerns of low-quality instruments. I evaluate the validity of the 2SLS approach using both the weak instruments tests (F-tests) and the overidentifying restrictions tests. If these tests show that the instruments are not weak (i.e. are correlated to the NDR variable and not with the underpricing measure), then I have confidence that 2SLS is an appropriate approach to control for the endogenous nature of NDR occurrence. The combination of the partial R^2 values and the high F-statistics of 200.68 (*NDR_3*), 102.82 (*ln_NDRs*), & 132.86 (*InfrequentNDR_half*) suggests that this analysis does not suffer from

weak instruments. Further, the overidentification tests report chi-squared tests that show no significant relationship between the instruments and the error term of the first-stage regressions, thus providing validity to the chosen instruments in all three 2SLS estimations.

1.5.4 NDRs and SEO underpricing – Information Asymmetry Levels

I now test Hypothesis 3 that the negative relationship between NDRs and SEO underpricing is stronger for firms with greater information asymmetry measures. The information asymmetry proxies that I employ are firm size (Bradley et al., 2022), analyst forecast error (Bushee et al., 2018), firm age (Chemmanur et al., 2010), and bid-ask spread (He et al., 2014). The following equation is employed with all information asymmetry proxies:

$$Underpricing_{i,t} = \alpha_0 + \alpha_1 NDR_{i,t} + \alpha_2 IAProxy_{i,t} + \alpha_2 (NDR_{i,t} * IAProxy_{i,t}) + \sum_{n=3}^{N} \alpha_n Control\ Variables_{i,t} + Year\ \&\ Industry\ Fixed\ Effects + \epsilon_t \quad \text{(Eq. 3)}$$

where *IAProxy* is equal to *Small_Size*, *High_FE*, *Low_Age*, & *High_BA* in Tables 1-7 through 1-10, respectively (variable definitions are in Appendix A and in description below). These indicator variables are chosen since small firms, firms with high analyst forecast errors, young firms, and high bid-ask spread firms are commonly identified as having greater informational gaps. Also, *NDR* here is equal to *NDR_3, ln_NDRs,* & *InfrequentNDR_half,* as defined previously.

1.5.4.1 Firm Size

Table 1-7 reports the relationship between NDR meetings and SEO underpricing, but here I test if the relationship is driven by firm size. This is proxied for by the *Small_Size* binary indicator variable that is equal to one if the firm's market value of equity is greater than the median firm and zero else. This variable is interacted with NDR variables in Column (1) of all panels, and it is used

to partition the sample into large and small firms in Columns (2) & (3) in all panels. This is done to test the impact that size has in the full sample and in the partitioned size subsamples.

The relationship between *NDR_3* and SEO underpricing is shown in Panel A of Table 1-7. In Column (1), the interaction variable of *NDR_3* and *Small_Size* is negative and marginally significant (p-value < 0.1). This indicates that firms with NDR meetings within three months of their SEO and whose size is below the median have lower SEO underpricing by about 0.617% . In Column (1), both *NDR_3* and *Small_Size* have negative coefficients that are insignificant, suggesting that small firms with NDR meetings drive my results. This is corroborated where *NDR_3* in the partition of large firms in Column (2) has a negative and statistically insignificant coefficient (-0.025) and in the partition of small firms in Column (3) has a negative and highly significant coefficient (-0.675). This suggests that if small firms have NDR meetings in the three months leading up to their SEO, the magnitude of their underpricing is reduced by 0.675% .

The tests in Panels B & C of Table 1-7 are the same as Panel A, other than the NDR variables (*ln_NDRs* in Panel B; *InfrequentNDR_half* in Panel C). In Panel B, *ln_NDRs* and its interaction with *Small_Size* are negative and insignificant in all columns, suggesting that the number of NDR meetings in the three months prior to the SEO have no significant association, when firm size is considered.

In Panel C of Table 1-7, *InfrequentNDR_half* and its interaction with *Small_Size* are negative and highly significant both statistically and economically. Column (1) shows that firms who had an NDR in the quarter leading up to the NDR and none in the prior six months have a negative relationship with *Underpricing* of 1.113% when the firm is smaller than the median firm. Further, Column (3) shows that small firms that have an NDR in the quarter leading up to the NDR and none in the prior six months have a negative relationship with *Underpricing* of 1.179% in the

subsample of small firms. These findings are consistent with prior literature on the impact of disclosure on SEO underpricing that suggest that small firms, with greater information asymmetry, are more impacted than large firms by information dissemination (Bowen et al., 2008; Li & Zhuang, 2012).

1.5.4.2 Analyst Forecast Errors

Table 1-8 reports the relationship that NDR meetings have with SEO underpricing, focusing on if analyst forecast errors drive the results. Analyst forecast errors are proxied for by the *High_FE* binary indicator variable that is equal to one if the firm's analyst forecast error for the quarter prior to the SEO is greater than the median SEO firm and zero else. This variable is interacted with NDR variables in Column (1) of all panels, and it is used to partition the sample into high and low forecast error firms in Columns (2) & (3) in all panels. Hypothesis 3 is tested here to understand the effect that forecast errors have in the full sample and in the partitioned forecast error subsamples.

This analysis of the relationship between *NDR_3* and SEO underpricing is shown in Panel A of Table 1-8. In Column (1), the interaction variable of *NDR_3* and *High_FE* is negative and significant. This suggests that firms with NDR meetings within three months of their SEO and whose analyst forecast errors are above the median have lower SEO underpricing by about 0.578%. In Column (1), both *NDR_3* and *High_FE* have negative coefficients that are insignificant, suggesting that high forecast error firms with NDR meetings reduce underpricing. This is supported in Panel A, where the partition of low forecast error firms in Column (3) have a negative and insignificant coefficient (-0.046) and the partition of high forecast error firms in Column (3) have a negative and significant coefficient (-0.535). This result suggests that, on average, NDRs conducted by firms with high levels of analyst forecast errors reduce their SEO

underpricing by 0.535%. Tests in Panels B and C of Table 1-8 are the same as Panel A, other than the NDR variables (*ln_NDRs* in Panel B; *InfrequentNDR_half* in Panel C).

In Panel B, *ln_NDRs* and its interaction with *High_FE* are negative and insignificant in all columns, suggesting that the number of NDR meetings in the three months prior to the SEO have no significant effect when firm analyst forecast error is considered.

In Panel C of Table 1-8, *InfrequentNDR_half* and its interaction with *High_FE* are negative and insignificant, which implies that the relationship of *InfrequentNDR_half* with underpricing in the full sample is countered by high forecast error firms. This said, Column (2) shows that high forecast error firms that have an NDR in the quarter leading up to the NDR and none in the prior six months have a negative relationship with *Underpricing* of 0.757% in the subsample of high forecast error firms. These results show that, as expected, high forecast error firms are one area where the relationship between NDRs and SEO underpricing is concentrated, but the significance of these findings is challenged by the strong results for small firms with NDRs, since many of which will have high forecast errors as well.

1.5.4.3 Firm Age

Table 1-9 reports the relationship that NDR meetings have with SEO underpricing when controlling for firm age, proxied for by the *Low_Age* binary indicator variable that is equal to one if the firm's age for the quarter prior to the SEO is lower than the median SEO firm age and zero else. This variable is interacted with NDR variables in Column (1) of all panels, and it is used to partition the sample into older and younger firms in Columns (2) & (3) in all panels. I do this to examine the effects that a firm's age has in the full sample and in the partitioned age subsamples of SEO firms.

Column (1) of Panel A shows that the interaction variable of *NDR_3* & *Low_Age* is negative and insignificant. This is the same for the interactions with *Low_Age* in Panels B & C. Panel A does show a significantly negative association between *NDR_3* and *Underpricing* in the younger firm subsample. The magnitude of this reduction of underpricing (0.424% decline) is not as great as in previous tests, and it holds weak statistical significance (p-value < 0.1). Additionally, the tests in Panels B and C of Table 1-9 are the same as Panel A, apart from the NDR variables (*ln_NDRs* in Panel B; *InfrequentNDR_half* in Panel C).

In Panel B, *ln_NDRs* has no significant association in either the full or the partitioned sample, consistent with previous results. The findings in this table are not as conclusive as the previous two, though.

In Panel C of Table 1-9, *InfrequentNDR_half* and its interaction with *Low_Age* are negative and insignificant, but Columns (2) and (3) show that both older and younger age firms that have an NDR in the quarter leading up to the NDR and none in the prior six months have a negative association with *Underpricing*. The subsample of older firms shows a significant decline of 0.576% in *Underpricing* and the subsample of younger firms show a significant decline of 0.627% in *Underpricing*. These results suggest that, the relationship between NDR meetings and SEO underpricing is not dependent on firm age, but the stronger effects of NDRs are found in younger firms, as expected.

1.5.4.4 Bid-Ask Spread

Table 1-10 reports the relationship between NDR meetings and SEO underpricing, and in this table, I test if the results are concentrated in high bid-ask spread stocks, proxied for by the *High_BA* binary indicator variable that is equal to one if the firm's average bid-ask spread in the month prior to the SEO is higher than the median bid-ask spread of the SEO firms and zero else.

This variable is interacted with NDR variables in Column (1) of all panels, and it is used to partition the sample into high and low bid-ask spread firms in Columns (2) & (3) in all panels. This analysis examines the effects that firm's liquidity, via the bid-ask spread, has in the full sample and in the partitioned bid-ask spread subsamples.

The relationship between *NDR_3* and SEO underpricing is shown in Panel A of Table 1-10. This panel reveals no significant results for *High_BA* when interacted with *NDR_3*, nor do the partitioned regressions suggest that bid-ask spread dictates the outcome of NDRs on SEO underpricing.

As in the previous information asymmetry regressions (Tables 1-7 through 1-9), in Panel B, *ln_NDRs* provide no valuable results either alone in the partitioned subsamples or in the interaction with *High_BA*. In Panels A & B *ln_NDRs* and *High_BA* have negative coefficients, but those coefficients have no statistical significance. This suggests that high bid-ask spread firms with NDR meetings do not notably impact my initial results.

The tests in Panel C of Table 1-10 are the same as Panel A, other than the NDR variable (*InfrequentNDR_half*), but this panel provides the only significant results while controlling for the bid-ask spread. In Panel C, *InfrequentNDR_half* and its interaction with *High_BA* are negative and significant, providing evidence that infrequent NDR meetings in the three months prior to the SEO significantly reduce SEO underpricing, via a 0.714% decline, when the firms have high bid-ask spreads. Further, Column (2) shows that high bid-ask spread firms that have an NDR in the quarter leading up to the NDR and none in the prior six months have a negative association with *Underpricing* of 0.859% in the subsample of high bid-ask spread firms. These results suggest that the bid-ask spread does not explain the baseline multivariate analysis results, but the significant

relationship between NDRs and SEO underpricing is more likely to be found in high bid-ask spread firms.

This analysis of how information asymmetry proxies are related to my initial results that the occurrence of NDRs is associated with a lower amount of SEO underpricing, provides useful insight to the initial findings. Small firm size seems to be where the role of NDRs is the most evident. This, coupled with the strong results for high analyst forecast error firms, suggest that the smaller, lesser-known/lesser-followed companies are those that benefit the most by having private interactions with financial institutions before their SEO. This lower level of underpricing is likely to benefit these firms, economically, much more than larger firms. It is not clear if firm age explains the results of the baseline analysis, but the stronger negative relationship between NDRs and underpricing is found in younger firms is as expected. The same can be said for high bid-ask spread firms. They do not seem to dominate the results, but there is some concentration of the relationship between NDRs and underpricing in higher bid-ask spread firms, specifically when NDR activity is less frequent. Overall, firms with greater information asymmetry seem to benefit more from the occurrence of NDR meetings than those with lower information asymmetry, consistent with Hypothesis 3.

1.5.5 Robustness Tests – NDR Timing & Quantity and SEO Underpricing

In recognizing the relationship between NDRs and SEO underpricing, it is important to further explore the amount and change in NDR activity. To do so, I examine how multiple NDR meetings can reduce SEO underpricing or whether the addition of more meetings dilutes the firm's available information and leaves little in the way of an informational gap to be closed by NDRs. I employ three independent variables of interest (*PersistentNDR_3, IncreaseNDR_3,* & *ChangeNDR*_3) in this analysis that adjust for the occurrence of multiple NDRs. *PersistentNDR_3*

is a binary indicator variable that equals one if the firm has a NDR in the two most recent three-month intervals preceding the SEO (months [-6, -4] to months [-3, -1]), and zero else. This accounts for NDR meetings by one firm occurring persistently, not deliberately, and prior to an SEO (i.e. Li & Zhuang, 2012). *IncreaseNDR_3* is an indicator variable that equals one if the firm increases NDR frequency from months [-6, -4] to months [-3, -1] before the SEO, and zero else. This variable accounts for increases in NDR activity as to see how this may impact the information environment of a firm pre-SEO. Lastly, *ChangeNDR*_3 is the percentage change in NDR frequency from months [-6, -4] to months [-3, -1]. This is similar to *IncreaseNDR_3*, but it quantifies the change by magnitude and as a continuous variable. All variables are defined in Appendix A.

Table 1-11 reports the regression results in the subsample of firms that have NDR meetings. In Column (1), *PersistentNDR_3* is negatively and marginally significantly related to SEO underpricing, indicating that firms who have NDR meetings in each of the previous 3-month periods prior to an SEO result in a reduction, on average, of their SEO underpricing by 0.467% . In Columns (2) & (3), *IncreaseNDR_3* and *ChangeNDR_3* have negative signs but show no statistical significance. These results suggest that more NDRs can weaken the informational effects of these meetings, but simply having NDRs in consecutive quarters maintains the informational effect, though it is weaker in statistical significance than simply having an NDR in the three months prior to the SEO regardless of prior NDR activity. The weaker significance of *PersistentNDR_3* is consistent with the stronger significance of less frequent NDRs (*InfrequentNDR_half* in Table 1-4; consistent with Bushee et al., 2018), relative to the findings in Table 1-3. It suggests that firms with fewer and less frequent NDR activity reduce SEO underpricing most significantly, again consistent with Hypotheses 1 & 2.

The next relationship between NDRs and SEO underpricing of interest is that of NDR meetings occurring further away from the SEO. Thus far, all analysis has relied on NDRs occurring in the three-month period prior to the SEO, therefore, I want to examine if NDR meetings further away from SEOs, regardless of the number or frequency, have an effect on a firm's information environment around their current SEO. Therefore, I employ four variables similar to others previously used: *NDR_6, NDR_12, ln_NDRs_6,* and *ln_NDRs_12*. The variables *NDR_6* and *NDR_12* are equal to one if the most recent NDR meeting is held within six months or within twelve months of the SEO, respectively, and zero else. *ln_NDRs_6* and *ln_NDRs_12* are equal to the natural log of one plus the number of NDRs held in the six-month period or twelve-month period prior to the SEO, respectively. These variables do account for firms where *NDR_3* equals one, but they also account for NDR meetings further away from the SEO, which is the point of this analysis.

Table 1-12 reports the regression results using these variables. None of these newly employed variables have a statistically significant relationship with SEO underpricing in the full sample. This confirms that firms with NDR meetings further from the SEO or with more NDR meetings that are further from the SEO do not have their SEO underpricing significantly reduced by said NDRs. Further, it indicates that the only NDRs that decrease SEO underpricing significantly are those nearest to a firm's upcoming SEO.

1.5.6 NDRs and SEO Underpricing – SEO Underwriters & NDR Sponsors

Additionally, I want to test if the firms that put on the NDR meetings and underwrite the SEO impact the underpricing of firms significantly. This is important since many of the same firms that sponsor NDRs also have underwriting businesses. It is important to know if the relationship I have outlined in this essay is pervasive across any SEO underwriter or is specifically concentrated

in underwriters that sponsored the firm's SEO as well. This will help us to understand if the findings of my hypotheses are specific to the financial institutions involved in the organization of the NDRs and SEOs. I test if these firms have any significant effect by employing an independent variable: *Underwriter_Sponsor*. This variable is equal to one if the SEO underwriter is also the sponsor of the NDR. This will help further our understanding of what is to gain from putting on these NDR meetings and whether the informational gaps that I have argued NDRs to close are closed more or less when the SEO underwriter also sponsored the earlier NDR meeting. This *Underwriter_Sponsor* variable is interacted with NDR variables in Column (1) of all panels of Table 1-13, and it is used to partition the sample into firms where the NDR sponsor and the underwriter of the SEO were the same firm and those where it was not in Columns (2) & (3) in all panels. This analysis examines the relationships that the analysts and financial institutions have with NDRs and their ability to reduce underpricing in SEOs.

Table 1-13 reports the findings for the relationship between NDRs and SEO underpricing when the underwriter and NDR sponsor are the same or not. In Panel A, *NDR_3* is interacted with *Underwriter_Sponsor* in Column (1) and is employed alone in the subsamples in Column (2) and Column (3). This analysis reveals a negative and significant association between *NDR_3* and *Underpricing* in Column (1), but *Underwriter_Sponsor* has no statistical significance alone or in the interaction term with *NDR_3*. This indicates that the occurrence of an NDR meeting in the three-month period prior to an SEO reduces the underpricing of said SEO by 0.382% but only when the NDR sponsor and SEO underwriter are not the same firm. Further in the analysis, NDRs are shown to only have a negative relationship with underpricing in the subsample of firms where the NDR sponsor and SEO underwriter are not the same firm (Column (3)). Panel A suggests that NDR meetings reduce SEO underpricing but only among firms where the SEO underwriter and

NDR sponsor are different firms. Panel B provides statistically consistent findings to Panel A for the independent variable *ln_NDRs*.

In Panel C of Table 1-13, *InfrequentNDR_half* is the independent NDR variable, and the findings differ from those of Panels A & B a bit. In Column (1), *InfrequentNDR_half* is negative and significant and suggests that having an infrequent NDR meeting in the three months prior to an SEO, while the NDR sponsor is not the SEO underwriter, decreases SEO underpricing by 0.496% . That said, both Columns (2) & (3) show *InfrequentNDR_half* to have a negative and significant association with *Underpricing* in the subsample analysis. This indicates that regardless of who the underwriter or NDR sponsor is, infrequent NDR activity significantly reduces SEO underpricing. This finding gives more strength to the argument that firms affected by NDRs have NDR meetings when they have something to gain and do not have them for unprofitable reasons, consistent with the voluntary disclosure argument of Verrecchia (1983).

Lastly, in addition to the fixed-effects regressions and 2SLS analysis, I employ the propensity score matching approach to further address endogeneity and isolate the treatment effects of NDR meetings. This matching approach is free of functional form restrictions that most regressions contain (i.e. Armstrong et al. 2010). A firm with an NDR meeting can be assigned a non-NDR firm, matched by a myriad of variables. I adopt the propensity score matching approach as a method that is more robust to the underlying relationship between NDR meetings and SEO underpricing. I estimate a logistic propensity score model using a group of variables to predict the probability that a firm will have an NDR meeting (be "treated"). Variables used in the propensity score estimation are *Log_MV*, *NegativeCAR*, *Log_AnalystCoverage*, *Intangibles*, *Volatility*, *Litigation*, *IndustryNDRs*, and eight SEO offer-year indicators. I form matched pairs in five different ways: nearest neighbor matching with one control match, nearest neighbor matching with

three control matches, nearest neighbor matching with five control matches, regression-adjusted matching, and inverse probability weighting matching. With the matched pairs, I examine the relationship between NDRs and SEO underpricing by assessing whether the average level of SEO underpricing is significantly different between the treatment (*NDR_3* = 1) sample and the control (*NDR_3* = 0) sample.

The results in Table 1-14 indicate that the mean underpricing difference between the treatment group (NDR firms) and the control group (non-NDR firms) is statistically different for 1-to-1 nearest neighbor matching, regression-adjusted matching, and inverse probability weighting matching. This suggests that firms having NDR meetings experience a significant reduction in SEO underpricing. The average treatment effect (ATE) for 1-to-1 nearest neighbor matching provides a greater average effect (-0.557%) than is observed in the baseline results of Table 1-3. Even stronger negative and significant average treatment effects are yielded from the treated sample (ATET). This suggests that the treated firms most significantly affect the reduction of *Underpricing*. This analysis is consistent with both the fixed-effect regression results and the 2SLS results, indicating that NDR meetings within three months of an SEO significantly reduce SEO underpricing.

1.6 Conclusions

This essay examines whether non-deal roadshows (NDRs) have firm-specific effects in the setting of SEO underpricing. NDRs have the potential to decrease the informational gaps between managers and institutional investors, thus reducing firms' cost of raising equity capital, measured by SEO underpricing. I find evidence suggesting that NDRs reduce the magnitude of SEO underpricing and that this relationship is more pronounced among smaller firms, firms with higher analyst forecast errors, and firms that had NDR meetings less frequently. Also, competing results

show that firms with infrequent NDR activity significantly reduce SEO underpricing, but this is also true for "persistent" NDR activity firms. These results can coexist, though, as the statistical strength of *PersistentNDR_3* is less than NDR_3 and much less than *InfrequentNDR_half*, which drives my results. These results suggest that NDR firms reduce underpricing, but this relationship is stronger as the occurrence of the NDR meetings is less frequent. There also seems to be a muting impact on the ability for NDRs to decrease underpricing when the NDR sponsor and the SEO underwriter firms are one in the same, since much of the measured effect of NDRs is among firms where underwriters and sponsors were not the same firm. Lastly, I show there to be no long-term effect of NDRs, no effect of increasing NDR activity, and little effect of the number of NDR meetings on SEO underpricing. This study contributes to the SEO literature, the voluntary disclosure literature, and the sparse literature on NDRs and private meetings by providing evidence that NDRs reduce SEO underpricing and that this relationship varies with firm-specific information asymmetry and the timing of NDR meetings.

This study has its limitations. Though it does account for the endogeneity of NDR meetings (2SLS and propensity score matching), this attempt may still be insufficient and subject to issues such as the choices of first-stage model instruments (in 2SLS) or specification. Also, SEO underpricing is a specific piece of a firm's cost of equity capital that likely omits other potential impacts of NDRs on the cost of equity. This study also only measures the relationship between NDRs and the discounting of SEO prices, as this best identifies the actions of the lead underwriter institution, but it does not explain the day-of return of the SEO. Further research is warranted to enhance our understanding of how NDRs impact the cost of capital and capital structure decisions of firms.

1.7 Tables

TABLE 1-1: Descriptive Statistics for SEOs and Non-Deal Roadshows

This table reports descriptive statistics on SEO characteristics and average underpricing over time and underpricing sorted by NDRs occurring prior to SEOs. The sample includes 7,141 offers from 2013 through 2020. Variable definitions can be found in Appendix A.

Panel A: SEO Characteristics

	Offer Price ($)	Offer Proceeds ($ Millions)	Underpricing
N	7,141	7,141	7,141
Mean	29.28	242.264	2.741%
Std. Dev	49.16	488.988	6.807%
25th PCTL	7.30	40.000	-0.254%
Median	18.95	110.000	0.604%
75th PCTL	35.00	275.000	3.571%

Panel B: Number of SEOs and Underpricing by Year

Year	Mean Underpricing	Median Underpricing	N
2013	1.878%	0.597%	888
2014	2.096%	0.800%	891
2015	2.472%	0.930%	944
2016	2.637%	0.439%	760
2017	2.338%	0.318%	880
2018	2.798%	0.416%	863
2019	4.582%	0.596%	848
2020	3.135%	0.847%	1,067
Total	2.741%	0.604%	7,141

Panel C: Underpricing by NDR Occurrence

	NDR =	N	Mean	Median
NDR_3	**0**	6,428	2.805%	0.612%
	1	713	2.167%	0.587%
NDR_6	**0**	5,784	2.825%	0.593%
	1	1,357	2.382%	0.657%
NDR_12	**0**	4,720	2.925%	0.627%
	1	2,421	2.382%	0.571%
	Total	7,141	2.741%	0.604%

TABLE 1-2: Summary Statistics for Variables in Regression Analysis

This table reports descriptive statistics for variables used in the underpricing regression analysis. Panel A reports the statistics for the sample. Panel B reports the tests for differences in means and medians for NDR firms vs. Non-NDR firms. The mean shows the t-test with null hypothesis of the mean being equal to zero. The median reports the Wilcoxon signed rank test statistics with the null hypothesis of the median being equal to zero. Variable definitions can be found in Appendix A.

Panel A: All Firm Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Underpricing	7,141	2.740	6.799	-10.049	74.895
DollarValue	7,141	25.859	223.080	-7,220.307	4,615.145
InfrequentNDR_qtr	7,141	0.084	0.278	0.000	1.000
InfrequentNDR_half	7,141	0.076	0.264	0.000	1.000
NDR_3	7,141	0.100	0.300	0.000	1.000
NDR_6	7,141	0.190	0.392	0.000	1.000
NDR_12	7,141	0.339	0.473	0.000	1.000
Num_NDRs	7,141	0.280	0.789	0.000	9.000
Price_Below_3	7,141	0.129	0.335	0.000	1.000
SharesOffered_SharesOut	7,141	0.168	0.158	0.014	0.987
Offer_Amount (Millions $)	7,141	228.055	321.167	1.700	1,843.572
Market_Value (Millions $)	7,141	2,993.024	5,748.645	8.939	37,612.310
Price	7,141	29.005	31.812	0.515	188.330
Volatility	7,141	0.036	0.024	0.008	0.145
NegativeCAR	7,141	0.276	0.447	0.000	1.000
BidAsk	7,141	0.003	0.007	0.000	0.151
Analyst_Coverage	7,141	4.079	4.987	0.000	22.000
F_Error	4,118	0.139	0.373	0.000	10.740
SinceEarn	7,141	49.956	13.409	5.000	73.000
Age	6,335	11.320	13.405	1.000	96.000
Intangibles	7,141	0.162	0.237	0.000	0.829
ROA	7,141	-0.049	0.099	-0.543	0.082
Leverage	7,141	0.237	0.231	0.000	0.908
Integer	7,141	0.309	0.462	0.000	1.000
Reputation	7,141	0.270	0.444	0.000	1.000
IPOUnderpricing	7,141	0.206	0.157	-0.066	0.847
NYSE	7,141	0.383	0.486	0.000	1.000
Litigation	7,141	0.177	0.382	0.000	1.000
Industry_NDRs	7,141	0.098	0.100	0.000	1.000

Panel B: NDR vs. Non-NDR Firms Mean & Median tests

	NDR_3 = 0		*NDR_3* = 1		**Difference**	**t-stat**
	Mean	**Median**	**Mean**	**Median**	**(Mean)**	**(Median)**
Underpricing	2.804	0.612	2.164	0.587	0.639**	0.074
DollarValue	26.202	3.746	22.770	5.452	3.432	2.382
Price_Below_3	0.134	0	0.081	0	0.053***	16.073***
SharesOffered_SharesOut	0.170	0.124	0.155	0.121	0.014**	0.557
Offer_Amount	228.694	109.223	222.293	116.445	6.402	0.86
Market_Value	3023.370	995.921	2719.441	1048.155	303.929	0.456
Price	28.856	20.022	30.351	22	-1.494	4.560**
Volatility	0.036	0.031	0.034	0.031	0.002**	0.192
NegativeCAR	0.272	0	0.311	0	-0.039**	4.872**
BidAsk	0.003	0.001	0.002	0.001	0.001**	0.424
Analyst_Coverage	4.048	3	4.358	3	-0.31	6.145**
Forecast Error	0.141	0.06	0.120	0.06	0.021	0.596
SinceEarn	49.872	53	50.711	53	-0.839	3.220*
Age	11.429	6	10.343	5	1.086*	0.948
Intangibles	1.213	1.023	1.213	1.026	0.00	0.58
ROA	-0.049	-0.003	-0.046	-0.007	-0.002	1.898
Leverage	0.239	0.187	0.222	0.14	0.017*	5.405**
Integer	0.302	0	0.365	0	-0.062***	11.709***
Reputation	0.269	0	0.281	0	-0.012	0.432

	NDR_3 = 0		*NDR_3* = 1		**Difference (Mean)**	**t-stat (Median)**
	Mean	**Median**	**Mean**	**Median**		
IPO_Underpricing	0.207	0.208	0.197	0.193	0.011*	3.762*
NYSE	0.386	0	0.363	0	0.022	1.344
Litigation	0.174	0	0.202	0	-0.028*	3.387*
Observations	6428		713		7141	

TABLE 1-3: Regression Analysis of Non-Deal Roadshows' Relationship with SEO Underpricing

This table reports the baseline year and industry fixed-effects regression results. *Underpricing* is the dependent variable, with independent variables of interest being *NDR_3* and *ln_NDRs*. Control variables for firm and SEO deal characteristics, as defined in Section 3.4, are included. See Appendix A for variable definitions. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests.

	(1) Underpricing	(2) Underpricing
NDR_3	-0.370**	
	(0.18)	
ln_NDRs		-0.294**
		(0.14)
Price_Below_3	1.737***	1.738***
	(0.64)	(0.64)
SharesOffered_SharesOut	11.333***	11.341***
	(2.22)	(2.22)
Log_OfferAmount	-1.443***	-1.444***
	(0.31)	(0.31)
Log_MV	0.944***	0.946***
	(0.31)	(0.31)
Log_Price	-0.337*	-0.337*
	(0.20)	(0.20)
Volatility	4.671	4.583
	(7.90)	(7.90)
NegativeCAR	-0.329	-0.332*
	(0.20)	(0.20)
Log_AnalystCoverage	-0.017	-0.015
	(0.10)	(0.10)
Intangibles	-0.262	-0.255
	(0.42)	(0.42)
ROA	-6.188***	-6.163***
	(2.22)	(2.22)
Leverage	-0.255	-0.257
	(0.59)	(0.59)
Log_SinceEarn	-0.101	-0.094
	(0.35)	(0.35)
Integer	0.413**	0.411**
	(0.21)	(0.21)
Reputation	-0.033	-0.036
	(0.16)	(0.16)
IPOUnderpricing	-1.196	-1.192
	(0.85)	(0.85)
NYSE	0.201	0.197
	(0.22)	(0.22)
Constant	-5.696	-5.471
	(4.42)	(4.26)
Industry FE	YES	YES
Year FE	YES	YES

	(1) Underpricing	(2) Underpricing
N	7,141	7,141
R-Squared	0.25	0.24

TABLE 1-4: Regression Analysis of Infrequent Non-Deal Roadshows' Relationship with SEO Underpricing

This table reports the year and industry fixed-effects regression results for NDRs that occur infrequently. *Underpricing* is the dependent variable, with independent variables of interest being *InfrequentNDR_qtr* and *InfrequentNDR_half*. Columns (1) & (2) report tests of the impact of infrequent NDRs on the full sample of SEO firms, while columns (3) & (4) report tests of the impact of infrequent NDRs on the subsample of firms that have at least 1 NDR in the last 12 months. Control variables for firm and SEO deal characteristics, as defined in Section 3.4, are included. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

	(1) Underpricing	(2) Underpricing	(3) Underpricing: NDR_12 = 1	(4) Underpricing: NDR_12 = 1
InfrequentNDR_qtr	-0.379*		-0.450*	
	(0.20)		(0.27)	
InfrequentNDR_half		-0.613***		-0.753***
		(0.21)		(0.28)
Price_Below_3	1.737***	1.736***	2.088**	2.097**
	(0.64)	(0.64)	(1.00)	(1.00)
SharesOffered_SharesOut	11.332***	11.324***	7.193**	7.200**
	(2.22)	(2.22)	(3.28)	(3.27)
Log_OfferAmount	-1.444***	-1.442***	-0.958***	-0.954***
	(0.31)	(0.31)	(0.36)	(0.36)
Log_MV	0.944***	0.945***	0.561	0.565
	(0.31)	(0.31)	(0.40)	(0.40)
Log_Price	-0.338*	-0.340*	-0.730***	-0.735***
	(0.20)	(0.20)	(0.24)	(0.24)
Volatility	4.725	4.729	8.038	8.098
	(7.90)	(7.90)	(9.63)	(9.63)
NegativeCAR	-0.329	-0.325	-0.435*	-0.417
	(0.20)	(0.20)	(0.26)	(0.26)
Log_AnalystCoverage	-0.018	-0.020	0.028	0.017
	(0.10)	(0.10)	(0.13)	(0.12)
Intangibles	-0.260	-0.266	-0.255	-0.282
	(0.42)	(0.42)	(0.57)	(0.57)
ROA	-6.184***	-6.206***	-5.087*	-5.154*
	(2.22)	(2.22)	(3.04)	(3.03)
Leverage	-0.254	-0.263	-0.919	-0.948
	(0.59)	(0.59)	(0.76)	(0.76)
Log_SinceEarn	-0.100	-0.100	-0.292	-0.305
	(0.35)	(0.35)	(0.53)	(0.53)
Integer	0.411**	0.418**	0.528*	0.547**
	(0.21)	(0.21)	(0.27)	(0.27)
Reputation	-0.030	-0.033	-0.047	-0.049
	(0.16)	(0.16)	(0.21)	(0.21)
IPOUnderpricing	-1.198	-1.196	-0.494	-0.477
	(0.85)	(0.85)	(1.09)	(1.09)
NYSE	0.201	0.199	0.156	0.153
	(0.22)	(0.22)	(0.26)	(0.26)
Constant	-5.696	-5.698	-4.811	-4.760
	(4.42)	(4.42)	(4.61)	(4.59)

	(1)	(2)	(3)	(4)
	Underpricing	Underpricing	Underpricing: NDR_12 = 1	Underpricing: NDR_12 = 1
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
N	7,141	7,141	2,421	2,421
R-Squared	0.25	0.25	0.25	0.25

TABLE 1-5: Regression Analysis of Non-Deal Roadshows' Relationship with SEO Underpricing: Only Offers Above $3/Share

This table reports the fixed-effects regression results for firms that have offer prices above $3. *Underpricing* is the dependent variable, with independent variables of interest being *NDR_3, ln_NDRs, InfrequentNDR_qtr,* and *InfrequentNDR_half*. All columns report tests for the subsample of firms with offer prices above $3 to see if the initial results are only driven by low-priced issues. Control variables for firm and SEO deal characteristics, as defined in Section 3.4, are included. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

	(1)	(2)	(3)	(4)
	Underpricing	Underpricing	Underpricing	Underpricing
NDR_3	-0.218			
	(0.15)			
ln_NDRs		-0.257**		
		(0.12)		
InfrequentNDR_qtr			-0.176	
			(0.17)	
InfrequentNDR_half				-0.453***
				(0.17)
Constant	1.118	1.092	1.116	1.114
	(1.20)	(1.20)	(1.20)	(1.20)
Deal-Level Controls	YES	YES	YES	YES
Firm-Level Controls	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
N	6,205	6,205	6,205	6,205
R-Squared	0.21	0.21	0.21	0.21

TABLE 1-6: 2SLS Regression Analysis of Non-Deal Roadshows' Relationship with SEO Underpricing

This table reports the 2SLS results. Columns (1) and (5) report results where the first stage of a 2SLS estimation is a probit model, with the endogenous variable being the binary *NDR_3 & InfrequentNDR_half* variables. Column 3 is the first stage results as an Ordinary Least Squares (OLS) regression where the endogenous variable is ln_NDRs. Columns (2), (4), & (6) are the corresponding second-stage results to the 2SLS estimation. *Underpricing* is the dependent variable in the second stage. Control variables for firm and SEO deal characteristics, as defined in Section 3.4, are included. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.10, respectively, in two-tailed tests. See Appendix A for variable definitions.

