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Does equity underpricing affect voluntary disclosure?

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Does equity underpricing affect voluntary disclosure?

A dissertation submitted in partial satisfaction
of the requirements for the degree
Doctor of Philosophy in Management

by

Jonathan Berkovitch

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ABSTRACT OF THE DISSERTATION

Does equity underpricing affect voluntary disclosure?

by

Jonathan Berkovitch
Doctor of Philosophy in Management
University of California, Los Angeles, 2021
Professor Henry Friedman, Chair

I investigate whether equity underpricing affects the frequency and tone of voluntary corporate disclosures. In periods of potential underpricing driven by mutual fund redemptions, managers have conflicting incentives: to provide value-relevant information about the firm in an attempt to correct the underpricing or to remain silent and exploit the underpricing for their own advantage. To capture the full extent of managers' disclosure behavior, I evaluate several forms of management communication including the number of forecasts issued and the number of disclosures later reported on Form 8-K filings with the SEC. To gain further insight into managers' intentions, I also consider the information content of the forecasts. The findings suggest that managers respond to underpricing by issuing an increased number of earnings forecasts and by providing more voluntary information in the 8-K filings. Further, the overall tone of the information in the 8-K filings is more positive. The increase in disclosure cannot be attributed to changes in investment activity, litigation risk, or CEO compensation sensitivity. These results are consistent with the notion that managers respond to equity underpricing by providing additional information to market participants.

The dissertation of Jonathan Berkovitch is approved.

Brett Trueman

Carla Hayn

Judson Caskey

Daniel Saavedra

Henry Friedman, Committee Chair

University of California, Los Angeles

2021

To my loving wife Veronica,

and my sons, Thomas, Samuel, Daniel, and Leonardo.

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VITA

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CHAPTER 1

Does equity underpricing affect voluntary disclosure?

1.1 Introduction

I investigate whether equity underpricing affects corporate disclosures. In response to underpricing, managers may increase the frequency and content of disclosures to mitigate the underpricing, reduce litigation risk (Skinner, 1994), and alleviate career concerns (Weisbach, 1988). However, managers may prefer to provide less information to the market, to exploit equity underpricing for personal gain (Aboody and Kasznik, 2000; Ali et al., 2011), avoid reductions of value for existing shareholders (Barth et al., 2020), or maintain corporate disclosures at the same level if they believe that additional disclosures would not affect underpriced stock (Zuo, 2016). This paper is motivated by the view that the corporate information environment develops endogenously as a consequence of information asymmetries in capital markets (Beyer et al., 2010) and that managerial opportunism affects corporate disclosures (Barth et al., 2020; Hirshleifer et al., 2009; Israeli, 2015).[1]

In equilibrium, a firms' share price and information environment are determined endogenously. That is, underpricing may result from a firm's characteristics, including its reporting policy (Healy and Palepu, 2001; Blankespoor et al., 2020). To overcome the difficulty arising from the relationship between the firms' disclosure policy and its equity value, and to establish a directional impact of equity underpricing on disclosure, I use mutual fund redemptions to identify instances of exogenous equity underpricing. Redemptions have been used by past

[1]I focus on equity underpricing. It is unclear why managers would want to correct overpricing. For example, in support of this view, Khan et al. (2012) finds that managers exploit equity overpricing to issue equity in SEOs.

studies as a means of identifying equity underpricing that is exogenous to firms' fundamentals (e.g., Coval and Stafford, 2007; Edmans et al., 2012). Specifically, the evidence indicates that, when mutual funds sell a large block of a firm's stock for liquidity or other reasons that are not associated with the firm's fundamentals, there is a significant price drop. This price drop is associated with various corporate activities such as takeovers, investments, insider trading, and the timing of stock offerings (Edmans et al., 2012; Lou and Wang, 2018; Ali et al., 2011; Khan et al., 2012). Building on this literature, I examine how past equity underpricing affects future corporate disclosures. The time lag between the price drop and subsequent disclosures further helps alleviate the concern that any inferences result from endogeneity issues (i.e., changes in disclosure activity that cause a change in equity value). While this setting is my main focus, I present results for contemporaneous disclosure as well as future disclosure.

Managers of public companies acknowledge the importance of their firms' stock prices. In recent articles in *The Wall Street Journal* several CEOs and CFOs commented on their ability to shape their companies' share prices in response to movements that are not driven by fundamental value. While managers admit they cannot be led by the share price in their decision making, they also cannot afford to ignore it completely.[2] Managers are unable to observe the entity behind certain trades, and often do not know what motivates trades that result in stock price movements that are detached from fundamental value.[3] Some managers believe that over time the market will correctly price their performance,[4] although prolonged periods of underpricing are costly. Those costs can be compensation related, and a lower market capitalization could lead to a removal from an index which in turn can affect a firms'

[2] *"Such exaggerated stock moves, often without substantial changes to the business, have left corporate finance executives with a dilemma: They don't want to be led by their company's share price, buy they can't afford to ignore it either." (Trentmann, 2021)*

[3] *"It might seem surprising that a company can't pinpoint why its stock suddenly falls, but the Archegos meltdown shows how difficult it can be for executives to determine who owns their company's stock and for what reason."* (Wursthorn and Rudegeair, 2021)

[4] A comment from a CFO on the subject: *"The market doesn't always get things right minute by minute or day by day. But if we continue to execute well on our key strategic priorities, we believe it will reward us apropriately in the long term." (Trentmann, 2021)*

credit rating and its ability to raise debt. A potential way to mitigate this is to provide additional information to the market through voluntary disclosure.

To capture the full extent of managers' disclosure behavior, I measure several forms of disclosure. I begin by examining the number of management forecasts and Form 8-Ks the firm provides. Because managers may differ in their preferred mode of disclosure and because they likely use several channels, considering a variety of disclosures better captures the frequency and manner in which managers choose to disseminate information at times when their firms' equity is underpriced. Managers also can maintain the same disclosure frequency but modify the information content of their disclosures. Therefore I examine the precision and amount of information provided to the market within each disclosure period. In additional analyses, I examine the impact underpricing has on disclosure, conditional on firm characteristics, such as executive compensation. Managers' compensation sensitivity to stock prices relates positively to disclosure choices (Nagar et al., 2003), increasing the likelihood they will respond to equity underpricing via disclosures.