	(1)	(2)	(3)	(4)	(5)	(6)
	Stage 1 Probit NDR_3	Stage 2 Underpricing	Stage 1 OLS ln_NDRs	Stage 2 Underpricing	Stage 1 Probit InfrequentNDR_half	Stage 2 Underpricing
NDR_3		-1.475*				
		(0.81)				
ln_NDRs				-1.586*		
				(0.92)		
InfrequentNDR_half						-1.673*
						(1.02)
Industry_NDRs	4.828***		0.887***		4.168***	
	(0.19)		(0.04)		(0.22)	
Litigation	0.107*		0.027**		0.028	
	(0.06)		(0.01)		(0.06)	
Price_Below_3	-0.106	1.718***	-0.010	1.712***	-0.109	1.719***
	(0.11)	(0.50)	(0.02)	(0.50)	(0.11)	(0.50)
SharesOffered_SharesOut	-0.200	12.076***	-0.005	12.098***	-0.158	11.288***
	(0.28)	(1.77)	(0.04)	(1.77)	(0.29)	(1.79)
Log_OfferAmount	0.035	-1.611***	0.003	-1.612***	0.036	-1.435***
	(0.05)	(0.23)	(0.01)	(0.23)	(0.06)	(0.24)
Log_MV	-0.005	1.140***	0.004	1.147***	0.026	0.946***
	(0.05)	(0.24)	(0.01)	(0.24)	(0.06)	(0.24)
Log_Price	0.016	-0.681***	0.010	-0.675***	-0.025	-0.343**

	(1)	(2)	(3)	(4)	(5)	(6)
	Stage 1 Probit NDR_3	Stage 2 Underpricing	Stage 1 OLS ln_NDRs	Stage 2 Underpricing	Stage 1 Probit InfrequentNDR_half	Stage 2 Underpricing
	(0.04)	(0.17)	(0.01)	(0.17)	(0.04)	(0.16)
Volatility	-0.751	6.172	-0.284	5.552	0.296	4.660
	(1.24)	(6.72)	(0.19)	(6.75)	(1.33)	(6.74)
NegativeCAR	0.009	-0.354**	-0.001	-0.366**	0.037	-0.311**
	(0.05)	(0.15)	(0.01)	(0.15)	(0.06)	(0.15)
Log_AnalystCoverage	0.018	-0.016	0.010**	-0.003	-0.015	-0.023
	(0.02)	(0.07)	(0.00)	(0.07)	(0.03)	(0.07)
Intangibles	-0.184***	-0.171	0.003	-0.148	-0.195**	-0.288
	(0.07)	(0.31)	(0.01)	(0.31)	(0.08)	(0.31)
ROA	-0.387	-6.664***	0.034	-6.544***	-0.495	-6.258***
	(0.29)	(1.71)	(0.04)	(1.72)	(0.31)	(1.73)
Leverage	-0.114	-0.416	-0.033*	-0.440	-0.218*	-0.291
	(0.11)	(0.43)	(0.02)	(0.43)	(0.12)	(0.43)
Log_SinceEarn	0.025	-0.077	0.024***	-0.035	0.006	-0.091
	(0.06)	(0.29)	(0.01)	(0.30)	(0.06)	(0.29)
Integer	0.119**	0.419***	0.021**	0.420***	0.126**	0.438***
	(0.05)	(0.16)	(0.01)	(0.16)	(0.05)	(0.16)
Reputation	0.025	-0.013	-0.006	-0.029	0.030	-0.033
	(0.05)	(0.12)	(0.01)	(0.12)	(0.06)	(0.12)
IPOUnderpricing	0.127	-1.246*	0.024	-1.224*	0.089	-1.195*
	(0.17)	(0.69)	(0.03)	(0.69)	(0.19)	(0.69)
NYSE	-0.065	0.240	-0.026**	0.217	-0.044	0.198
	(0.06)	(0.18)	(0.01)	(0.18)	(0.06)	(0.18)
Constant	1.940***	-5.139	-0.112**	-3.931	-1.934***	-5.708
	(0.31)	(3.71)	(0.05)	(3.01)	(0.32)	(4.10)

	(1)	(2)	(3)	(4)	(5)	(6)
	Stage 1 Probit NDR_3	Stage 2 Underpricing	Stage 1 OLS ln_NDRs	Stage 2 Underpricing	Stage 1 Probit InfrequentNDR_half	Stage 2 Underpricing
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
N	7,141	7,141	7,141	7,141	7,141	7,141
R-Squared/Partial R-Squared	0.15	0.24	0.07	0.24	0.13	0.24

TABLE 1-7: Regression Analysis of Non-Deal Roadshows' Relationship with SEO Underpricing: Partitioned by Information Asymmetry Proxies – Size

This table reports the year and industry fixed-effects regression results for the impact of NDRs on Underpricing, partitioned by firm size (Columns (2) & (3)) and using a *Small_Size* indicator in an interaction variable (Column (1)). *Underpricing* is the dependent variable. The NDR independent variables (*NDR_3, ln_NDRs,* & *InfrequentNDR_half*) are the variables of interest in panels A, B, & C, respectively. Small size firms are firms whose market capitalization is equal to or smaller than the median firm and large firms are firms whose market capitalization is greater than the median. Control variables for firm and SEO deal characteristics, as defined in Section 3.4, are included. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: NDR_3

	(1)	(2)	(3)
	Underpricing	Underpricing: Large Firms	Underpricing: Small Firms
NDR_3	-0.064	-0.025	-0.675**
	(0.14)	(0.12)	(0.34)
*NDR_3 * Small_Size*	-0.617*		
	(0.35)		
Small_Size	-0.110		
	(0.32)		
Constant	-5.308	-0.355	-19.481***
	(4.36)	(1.01)	(5.61)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	7,141	3,575	3,566
R-Squared	0.25	0.23	0.25

Panel B: ln_NDRs

	(1)	(2)	(3)
	Underpricing	Underpricing: Large Firms	Underpricing: Small Firms
ln_NDRs	-0.195	-0.161	-0.415
	(0.12)	(0.10)	(0.27)
*Ln_NDRs * Small_Size*	-0.207		
	(0.28)		
Small_Size	-0.147		
	(0.32)		
Constant	-4.957	-0.373	-18.752***
	(4.14)	(1.01)	(5.59)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	7,141	3,575	3,566
R-Squared	0.25	0.23	0.25

Panel C: InfrequentNDR_half

	(1)	(2)	(3)
	Underpricing	Underpricing: Large Firms	Underpricing: Small Firms
InfrequentNDR_half	-0.054	-0.028	-1.179***
	(0.17)	(0.13)	(0.41)
*InfrequentNDR_half * Small_Size*	-1.113*** (0.42)		
Small_Size	-0.079		

	(0.32)		
Constant	-5.347	-0.355	-19.546***
	(4.36)	(1.01)	(5.61)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	7,141	3,575	3,566
R-Squared	0.25	0.23	0.25

TABLE 1-8: Regression Analysis of Non-Deal Roadshows' Relationship with SEO Underpricing: Partitioned by Information Asymmetry Proxies - Forecast Error

This table reports the year and industry fixed-effects regression results for the impact of NDRs on Underpricing, partitioned by a firm's analyst forecast (Columns (2) & (3)) and using a *High_FE* indicator in an interaction variable (Column (1)). *Underpricing* is the dependent variable. The NDR independent variables (*NDR_3, ln_NDRs,* & *InfrequentNDR_half*) are the variables of interest in panels A, B, & C, respectively. High forecast error firms are firms whose pre-SEO analyst forecast is equal to or smaller than the median firm and low forecast error firms are firms whose pre-SEO analyst forecast is greater than the median. Control variables for firm and SEO deal characteristics, as defined in Section 3.4, are included. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: NDR_3

	(1) Underpricing	(2) Underpricing: High FE	(3) Underpricing: Low FE
NDR_3	0.022	-0.535*	0.046
	(0.23)	(0.28)	(0.23)
*NDR_3 * High_FE*	-0.578*		
	(0.35)		
High_FE	0.067		
	(0.20)		
Constant	-4.653	-0.877	-1.517
	(4.50)	(3.57)	(5.19)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	4,110	1,865	2,245
R-Squared	0.27	0.32	0.30

Panel B: ln_NDRs

	(1) Underpricing	(2) Underpricing: High FE	(3) Underpricing: Low FE
ln_NDRs	-0.011	-0.309	0.012
	(0.19)	(0.23)	(0.19)
*ln_NDRs * High_FE*	-0.312		
	(0.29)		
High_FE	0.052		
	(0.20)		
Constant	-4.657	-0.940	-1.524
	(4.50)	(3.58)	(5.18)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	4,110	1,865	2,245
R-Squared	0.27	0.32	0.30

Panel C: Infrequent NDR_half

	(1) Underpricing	(2) Underpricing: High FE	(3) Underpricing: Low FE
InfrequentNDR_half	-0.232	-0.757**	-0.221
	(0.25)	(0.31)	(0.25)
*InfrequentNDR_half * High_FE*	-0.598		
	(0.39)		
High_FE	0.051		
	(0.20)		
Constant	-4.660	-0.900	-1.517
	(4.49)	(3.56)	(5.18)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	4,110	1,865	2,245
R-Squared	0.28	0.32	0.30

TABLE 1-9: Regression Analysis of Non-Deal Roadshows' Relationship with SEO Underpricing: Partitioned by Information Asymmetry Proxies - Firm Age

This table reports the year and industry fixed-effects regression results for the impact of NDRs on Underpricing, partitioned by a firm's age (Columns (2) & (3)) and using a *Low_Age* indicator in an interaction variable (Column (1)). *Underpricing* is the dependent variable. The NDR independent variables (*NDR_3, ln_NDRs,* & *InfrequentNDR_half*) are the variables of interest in panels A, B, & C, respectively. Younger (Low Age) firms are firms whose age (indicated by CRSP) is equal to or less than the median firm and Older (High Age) firms are firms whose age (indicated by CRSP) is greater than the median. Control variables for firm and SEO deal characteristics, as defined in Section 3.4, are included. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: NDR_3

	(1) Underpricing	(2) Underpricing: Older Firms	(3) Underpricing: Younger Firms
NDR_3	-0.193	-0.312	-0.424*
	(0.28)	(0.26)	(0.23)
*NDR_3 * Low_Age*	-0.210		
	(0.36)		
Low_Age	-0.169		
	(0.25)		
Constant	-4.678	-5.722	-2.831
	(4.41)	(4.93)	(2.36)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	6,326	2,886	3,440
R-Squared	0.26	0.27	0.33

Panel B: ln_NDRs

	(1) Underpricing	(2) Underpricing: Older Firms	(3) Underpricing: Younger Firms
ln_NDRs	-0.200	-0.281	-0.316
	(0.21)	(0.20)	(0.20)
*ln_NDRs * Low_Age*	-0.145		
	(0.30)		
Low_Age	-0.168		

	(1) Underpricing	(2) Underpricing: Older Firms	(3) Underpricing: Younger Firms
	(0.26)		
Constant	-4.535	-5.254	-2.864
	(4.31)	(4.93)	(2.36)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	6,326	2,886	3,440
R-Squared	0.26	0.27	0.33

Panel C: InfrequentNDR_half

	(1) Underpricing	(2) Underpricing: Older Firms	(3) Underpricing: Younger Firms
InfrequentNDR_half	-0.525	-0.576*	-0.627**
	(0.35)	(0.32)	(0.27)
*InfrequentNDR_half * Low_Age*	-0.104		
	(0.43)		
Low_Age	-0.179		
	(0.25)		
Constant	-4.673	-5.763	-2.824
	(4.41)	(4.93)	(2.35)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	6,326	2,886	3,440
R-Squared	0.26	0.27	0.33

TABLE 1-10: Regression Analysis of Non-Deal Roadshows' Relationship with SEO Underpricing: Partitioned by Information Asymmetry Proxies - Bid-Ask Spread

This table reports the year and industry fixed-effects regression results for the impact of NDRs on Underpricing, partitioned by a firm's bid-ask spread in the month prior to the SEO (Columns (2) & (3)) and using a *High_BA* indicator in an interaction variable (Column (1)). *Underpricing* is the dependent variable. The NDR independent variables (*NDR_3, ln_NDRs,* & *InfrequentNDR_half*) are the variables of interest in panels A, B, & C, respectively. High bid-ask spread firms are firms whose pre-SEO average bid-ask is equal to or greater than the median firm and low bid-ask spread firms are firms whose age (indicated by CRSP) is less than the median. Control variables for firm and SEO deal characteristics, as defined in Section 3.4, are included. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: NDR_3

	(1) Underpricing	(2) Underpricing: High Bid-Ask Spread	(3) Underpricing: Low Bid-Ask Spread
NDR_3	-0.161	-0.520	-0.100
	(0.17)	(0.33)	(0.15)
*NDR_3 * High_BA*	-0.426		
	(0.36)		
High_BA	0.069		
	(0.23)		
Constant	-5.764	-3.939	2.359
	(4.42)	(2.47)	(3.09)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES

	(1)	(2)	(3)
	Underpricing	Underpricing: High Bid-Ask Spread	Underpricing: Low Bid-Ask Spread
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	7,141	3,567	3,574
R-Squared	0.25	0.27	0.25

Panel B: ln_NDRs

	(1)	(2)	(3)
	Underpricing	Underpricing: High Bid-Ask Spread	Underpricing: Low Bid-Ask Spread
ln_NDRs	-0.160	-0.401	-0.128
	(0.14)	(0.26)	(0.12)
*ln_NDRs * High_BA*	-0.286		
	(0.29)		
High_BA	0.066		
	(0.23)		
Constant	-5.650	-3.949	2.566
	(4.34)	(2.47)	(3.08)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	7,141	3,567	3,574
R-Squared	0.25	0.27	0.25

Panel C: InfrequentNDR_half

	(1)	(2)	(3)
	Underpricing	Underpricing: High Bid-Ask Spread	Underpricing: Low Bid-Ask Spread
InfrequentNDR_half	-0.247	-0.859**	-0.212
	(0.20)	(0.39)	(0.17)
*InfrequentNDR_half * High_BA*	-0.714*		
	(0.42)		
High_BA	0.088		
	(0.22)		
Constant	-5.780	-3.958	2.355
	(4.40)	(2.47)	(3.09)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	7,141	3,567	3,574
R-Squared	0.25	0.27	0.25

TABLE 1-11: Regression Analysis of Non-Deal Roadshows' Relationship with SEO Underpricing: Multiple NDRs

This table reports analysis of the impact of first, persistent, increased, and changed NDR activity on SEO underpricing. *Underpricing* is the dependent variable. The NDR independent variables (*PersistentNDR_3*, *IncreaseNDR_3*, & *ChangeNDR_3*) are the variables of interest. Control variables for firm and SEO deal characteristics, as defined in Section 3.4, are included. The analysis in column (1) uses a subsample of firms that conduct NDR meetings persistently (i.e., firms having NDR meetings in the two three-month intervals preceding the SEO: months -6 to -4 and months -3 to -1) and firms that hold NDRs, but not persistently. The analysis in column (2) uses a subsample comprising firms that hold NDRs and do so increasingly (i.e., the number of NDR meetings increase in the three-month interval preceding the SEO from the three months before) and firms that hold NDRs, but not increasingly. The analysis in column (3) uses a subsample comprising firms that hold NDRs and the percent change in the number of NDRs they

held in the most recent three-month period prior to the SEO. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

	(1) Underpricing	(2) Underpricing	(3) Underpricing
PersistentNDR_3	-0.467*		
	(0.28)		
IncreaseNDR_3		-0.187	
		(0.52)	
ChangeNDR_3			-0.225
			(0.19)
Constant	-4.964	-4.868	-5.304
	(4.76)	(4.63)	(4.82)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	2,421	2,421	2,421
R-Squared	0.26	0.25	0.26

TABLE 1-12: Regression Analysis of Non-Deal Roadshows' Long-Term Relationship with SEO Underpricing

This table reports regression results for the impact that NDRs further away from the SEO have on the underpricing of said SEO. All columns have *Underpricing* as the dependent variable. The two columns on the left have binary independent variables (*NDR_6 & NDR_12*). The two columns on the right have continuous independent variables (*ln_NDR_6 & ln_NDR_12*). Control variables for firm and SEO deal characteristics, as defined in Section 3.4, are included. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

	(1) Underpricing	(2) Underpricing	(3) Underpricing	(4) Underpricing
NDR_6	-0.046			
	(0.13)			
NDR_12		0.052		
		(0.09)		
ln_NDRs_6			-0.078	
			(0.09)	
ln_NDRs_12				0.023
				(0.06)
Constant	-5.694	-5.710	-5.621	-5.713
	(4.43)	(4.45)	(4.38)	(4.44)
Deal-Level Controls	YES	YES	YES	YES
Firm-Level Controls	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
N	7,141	7,141	7,141	7,141
R-Squared	0.25	0.25	0.25	0.25

TABLE 1-13: Regression Analysis of Non-Deal Roadshows' Relationship with SEO Underpricing: SEO Underwriters & NDR Sponsors

This table reports regression results for the impact that NDRs have on underpricing when the SEO underwriter and NDR sponsor are the same or different. All columns have *Underpricing* as the dependent variable. The two columns on the right of each panel are partitioned by SEO underwriters and NDR sponsors being the same firm or not. The left column of each panel uses an *Underwriter_Sponsor* indicator variable and uses it in an interaction term with the NDR independent variables. Control variables for firm and SEO deal characteristics, as defined in Section 3.4, are included. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: NDR_3

	(1) Underpricing	(2) Underpricing: SEO Underwriter NDR Sponsor	(3) Underpricing: SEO Underwriter Not NDR Sponsor
NDR_3	-0.382**	-0.730	-0.408**
	(0.19)	(0.73)	(0.19)
Underwriter_Sponsor	0.360		
	(0.37)		
*NDR_3 * Underwriter_Sponsor*	-0.236		
	(0.56)		
Constant	-5.720	11.534	-5.905
	(4.43)	(8.71)	(4.47)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	7,127	486	6,641
R-Squared	0.25	0.42	0.25

Panel B: ln_NDRs

	(1) Underpricing	(2) Underpricing: SEO Underwriter NDR Sponsor	(3) Underpricing: SEO Underwriter Not NDR Sponsor
ln_NDRs	-0.407***	0.005	-0.428***
	(0.15)	(0.56)	(0.15)
Underwriter_Sponsor	0.175		
	(0.40)		
*Underwriter_Sponsor * ln_NDRs*	0.305		
	(0.46)		
Constant	-5.430	10.747	-5.588
	(4.21)	(8.61)	(4.24)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	7,127	486	6,641
R-Squared	0.25	0.42	0.25

Panel C: InfrequentNDR_half

	(1)	(2)	(3)
	Underpricing	Underpricing: SEO Underwriter NDR Sponsor	Underpricing: SEO Underwriter Not NDR Sponsor
InfrequentNDR_half	-0.496**	-1.478*	-0.520**
	(0.23)	(0.76)	(0.23)
Underwriter_Sponsor	0.517		
	(0.35)		
*InfrequentNDR_half * Underwriter_Sponsor*	-0.869		
	(0.61)		
Constant	-5.720	11.579	-5.898
	(4.42)	(8.67)	(4.46)
Deal-Level Controls	YES	YES	YES
Firm-Level Controls	YES	YES	YES
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
N	7,127	486	6,641
R-Squared	0.25	0.43	0.25

TABLE 1-14: Matching with NDR Treatment – Treatment Effects onUnderpricing

This table reports the results of the matching analysis with the average treatment effects and the average treatment effects on the treatment of NDR_3. Variables used in the estimation are *Log_MV, AnalystCoverage, Intangibles, IndustryNDRs, Volatility, NegativeCAR*, and eight SEO offer-year indicators. In columns (1) through (3) I form matched pairs (1:1, 1:3, & 1:5 matches) by identifying pairings using the nearest neighborhood (NN) matching method. In columns 4 & 5, I implement matching using the regression-adjustment & inverse probability weighting techniques. With the matched pairs, I examine the relationship between NDR activity and SEO underpricing by assessing whether the average level of SEO underpricing is significantly different between the treatment (*NDR*_3) sample and the control (*NDR*_3=0) sample. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

NDR_3	(1) NN Match 1:1	(2) NN Match 1:3	(3) NN Match 1:5	(4) Regression-Adjusted Match	(5) Inverse Prob. Weighting Match
ATE	-0.557*	-0.255	-0.492	-0.415*	-0.402*
	(0.303)	(0.474)	(0.393)	(0.228)	(0.223)
ATET	-0.176***	-0.342*	-0.401**	-0.339*	-0.340*
	(0.066)	(0.188)	(0.198)	(0.206)	(0.206)
N	7,141	7,141	7,141	7,141	7,141
Year FE	YES	YES	YES	YES	YES
Robust S.E.	YES	YES	YES	YES	YES

ESSAY 2

EXAMINING THE POTENTIAL IMPACT OF NON-DEAL ROADSHOWS ON POST-EARNINGS ANNOUNCEMENT DRIFT

2.1 Introduction

Post-earnings announcement drift (PEAD) is an anomaly by which firms experience abnormal returns after their earnings announcement (e.g., Ball & Brown, 1968; Bernard & Thomas, 1989 & 1990). This means that PEAD is inconsistent with the prevailing theories of asset pricing. In fact, Fama (1998) refers to the PEAD as the "granddaddy of underreaction events" and suggests it to be a behavioral anomaly that "survives" checks for alternative explanations to which most anomalies succumb. PEAD exposes the problem that investors have digesting the information inherent to earnings news and incorporating that information into the stock price of a firm quickly and accurately. PEAD can, therefore, be used as a measure of the efficiency and/or transparency of a firm's information environment. For example, the less opaque a firm's information environment is, the more accurate are investors' interpretations of the information in unexpected earnings, and they will incorporate that information into the stock price quickly, resulting in a smaller PEAD (e.g. Cai et al., 2020).

This essay examines a potential mitigating force to the underreaction of stock prices post-earnings announcement by exploring the effects of non-deal roadshow (NDR) meetings. NDRs are not used exclusively to reveal future earnings information (i.e. Ryan & Jacobs, 2005), but earnings information is still likely to be sought after by institutional investors in these meetings. Bradley et al. (2022) even suggest that analyst earnings forecasts become more "beatable" post-NDR, which is only likely to occur with information about earnings being discussed in NDR meetings. If post-earnings announcement drift is explained by investors' failure to set proper expectations of future

earnings based on the currently available information, then private information gathered in NDR meetings should quicken investors' reactions to earnings announcements. Investors are expected to include all available information in their pricing of a firm's stock in an efficient market (Fama, 1970). This essay employs this efficient market hypothesis as an argument for why privately disseminated information, through NDRs, should have mitigating effects on information asymmetry and PEAD, similar to public information (e.g. Zhang, 2012).

This essay provides an alternative explanation for PEAD mitigation that has yet to be researched. NDRs are not well-known nor widely discussed by the average investor, but their commonality between corporations and financial institutions speaks to there being incentives for firms engaging in them. These incentives are unknown outside of those who engage in them, since NDRs are privately occurring. This study intends to uncover specific incentives for these meetings by examining how NDRs affect the PEAD anomaly. Firms seem to be incentivized to have NDR meetings as to benefit from more "beatable" earnings (Bradley et al., 2022) and to impress investors with earnings beats. I hypothesize that NDRs increase the amount of information that investors have, thus reducing the level of information asymmetry between managers and investors and reducing the PEAD.

This essay contributes to the literature on the impacts of private interactions between firms and financial institutions. I show that the NDR has a significant negative relationship with the post-earnings announcement drift (PEAD), and that impact is found in firms with NDRs closest to the earnings announcement date. This finding also provides evidence of the information asymmetry argument for the PEAD occurring. As opposed to other studies (e.g. Shane & Brous, 2001) who examine the impacts of private information on PEAD, I employ an event with which private information dissemination can be measured, the NDR. Additionally, I add to the voluntary

disclosure literature by showing that NDRs decrease PEAD, similar to public disclosures like management earnings forecasts (i.e. Zhang, 2012). This essay strengthens the argument that investors react to private information immediately and price it into a firm's stock (Fama, 1970).

This essay argues that when firms have the incentive to disclose information pre-earnings, they do so to their own benefit, consistent with Verrecchia (1983). Though earnings are not the only reason firms disclose (thus not the only reason for NDR meetings), it is important to investors and analysts alike to obtain as much information as possible about a firm's quarterly earnings. Therefore, earnings will be a primary reason why firms have NDRs. This essay suggests that if NDRs are so important to investors, firms must be incentivized to engage in them and have benefits to reap from their increased disclosure.

The rest of this essay proceeds as follows. Section 2.2 reviews the related literature. Section 2.3 develops the hypotheses. Section 2.4 describes the data and sample selection. Section 2.5 reports empirical design, results, and additional/robustness tests. Section 2.6 concludes, and Section 2.7 reports the tables for this essay.

2.2 Literature Review

2.2.1 Information Asymmetry & PEAD

Investors' reaction to earnings is a reaction to firm-specific information, so one of the primary explanations for PEAD is the level of information asymmetry/uncertainty. Existing research shows that different measures of information uncertainty and investors' level of responsiveness to earnings are negatively associated (e.g. Francis et al., 2007). This implies a positive association with PEAD. The value of current available information is of primary importance to investors' earnings reactions, illustrated by accounting quality being negatively related with PEAD (Callen et al., 2013). Information shocks, though, can also reduce uncertainty

and the PEAD, as is the case with the introduction of common accounting standards (Hung et al., 2015), XBRL adoption (Chen et al., 2017; Efendi et al., 2014), and conference calls (Kimbrough, 2005) contributing to weaker PEAD. All of this speaks to the availability and quality of information decreasing PEAD, and my study argues that as firms have NDRs, the information dissemination that occurs leads to a reduction in PEAD, consistent with the resolution of information uncertainty through disclosure leading to efficient pricing.

It has been shown that information uncertainty can be mitigated with new information, which can cause the stock price to converge more quickly to the analyst consensus value than it was able to, given the recent earnings information. Li et al. (2020) show this by the delayed disclosure of 10-Q filings leading to an initial underreaction but being followed with a (partial) catch-up upon full disclosure. This finding suggests that new information after earnings can, at least partially, mitigate the PEAD. This is of interest to this study since most NDR meetings occur shortly after the most recent earnings announcement (see figure on p. 11), and this may be one argument for said timing.

2.2.2 Management Information & PEAD

Shane & Brous (2001) provide evidence that non-earnings information corrects the investor underreaction to earnings (PEAD), citing private discussions with management. Their analysis, though, relies on the effects that unobservable non-earnings information has on earnings revisions, which differs from this essay in that I isolate NDRs as the channel through which the investor underreaction is corrected. Consistent with this finding, and equally motivating to my analysis, are the results of Wang (2008) & Zhang (2012), who both show that management earnings forecasts mitigate investors' underreaction to earnings and reduce the magnitude of the PEAD. These findings support the idea that voluntary management disclosure decreases information

asymmetries and the PEAD. The voluntary disclosure of managers may be for positive reasons (i.e. Verrecchia, 1983; Dye, 1985) or negative ones (Skinner, 1994). In these studies, though, bad news disclosures generate larger stock price reactions than good news disclosures, which informs our prior understanding of what types of firms may have NDRs and decrease PEAD most. Managers can also increase the headline prominence of earnings news in the media (e.g. Ahern & Sosyura, 2014). The added attention leads to a stronger price response in the announcement window and weaker PEAD (Huang et al., 2018). This speaks to a manager's ability to increase attention for their own stock and reduce PEAD, as I expect managers to do through NDRs.

2.2.3 Analysts, Institutional Investors, & PEAD

Analyst forecasts are a mechanism by which information asymmetries/uncertainty can be measured, specifically in the context of PEAD. Dische (2002) argue that low forecast dispersion leads investors to increasingly underreact to surprises with the degree of forecast convergence. Zhang et al. (2013) find that high information uncertainty leads to less underreaction, since earnings announcements are more important to high uncertainty firms (e.g. Liang 2003). They find that this effect is dominated by transaction costs, which also increase with information uncertainty. Han et al. (2009) provide evidence that earnings momentum (i.e. drift) is positively associated with analyst forecast dispersion. Further, post-announcement recommendations and forecasts by analysts facilitate impounding of information (Soffer & Lys, 1999), and when analysts are more responsive in revising their forecasts, the market adjusts more quickly, resulting in less PEAD (Zhang, 2008). These findings suggest that the actions of analysts matter when it comes to the PEAD. This is important to this essay since analysts facilitate NDR meetings.

The actions of analysts and the institutions that they represent are inseparable. In the same way that analysts can affect PEAD, so can institutional investors. For instance, there is strong

evidence that institutional ownership is negatively correlated with PEAD (Bartov et al., 2000; Chen et al., 2017; Doyle et al., 2006; Jegadeesh and Livnat, 2006; Ng et al., 2008; Son et al., 2018). Institutional investors tend to be informed and anticipate earnings surprises (Alexander et al., 2014; Campbell et al., 2009). My interest is in this informed nature of institutional investors and their ability to anticipate the earnings announcements. This relationship with institutions is interesting to this essay since NDRs are used as a service that sell-side analysts provide to buy-side institutional clients (Ryan & Jacobs, 2005). If NDRs affect the institutional activity that goes on in the market, I also expect them to lead to a decreasing of information uncertainty and PEAD.

2.2.4 Limited Attention/Arbitrage & PEAD

There are limiting factors to the attention that investors are willing to offer to a specific firm's earnings announcement, and these limits can make it more difficult to analyze the implications of new information. For instance, a greater number of earnings releases on the same day makes earnings surprises harder to process for investors, leading to a delayed reaction and to higher PEAD (Hirshleifer et al., 2009; Hung et al., 2015). Investors are also inattentive to industry implications of earnings announcements by individual firms and underreact to them, specifically on days with a high number of announcements (Kovacs, 2016; Baker et al., 2019). Industry-related news in the post-announcement period also leads to a stronger (weaker) drift if that news agrees (disagrees) with the firm-specific earnings surprise (Liang & Zhang, 2020).

Earnings-announcements on Fridays are also shown by some to receive less attention and lead to higher PEAD (DellaVigna & Pollet, 2009). Other research, though, suggests that investor intention is not lower on Fridays, but Friday announcements have lower unexpected earnings and negative returns around the announcement of the earnings date (DeHaan et al., 2015). This argument indicates that managers are looking to take advantage of this Friday earnings anomaly,

but investors are aware of the anomaly and trade upon the announcement of the earnings announcement date. It is also plausible that less earnings announcements occurring on Fridays can lead to more attention, due to fewer concurrent announcements.

PEAD is also more pronounced for firms that release earnings announcement and 10-K filings at the same time, which splits investor attention (Arif et al., 2019). Other situations can also distract attention away from earnings announcements and lead to more underreaction, such as high volatility (Kottimukkalur, 2019) and changes in investor sentiment (Mian & Sankaraguruswamy, 2012). All of these are important to this study, because anytime an event decreases the attention investors are willing to invest in an earnings announcement, higher PEAD is expected. I posit that these distractions are, at least in part, mitigated by the voluntary meetings with management that investors can have through NDRs. Firms with fewer attention-grabbing events exhibit higher PEAD (Lin et al., 2016), thus understanding the amount of attention commanded by NDRs can better inform our understanding of the relationship that they have with PEAD.

Apart from the attention that investors are willing to invest in a company's earnings, there are also limits to arbitrage (i.e. Shleifer & Vishny, 1997) that can impact PEAD. Mendenhall (2004) find that the magnitude of post-earnings-announcement drift is significantly positively related to the risks faced by an arbitrageur who takes a position in a mispriced stock and tries to hedge the position. Further, Lam & Wei (2011) show that proxies for limits-to-arbitrage (e.g. idiosyncratic volatility & illiquidity measures) and proxies for investment frictions (e.g. firm age, asset size, payout ratio, and credit rating) are often highly correlated. This means that these limits to arbitrage can decrease investors' willingness to act in financial markets. This leads to an underreaction to firm-specific news and a larger PEAD. Hung et al. (2015) use limit to arbitrage proxies to show that the PEAD declines after an information shock, and this decrease is greater for

firms with lower limits to arbitrage to mitigate the information's impact. Therefore, limits to arbitrage affect how changes in a firm's informational environment can impact PEAD.

2.3 Hypothesis Development

The presence and magnitude of the post-earnings announcement drift (PEAD) declines, given decreases in the information gaps between managers and investors (e.g. Shane & Brous, 2001; Zhang, 2012; Hung et al., 2015). These studies all agree that as investors have more material information, the reduction in information uncertainty has a mitigating effect on PEAD. I explore the relationship between the information provided by NDR meetings from managers to investors and the PEAD. In order to identify if NDRs have a similar relationship with PEAD as the information asymmetry reducing mechanisms in these studies, I propose the first hypothesis:

> *Hypothesis 1: Firms that engage in NDRs experience lower Post-Earnings Announcement Drift (PEAD).*

NDRs often occur soon after earnings announcements. Firms are less likely to have NDRs close to earnings, as to not violate Regulation Fair Disclosure (Reg. FD), which suggests that when they do so, the informational content of these meetings may differ from other NDRs. The timing of the NDR relative to earnings announcements may suggest different information content of the meetings. NDRs closer to the earnings release have more updated information regarding the firm's current quarter, so I expect that the information content is relatively stronger for NDRs closer to the earnings announcements. Furthermore, some suggest that meetings close to the upcoming earnings announcements may be more spontaneous, and management can deem certain circumstances essential to meet with the buy-side closer to earnings (Ryan & Jacobs (2005). Thus, meetings held near earnings announcements should offer greater quantity and clarity of information and have a stronger relationship with PEAD.

Hypothesis 2: The negative relationship of NDRs with Post-Earnings Announcement Drift (PEAD) is concentrated in NDRs that occur closer to the firm's earnings announcement date.

There are also documented firm characteristics that can limit a firm's stock from having efficient pricing. Prior studies, summarized in Section 4.2, find that limits to arbitrage (Mendenhall, 2004) and limits to attention (Hirshleifer et al., 2009) positively impact the PEAD. These limitations are positively associated with PEAD, and the findings of (Hung et al., 2015) incorporate both of these types of limiting factors and find consistent results. Thus, the information flow hindered by these limits to arbitrage/attention should be moderated by NDRs.

Hypothesis 3a: The negative relationship of NDRs with Post-Earnings Announcement Drift (PEAD) is stronger for firms with greater limits to arbitrage.

Hypothesis 3b: The negative relationship of NDRs with Post-Earnings Announcement Drift (PEAD) is stronger for firms with greater limits to attention.

Malmendier & Shanthikumar (2014) & Bradley et al. (2022) both provide evidence of analysts making short-term forecasts more beatable to gain favor with management. Therefore, I posit that NDRs further this relationship, and firms with NDRs decrease PEAD most among those who beat earnings expectations.

Hypothesis 4: The negative relationship of NDRs with Post-Earnings Announcement Drift (PEAD) is stronger for firms who beat earnings forecasts in the same quarter as the NDR.

2.4 Data and Sample Construction

2.4.1 Data Sources

I begin with a set of firm quarters from the first quarter of 2013 to the fourth quarter of 2020 included in the COMPUSTAT Fundamentals Quarterly database, which contains accounting/financial data used in my analysis, along with earnings announcement dates. I limit my sample to these years due to the limited data in the FLY NDR dataset (see Section 2.3) which is merged into the COMPUSTAT dataset based on the firm-quarter in which the NDR meeting

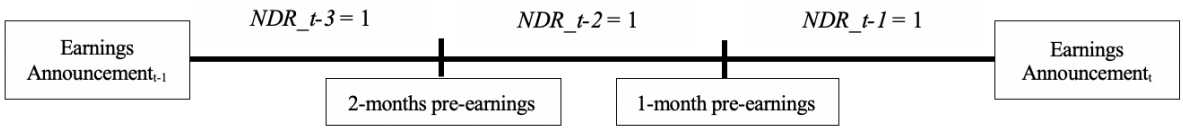
occurred. I omit financial companies (SIC Codes 6000-6900) from the sample because disclosure activities of these firms are notably different from industrial firms. All firms in the sample must be covered by Center for Research in Security Prices (CRSP), since this analysis requires the stock price and return data to calculate abnormal returns and other control variables. In addition, firm quarters are only included in the sample if they have actual earnings and analyst earnings forecasts in the I/B/E/S Detail History file, as these are needed to calculate unexpected earnings. The final sample includes 47,029 firm-quarter observations, of which 12,416 have at least one NDR meeting between earnings announcements and 6,197 have multiple NDR meetings in that time period.

2.4.2 Measures of NDR Activity

I measure the occurrence of NDRs in the following way: I create dummy variables to identify the occurrence of a firm's most recent NDR meeting relative to their earnings announcement: *NDR_t-1*, which is equal one if the firm has their most recent NDR in the month prior to the earnings announcement; *NDR_t-2,* which is equal one if the firm has their most recent NDR in the second month prior to the earnings announcement; *NDR_t-3* which is equal one if the firm has their most recent NDR between the previous earnings announcement and two months prior to the most recent earnings announcement, respectively, and zero otherwise. Figure 2-1 illustrates the construction of these variables:

FIGURE 2-1: Timing of NDRs Relative to Earnings Announcements

The figure shows the timeline for the indicator variables *NDR_t-1*, *NDR_t-2*, & *NDR_t-3* equaling 1. In any of the time periods where the variable is not equal to 1, it is equal to zero.



2.4.3 Measures Relevant to PEAD

This section explains the measures of the post-earnings announcement drift (PEAD) used in the empirical analysis of this essay. Similar to several previous studies (Doyle et al., 2006; Zhang, 2008; Zhang, 2012; Hsu et al., 2021), I define unexpected earnings, *UE*, as the actual earnings per share (from I/B/E/S) for the current quarter minus the mean of the most recent analysts' forecasts related to the current quarter, scaled by the firm's current stock price. This is used to capture the earnings news (positive is good news and negative is bad news) which is expected to consistently have a positive relationship with PEAD. This variable is interacted with all other independent variables used in the regression analysis to indicate the relationship that the variables have with PEAD. I also calculate a variable used as a dependent variable in the regression analysis: *PostRet*. Following Hung et al. (2015), *PostRet* is the long-term cumulative abnormal return (CAR) of a firm's stock after their earnings announcement ([+2, +64] trading days) and illustrates the long-term abnormal return of the stock post-earnings. Abnormal returns are adjusted by the CRSP value-weighted portfolio, and the market model[2] regression is used for the estimation of CARs. The length of the time-period used to estimate the expected return and residual return variance is 255 trading days in the time period from -278 to -23 days before the earnings announcement day. This is chosen due to the end of the calculation of *PreRet*, the abnormal return prior to the earnings announcement date which ends 23 days prior to the earnings announcement date. The minimum number of non-missing return observations within the estimation window required to produce estimates of expected return is 30 days. It is important to note that *PostRet* is not a measure of PEAD, directly. *PostRet* only indicates the long-term abnormal returns after

[2] Prior PEAD literature shows that extending the market model to the three-factor model (Fama & French, 1993) only decreases excess returns by a small fraction or even increases them (Chordia et al., 2009; Francis et al., 2007; Sadka, 2006), suggesting the use of the market model to be appropriate.

earnings announcements. This said, an independent variable is only shown to be associated with PEAD when *PostRet* is regressed on the interaction of that variable with *UE*. This is because PEAD is considered to be the abnormal returns relative to the direction of earnings announcements, hence the returns "drift" in the direction of earnings surprises. Therefore, in my regression analysis, a positive coefficient on the interaction of a variable with *UE* means that as that variable increases, abnormal returns (*PostRet*) move in the direction of *UE* (i.e. increase in PEAD), and a negative coefficient on the interaction of a variable with *UE* means that as that variable increases, abnormal returns (*PostRet*) move opposite the direction of *UE* (i.e. decrease in PEAD).

2.4.4 Measures of Firm Characteristics

Control variables used in the regression analysis follow recent PEAD literature (i.e. Hung et al., 2015; Kim et al., 2019; Hsu et al., 2021). These control variables are firm-specific controls with explanatory power over abnormal stock returns, earnings announcement reactions, and firm disclosure. *Beta* controls for the relative volatility of a firm's stock and *MTB* controls for firm stock valuation relative to its book value, and both are expected to be negatively related to *PostRet* (Hung et al., 2015; Kim et al., 2019). Further, *PreRet* controls for the abnormal returns prior to the current quarter's earnings information being disseminated ([-85, -23] trading days), *Log_MV* controls for firm size, and both are expected to be positively related to *PostRet* (Hung et al., 2015). *Log_Price* controls for the firm's stock price, *Log_AnalystCoverage* controls for a firm's level of analyst following, *ROA* controls for firm operating profitability, and *Leverage* controls for a firm's relative debt level. These variables are all used by Hsu et al. (2021) who find a firm's analyst coverage and profitability to be positively related to PEAD and price to be negatively associated with PEAD. I winsorize all continuous variables at the top and bottom 1% of the distribution. All variable definitions are included in Appendix A.

2.4.5 Descriptive Statistics

Summary statistics on the full sample of earnings news, post-earnings announcement returns, and firm-specific control variables are show in panel A of Table 2-1. Panel A indicates a mean long-term post-earnings announcement cumulative abnormal return (*PostRet*) of 0.756% , a mean pre-earnings announcement cumulative abnormal return (*PreRet*) of 0.249% , and a mean level of unexpected earnings (*UE*) of -0.319% of the firm's stock price. Panel A also indicates that 3.3% of firms in the sample have their most recent NDR meeting within one month of earnings, 10.5% of firms in the sample have their most recent NDR meeting between two months and one month prior to their earnings announcement, and 12.6% of firms in the sample have their most recent NDR between the previous earnings announcement and two months prior to the current earnings announcement. The average firm in the sample is also covered by over nine analysts, which can significantly impact the information environment around a firm's stock and may affect the impacts of NDRs. These variables are going to be some of the most relevant to my analysis.

Panel B of Table 2-1 compares firms that had NDRs (*NDR_t-1, NDR_t-2,* & *NDR_t-3*) between their earnings announcements to firms that did not have NDRs between their earnings announcements by examining the difference in the means and medians of all variables used in my regression analysis. This is done to not only compare NDR firms with Non-NDR firms, but it also highlights the differences in firms based on NDR timing. The difference in means tests fail to show significant differences in *PostRet* between the NDR vs. non-NDR firms, in any subsample. This may indicate that NDRs alone do not significantly change post-earnings cumulative abnormal returns, but that may not hold true once the level of unexpected earnings is included to measure NDRs' impact on PEAD. In all NDR variables, unexpected earnings (*UE*) are lower for NDR firms, as expected.

Panel B also shows NDR firms to have significantly greater analyst followings (*Analyst_Coverage*) in all NDR variables but *NDR_t-1*. Higher Market-to-book (*MTB*), lower relative debt loads (*Leverage*), and greater relative volatility (*Beta*) are also consistent among NDR firms, relative to non-NDR firms. NDR firms also exhibit less illiquidity and idiosyncratic volatility, along with a higher instance of beating earnings expectations, throughout. Interestingly, *NDR_t-1* and *NDR_t-2* firms have significantly less earnings misses than non-NDR firms, but that is not the case for *NDR_t-3*. Further, *NDR_t-1* firms are not significantly different in size than the non-NDR firms, but NDR firms are significantly larger in the other two subsamples. These are significant differences that may indicate differences in NDR impact by their timing. All of these differences signify the importance of the inclusion of these variables in examining NDR vs. non-NDR firms in the context of earnings announcements. This panel gives credibility to NDR firms being different from non-NDR firms and NDR impact differing by the timing of the NDR, which motivates my empirical analysis.

In Panel C, I measure how the average abnormal returns (*PreRet, & PostRet*) are impacted by the different timings of NDR meetings. First, in all cases of NDR occurrence, regardless of relation to earnings announcements, higher mean values of *PostRet* and *PreRet* are shown relative to firms without NDRs. This suggests that NDRs having a positive relationship with both abnormal returns leading to that quarter's earnings announcement and abnormal returns after the announcement. Firms that have NDR meetings within one month of the current earnings announcement have higher mean values of *PostRet* and *PreRet* than any of the other NDR intervals.

Table 2-2 presents a correlation matrix for the variables used in my regression analyses. This matrix provides results that are motivating to my analysis. First, it shows that unexpected

earnings (UE) are positively and significantly correlated with all NDR indicator variables. This suggests that NDR activity is associated with earnings beats, again consistent with Bradley et al. (2022). It is also shown that unexpected earnings (UE) are positively and significantly correlated with the long-term abnormal returns post-earnings (*PostRet*), as expected. NDR indicators also exhibit insignificant correlations to the long-term abnormal returns post-earnings. These correlations are consistent with NDRs having an impact on unexpected earnings, but this may only be significant when paired with the magnitude of unexpected earnings, as in my PEAD analysis. Lastly, it is interesting to note that the only NDR time interval that is not positive and significantly correlated with analyst coverage are NDR meetings occurring in the one month prior to earnings announcements (*NDR_t-1* = 1). This, again, speaks to possible differences in the *NDR_t-1* NDR firms, as opposed to the other NDR firms. If analysts do drive the occurrence of the other meetings (*NDR_t-2* & *NDR_t-3*) then the idea that NDRs are voluntary and will have the same relationship with PEAD as other voluntary disclosures by managers should at least be questioned.

2.5 Empirical Design and Results

2.5.1 The Relationship Between NDRs and PEAD

I begin by testing Hypothesis 1 using OLS regression analysis to test the relationship between NDR meetings on the PEAD. This analysis accounts for several different factors that may impact the PEAD and includes those factors as both stand-alone control variables and control variable interaction terms with unexpected earnings (*UE*). The primary regression equation in this essay follows closely the regression estimations offered by Hung et al. (2015) & Hsu et al. (2021). Table 2-3 presents the main results of my multivariate regression analysis, examining how the presence of NDR meetings is related to the magnitude of PEAD. In the multivariate analysis, I estimate the following equation:

$$PostRet_{i,t} = \alpha_0 + \alpha_1 NDR_{i,t} + \alpha_2 (NDR_{i,t} * UE_{i,t}) + \alpha_3 UE_{i,t} + \sum_{n=4}^{N-i} \alpha_n Controls_{i,t} +$$

$$\sum_{N-i}^{N} \alpha_{N-i} (Controls_{i,t} * UE_{i,t}) + Quarter \ \& \ Industry \ Fixed \ Effects + \epsilon_t \ , \quad \text{(Eq. 1)}$$

where *PostRet* is the long-term cumulative abnormal return post-earnings announcement ([+2, +64], as defined previously, *NDR* takes on the value of one if the NDR indicator variables (*NDR_t-1*, *NDR_t-2*, & *NDR_t-3*), *UE* is the unexpected earnings, and the control variables are as stated previously. The interactions of *NDR* and the firm controls with *UE* are to measure the NDR and control variable relationships with PEAD. The coefficients on these interaction terms can be interpreted as an increase or decrease in the underreaction to earnings news (*UE*), or PEAD.

Table 2-3 reports the tests of the relationship between NDRs and the PEAD of the firm's stock. In Column (1), the presence of an NDR since the previous earnings announcement (*NDR*), has no significant relationship with PEAD. The rest of the table, though, splits the presence of NDRs into the three time intervals (*NDR_t-1*, *NDR_t-2*, & *NDR_t-3*). Column (2) exhibits a decrease in PEAD (0.794%), consistent with my Hypothesis 1 that NDR meetings decrease PEAD. This is an economically significant reduction in the post-earnings announcement abnormal returns (*PostRet*) for firms with an NDR within one month of earnings, since the average firm's *PostRet* is only 0.756% . Ryan & Jacobs (2005) suggest that these NDRs may be impromptu and for specific reasons, given their proximity to an earnings announcement. Therefore, these NDRs are likely to significantly affect the firm's informational environment.

The results concerning NDR meetings that occur between one month and two months pre-earnings announcement (*NDR_t-2*) show no significant impact on PEAD (Column (3)). Further, NDRs occurring between the last earnings announcement and two months prior to the current earnings announcement are positively associated with PEAD (Columns (4)). These results for *NDR_t-3* are statistically significant and are competing with the *NDR_t-1* results. This, though, is

consistent with the descriptive statistics (Panel C of Table 2-1) and the correlations among variables (Table 2-2) that suggest NDR meetings that occur in the one month before earnings to differ from the other NDR meetings in their relationship with earnings and *PostRet*. These results provide evidence that NDRs do decrease PEAD but only in the firms with NDRs occurring within one month of an earnings announcement, consistent with both Hypothesis 1 and Hypothesis 2.

2.5.2 The Relationship between NDRs and PEAD – The Timing of NDRs

Though my initial results are consistent with my first two hypotheses, they require more examination based on the differing results among *NDR_t-1* and the other NDR variables (specifically *NDR_t-3*). Table 2-4 provides results of the relationship of unexpected earnings (*UE*) with *PostRet* in the subsamples of NDRs occurring where *NDR_t-1*, *NDR_t-2*, & *NDR_t-3* equal one. It also reports the full sample results for the relationships of these variables with PEAD, using interaction terms with *UE*. These tests are similar to those of Hung et al. (2015). The expectation, based on prior research (i.e. Bernard & Thomas, 1989 & 1990), is that *UE* should positively and significantly determine post-earnings announcement CARs. Table 2-4 shows this to be true in the *NDR_t-2* and *NDR_t-3* subsamples (Columns (4), (5), (7), & (8)), but it does not hold for the *NDR_t-1* subsample. This suggests that when firms have NDR meetings within one month of earnings, it is not unexpected earnings that is explaining the magnitude of *PostRet*, nor is it firm-level controls, as they are included in Column (2). This means that the nature of these NDRs should be affecting the prior expectation that *UE* explains *PostRet.*

The interesting result of Table 2-4 is in Column (3) and shows *UE* to be positively and significantly related to *PostRet*, alone, but when it is interacted with *NDR_t-1*, in the full sample, it shows *NDR_t-1* to have a negative and significant effect on PEAD. Interaction terms are meant to indicate that the effect of one variable is dependent on the value of another. This is the case with

NDR_t-1 and *UE* but not with *NDR_t-2 or NDR_t-3* and *UE.* These results suggest that *NDR_t-1* is negatively related to PEAD, whereas the other NDR variables, and their interactions with *UE,* are simply in line with *UE* being positively related to *PostRet*, as is expected. It is unclear if *NDR_t-3* firms have some specific characteristic(s) that drive their significant positive relationship with the PEAD. Important to this essay, though, is the fact that these NDRs further from the upcoming earnings announcement do not appear to be reducing information asymmetries regarding upcoming earnings and/or affecting the firm's level of unexpected earnings in the upcoming quarter. Thus, Table 2-4 provides evidence that NDRs nearest to earnings announcements offer information that changes investors' reactions to earnings announcement information (consistent with Hypothesis 2) and are materially different from *NDR_t-2* or *NDR_t-3* firms.

2.5.3 Endogeneity of NDR Variables – 2SLS Regressions

This essay also employs two-stage least squares (2SLS) regressions, using instrumental variables to address the endogeneity of NDR occurrence. The endogenous nature of NDRs come from the manager's choice to disclose in this private manner or not. As is the focus of this research, understanding if NDRs are caused by firm-specific attributes or causes those attributes to exist is vital to knowing what, if any, relationship NDRs have with the level of PEAD. I control for this endogeneity using a variable that has the properties of a valid instrument. This instrument is the percentage of firms in the same industry (two-digit SIC Code) that have NDR meetings, represented by *IndustryNDRs,* and is similar to the instrument employed by Hsu et al. (2021) who used the average balance sheet disclosure percentage of firms in the same two-digit SIC industry. I use this variable because a firm's disclosure (NDR) behavior could also depend on the practices of its peers in the industry. I expect that firms whose industry peers hold NDR meetings would also engage in these meetings. *IndustryNDRs* is to be likely correlated with NDR meeting

occurrence but not with a firm's PEAD, which would suggest validity of this instrument. I estimate the following equation as second stage regressions in the 2SLS approach:

$$PostRet_{i,t} = \alpha_0 + \alpha_1 \widehat{NDR}_{i,t} + \alpha_2(\widehat{NDR}_{i,t} * UE_{i,t}) + \alpha_3 UE_{i,t} + \sum_{n=4}^{N-i} \alpha_n Controls_{i,t} + \sum_{N-i}^{N} \alpha_{N-i}(Controls_{i,t} * UE_{i,t}) + Quarter\ \&\ Industry\ Fixed\ Effects + \epsilon_t\ , \quad \text{(Eq. 2)}$$

where *NDR_t-1, NDR_t-2,* & *NDR_t-3* are the endogenous variables. I employ a probit first stage estimation, and I employ an OLS second stage estimation using Equation (7), with the estimated values of $\widehat{NDR\_1month}$, $\widehat{NDR\_2month}$, & $\widehat{NDR\_3month}$ as the independent variables of interest (denoted by $\widehat{NDR}_{i,t}$ in Equation (7)). I use *IndustryNDRs* as NDRs in all three previously described time intervals (*NDR_t-1, NDR_t-2,* & *NDR_t-3*) as instruments.

In Table 2-5, Columns (1), (3), & (5) show the first stage results with *NDR_t-1, NDR_t-2,* & *NDR_t-3 as* the respective endogenous variables. The first stage coefficient on *IndustryNDRs_1* is positive and significant, indicating that firms whose peers in the same industry have NDR meetings within a month of earnings announcements tend to have NDR meetings within a month of earnings announcements also (Column (1)). The first stage results for the variable *IndustryNDRs_2* (Column (3)) show no significant relationship between industry NDRs that occur between two months and one month prior to earnings announcements and NDRs occurring in that time interval. The first stage coefficient on *IndustryNDRs_3* is negative and significant, indicating that firms whose peers in the same industry that have NDR meetings between the previous earnings announcement and two months prior to the current earnings announcement tend to have a lower likelihood of having NDR meetings in the same time period (Column (5)). This, again, points to a distinct difference between the NDR activity of firms with NDRs close to the next earnings announcement and those with NDR activity further from said announcement. The pseudo R^2 of the three first-stage regressions are 0.13, 0.05, & 0.07, respectively.

In the second stage of these 2SLS regressions, having an NDR meeting is associated with a reduction in PEAD in only Column (2). The magnitude of this reduction is about a 0.216% when a firm has an NDR in the one-month period prior to the earnings announcement. This relationship is of lesser magnitude than the initial fixed-effects regressions, but it is still statistically significant. This again supports Hypothesis 1 that the presence of NDR meetings reduces the PEAD of a firm's stock and Hypothesis 2 that this relationship is stronger when NDRs are closer to the upcoming earnings announcement. The second stage results for $\widehat{NDR\_2month}$, & $\widehat{NDR\_3month}$ are not consistent with this finding, though. $\widehat{NDR\_2month}$ has no significant relationship with PEAD, and $\widehat{NDR\_3month}$ has a weakly significant positive relationship with PEAD, consistent with my previous results.

An issue with this analysis is that industry NDRs are not significantly related to *NDR_t-2*, meaning that the reasoning for a firm to have an NDR in that time period may vary, as would the potential outcome. This does not, though, take away from the results that NDRs reduce PEAD if they occur within one month of the earnings announcement. Further, the overidentification tests report chi-squared tests that show no significant relationship between the instruments and the error term, thus providing validity to the chosen instruments in all three 2SLS estimations. All of these 2SLS results are consistent with my initial findings in Table 2-3 and further support Hypotheses 1 & 2.

2.5.4 The Relationship between NDRs and PEAD – Limits to Arbitrage

In this section I test Hypothesis 3a. Therefore, following previous literature (Bartov et al., 2000; Mendenhall, 2004; Lam & Wei 2011; Hung et al., 2015) I employ two measures of firm-level limits to arbitrage: idiosyncratic volatility (*IdioVol*) and the Amihud illiquidity measure

(*Amihud*). In extending my analysis to control for these variables, I estimate the following equations in further fixed-effects regression analysis:

$$PostRet_{i,t} = \alpha_0 + \alpha_1 NDR_{i,t} + \alpha_2 UE_{i,t} + \alpha_3 (NDR_{i,t} * UE_{i,t}) + \alpha_4 (NDR_{i,t} * LimitToArbitrage_{i,t}) + \alpha_5 LimitToArbitrage_{i,t} + \alpha_6 (UE_{i,t} * LimitToArbitrage_{i,t}) + \alpha_7 (NDR_{i,t} * UE_{i,t} * LimitToArbitrage_{i,t}) + \sum_{n=8}^{N-i} \alpha_n Controls_{i,t} + \sum_{N-i}^{N} \alpha_{N-i} (Controls_{i,t} * UE_{i,t}) + Quarter \ \& \ Industry \ Fixed \ Effects + \epsilon_t \,, \qquad \text{(Eq. 3)}$$

where *LimitToArbitrage* is equal to *High_IdioVol* or *High_Amihud* in Tables 2-6 and 2-7, respectively (variable definitions in Appendix A and in the description below). *NDR* in Equation (8) is equal to *NDR_t-1*, *NDR_t-2*, & *NDR_t-3*, and *UE* are unexpected earnings. The control variables in these regressions are the same as in the initial analysis of the relationship between NDRs and PEAD (Table 2-3).

2.5.4.1 Idiosyncratic Volatility

Table 2-6 reports the relationship that NDR meetings have with PEAD, based on a firm's level of idiosyncratic volatility, defined as a *High_IdioVol* binary indicator variable that is equal to one if the firm's *IdioVol* is greater than the median firm and zero else. *IdioVol* captures the component of a stock's risk that cannot be hedged, and it is measured as the standard deviation of residual values from the time-series market model: $R_{it} = b + b_1 R_{Mt} + e_{it}$ where R_{it} is the daily stock return and R_{Mt} is the daily value-weighted market index return, estimated between −252 to −2 trading days before the earnings announcement. This variable is interacted with NDR variables in Column (3) of all panels, and it is used to partition the sample into high and low *IdioVol* firms in Columns (1) & (2) in all panels. This is done to test the impact that idiosyncratic volatility has on the relationship between NDRs and PEAD in the full sample and in the partitioned *IdioVol* subsamples.

The relationship between *NDR_t-1* and PEAD is shown in Panel A of Table 2-6. In Columns (1) and (2), the interaction variable of *NDR_t-1* and *UE* is the variable of interest. Column (1) shows, consistent with my earlier findings, that firms with NDR meetings in the month prior to earnings announcements have a negative and significant association with PEAD of 0.922% , in the *High_IdioVol* subsample. In Column (2), though, firms with NDR meetings in the month prior to earnings announcements have a positive and significant association with PEAD in the *Low_IdioVol* (firms where *High_IdioVol* = 0) subsample. These findings suggest that the negative relationship that *NDR_t-1* has with PEAD is in high idiosyncratic volatility firms, and unexpected earnings (*UE*) drive the positive results in the *Low_IdioVol* subsample. These findings are corroborated in Column (3), where I am interested in the interaction term of *NDR_t-1, UE,* and *High_IdioVol*. This variable indicates the relationship that having high idiosyncratic volatility and an NDR has with PEAD, and the results show these firms to have a negative and significant association with PEAD of 3.755% . This is a strong negative relationship that shows the where the relationship between NDRs and PEAD is most robust. Column (3) of Panel A also shows that firms that are not high idiosyncratic volatility firms but have an NDR meeting have a positive relationship with PEAD. This is, again, consistent with my results of NDRs decreasing PEAD being concentrated in high idiosyncratic volatility firms.

The tests in Panels B & C of Table 2-6 are the same as Panel A, apart from the NDR variables (*NDR_t-2* in Panel B; *NDR_t-3* in Panel C). Since neither of the NDR variables here are shown to decrease PEAD in the original sample, this analysis is verifying that the previous findings are not changed by the consideration of the *High_IdioVol* variable.

In Panel B, *NDR_t-2* has no significant relationship with PEAD in either subsample of *IdioVol,* consistent with my earlier results. The interaction term of *NDR_t-2, UE,* and

High_IdioVol is negative and insignificant in Column (3) of Panel B, but *High_IdioVol* firms have a significantly negative association with PEAD of 0.933% .

In Panel C, *NDR_t-3* has a positive and significant relationship with PEAD in only the *High_IdioVol* sample. The interaction term of *NDR_t-3, UE,* and *High_IdioVol* is negative and insignificant in Column (3) of Panel C, but *High_IdioVol* firms have a significantly negative relation with PEAD of 0.927% . These findings are consistent with my previous results that NDRs in the month prior to earnings announcements reduce PEAD, but they add that firms with high idiosyncratic volatility drive these results and that high idiosyncratic volatility, alone, decreases PEAD. This means that NDRs (specifically those nearest to the upcoming earnings announcement) are an information production mechanism that helps the market better understand the fundamental value of firms with high perceived uncertainty by investors, consistent with Hypothesis 3a.

2.5.4.2 Amihud Illiquidity

Table 2-7 reports the relationship that NDRs have with PEAD, based on a firm's level of illiquidity/transaction costs, defined as a *High_Amihud* binary indicator variable that is equal to one if the firm's *Amihud* variable is greater than the median firm and zero else. *Amihud* is defined as the mean value of the absolute daily returns divided by the daily dollar trading volume (in millions of U.S. dollars) between −252 to −2 trading days before the earnings announcement, multiplied by 10^6 for interpretation's sake (Amihud, 2002). This variable is interacted with NDR variables in Column (3) of all panels, and it is used to partition the sample into high and low *Amihud* firms in Columns (1) & (2) in all panels. I do this to test the impact that illiquidity, as another limit to arbitrage, has on the relationship between NDRs and PEAD in the full sample and in the partitioned *Amihud* subsamples.

The relationship between *NDR_t-1* and PEAD is shown in Panel A of Table 2-7. In Columns (1) and (2), the interaction variable of *NDR_t-1* and *UE* is the variable of interest. Column (1) shows, consistent with my earlier findings, that firms with NDR meetings in the month prior to earnings announcements have a negative and significant association with PEAD of 0.848% , in the *High_Amihud* subsample. In Column (2), firms with NDR meetings in the month prior to earnings announcements have a negative and statistically insignificant significant association with PEAD in the *Low_Amihud* (firms where *High_Amihud* = 0) subsample. These findings suggest that the negative relationship that *NDR_t-1* has with PEAD is in firms with greater transaction costs. The findings in Column (3), where I focus on the triple interaction term of *NDR_t-1, UE,* and *High_Amihud,* show no significant effect of *High_Amihud* on PEAD among NDR firms. Column (3) only presents a significant coefficient on *UE* in the full sample, suggesting that high illiquidity does not necessarily drive the result of NDRs within one month of earnings reducing PEAD, in the full sample. The tests in Panels B & C of Table 2-7 are the same as Panel A, apart from the NDR variables (*NDR_t-2* in Panel B; *NDR_t-3* in Panel C).

In Panel B, *NDR_t-2* has no significant association with PEAD in neither the subsamples of *Amihud,* nor in the full sample with or without interaction with *High_Amihud*. This non-result for *NDR_t-2* has been consistent throughout my analysis.

In Columns (1) and (2) of Panel C, firms with NDR meetings between the prior earnings announcement and two months prior to earnings announcements have a positive and significant relationship with PEAD of 0.691% , in the *High_Amihud* subsample. In Column (2), *NDR_t-3* firms have a positive and statistically insignificant relationship with PEAD in the *Low_Amihud* subsample. These findings show that the positive relationship that *NDR_t-3* has with PEAD is only in firms with greater illiquidity. The findings in full sample (Column (3)), show no significant

effects of *High_Amihud* on PEAD among NDR firms. Column (3) only presents a significant coefficient on *UE* in the full sample, suggesting that high illiquidity does not necessarily drive the result of higher PEAD among *NDR_t-3* firms. Together, these findings are consistent with the original findings that NDRs nearest to earnings announcements decrease PEAD. They show weak evidence that my results are concentrated in highly illiquid firms. These findings on limits to arbitrage are at least partially consistent with Hypothesis 3a that the negative relationship of NDRs with PEAD is stronger in firms with greater limits to arbitrage.

2.5.5 The Relationship between NDRs and PEAD – Limits to Attention

Here, I test Hypothesis 3b that the negative relationship between NDRs and PEAD is greatest for firms that have high limits to attention, as those firms need a mechanism by which investor attention is focused in on the firm. I employ four measures of firm-level limit to attention: firm size (*Small_Size*), concurrent earnings announcements (*High_Concurrent*), analyst forecast dispersion (*High_Dispersion*), and Friday earnings announcements (*Friday*). All of these factors indicate potential informational gaps between firms and investors, which I argue NDRs to decrease. I estimate the following equation to test the impacts of these limits to attention:

$$PostRet_{i,t} = \alpha_0 + \alpha_1 NDR_{i,t} + \alpha_2 UE_{i,t} + \alpha_3 (NDR_{i,t} * UE_{i,t}) + \alpha_4 (NDR_{i,t} * LimitToAttention_{i,t}) + \alpha_5 LimitToAttention_{i,t} + \alpha_6 (UE_{i,t} * LimitToAttention_{i,t}) + \alpha_7 (NDR_{i,t} * UE_{i,t} * LimitToAttention_{i,t}) + \sum_{n=8}^{N-i} \alpha_n Controls_{i,t} + \sum_{N-i}^{N} \alpha_{N-i} (Controls_{i,t} * UE_{i,t}) + Quarter \ \& \ Industry \ Fixed \ Effects + \epsilon_t , \quad \text{(Eq. 4)}$$

where *LimitToAttention* is equal to *Small_Size, High_Concurrent, High_Dispersion* or *Friday* in Tables 2-8 through 2-11, respectively (variable definitions are in Appendix A and in the description below). *NDR* in Equation (9) is equal to *NDR_t-1, NDR_t-2,* & *NDR_t-3,* and *UE* are unexpected earnings. The control variables here are the same as in the previous analyses.

2.5.5.1 Firm Size

Table 2-8 shows the relationship between NDR meetings and PEAD, based on a firm's size, indicated by the *Small_Size* binary indicator variable that is equal to one if the firm's market capitalization is less than the median firm and zero else. This variable is interacted with NDR variables in Column (3) of all panels and is used to partition the sample into large and small firms in Columns (1) & (2) in all panels. This is done to test the impact that firm size has on the association between NDRs and PEAD in the full sample and in the partitioned size subsamples.

The relationship between *NDR_t-1* and PEAD is shown in Panel A of Table 2-8. Column (1) shows, consistent with my earlier findings, that firms with NDR meetings in the month prior to earnings announcements have a negative and significant association with PEAD of 0.978% , in the *Small_Size* subsample. In Column (2), though, firms with NDR meetings in the month prior to earnings announcements have a positive but insignificant relationship with PEAD in the large firm sample (firms where *Small_Size* = 0) subsample. Interestingly, the coefficient on *UE* in the large firm sample is negative and significant, which is counter to what has been observed in my other tests. This seems to indicate that beating earnings by a large amount has a negative long-term affect in large firms. Regardless of this counterintuitive coefficient on *UE*, this table suggests that the negative association that *NDR_t-1* has with PEAD is concentrated in small firms. These findings are corroborated in Column (3), where I employ the triple interaction term of *NDR_t-1, UE,* and *Small_Size*. This variable indicates the impact that having small size and an NDR has on PEAD, and the results show these smaller firms to have a negative and significant relationship with PEAD of 2.86% . This regression shows significant effects on *PostRet* by this variable and *UE* (positive and significant, as expected), but not the other interactions or stand-alone variables of *NDR_t-1, Small_Size,* and *UE*. This is consistent with my results of NDRs decreasing PEAD and Hypothesis

3b that NDR firms with greater limits to attention have a stronger negative association with PEAD.

The tests in Panels B & C of Table 2-8 are the same as Panel A, apart from the NDR variables (*NDR_t-2* in Panel B; *NDR_t-3* in Panel C). In Panel B, *NDR_t-2* has no significant effect on PEAD in either the subsamples of firm size or in the interaction terms employed in Column (3). The only significant relationship shown in Panel B are *UE* having a positive association with *PostRet*, as expected.

In Panel C. *NDR_t-3* has a positive and significant relationship with PEAD in only the *Small_Size* sample. The interaction term of *NDR_t-3, UE*, and *High_IdioVol* is negative and insignificant in Column (3) of Panel C. The only statistically significant effects shown in Column (3) of Panel B are again *UE* having a positive impact on *PostRet*, as expected. These findings in Table 2-8 are consistent with my previous results that NDRs in the month prior to earnings announcements reduce PEAD. When partitioning by firm size and interacting NDR variables with *UE* and *Small_Size*, the positive and significant relationship between *NDR_t-3* that I have observed previously goes away. This gives further credibility to this finding not indicating the same relationship between *NDR_t-3* and PEAD as is observed for *NDR_t-1* and PEAD. Table 2-8 suggests that NDRs do strengthen the informational environment of small firms, who have limited investor attention, and decrease the observed PEAD of said firms (consistent with Hypothesis 3b).

2.5.5.2 Concurrent Earnings Announcements

Table 2-9 introduces another limit to attention, concurrent earnings announcements, which is the number of earnings announcements by firms in the same industry, on the same day. I use a binary indicator variable *High_Concurrent* to partition the sample (Columns (1) & (2)) and interact with NDR variables (Column (3)), which indicates firms with high concurrent earnings announcements relative to the median firm. This is done to test the impact that other firms'

earnings announcements have on the relationship between NDRs and PEAD in the full sample and in the partitioned high and low *Concurrent* subsamples. Concurrent earnings announcements are considered a limit to investor attention and can have a positive impact on PEAD, in prior literature (DellaVigna & Pollet, 2009; Hirshleifer et al., 2009)

NDR_t-1 is shown to decrease PEAD in Panel A of Table 2-9 but only in the subsample of low concurrent earnings announcement firms (2.108% reduction) and in the full sample when firms have a low level of concurrent earnings announcements (2.082% reduction). This is consistent with Hung et al. (2015) who show after an information shock, the decrease in PEAD is more pronounced for firms with fewer concurrent earnings announcements. Interestingly, among the high concurrent earnings announcement sample and in firms with high concurrent earnings announcements in the full sample, *NDR_t-1* does not reduce PEAD. In fact, *NDR_t-1* firms with high concurrent earnings announcements have a positive and statistically significant relationship with PEAD in the full sample (Column 3). This suggests that NDRs occurring within a month of earnings announcements do decrease PEAD, but only among firms with low levels of concurrent earnings announcements and that concurrent earnings announcements have a stronger impact on PEAD and investor attention than do NDRs. This implies that concurrent announcements limit investors' attention enough that NDRs do not overcome the informational gaps that concurrent announcements create, which does not support Hypothesis 3b.

The results in Panels B & C of Table 2-9 corroborate the findings of my initial results. In Panel B, *NDR_t-2* has no significant effect on PEAD in either the subsample of *Concurrent* or in the interactions with *High_Concurrent* in Column (3). This interaction term of *NDR_t-2, UE,* and *High_Concurrent* is negative and insignificant in Column (3) of Panel B.

In Panel C, *NDR_t-3* has a positive and significant relationship with PEAD in only the low

concurrent earnings announcement sample, again showing that my previous results only hold in low concurrent earnings announcement firms. The interaction term of *NDR_t-3*, *UE,* and *High_Concurrent* is also negative and insignificant in Column (3) of Panel C. These findings are consistent with my previous results that NDRs in the month prior to earnings announcements reduce the PEAD, but this finding is relegated to firms where the level concurrent earnings announcements is low. This means that NDRs are effective in closing informational gaps when investors can focus on these firms' earnings announcements.

2.5.5.3 Analyst Forecast Dispersion

In Table 2-10, I report the relationship that NDR meetings have with PEAD, based on a firm's level of analyst forecast dispersion, defined as the standard deviation of analyst forecasts for one quarter scaled by the mean analyst forecast estimate for that quarter. *Dispersion* captures the informational gaps between firms and analysts/investors. These informational gaps don't always have to do with limited attention paid to a firm, but just as firm size is related to less investor attention, small firms also attract less analysts (e.g. Chang et al., 2006). A firm's analyst following and level of forecast accuracy are positively related (i.e. Alford & Berger, 1999), so high dispersion is in line with less investor attention. The *Dispersion* variable is interacted with NDR variables in Column (3) of all panels, and it is used to partition the sample into high and low dispersion firms in Columns (1) & (2) in all panels.

The relationship between *NDR_t-1* and PEAD is shown in Panel A of Table 2-10. Column (1) shows that firms with NDR meetings in the month prior to earnings announcements have a statistically insignificant association with PEAD, in the *High_Dispersion* subsample. In Column (2), though, firms with NDR meetings in the month prior to earnings announcements are shown to significantly reduce PEAD by 0.915%, in the *Low_Dispersion* (firms where *High_Dispersion* =

0) subsample. These findings suggest that the negative relationship that *NDR_t-1* has with PEAD is only in low dispersion firms. Though this does not suggest that NDRs have a mitigating effect on this limit to attention, it is consistent with NDRs being followed by more "beatable" earnings forecasts and decreasing information asymmetries between firms and analysts (i.e. Bradley et al. 2022). In Column (3), the interaction term of *NDR_t-1, UE,* and *High_Dispersion* is positive and statistically insignificant, but the interaction of *NDR_t-1* and *UE* is negative and significant, indicating that firms with NDRs within one month of their earnings announcement and with low analyst dispersion reduce PEAD by 1.103%. Column (3) of Panel A also shows that firms with high dispersion and no NDR meetings decrease *PostRet*. This shows that dispersion is negatively related to long-term abnormal returns post-earnings announcement but only in firms with no NDR meeting. This speaks to NDRs' positive effect on abnormal returns after earnings, as noted in Table 2-1. These findings again give relevance to my initial results, and they further inform us that firms with lower analyst dispersion are the firms for which NDRs decrease PEAD.

The tests in Panels B & C of Table 2-10 are the same as Panel A, apart from the NDR variables (*NDR_t-2* in Panel B; *NDR_t-3* in Panel C). In Panel B, *NDR_t-2* has no significant relationship with PEAD in either subsample of *Dispersion* or in the interaction terms. Panel B simply corroborates that high dispersion firms have lower post-earnings abnormal returns, all else equal.

In Panel C, *NDR_t-3* has a positive and significant association with PEAD in only the *High_Dispersion* sample, suggesting an increase in PEAD of 0.681%. This further highlights the differences between *NDR_t-1* firms and *NDR_t-3* firms, and this finding shows that an increase in PEAD from firms having NDRs closer to the previous earnings announcement is only among firms with higher analyst dispersion. This is consistent with higher dispersion increasing PEAD (i.e. Han

et al., 2009), and it may also indicate that the *NDR_t-3* firms do not decrease information gaps about upcoming earnings. This is because if NDRs make earnings more beatable, you would expect the reduction of PEAD to only be among low dispersion firms, as in Panel A. The interaction term of *NDR_t-3, UE,* and *High_Dispersion* is positive and insignificant in Column (3) of Panel C, but *High_Dispersion* firms without NDRs have a significantly negative relationship with *PostRet* of 0.918% . Interestingly, though, high dispersion firms with *NDR_t-3* equal to one increase *PostRet*, suggesting that if high dispersion firms have NDRs, the negative relationship with returns does not hold.

The findings of Table 2-10 are consistent with my previous results that NDRs in the month prior to earnings announcements reduce PEAD, but this finding is primarily among low dispersion firm, though the evidence is not strong in support of that conclusion. The results here for *NDR_t-2* and *NDR_t-3* are the same as before, with little addition to my results. These results do not support Hypothesis 3b that firms with high limits to attention will have NDRs with the strongest negative association with PEAD, but they may provide a glimpse as to the effect that NDRs have on earnings and analyst expectations in the quarter of the upcoming earnings announcement.

2.5.5.4 Friday Earnings Announcements

My final results regarding limits to attention are reported in Table 2-11. Here, I show the relationship that NDR meetings have with PEAD, based on whether or not a firm had their earnings announcement on a Friday. I define *Friday* as a binary indicator variable that is equal to one if the firm's earnings announcement was held on a Friday and zero else. Some research shows that PEAD is greater for earnings announcements on Fridays (DellaVigna & Pollet, 2009), citing a phenomenon called the "inattention hypothesis" where investors are distracted from work activities on Fridays (i.e. Damodaran, 1989). Alternatively, DeHaan et al. (2015) suggest that

investor intention is not lower on Fridays, but Friday announcements do have lower unexpected earnings (i.e. managers strategically reporting bad news during times of expected inattention) and negative returns around the announcement of the earnings date (suggesting investors frontrunning the Friday anomaly). This argument may be plausible since few firms release earnings on Friday (5.51% of my sample), so each individual announcement receives more attention than announcements on other days of the week. Thus, this analysis not only tests the relationship between NDRs and PEAD based on the day of the week of the earnings announcement, but it also looks to bring relevance to one of these arguments about Friday earnings announcements.

Regardless of the direction of the resulting coefficients, attention to announcements on Fridays is likely to be different from other days. The *Friday* variable is interacted with NDR variables in Column (3) of all panels, and it is used to partition the sample into Friday and non-Friday firms in Columns (1) & (2) in all panels. This is done to test the impact that Friday earnings announcements have on the relationship between NDRs and PEAD in the full sample and in the partitioned subsamples.

The relationship between *NDR_t-1* and PEAD is shown in Panel A of Table 2-11. Column (1) shows, consistent with my earlier findings, that firms with NDR meetings in the month prior to earnings announcements have a negative and significant association with PEAD of 3.337%, in the *Friday* subsample. In Column (2), firms with NDR meetings in the month prior to earnings announcements have a negative and significant relationship with PEAD in the Non-Friday subsample, but the statistical significance is less. These findings show the reduction of PEAD via *NDR_t-1* firms is stronger among *Friday* firms but is not dependent on the day of the week of the earnings announcement. This strong negative result of NDRs on PEAD in Friday announcements is confirmed in Column (3). This analysis indicates that having Friday earnings announcements

and an NDR reduces PEAD by 2.767%. This regression result also shows weak evidence that NDRs decrease PEAD, even among non-Friday announcements. Interestingly, it further indicates that Friday earnings announcements decrease PEAD, regardless of NDR activity, consistent with DeHaan et al. (2015) that Friday earnings announcements garner more attention. The results of NDRs decreasing PEAD being concentrated in Friday firms is consistent with my earlier results, but it also indicates that Friday announcements assist NDR activity in the month prior to earnings in reducing PEAD.

The tests in Panels B & C of Table 2-11 are the same as Panel A, apart from the NDR variables (*NDR_t-2* in Panel B; *NDR_t-3* in Panel C). In Panel B, *NDR_t-2* has no significant association with PEAD in either the subsample of *Friday* firms or the interaction of NDR firms with Friday firms and *UE*. This analysis does continue to suggest, though, that Friday earnings announcements do have lower returns and decrease PEAD, again consistent with DeHaan et al. (2015).

In Panel C, *NDR_t-3* has a positive and significant association with PEAD in only the non-Friday sample. This is consistent with *NDR_t-3* increasing PEAD among firms with higher unexpected earnings (non-Friday announcement firms). The interaction term of *NDR_t-3, UE,* and *Friday* is positive and insignificant in Column (3) of Panel C, but *Friday* firms have a significant negative association with PEAD of 0.569% .