Using a panel of 199,349 firm-quarter observations between 1992 and 2017, I find that firms increase their disclosure in response to equity underpricing. Managers of firms that experience large sell-offs by mutual funds do alter their disclosures. Following the sell-off and price decline, they are more likely to issue a forecast or an increased number of forecasts. However, there is no change to the information content of the disclosures, measured by the specificity of the information. In addition, these managers file more Form 8-Ks related to voluntary disclosure. Textual analysis indicates that the tone of these reports is more positive. In cross-sectional tests, I examine how various firm-specific attributes that relate to the information environment of the firm affect this relationship. I test for litigation risk, CEO compensation sensitivity to stock price changes, firm size, and analyst following in these tests. The results indicate that the relationship between these attributes does not affect the impact of equity underpricing on disclosure.

This study contributes to the literature in several ways. First, I establish a link between equity underpricing and corporate disclosures. Studies examining the consequences of un-

derpricing usually focus on real activities of the firm (Edmans et al., 2012; Khan et al., 2012; Lou and Wang, 2018). I add to this literature by showing a link between underpricing and corporate disclosures. Second, this study illuminates a favorable consequence of equity underpricing. Studies show how underpricing can result in inefficiencies in capital markets (Van Binsbergen and Opp, 2019). My findings show how it results in an increase in the amount and information content of corporate disclosures, an outcome that can reduce information asymmetry between management and shareholders. Finally, the findings suggest that corporate disclosures help correct equity underpricing.

The remainder of the paper is structured as follows. Section 1.2 provides an overview of pertinent research. Section 1.3 develops the hypotheses. Section 1.4 provides an outline of the research design and the data used in conducting the tests. Section 1.5 presents the findings, along with robustness tests. The final section concludes the paper.

1.2 Related literature

This study investigates the impact of equity underpricing on corporate disclosures and relates to several strands of prior literature. It is consistent with the arguments of Verrecchia (1983) that informed managers with low disclosure costs will disclose favorable information. That model assumes that managers are perfect agents of shareholders. The paper also relates to the literature on managerial opportunism. Aboody and Kasznik (2000) show that managers time discretionary disclosures around stock option grants to achieve favorable strike prices, and Nagar et al. (2003) show that, when managers' compensation is more sensitive to stock price movements, they improve the quality of their firms' disclosures. Ali et al. (2011) find that managers trade on their personal account after negative price shocks that are unrelated to firm fundamentals. Several other studies show that, when managers need to choose between two reporting regimes, they choose the one that favors them. Barth et al. (2020) provide evidence that firms manage stock prices to increase the equity value of existing shareholders at the expense of potential shareholders. Aboody et al. (1999) find that firms in the United Kingdom revalue assets upward. Choudhary et al. (2009) show that

firms accelerate employee stock option grants before the introduction of FAS 123-R, and Israeli (2015) finds that managers are opportunistic in their choice between recognition and disclosure of investment property. Building on these insights, I show that, when faced with equity underpricing, managers with more sensitive compensation will report more intensely. Their disclosures, in turn, result in an enhanced corporate information environment and more efficient prices.

Disclosure, and specifically discretionary disclosure, have been of key interest in the accounting literature for decades. Prior literature has examined the links between voluntary disclosure and various firm and market attributes. These include proprietary information costs (e.g., Bamber and Cheon 1998; Verrecchia and Weber 2006), investor sentiment (e.g. Bergman and Roychowdhury, 2008; Brown et al., 2012), index assignment, institutional holdings, and shareholder activism (e.g. Boone and White, 2015; Bourveau and Schoenfeld, 2017; Schoenfeld, 2017), firm performance (e.g. Kasznik and Lev, 1995; Miller, 2002; Berger and Hann, 2007), and the cost of capital and liquidity (e.g. Botosan and Plumlee, 2002; Hail and Leuz, 2006).

Analytical models concerning corporate disclosures assume that managers aim to maximize share price. Dye (1985) and Jung and Kwon (1988) assume that not all managers are endowed with information and that managers who hold bad information decide not to disclose their information to pool with the non-informed managers. Verrecchia (1983) assumes all managers are informed but that disclosures entail proprietary cost, preventing some managers from providing disclosures. These voluntary disclosure games are difficult to test empirically, because researches do not observe information endowments or proprietary costs. However, several studies address these issues. Verrecchia and Weber (2006) show that, when the SEC allows firms to withhold information from the disclosure of contracts, the adverse selection component of the bid-ask spread increases. Glaeser et al. (2020) show that managers play into investor expectations and disclose successful R&D projects when this benefits the firm. This study adds to this literature by illuminating a link between capital markets and corporate disclosure decisions by managers.

Another form of managerial opportunism is the choice by management of how and when to make management forecasts. There is an extensive literature that focuses on managements' use of forecasts. Several papers focus on managements' choice to either stop forecasting after periods of consistent forecasting or start forecasting after periods of silence. Cheng et al. (2005) find that firms that issue quarterly forecasts are more myopic, invest less in R&D, and meet or beat analyst expectations more often. Chen et al. (2011) examine firms that stop issuing forecasts and find that they expect to have no positive outlook, have no incentive to forecast performance, and have a large portion of institutional investors. Finally, Houston et al. (2010) find that firms stopping forecasts do so as a result of a change in management philosophy or as a reaction to their peers forecasting.

A large literature investigates how information is transmitted to the market via firm behavior beyond disclosure. This literature focuses mainly on how equity underpricing affects equity issuance and share buybacks (Warusawitharana and Whited, 2016) as well as corporate investment policy (Baker et al., 2003; Van Binsbergen and Opp, 2019; Israeli et al., 2020). For example, Van Binsbergen and Opp (2019) show that persistent anomalies in capital markets can lead to real inefficiencies in the economy, by causing managers to make inefficient investments. Israeli et al. (2020) document that shocks to a firm's visibility, through increased trading volume, can reduce its cost of capital and enhance corporate investment activity. A natural extension of this literature is to examine the interaction between the feasibility and cost of corporate disclosures and these activities.