These findings on the limits to investor attention are consistent with my previous results. NDRs in the month prior to earnings announcements reduce PEAD, but Friday announcements are shown to have a further negative association with PEAD, as they garner more investor attention than other announcements. This is not consistent with Hypothesis 3b, though, since Friday announcements are shown to not, in fact, be a limit to investor attention but a driver of investor

attention. Similarly, my findings show that low concurrent earnings announcement firms are those for which NDRs decrease PEAD. This is, again, suggesting NDRs to be more impactful among firms with low limits to investor attention. This said, small firms garner less investor attention, and the relationship between NDRs and the PEAD of these firms is greater, all else equal, for these firms. Therefore, small firms provide the only results of the relationship between NDRs and PEAD being stronger given greater limits to attention. This gives some support to Hypothesis 3b, though the findings on Friday and concurrent earnings announcements are to the contrary.

2.5.6 Additional Analysis of NDR Effects on PEAD – Earnings Beats and Misses

Limits to arbitrage and investor attention are vital to understanding how NDRs effect PEAD, but they are not the only factors that could have a significant impact on my results. I must consider the information that is embedded in a firm's earnings and whether or not the outcome of a firm's earnings announcement impacts PEAD in a significant way. NDRs are said to make earnings forecasts more "beatable" (Bradley et al., 2022), which would suggest that NDR firms are more likely to beat earnings. To test Hypothesis 4, I use two binary indicator variables, *EarningsBeat* and *EarningsMiss*, that are equal to one if the firm beat earnings forecasts in the current earnings announcement or equal to one if the firm misses earnings forecasts in the current earnings announcement, respectively, and zero else. These variables are interacted with NDR variables in Columns (3) of all panels of Table 2-12, and they are used to partition the sample into earnings beat and no earnings beat firms in Columns (1) and (2) in all panels. This analysis tests the effects that beating or missing earnings has on the effect that NDRs have on PEAD.

NDR_t-1 interacted with *UE* is the independent variable of interest in Panel A of Table 2-12. This analysis reveals that this interaction term has a significant negative relationship with PEAD in the *EarningsBeat* subsample (Column (1)) of 1.346% and a negative but insignificant

coefficient in the no earnings beat subsample (Column (2)). In Column (3), *EarningsBeat* holds a positive and significant relationship with *PostRet*, and the interaction of *NDR_t-1*, *EarningsBeat*, and *UE* has a negative yet insignificant association with *PostRet*. This suggests that firms that beat earnings have greater long-term CARs post-earnings, but NDRs within one month of earnings do not significantly reduce PEAD. Further, *NDR_t-1* does not significantly reduce PEAD in the full sample. *EarningsMiss* is shown to negatively affect *PostRet*, as expected, and firms that miss earnings and have NDRs within a month of earnings have a negative and statistically insignificant relationship with PEAD. Both *EarningsBeat* and *EarningsMiss* reduce PEAD in the full sample, but not in the presence of NDR meetings. These results are consistent with NDR firms decreasing PEAD in the *EarningsBeat* subsample, but this does not hold in the full sample when controlling for *EarningsBeat* and *EarningsMiss*. This indicates that there is no significant relationship between earnings beats/misses and the PEAD.

Once again, the analysis using *NDR_t-2* as the independent variable of interest (Panel B) provides no significant results in the independent variable, or the interaction terms in which it is employed. This said, tests in Panel C of Table 2-12 use*s NDR_t-3* as the independent NDR variable, and these results corroborate my previous findings. In Column (2), *NDR_t-2* has a positive and significant relationship with PEAD for firms that don't beat earnings. This is not the case, though, in the full sample when earnings beats/misses are controlled for (Column (3)). None of the findings of Panel C show that NDR firms that beat or miss earnings significantly affect PEAD.

The findings of Table 2-12 are not significantly different from previous findings, but they do indicate that earnings beat firms subsample are where the decrease in PEAD from NDR activity is concentrated. This table does not provide any significant relationship between earnings

outcomes and PEAD that indicates differences between NDR firms by when the NDRs occur.

2.6 Conclusions

This essay studies the relationship that non-deal roadshows (NDRs) have with the broadly studied PEAD. NDRs are similar to other voluntary disclosure mechanisms that decrease information asymmetries and can increase the ability of investors to efficiently price a firm's stock, especially in the wake of earnings announcements (e.g. management earnings forecasts). I find that NDRs are associated with a reduction in post-earnings announcement drift (PEAD), but only in firms that have NDR meetings within one month of the current earnings announcement, suggesting that firms have NDRs right before earnings to significantly affect their earnings news and the market's reaction to this news. This observed relationship is most pronounced among smaller firms, firms with high idiosyncratic volatility (i.e. Francis et al., 2007), and firms with Friday earnings announcements (i.e. DeHaan et al., 2015). These results suggest that firms who have some of the greater limits to arbitrage (Mendenhall, 2004; Hung et al., 2015) are those in which the effects of NDRs on PEAD are isolated. But, there is little evidence of limits to attention strengthening the relationship between NDRs and PEAD, apart from small size firms. Also, my results show a positive relationship with PEAD for firms with NDRs between the previous earnings announcement and two months prior to the current earnings announcement. This result runs counter to my hypotheses and the results for firms with NDRs within one month of an earnings announcement. I provide evidence that this result is not based on a significant effect of these NDRs on this quarter's earnings and that the relationship between NDRs and PEAD differs based on the timing of the NDRs relative to earnings announcements. This reminds us that NDRs at different times may occur for very different reasons (i.e. Ryan & Jacobs, 2005), thus fostering different firm outcomes.

Lastly, I show that firms with NDR meetings between two months and one month of earnings seem to be caught in the middle when it comes to their relationship with PEAD, as some are shown to negatively relate to PEAD, while some have consistent results with the NDRs between the previous earnings announcement and two months prior to the current earnings announcement. Throughout my analysis, the *NDR_t-2* variable provides little statistical significance, and these firms may well be toeing the line between firms looking to make themselves look more favorable in their upcoming earnings and those that may be meeting for reasons unrelated to earnings (e.g. an upcoming acquisition, change in management, etc.), thus providing few significant relationships with PEAD. This study contributes to the vast PEAD literature, the voluntary disclosure literature, the limited literature on NDRs, and the behavioral investment/investor attention literature by providing evidence that NDR activity does reduce PEAD. This effect varies with firm-specific limits to arbitrage and attention, as well as the timing of NDR meetings relative to earnings announcements.

The results of this essay are robust to many controls, but it still has its limitations. First, there is little evidence to suggest why *NDR_t-3* is positively related to PEAD and has a differing relationship with PEAD from *NDR_t-1* other than NDRs occurring for different reasons at different times (i.e. Ryan & Jacobs, 2005). Therefore, further research to better understand this relationship is necessary. Also, although this study is attempting to disentangle the reasons for NDRs, firms whose NDRs reduce their PEAD may not specifically be firms that were meeting to have investors better understand or react to upcoming earnings, though many are undoubtedly doing so based on my findings. Additionally, NDRs are not the only type of disclosure, so considering the issuance of management earnings forecasts, balance sheet disclosures, or other private voluntary disclosure mechanisms could further strengthen my results. Further, my analysis focuses on three time

intervals of a firm's most recent NDR occurrence, and though this choice provides differentiation in the relationships that NDRs have with PEAD, it may lack in recognizing the point at which NDRs start/stop reducing PEAD. Even in such a saturated area of literature (PEAD literature), research is still necessary to enhance my finding that NDRs reduce PEAD.

2.7 Tables

TABLE 2-1: Summary Statistics

This table reports the summary statistics for the full sample. PANEL A reports descriptive statistics for the variables used in the earnings announcement regression analysis. This panel reports the statistics for the full sample of firm-quarter observations. The sample includes 47,029 firm-quarters from 2013 to 2020. PANEL B reports the tests for differences in means and medians for NDR firms vs. Non-NDR firms (*NDR_t-1*, *NDR_t-2*, & *NDR_t-3*). The mean shows the t-test with null hypothesis of the mean being equal to zero. The median reports the Wilcoxon signed rank test statistics with the null hypothesis of the median being equal to zero. PANEL C reports the mean and median cumulative abnormal returns after earnings announcements (*PostRet;* [+2, +64]) & before the earnings announcement (*PreRet*; [-85, -23]).

PANEL A: Full Sample Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Max
PostRet	47,029	0.756	19.767	-58.611	68.145
NDR	47,029	0.264	0.441	0.000	1.000
NDR_t-1	47,029	0.033	0.178	0.000	1.000
NDR_t-2	47,029	0.105	0.307	0.000	1.000
NDR_t-3	47,029	0.126	0.332	0.000	1.000
UE	47,029	-0.319	1.944	-11.793	5.595
MV	47,029	8,509.802	38,024.420	0.613	1,390,046.000
MTB	47,029	3.813	7.783	-28.882	48.083
Beta	47,029	1.160	0.461	0.069	2.508
Price	47,029	41.126	44.826	1.050	254.850
Analyst_Coverage	47,029	9.025	7.489	1.000	35.000
ROA	47,029	-0.008	0.059	-0.305	0.085
Leverage	47,029	0.236	0.215	0.000	0.932
PreRet	47,029	0.249	19.864	-60.809	63.241

PANEL B: NDR vs. Non-NDR Firms Mean & Median tests

NDR Variable: *NDR_t-1*

Variables	Non-NDR Median	NDR Median	Median Diff. Stat	Non-NDR Mean	NDR Mean	Mean Diff.
PostRet	0.48	0.424	0.024	0.742	1.177	-0.435
UE	0	0	6.605**	-0.325	-0.118	-0.207***
MV	1,367.79	1,193.60	7.284***	8,496.06	8,917.39	-421.33
MTB	2.491	3.06	48.412***	3.785	4.666	-0.881***
Beta	1.125	1.203	16.829***	1.158	1.233	-0.075***
Price	26.9	26.155	1.069	41.129	41.043	0.086
Analyst_Coverage	7	7	2.136	9.032	8.801	0.232
ROA	0.008	0.006	10.356***	-0.007	-0.026	0.019***
Leverage	0.209	0.163	29.708***	0.236	0.211	0.025***
PreRet	0.304	1.712	7.015***	0.154	3.05	-2.896***
Earnings Beat	0	1	9.806***	0.471	0.512	-0.041***
Earnings Miss	0	0	71.173***	0.387	0.28	0.106***
High_IdioVol	0	1	49.023***	0.493	0.584	-0.091***
High_Amihud	0	1	6.171**	0.494	0.526	-0.032**
Friday	0	0	0.925	0.055	0.05	0.006
High_Concurrent	0	1	74.884***	0.487	0.6	-0.112***

NDR Variable: *NDR_t-2*

Variables	Non-NDR Median	NDR Median	Median Diff. Stat	Non-NDR Mean	NDR Mean	Mean Diff.
PostRet	0.41	0.993	5.568**	0.73	0.972	-0.242
UE	-0.006	0.009	61.178***	-0.341	-0.128	-0.213***
MV	1,298.56	1,898.38	198.947***	8,139.47	11,654.34	-3,514.867***
MTB	2.446	3.064	210.987***	3.737	4.469	-0.732***
Beta	1.123	1.151	17.073***	1.156	1.197	-0.041***
Price	25.945	35	216.442***	40.241	48.64	-8.399***
Analyst_Coverage	7	8	180.669***	8.842	10.572	-1.729***
ROA	0.008	0.01	62.202***	-0.009	-0.001	-0.008***
Leverage	0.208	0.196	8.049***	0.237	0.219	0.019***
PreRet	0.224	1.396	17.826***	0.086	1.63	-1.544***
EarningsBeat	0	1	37.257***	0.468	0.513	-0.046***
EarningsMiss	0	0	16.461***	0.386	0.357	0.030***
High_IdioVol	1	0	104.063***	0.504	0.428	0.077***
High_Amihud	1	0	186.137***	0.506	0.403	0.102***
Friday	0	0	8.311***	0.056	0.046	0.010***
High_Concurrent	0	1	41.954***	0.486	0.535	-0.049***

NDR Variable: *NDR_t-3*

Variables	Non-NDR Median	NDR Median	Median Diff. Stat	Non-NDR Mean	NDR Mean	Mean Diff.
PostRet	0.457	0.602	0.199	0.735	0.897	-0.162
UE	0	0	15.076***	-0.34	-0.172	-0.168***
MV	1,272.76	2,039.40	313.441***	8,337.90	9,702.12	-1,364.22***
MTB	2.424	3.093	295.023***	3.708	4.547	-0.839***
Beta	1.12	1.175	60.144***	1.153	1.212	-0.059***
Price	25.59	35.87	315.661***	39.895	49.666	-9.772***
Analyst_Coverage	6	9	353.824***	8.767	10.813	-2.046***
ROA	0.008	0.009	27.899***	-0.009	-0.003	-0.006***
Leverage	0.208	0.198	4.935**	0.237	0.225	0.012***
PreRet	0.166	1.505	29.688***	0.064	1.532	-1.468***
EarningsBeat	0	0	7.610***	0.47	0.489	-0.019***
EarningsMiss	0	0	1.09	0.384	0.377	0.007
High_IdioVol	1	0	90.011***	0.504	0.439	0.066***
High_Amihud	1	0	314.096***	0.51	0.387	0.123***
Friday	0	0	37.289***	0.057	0.038	0.019***
High_Concurrent	0	1	24.680***	0.487	0.521	-0.035***

PANEL C: *PostRet* & *PreRet* Summary Statistics

	PostRet								
	NDR_t-3			NDR_t-2			NDR_t-1		
	N	**Mean**	**Median**	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**
0	41,103	0.735%	0.457%	42,074	0.730%	0.410%	45,495	0.742%	0.480%
1	5,926	0.897%	0.602%	4,955	0.972%	0.993%	1,534	1.177%	0.424%
Total	47,029	0.756%	0.478%	47,029	0.756%	0.478%	47,029	0.756%	0.478%

	PreRet								
	NDR_t-3			NDR_t-2			NDR_t-1		
	N	**Mean**	**Median**	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**
0	41,103	0.064%	0.166%	42,074	0.086%	0.224%	45,495	0.154%	0.304%
1	5,926	1.532%	1.505%	4,955	1.630%	1.396%	1,534	3.050%	1.712%
Total	47,029	0.249%	0.351%	47,029	0.249%	0.351%	47,029	0.249%	0.351%

TABLE 2-2: Correlation Matrix of All Variables

This table is a correlation matrix for all variables used in the regression analysis. Variable definitions can be found in Appendix A.

Variables	*PostRet*	*NDR*	*NDR_t-1*	*NDR_t-2*	*NDR_t-3*	*UE*	*MV*	*MTB*	*Beta*	*Price*	*Analyst_Coverage*	*ROA*	*Leverage*	*PreRet*
PostRet	1													
NDR	0.0062	1												
NDR_t-1	0.0039	0.3066*	1											
NDR_t-2	0.0038	0.5730*	-0.0630*	1										
NDR_t-3	0.0027	0.6340*	-0.0697*	-0.1303*	1									
UE	0.0697*	0.0527*	0.0189*	0.0337*	0.0287*	1								
MV	0.0021	0.0295*	0.002	0.0284*	0.0119*	0.0333*	1							
MTB	0.0102*	0.0552*	0.0201*	0.0289*	0.0358*	0.0467*	0.0720*	1						
Beta	0.0133*	0.0622*	0.0290*	0.0270*	0.0421*	-0.0206*	-0.0457*	0.0522*	1					
Price	-0.0163*	0.0944*	-0.0003	0.0575*	0.0723*	0.1117*	0.3017*	0.1920*	-0.0291*	1				
Analyst_Coverage	-0.0058	0.1154*	-0.0055	0.0709*	0.0907*	0.0801*	0.3890*	0.1139*	0.0668*	0.4392*	1			
ROA	-0.0098*	0.0308*	-0.0563*	0.0400*	0.0340*	0.1913*	0.1046*	-0.0312*	-0.1361*	0.2805*	0.1891*	1		
Leverage	-0.0280*	-0.0415*	-0.0210*	-0.0269*	-0.0190*	-0.0842*	0.0379*	-0.0463*	0.0057	0.0503*	0.0826*	0.0428*	1	
PreRet	-0.0114*	0.0455*	0.0259*	0.0239*	0.0245*	0.1680*	0.0209*	0.0857*	-0.0034	0.1038*	0.0026	0.0496*	-0.0561*	1

TABLE 2-3: Regression Analysis of Non-Deal Roadshows' Relationship with PEAD: NDR Proximity to Earnings

This table reports the baseline industry and quarter fixed-effects regression results for having an NDR meeting between earnings announcements. All columns have *PostRet* as the dependent variable, with independent variables of interest being *NDR*, *NDR_t-1*, *NDR_t-2*, & *NDR_t-3* and their interaction terms with *UE*. Control variables for firm characteristics, as defined in Section 4.4, are included. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

	(1) CAR [+2, +64]: NDR	(2) CAR [+2, +64]: NDR_t-1	(3) CAR [+2, +64]: NDR_t-2	(4) CAR [+2, +64]: NDR_t-3
NDR	0.111			
	(0.21)			
*NDR * UE*	0.204			
	(0.14)			
NDR_t-1		0.199		
		(0.51)		
*NDR_t-1 * UE*		-0.794***		
		(0.29)		
NDR_t-2			0.233	
			(0.30)	
*NDR_t-2 * UE*			0.195	
			(0.22)	
NDR_t-3				-0.022
				(0.28)
*NDR_t-3 * UE*				0.640***
				(0.20)
UE	1.075***	1.107***	1.078***	1.090***
	(0.22)	(0.22)	(0.22)	(0.22)
Constant	3.355*	3.368*	3.351*	3.339*
	(2.03)	(2.02)	(2.02)	(2.02)
Firm-Level Controls	YES	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES
N	47,029	47,029	47,029	47,029
R-Squared	0.05	0.05	0.05	0.05

TABLE 2-4: Regression Analysis of Non-Deal Roadshows' Relationship with PEAD: NDR Sample & Full Sample Breakdown

This table reports the regression results with the NDR samples & the full sample to identify the impact NDR variables have on the initial impact of *UE*. All columns have *PostRet* as the dependent variable, with independent variables of interest being *UE, NDR_t-1* (Columns 1-3), *NDR_t-2* (Columns 4-6), & *NDR_t-3* (Columns 7-9) and their interaction terms with *UE*. Columns (1), (4), & (7) are regressions of *UE* on *PostRet* with only industry & quarter fixed effects. Columns (2), (5), & (8) are regressions of *UE* on *PostRet* with industry & quarter fixed effects and control variables. Columns (3), (6), & (9) are regression s of *UE*, NDR variables, & *UE*/NDR interactions on *PostRet* with industry & quarter fixed effects and control variables. Control variables for firm characteristics are as defined in Section 4.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	CAR [+2, +64] NDR_1 Firms	CAR [+2, +64] NDR_1 Firms	CAR [+2, +64] Full Sample	CAR [+2, +64] NDR_2 Firms	CAR [+2, +64] NDR_2 Firms	CAR [+2, +64] Full Sample	CAR [+2, +64] NDR_3 Firms	CAR [+2, +64] NDR_3 Firms	CAR [+2, +64] Full Sample
UE	0.261	0.227	0.778***	1.156***	1.171***	0.743***	1.427***	1.436***	0.718***
	(0.35)	(0.37)	(0.05)	(0.19)	(0.20)	(0.05)	(0.18)	(0.19)	(0.05)
*NDR_t-1 * UE*			-0.643**						
			(0.29)						
NDR_t-1			0.275						
			(0.51)						
*NDR_t-2 * UE*						0.418*			
						(0.22)			
NDR_t-2						0.300			
						(0.30)			
*NDR_t-3 * UE*									0.858***
									(0.20)
NDR_t-3									0.012
									(0.28)
Constant	24.397	24.969	3.125	-2.950	-0.655	3.106	-0.327	4.608	3.094
	(16.64)	(17.02)	(2.03)	(9.13)	(9.17)	(2.03)	(11.14)	(11.15)	(2.03)
Firm-Level Controls	NO	YES	YES	NO	YES	YES	NO	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	1,534	1,534	47,029	4,955	4,955	47,029	5,926	5,926	47,029
R-Squared	0.10	0.11	0.05	0.06	0.07	0.05	0.07	0.07	0.05

TABLE 2-5: 2SLS Regression Analysis of Non-Deal Roadshows' Relationship with PEAD

This table reports the 2SLS results. Columns (1), (3), & (5) are results where the first stage of a 2SLS estimation is a probit model, with the endogenous variables being the binary *NDR_t-1*, *NDR_t-2*, & *NDR_t-3* variables and the instrumental variable being *Industry_NDRs* (variable definitions in appendix). Columns (2), (4), & (6) are the corresponding second-stage results to the 2SLS estimation. *PostRet* is the dependent variable in the second stage. Control variables for firm characteristics are as defined in Section 4.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.10, respectively, in two-tailed tests. See Appendix A for variable definitions.

	(1) 1st Stage NDR_t-1	(2) 2nd Stage CAR [+2, +64]	(3) 1st Stage NDR_t-2	(4) 2nd Stage CAR [+2, +64]	(5) 1st Stage NDR_t-3	(6) 2nd Stage CAR [+2, +64]
IndustryNDRs_1	10.325***					
	(0.39)					
$\widehat{NDR\_1month}$		0.102				
		(0.27)				
$\widehat{NDR\_1month}$* UE		-0.216**				
		(0.09)				
IndustryNDRs_2			-0.309			
			(0.25)			
$\widehat{NDR\_2month}$				-6.062		
				(8.90)		
$\widehat{NDR\_2month}$* UE				0.164		
				(0.18)		
IndustryNDRs_3					-0.912***	
					(0.27)	
$\widehat{NDR\_3month}$						-1.090
						(3.07)
$\widehat{NDR\_3month}$* UE						0.207*
						(0.13)
UE		0.609**		1.364***		1.465***
		(0.30)		(0.38)		(0.32)
Constant	-4.131***	3.993*	-2.819***	-13.785	-3.821***	-0.962

	(1) 1st Stage NDR_t-1	(2) 2nd Stage CAR [+2, +64]	(3) 1st Stage NDR_t-2	(4) 2nd Stage CAR [+2, +64]	(5) 1st Stage NDR_t-3	(6) 2nd Stage CAR [+2, +64]
	(0.76)	(2.32)	(0.24)	(25.14)	(0.27)	(11.88)
Firm-Level Controls	YES	YES	YES	YES	YES	YES
Control Interactions w/ UE	NO	YES	NO	YES	NO	YES
Industry FE	YES	YES	YES	YES	YES	YES
Quarter FE	YES	YES	YES	YES	YES	YES
N	46,791	46,891	47,008	47,007	47,001	47,000
R-Squared	0.13	0.05	0.05	0.05	0.07	0.05

TABLE 2-6: Regression Analysis of Non-Deal Roadshows' Relationship with PEAD by Limit to Arbitrage Variables: Idiosyncratic Volatility

This table reports the regression results for the impact of NDRs on PEAD, partitioned by a measure of Limits to Arbitrage: *IdioVol* (idiosyncratic volatility) The NDR independent variables (*NDR_t-1, NDR_t-2,* & *NDR_t-3)* & their interaction terms with *UE* are used in panels A, B, & C, respectively. *High_IdioVol* firms are firms whose idiosyncratic volatility in a quarter is greater than the median firm and Low *IdioVol* firms are firms whose idiosyncratic illiquidity measure in a quarter is less than or equal to the median. *PostRet* is the dependent variable. Control variables for firm characteristics are as defined in Section 4.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

PANEL A: *NDR_t-1*

	(1) CAR [+2, +64]: High_IdioVol	(2) CAR [+2, +64]: Low_IdioVol	(3) CAR [+2, +64]: Full Sample
NDR_t-1	0.424	-0.278	-0.027
	(0.84)	(0.49)	(0.78)
UE	1.214***	1.305**	2.142***
	(0.30)	(0.56)	(0.31)
*NDR_t-1 * UE*	-0.922**	2.307***	2.839**
	(0.38)	(0.89)	(1.40)
*NDR_t-1 * High_IdioVol*			0.479
			(1.02)
High_IdioVol			0.042
			(0.25)
*High_IdioVol * UE*			-0.899***
			(0.19)
*NDR_t-1 * High_IdioVol * UE*			-3.755***
			(1.43)
Constant	2.156	0.387	3.453*
	(3.82)	(1.75)	(2.04)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	23,335	23,694	47,029
R-Squared	0.08	0.05	0.05

PANEL B: *NDR_t-2*

	(1) CAR [+2, +64]: High_IdioVol	(2) CAR [+2, +64]: Low_IdioVol	(3) CAR [+2, +64]: Full Sample
NDR_t-2	0.507	0.120	0.197
	(0.57)	(0.25)	(0.39)
UE	1.179***	1.364**	2.150***
	(0.30)	(0.57)	(0.31)
*NDR_t-2 * UE*	0.185	0.638	0.742
	(0.29)	(0.44)	(0.68)
*NDR_t-2 * High_IdioVol*			0.102
			(0.59)
High_IdioVol			0.044
			(0.25)
*High_IdioVol * UE*			-0.933***
			(0.20)
*NDR_t-2 * High_IdioVol * UE*			-0.589
			(0.72)
Constant	2.137	0.403	3.441*

	(1) CAR [+2, +64]: High_IdioVol	(2) CAR [+2, +64]: Low_IdioVol	(3) CAR [+2, +64]: Full Sample
	(3.82)	(1.75)	(2.04)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	23,335	23,694	47,029
R-Squared	0.08	0.05	0.05

PANEL C: *NDR_t-3*

	(1) CAR [+2, +64]: High_IdioVol	(2) CAR [+2, +64]: Low_IdioVol	(3) CAR [+2, +64]: Full Sample
NDR_t-3	-0.072	0.214	0.057
	(0.52)	(0.23)	(0.37)
UE	1.199***	1.282**	2.151***
	(0.30)	(0.57)	(0.32)
*NDR_t-3 * UE*	0.662**	0.450	0.959*
	(0.27)	(0.37)	(0.58)
*NDR_t-3 * High_IdioVol*			-0.166
			(0.55)
High_IdioVol			0.080
			(0.26)
*High_IdioVol * UE*			-0.927***
			(0.20)
*NDR_t-3 * High_IdioVol * UE*			-0.377
			(0.62)
Constant	2.040	0.458	3.420*
	(3.82)	(1.75)	(2.04)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	23,335	23,694	47,029
R-Squared	0.08	0.05	0.05

TABLE 2-7: Regression Analysis of Non-Deal Roadshows' Relationship with PEAD by Limit To Arbitrage Variables: Amihud Illiquidity Measure

This table reports the regression results for the impact of NDRs on PEAD, partitioned by a measure of Limits to Arbitrage: *Amihud* (Amihud illiquidity measure). The NDR independent variables (*NDR_t-1, NDR_t-2,* & *NDR_t-3)* & their interaction terms with *UE* are used in panels A, B, & C, respectively. High *Amihud* firms are firms whose Amihud illiquidity measure is greater than the median firm and Low *Amihud* firms are firms whose Amihud illiquidity measure in a quarter is less than or equal to the median. *PostRet* is the dependent variable. Control variables for firm characteristics are as defined in Section 4.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

PANEL A: *NDR_t-1*

	(1) CAR [+2, +64]: High_Amihud	(2) CAR [+2, +64]: Low_Amihud	(3) CAR [+2, +64]: Full Sample
NDR_t-1	0.237	0.288	0.303
	(0.81)	(0.59)	(0.73)
UE	1.646***	0.120	1.331***
	(0.31)	(0.52)	(0.32)
*NDR_t-1 * UE*	-0.848**	-0.663	-0.801
	(0.37)	(0.60)	(0.74)

	(1) CAR [+2, +64]: High_Amihud	(2) CAR [+2, +64]: Low_Amihud	(3) CAR [+2, +64]: Full Sample
*NDR_t-1 * High_Amihud*			-0.187
			(1.01)
High_Amihud			-0.294
			(0.26)
*High_Amihud * UE*			-0.140
			(0.15)
*NDR_t-1 * High_Amihud * UE*			0.009
			(0.80)
Constant	6.083**	2.017	3.968*
	(2.75)	(3.55)	(2.09)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	23,274	23,755	47,029
R-Squared	0.07	0.04	0.05

PANEL B: *NDR_t-2*

	(1) CAR [+2, +64]: High_Amihud	(2) CAR [+2, +64]: Low_Amihud	(3) CAR [+2, +64]: Full Sample
NDR_t-2	0.646	0.082	0.295
	(0.53)	(0.31)	(0.38)
UE	1.621***	0.096	1.294***
	(0.31)	(0.52)	(0.32)
*NDR_t-2 * UE*	0.141	0.487	0.402
	(0.29)	(0.35)	(0.43)
High_Amihud			-0.280
			(0.26)
*NDR_t-2 * High_Amihud*			-0.149
			(0.59)
*High_Amihud * UE*			-0.126
			(0.15)
*NDR_t-2 * High_Amihud * UE*			-0.282
			(0.50)
Constant	6.102**	1.980	3.937*
	(2.75)	(3.55)	(2.09)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	23,274	23,755	47,029
R-Squared	0.07	0.04	0.05

PANEL C: *NDR_t-3*

	(1) CAR [+2, +64]: High_Amihud	(2) CAR [+2, +64]: Low_Amihud	(3) CAR [+2, +64]: Full Sample
NDR_t-3	0.329	-0.193	-0.051
	(0.51)	(0.29)	(0.35)
UE	1.629***	0.075	1.309***
	(0.31)	(0.52)	(0.32)
*NDR_t-3 * UE*	0.691**	0.490	0.620
	(0.28)	(0.31)	(0.38)

	(1) CAR [+2, +64]: High_Amihud	(2) CAR [+2, +64]: Low_Amihud	(3) CAR [+2, +64]: Full Sample
High_Amihud			-0.305
			(0.26)
*NDR_t-3 * High_Amihud*			0.066
			(0.56)
*High_Amihud * UE*			-0.138
			(0.15)
*NDR_t-3 * High_Amihud * UE*			0.026
			(0.45)
Constant	6.092**	1.940	3.945*
	(2.75)	(3.55)	(2.09)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	23,274	23,755	47,029
R-Squared	0.07	0.04	0.05

TABLE 2-8: Regression Analysis of Non-Deal Roadshows' Relationship with PEAD by Limits to Attention: Firm Size

This table reports the fixed-effects regression results for the impact of NDRs on PEAD, partitioned by a measure of Limits to Attention: Firm Size (measured in market value of equity). The NDR independent variables (*NDR_t-1, NDR_t-2,* & *NDR_t-3)* & their interaction terms with *UE* are used in panels A, B, & C, respectively. Large firms are firms whose size measure is greater than the median firm and Small firms are firms whose size measure in a quarter is less than or equal to the median (*Small_Size*). *PostRet* is the dependent variable. Control variables for firm characteristics are as defined in Section 4.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

PANEL A: *NDR_t-1*

	(1) CAR [+2, +64]: Small Firms	(2) CAR [+2, +64]: Large Firms	(3) CAR [+2, +64]: Full Sample
NDR_t-1	0.235	0.255	0.351
	(0.84)	(0.55)	(0.73)
UE	1.507***	-2.129*	1.269***
	(0.32)	(1.21)	(0.40)
*NDR_t-1 * UE*	-0.978***	1.619	1.932
	(0.36)	(1.00)	(1.33)
Small_Size			-0.206
			(0.31)
*NDR_t-1 * Small_Size*			-0.256
			(1.01)
*Small_Size * UE*			-0.079
			(0.20)
*NDR_t-1 * Small_Size * UE*			-2.860**
			(1.36)
Constant	4.771	-0.389	3.798*
	(3.27)	(2.43)	(2.12)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	23,283	23,746	47,029
R-Squared	0.07	0.04	0.05

PANEL B: *NDR_t-2*

	(1) CAR [+2, +64]: Small Firms	(2) CAR [+2, +64]: Large Firms	(3) CAR [+2, +64]: Full Sample
NDR_t-2	0.863	-0.110	0.059
	(0.55)	(0.29)	(0.38)
UE	1.483***	-2.257*	1.273***
	(0.32)	(1.21)	(0.40)
*NDR_t-2 * UE*	0.155	0.437	0.414
	(0.29)	(0.37)	(0.48)
Small_Size			-0.267
			(0.31)
*NDR_t-2 * Small_Size*			0.435
			(0.60)
*Small_Size * UE*			-0.106
			(0.21)
*NDR_t-2 * Small_Size * UE*			-0.267
			(0.54)
Constant	4.802	-0.396	3.833*
	(3.27)	(2.43)	(2.12)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	23,283	23,746	47,029
R-Squared	0.07	0.04	0.05

PANEL C: *NDR_t-3*

	(1) CAR [+2, +64]: Small Firms	(2) CAR [+2, +64]: Large Firms	(3) CAR [+2, +64]: Full Sample
NDR_t-3	0.131	-0.025	0.063
	(0.53)	(0.27)	(0.35)
UE	1.504***	-2.057*	1.322***
	(0.32)	(1.22)	(0.40)
*NDR_t-3 * UE*	0.650**	0.598	0.817
	(0.27)	(0.38)	(0.50)
Small_Size			-0.181
			(0.31)
*NDR_t-3 * Small_Size*			-0.218
			(0.56)
*Small_Size * UE*			-0.129
			(0.21)
*NDR_t-3 * Small_Size * UE*			-0.219
			(0.55)
Constant	4.741	-0.386	3.745*
	(3.28)	(2.43)	(2.12)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	23,283	23,746	47,029
R-Squared	0.07	0.04	0.05

TABLE 2-9: Regression Analysis of Non-Deal Roadshows' Relationship with PEAD by Limits to Attention: Concurrent Earnings Announcements

This table reports the fixed-effects regression results for the impact of NDRs on PEAD, partitioned by a measure of Limits to Attention: Concurrent Earnings Announcements. The NDR independent variables (*NDR_t-1, NDR_t-2,* & *NDR_t-3)* & their interaction terms with *UE* are used in PANELS A, B, & C, respectively. High concurrent firms are firms whose number of concurrent earnings announcements measure is greater than the median firm (*High_Concurrent*) and low concurrent firms are firms whose number of concurrent earnings announcements measure in a quarter is less than or equal to the median. *PostRet* is the dependent variable. Control variables for firm characteristics are as defined in Section 4.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

PANEL A: *NDR_t-1*

	(1) CAR [+2, +64]: High Concurrent	(2) CAR [+2, +64]: Low Concurrent	(3) CAR [+2, +64]: Full Sample
NDR_t-1	-0.004	0.301	0.100
	(0.70)	(0.74)	(0.80)
UE	0.650*	1.371***	1.155***
	(0.37)	(0.26)	(0.22)
*NDR_t-1 * UE*	-0.014	-2.108***	-2.082***
	(0.39)	(0.46)	(0.50)
High_Concurrent			-0.232
			(0.25)
*NDR_t-1 * High_Concurrent*			0.008
			(1.03)
*High_Concurrent * UE*			-0.073
			(0.10)
*NDR_t-1 * High_Concurrent * UE*			1.982***
			(0.62)
Constant	2.295	4.629**	3.355*
	(1.74)	(1.94)	(2.02)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	23,105	23,924	47,029
R-Squared	0.06	0.06	0.05

PANEL B: *NDR_t-2*

	(1) CAR [+2, +64]: High Concurrent	(2) CAR [+2, +64]: Low Concurrent	(3) CAR [+2, +64]: Full Sample
NDR_t-2	0.177	0.304	0.230
	(0.43)	(0.40)	(0.43)
UE	0.649*	1.293***	1.093***
	(0.37)	(0.26)	(0.22)
*NDR_t-2 * UE*	0.068	0.253	0.307
	(0.34)	(0.28)	(0.30)
High_Concurrent			-0.230
			(0.26)
*NDR_t-2 * High_Concurrent*			0.014
			(0.59)
*High_Concurrent * UE*			-0.034
			(0.10)
*NDR_t-2 * High_Concurrent * UE*			-0.235
			(0.43)
Constant	2.310	4.628**	3.354*

	(1) CAR [+2, +64]: High Concurrent	(2) CAR [+2, +64]: Low Concurrent	(3) CAR [+2, +64]: Full Sample
	(1.74)	(1.94)	(2.02)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	23,105	23,924	47,029
R-Squared	0.06	0.06	0.05

PANEL C: *NDR_t-3*

	(1) CAR [+2, +64]: High Concurrent	(2) CAR [+2, +64]: Low Concurrent	(3) CAR [+2, +64]: Full Sample
NDR_t-3	-0.344	0.317	0.160
	(0.41)	(0.37)	(0.40)
UE	0.663*	1.297***	1.094***
	(0.37)	(0.26)	(0.22)
*NDR_t-3 * UE*	0.369	0.906***	0.927***
	(0.32)	(0.26)	(0.28)
High_Concurrent			-0.202
			(0.26)
*NDR_t-3 * High_Concurrent*			-0.310
			(0.54)
*High_Concurrent * UE*			-0.015
			(0.10)
*NDR_t-3 * High_Concurrent * UE*			-0.588
			(0.41)
Constant	2.209	4.670**	3.347*
	(1.75)	(1.94)	(2.02)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	23,105	23,924	47,029
R-Squared	0.06	0.06	0.05

TABLE 2-10: Regression Analysis of Non-Deal Roadshows' Relationship with PEAD Returns by Limits to Attention: Analyst Forecast Dispersion

This table reports the fixed-effects regression results for the impact of NDRs on PEAD, partitioned by a measure of Limits to Attention: Analyst Forecast Dispersion. The NDR independent variables (*NDR_t-1*, *NDR_t-2*, & *NDR_t-3)* & their interaction terms with *UE* are used in panels A, B, & C, respectively. High dispersion firms (*High_Dispersion*) are firms whose analyst dispersion measure is greater than the median firm and low dispersion firms are firms whose analyst dispersion in a quarter is less than or equal to the median. *PostRet* is the dependent variable. Control variables for firm characteristics are as defined in Section 4.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