While my study focuses on the impact of equity underpricing on disclosure, a large literature examines the converse direction of this relation. Several studies explore the impact firm disclosures have on various firm and capital market measures. These studies suggest firm disclosures affect corporate capital structure and cost of capital (Botosan, 1997; Francis et al., 2005; Lambert et al., 2007). Bushee and Friedman (2016) show that higher quality disclosures are associated with equity prices that are less sensitive to noise induced by investors' mood, and Gelb and Zarowin (2002) present evidence in support of higher future ERCs following periods with more voluntary disclosures. Additionally, Lawrence (2013) presents evidence

consistent with individual investors investing more in firms with clearer disclosures.

To measure equity underpricing, I use the price pressure induced by mutual fund redemptions. This instrument is frequently used by studies that explore the capital market consequences of equity underpricing exogenous to firm fundamentals (Coval and Stafford, 2007; Edmans et al., 2012). Ali et al. (2011) find that firm insiders exploit negative price pressure to trade on their personal accounts and document evidence consistent with price corrections occurring faster when insiders do this. Lou and Wang (2018) show that firms subject to such price pressure cut investment substantially in the following periods. Sulaeman and Wei (2012) explore the role of sell-side analysts in the correction process following these price pressures, and Zuo (2016) shows that, when learning fundamental information from stock prices, corporate managers ignore price pressure driven by mutual fund redemptions, because this pressure does not reflect changes in a firm's fundamentals. This paper extends this line of literature by exploring how managers change their disclosures in response to equity underpricing that is orthogonal to firm fundamentals.

Several studies focusing on firm disclosure closely relate to this one. Examining movements in stock prices, Sletten (2012) shows that, after a negative price change, firm management is more likely to disclose information that has become positive. My study differs in several important ways. First, unlike Sletten (2012), I examine corporate responses to an exogenous shock to equity prices and not to price changes that may be driven by fundamental information. The paper uses peer restatements as shocks to the firm stock price. Restatements can have industry-wide implications that will impact the information in the hands of managers and investors alike. For example, if a firm restates revenue, due to a revenue recognition problem, other firms in the industry can also be expected to do so. Second, Sletten (2012) focuses solely on management forecasts, while I explore how managers change their disclosures across multiple channels in response to equity underpricing. This approach allows me to examine both the content of the information released and the informativeness of various disclosure methods managers use. In another closely related study, Li and Zhang (2015) find that, when short selling restrictions on a firm's shares are lifted, managers are

less likely to issue bad-news forecasts. My study differs from theirs by examining instances in which there is underpricing in equity markets that is exogenous to a firm's fundamental value and is unrelated to the existence of bad or good news in the hands of management. Finally, Zuo (2016) examines the information feedback between management and capital markets using mutual fund flows. Zuo (2016) differs from my work, as the author examines how managers learn from stock prices about the fundamental value of their firms.

1.3 Hypotheses Development and Empirical Design

This paper focuses on how equity underpricing that is unrelated to firm fundamental value shapes a firms' disclosure policy. The literature has identified two main forces that drive the decision to provide voluntary disclosure to the market. The first set of forces pertain to reasons managers would refrain from providing additional information to the market. These include proprietary costs (Verrecchia, 1983; Verrecchia and Weber, 2006), litigation concerns (Skinner, 1994), reputation concerns (Weisbach, 1988), and the creation of a costly commitment to keep higher disclosure levels in the future (Einhorn and Ziv, 2008). The opposing set of forces provide incentives to managers to disclose information to the market. These include personal gain (Aboody and Kasznik, 2000; Ali et al., 2011), increasing shareholder value (Barth et al., 2020), or preventing a decrease in market cap that would exclude them from a high profile index (Schoenfeld, 2017; Trentmann, 2021). Each of these two opposing sets of forces can push managers' response to equity underpricing and yields the first hypothesis, stated here in the null form:

H1: Equity underpricing does not affect the level of voluntary disclosure

If the costs managers face are too high, equity underpricing could have no impact on voluntary disclosure, however if the benefit associated with increased disclosure outweigh these costs managers may choose to change their disclosure behavior in an attempt to correct or exploit such equity underpricing.

In addition to the level of disclosure, managers have discretion over the content of their disclosures. Similar to the arguments regarding the level of disclosure, managers can have different incentives in mind when adjusting the content of their disclosures. An adjustment of the information content can bring with it higher costs to disclosure or an increase in litigation risk. If the information turns out to be not accurate, managers can face higher litigation risks from investors. However, more specific information within the disclosure can elicit a stronger market reaction that will correct prices faster, as predicted in Holthausen and Verrecchia (1988) and Kim and Verrecchia (1991). This has been supported by empirical findings as well (Bamber and Cheon, 1998). This yields the second hypothesis, stated here in its null form:

H2: Equity underpricing does not affect the content of voluntary disclosure

As before, if the costs associated with increased disclosure precision, such as increased litigation risk, are high enough managers might choose to refrain from changing disclosure behavior.

Furthermore, prior literature has found that equity underpricing affects firm investment (Lou and Wang, 2018). A change in disclosure activity could be a result of a change in investment activity at the firm level driven by equity underpricing. To address this potential channel through which equity underpricing affects voluntary disclosure I posit the following hypothesis, stated here in the null form

H3: Equity underpricing affects voluntary disclosure through a change in investment activity

Finally, different firm attributes might affect managers' response to equity underpricing in the cross-section. One such attribute is management compensation. Prior studies have found that mangers that have compensation that is more sensitive to stock price movements will increase their voluntary disclosures (Nagar et al., 2003). A natural extension is to see whether this sensitivity to stock price movements affects the managers' disclosure response to

equity underpricing. In addition, firms facing different levels of litigation risk might exhibit different disclosure reactions to equity underpricing. A possible outcome could be that the potential costs from disclosure prevent certain firms from reacting to equity underpricing. This yields the third hypothesis, stated here in the null form:

H4a: Management compensation sensitivity does not affect the firms' disclosure reaction to equity underpricing

H4b: Litigation risk does not affect the firms' disclosure reaction to equity underpricing

The following sections present the data and research design I use to test my hypotheses. Specifically I outline the identification strategy for equity underpricing that is unrelated to firm fundamental value.

1.3.1 Mutual Fund Outflows and Equity Underpricing

To identify the impact stock prices have on voluntary disclosure I need an instrument that has no direct effect on the voluntary disclosure decisions of the manager other than through stock prices. I therefore look for a variable that affects the price due to some type of market friction and is unrelated to firm fundamentals or to the information set of the manager. For this, I choose $MFFlow$, the price pressure created by mutual fund trading that is induced by fund flows rather than information. The measure is based on Edmans et al. (2012) and Coval and Stafford (2007). I construct the measure following the methodology in Edmans et al. (2012).

I obtain quarterly data on mutual fund holdings from CDA Spectrum/Thomson and mutual fund flows from CRSP. I remove funds that specialize in a single industry to avoid instances in which industry specific events drive the measure and calculate:

$$Outflow_{j,t} = -F_{j,t}/TA_{j,t-1}$$

where j $(=1,...,m)$ indexes mutual funds, t represents one quarter, $F_{j,t}$ is the total inflow experienced by fund j in quarter t, and $TA_{j,t-1}$ is fund j's total assets at the end of the previous quarter. I then construct

$$MFFlow_{i,t} = \sum_{j=1}^{m} \frac{F_{j,t} s_{i,j,t-1}}{VOL_{i,t}}$$

for each stock-quarter pair, where i $(=1,...,n)$ indexes stocks and the summation is only over funds j for which $Outflow_{j,t} \geq 5\%$, The term $Vol_{i,t}$ is total dollar trading volume of stock i in quarter t, and

$$s_{i,j,t} = \frac{SHARES_{i,j,t} \times PRC_{i,t}}{TA_{j,t}}$$

is the dollar value of fund j's holdings of stock i as a proportion of fund j's total assets at the end of the quarter. Substitution gives the mutual fund price pressure measure as

$$MFFlow_{i,t} = \sum_{j=1}^{m} \frac{F_{j,t} \times SHARES_{i,j,t-1} \times PRC_{i,t-1}}{TA_{j,t-1} \times VOL_{i,t}} \tag{1.1}$$

where the summation is only over funds j for which $Outflow_{j,t} \geq 5\%$. Finally, I multiply $MFFlow$ by -1 to facilitate interpretation of the results. I focus on outflows that are larger than 5% of total assets, because only these extreme outflows are likely to have an impact on pricing (Edmans et al., 2012). $MFFlow$ is the hypothetical (signed) net selling by all mutual funds that have experienced extreme shocks.[5]

An important feature of the $MFFlow$ measure, that is also discussed in Edmans et al. (2012), is that it is constructed not using mutual funds' actual purchases and sales (as in Sias et al. (2006) and Coval and Stafford (2007)) but instead using hypothetical orders projected from their previously disclosed portfolio. This results in the measure not reflecting any discretionary purchase or sale by the mutual fund but a only the expansion or contraction of a fund's position due to mechanical investor flows. These type of flows are unlikely to

[5]In Section 1.5.6 I perform robustness tests using an alternative measure of outflow to ensure my inferences are not driven by my choice of variable.

be driven by investors' views on the information environment or disclosure policy of any individual firm.

There is still a potential that there might be a direct correlation between fund flows and voluntary disclosure decisions. A main concern is that managers are able to identify fund outflows and respond through disclosure that is aimed directly at the funds activity. However, since funds only release holdings several weeks after the end of the quarter this is unlikely to be the case. Managers cannot easily identify mutual fund sales driven by fund redemptions (Wursthorn and Rudegeair, 2021).

Figure 1.1 shows the magnitude and persistence of mechanically driven mutual fund redemptions on stock prices. This graph is similar to the one in Edmans et al. (2012) and I follow theirs and the definition in Coval and Stafford (2007) of an "event" as a firm-month in which $MFFlow$ falls within the top percentile value of the full sample.[6] I then trace out the cumulative average abnormal returns (CAAR) over the CRSP equal-weighted index[7] from 12 months before the event to 20 months after. Since I measure $MFFlow$ at the quarterly level there are 3 "event" months. Figure 1.1 shows that there is no significant decline in return before the "event". Upon the "event" the price pressure effects are significant and persistent, taking up to 20 months to correct. The period which prices take to correct is long, which raises several questions. Edmans et al. (2012) report that there is a high correlation between "events" occurring in subsequent quarters (approximately 30%). I therefore provide Figure **??**, which splits the top percentile of $MFFlow$ into two groups: firms experiencing a single "event" and firms experiencing two subsequent "events" (i.e., two quarters in which $MFFlow$ falls within the top percentile). The graph shows that for firms experiencing a single event the price correction is faster, taking approximately 10 months. The result documented in the literature, where the price correction period is more than 20 months is attributable to firms experiencing multiple outflow events in sequence. These price declines are temporary and not fundamental, and the persistence and magnitude of these changes is

[6]There are three event months because I observe holdings at the quarterly level, while I observe returns at the monthly frequency.

[7]I find similar results when using the value-weighted index.

similar to the ones found by prior studies (Edmans et al., 2012; Coval and Stafford, 2007).