PANEL A: *NDR_t-1*

	(1) CAR [+2, +64]: High_Dispersion	(2) CAR [+2, +64]: Low_Dispersion	(3) CAR [+2, +64]: Full Sample
NDR_t-1	-0.281	0.540	0.762
	(0.71)	(0.73)	(0.67)
UE	0.722**	1.106***	0.984***
	(0.36)	(0.40)	(0.26)
*NDR_t-1 * UE*	-0.349	-0.915**	-1.103***
	(0.42)	(0.43)	(0.39)

	(1) CAR [+2, +64]: High_Dispersion	(2) CAR [+2, +64]: Low_Dispersion	(3) CAR [+2, +64]: Full Sample
High_Dispersion			-0.758***
			(0.20)
*NDR_t-1 * High_Dispersion*			-1.086
			(1.03)
*High_Dispersion * UE*			0.068
			(0.11)
*NDR_t-1 * High_Dispersion * UE*			0.833
			(0.61)
Constant	2.991	2.311	3.263
	(3.03)	(3.28)	(2.24)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	21,790	21,671	43,461
R-Squared	0.07	0.06	0.05

PANEL B: *NDR_t-2*

	(1) CAR [+2, +64]: High_Dispersion	(2) CAR [+2, +64]: Low_Dispersion	(3) CAR [+2, +64]: Full Sample
NDR_t-2	-0.054	0.531	0.509
	(0.38)	(0.46)	(0.42)
UE	0.699*	1.078***	0.951***
	(0.36)	(0.40)	(0.26)
*NDR_t-2 * UE*	0.343	0.217	0.141
	(0.29)	(0.34)	(0.32)
High_Dispersion			-0.712***
			(0.21)
*NDR_t-2 * High_Dispersion*			-0.606
			(0.59)
*High_Dispersion * UE*			0.085
			(0.11)
*NDR_t-2 * High_Dispersion * UE*			0.144
			(0.45)
Constant	2.965	2.290	3.220
	(3.03)	(3.28)	(2.25)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	21,790	21,671	43,461
R-Squared	0.07	0.06	0.05

PANEL C: *NDR_t-3*

	(1) CAR [+2, +64]: High_Dispersion	(2) CAR [+2, +64]: Low_Dispersion	(3) CAR [+2, +64]: Full Sample
NDR_t-3	0.387	-0.635	-0.649*
	(0.35)	(0.43)	(0.39)
UE	0.721**	1.080***	0.977***
	(0.36)	(0.40)	(0.26)
*NDR_t-3 * UE*	0.681**	0.265	0.188
	(0.27)	(0.31)	(0.29)

	(1) CAR [+2, +64]: High_Dispersion	(2) CAR [+2, +64]: Low_Dispersion	(3) CAR [+2, +64]: Full Sample
High_Dispersion			-0.918***
			(0.21)
*NDR_t-3 * High_Dispersion*			1.009*
			(0.54)
*High_Dispersion * UE*			0.051
			(0.11)
*NDR_t-3 * High_Dispersion * UE*			0.574
			(0.42)
Constant	3.050	2.098	3.227
	(3.03)	(3.28)	(2.25)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	21,790	21,671	43,461
R-Squared	0.07	0.06	0.05

TABLE 2-11: Regression Analysis of Non-Deal Roadshows' Relationship with PEAD by Limits to Attention: Friday Earnings Announcements

This table reports the fixed-effects regression results for the impact of NDRs on PEAD, partitioned by a measure of Limits to Attention: Friday Earnings Announcements. The NDR independent variables (*NDR_t-1, NDR_t-2,* & *NDR_t-3)* & their interaction terms with *UE* are used in panels A, B, & C, respectively. *Friday* firms are firms who have earnings announcements on Fridays, and Non-Friday firms are firms who do not have their earnings announcement on Friday. *PostRet* is the dependent variable. Control variables for firm characteristics are as defined in Section 4.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

PANEL A*: NDR_t-1*

	(1) CAR [+2, +64]: Friday	(2) CAR [+2, +64]: Non-Friday	(3) CAR [+2, +64]: Full Sample
NDR_t-1	-2.154	0.341	0.359
	(2.28)	(0.52)	(0.52)
UE	-0.060	1.236***	1.142***
	(0.79)	(0.23)	(0.22)
*NDR_t-1 * UE*	-3.337***	-0.586*	-0.590*
	(1.08)	(0.30)	(0.30)
Friday			-0.637
			(0.41)
*NDR_t-1 * Friday*			-3.642
			(2.33)
*Friday * UE*			-0.496***
			(0.18)
*NDR_t-1 * Friday * UE*			-2.767**
			(1.10)
Constant	8.480	3.256	3.382*
	(13.75)	(2.03)	(2.02)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	2,589	44,440	47,029
R-Squared	0.09	0.05	0.05

PANEL B: *NDR_t-2*

	(1) CAR [+2, +64]: Friday	(2) CAR [+2, +64]: Non-Friday	(3) CAR [+2, +64]: Full Sample
NDR_t-2	2.054	0.143	0.169
	(1.39)	(0.30)	(0.30)
UE	-0.207	1.215***	1.105***
	(0.79)	(0.23)	(0.22)
*NDR_t-2 * UE*	-0.770	0.272	0.276
	(0.80)	(0.23)	(0.23)
Friday			-0.864**
			(0.42)
*NDR_t-2 * Friday*			1.172
			(1.39)
*Friday * UE*			-0.532***
			(0.18)
*NDR_t-2 * Friday * UE*			-0.972
			(0.83)
Constant	7.845	3.234	3.368*
	(13.78)	(2.03)	(2.02)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	2,589	44,440	47,029
R-Squared	0.08	0.05	0.05

PANEL C: *NDR_t-3*

	(1) CAR [+2, +64]: Friday	(2) CAR [+2, +64]: Non-Friday	(3) CAR [+2, +64]: Full Sample
NDR_t-3	0.465	-0.062	-0.042
	(1.43)	(0.28)	(0.28)
UE	-0.141	1.230***	1.126***
	(0.79)	(0.23)	(0.22)
*NDR_t-3 * UE*	0.579	0.614***	0.608***
	(1.00)	(0.21)	(0.21)
Friday			-0.767*
			(0.42)
*NDR_t-3 * Friday*			0.265
			(1.42)
*Friday * UE*			-0.569***
			(0.18)
*NDR_t-3 * Friday * UE*			0.354
			(1.00)
Constant	8.533	3.227	3.353*
	(13.79)	(2.03)	(2.02)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	2,589	44,440	47,029
R-Squared	0.08	0.05	0.05

TABLE 2-12: Regression Analysis of Non-Deal Roadshows' Relationship with PEAD: Earnings Beats & Misses

This table reports the fixed-effects regression results for the impact of NDRs on PEAD, by firms beating or missing their most recent earnings expectations. The NDR independent variables (*NDR_t-1*, *NDR_t-2*, & *NDR_t-3)* & their interaction terms with *UE* are the variables of interest. *EarningsBeat* firms are firms who beat earnings in the most recent earnings announcement, and *EarningsMiss* firms are firms who missed earnings forecasts in the most recent earnings announcement. *PostRet* is the dependent variable. Control variables for firm characteristics are as defined in Section 4.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

PANEL A: *NDR_t-1*

	(1) CAR [+2, +64]: Earnings Beat	(2) CAR [+2, +64]: No Earnings Beat	(3) CAR [+2, +64]: Full Sample
NDR_t-1	-0.204	0.514	0.460
	(0.70)	(0.73)	(1.35)
UE	1.323***	0.988***	1.749***
	(0.36)	(0.29)	(0.26)
*NDR_t-1 * UE*	-1.346***	-0.203	-0.371
	(0.49)	(0.36)	(0.70)
EarningsBeat			1.082***
			(0.33)
*NDR_t-1 * EarningsBeat*			-0.392
			(1.52)
*EarningsBeat * UE*			-0.600***
			(0.19)
*NDR_t-1 * EarningsBeat * UE*			-1.172
			(0.86)
EarningsMiss			-2.300***
			(0.35)
*NDR_t-1 * EarningsMiss*			-0.950
			(1.71)
*EarningsMiss * UE*			-1.022***
			(0.19)
*NDR_t-1 * EarningsMiss * UE*			-0.329
			(0.87)
Constant	6.010**	1.211	3.116
	(2.83)	(2.88)	(2.04)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	22,220	24,809	47,029
R-Squared	0.06	0.06	0.06

PANEL B: *NDR_t-2*

	(1) CAR [+2, +64]: Earnings Beat	(2) CAR [+2, +64]: No Earnings Beat	(3) CAR [+2, +64]: Full Sample
NDR_t-2	-0.007	0.465	-0.680
	(0.41)	(0.43)	(0.93)
UE	1.313***	0.980***	1.706***
	(0.36)	(0.29)	(0.26)
*NDR_t-2 * UE*	-0.071	0.415	0.535
	(0.34)	(0.29)	(0.70)
EarningsBeat			1.005***
			(0.34)
*NDR_t-2 * EarningsBeat*			0.743
			(1.01)
*EarningsBeat * UE*			-0.576***
			(0.19)
*NDR_t-2 * EarningsBeat * UE*			-0.511
			(0.78)
EarningsMiss			-2.469***
			(0.37)
*NDR_t-2 * EarningsMiss*			1.480
			(1.07)
*EarningsMiss * UE*			-1.009***
			(0.19)
*NDR_t-2 * EarningsMiss * UE*			-0.122
			(0.78)
Constant	6.010**	1.209	3.213
	(2.83)	(2.88)	(2.04)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	22,220	24,809	47,029
R-Squared	0.06	0.06	0.06

PANEL C: *NDR_t-3*

	(1) CAR [+2, +64]: Earnings Beat	(2) CAR [+2, +64]: No Earnings Beat	(3) CAR [+2, +64]: Full Sample
NDR_t-3	-0.057	0.116	-0.121
	(0.39)	(0.40)	(0.84)
UE	1.326***	0.990***	1.751***
	(0.36)	(0.29)	(0.26)

	(1) CAR [+2, +64]: Earnings Beat	(2) CAR [+2, +64]: No Earnings Beat	(3) CAR [+2, +64]: Full Sample
*NDR_t-3 * UE*	0.342	0.807***	0.359
	(0.33)	(0.26)	(0.62)
EarningsBeat			1.071***
			(0.34)
*NDR_t-3 * EarningsBeat*			0.076
			(0.92)
*EarningsBeat * UE*			-0.607***
			(0.19)
*NDR_t-3 * EarningsBeat * UE*			0.110
			(0.70)
EarningsMiss			-2.368***
			(0.37)
*NDR_t-3 * EarningsMiss*			0.497
			(0.97)
*EarningsMiss * UE*			-1.037***
			(0.19)
*NDR_t-3 * EarningsMiss * UE*			0.514
			(0.70)
Constant	6.005**	1.227	3.157
	(2.83)	(2.88)	(2.04)
Firm-Level Controls	YES	YES	YES
Control Interactions w/ UE	YES	YES	YES
Industry FE	YES	YES	YES
Quarter FE	YES	YES	YES
N	22,220	24,809	47,029
R-Squared	0.06	0.06	0.06

ESSAY 3

NON-DEAL ROADSHOWS IN MERGERS AND ACQUISITIONS

3.1 Introduction

Mergers and acquisitions (M&As) are arguably the most important investment decisions that firms make. Prior studies (Section 5.2) contend that the level of asymmetric information about acquiring and target firms affect the method of payment being used to pay for the M&A as well as the value created by these M&As. Both bidder and target firms can benefit from a reduction in the level of asymmetric information. Non-deal Roadshows (NDRs) are one of most valuable events for firms to disclose information to buy-side institutions and analysts (Ryan & Jacobs, 2005; Bradley et al., 2022). In this essay I analyze if NDRs affect the value created by M&As and the method of payment chosen by acquiring firms.

NDRs are relatively unstudied in prior literature, either in their scope or their firm-specific effects. What has been studied, though, motivates me to examine their impacts on mergers and acquisitions (M&As). Ryan & Jacobs (2005) provide the most detail as to why NDRs occur and what benefits firms and institutions may have to gain from NDR activity. They state that "a small acquisition may have to be explained" if NDRs are occurring outside of the meetings scheduled after a firm's earnings announcement. Bradley et al. (2022) also empirically show that firms that make an acquisition in the next two years are more likely to take part in NDRs. Both of these works suggest that the some of the effects that NDRs have are likely found in the M&A market.

This essay explores the information asymmetry effects of NDRs on firms engaging in M&A activity. If asymmetric information and private information for acquirers and targets impact shareholder wealth and the medium of exchange in mergers (i.e. Travlos, 1987; Hansen, 1987; Moeller et al., 2007; Officer et al., 2009; Martin & Shalev, 2017; Luypaert & Van Caneghem,

2017; Masulis & Simsir, 2018), then I posit that NDRs reduce information asymmetries around this significant corporate event and mitigate the impacts of the asymmetric information. This is especially true if investors do immediately price in private merger information from the negotiation period, as suggested by Heitzman & Klasa (2021). This would mean that any information gained by an NDR has an immediate impact on investor decisions, and institutions can trade on M&A information prior to the public announcement. I provide an argument for NDRs being employed like other disclosure mechanisms and being used for the benefit of the NDR firm through reduced information asymmetries (i.e. Verrecchia, 1983; Dye, 1985) prior to merger announcements. Similar to the dissemination of public information by managers, I also expect private information from NDRs to have material impacts on firm-specific outcomes in M&As.

This M&A environment provides a unique setting to test the effects of NDRs. Prior to the public announcement of mergers, there is a period of time in which firms are doing their due diligence and obtaining as much information as they can or want. This is specifically the acquiring firm screening the target. NDRs are well suited for this environment as firms may be more willing to pass on the private information that they have to institutional investors. This may, in turn, impact investor reactions to the merger announcement and how a firm chooses to finance a merger. This study aims to find firm-specific effects of NDRs for both acquirer and target firms and further ascertain why they may choose to have an NDR meeting prior to a merger announcement.

The rest of this essay proceeds as follows. Section 3.2 reviews the related literature. Section 3.3 develops the hypotheses. Section 3.4 describes the data and sample selection. Section 3.5 reports empirical design, results, and additional tests. Section 3.6 concludes, and Section 3.7 reports the tables for this essay.

3.2 Literature Review

3.2.1 Information Asymmetry in Mergers & Acquisitions

Mergers and acquisitions (M&As) are large investments that have proportionally large impacts on shareholders (Moeller, Schilingemann, & Stulz, 2005). These investments often intensify conflicts of interest between managers and shareholders (e.g., Jensen & Meckling, 1976), and managers are incentivized to decrease the agency costs associated with these conflicts.

The role that information creation and dissemination, specifically private information, plays in M&As is still under-researched. The focus of the outstanding research is primarily on the quality of financial information (McNichols & Stubben, 2015; Raman et al., 2013; Skaife & Wangerin, 2013) and financial-reporting quality (Marquardt & Zur, 2015; Cain et al., 2014) by target firms. The research suggests that high accounting quality benefits acquiring shareholders, while low accounting quality benefits the targets. Martin & Shalev (2017) take these findings one more step and find a positive association between pre-acquisition firm-specific information and acquisition efficiency, thus examining the overall impact of the acquisition, not just the acquirer- or target-specific impacts. Overall, these studies suggest that target information affects shareholder value in both the target and the acquirer, which is important to this essay.

Additionally, Luypaert & Van Caneghem (2017) study acquirer and target information asymmetry and M&A outcomes. They find that acquisitions of targets characterized by higher uncertainty are more likely to be settled with stock, that higher target information asymmetry increases the likelihood of a cash payment, and that acquirers of more opaque targets obtain a larger fraction of total acquisition gains. These findings are important to this essay, as they show asymmetric information to be a driver of both the method of payment and shareholder gains in M&As. Therefore, I also explore how NDRs affect M&A outcomes through the asymmetric

information of both target and acquirer firms.

3.2.2 Private Information in M&As

The importance of private information in firm-specific outcomes cannot be understated (Soltes, 2014; Solomon & Soltes, 2015; Park & Soltes, 2018). Private information impacts M&A outcomes, as indicated by Ryan & Jacobs (2005) and Bradley et al. (2022), suggesting that being an acquirer in an M&A transaction is a significant explanation for NDRs occurring. Also, private information held by both acquirers and targets is shown to determine the medium of exchange that prevails in an acquisition, and this private information being leaked can materially impact the way in which a merger is financed (Chemmanur et al., 2009b). Further, Masulis & Simsir (2018) find that target managers' private information is a major driver of lower premia in target-initiated deals, with specifically strong results for high information asymmetry firms. They show that negative effect of target private information on bid premia in high information asymmetry deals gets much weaker when targets accept acquirer stock as payments (i.e. Travlos, 1987; Moeller et al., 2007; Officer, 2009). This, again, speaks to the relevance of NDRs when it comes to M&As since private information impacts how mergers are financed and their returns for both targets and acquirers.

Heitzman & Klasa (2021) suggest that, "over the three months before the first public disclosure of a preliminary merger agreement, the average deal has nearly seven unique trading days with at least one material nonpublic negotiation event." This implies that material information is changing hands and may be affecting decisions about acquisitions and their firm-specific outcomes. Their research finds that informed investors immediately trade on new private information. Therefore, if new private information is disseminated in a "nonpublic negotiation event," it will likely be priced into the merger pre-announcement. This is of particular interest to this research as it indicates that private meetings can change the nature of an acquisition.

3.2.3 Management Information & Merger Outcomes

Generally, management has complete information regarding the potential benefits of a takeover but cannot communicate this information to shareholders (Carlson et al., 2006; Morellec & Zhdanov, 2005). When there is competition for a merger target and asymmetric information, abnormal announcement returns arise (Hackbarth & Morellec, 2008). If there were, though, a medium through which these informational asymmetries could be reduced, such as the NDR, then abnormal announcement returns may be affected. This appears to be true as Bradley et al. (2022) identify being an acquiring firm in a merger as a factor explaining the occurrence of NDRs. I posit that these NDRs are associated with a beneficial merger outcome for the firms engaging in them.

It is well documented that managers are incentivized to increase their communication with shareholders pre-issuance of new securities (Clarkson et al., 1991; Healy et al., 1999; Lang and Lundholm, 2000). Kimbrough & Louis (2011) also document a favorable market reaction to merger announcements with conference calls, and that the firms more likely to hold conference calls at their announcement are firms financing their merger with stock. This suggests that firms positively impact merger announcement returns through disclosure, specifically among the stock-financed acquirer (i.e. Shleifer and Vishny 2003). Travlos (1987) provides the traditional explanation for the negative bidder announcement returns for acquisitions of public firms paid for with stock. The explanation is that the announcement signals that bidder management believes the firm's common stock is overvalued, similar to the asymmetric information argument in equity offerings (i.e. Myers & Majluf, 1984). When management makes a cash offer, the market believes that stock is undervalued, leading to higher abnormal returns. Krasker (1986) also submit a negative relation between abnormal returns and the size of an acquisition. Of primary importance to this research, though, is whether the magnitude of the abnormal returns and the choice of the

medium of exchange is impacted changes in the pre-merger information environment, through NDRs. This can show if firms utilize NDRs to maximize the efficiency of their acquisitions.

Amel-Zadeh & Meeks (2019) find pro-forma earnings forecasts by bidding firms to be associated with a "higher likelihood of deal completion, expedited deal closing, and a lower acquisition premium − but only in stock-financed acquisitions." This suggests that voluntary disclosure changes the outcomes of a merger deal, but only in firms that may be looking to explain their stock-financing choice (i.e. Travlos, 1987; Myers & Majluf, 1984). The same argument on the informational effect on merger outcomes will be made in this essay for NDRs.

Amel-Zadeh & Meeks (2019) also show that analysts respond to these pro-forma earnings forecasts affect analyst forecasts and indicate that good news dissemination is occurring. This is consistent with Ahern & Sosyura (2014) who find that stock mergers originate substantially more news stories after the start of merger negotiations, but before the public announcement. This further indicates that decreasing asymmetric information is valuable to firms, thus the occurrence of an NDR may be a way to disseminate good news. The strategy of divulging good news is shown to generate a short-lived run-up in bidders' stock prices, which substantially impacts the takeover price. This is consistent with managers who have private information disseminating the information when the benefits outweigh the costs (Verrecchia, 1983; Dye, 1985). These findings inform us that positive public information alters merger outcomes, which is the same argument I seek to make for NDRs.

3.3 Hypothesis Development

Acquirer and target information asymmetry both have been shown to impact acquirer and target abnormal returns around merger announcements (i.e. Moeller et al., 2007; Officer et al., 2009; Martin & Shalev, 2017; Luypaert & Van Caneghem, 2017; Masulis & Simsir, 2018). These

studies provide evidence that acquirer and target firm information asymmetries affect merger announcement returns for both companies. Primarily, this evidence points to asymmetric information being costly to the shareholders of firms who see their wealth decline around the announcement of M&As and reductions in asymmetric information being related to higher merger announcement cumulative abnormal returns (CARs).

Specifically, Moeller et al. (2007) show acquirer returns to be negatively related with the level of asymmetric information. Also, Luypaert & Van Caneghem (2017) show that acquirers of more opaque targets realize higher abnormal returns. This suggests that when less is known about a target, acquirer investors require a higher rate of return for the asymmetric information. With target firms, Masulis & Simsir (2018) show target private information and information asymmetries to be significant drivers of target merger announcement returns. Therefore, I posit that if NDRs decrease asymmetric information, they will positively affect the merger announcement CARs of the NDR firm and reduce the returns for the other firm in the merger.

> *Hypothesis 1a: Acquirer NDRs are positively (negatively) associated with bidder (target) CARs, and this association should increase with the severity of their asymmetric information.*

> *Hypothesis 1b: Target NDRs are negatively (positively) associated with bidder (target) CARs, and this association should increase with the severity of their asymmetric information.*

Much theoretical work has been done explaining the medium of exchange in merger deals and asymmetric information (i.e. Myers & Majluf, 1984; Travlos, 1987; Hansen, 1987). Empirical work suggests that bidders with private information concerning their own value, may try to benefit from their information advantage by offering stock when they are overvalued (Rhodes-Kropf & Viswanathan, 2004; Shleifer & Vishny, 2003). Also, Chemmanur et al. (2009b) posit that the greater the extent of information asymmetry faced by an acquirer in evaluating its target, the

greater its likelihood of using a cash offer. Therefore, I propose that NDRs reduce informational gaps and affect the medium of exchange.

> *Hypothesis 2a: Acquirer NDRs have a negative association with the use of stock as medium of exchange, and this association should increase with the severity of their asymmetric information.*

> *Hypothesis 2b: Target NDRs have a negative association with the use of cash as medium of exchange, and this association should increase with the severity of their asymmetric information.*

Masulis & Simsir (2018) find that target managers' private information is a major driver of lower acquisition bid premia, specifically in target-initiated deals. Amel-Zadeh & Meeks (2019) provide similar results for acquirers' disclosure negatively impacting the bid premium. These findings suggest that lower information asymmetry for both acquirers and targets should have a negative effect on the bid premium.

> *Hypothesis 3: Acquirer & Target NDRs have a negative relationship with the acquisition bid premium.*

3.4 Data and Sample Construction

3.4.1 Data Sources

I obtain the initial sample of mergers from the Securities Data Company's (SDC) Platinum database for the period 2013 to 2020. I apply the following criteria for the selection of my sample: both bidder and target firms are public companies; the acquisition announcement date lies between January 1, 2013 and December 31, 2020; the value of the transaction is larger than $1 million; the percentage of the target owned after the transaction is 100% ; the acquirer owned none of the target prior to the transaction. From this initial sample, I first exclude stock repurchases, spin-offs, split-offs, reverse leverage buyouts, joint ventures, liquidation plans and transactions of real estate investment trusts (REITs). I supplement the M&A dataset with hand collected NDR data (FLY; see Section 2.3) as well as accounting and stock returns from the COMPUSTAT Fundamentals

Quarterly database and Center for Research in Security Prices (CRSP), respectively. Analyst consensus forecasts, analyst coverage data, and actual earnings data are from the I/B/E/S Detail History file. As a result, the sample contains 390 mergers of public acquirers and public targets, of which 132 acquirers preceded the acquisition with at least one NDR meeting within six months, and 100 targets preceded the acquisition with at least one NDR meeting within six months. This is a small sample size, but this is common for regression analysis in the prevailing M&A literature regarding wealth gains and the medium of exchange in M&As, using a public acquirer and target sample (i.e. Chemmanur et al., 2009b; Masulis & Simsir, 2018; Amel-Zadeh & Meeks, 2019). Observations in the prevailing sample are only eliminated if they do not have data available in the sources listed above, other than the NDR data since all firms will not hold NDRs.

This essay also employs a sample that is not reliant on public targets or target data availability in the previously discussed datasets. I include the same sample selection criterion as explained above for this sample of only public acquirers. I do this to provide a broader sample with more observations that can be compared to the findings in the public-to-public sample. This sample is much larger, with 5,532 acquisitions meeting these conditions. Of these transactions, 2,000 acquirers preceded the acquisition with at least one NDR meeting within six months, and 150 targets preceded the acquisition with at least one NDR meeting within six months. This is an increase of target NDR meetings from the public-to-public acquisition sample, indicating that though these extra observations are public firms having NDRs, they did not have data availability within the bounds of the smaller sample. Observations in this sample are only eliminated if they do not have data available in the sources listed above, other than the NDR data.

3.4.2 Measures of NDR Activity

I measure the occurrence of NDRs for both acquirer and target firms. I measure the

occurrence of acquirer NDRs using the variable *NDR_acq*. I create a dummy variable to identify if an acquiring firm has an NDR meeting in the prior six months, which is equal one if the firm has at least one NDR meeting in the six months prior to the merger announcement. I measure the occurrence of target NDRs using the variable *NDR_tgt*. I create a dummy variable to identify if a target firm has an NDR meeting in the prior six months, which is equal one if the firm has at least one NDR meeting in the six months prior to the merger announcement. The six-month time period chosen is stricter than Bradley et al. (2022) who suggest having an NDR is predicted by being a merger acquirer within two years, and it provides for sufficient instances of target NDRs.

3.4.3 Measures of Merger Outcomes

This section explains the measures of merger outcomes used in the empirical analysis of this essay. Similar to recent studies (Martin & Shalev, 2017; Luypaert & Van Caneghem, 2017) I measure the wealth effects of mergers using both the acquirer and target abnormal returns around the merger announcement date. I calculate the 3-day [-1, +1], 5-day [-2, +2], and 7-day [-3, +3] announcement cumulative abnormal returns (CARs) for both the target and acquirer firms in my sample. These variables are used as dependent variables in my analysis and are denoted as *Acquirer CAR* and *Target CAR* with the respective time interval. The CARs are measured by market-model prediction errors, where market-model parameter estimates are obtained for each target and acquirer firm using a maximum of 240 trading days of daily returns data beginning 300 days before the acquisition announcement date, consistent with Martin & Shalev (2017). I obtain the announcement dates from the Securities Data Corporation's (SDC) U.S. Mergers & Acquisitions database and use the CRSP value-weighted return as the market return. The cumulative abnormal returns around the announcement for the target and the acquirer are calculated separately. All variable definitions are in Appendix A.

I also examine the medium of exchange in acquisitions, for which I develop four variables that I employ as dependent variables: *All Cash, All Stock, PercentCash,* & *PercentStock* (i.e. Luypaert & Van Caneghem, 2017). *All Cash* and *All Stock* indicate if the merger was financed with 100% cash or 100% stock by the acquirer, respectively, as indicated by the SDC Mergers & Acquisitions database. Further *PercentCash* and *PercentStock* are the percent of cash or the percent of stock used by the acquirer in financing the merger, respectively, as indicated by the SDC Mergers & Acquisitions database. I also employ *PercentStock* as an independent variable when testing the impacts of NDRs on the wealth effects of merger announcements.

Lastly, I use the *Bid Premium* as a dependent variable to measure the amount a bidder is willing to pay for a target, relative to the acquirer's market value. This variable is used as defined in the SDC Mergers & Acquisitions database: the offer price divided by the target closing stock price (1 day, 1 week, or 4 weeks) prior to the original announcement date minus one, expressed as a percentage. I use the three different time periods for the *Bid Premium*, but most studies employ the 4-week premium (e.g. Aktas et al., 2010; Levi et al., 2014; Offenberg & Pirinsky, 2015). I also control for the one-week bid premium in my analysis of the impact of NDRs on merger returns and the medium of exchange, as in Amel-Zadeh & Meeks (2019).

3.4.4 Measures of Merger Deal Characteristics

Merger deal-level control variables used in the regression analysis follow prior mergers and acquisition literature (Moeller et al., 2004 & 2007; Martin & Shalev, 2017; Amel-Zadeh & Meeks, 2019). The deal-level characteristic controls in my regressions include: *PercentStock* to control for the medium of exchange in the acquisition, *RelativeSize* to control for the size of the transaction, *Complete* to control for the completion of the acquisition, *Tender* to control for tender offers, *Hostile* to control for hostile takeovers, *Competition* to control for multiple bidders,

IndSame to control for within-industry mergers. I also employ *PrivateTarget* to control for targets that are not publicly traded and *ForeignTarget* to control for non-US targets, in the public acquirer only sample. I winsorize all continuous variables at the top and bottom 1% of the distribution. All variable definitions are included in Appendix A.

3.4.5 Measures of Firm Characteristics

The firm-level control variables used in the M&A regressions primarily follow Martin & Shalev (2017), though many studies use similar controls. The firm-level characteristic controls are for both the acquirer and target firms, and they include: *CashFlow* to control for a firm's free cash flow, *ROA* to control for a firm's operating profitability, *BTM* to control for a firm's valuation relative to book value, *Size* to control for firm size, *Leverage* to control for a firm's relative debt level, and *Return* to control for firms returns leading up to the merger announcement. For all firm-specific variables, "*acq*" denotes that the variable is measured for the acquiring firm, and "*tgt*" denotes that the variable is measured for the target firm. I winsorize all continuous variables at the top and bottom 1% of the distribution. All variable definitions are included in Appendix A.

3.4.6 Descriptive Statistics

Summary statistics for the public acquirer and target sample on NDR activity, merger characteristics, and acquirer and target firm-specific control variables are show in panel A of Table 3-1. Panel A indicates that 33.8% of acquiring firms in this sample have an NDR meeting within six months of the merger announcement and 25.6% of target firms in this sample have an NDR meeting within six months of the merger announcement. This frequency of NDRs speaks to the relevance of testing the effects of NDRs in the M&A environment. In this sample, 28.7% of deals are all-stock deals, while 27.7% of deals are all cash deals. Further, 76.2% of these mergers are within-industry, and the relative size of the transaction is 42.9% of the acquirer's size in market

value. Panel A of Table 3-1 also shows summary statistics on the public acquirer only sample for NDR activity, merger characteristics, and acquirer firm-specific control variables.

Panel A shows that 36.2% of acquiring firms in this sample have an NDR meeting within six months of the merger announcement and 2.7% of target firms in this sample have an NDR meeting within six months of the merger announcement. The target percentage is relegated to only the public target NDRs. Also, in this sample, 5.9% of deals are all-stock deals, while 26.7% of deals are all cash deals. This amount of stock deals is far less than in the public acquirer and target sample. Also, 58.1% of these mergers are within-industry, and the relative size of the transaction is 18.6% of the acquirer's size in market value. Both of these values are significantly lower than in the public acquirer and target sample, as reported before.

Panel B of Table 3-1 further breaks down the distribution of merger activity by year for both the public acquirer and target sample and the public acquirer only sample, respectively. This panel shows that acquirer size, transaction value, and the relative size of the acquisition are all consistently smaller (in both mean and median) among the public acquirer only sample (Panel D). This indicates that public-to-public acquisitions are more economically significant when examining merger announcement CARs, as I do in my analysis. One notable observation is that for both samples, the year 2020 has the fewest acquisitions that are completed by the largest acquiring firms.

In Table 3-2, I report the difference in means and medians tests for acquirer and target merger announcement CARs and the medium of exchange used in the acquisition in both samples, based on the occurrence of acquirer or target NDRs. Panel A shows the results for the public acquirer and target sample of acquirer and target CARs. Here, acquirer NDR activity has a significant positive effect on acquirer CARs only (in both means and medians), with no significant

effect on target CARs. Though in all merger announcement windows ([-1, +1], [-2, +2], & [-3, +3]) acquirer NDR activity produces higher acquirer CARs, these CARs are still negative, on average. Target NDR activity provides some evidence of lower acquirer CARs, and it has a significantly positive relationship with target CARs in the 3-day (6.697% difference) and 5-day (4.517% difference) merger announcement windows in the medians test.

Panel A of Table 3-2 also shows the means and medians tests for the impact that NDR activity has on acquirer CARs in the public acquirer only sample. Acquirer NDR activity shows no significant association with acquirer merger announcement CARs, but target NDR activity has a strong negative and significant relationship with acquirer CARs in all announcement windows for both means and medians. These results indicate that target NDRs are negatively associated with acquirer CARs in both samples, but acquirer NDRs seem to only affect acquirer CARs in the public acquirer and target sample.

Panel B of Table 3-2 reports the difference of means and medians tests for the medium of exchange used in the acquisition, in both samples. First, acquirer NDR activity has no significant relationship with the merger financing choice in the public acquirer and target sample, but target NDRs have a significantly negative (positive) relationship with both the likelihood of an all-stock acquisition and the percentage of stock (cash) in that sample. Lastly, in the public acquirer only sample, there is evidence of acquirer NDRs decreasing the likelihood and percent of stock being used to finance a merger. Acquirer NDRs also show a positive effect on the amount of cash used to finance the transaction.

In all, Table 3-2 provides evidence that both acquirer and target NDR activity can affect merger announcement returns and the financing choice in the merger, which motivates the multivariate analysis of this essay.

3.5 Empirical Design and Results

3.5.1 NDR Activity and Merger Announcement Returns

In this section, I test Hypotheses 1a & 1b using OLS regression analysis. This analysis accounts for the firm- and deal-specific controls that may affect announcement returns and includes those variables for acquirers (both samples) and targets (public acquirer and target sample). The primary regression equation in this essay is similar to the regression estimations by Martin & Shalev (2017). I estimate the following equation:

$$CARs_{i,t} = \alpha_0 + \alpha_1 NDR\_acq_{i,t} + \alpha_2 NDR\_tgt_{i,t} + \alpha_3 (NDR\_acq_{i,t} * NDR\_tgt_{i,t}) + \sum_{n=4}^{N} \alpha_n Controls_{i,t} + Quarter\ Fixed\ Effects + \epsilon_t \,, \quad \text{(Eq. 1)}$$

where *CARs* is the 3-day [-1, +1], 5-day [-2, +2], or 7-day [-3, +3] announcement cumulative abnormal returns (CARs) for the target and acquirer firms. *NDR_acq* takes on the value of one if the acquiring firm has an NDR meeting within six months of the merger announcement, *NDR_tgt* takes on the value of one if the target firm has an NDR meeting within six months of the merger announcement, and the control variables are as previously discussed. I also include quarter fixed effects in all regression analyses to control for time variations in merger activity and firm-specific characteristics.

Table 3-3 reports the tests of the effects that acquirer and target NDRs have on the acquirer and target merger announcement CARs. In the public acquirer and target sample of Columns (1) through (3), *NDR_acq* has a positive and significant association with acquirer CARs in the 3-day (2.186%), 5-day (1.943%), and 7-day (1.805%) merger announcement windows, respectively. These are economically large effects since the mean CARs are less than -2% in these windows. *NDR_acq* also has a negative relationship with target firm CARs that is significant in both the 3-day (-4.991%) and 7-day (-5.345%) merger announcement windows. These relationships are also

economically large and indicate a reduction from mean target CARs by between 20% and 25%. This said, NDRs among just acquiring firms have no statistically significant relationship with acquirer CARs in the larger sample, which is relegated to public acquirers only. In all columns of Table 3-3, *NDR_tgt* has a negative coefficient, but the effects are only significant when explaining acquirer CARs, except for the 3-day window in the public acquirer and target sample.

The effects of *NDR_tgt* on acquirer CARs are greater in magnitude among the public acquirer only sample (Columns (7) – (9)). The significant negative relationship with acquirer CARs ranges from 2.324% (Column (7)) to 3.638% (Column (9)). In Table 3-3, where both the acquirer and target have an NDR within six months of the merger announcement, the NDRs' occurrence has no significant effect on either acquirer or target CARs. These findings suggest that acquirer NDRs have a positive impact on acquirer shareholder wealth and a negative effect on target shareholder wealth around merger announcements. This analysis also shows that target NDRs have a negative effect on acquirer shareholder wealth and no significant effect on their own shareholder wealth around merger announcements. Lastly, when both acquirers and targets have NDRs, there is no apparent effect on either firm's shareholders. These results are mostly consistent with Hypothesis 1a and Hypothesis 1b, since acquirer NDRs have a positive (negative) effect on acquirer CARs, but target NDRs only have a significant negative effect on acquirer CARs.

3.5.2 NDRs and the Medium of Exchange

In this section, I test Hypotheses 2a and 2b using both OLS and Probit regression analyses to test the relationship between acquirer and target NDR activity and the M&A financing choice. These analyses account for the firm- and deal-specific controls that may affect the method of payment and includes those variables for acquirers (both samples) and targets (public acquirer and target sample). Table 3-4 presents the results of this analysis, examining the relationship between

the presence of NDR meetings on the medium of exchange in M&As. In this analysis, I estimate the following equations:

$$MOE_{i,t} = \alpha_0 + \alpha_1 NDR\_acq_{i,t} + \alpha_2 NDR\_tgt_{i,t} + \alpha_3 (NDR\_acq_{i,t} * NDR\_tgt_{i,t}) + \sum_{n=4}^{N} \alpha_n Controls_{i,t} + Quarter\ Fixed\ Effects + \epsilon_t \,, \quad \text{(Eq. 2)}$$

$$Pr\,(MOE_{i,t} = 1 \mid X) = \Phi(\alpha_0 + \alpha_1 NDR\_acq_{i,t} + \alpha_2 NDR\_tgt_{i,t} + \alpha_3 (NDR\_acq_{i,t} * NDR\_tgt_{i,t}) + \sum_{n=4}^{N} \alpha_n Controls_{i,t} + Quarter\ Fixed\ Effects) \,, \quad \text{(Eq. 3}$$

where *MOE* is the medium of exchange, defined as the percentage of cash (*PercentCash)* or percentage of stock (*PercentStock*) used to finance the acquisition in the OLS analysis (Equation (2)) and if the merger is financed with all stock (*Stock*) or all cash (*Cash*) in the Probit analysis (Equation (3)).