Mutual fund flows, and the $MFFlow$ variable specifically, have been used extensively in prior literature to examine different aspects of capital markets and real activities of firms. Introducing the measure, Coval and Stafford (2007), show that the impact of forced sales by mutual fund flows is distinctly different from voluntary sales. This finding strengthens the notion that these forced sales are independent of firm specific factors. Edmans et al. (2012) present the $MFFlow$ variable and its construction and show how firms that experience outflows are more susceptible to takeovers. In subsequent studies researchers have focused on other aspects in corporate finance that are affected by the price pressure induced by mutual fund outlfows. For example, Ali et al. (2011) show how managers trade on their own account after large outflows. They continue to show how the trades that are induced by the outflows are not as informative to markets as other comparable trades (those not following mutual fund outflows). Lou and Wang (2018) show how firms reduce their investment activity in periods following mutual fund outflows and that this is driven by higher financing costs. Additionally, Sulaeman and Wei (2012) show how security analysts play a role in the price correction process following mutual fund induced underpricing, they attribute this to how well informed some analysts are. This suggests that well-informed market participants are able to identify the uninformative nature of these sales. Moreover, Zuo (2016) shows that managers do not learn any new information from these large outflows implying that there is no change in the information set available to the manager or to the market after these events.

The findings in the literature highlight two main points. The first is that mutual fund outflows have a price impact that takes several quarters to correct. The second is that these outflows are not informative to market participants, managers and investors. This raises the question of whether and how should managers respond to such events. To some extent the literature has provided answers. Managers adjust their investment activity and trade on their private account while market participants will understand, in due time, that these sales are not information driven. The question that remains open is whether managers choose to react

through their disclosure behavior. On one hand, disclosure entails costs, which can come in the form of proprietary costs, litigation risk, or reputation concerns to the manager. On the other hand, managers may benefit from correcting the stock prices due to compensation that is tied to stock prices. Which explanation prevails in firms that are subject to these high levels of sales is an empirical question addressed below.

1.4 Data and Research Design

I construct my sample by first calculating the measures of mutual fund flows based on quarterly data on mutual fund holdings from CDA Specturm/Thomson and mutual fund flows from *CRSP*.[8] I then match these observations with firm-quarter fundamentals from *Compustat*, return data from *CRSP*, analyst following data from *I/B/E/S*, and executive compensation data from *Execucomp*. I use the *I/B/E/S* dataset to match 85,515 management forecasts to firm quarters in my sample. On average there are 822 forecasts per quarter throughout my sample period. In addition, I scrape the *EDGAR* system for all Form 8-K filings over my sample period and am able to obtain 305,796 filings by firms in the sample. This yields an average of 2,940 filings per quarter. After removing missing variables and restricting the sample to firms on NASDAQ/NYSE, the sample consists of 199,349 firm-quarter observations of 7,840 unique firms between the first quarter of 1992 Q1 and the fourth quarter of 2017.

To test hypothesis *H1*, I examine the relationship between equity underpricing in a quarter and the quantity of voluntary disclosure in the subsequent quarter. My baseline specifi-

[8] I follow the methodology outlined by Edmans et al. (2012) and Wardlaw (2019) and specified in Section 1.3.1 to compute the measures of outflows.

cation is as follows.

$$\begin{aligned} VoluntaryDisclosure_{i,t+1} =& \beta_1 * Underpricing_{i,t} + \beta_2 * VoluntaryDisclosure_{i,t} \\ &+ \beta_3 * LnMVE_{i,t} + \beta_4 * BTM_{i,t} + \beta_5 * LnNumAnalyst_{i,t} \\ &+ \beta_6 * Leverage_{i,t} + \beta_7 * Loss_{i,t} + \beta_8 * SUE_{i,t} + \beta_9 * SUENeg_{i,t} \\ &+ \beta_{10} * Return_{i,t} + \beta_{11} * Return_{i,t-1} + \beta_{12} * Volatility_{i,t-1} \\ &+ \theta_y * FirmFE_i + \theta_z * YearQuarterFE_t + \varepsilon_{i,t} \end{aligned} \tag{1.2}$$

For the main tests in the paper I define $Underpricing_{i,t}$ as $MFFlow_{i,t}$ according to the methodology outlined in Section 1.3.1. To ensure my results are not driven by the choice of variable I conduct robustness tests where $Underpricing_{i,t}$ is defined as $FlowToStock_{i,t}$, described further in Section 1.5.6.

$VoluntaryDisclosure_{i,t+1}$ is defined as the voluntary disclosure of firm i in quarter $t+1$. I use several measures of voluntary disclosure in my tests. I begin by using $Forecast\_Ind_{i,t+1}$, an indicator variable equal to 1 if firm i issues a management forecast in quarter $t+1$ and 0 otherwise. In addition to whether or not to issue a forecast, management can choose to issue more than one forecast, thus I define $Num\_Forecast_{i,t+1}$ as the number of forecasts firm i issues in quarter $t+1$. These types of forecasts are not required by the SEC and are provided to the market voluntarily. However, the subset of firms that provide management forecasts is limited, and does not encompass the entire universe of firms.

To extend the sample and the scope of my measure of voluntary disclosure, I turn to disclosures through Form 8-K filings. Several recent studies use disclosure through Form 8-Ks to construct both broad-based measures of voluntary disclosure and to capture specific types of voluntary disclosure (e.g. Guay et al., 2016; Segal and Segal, 2016; Bourveau et al., 2018; Bao et al., 2019). The SEC requires firms to file Form 8-Ks to notify investors of firm-specific "material" events, which it defines as events expected to affect the investment decision of a reasonable investor. As such not all of the information provided through Form 8-Ks is voluntary. Much of it is mandated by the SEC (i.e., "mandatory" disclosure). When

filing a Form 8-K firms must select the appropriate items that are filed. This allows the researcher to identify the type of information being disclosed. Prior studies have classified the various Form 8-K items as "voluntary" and "mandatory". Specifically, He and Plumlee (2019) define results of operations and financial condition (item 2.02) and Regulation FD Disclosure (item 7.01) as voluntary disclosure.[9,10]

A potential concern arises when defining these disclosures as "voluntary" since the SEC seemingly mandates their disclosure. However, the items prior literature identifies as "voluntary" are not required disclosure but rather are required to be reported through Form 8-Ks once they are disclosed to the market. In this case the SEC filing requirements simply facilitates the ability of the researcher to observe the existence of the underlying disclosure. For example, a press release containing an earnings announcement (filed under item 2.02), is voluntary by definition. The firm and management are not obligated to provide it to the market. However, once it is announced, the firm is obligated to report it to the market through a Form 8-K. This requirement by the SEC allows me to identify these instances where management chooses to provide voluntary disclosure (and is mandated to report it to the market). Another example of such a scenario is reporting under Reg-FD. If management provides material information privately to a specific analyst, they are required to disclose this information to the market through a Form 8-K (under item 7.01). The information was voluntarily provided to the analyst, and thus must be disclosed to all market participants.