I report the relationship between NDRs and the M&A medium of exchange in Table 3-4. This table shows that neither *NDR_acq* nor *NDR_tgt* significantly affect the medium of exchange choice in mergers of public acquirers and targets. This said, *NDR_acq* has a negative and significant relationship with both the likelihood of a merger being financed with all stock (18.5% less likely) and the percentage of stock used in the acquisition (2.015% less stock), in the public acquirer only sample. Oppositely, *NDR_tgt* has a positive and significant relationship with both the likelihood of a merger being financed with all stock (46.7% more likely) and the percentage of stock used in the acquisition (9.599% more stock), in the public acquirer only sample. These findings are consistent with Hypothesis 2a & 2b, when it comes to NDR association with stock financing, but the results on cash financing are not in agreement with these hypotheses. In the public acquirer sample, there is no significant relationship between NDRs, for either targets or acquirers, and the probability of a merger being financed with all cash and the percentage of cash used in the acquisition. As with the results on announcement returns (Table 3-3), NDRs from both firms in an acquisition have no significant relationship with the medium of exchange. These

findings suggest that NDRs are associated with the medium of exchange choice, but this is only in the larger public acquirer only sample.

3.5.3 NDRs and Merger Announcement Returns by Medium of Exchange

In this section I use OLS regression analysis to test the association between acquirer and target NDR activity and acquirer and target announcement CARs, based on the medium of exchange in the acquisition to provide more evidence for my first two hypotheses. Table 3-5 presents the main results of this analysis, examining the relationship between the presence of NDRs and merger announcement returns, based on medium of exchange. In this analysis, I estimate Equation (4) below:

$$CARs_{i,t} = \alpha_0 + \alpha_1 NDR\_acq_{i,t} + \alpha_2 NDR\_tgt_{i,t} + \alpha_3(NDR\_acq_{i,t} * NDR\_tgt_{i,t}) + \alpha_4 MOE_{i,t} + \alpha_5(NDR\_acq_{i,t} * MOE_{i,t}) + \alpha_5(NDR\_tgt_{i,t} * MOE_{i,t}) + \alpha_6(NDR\_acq_{i,t} * NDR\_tgt_{i,t} * MOE_{i,t}) + \sum_{n=7}^{N} \alpha_n Controls_{i,t} + Quarter\ Fixed\ Effects + \epsilon_t \,, \quad \text{(Eq. 4)}$$

where all variables are as previously defined.

In Table 3-5, I report results for the relationship between NDRs and merger announcement CARs, based on the medium of exchange, in the public acquirer and target sample.

In Panel A, I control for an acquisition being financed with all stock (*Stock*) and interact that variable with NDR occurrence for both acquirers and targets. In this analysis, *NDR_acq* has a positive and significant relationship with 3-day (1.97%) and 5-day (1.713%) acquirer CARs (Columns (1) & (2)), when considered alone (i.e. Not stock-financed NDRs). This variable is only significantly associated with target CARs in the 7-day merger announcement window (Column (6)). All other coefficients of *NDR_acq*, alone, are statistically insignificant but in a positive direction, as hypothesized. Further, *NDR_tgt* displays a negative and insignificant association with CARs in all columns of Panel A. The only other significant finding in this table is in the interaction

of *Stock* and *NDR_tgt* in Column (1). This indicates that a target having an NDR meeting in the six months leading to a merger announcement decreases acquirer 3-day CARs by 4.114% if the acquisition is financed with 100% stock. This is consistent with Moeller et al. (2007) that acquirer abnormal returns are negatively related to information asymmetry proxies in stock offers.

In Panel B of Table 3-5, I control for an acquisition being financed with all cash (*Cash*) and interact that variable with NDR occurrence for both acquirers and targets. In this analysis *NDR_acq* and *NDR_tgt* have the same significant relationships as observed in Table 3-3 (positive for *NDR_acq* and negative for *NDR_tgt*), with acquirer CARs. These are the strongest findings for NDRs in this table and this is specifically when the acquisition is not 100% cash-financed. This suggests that NDRs' relationship with merger announcement CARs is greatest among stock-financed acquisitions. Further, a negative and significant relationship between *NDR_acq* and target CARs is not found here, though all coefficients in columns (4) through (6) are negative. *Cash*, though, has a positive and significant association with both acquirer and target returns, consistent with cash offers indicating an undervaluation of the acquirer (i.e. Travlos, 1987). This said, the interaction of *Cash* and *NDR_acq* shows that acquirer NDRs in an all-cash acquisition will result in significantly lower 5-day (3.481%) and 7-day (3.15%) merger announcement CARs for acquirers. This finding indicates that NDRs increase the amount of information the public has about the acquirer, thus weaking the relationship between all-cash offers and announcement CARs.

The findings of Table 3-5 suggest that target NDRs' effects are concentrated in stock-financed mergers, and the effects of acquirer NDRs are offsetting to the outcomes of cash offers.

3.5.4 NDRs in M&As–Analyst Activity and Asymmetric Information

Given that the merger announcement CARs and the medium of exchange are dependent on the information environment of acquirer and target firms (i.e. Moeller et al., 2007; Chemmanur et

al., 2009b; Luypaert & Van Caneghem, 2017; Masulis & Simsir, 2019), I extend my analysis to the level of asymmetric information of firms involved in M&A transactions. I specifically analyze the effects that those proxies have on the relationships between NDRs and the announcement CARs. I begin by employing information asymmetry proxies related to analyst activity: analyst coverage and analyst forecast errors. Equation (5), here, is used in Tables 5-6 and 5-7:

$$CARs_{i,t} = \alpha_0 + \alpha_1 NDR\_acq_{i,t} + \alpha_2 NDR\_tgt_{i,t} + \alpha_3 (NDR\_acq_{i,t} * NDR\_tgt_{i,t}) + \alpha_4 Analyst_{i,t} + \alpha_5 (NDR\_acq_{i,t} * Analyst_{i,t}) + \alpha_5 (NDR\_tgt_{i,t} * Analyst_{i,t}) + \alpha_6 (NDR\_acq_{i,t} * NDR\_tgt_{i,t} * Analyst_{i,t}) + \sum_{n=7}^{N} \alpha_n Controls_{i,t} + Quarter\ Fixed\ Effects + \epsilon_t \text{ ,(Eq. 5)}$$

where *Analyst* is equal to *High_Acq_Cover*, *High_Tgt_Cover*, *High_Acq_Error*, & *High_Tgt_Error* (variable definitions are in Appendix A). These indicator variables are chosen to control for the magnitude of acquirer and target analyst coverage (*High_Acq_Cover* & *High_Tgt_Cover*) and analyst forecast errors (*High_Acq_Error* & *High_Tgt_Error*), since these variables are common information asymmetry proxies that are likely related to NDR activity and NDRs are orchestrated and attended by analysts.

3.5.4.1 Merger Announcement CARs & Analyst Coverage

In Table 3-6, I report results for how analyst coverage affects the relationships between NDRs and acquirer and target merger announcement CARs. Panel A of this table shows that acquirer NDR activity has a weaker relationship among firms with low levels of analyst coverage (*NDR_acq*). *NDR_acq* only has a positive and significant relationship with acquirer CARs, as previously reported, in the 3-day merger announcement window (2.326%) of the public acquirer and target sample and in the 5-day window (0.552%) of the public acquirer only sample. The results for *NDR_tgt* show strong statistical significance in the reduction of acquirer CARs when

acquirer analyst coverage is low, in both samples. The impact of high analyst coverage for acquirer firms has a significant relationship with acquirer CARs when the target has an NDR (positive association in the public acquirer and target sample) and when the acquirer has an NDR (negative association in the public acquirer only sample). These results show that target firm NDRs have their greatest association with acquirer CARs when analysts sparsely follow the acquirer, but when more is known about the acquirer, their negative association with acquirer CARs is mitigated. These results also suggest that acquirer NDRs have a positive relationship with acquirer CARs among only low analyst coverage firms, with NDRs among high coverage firms actually decreasing acquirer CARs. Panel A showed no significant impacts of NDR activity on target CARs. These findings for both acquirer and target NDRs indicate that these meetings are information production mechanisms whose previously observed effects are most evident in acquiring firms with higher information asymmetry.

Panel B of Table 3-6 reports results for the relationship between NDRs and acquirer and target announcement CARs, controlling for the level of analyst coverage of the target firm. In this analysis, target NDRs among firms with low analyst coverage again have strong negative associations with acquirer CARs in all announcement windows (3-day: 2.874%; 5-day: 4.567%; 7-day: 4.844%). Acquirer NDRs have no statistically significant relationship with either acquirer or target CARs, though the coefficients are in the same direction as my earlier analysis. This analysis shows that NDR activity has no significant effect among targets with high analyst coverage, but it shows that target CARs are significantly greater when both the target and acquirer have NDR meetings and target analyst coverage is not high. This suggests that NDR activity is most impactful when target information asymmetry is higher and that target firms have higher announcement CARs when their level of information asymmetry is reduced by NDRs. The results

of Table 3-6 are broadly consistent with Hypotheses 1a & 1b that the relationship between NDRs and announcement CARs is stronger as the NDR firm's level of asymmetric information is higher.

3.5.4.2 Merger Announcement CARs & Analyst Forecast Error

Table 3-7 reports the results for NDRs on merger announcement CARs when controlling for the level of analyst forecast error for acquirer and target firms.

In Panel A, I control for the magnitude of the acquirer firm's forecast error. Acquirer NDRs are shown to have a positive and significant relationship with acquirer CARs in the 3-day announcement window (1.811% increase), in the public acquirer and target sample. The rest of the coefficients on *NDR_acq* are in the same direction as my previous analysis, but none of the other results are statistically significant. Also, as in the prior analyses, target NDRs (*NDR*_tgt) are negatively associated with acquirer CARs, in both samples, but only where acquirer analyst forecast errors are lower. This, though, is countered by the positive and significant relationship between target NDRs and acquirer CARs among the high acquirer analyst forecast error firms, in the public acquirer and target sample (Columns (2) & (3)). This means that NDRs decrease asymmetric information in firms with high information asymmetries (*High_Acq_Error*), as expected. This result though, shows that NDRs do not only have informational effects on the firm that has them, which is telling of the M&A environment and the connections of acquirer and target information dissemination prior to the merger announcement. These findings are generally consistent with Hypothesis 1a. Then, when both firms have NDRs and acquirer analyst forecast errors are high, acquirer CARs are significantly lower, in both samples. The results in Panel A are consistent with previous findings, but it provides evidence that target NDRs in the presence of high acquirer analyst forecast errors have an opposite relationship with acquirer CARs compared to the effects of target NDRs when acquirer analyst forecast errors are not high.

Panel B of Table 3-7 focuses on the relationship between NDRs and announcement CARs, controlling for target analyst forecast errors (*High_Tgt_Error*). In this panel, the only significant relationships are among acquirer and target NDRs when analyst forecast errors for the target are not high. *NDR_acq* has a positive and significant relationship with acquirer CARs in all merger announcement windows, and *NDR_tgt* has a negative and significant relationship with acquirer CARs but only in the 5-day and 7-day windows (Columns (2) & (3)). None of the other independent variables of interest provide statistically significant results on either acquirer or target CARs. This panel indicates little impact of high target analyst forecast errors on my results, as the significant results are only among NDR occurrence for acquirers and targets when target analyst forecast errors are not high. The results of Panel B in Table 3-7 are not consistent with Hypothesis 1b that the effects of NDRs are stronger where the target firm's information asymmetry is less.

In continuing this analysis, I extend my study to the level of asymmetric information for firms involved in mergers and the impact that those information asymmetry proxies have on the relationship between NDR meetings and the medium of exchange in the acquisition. I again employ the information asymmetry proxies related to analyst activity: analyst coverage and analyst forecast errors. Equation (6), here, is used in Table 3-8 regressions:

$$\Pr(MOE_{i,t} = 1 \mid X) = \Phi(\alpha_0 + \alpha_1 NDR\_acq_{i,t} + \alpha_2 NDR\_tgt_{i,t} + \alpha_3(NDR\_acq_{i,t} * NDR\_tgt_{i,t}) + \alpha_4 Analyst_{i,t} + \alpha_5(NDR\_acq_{i,t} * Analyst_{i,t}) + \alpha_5(NDR\_tgt_{i,t} * Analyst_{i,t}) + \alpha_6(NDR\_acq_{i,t} * NDR\_tgt_{i,t} * Analyst_{i,t}) + \sum_{n=7}^{N} \alpha_n Controls_{i,t} + Quarter\ Fixed\ Effects), \quad \text{(Eq. 6)}$$

where *MOE* is the medium of exchange, defined as an indicator variable equal to one if the merger is financed with all stock (*Stock*) or all cash (*Cash*). *Analyst* is equal to *High_Acq_Cover, High_Tgt_Cover, High_Acq_Error,* & *High_Tgt_Error* (variable definitions are in Appendix A). Also, *NDR_acq* & *NDR_tgt* are as defined previously.

3.5.4.3 Medium of Exchange and Analyst Activity

Table 3-8 reports the results for NDR meetings on the acquisition's medium of exchange when controlling for the level of analyst forecast errors for acquirer and target firms.

In Panel A, I examine the relationship between NDRs and the likelihood of an acquisition being financed with all stock, controlling for *High_Acq_Cover*, *High_Tgt_Cover*, *High_Acq_Error*, and *High_Tgt_Error*. In this analysis, *NDR_acq* is shown to significantly increase the likelihood of a stock-financed merger (64.8% increase) in the public acquirer and target sample (Column (3)), but the same regression shows a stronger negative effect of *NDR_acq* (81.4%) when acquirers have high analyst coverage. This indicates that acquirer NDRs have a negative association with the likelihood of an all-stock acquisition when the firm is well-known by analysts, but when they aren't, the likelihood of a stock-financed merger increases. In the public acquirer only sample (Column (5)), target NDRs are shown to have the opposite relationship with acquirer NDRs. These NDRs increase the likelihood of a stock merger only among high acquirer analyst coverage firms. Acquirer and target NDRs, together, have a negative relationship with the likelihood that a merger is stock financed when either acquirer analyst forecast errors (Column (1)) or target analyst coverage is high (Column (4)). This shows that when both firms disclose privately, higher acquirer information asymmetries decrease the likelihood of a stock merger, and lower target information asymmetries do the same. Lastly, target NDRs have a positive association with stock mergers in the public acquirer only sample when acquirer analyst forecast error is high and analyst coverage is low.

In Panel B of Table 3-8, I examine the relationship between NDRs and the probability of an acquisition being financed with all cash, controlling for *High_Acq_Cover*, *High_Tgt_Cover*, *High_Acq_Error*, and *High_Tgt_Error*. This panel provides mixed results as to whether NDRs

and these analyst information asymmetry proxies affect the medium of exchange choice. The clearest result is that of *NDR_tgt* when either target information asymmetry is high (*High_Tgt_Error*) in the public acquirer and target sample or when acquirer information asymmetry is low (*High_Acq_Cover*) in the public acquirer only sample. In both cases, target NDRs have a positive association with the likelihood of a cash financed acquisition, which indicates that target NDRs have a positive impact on the informational environment when little is known about them and/or much is known about the acquiring firm. *NDR_acq* and *NDR_tgt*, alone, are negatively related to the likelihood of a cash acquisition, though only statistically significant when controlling for *High_Acq_Cover*. Overall, Table 3-8 shows that the information asymmetry of acquirer and target firms change the relationship between NDRs and the financing choice. Specifically, the negative relationship of *NDR_acq* and stock merger likelihood is stronger amidst high acquirer information asymmetry, and the positive relationship between *NDR_tgt* and stock acquisition likelihood shifts to a higher likelihood of cash acquisition when target analyst forecast error is high. These findings are partially consistent with Hypotheses 2a & 2b.

3.5.5 NDRs in M&As– Firm-Level Volatility and Illiquidity

I further this analysis to the level of market-based information asymmetry/uncertainty of firms involved in mergers and the impact that these proxies have on the relationship between NDRs and the announcement returns, to further test my first two hypotheses. I employ different information asymmetry proxies which are related to a firm's market microstructure: idiosyncratic volatility and illiquidity. Equation (7), here, is used in Tables 5-9 and 5-10:

$$CARs_{i,t} = \alpha_0 + \alpha_1 NDR\_acq_{i,t} + \alpha_2 NDR\_tgt_{i,t} + \alpha_3 (NDR\_acq_{i,t} * NDR\_tgt_{i,t}) + \alpha_4 Market_{i,t} + \alpha_5 (NDR\_acq_{i,t} * Market_{i,t}) + \alpha_5 (NDR\_tgt_{i,t} * Market_{i,t}) + \alpha_6 (NDR\_acq_{i,t} * NDR\_tgt_{i,t} * Market_{i,t}) + \sum_{n=7}^{N} \alpha_n Controls_{i,t} + Quarter\ Fixed\ Effects + \epsilon_t \,, \quad \text{(Eq. 7)}$$

where *Market* is equal to *High_Acq_IdioVol, High_Tgt_IdioVol, High_Acq_Amihud,* & *High_Tgt_Amihud* (variable definitions are in Appendix A). These indicator variables are chosen to control for the magnitude of firm-specific volatility (*High_Acq_IdioVol* & *High_Tgt_IdioVol*) and stock illiquidity (*High_Acq_Amihud* & *High_Tgt_Amihud*), since these variables impact the level of abnormal returns around merger announcements (i.e. Baker & Savaşoglu, 2002).

3.5.5.1 Merger Announcement CARs and Idiosyncratic Volatility

Table 3-9 reports the relationship between NDR meetings and announcement CARs, based on a firm's level of idiosyncratic volatility, defined as a *High_Acq_IdioVol* (or *High_Tgt_IdioVol*) binary indicator variable that is equal to one if the firm's idiosyncratic volatility is greater than the median firm and zero else. This is measured as the standard deviation of residual values from the market model: $R_{it} = b + b_1 R_{Mt} + e_{it}$ where R_{it} is the daily stock return and R_{Mt} is the daily value-weighted market return, estimated between −252 to −2 trading days before the merger announcement. These variables are interacted with NDR variables to test the impact that idiosyncratic volatility has on the relationship between NDRs and announcement CARs.

I report the results for NDR meetings on merger announcement CARs when controlling for the level of idiosyncratic volatility for acquirer and target firms, in Table 3-9.

In Panel A, I control for the magnitude of the acquirer firm's idiosyncratic volatility. In this analysis, acquirer NDRs have a positive and significant relationship with acquirer CARs among all merger announcement windows, when acquirer idiosyncratic volatility is high in the public acquirer and target sample. This finding shows that NDRs are effective in reducing asymmetric information among firms with high firm-specific risk, since *High_Acq_IdioVol* shows some negative and significant relationship with acquirer CARs, alone (Column (3); 2.361%). Further, the coefficients for *NDR_acq* are positive (in Columns (1) - (3)), yet statistically

insignificant, suggesting that there is still a positive relationship between acquirer NDRs and acquirer CARs in low idiosyncratic volatility firms, but the association is weaker than when idiosyncratic volatility is high. Additionally, target NDRs exhibit the same negative relation with acquirer CARs, as previously shown, but they have no other statistically significant association with acquirer CARs when interacted with *High_Acq_IdioVol*. Panel A shows that acquirer NDRs can reduce information asymmetries when firm-specific risk is high, thus positively related with acquirer CARs in the public acquirer and target sample. These findings are consistent with Hypothesis 1a, regarding acquirer NDRs and information asymmetry.

Panel B of Table 3-9 examines the relationship between NDRs and merger announcement CARs, controlling for target idiosyncratic volatility (*High_Tgt_IdioVol*). In this panel, there is weak evidence that acquirer NDRs (*NDR_acq)* still have a significantly positive association with acquirer CARs, other than in the 3-day window (Column (1)) when target idiosyncratic volatility

is high. This indicates some potential benefit to the acquirer to have NDR meetings when acquiring a risky target. Also, there is evidence that target idiosyncratic volatility, alone, has a strong positive association with target CARs (Columns (4) – (6)). Though both the interaction of acquirer and target NDRs with *High_Tgt_IdioVol* have negative coefficients in the target CAR regressions, the effects are not statistically significant. This suggests that the impact that firm-specific risk has on target CARs minimizes the relationship between NDRs and a reduction in informational asymmetries for the target firm. This is likely due to smaller and volatile targets being common and not providing new informational gaps for NDRs to close. These findings specifically show the effects of acquirer NDR activity to be greatest among high idiosyncratic volatility acquirers.

3.5.5.2 Merger Announcement CARs and Amihud Illiquidity

Table 3-10 reports the relationship that NDRs have with merger announcement returns, based on a firm's level of illiquidity, defined as a *High_Acq_Amihud* (or *High_Tgt_Amihud*) *binary* indicator variable that is equal to one if the firm's *Amihud* variable is greater than the median firm and zero else. *Amihud* is defined as the mean value of the absolute daily returns divided by the daily dollar trading volume (in millions of dollars) between −252 to −2 trading days before the merger announcement, multiplied by 10^6 for interpretation's sake (Amihud, 2002). This variable is interacted with NDR variables to test the impact that illiquidity, as another proxy for information asymmetry, has on the relationship between NDRs and announcement CARs.

Table 3-10 reports the results for NDR meetings on merger announcement CARs when controlling for the level of illiquidity for acquirers and targets.

In Panel A, I control for the magnitude of the acquirer firm's illiquidity (*High_Acq_Amihud*). Here, results for *NDR_tgt* having a significant negative association with acquirer CARs, in both samples, still holds. A new significant finding of this panel is that *NDR_acq* has a significant negative relationship with target CARs. This seems to indicate that when the acquirer's stock has a higher level of liquidity, acquirer NDRs are negatively related to target CARs. This is logical since much is assumed to be known about companies with highly liquid stocks, and if said firm still has an NDR meeting, it could be to disclose information about their acquisition of the target. Investors can react to this information prior to the merger announcement (e.g. Heitzman & Klasa, 2021), which would reduce the positive reaction we are used to seeing for target stocks around merger announcements. Also, in Panel A, *NDR_acq* is shown to significantly increase acquirer returns (Columns (1) – (3)) when acquirer illiquidity is high. Furthermore, that relationship is mitigated when the target firm also has an NDR. This suggests that when private

information is known about both firms, and the acquiring firm's stock is highly illiquid, acquirer shareholders' wealth at the announcement of the merger is significantly reduced (over 11% decrease in CARs in all three announcement windows: Columns (1) – (3)). Panel A shows that the effect of high illiquidity on acquirer CARs is reduced by the occurrence of NDRs, but acquirer stock illiquidity is a strong negative force on acquirer CARs when private information is known about both firms. These findings still provide evidence that is consistent with Hypothesis 1a, specifically.

Panel B of Table 3-10 shows the relationship between NDRs and merger announcement CARs, controlling for target Amihud illiquidity (*High_Tgt_Amihud*). In this panel, there are no new findings. *NDR_tgt* still has a significant negative relationship with acquirer CARs only (Columns (1) – (3)). Otherwise, neither *High_Tgt_Amihud*, the NDR variables, or their interactions with one another show a significant relationship with either acquirer or target merger announcement CARs. This would suggest that my findings are consistent with acquirer illiquidity being more relevant when it comes to studying the effects of NDRs. This may be due to the small size and higher illiquidity of targets that is understood in most acquisitions. Together these findings in Table 3-10 suggest that acquirer NDRs are useful in decreasing their own level of asymmetric information and that significantly affects their merger announcement CARs.

3.5.5.3 Medium of Exchange, Idiosyncratic Volatility, and Amihud Illiquidity

I continue this analysis using the high idiosyncratic volatility and high Amihud illiquidity measures for targets and acquirers, but I now shift my focus to the effects of NDRs on the merger's medium of exchange when these variables are included. In Table 3-11, I employ two binary dependent variables that were previously used in my medium of exchange probit regression analysis: *All Stock* (Panel A) and *All Cash* (Panel B). I do this to test the relationship between

NDRs and the medium of exchange, when controlling for specific information asymmetry proxies. I again employ the information asymmetry proxies related to market microstructure: idiosyncratic volatility and illiquidity. Equation (8), here, is used in Table 3-11 tests:

$$\Pr(MOE_{i,t} = 1 \mid X) = \Phi(\alpha_0 + \alpha_1 NDR\_acq_{i,t} + \alpha_2 NDR\_tgt_{i,t} + \alpha_3(NDR\_acq_{i,t} * NDR\_tgt_{i,t}) + \alpha_4 Market_{i,t} + \alpha_5(NDR\_acq_{i,t} * Market_{i,t}) + \alpha_5(NDR\_tgt_{i,t} * Market_{i,t}) + \alpha_6(NDR\_acq_{i,t} * NDR\_tgt_{i,t} * Market_{i,t}) + \sum_{n=7}^{N} \alpha_n Controls_{i,t} + Quarter\ Fixed\ Effects), \quad \text{(Eq. 8)}$$

where *Market* is equal to *High_Acq_IdioVol, High_Tgt_IdioVol, High_Acq_Amihud,* & *High_Tgt_Amihud* (variable definitions are in Appendix A).

Table 3-11 reports the results for NDR meetings on the choice of M&A medium of exchange, when controlling for the level of illiquidity and idiosyncratic volatility for acquirer and target firms. In Panel A, I examine the relationship between NDRs and the likelihood of an acquisition being financed with all stock, controlling for *High_Acq_Amihud*, *High_Tgt_Amihud*, *High_Acq_IdioVol*, and *High_Tgt_IdioVol*. In the public acquirer and target sample, I find little evidence that acquirer or target firm illiquidity affect the association that NDRs have with the likelihood of an all-stock acquisition. This said, in the public acquirer only sample, *High_Acq_Amihud* has a significant negative relationship with the likelihood of an all-stock merger (33.8% reduction) when the acquirer has an NDR (consistent with Hypothesis 2a). Further, in the public acquirer and target sample, *NDR_acq* is shown to increase the likelihood of stock mergers alone and when it is interacted with *NDR_tgt* and *High_Acq_IdioVol*. This shows that acquirer NDRs have weaker effects when their information asymmetry level is not high, and even when it is, concurrent target NDRs contribute to a weaker observed relationship. Similar results are shown in the acquirer only sample (Column (6)), and here the target NDRs have the significant positive relationship with the likelihood of stock acquisitions, as in Table 3-4. The findings of this

analysis show that when more is known about the acquirer and the target in the presence of high volatility, the NDR relationship with the likelihood of a stock merger is stronger, consistent with Hypothesis 2a. Lastly, in Panel A, the strongest effects of NDR activity are when the target has high idiosyncratic volatility (Column (4)). Here, NDRs (acquirer or target) are shown to significantly increase the likelihood of a stock merger, but the relationship is significantly negative when interacting these NDRs with *High_Tgt_IdioVol*. This finding indicates that stock acquisitions are less common when the target displays higher idiosyncratic volatility amidst NDR activity by acquirers or targets. This, again, suggests that NDR activity by either firm can have an effect on their informational environment.

In Panel B of Table 3-11, there are few significant associations of NDRs on the likelihood of an all-cash acquisition, when controlling for my information asymmetry proxies. Similar to Panel A of this table, target idiosyncratic volatility has a strong effect on how NDRs are associated with the acquisition financing choice. In Column (4), *NDR_acq* has a negative and significant relationship with the likelihood of an all-cash acquisition, but when *NDR_acq* and *NDR_tgt* are interacted with *High_Tgt_IdioVol*, these terms have positive and significant coefficients. This indicates that cash acquisitions are more common when the target displays higher idiosyncratic volatility. Further, in the public acquirer only sample, *NDR_acq* does show one significant association with the likelihood of a cash merger, when it is interacted with *High_Acq_IdioVol* (Column (6)), but this is counter my previous results and suggests that high information asymmetry acquirers that have NDRs are associated with less all-cash acquisitions. Overall, the results of Table 3-11 are mostly consistent with Hypothesis 2a, as is common throughout my analysis.

3.5.6 NDRs in M&As– Firm Complexity

In this section, I examine firm complexity (proxied for by the relative magnitude of the

firm's intangible assets), as another information asymmetry/uncertainty measure by which to test my hypotheses. This choice of information asymmetry proxy is based on Bushee et al. (2018) showing a strong relationship between private meetings with management and firm intangible assets. Equations (9) and (10), here, are used in Table 3-12:

$$CARs_{i,t} = \alpha_0 + \alpha_1 NDR\_acq_{i,t} + \alpha_2 NDR\_tgt_{i,t} + \alpha_3 (NDR\_acq_{i,t} * NDR\_tgt_{i,t}) + \alpha_4 Complex_{i,t} + \alpha_5 (NDR\_acq_{i,t} * Complex_{i,t}) + \alpha_5 (NDR\_tgt_{i,t} * Complex_{i,t}) + \alpha_6 (NDR\_acq_{i,t} * NDR\_tgt_{i,t} * Complex_{i,t}) + \sum_{n=7}^{N} \alpha_n Controls_{i,t} + Quarter\ Fixed\ Effects + \epsilon_t \,, \quad \text{(Eq. 9)}$$

$$\Pr(MOE_{i,t} = 1 \mid X) = \Phi(\alpha_0 + \alpha_1 NDR\_acq_{i,t} + \alpha_2 NDR\_tgt_{i,t} + \alpha_3 (NDR\_acq_{i,t} * NDR\_tgt_{i,t}) + \alpha_4 Complex_{i,t} + \alpha_5 (NDR\_acq_{i,t} * Complex_{i,t}) + \alpha_5 (NDR\_tgt_{i,t} * Complex_{i,t}) + \alpha_6 (NDR\_acq_{i,t} * NDR\_tgt_{i,t} * Complex_{i,t}) + \sum_{n=7}^{N} \alpha_n Controls_{i,t} + Quarter\ Fixed\ Effects), \text{(Eq. 10)}$$

where *Complex* is equal to *High_Acq_Intangibles & High_Tgt_Intangibles* (variable definitions are in Appendix A). These indicator variables are chosen to control for the magnitude of firm complexity, as this is shown to be relevant to NDR occurrence (Bradley et al., 2022).

In Panel A of Table 3-12, I explore how NDRs are related to both merger announcement CARs for the acquirer and the target, as well as the choice of medium of exchange when controlling for the acquiring firm's intangible assets. *High_Acq_Intangibles* shows a significant association with target CARs in all three announcement windows. The results show very large positive associations of *High_Acq_Intangibles* (15.673%, 16.036%, and 16.614%, repectively) on target CARs. This suggests that when acquirers are more complex, targets obtain greater announcement CARs. This said, the effects of acquirer NDRs in the presence of high acquirer intangibles has a completely mitigating effect on the effects of high acquirer intangibles (-17.662%, -17.646%, and -17.589%, respectively). These results indicate that though acquirer complexity is beneficial to

target shareholders at the announcement of the merger, acquirer NDRs mitigate this impact, consistent with Hypothesis 1a.

In Panel B of Table 3-12, I explore how NDRs are related to both merger announcement CARs for the acquirer and the target, as well as the choice of medium of exchange when controlling for the target firm's intangible assets. Here, target complexity shows no significant association with acquirer or target CARs. This said, Column (5) shows target NDRs to be negatively (positively) related to the likelihood of an all-stock acquisition when target complexity is high (not high). This suggests that the positive relationship between NDRs and the likelihood of a stock acquisition choice from Table 3-4 is explained by less complex targets. This finding indicates that the complexity of the target is related to the medium of exchange choice, but that relationship is partially mitigated by the occurrence of target NDRs, consistent with Hypothesis 1b.

Then, in Panel C of Table 3-12, I explore how NDRs are related to both merger announcement CARs for the acquirer and the target, as well as the choice of medium of exchange when controlling for the acquirer firm's intangible assets, in the public acquirer sample. The results are similar to my initial analysis, and acquirer intangibles have little impact on acquirer CARs. Here, though, acquirer intangibles have a negative (positive) relationship with the likelihood that an acquisition is financed with all stock (cash). That relationship is only stronger in the presence of an acquirer NDR (consistent with Hypothesis 2a). These results show that acquirer complexity can dictate the medium of exchange in an acquisition, with or without NDR activity.

3.5.7 NDRs and the Bid Premium

Lastly, I test Hypothesis 3 using OLS regression analysis to test the relationship between NDR activity and the acquisition bid premium. This analysis employs firm- and deal-specific controls that may impact merger outcomes and includes those variables for acquirers (both

samples) and targets (public acquirer and target sample). In this analysis, I estimate the following equation:

$$Premium_{i,t} = \alpha_0 + \alpha_1 NDR\_acq_{i,t} + \alpha_2 NDR\_tgt_{i,t} + \alpha_3 (NDR\_acq_{i,t} * NDR\_tgt_{i,t}) + \sum_{n=4}^{N} \alpha_n Controls_{i,t} + Quarter\ Fixed\ Effects + \epsilon_t \,, \quad \text{(Eq. 11)}$$

where *Premium* is the offer price divided by the target closing stock price (1 day, 1 week, or 4 weeks) prior to the original announcement date minus one, expressed as a percentage.

The final analysis in this essay tests the relationship between NDRs and the acquisition bid premium. The results are reported in Table 3-13. This table shows that only acquirer NDRs can significantly reduce the bid premium. *NDR_acq* has a negative and significant association with both the 1-week (12.035% reduction) and 1-day (11.81% reduction) bid premium in the public acquirer and target sample (Columns (2) & (3)). The *NDR_acq* coefficient on the 4-week bid premium in that sample is also negative but statistically insignificant. In the public acquirer only sample, the only significant reduction of the bid premium by acquirer NDR occurrence is a 6.28% reduction in the 1-week bid premium (Column (5)). The *NDR_acq* coefficients on the 1-day and 4-week premium are also negative, but they are statistically insignificant. This table shows no significant relationship between target NDRs and the bid premium. In all regressions, *NDR_tgt* displays negative and insignificant coefficients. Similar to my results from Tables 5-3 & 5-4, when both firms in an acquisition have NDRs, the NDR occurrence has no significant relationship with the bid premium. Overall, these results are mostly consistent with Hypothesis 3, with only acquirer NDRs significantly reducing the bid premiums.

3.6 Conclusions

This essay studies the relationship between non-deal roadshows (NDRs) and M&A outcomes. NDRs are private events that are common among firms and institutional investors, and

they could have specific informational effects when it comes to M&A activity (i.e. Ryan & Jacobs, 2005; Bradley et al., 2022). I find evidence that NDRs by acquiring firms have a positive association with acquirer merger announcement CARs, along with some evidence that acquirer NDRs also reduce target firm announcement CARs. I also show that target firm NDR meetings only have a significant negative relationship with merger announcement CARs for acquiring firms, not target firms. These results for merger announcement CARs are most pronounced among stock-financed acquisitions and/or acquisitions not financed with all cash. Further, this essay shows that acquirer (target) NDR meetings decrease (increase) the likelihood of all-stock acquisitions. These findings are generally strongest when NDR activity is being employed by firms with high asymmetric information. This is most true for acquirer NDRs. Lastly, information disseminated in NDRs, specifically by acquirers, negatively influences the acquisition bid premium, consistent with more information about an acquisition making the value of the target clearer and decreasing the premium an acquirer would pay for a target.

This study contributes to the M&A literature, the voluntary disclosure literature, and the literature on NDRs by providing evidence that NDR activity is significantly related to multiple outcomes of M&As. I provide evidence of double-sided effects of NDRs on acquirer and target firm outcomes in mergers, similar to Luypaert & Van Caneghem (2017).. These effects vary with firm-specific information asymmetry proxies and the medium of exchange chosen by the acquiring firm in the acquisition. This essay also provides for better understanding of a mechanism that firms can use to influence the informational environment prior to merger announcements (NDRs) and how this mechanism influences the observable outcomes of the merger, which prior research consistently attempts to explain.

The results of this essay are not without their limitations. NDRs are private information-

producing meetings that are limited in their ability to fully explain merger announcement CARs, the medium of exchange, and the acquisition bid premium. This said, the results of this essay open a new space for the literature to examine and one that may have been overlooked as an explanatory factor in prior research. Also, the sample employed in this essay is limited in its breadth. Specifically, the public-to-public sample is quite small due to data restrictions (only years 2013 to 2020) from the NDR data (FLY). The portion of the M&A literature regarding the informational effects of different disclosure mechanisms is added to by this work, but it still leaves more research to be done on the effects of NDRs relative to other disclosures that have similar relationships with merger outcomes.

3.7 Tables

Tables begin on next page.

TABLE 3-1: Summary Statistics & Sample Distribution

This table reports the summary statistics for the public acquirer and target sample as well as the public acquirer only sample. PANEL A reports descriptive statistics for the variables used in the merger regression analysis. Panel A reports the statistics for both samples of firm-quarter observations. These samples include 390 acquisitions (public-to-public) and 5,532 acquisitions (public acquirers only). Panel B reports the sample distribution of M&A activity by year for both samples. It reports the number of acquisitions and means/medians for the relative size of the transactions, the market value of the acquirers, and the M&A transaction values.

PANEL A: Summary Statistics for Variables in Regression Analysis

	Public Acquirer & Target Sample						Public Acquirer Only Sample					
Variable	**N**	**Mean**	**Median**	**Std. Dev.**	**Min**	**Max**	**N**	**Mean**	**Median**	**Std. Dev.**	**Min**	**Max**
NDR_acq	390	0.338	0.000	0.474	0.000	1.000	5532	0.362	0.000	0.480	0.000	1.000
NDR_tgt	390	0.256	0.000	0.437	0.000	1.000	5532	0.027	0.000	0.162	0.000	1.000
CashFlow_acq	390	0.017	0.016	0.025	-0.134	0.085	5532	0.016	0.019	0.029	-0.134	0.085
Leverage_acq	390	0.341	0.359	0.259	0.001	1.089	5532	0.399	0.405	0.240	0.001	1.089
ROA_acq	390	0.022	0.022	0.027	-0.130	0.098	5532	0.022	0.025	0.031	-0.130	0.098
BTM_acq	390	2.729	1.438	2.813	0.123	12.793	5532	1.870	0.887	2.463	0.123	12.793
Size_acq	390	25,205.160	3,255.493	51,370.650	30.290	227,551.500	5532	14,494.550	2,008.038	37,461.290	28.910	227,551.500
Return_acq	390	0.013	0.013	0.024	-0.070	0.120	5532	0.017	0.015	0.029	-0.070	0.120
Acq_IdioVol	390	0.016	0.014	0.008	0.007	0.055	5532	0.020	0.017	0.011	0.007	0.071
Acq_Amihud	390	0.008	0.000	0.048	0.000	0.785	5523	0.023	0.001	0.096	0.000	0.785
Acq_Analyst_Coverage	390	7.718	5.000	9.661	0.000	40.000	5532	6.933	4.000	8.814	0.000	40.000
Acq_Forecast_Error	390	-0.001	0.000	0.008	-0.039	0.020	5532	-0.001	0.000	0.007	-0.039	0.020
Acq_Intangibles	390	0.212	0.101	0.229	0.000	0.809	5532	0.253	0.193	0.234	0.000	0.809
CashFlow_tgt	390	0.000	0.008	0.057	-0.362	0.075						
Leverage_tgt	390	0.336	0.305	0.285	0.000	1.422						
ROA_tgt	390	0.004	0.011	0.060	-0.362	0.091						
BTM_tgt	390	3.456	1.507	3.649	0.106	14.621						
Size_tgt	390	3,914.622	729.594	8,158.666	16.219	45,585.000						
Return_tgt	390	0.022	0.021	0.031	-0.108	0.148						
Tgt_IdioVol	390	0.024	0.019	0.018	0.007	0.184						
Tgt_Amihud	390	0.146	0.001	1.314	0.000	21.406						
Tgt_Analyst_Coverage	390	4.669	2.000	7.186	0.000	41.000						
Tgt_Forecast_Error	390	-0.001	0.000	0.009	-0.090	0.071						
Tgt_Intangibles	390	0.133	0.044	0.164	0.000	0.453						
Cash	390	0.277	0.000	0.448	0.000	1.000	5532	0.267	0.000	0.442	0.000	1.000
Stock	390	0.287	0.000	0.453	0.000	1.000	5532	0.059	0.000	0.235	0.000	1.000
PercentStock	390	49.506	51.495	42.453	0.000	100.000	5532	14.103	0.000	29.925	0.000	100.000
IndSame	390	0.762	1.000	0.427	0.000	1.000	5532	0.581	1.000	0.494	0.000	1.000
RelativeSize	390	0.429	0.281	0.440	0.000	2.454	5532	0.186	0.061	0.363	0.000	2.454
Tender	390	0.056	0.000	0.231	0.000	1.000	5532	0.019	0.000	0.138	0.000	1.000
Hostile	390	0.005	0.000	0.072	0.000	1.000	5532	0.001	0.000	0.030	0.000	1.000
Competition	390	0.077	0.000	0.267	0.000	1.000	5532	0.011	0.000	0.106	0.000	1.000
BidPremium_4Weeks	367	35.528	28.680	38.202	-38.780	225.450	753	40.720	31.510	40.595	-38.780	225.450
BidPremium_1Week	367	33.405	26.310	37.373	-32.310	243.750	752	38.527	29.645	40.245	-32.310	243.750
BidPremium_1Day	367	32.526	24.910	40.737	-91.240	358.330	756	37.359	27.790	44.876	-91.240	498.100

PANEL B: Sample Distribution by Announcement Year

Public Acquirer & Target

Year	Number of Acquisitions	Acquirer Market Value (Mil. $)	Transaction Value (Mil. $)	Relative Size
2013	41	9,563.615	1,420.601	0.417
		(1,733.632)	(365.095)	(0.279)
2014	53	20,926.010	7,918.473	0.406
		(3,655.422)	(721.103)	(0.373)
2015	64	26,125.850	7,230.400	0.487
		(4,228.251)	(844.717)	(0.354)
2016	52	32,157.220	3,905.842	0.398
		(2,752.080)	(570.309)	(0.256)
2017	53	29,108.250	6,842.559	0.468
		(2,870.656)	(744.033)	(0.285)
2018	58	14,825.080	4,272.420	0.470
		(3,759.882)	(1,024.137)	(0.329)
2019	43	29,112.510	9,874.805	0.393
		(6,514.442)	(1,464.370)	(0.221)
2020	26	58,389.840	7,009.715	0.422
		(10,130.120)	(2,352.531)	(0.373)
Total	390	25,205.160	5,786.059	0.429
		(3,255.493)	(761.743)	(0.281)

Public Acquirer Only

Year	Number of Acquisitions	Acquirer Market Value (Mil. $)	Transaction Value (Mil. $)	Relative Size
2013	678	10,347.820	413.443	0.166
		(1,491.605)	(81.924)	(0.062)
2014	831	10,295.410	834.041	0.169
		(1,350.363)	(85.000)	(0.063)
2015	830	14,264.590	1,050.777	0.207
		(1,752.494)	(99.500)	(0.066)
2016	677	15,015.880	847.072	0.173
		(2,099.296)	(125.000)	(0.064)
2017	699	14,166.350	942.962	0.174
		(2,172.172)	(116.000)	(0.057)
2018	721	15,294.290	822.813	0.194
		(2,534.010)	(125.939)	(0.054)
2019	564	19,685.730	1,299.983	0.193
		(3,225.196)	(130.125)	(0.057)
2020	532	19,877.750	921.823	0.216
		(2,939.281)	(155.000)	(0.062)
Total	5,532	14,494.550	884.851	0.186
		(2,008.038)	(109.402)	(0.061)

TABLE 3-2: NDR vs. Non-NDR Firms Mean & Median tests

This table reports the tests for differences in means and medians for NDR firms vs. Non-NDR firms in merger announcement CARs (Panel A) and the choice of merger financing (Panel B). The mean tests show the t-test with null hypothesis of the mean being equal to zero. The median reports the Wilcoxon signed rank test statistics with the null hypothesis of the median being equal to zero. This is reported for both M&A samples.

PANEL A: Acquirer & Target CARs in Public Acquirer & Target Sample

		Public Acquirer & Target Sample							**Public Acquirer Sample**			
		Acquirer CAR (%)			*Target CAR (%)*			N	*Acquirer CAR (%)*			N
		[-1, +1]	[-2, +2]	[-3, +3]	[-1, +1]	[-2, +2]	[-3, +3]		[-1, +1]	[-2, +2]	[-3, +3]	
Medians	*NDR_acq = 0*	-1.325	-1.544	-1.675	14.844	15.787	17.219	258	0.567	0.514	0.623	3,532
	NDR_acq = 1	-0.348	-0.453	-0.346	16.33	17.998	18.902	132	0.488	0.544	0.494	2,000
	Diff. Test	4.581**	3.710*	3.710*	0.733	0.412	1.649	390	0.254	0.013	0.614	5,532
Means	*NDR_acq = 0*	-2.174	-2.32	-2.345	21.935	22.221	22.827	258	1.037	1.059	1.131	3,532
	NDR_acq = 1	-0.327	-0.366	-0.479	19.826	20.158	20.435	132	0.877	0.964	0.96	2,000
	Mean Diff.	-1.847***	-1.954***	-1.866**	2.109	2.063	2.393	390	0.16	0.095	0.171	5,532

		Public Acquirer & Target Sample							**Public Acquirer Sample**			
		Acquirer CAR (%)			*Target CAR (%)*			N	*Acquirer CAR (%)*			N
		[-1, +1]	[-2, +2]	[-3, +3]	[-1, +1]	[-2, +2]	[-3, +3]		[-1, +1]	[-2, +2]	[-3, +3]	
Medians	*NDR_tgt = 0*	-1.096	-0.824	-0.659	14.355	15.289	17.081	290	0.575	0.573	0.625	5,382
	NDR_tgt = 1	-1.188	-1.85	-3.054	21.052	19.806	20.419	100	-0.903	-1.311	-1.829	150
	Diff. Test	0	2.636	6.509**	5.379**	4.357**	2.636	390	15.788***	14.500***	12.088***	5,532
Means	*NDR_tgt = 0*	-1.293	-1.197	-1.174	21.165	21.711	22.238	290	1.045	1.107	1.155	5,382
	NDR_tgt = 1	-2.293	-2.998	-3.28	21.382	20.975	21.379	100	-1.38	-1.914	-2.017	150
	Mean Diff.	1.001	1.801**	2.106**	-0.217	0.737	0.858	390	2.425***	3.020***	3.172***	5,532

PANEL B: Merger Financing Choice

Public Acquirer & Target Sample					
	All Stock	*PercentStock*	*All Cash*	*PercentCash*	N
NDR_acq = 0	0.287	51.05	0.275	41.508	258
NDR_acq = 1	0.288	46.489	0.28	45.532	132
Mean Diff.	-0.001	4.561	-0.005	-4.024	390
NDR_tgt = 0	0.31	54.049	0.248	39.304	258
NDR_tgt = 1	0.22	36.332	0.36	53.213	132
Mean Diff.	0.090*	17.717***	-0.112**	-13.909***	390
Public Acquirer Sample					
	All Stock	*PercentStock*	*All Cash*	*PercentCash*	N
NDR_acq = 0	0.071	16.221	0.266	39.764	3,532
NDR_acq = 1	0.037	10.364	0.269	42.228	2,000
Mean Diff.	0.034***	5.857***	-0.003	-2.464**	5,532

TABLE 3-3: Regression Analysis for the Effects of NDR Activity on Merger Announcement Abnormal Returns

This table reports the baseline quarter-year fixed-effects regression results for having an NDR meeting within six months of the merger announcement, for both acquirers and targets, on the merger announcement returns for acquirers and targets. The dependent variables are cumulative abnormal returns (CARs) for acquirer and target firms over differing merger announcement window lengths. The independent variables of interest are *NDR_acq*, *NDR_tgt*, and their interaction term with one another. Control variables for firm and M&A deal characteristics are as defined in Section 5.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

	Public Acquirer & Target Sample						*Public Acquirer Only Sample*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Acquirer CAR [-1, +1]	Acquirer CAR [-2, +2]	Acquirer CAR [-3, +3]	Target CAR [-1, +1]	Target CAR [-2, +2]	Target CAR [-3, +3]	Acquirer CAR [-1, +1]	Acquirer CAR [-2, +2]	Acquirer CAR [-3, +3]
NDR_acq	2.186***	1.943**	1.805**	-4.991*	-4.666	-5.345*	0.022	0.107	0.046
	(0.75)	(0.80)	(0.89)	(3.00)	(3.03)	(3.02)	(0.17)	(0.19)	(0.21)
NDR_tgt	-1.329	-2.633**	-2.796**	-2.297	-3.600	-3.819	-2.324***	-3.405***	-3.638***
	(1.02)	(1.16)	(1.19)	(3.59)	(3.70)	(3.74)	(0.73)	(0.80)	(0.85)
*NDR_acq * NDR_tgt*	-0.768	0.221	0.162	3.053	3.124	3.823	1.434	2.161	2.218
	(1.54)	(1.73)	(1.78)	(4.62)	(4.73)	(4.83)	(1.18)	(1.38)	(1.43)
Constant	-0.692	-2.002	-2.134	14.325	15.432	15.259	1.498**	1.857**	1.756**
	(3.03)	(3.56)	(3.87)	(10.90)	(11.18)	(11.28)	(0.65)	(0.77)	(0.87)
Acquirer & Target Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Deal Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	390	390	390	390	390	390	5,532	5,532	5,532
R-Squared	0.26	0.26	0.26	0.37	0.36	0.37	0.06	0.05	0.04

TABLE 3-4: Regression Analysis for the Effects of NDR Activity on the Medium of Exchange

This table reports the fixed-effects and probit regression results for having an NDR meeting within six months of the merger announcement, for both acquirers and targets, on the medium of exchange in the acquisition. The dependent variables are *All Stock, PercentStock, All Cash, & PercentCash*. The independent variables of interest are *NDR_acq, NDR_tgt,* and their interaction term with one another. Control variables for firm and M&A deal characteristics are as defined in Section 5.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

	Public Acquirer & Target Sample				*Public Acquirer Only Sample*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All Stock (Probit)	PercentStock (OLS)	All Cash (Probit)	PercentCash (OLS)	All Stock (Probit)	PercentStock (OLS)	All Cash (Probit)	PercentCash (OLS)
NDR_acq	0.290	-0.605	-0.233	-1.098	-0.185**	-2.015***	-0.040	1.058
	(0.21)	(4.61)	(0.21)	(4.73)	(0.08)	(0.67)	(0.04)	(1.24)
NDR_tgt	0.318	-1.388	-0.082	0.550	0.467**	9.599**	-0.019	6.286
	(0.29)	(6.41)	(0.26)	(7.06)	(0.20)	(4.13)	(0.16)	(4.80)
*NDR_acq * NDR_tgt*	-0.371	3.171	0.132	-1.555	0.369	6.472	0.160	-1.723
	(0.39)	(8.38)	(0.38)	(9.44)	(0.28)	(6.04)	(0.23)	(6.55)
Constant	-0.558	23.224	0.363	60.648***	-1.163***	23.469***	-1.273***	29.208***
	(0.72)	(18.81)	(0.71)	(15.78)	(0.33)	(3.45)	(0.18)	(5.42)
Acquirer Controls	YES	YES	YES	YES	YES	YES	YES	YES
Target Controls	YES	YES	YES	YES	NO	NO	NO	NO
Deal Controls	YES	YES	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES	YES	YES
N	367	390	367	390	5,532	5,532	5,532	5,532
R-Squared	0.25	0.41	0.29	0.35	0.29	0.28	0.11	0.12

TABLE 3-5: Regression Analysis for the Effects of NDR Activity on the Merger Announcement Returns by the Medium of Exchange

This table reports the regression results for having an NDR meeting within six months of the merger announcement, for both acquirers and targets, on the merger announcement returns for acquirers and targets based on the acquisition financing choice. The dependent variables are cumulative abnormal returns (CARs) for acquirer and target firms over differing merger announcement window lengths, in both panels. Panel A controls for stock-financed mergers (*Stock*), and Panel B controls for cash-financed mergers (*Cash*). The independent variables of interest are *NDR_acq, NDR_tgt*, and their interaction term with *Stock & Cash*. Control variables for firm and M&A deal characteristics are as defined in Section 5.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: Stock-Financed Mergers

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]
NDR_acq	1.970**	1.713*	1.585	-5.906	-5.982	-6.787*
	(0.94)	(1.04)	(1.15)	(3.79)	(3.84)	(3.79)
NDR_tgt	-0.341	-1.810	-2.141	-2.666	-4.184	-4.174
	(1.17)	(1.30)	(1.36)	(4.05)	(4.18)	(4.23)
*NDR_acq * NDR_tgt*	-1.493	-0.031	0.078	3.074	3.829	4.842
	(1.70)	(1.92)	(1.99)	(5.48)	(5.62)	(5.73)
Stock	-0.004	0.609	0.287	-3.614	-3.543	-3.604
	(0.93)	(1.03)	(1.07)	(3.51)	(3.56)	(3.57)
*NDR_acq * Stock*	0.672	0.619	0.668	3.492	4.726	5.146
	(1.66)	(1.75)	(1.91)	(6.16)	(6.17)	(6.33)
*NDR_tgt * Stock*	-4.114**	-3.410	-2.546	2.312	3.371	2.633
	(2.09)	(2.20)	(2.24)	(6.77)	(7.10)	(7.33)
*NDR_acq * NDR_tgt * Stock*	3.112	1.190	0.253	-0.576	-3.268	-4.655
	(3.95)	(4.71)	(4.84)	(9.34)	(9.81)	(10.25)
Constant	-1.287	-2.686	-2.806	15.000	16.178	16.084
	(3.16)	(3.65)	(3.98)	(10.68)	(10.99)	(11.06)
Acquirer & Target Controls	YES	YES	YES	YES	YES	YES
Deal Controls	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES
N	390	390	390	390	390	390

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]
R-Squared	0.25	0.26	0.25	0.37	0.36	0.37

Panel B: Cash-Financed Mergers

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]
NDR_acq	3.036***	2.953***	2.757***	-2.367	-1.677	-2.110
	(0.85)	(0.91)	(1.02)	(2.86)	(2.87)	(2.93)
NDR_tgt	-2.419**	-3.626***	-3.846***	-2.854	-3.701	-2.812
	(1.13)	(1.29)	(1.32)	(4.33)	(4.41)	(4.49)
*NDR_acq * NDR_tgt*	-1.507	-1.307	-1.297	4.575	4.172	3.791
	(1.92)	(2.11)	(2.17)	(5.10)	(5.14)	(5.37)
Cash	2.601**	2.533**	2.828**	12.409**	13.720***	14.371***
	(1.06)	(1.11)	(1.17)	(4.86)	(4.95)	(4.93)
*NDR_acq * Cash*	-2.804	-3.481*	-3.150*	-8.171	-9.420	-10.349
	(1.71)	(1.78)	(1.91)	(8.17)	(8.23)	(7.93)
*NDR_tgt * Cash*	3.058	2.784	2.986	1.355	0.098	-2.916
	(1.86)	(2.03)	(2.06)	(7.58)	(7.77)	(7.86)
*NDR_acq * NDR_tgt * Cash*	3.029	5.546*	5.239	-3.156	-1.737	1.156
	(3.00)	(3.31)	(3.42)	(10.04)	(10.35)	(10.47)
Constant	-2.594	-3.586	-4.069	8.329	9.082	9.121
	(3.03)	(3.59)	(3.91)	(10.71)	(10.88)	(10.98)
Acquirer & Target Controls	YES	YES	YES	YES	YES	YES
Deal Controls	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES
N	390	390	390	390	390	390
R-Squared	0.29	0.30	0.29	0.40	0.39	0.40

TABLE 3-6: Regression Analysis of NDR Activity Effects on Merger Announcement Returns by Analyst Information Asymmetry Proxy Variables: Analyst Coverage

This table reports the fixed-effects regression results for the impact of NDRs on merger announcement CARs, based on a measure information asymmetry: Analyst Coverage. The NDR independent variables (*NDR_acq & NDR_tgt)* & their interaction terms with *High_Acq_Cover* (Panel A) & *High_Tgt_Cover* (Panel B) are employed to test the effects of NDRs on merger announcement returns, relative to the level of analyst coverage. High coverage firms are those whose analyst coverage is greater than the median firm. The dependent variables are cumulative abnormal returns (CARs) for acquirer and target firms over differing merger announcement window lengths, in both panels. Control variables for firm and M&A deal characteristics are as defined in Section 5.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: Acquirer Analyst Coverage

	Public Acquirer & Target Sample						*Public Acquirer Only Sample*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Acquirer CAR [-1, +1]	Acquirer CAR [-2, +2]	Acquirer CAR [-3, +3]	Target CAR [-1, +1]	Target CAR [-2, +2]	Target CAR [-3, +3]	Acquirer CAR [-1, +1]	Acquirer CAR [-2, +2]	Acquirer CAR [-3, +3]
NDR_acq	2.326**	1.323	1.667	-3.074	-3.031	-3.654	0.400	0.552*	0.413
	(1.08)	(1.10)	(1.15)	(4.45)	(4.52)	(4.48)	(0.25)	(0.28)	(0.31)
NDR_tgt	-3.855***	-5.302***	-4.999***	-2.591	-3.755	-5.140	-3.537***	-5.239***	-5.102***
	(1.23)	(1.41)	(1.43)	(5.82)	(5.97)	(6.00)	(1.28)	(1.28)	(1.31)
*NDR_acq * NDR_tgt*	-0.228	1.029	0.118	7.506	8.437	9.513	1.070	1.826	1.296
	(2.34)	(2.57)	(2.69)	(7.61)	(7.77)	(8.00)	(2.00)	(2.23)	(2.29)
High_Acq_Cover	-0.257	-0.454	0.055	4.477	4.844	4.889	0.207	0.100	-0.015
	(0.88)	(0.98)	(1.05)	(4.21)	(4.31)	(4.33)	(0.22)	(0.24)	(0.26)
*NDR_acq * High_Acq_Cover*	-0.153	1.493	0.472	-3.793	-3.165	-3.203	-0.722**	-0.827**	-0.667
	(1.49)	(1.61)	(1.74)	(6.15)	(6.26)	(6.18)	(0.33)	(0.38)	(0.42)
*NDR_tgt * High_Acq_Cover*	4.098**	4.348**	3.568*	-0.172	-0.465	1.405	1.762	2.694*	2.162
	(1.62)	(1.82)	(1.88)	(7.15)	(7.39)	(7.45)	(1.52)	(1.58)	(1.66)
*NDR_acq * NDR_tgt * High_Acq_Cover*	-0.483	-1.342	0.239	-6.720	-8.370	-8.829	0.903	0.949	1.814
	(3.01)	(3.46)	(3.65)	(9.53)	(9.79)	(9.94)	(2.46)	(2.80)	(2.90)
Constant	-0.376	-1.619	-1.864	12.071	12.909	12.806	1.408**	1.739**	1.651*
	(3.14)	(3.73)	(4.04)	(10.65)	(10.94)	(11.03)	(0.66)	(0.77)	(0.87)
Acquirer Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES

	Public Acquirer & Target Sample						*Public Acquirer Only Sample*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Acquirer CAR [-1, +1]	Acquirer CAR [-2, +2]	Acquirer CAR [-3, +3]	Target CAR [-1, +1]	Target CAR [-2, +2]	Target CAR [-3, +3]	Acquirer CAR [-1, +1]	Acquirer CAR [-2, +2]	Acquirer CAR [-3, +3]
Target Controls	YES	YES	YES	YES	YES	YES	NO	NO	NO
Deal Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	390	390	390	390	390	390	5,532	5,532	5,532
R-Squared	0.28	0.28	0.28	0.38	0.37	0.38	0.06	0.05	0.05

Panel B: Target Analyst Coverage

	(1)	(2)	(3)	(4)	(5)	(6)
	Acquirer CAR [-1, +1]	Acquirer CAR [-2, +2]	Acquirer CAR [-3, +3]	Target CAR [-1, +1]	Target CAR [-2, +2]	Target CAR [-3, +3]
NDR_acq	1.828	1.858	2.025	-4.346	-4.476	-5.095
	(1.11)	(1.23)	(1.38)	(4.41)	(4.51)	(4.49)
NDR_tgt	-2.874**	-4.567***	-4.844***	-4.963	-6.833	-7.146
	(1.37)	(1.47)	(1.51)	(4.55)	(4.76)	(4.93)
*NDR_acq * NDR_tgt*	2.736	3.162	3.283	11.777*	13.500**	13.842**
	(3.40)	(3.87)	(3.81)	(6.53)	(6.84)	(7.02)
High_Tgt_Cover	-0.057	0.096	-0.015	4.205	4.146	3.592
	(0.89)	(0.96)	(1.01)	(3.44)	(3.50)	(3.54)
*NDR_acq * High_Tgt_Cover*	0.568	0.098	-0.372	-1.846	-1.111	-1.105
	(1.47)	(1.58)	(1.72)	(6.23)	(6.34)	(6.30)
*NDR_tgt * High_Tgt_Cover*	2.374	2.949	3.129	3.458	4.341	4.562
	(1.74)	(1.88)	(1.92)	(6.12)	(6.33)	(6.49)
*NDR_acq * NDR_tgt * High_Tgt_Cover*	-5.016	-4.252	-4.447	-11.456	-13.867	-13.452
	(3.82)	(4.48)	(4.45)	(8.54)	(8.84)	(9.00)
Constant	-0.673	-2.159	-2.113	10.907	12.004	12.317
	(3.06)	(3.66)	(3.94)	(10.82)	(11.04)	(11.14)

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]
Acquirer & Target Controls	YES	YES	YES	YES	YES	YES
Deal Controls	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES
N	390	390	390	390	390	390
R-Squared	0.27	0.27	0.27	0.38	0.37	0.38

TABLE 3-7: Regression Analysis of NDR Activity Effects on Merger Announcement Returns by Analyst Information Asymmetry Proxy Variables: Analyst Forecast Errors

This table reports the regression results for the impact of NDRs on merger announcement CARs, based on a measure information asymmetry: Analyst Forecast Errors. The NDR independent variables (*NDR_acq & NDR_tgt)* & their interaction terms with *High_Acq_Error* (Panel A) & *High_Tgt_Error* (Panel B) are employed to test the effects of NDRs on merger announcement returns, relative to the level of analyst coverage. High forecast error firms are those whose analyst forecast error is greater than the median firm. The dependent variables are cumulative abnormal returns (CARs) for acquirer and target firms over differing merger announcement window lengths, in both panels. Control variables for firm and M&A deal characteristics are as defined in Section 5.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: Acquirer Analyst Forecast Errors

	Public Acquirer & Target Sample						*Public Acquirer Only Sample*		
	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]	(7) Acquirer CAR [-1, +1]	(8) Acquirer CAR [-2, +2]	(9) Acquirer CAR [-3, +3]
NDR_acq	1.811**	1.145	1.446	-5.280	-5.147	-5.865	0.073	0.070	-0.033
	(0.88)	(0.91)	(0.98)	(3.86)	(3.90)	(3.88)	(0.21)	(0.24)	(0.26)
NDR_tgt	-2.044*	-3.894***	-4.097***	-0.858	-2.585	-2.592	-2.905***	-4.338***	-4.675***
	(1.19)	(1.40)	(1.42)	(4.56)	(4.70)	(4.76)	(1.00)	(1.14)	(1.20)
*NDR_acq * NDR_tgt*	1.485	3.289	2.749	4.599	5.315	5.322	3.117**	4.325**	4.389**
	(1.86)	(2.13)	(2.26)	(6.00)	(6.16)	(6.31)	(1.51)	(1.81)	(1.91)
High_Acq_Error	-0.393	-1.286	-0.735	0.941	0.154	-0.204	0.422*	0.537**	0.433
	(1.00)	(1.07)	(1.10)	(3.94)	(3.97)	(3.93)	(0.22)	(0.25)	(0.27)
*NDR_acq * High_Acq_Error*	1.540	3.205*	1.535	0.899	1.579	1.635	-0.154	0.098	0.222
	(1.69)	(1.80)	(2.05)	(6.27)	(6.39)	(6.32)	(0.34)	(0.39)	(0.43)

	Public Acquirer & Target Sample						*Public Acquirer Only Sample*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Acquirer CAR [-1, +1]	Acquirer CAR [-2, +2]	Acquirer CAR [-3, +3]	Target CAR [-1, +1]	Target CAR [-2, +2]	Target CAR [-3, +3]	Acquirer CAR [-1, +1]	Acquirer CAR [-2, +2]	Acquirer CAR [-3, +3]
*NDR_tgt * High_Acq_Error*	2.176	4.088**	4.077**	-4.862	-3.327	-3.811	1.290	2.123	2.398
	(1.84)	(1.95)	(2.00)	(6.69)	(6.92)	(7.06)	(1.37)	(1.45)	(1.54)
*NDR_acq * NDR_tgt * High_Acq_Error*	-6.619**	-9.402***	-7.492**	-4.520	-6.445	-4.576	-4.893**	-6.053**	-5.989**
	(3.23)	(3.59)	(3.69)	(8.62)	(8.96)	(9.22)	(2.41)	(2.75)	(2.75)
Constant	-0.814	-2.081	-2.218	14.000	15.143	15.049	1.515**	1.898**	1.803**
	(3.08)	(3.60)	(3.93)	(10.87)	(11.14)	(11.22)	(0.66)	(0.77)	(0.87)
Acquirer Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Target Controls	YES	YES	YES	YES	YES	YES	NO	NO	NO
Deal Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	390	390	390	390	390	390	5,532	5,532	5,532
R-Squared	0.27	0.28	0.27	0.38	0.36	0.37	0.06	0.05	0.05

Panel B: Target Analyst Forecast Errors

	(1)	(2)	(3)	(4)	(5)	(6)
	Acquirer CAR [-1, +1]	Acquirer CAR [-2, +2]	Acquirer CAR [-3, +3]	Target CAR [-1, +1]	Target CAR [-2, +2]	Target CAR [-3, +3]
NDR_acq	2.102**	1.986**	2.021**	-4.672	-4.425	-5.135
	(0.83)	(0.87)	(0.96)	(3.43)	(3.47)	(3.46)
NDR_tgt	-1.763	-3.276***	-3.013**	-3.677	-4.810	-4.945
	(1.10)	(1.20)	(1.23)	(4.30)	(4.45)	(4.54)
*NDR_acq * NDR_tgt*	0.187	1.448	0.931	6.410	6.426	6.799
	(1.90)	(2.05)	(2.08)	(5.62)	(5.80)	(5.92)
High_Tgt_Error	0.587	0.718	1.484	2.158	2.174	2.351
	(1.37)	(1.35)	(1.48)	(4.77)	(4.96)	(4.96)

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]
*NDR_acq * High_Tgt_Error*	0.062	-0.630	-1.606	-2.706	-2.322	-2.189
	(2.05)	(2.17)	(2.40)	(6.77)	(7.05)	(7.07)
*NDR_tgt * High_Tgt_Error*	1.409	2.073	0.334	4.212	3.629	3.306
	(2.31)	(2.47)	(2.60)	(6.86)	(7.10)	(7.25)
*NDR_acq * NDR_tgt * High_Tgt_Error*	-3.012	-3.698	-1.817	-9.722	-9.615	-8.601
	(3.68)	(4.19)	(4.37)	(10.05)	(10.41)	(10.78)
Constant	-0.774	-2.029	-2.308	14.280	15.338	15.085
	(3.08)	(3.62)	(3.88)	(10.74)	(11.00)	(11.07)
Acquirer & Target Controls	YES	YES	YES	YES	YES	YES
Deal Controls	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES
N	390	390	390	390	390	390
R-Squared	0.27	0.27	0.27	0.38	0.36	0.37

TABLE 3-8: Regression Analysis of NDR Activity Effects on the Medium of Exchange by Analyst Information Asymmetry Proxy Variables: Analyst Coverage & Analyst Forecast Errors

This table reports the probit regression results for having an NDR meeting within six months of the merger announcement, for both acquirers and targets, on the medium of exchange in the acquisition based on the firm's level of information asymmetry. Information asymmetry proxies *High_Acq_Error*, *High_Acq_Cover*, *High_Tgt_Error*, & *High_Tgt_Cover* are employed here as in tables 5-6 & 5-7. The dependent variables are *All Stock (*Panel A) & *All Cash*, (Panel B). The independent variables of interest are *NDR_acq*, *NDR_tgt*, and their interaction term with the information asymmetry proxies. Control variables for firm and M&A deal characteristics are as defined in Section 5.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: Likelihood of All-Stock Acquisition

	Public Acquirer & Target Sample				*Public Acquirer Only Sample*	
	(1)	(2)	(3)	(4)	(5)	(6)
	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)
NDR_acq	0.299	0.163	0.648**	-0.003	-0.124	-0.139
	(0.24)	(0.23)	(0.28)	(0.32)	(0.09)	(0.10)
NDR_tgt	0.042	0.465	0.366	0.215	0.166	0.593**
	(0.38)	(0.31)	(0.46)	(0.45)	(0.26)	(0.30)
*NDR_acq * NDR_tgt*	0.199	-0.262	-0.540	0.645	0.679*	0.227
	(0.51)	(0.45)	(0.60)	(0.70)	(0.36)	(0.44)
High_Acq_Error	-0.083				-0.085	
	(0.25)				(0.09)	
*NDR_acq * High_Acq_Error*	-0.041				-0.261	
	(0.45)				(0.17)	
*NDR_tgt * High_Acq_Error*	0.787				0.760**	
	(0.54)				(0.38)	
*NDR_acq * NDR_tgt * High_Acq_Error*	-1.392*				-0.683	
	(0.79)				(0.58)	
High_Tgt_Error		-0.301				
		(0.32)				
*NDR_acq * High_Tgt_Error*		0.721				
		(0.51)				
*NDR_tgt * High_Tgt_Error*		-0.667				
		(0.88)				

	Public Acquirer & Target Sample				*Public Acquirer Only Sample*	
	(1)	(2)	(3)	(4)	(5)	(6)
	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)
*NDR_acq * NDR_tgt * High_Tgt_Error*		-0.269				
		(1.06)				
High_Acq_Cover			0.028			-0.006
			(0.23)			(0.09)
*NDR_acq * High_Acq_Cover*			-0.814**			-0.096
			(0.40)			(0.15)
*NDR_tgt * High_Acq_Cover*			-0.093			-0.207
			(0.54)			(0.38)
*NDR_acq * NDR_tgt * High_Acq_Cover*			0.526			0.249
			(0.78)			(0.57)
High_Tgt_Cover				0.090		
				(0.24)		
*NDR_acq * High_Tgt_Cover*				0.444		
				(0.42)		
*NDR_tgt * High_Tgt_Cover*				0.136		
				(0.53)		
*NDR_acq * NDR_tgt * High_Tgt_Cover*				-1.449*		
				(0.84)		
Constant	-0.529	-0.553	-0.471	-0.657	-1.153***	-1.178***
	(0.72)	(0.73)	(0.73)	(0.75)	(0.34)	(0.33)
Acquirer Controls	YES	YES	YES	YES	YES	YES
Target Controls	YES	YES	YES	YES	NO	NO
Deal Controls	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES
N	362	362	362	362	5,527	5,527
Pseudo R-Squared	0.25	0.25	0.26	0.26	0.29	0.29

Panel B: Likelihood of All-Cash Acquisition

	Public Acquirer & Target Sample				*Public Acquirer Only Sample*	
	(1)	(2)	(3)	(4)	(5)	(6)
	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)
NDR_acq	-0.232	-0.190	-0.512*	-0.408	-0.076	-0.033
	(0.24)	(0.22)	(0.29)	(0.35)	(0.05)	(0.06)
NDR_tgt	-0.122	-0.383	-0.641	0.145	-0.041	-0.468
	(0.31)	(0.31)	(0.49)	(0.42)	(0.21)	(0.32)
*NDR_acq * NDR_tgt*	0.144	0.552	0.728	-1.060	0.425	0.697*
	(0.46)	(0.45)	(0.67)	(0.73)	(0.29)	(0.41)
High_Acq_Error	-0.475*				0.030	
	(0.25)				(0.05)	
*NDR_acq * High_Acq_Error*	-0.277				0.101	
	(0.54)				(0.09)	
*NDR_tgt * High_Acq_Error*	0.249				0.045	
	(0.51)				(0.33)	
*NDR_acq * NDR_tgt * High_Acq_Error*	0.213				-0.833*	
	(0.86)				(0.49)	
High_Tgt_Error		-0.255				
		(0.28)				
*NDR_acq * High_Tgt_Error*		-0.296				
		(0.48)				
*NDR_tgt * High_Tgt_Error*		0.925*				
		(0.54)				
*NDR_acq * NDR_tgt * High_Tgt_Error*		-1.246				
		(0.86)				
High_Acq_Cover			-0.367*			0.064
			(0.22)			(0.05)
*NDR_acq * High_Acq_Cover*			0.554			-0.021
			(0.42)			(0.08)
*NDR_tgt * High_Acq_Cover*			0.873			0.647*

	Public Acquirer & Target Sample				*Public Acquirer Only Sample*	
	(1)	(2)	(3)	(4)	(5)	(6)
	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)
			(0.57)			(0.37)
*NDR_acq * NDR_tgt * High_Acq_Cover*			-0.955			-0.783
			(0.84)			(0.50)
High_Tgt_Cover				-0.090		
				(0.24)		
*NDR_acq * High_Tgt_Cover*				0.282		
				(0.46)		
*NDR_tgt * High_Tgt_Cover*				-0.289		
				(0.53)		
*NDR_acq * NDR_tgt * High_Tgt_Cover*				1.389		
				(0.90)		
Constant	0.340	0.521	0.481	0.395	-1.263***	-1.265***
	(0.70)	(0.71)	(0.72)	(0.74)	(0.18)	(0.18)
Acquirer Controls	YES	YES	YES	YES	YES	YES
Target Controls	YES	YES	YES	YES	NO	NO
Deal Controls	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES
N	367	367	367	367	5,532	5,532
Pseudo R-Squared	0.29	0.29	0.30	0.30	0.11	0.11

TABLE 3-9: Regression Analysis of NDR Activity Effects on Merger Announcement Returns by Analyst Information Asymmetry Proxy Variables: Idiosyncratic Volatility

This table reports the fixed-effects regression results for the impact of NDRs on merger announcement CARs, based on a measure information asymmetry: idiosyncratic volatility. The NDR independent variables (*NDR_acq & NDR_tgt)* & their interaction terms with *High_Acq_IdioVol* (Panel A) & *High_Tgt_IdioVol* (Panel B) are employed to test the effects of NDRs on merger announcement returns, relative to the level of idiosyncratic volatility. High idiosyncratic volatility firms are those whose idiosyncratic volatility is greater than the median firm. The dependent variables are cumulative abnormal returns (CARs) for acquirer and target firms over differing merger announcement window lengths, in both panels. Control variables for firm and M&A deal characteristics are as defined in Section 5.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: Acquirer Idiosyncratic Volatility