From the Form 8-K filings I obtain the total number of 8-Ks filed by firm i in quarter $t+1$, $Num\_8K_{i,t+1}$. Additionally, I distinguish between "voluntary" and "mandatory" items filed, thus creating $Item\_202_{i,t+1}$ and $Item\_701_{i,t+1}$,[11] counts of the number of items 2.02

[9]In August 2004 the SEC changed the requirements for 8-K filings, extending the item definitions. I convert filings filed under the pre-2004 definitions to ones that correspond to the post-2004 definitions (i.e., the current ones) according to the definitions found here: `https://www.lexissecuritiesmosaic.com/secfilings/8KICT.htm`.

[10]I do not define Other (item 8.01) as voluntary because it is often used as a "catch-all" item by firms. Bird et al. (2018) show firms misclassify items into item 8.01 that should have been reported under different categories.

[11]In untabulated results I combine both measures into one "Voluntary" item, the results remain unchanged.

and 7.01 respectively that provide a proxy for the number of voluntary disclosures firm i provided in quarter $t+1$. I use these three variables to test whether management change the level of overall disclosure and specifically the amount of voluntary disclosure provided to the market.

Since the disclosure policy of the firm is not exogenous, I control for determinants of disclosure at the firm level following the voluntary disclosure models of Rogers and Van Buskirk (2009) and Billings et al. (2015). Unless otherwise specified, I measure these variables in the quarter preceding the quarter in which I measure the firms' disclosure (i.e., the quarter in which the "underpricing" event occurs). I include standardized unexpected earnings (SUE) with respect to the same quarter in the prior year. This is calculated as the difference between period t earnings and period $t-4$ earnings scaled by stock price at the end of quarter t following Livnat and Mendenhall (2006). I include an indicator for negative standardized unexpected earnings ($SUENeg$) and for a quarter with reported loss ($LOSS$). Following prior studies (Sulaeman and Wei, 2012; Core et al., 2008; Lock, 2018; Abramova et al., 2018), I include controls for determinants of investor demand for information and future disclosure behavior, including firm size ($LnMVE$), book-to-market (BTM), and prior disclosure behavior ($VoluntaryDisclosure_{t-j}$) which I measure in the current and prior quarter. I also control for the number of analysts following the firm ($LnAnalystFollowing$). In addition, I control for firm performance by including stock returns ($Return$) in the current and prior periods and for stock return volatility ($Volatility$) during quarter $t-1$. All variables are formally defined in Appendix A. In addition, I include firm fixed effects to control for unobserved firm-level factors and year-quarter fixed effects to mitigate economy wide effects.

To test hypothesis *H2* I use Equation 1.2 and replace the measure of voluntary disclosure with measures that capture various aspects of the information content of firms' disclosures. I begin with a measure based on management forecasts. I measure how specific the information provided within the forecast is ($Specificity$). This variable takes the value 1, 2, or 3 according to the information provided. $Specificity = 3$ if the forecast contains a point estimate (i.e., EPS will be 0.15), $Specificity = 2$ if the firm provides a closed range estimate (i.e., EPS will

be between 0.15 and 0.16), and $Specificity = 1$ if the firm provides an open range estimate (i.e., EPS will be lower than 0.15). Thus a higher value is related to forecasts that provide more *specific* information. Since this measure can only be calculated for firms that issue a management forecast the sample is restricted to firms that do so. As such, the sample size is smaller than that used in the tests relating to hypothesis *H1*. When a firm issues more than one forecast during a period, $Specificity$ is the mean value for the forecasts during the period.

In addition to management forecasts, I use a measure derived from the textual contents of voluntary disclosures. Other than the discretion managers have over whether or not to disclose a piece of information, they can exert discretion over the contents of the disclosure (Rogers et al., 2011). I use my identification of voluntary items filed through Form 8-Ks (Item 2.02 and Item 7.01, as defined above) to create a sample of voluntary disclosures and analyze the text content of these disclosures. I follow the methodology in Loughran and McDonald (2011) who create word lists that measure various aspects of text in financial statements.[12] Since the language used in financial statements is distinct and different from the language used in other texts a specific and dedicated "dictionary" is needed. Such a dedicated word list (the name used for dictionary in this context) will ensure the classification of words in their proper context. These lists are tailored for financial reporting settings, unlike general word lists such as the Harvard IV-4 dictionary, and have been shown to perform better in these settings (Davis and Tama-Sweet, 2012; Allee and DeAngelis, 2015).

I begin by examining the *tone* of the language used in the disclosures. I measure how positive the text is by counting the number of positive words in the text and dividing it by the number of overall words in the disclosure ($lmPositive$). Then I measure how negative the text is by counting the number of negative words in the text and dividing it by the number of overall words in the disclosure ($lmNegative$). Additionally, I measures the overall tone of the disclosure by taking the number of positive words minus the number of negative words

[12]The word lists used in this analysis are available here `https://sraf.nd.edu/textual-analysis/resources/`.

and dividing it by the overall number of words in the disclosure ($lmTone$).

In addition to *tone*, I measure the confidence of the language used in the disclosures through modal words ($lmStrongModal$, $lmModerateModal$, $lmWeakModal$). Strong modal words are used to convey certainty and conviction Loughran and McDonald (2011). Again, I count the number of words in each category and divide by the overall number of words in the disclosure. Finally, I examine complex words ($lmComplex$), litigious words ($lmLitigious$), and words that convey uncertainty ($lmUncertainty$). All of the variables are formally defined in Appendix A.

To test hypothesis *H3* I modify my baseline regression model to incorporate an additional control variable, textitInvestment, measured as capital expenditures scaled by total assets in the quarter. Prior studies have found that equity underpricing is associated with a reduction in firm level investment (Lou and Wang, 2018). However, other findings suggest that capital market irregularities affect firm level investment only in the long run, and do not have any impact in the short run (Israeli et al., 2021). Firms may reduce investment and increase disclosure to alleviate any adverse impact such a reduction may have in capital markets. I use the following model:

$$\begin{aligned} VoluntaryDisclosure_{i,t+1} =& \beta_1 * Underpricing_{i,t} + \beta_2 * Investment_{i,t+1} + \beta_3 * Investment_{i,t} \\ &+ \Theta \cdot Controls_{i,t} + \theta_y * FirmFE_i + \theta_z * YearQuarterFE_t + \varepsilon_{i,t} \end{aligned} \tag{1.3}$$

where $Investment_{i,t+1}$ is the firm's capital expenditures in period $t+1$ scaled by the total assets of the firm in the beginning of the quarter. The coefficient of interest is the coefficient on the interaction term between *underprpcing* and *investment*.

To test hypothesis *H4* I modify my baseline regression model to incorporate interaction variables to account for various aspects of different firms in my sample. The first test is geared towards the effect of the CEOs compensation sensitivity to stock prices and its impact on the disclosure response to equity underpricing. Prior literature has linked the CEOs' compensation sensitivity to stock prices and the disclosure of the firm and has shown that managers whose compensation is more closely related to stock prices disclose more to

the market (Nagar et al., 2003). Thus, it is reasonable to expect firms to differ in their disclosure response based on the sensitivity of their managers' compensation. I use the following model:

$$\begin{aligned} VoluntaryDisclosure_{i,t+1} =& \beta_1 * Underpricing_{i,t} + \beta_2 * CompensationDelta_{i,t} \\ &+ \beta_3 * Underpricing_{i,t} * CompensationDelta_{i,t} \\ &+ \Theta \cdot Controls_{i,t} + \theta_y * FirmFE_i + \theta_z * YearQuarterFE_t + \varepsilon_{i,t} \end{aligned} \tag{1.4}$$

where $CompensationDelta$ is the sensitivity of management compensation to stock prices based on the methodology in Core and Guay (2002) and Coles et al. (2006). I calculate the sensitivity of the equity based compensation of the CEO ($EquityDelta$) and the sensitivity of the stock option based compensation of the CEO ($OptionDelta$). These variables represent the change in the value of the compensation portfolio of the manager given a 1% change in the firm's share price. $Controls$ is a vector of control variables, as used in Equation 1.2. The estimate of compensation sensitivity to stock prices is based on the Black and Scholes (1973) formula for valuing European call options, as modified to account for dividend payouts by Merton (1973).

In addition, I perform a cross-sectional test based on litigation risk the firm is exposed to. Prior studies have shown that litigation risk is a key determinant in the choice of disclosure policy by the firm (Skinner, 1994). To test this I follow prior literature and define firms as either "High Litigation Risk" or "Low Litigation Risk", based on their industry classification. Specifically, biotech firms (SIC codes 2833–2836 and 8731–8734), computer firms (3570–3577 and 7370–7374), electronics firms (3600–3674), and retail firms (5200–5961) are "High" and all others are "Low" (Francis et al., 1994; Kim and Skinner, 2012). I use the following model:

$$
\begin{aligned}
VoluntaryDisclosure_{i,t+1} =& \beta_1 * Underpricing_{i,t} + \beta_2 * LitigationRisk_{i,t} \\
&+ \beta_3 * Underpricing_{i,t} * LitigationRisk_{i,t} \\
&+ \Theta \cdot Controls_{i,t} + \theta_y * FirmFE_i + \theta_z * YearQuarterFE_t + \varepsilon_{i,t}
\end{aligned} \tag{1.5}
$$

where *LitigationRisk* is an indicator variable that is equal to 1 if the firm is classified in an industry that is "High" litigation risk and 0 otherwise. *Controls* is a vector of control variables, as used in Equation 1.2.

In Table 1.1, I present summary statistics for the above variables. Prior studies have shown that firms vary in their use of management forecasts (Cheng et al., 2005; Chen et al., 2011; Houston et al., 2010). Accordingly, in the sample, I find that not all firms exhibit the same patterns of management forecasts: 53.5% (30.3%) of firms (observations) never issue a forecast; 35.6% (56.5%) of firms (observations) forecast in some but not all quarters; and 10.9% (13.2%) of firms (observations) provide at least one forecast in every quarter. There are 1,629 firms that issue a forecast after not issuing one for the past four quarters. The average (median) firm in my sample has a market capitalization of 1,892 (395) million and is covered by 3.5 (2) analysts. Firms have negative earnings surprises in 39.8% of quarters and report a loss in 22.5% of quarters. The average (median) value of *Underpricing* (*MFFlow*) is 0.691 (0.186).

1.5 Results

1.5.1 Disclosure levels

I use two specifications to examine the relationship between equity underpricing and voluntary disclosure. The first examines the disclosure during the quarter of equity underpricing and the second examines disclosure in the subsequent quarter following equity underpricing. In both models, I run OLS regressions using the specification in Equation 1.2 with firm and

year-quarter fixed effects and standard errors clustered by firm and year-quarter.

In Table 1.2, I present the results of my baseline regression aimed to test hypothesis *H1*, which regresses measures of voluntary disclosure on my measure of equity underpricing. In columns (1)-(2) I present the results on the contemporaneous specification and in columns (3)-(4) I present results on future disclosure measures. The two dependent variables are $ForecastInd$, an indicator variable that equals 1 if the firm issues a management forecast during the quarter, and $LnNumForecast$, the natural logarithm of 1 plus the number of forecasts the firm issues in a quarter. My main explanatory variable is $Underprincing$, which measures the extent of the equity underpricing during the quarter.