	Public Acquirer & Target Sample						*Public Acquirer Only Sample*		
	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]	(7) Acquirer CAR [-1, +1]	(8) Acquirer CAR [-2, +2]	(9) Acquirer CAR [-3, +3]
NDR_acq	1.015	0.814	0.573	-3.183	-2.760	-3.606	0.087	-0.005	-0.020
	(0.77)	(0.81)	(0.88)	(3.33)	(3.39)	(3.37)	(0.16)	(0.18)	(0.20)
NDR_tgt	-1.189	-2.358**	-2.709**	-3.712	-5.555	-6.909*	-1.951**	-2.660***	-2.978***
	(1.11)	(1.20)	(1.18)	(3.90)	(4.01)	(4.05)	(0.77)	(0.84)	(0.81)
*NDR_acq * NDR_tgt*	0.207	1.675	1.459	3.092	2.963	4.769	1.740	2.901**	3.145**
	(1.55)	(1.73)	(1.74)	(5.52)	(5.62)	(5.73)	(1.15)	(1.35)	(1.36)
High_Acq_IdioVol	-1.417	-1.614	-2.361*	5.369	4.712	4.364	0.095	0.037	0.211
	(1.26)	(1.35)	(1.42)	(4.16)	(4.25)	(4.30)	(0.23)	(0.26)	(0.28)
*NDR_acq * High_Acq_IdioVol*	3.814**	3.771*	4.190*	-6.582	-6.818	-6.339	-0.131	0.216	0.111
	(1.90)	(2.01)	(2.22)	(6.96)	(7.12)	(7.08)	(0.33)	(0.37)	(0.41)
*NDR_tgt * High_Acq_IdioVol*	-0.259	-0.568	0.068	4.276	6.059	9.970	-1.104	-2.258	-2.048
	(2.12)	(2.42)	(2.65)	(7.70)	(7.87)	(7.96)	(1.62)	(1.78)	(1.99)
*NDR_acq * NDR_tgt * High_Acq_IdioVol*	-3.088	-4.516	-4.416	0.825	0.852	-3.098	-0.684	-1.529	-2.035
	(3.78)	(4.23)	(4.53)	(10.81)	(11.07)	(11.18)	(2.72)	(3.12)	(3.29)
Constant	0.772	0.217	0.959	6.199	7.927	7.534	1.433*	1.790**	1.464
	(3.47)	(3.97)	(4.24)	(11.78)	(11.97)	(12.13)	(0.73)	(0.85)	(0.95)

	Public Acquirer & Target Sample						*Public Acquirer Only Sample*		
	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]	(7) Acquirer CAR [-1, +1]	(8) Acquirer CAR [-2, +2]	(9) Acquirer CAR [-3, +3]
Acquirer Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Target Controls	YES	YES	YES	YES	YES	YES	NO	NO	NO
Deal Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	390	390	390	390	390	390	5,532	5,532	5,532
R-Squared	0.28	0.28	0.28	0.38	0.37	0.38	0.06	0.05	0.05

Panel B: Target Idiosyncratic Volatility

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]
NDR_acq	1.153	1.128	1.051	-2.505	-2.648	-2.585
	(0.91)	(0.93)	(0.98)	(2.59)	(2.65)	(2.61)
NDR_tgt	-1.466	-2.442*	-2.411*	-1.550	-2.530	-2.569
	(1.26)	(1.33)	(1.36)	(3.10)	(3.20)	(3.27)
*NDR_acq * NDR_tgt*	0.109	1.101	0.599	5.468	4.828	5.291
	(1.99)	(2.15)	(2.19)	(4.61)	(4.69)	(4.68)
High_Tgt_IdioVol	-1.409	-0.629	-0.736	10.439**	10.473**	12.756***
	(1.12)	(1.21)	(1.32)	(4.52)	(4.63)	(4.67)
*NDR_acq * High_Tgt_IdioVol*	2.923*	2.218	2.101	-8.514	-7.274	-9.629
	(1.66)	(1.76)	(1.94)	(6.85)	(6.99)	(6.93)
*NDR_tgt * High_Tgt_IdioVol*	0.382	-0.582	-1.205	-1.533	-2.522	-2.937
	(1.78)	(2.12)	(2.29)	(8.62)	(8.88)	(8.90)
*NDR_acq * NDR_tgt * High_Tgt_IdioVol*	-2.112	-1.690	-0.553	-4.052	-2.597	-1.951
	(3.15)	(3.70)	(3.90)	(10.93)	(11.25)	(11.32)
Constant	0.686	-1.434	-1.461	3.124	3.821	1.143

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]
	(3.31)	(3.82)	(4.08)	(11.52)	(11.83)	(11.84)
Acquirer & Target Controls	YES	YES	YES	YES	YES	YES
Deal Controls	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES
N	390	390	390	390	390	390
R-Squared	0.27	0.27	0.27	0.39	0.38	0.39

TABLE 3-10: Regression Analysis of NDR Activity Effects on Merger Announcement Returns by Analyst Information Asymmetry Proxy Variables: Amihud Illiquidity

This table reports the fixed-effects regression results for the impact of NDRs on merger announcement CARs, based on a measure information asymmetry: illiquidity. The NDR independent variables (*NDR_acq & NDR_tgt)* & their interaction terms with *High_Acq_Amihud* (Panel A) & *High_Tgt_Amihud* (Panel B) are employed to test the effects of NDRs on merger announcement returns, relative to the level of Amihud illiquidity measure. High Amihud illiquidity firms are those whose Amihud measure is greater than the median firm. The dependent variables are cumulative abnormal returns (CARs) for acquirer and target firms over differing merger announcement window lengths, in both panels. Control variables for firm and M&A deal characteristics are as defined in Section 5.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: Acquirer Illiquidity

	Public Acquirer & Target Sample						*Public Acquirer Only Sample*		
	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]	(7) Acquirer CAR [-1, +1]	(8) Acquirer CAR [-2, +2]	(9) Acquirer CAR [-3, +3]
NDR_acq	0.865	0.824	0.373	-6.783*	-6.715*	-7.379*	0.029	0.058	0.117
	(0.84)	(0.91)	(0.97)	(3.75)	(3.80)	(3.82)	(0.19)	(0.21)	(0.23)
NDR_tgt	-2.222**	-3.469***	-3.809***	-2.721	-4.356	-4.358	-2.295***	-3.469***	-3.692***
	(0.93)	(1.06)	(1.15)	(4.19)	(4.32)	(4.37)	(0.72)	(0.78)	(0.86)
*NDR_acq * NDR_tgt*	1.986	3.082*	3.107*	5.562	5.722	6.659	2.351**	3.475***	3.483***
	(1.48)	(1.68)	(1.76)	(5.54)	(5.65)	(5.79)	(1.05)	(1.26)	(1.33)
High_Acq_Amihud	-1.467	-1.525	-1.984	2.138	1.493	1.396	0.501*	0.262	0.533
	(1.10)	(1.22)	(1.28)	(3.86)	(3.89)	(3.87)	(0.28)	(0.30)	(0.33)

	Public Acquirer & Target Sample						*Public Acquirer Only Sample*		
	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]	(7) Acquirer CAR [-1, +1]	(8) Acquirer CAR [-2, +2]	(9) Acquirer CAR [-3, +3]
*NDR_acq * High_Acq_Amihud*	4.553**	3.808*	4.710**	8.243	8.787	8.818	-0.004	0.118	-0.136
	(1.89)	(2.00)	(2.34)	(6.29)	(6.31)	(6.18)	(0.34)	(0.39)	(0.43)
*NDR_acq * NDR_tgt * High_Acq_Amihud*	-11.046**	-11.429**	-11.849**	-9.507	-10.296	-10.677	-3.507	-5.193	-5.253
	(4.67)	(5.25)	(5.13)	(9.85)	(10.00)	(9.98)	(3.91)	(4.47)	(4.45)
Constant	0.706	-0.048	0.154	7.636	9.433	9.780	0.607	1.365	0.861
	(3.18)	(3.78)	(4.00)	(12.16)	(12.24)	(12.44)	(0.79)	(0.92)	(1.03)
Acquirer Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Target Controls	YES	YES	YES	YES	YES	YES	NO	NO	NO
Deal Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	390	390	390	390	390	390	5,523	5,523	5,523
R-Squared	0.29	0.28	0.28	0.38	0.37	0.37	0.06	0.05	0.05

Panel B: Target Illiquidity

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]
NDR_acq	1.443	1.554	1.334	-6.175	-6.214	-5.996
	(1.30)	(1.36)	(1.45)	(3.81)	(3.91)	(3.99)
NDR_tgt	-1.972*	-3.208***	-3.462***	-2.770	-4.083	-3.665
	(1.15)	(1.22)	(1.29)	(3.56)	(3.68)	(3.73)
*NDR_acq * NDR_tgt*	0.654	1.716	1.730	7.498	8.103	7.617
	(1.91)	(2.11)	(2.18)	(5.24)	(5.40)	(5.57)
High_Tgt_Amihud	-0.834	-0.818	-1.031	7.237	6.920	7.049
	(1.33)	(1.39)	(1.49)	(5.11)	(5.23)	(5.31)

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]
*NDR_acq * High_Tgt_Amihud*	1.182	0.469	0.594	4.473	5.181	3.414
	(1.79)	(1.87)	(2.02)	(5.98)	(6.13)	(6.12)
*NDR_tgt * High_Tgt_Amihud*	2.381	2.399	2.671	5.317	5.056	2.641
	(2.77)	(3.24)	(3.18)	(9.82)	(10.13)	(10.52)
*NDR_acq * NDR_tgt * High_Tgt_Amihud*	-4.257	-4.995	-5.187	-17.592	-18.701	-15.088
	(3.95)	(4.51)	(4.56)	(11.87)	(12.20)	(12.65)
Constant	0.878	-0.100	0.118	-2.806	-1.014	-0.664
	(3.94)	(4.39)	(4.69)	(14.30)	(14.64)	(14.53)
Acquirer & Target Controls	YES	YES	YES	YES	YES	YES
Deal Controls	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES
N	390	390	390	390	390	390
R-Squared	0.27	0.27	0.27	0.39	0.38	0.39

TABLE 3-11: Regression Analysis of NDR Activity Effects on the Medium of Exchange by Analyst Information Asymmetry Proxy Variables: Idiosyncratic Volatility & Amihud Illiquidity

This table reports the probit regression results for having an NDR meeting within six months of the merger announcement, for both acquirers and targets, on the medium of exchange in the acquisition based on the firm's level of information asymmetry. Information asymmetry proxies *High_Acq_Amihud, High_Acq_IdioVol, High_Tgt_Amihud, & High_Tgt_ IdioVol* are employed here as in tables 5-9 & 5-10. The dependent variables are *All Stock (*Panel A) & *All Cash,* (Panel B). The independent variables of interest are *NDR_acq, NDR_tgt,* and their interaction term with the information asymmetry proxies. Control variables for firm and M&A deal characteristics are as defined in Section 5.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: Likelihood of All-Stock Acquisition

	Public Acquirer & Target Sample				*Public Acquirer Only Sample*	
	(1)	(2)	(3)	(4)	(5)	(6)
	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)
NDR_acq	0.317	-0.122	0.496*	0.743***	-0.025	-0.092
	(0.26)	(0.31)	(0.26)	(0.27)	(0.11)	(0.10)
NDR_tgt	0.225	0.285	0.469	0.994***	0.513**	0.517**
	(0.30)	(0.31)	(0.30)	(0.31)	(0.23)	(0.24)
*NDR_acq * NDR_tgt*	-0.445	-0.146	-1.153**	-1.166**	0.049	-0.366
	(0.47)	(0.49)	(0.45)	(0.51)	(0.34)	(0.37)
High_Acq_Amihud	0.068				0.135	
	(0.27)				(0.11)	
*NDR_acq * High_Acq_Amihud*	-0.146				-0.338**	
	(0.46)				(0.15)	
*NDR_tgt * High_Acq_Amihud*	0.425				-0.028	
	(0.81)				(0.47)	
*NDR_acq * NDR_tgt * High_Acq_Amihud*	0.039				0.802	
	(1.04)				(0.66)	
High_Tgt_Amihud		0.013				
		(0.32)				
*NDR_acq * High_Tgt_Amihud*		0.763*				
		(0.44)				
*NDR_tgt * High_Tgt_Amihud*		-0.134				
		(0.81)				

	Public Acquirer & Target Sample				*Public Acquirer Only Sample*	
	(1)	(2)	(3)	(4)	(5)	(6)
	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)	All Stock (Probit)
*NDR_acq * NDR_tgt * High_Tgt_Amihud*		-0.023				
		(1.04)				
High_Acq_IdioVol			0.168			-0.095
			(0.28)			(0.10)
*NDR_acq * High_Acq_IdioVol*			-0.706			-0.184
			(0.46)			(0.15)
*NDR_tgt * High_Acq_IdioVol*			-0.518			-0.089
			(0.63)			(0.40)
*NDR_acq * NDR_tgt * High_Acq_IdioVol*			2.081**			1.426**
			(0.89)			(0.57)
High_Tgt_IdioVol				0.276		
				(0.29)		
*NDR_acq * High_Tgt_IdioVol*				-1.324***		
				(0.44)		
*NDR_tgt * High_Tgt_IdioVol*				-2.464***		
				(0.87)		
*NDR_acq * NDR_tgt * High_Tgt_IdioVol*				3.214***		
				(1.06)		
Constant	-0.727	-0.735	-0.774	-0.799	-1.519***	-1.021***
	(0.87)	(0.91)	(0.85)	(0.84)	(0.40)	(0.36)
Acquirer Controls	YES	YES	YES	YES	YES	YES
Target Controls	YES	YES	YES	YES	NO	NO
Deal Controls	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES
N	362	362	362	362	5,518	5,527
Pseudo R-Squared	0.25	0.26	0.26	0.25	0.29	0.29

Panel B: Likelihood of All-Cash Acquisition

	Public Acquirer & Target Sample				*Public Acquirer Only Sample*	
	(1)	(2)	(3)	(4)	(5)	(6)
	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)
NDR_acq	-0.174	-0.175	-0.176	-0.588**	-0.016	0.043
	(0.26)	(0.33)	(0.25)	(0.28)	(0.05)	(0.06)
NDR_tgt	-0.238	-0.103	-0.110	-0.359	-0.110	0.096
	(0.29)	(0.31)	(0.30)	(0.32)	(0.18)	(0.19)
*NDR_acq * NDR_tgt*	0.211	0.344	0.525	0.419	0.211	0.173
	(0.44)	(0.47)	(0.45)	(0.54)	(0.26)	(0.29)
High_Acq_Amihud	-0.128				-0.038	
	(0.29)				(0.06)	
*NDR_acq * High_Acq_Amihud*	-0.428				-0.066	
	(0.45)				(0.08)	
*NDR_tgt * High_Acq_Amihud*	0.791				0.613	
	(0.61)				(0.42)	
*NDR_acq * NDR_tgt * High_Acq_Amihud*	-0.479				-0.487	
	(0.90)				(0.56)	
High_Tgt_Amihud		-0.101				
		(0.30)				
*NDR_acq * High_Tgt_Amihud*		-0.114				
		(0.44)				
*NDR_tgt * High_Tgt_Amihud*		0.089				
		(0.60)				
*NDR_acq * NDR_tgt * High_Tgt_Amihud*		-0.799				
		(0.90)				
High_Acq_IdioVol			0.097			-0.008
			(0.30)			(0.06)
*NDR_acq * High_Acq_IdioVol*			-0.145			-0.172**
			(0.44)			(0.08)
*NDR_tgt * High_Acq_IdioVol*			0.158			-0.311

	Public Acquirer & Target Sample				*Public Acquirer Only Sample*	
	(1)	(2)	(3)	(4)	(5)	(6)
	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)	All Cash (Probit)
			(0.54)			(0.35)
*NDR_acq * NDR_tgt * High_Acq_IdioVol*			-1.303			-0.074
			(0.82)			(0.49)
High_Tgt_IdioVol				-0.043		
				(0.29)		
*NDR_acq * High_Tgt_IdioVol*				0.825*		
				(0.44)		
*NDR_tgt * High_Tgt_IdioVol*				0.881*		
				(0.52)		
*NDR_acq * NDR_tgt * High_Tgt_IdioVol*				-1.110		
				(0.78)		
Constant	0.633	0.746	0.444	0.288	-1.151***	-1.189***
	(0.84)	(0.92)	(0.85)	(0.78)	(0.21)	(0.19)
Acquirer Controls	YES	YES	YES	YES	YES	YES
Target Controls	YES	YES	YES	YES	NO	NO
Deal Controls	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES
N	367	367	367	367	5,523	5,532
Pseudo R-Squared	0.30	0.30	0.30	0.30	0.11	0.11

TABLE 3-12: Regression Analysis of NDR Activity Effects on Merger Outcomes: Firm Complexity

This table reports the fixed-effects and probit regression results for the impact of NDRs on merger announcement CARs and medium of exchange, based on a measure information asymmetry and firm complexity: intangible assets. The NDR independent variables (*NDR_acq & NDR_tgt)* & their interaction terms with *High_Acq_Intangibles* (Panel A & B) & *High_Tgt_Intangibles* (Panel C) are employed to test the effects of NDRs on merger announcement returns, relative to the level of complexity measure. High intangible assets firms are those whose intangible assets to total assets is greater than the median firm. The dependent variables are cumulative abnormal returns (CARs) for acquirer and target firms over differing merger announcement window lengths and the medium of exchange (*Stock*) or (*Cash*), in all panels. Control variables for firm and M&A deal characteristics are as defined in Section 5.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate p < 0.01, p < 0.05, and p < 0.1, respectively, in two-tailed tests. See Appendix A for variable definitions.

Panel A: Acquirer Complexity in Public Acquirer & Target Sample

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]	(7) All Stock (Probit)	(8) All Cash (Probit)
NDR_acq	1.816**	1.461	1.197	1.418	1.791	1.095	0.379	-0.372
	(0.91)	(0.94)	(1.01)	(3.29)	(3.34)	(3.30)	(0.25)	(0.25)
NDR_tgt	0.581	-0.683	-1.606	1.142	0.033	-0.635	0.358	-0.245
	(1.49)	(1.71)	(1.81)	(5.08)	(5.24)	(5.21)	(0.45)	(0.40)
*NDR_acq * NDR_tgt*	-3.609	-3.530	-2.514	-2.631	-3.292	-1.343	0.435	-0.520
	(2.46)	(2.90)	(3.05)	(5.97)	(6.11)	(6.30)	(0.60)	(0.65)
High_Acq_Intangibles	1.548	1.181	1.267	15.673***	16.036***	16.614***	0.408	-0.404
	(1.35)	(1.43)	(1.50)	(4.94)	(5.09)	(5.04)	(0.31)	(0.29)
*NDR_acq * High_Acq_Intangibles*	1.344	1.751	1.999	-17.662***	-17.646**	-17.589**	-0.293	0.469
	(1.69)	(1.82)	(2.00)	(6.80)	(6.99)	(7.03)	(0.45)	(0.46)
*NDR_tgt * High_Acq_Intangibles*	-3.172	-3.102	-1.826	-9.939	-10.248	-9.517	-0.262	0.382
	(1.94)	(2.11)	(2.21)	(6.98)	(7.19)	(7.24)	(0.53)	(0.50)
*NDR_acq * NDR_tgt * High_Acq_Intangibles*	4.010	5.368	3.469	15.272	16.581*	14.492	-1.196	0.695
	(3.32)	(3.77)	(3.87)	(9.49)	(9.76)	(10.03)	(0.81)	(0.85)
Constant	-0.876	-2.369	-2.371	15.398	16.364	16.259	-0.394	0.259
	(3.06)	(3.58)	(3.87)	(10.78)	(11.02)	(11.13)	(0.72)	(0.71)
Acquirer & Target Controls	YES	YES	YES	YES	YES	YES	YES	YES
Deal Controls	YES	YES	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES	YES	YES

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]	(7) All Stock (Probit)	(8) All Cash (Probit)
N	385	385	385	385	385	385	362	362
R-Squared	0.29	0.29	0.28	0.40	0.38	0.39	0.26	0.30

Panel B: Acquirer Complexity in Public Acquirer Only Sample

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) All Stock (Probit)	(5) All Cash (Probit)
NDR_acq	-0.031	0.144	0.188	-0.203**	-0.043
	(0.26)	(0.30)	(0.32)	(0.09)	(0.06)
NDR_tgt	-1.483	-2.269*	-2.816**	0.313	0.090
	(1.10)	(1.24)	(1.38)	(0.28)	(0.26)
*NDR_acq * NDR_tgt*	-0.362	-0.618	-0.507	1.150***	-0.795**
	(2.07)	(2.51)	(2.65)	(0.40)	(0.39)
High_Acq_Intangibles	0.253	0.250	0.374	-0.315***	0.178***
	(0.24)	(0.27)	(0.30)	(0.10)	(0.05)
*NDR_acq * High_Acq_Intangibles*	0.061	-0.087	-0.289	0.097	-0.014
	(0.34)	(0.39)	(0.43)	(0.16)	(0.08)
*NDR_tgt * High_Acq_Intangibles*	-1.511	-1.994	-1.467	0.396	-0.216
	(1.43)	(1.58)	(1.71)	(0.38)	(0.32)
*NDR_acq * NDR_tgt * High_Acq_Intangibles*	3.140	4.766	4.618	-1.681***	1.478***
	(2.53)	(2.99)	(3.12)	(0.60)	(0.48)
Constant	1.439**	1.776**	1.672*	-1.173***	-1.311***
	(0.65)	(0.77)	(0.87)	(0.33)	(0.18)
Acquirer Controls	YES	YES	YES	YES	YES
Target Controls	NO	NO	NO	NO	NO
Deal Controls	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) All Stock (Probit)	(5) All Cash (Probit)
N	5,513	5,513	5,513	5,513	5,513
R-Squared	0.06	0.05	0.05	0.30	0.12

Panel C: Target Complexity

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]	(7) All Stock (Probit)	(8) All Cash (Probit)
NDR_acq	2.205**	1.556	1.099	-2.401	-1.954	-3.213	0.242	-0.309
	(1.01)	(1.03)	(1.11)	(3.85)	(3.86)	(3.88)	(0.28)	(0.29)
NDR_tgt	-0.424	-1.103	-1.285	0.559	-1.319	-0.331	1.002**	-0.235
	(1.80)	(2.00)	(1.96)	(6.98)	(7.10)	(7.24)	(0.40)	(0.39)
*NDR_acq * NDR_tgt*	-1.495	-2.025	-1.543	-1.347	-1.062	-0.368	-1.327**	0.834
	(2.65)	(2.97)	(3.04)	(8.28)	(8.44)	(8.65)	(0.56)	(0.62)
High_Tgt_Intangibles	0.273	-0.218	-0.122	5.321	5.422	4.853	-0.213	0.649**
	(1.22)	(1.30)	(1.37)	(4.22)	(4.27)	(4.35)	(0.28)	(0.29)
*NDR_acq * High_Tgt_Intangibles*	-0.108	0.753	1.411	-5.738	-5.996	-4.723	0.120	0.110
	(1.67)	(1.74)	(1.86)	(5.95)	(6.04)	(6.08)	(0.42)	(0.45)
*NDR_tgt * High_Tgt_Intangibles*	-1.435	-2.412	-2.318	-5.088	-4.229	-6.000	-1.174**	0.245
	(2.12)	(2.33)	(2.35)	(7.80)	(7.97)	(8.14)	(0.53)	(0.49)
*NDR_acq * NDR_tgt * High_Tgt_Intangibles*	1.151	3.252	2.234	8.031	7.777	7.397	1.567**	-1.054
	(3.40)	(3.88)	(3.94)	(10.27)	(10.55)	(10.81)	(0.79)	(0.82)
Constant	-0.706	-1.927	-2.024	13.564	14.644	14.832	-0.577	0.355
	(3.10)	(3.63)	(3.93)	(10.82)	(11.10)	(11.24)	(0.73)	(0.73)
Acquirer & Target Controls	YES	YES	YES	YES	YES	YES	YES	YES
Deal Controls	YES	YES	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES	YES	YES

	(1) Acquirer CAR [-1, +1]	(2) Acquirer CAR [-2, +2]	(3) Acquirer CAR [-3, +3]	(4) Target CAR [-1, +1]	(5) Target CAR [-2, +2]	(6) Target CAR [-3, +3]	(7) All Stock (Probit)	(8) All Cash (Probit)
N	388	388	388	388	388	388	365	365
R-Squared	0.27	0.27	0.27	0.38	0.36	0.37	0.26	0.31

TABLE 3-13: Regression Analysis of NDR Activity Effects on the Acquisition Bid Premium

This table reports the fixed-effects regression results for having an NDR meeting within six months of the merger announcement, for both acquirers and targets, on the 1-day, 1-week, and 4-week acquisition bid premiums. The dependent variables are the 1-day, 1-week, and 4-week acquisition bid premiums. The independent variables of interest are *NDR_acq*, *NDR_tgt*, and their interaction term with one another. Control variables for firm and M&A deal characteristics are as defined in Section 5.4. The standard errors are in parentheses below the coefficient estimates. ***, **, and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively, in two-tailed tests. See Appendix A for variable definitions.

	Public Acquirer & Target Sample			*Public Acquirer Only Sample*		
	(1) Bid Premium: 4 Weeks	(2) Bid Premium: 1 Week	(3) Bid Premium: 1 Day	(4) Bid Premium: 4 Weeks	(5) Bid Premium: 1 Week	(6) Bid Premium: 1 Day
NDR_acq	-7.084	-12.035***	-11.810**	-5.304	-6.280*	-5.593
	(4.63)	(4.64)	(5.00)	(3.77)	(3.76)	(4.39)
NDR_tgt	-3.008	-4.337	-3.139	-5.773	-4.759	-3.732
	(6.06)	(6.72)	(7.47)	(4.82)	(5.11)	(5.56)
*NDR_acq * NDR_tgt*	0.397	3.901	1.439	1.954	1.051	-1.819
	(7.72)	(7.48)	(8.05)	(6.65)	(6.62)	(7.27)
Constant	1.848	12.592	5.558	27.215**	34.397***	35.039***
	(16.62)	(14.93)	(16.13)	(12.11)	(12.38)	(13.49)
Acquirer Controls	YES	YES	YES	YES	YES	YES
Target Controls	YES	YES	YES	NO	NO	NO
Deal Controls	YES	YES	YES	YES	YES	YES
Quarter-Year FE	YES	YES	YES	YES	YES	YES
N	367	367	367	756	756	756
R-Squared	0.37	0.32	0.33	0.20	0.17	0.15

APPENDIX

VARIABLE DEFINITIONS

TABLE A.1:Variable Definitions Essay 1

Variable	Definition	Source
AnalystCoverage	The natural logarithm of one plus the number of analysts following the firm in the year prior to the SEO year.	I/B/E/S
Bid_Ask	The average percentage bid-ask spread the month prior to the SEO.	CRSP
ChangeNDR_3	The percentage change in NDR frequency from months -6 to -4 to months -3 to -1.	FLY
DollarValue	The dollar amount of SEO underpricing, calculated as the market value of the SEO firm pre-SEO times the percentage of SEO underpricing.	SDC/CRSP
High_BA	An indicator variable that equals one if average bid-ask spread for a firm in the month prior to the SEO is higher than the median firm bid-ask spread and zero otherwise.	CRSP
High_FE	An indicator variable that equals one if the analyst forecast error for a firm in the quarter prior to the SEO is higher than the median firm forecast error and zero otherwise.	I/B/E/S
IncreaseNDR_3	An indicator variable that equals one if the firm increases NDR frequency from months -6 to -4 to months -3 to -1, and zero if the firm does not increase NDR frequency.	FLY
IndustryNDRs	The percentage of firms in the same two-digit SIC industry that hold NDR meetings.	FLY
InfrequentNDR_qtr	An indicator variable that equals one if a firm had an NDR in the three-month period prior to the SEO and no NDRs in the three-month period leading up to the period in which the NDR occurs; zero otherwise.	FLY
InfrequentNDR_half	An indicator variable that equals one if a firm had an NDR in the three-month period prior to the SEO and no NDRs in the six-month period leading up to the period in which the NDR occurs; zero otherwise.	FLY
Intangibles	The ratio of intangible assets to total assets in the quarter prior to the SEO.	COMPUSTAT
Integer	An indicator variable that equals one if the offer price is an integer and zero otherwise.	SDC
IPOUnderpricing	The average level of underpricing across all IPOs during the same month as the SEO, where monthly underpricing estimates for IPOs are obtained from Jay Ritter's web page at http://bear.cba.ufl.edu/ritter/ipodata.htm.	Jay Ritter's Website
Leverage	The ratio of long-term debt to assets in the quarter prior to the SEO.	COMPUSTAT
Litigation	An indicator variable that equals one for firms in the biotechnology (2833–2836 and 8731–8734), computer (3570–3577 and 7370–7374), electronics (3600–3674), and retail (5200–5961) industries and zero otherwise.	CRSP

Variable	Definition	Source
Ln_NDRs	the natural log of one plus the number of NDRs held in the three-month period prior to the SEO.	FLY
Ln_NDRs_6	the natural log of one plus the number of NDRs held in the six-month period prior to the SEO.	FLY
Ln_NDRs_12	the natural log of one plus the number of NDRs held in the twelve-month period prior to the SEO.	FLY
Log_MV	The natural logarithm of the market value of equity in millions of dollars measured on the day prior to the SEO offer date.	CRSP
Log_OfferAmount	The natural logarithm of the SEO offer amount in millions of dollars.	SDC
Log_Price	The natural logarithm of the closing price on the day prior to the SEO offer date.	CRSP
Log_SinceEarn	The natural logarithm of the number of days since the most recent earnings announcement that the SEO occurs.	COMPUSTAT & SDC
Low_Age	An indicator variable that equals one if the age of a firm (via CRSP) in the quarter prior to the SEO is lower than the median firm age and zero otherwise.	CRSP
NDR_3	An indicator variable that equals one if a firm had an NDR in the three-month period prior to the SEO and zero otherwise.	FLY
NDR_6	An indicator variable that equals one if a firm had an NDR in the six-month period prior to the SEO and zero otherwise.	FLY
NDR_12	An indicator variable that equals one if a firm had an NDR in the twelve-month period prior to the SEO and zero otherwise.	FLY
NegativeCAR	An indicator variable that equals one for firms whose cumulative market-adjusted return over the period starting on the day after the filing date and ending on the day prior to the offer date, where market return is the return on the CRSP value-weighted index, is negative, and zero otherwise.	CRSP
NYSE	An indicator variable that equals one if the firm is listed on the New York Stock Exchange (NYSE) at the time of the SEO offer and zero otherwise.	CRSP
SharesOffered_SharesOut	The number of shares offered divided by the total number of shares outstanding prior to the SEO offer.	SDC/CRSP
PersistentNDR_3	An indicator variable that equals one if the firm has a NDR in the two most recent three-month intervals preceding the SEO (months -6 to -4 and months -3 to -1), and zero if the firm does not have a NDR in both three-month intervals preceding the SEO.	FLY

Variable	Definition	Source
Reputation	An indicator variable that equals one if the underwriter's ranking is nine and zero otherwise, and the underwriter rankings are obtained from Jay Ritter's web page at http://bear.cba.ufl.edu/ritter/ipodata.htm.	Jay Ritter's Website
ROA	The ratio of operating earnings to total assets in the quarter prior to the SEO.	COMPUSTAT
Underpricing	Negative one times the return from the closing price on the day prior to the SEO offer date to the offer price (i.e., the close-to-offer return).	SDC & CRSP
Price_Below_3	An indicator variable that equals one if the SEO offer price is less than $3 and zero otherwise.	SDC
Small_Size	An indicator variable that equals one if the market value of a firm's equity is lower than the median firm market value and zero otherwise.	CRSP
Underwriter_Sponsor	An indicator variable that equals one if one of the lead underwriters of the firm's SEO is also the sponsor firm of the firm's NDR.	FLY/SDC
Volatility	The standard deviation of daily stock returns over the year (days -260 to -10) prior to the SEO offer date.	CRSP
Tender	An indicator variable that equals one if there was a tender offer and zero otherwise.	SDC

*Any variable containing "Acq" indicates an acquirer firm variable, and "Tgt" indicates a target firm variable.

TABLE A.2: Variable Definitions Essay 2

Variable	Definition	Source
Amihud	The mean value of absolute daily returns divided by daily dollar trading volume (in millions of U.S. dollars) during −252 to −2 trading days before the earnings announcement, multiplied by 10^6 for interpretation's sake.	CRSP
Beta	Estimate on market returns in a market model regression for firms with daily returns in the 250 trading days before the earnings announcement.	CRSP
Concurrent	The number of concurrent earnings announcements issued by firms on the same day, from the same industry.	I/B/E/S & COMPUSTAT
Dispersion	The standard deviation of analyst forecasts for one quarter scaled by the mean analyst forecast estimate for that quarter.	I/B/E/S

Variable	Definition	Source
EarningsBeat	An indicator variable that equals one if a firm beat earnings forecasts in the most recent quarter and zero otherwise.	I/B/E/S
EarningsMiss	An indicator variable that equals one if a firm missed earnings forecasts in the most recent quarter and zero otherwise.	I/B/E/S
Friday	An indicator variable equal to one if a firm has their earnings announcement on a Friday, and zero otherwise.	CRSP
IdioVol	Standard deviation of the residual values from the time-series market model: $R_{it} = b+b_1R_{Mt} +e_{it}$, where R_{it} is the daily stock return and R_{Mt} is the daily value-weighted market index return. The model is estimated during −252 to −2 trading days before the earnings announcement.	CRSP
IndustryNDRs	The percentage of firms in the same two-digit SIC industry that hold NDR meetings in the same quarter.	FLY
Leverage	The ratio of long-term debt to assets in the quarter of the earnings announcement.	COMPUSTAT
Log_AnalystCoverage	the natural log of the number of analysts who issue the forecast for the current quarter.	I/B/E/S
Log_MV	Natural logarithm of market value in millions of U.S. dollars at the end of the fiscal year.	CRSP
Log_Price	The natural logarithm of the closing price on the day prior to the earnings announcement date.	CRSP
MTB	Ratio of market value of equity to book value of equity at the end of the fiscal year.	CRSP & COMPUSTAT
NDR	An indicator variable that equals one if a firm had an NDR meeting any time before the current earnings announcement and after the previous quarter's announcement.	FLY
NDR_t-1	An indicator variable that equals one if a firm had their most recent NDR in the one-month period prior to the earnings announcement; zero otherwise.	FLY
NDR_t-2	An indicator variable that equals one if a firm had their most recent NDR between two-months prior to the earnings announcement and one-month prior to the earnings announcement; zero otherwise.	FLY
NDR_t-3	An indicator variable that equals one if a firm had their most recent NDR between the previous quarter's earnings announcement and 2-months prior to the current earnings announcement; zero otherwise.	FLY

Variable	Definition	Source
PostRet	Three-month (+2 to +64 trading days following the announcement) cumulative abnormal return using the CRSP value-weighted market index return; Stated in percentage value (i.e. 3.0 = 3%).	CRSP
PreRet	Return momentum measured as 3-month (-85 to -23 trading day) buy-and-hold return, skipping one month before the earnings announcement; Stated in percentage value (i.e. 3.0 = 3%).	CRSP
ROA	The ratio of operating earnings to total assets in the quarter of the earnings announcement.	COMPUSTAT
UE	Actual earnings per share minus analyst consensus before the earnings announcement, scaled by stock prior to earning announcement, multiplied by 100.	I/B/E/S
Variable Definitions Essay 3		
Variable	Definition	Source
Amihud	The mean value of absolute daily returns divided by daily dollar trading volume (in millions of U.S. dollars) during −252 to −2 trading days before the earnings announcement, multiplied by 10^6 for interpretation's sake.	CRSP
AnalystCoverage	the natural log of the number of analysts who issue the forecast for the current quarter.	I/B/E/S
BidPremium_1Day	The offer price divided by the target stock price 1 day prior to the merger announcement, minus one, times 100.	SDC
BidPremium_1Week	The offer price divided by the target stock price 1 week prior to the merger announcement, minus one, times 100.	SDC
BidPremium_4Weeks	The offer price divided by the target stock price 4 weeks prior to the merger announcement, minus one, times 100.	SDC
BTM	Ratio of book value of equity to market value of equity at the end of the quarter prior to the merger announcement.	CRSP & COMPUSTAT
CAR [-1, +1]	the 3-day cumulative abnormal returns from trading day -1 to trading day +1 around the merger announcement date (day 0); Stated in percentage value (i.e. 3.0 = 3%).	CRSP
CAR [-2, +2]	the 5-day cumulative abnormal returns from trading day -2 to trading day +2 around the merger announcement date (day 0); Stated in percentage value (i.e. 3.0 = 3%).	CRSP
CAR [-3, +3]	the 7-day cumulative abnormal returns from trading day -3 to trading day +3 around the merger announcement date (day 0); Stated in percentage value (i.e. 3.0 = 3%).	CRSP
Cash	An indicator variable that equals one if a merger is financed with all Cash and zero otherwise.	SDC

Variable	Definition	Source
CashFlow	The ratio of after-tax operating cash flow to assets at the end of the quarter prior to the merger announcement.	COMPUSTAT
Competition	An indicator variable that equals one if the merger had multiple bidders and zero otherwise.	SDC
Forecast_Error	the forecasted EPS minus actual EPS divided by the share price prior to the merger announcement	I/B/E/S
Hostile	An indicator variable that equals one if the attitude of the merger was hostile, and zero otherwise.	SDC
IdioVol	Standard deviation of the residual values from the time-series market model: $R_{it} = b+b_1R_{Mt} +e_{it}$, where R_{it} is the daily stock return and R_{Mt} is the daily value-weighted market index return. The model is estimated during −252 to −2 trading days before the merger announcement.	CRSP
IndSame	An indicator variable equal to one if the target and acquirer 2-digit SIC codes are the same, and zero else.	CRSP/ COMPUSTAT
Intangibles	The ratio of intangible assets to total assets in the quarter prior to merger announcement	COMPUSTAT
Leverage	The ratio of long-term debt to assets in the quarter of the earnings announcement.	COMPUSTAT
NDR	An indicator variable that equals one if a firm had an NDR meeting within 6 months of the merger announcement date.	FLY
PercentStock	The percentage of a merger transaction financed with Stock; the dollar amount of the transaction financed by stock divided by the total transaction value.	SDC
RelativeSize	The ratio of the transaction value of the merger to the market value of the acquiring firm in the quarter prior to the merger announcement.	SDC/ COMPUSTAT
Return	The average monthly stock return for twelve months prior to merger announcement.	CRSP
ROA	The ratio of operating earnings to total assets at the end of the quarter prior to the merger announcement.	COMPUSTAT
Size	Natural logarithm of market value in millions of U.S. dollars at the end of the quarter prior to the merger announcement.	CRSP/ COMPUSTAT
Stock	An indicator variable that equals one if a merger is financed with all Stock and zero otherwise.	SDC
Tender	An indicator variable that equals one if there was a tender offer and zero otherwise.	SDC

*Any variable containing “Acq” indicates an acquirer firm variable, and “Tgt” indicates a target firm variable.

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