In columns (1)-(2), I find no significant relation between equity underpricing and voluntary disclosure within the quarter, as seen by the lack of statistical significance of the coefficient on $Underpricing$. This result suggests firms do not change disclosure levels within the quarter of underpricing, either by starting forecasting or by increasing the number of forecasts. In columns (3)-(4), I find a positive and robust relation between equity underpricing and voluntary disclosure levels. This result suggests that equity underpricing is associated with a greater issuance of guidance, both in the propensity to issue a forecast and in the number of forecasts issued within a quarter. In terms of economic magnitudes of these effects, in my baseline model a one standard deviation in $Underpricing$ is associated with a 20% increase in the probability of issuing a forecast and in an increase of 18% in the number of subsequent forecasts issued during the quarter.

In addition to management forecasts, I also examine voluntary disclosures I identify through Form 8-K submissions. In Table 1.3, I present results of my baseline regression testing hypothesis *H1* with a sample of disclosures that are not limited to management forecasts. In columns (1)-(3) I present results of the contemporaneous specification and in columns (4)-(6) I present results on future disclosure measures. The three dependent variables are $lnNum8K$, the natural logarithm of 1 plus the number of Form 8-K filed throughout the quarter, $lnItem202$, the natural logarithm of 1 plus the number of Form 8-Ks filed with an Item 2.02 in them, and $lnItem701$, the natural logarithm of 1 plus the

number of Form 8-Ks filed with an Item 7.01 in them.

In columns (1) and (4), I find no significant relation between the number of disclosures filed through Form 8-Ks in the current and next quarter and equity underpricing. Since the number of Form 8-Ks captures both voluntary and mandatory disclosures, this is not surprising and does not contradict my hypothesis. In columns (2)-(3) and (5)-(6) I examine the relation between equity underpricing and two measures of voluntary disclosures, the number of voluntary items disclosed during the quarter and the next quarter. The results indicate that there is no relation between equity underpricing and disclosures under Reg-FD, as the coefficient on the *Underpricing* is not statistically significant. I find a positive and robust relation between disclosures under item 2.02 and equity underpricing. This result suggests that equity underpricing is associated with a higher number of disclosures of this nature. In terms of economic magnitudes of these effects, a one standard deviation in *Underpricing* is associated with a 5.6% increase in the number of items 2.02 issued during the quarter and a 18% increase in the number of items 2.02 issued in the subsequent quarter. Overall the results are consistent with managers reacting to equity underpricing by increasing subsequent voluntary disclosures.

1.5.2 Information content of disclosure

In addition to examining the level of disclosure, I test hypothesis *H2* with respect to the information content of the disclosures. To do so I modify Equation 1.2 to include various measures of the information content of the disclosures.

The first measure is $Specificity$, calculated from management forecasts. $Specificity$ takes on the value 1, 2, or 3 if management issue a point, closed range, or open range estimate respectively. In Table 1.4, I present results testing hypothesis *H2* using this measure as my dependent variable. Columns (1)-(2) present the results for the contemporaneous and future period tests. The results suggest that equity undepricing has no effect on the information content of the disclosures as measured by $Specificity$.

The second set of measures for information content of the disclosures are a set of measures

I derive from the text contained in the disclosures. In Table 1.5, I present results testing hypothesis H2 using textual measures as the dependent variable. Columns (1)-(3) present results for the contemporaneous period and columns (4)-(6) present results for the future period measures. I find that voluntary disclosures within the quarter of the underpricing contain more positive words and a more positive tone overall. The results suggest that a one standard deviation increase in *Underpricing* is associated with a 3% increase in the number of positive words in a disclosure and a 9.4% increase in the positivity of the tone of the disclosure. The results suggest that this does not carry over to the subsequent periods' disclosures as the coefficient in the future period setting is not significant. This result indicates that managers react first by increasing the positive tone of the disclosures, and by increasing the number of disclosures in subsequent periods.

In untabulated results, I test for additional measures of the text contained in the disclosures. I do not find a significant association with the other measures I test, such as the conviction of the text (Modal words), the number of complex words, litigious language, or conviction.

1.5.3 Mediating effect of investment

In Table 1.6, I present results of my regression aimed to test hypothesis *H3*. The regression uses measures of voluntary disclosure as the dependent variable and adds investment, measured by capital expenditures scaled by total assets, as a control variable. While prior studies have found that firms subject to equity underpricing reduce investment activity, the results in the table suggest that the firms' investment activity does not impact its disclosure response to equity underpricing.[13] The addition of *Investment* as a control variable does not change prior inferences and the finding that equity underpricing increases subsequent voluntary disclosures.

[13]In untabulated results I find that equity underpricing does not affect firm level investment in the short run, as opposed to the findings in Lou and Wang (2018). This is consistent with findings in the literature that show capital market irregularities affect investments in longer terms (Israeli et al., 2021).

1.5.4 Cross-sectional tests

I perform two cross-sectional tests to assess how differences between firms affect their response to equity underpricing. These tests are aimed at hypothesis *H4a* and *H4b*.

In Table 1.7, I present the results of my cross-sectional regression aimed at testing *H4a*, which regresses measures of voluntary disclosure on an interaction between my measure of equity underpricing and a measure of CEO compensation sensitivity to stock price movements. In columns (1)-(3) I present the results on the contemporaneous specification and in columns (4)-(6) I present the results on future disclosure measures. The coefficient on the interaction variable between *Underpricing* and CEO Compensation *Delta* is not statistically significant, suggesting that the firms' disclosure response to equity underpricing does not depend on their compensation structure. In additional untabulated results I examine other measures of CEO compensation sensitivity. For these tests I break down CEO compensation into stock based compensation and only option based compensation. These tests try to pinpoint the portion of the CEOs' compensation that might be driving a disclosure response to equity underpricing. However, these tests yield a null result as well.

In Table 1.8, I present the results of my cross-sectional regression aimed at testing *H4b*, which regresses measures of voluntary disclosure on an interaction between my measure of equity underpricing and an indicator variable that is equal to 1 for firms that are exposed to higher litigation risk. In columns (1)-(3) I present the results on the contemporaneous specification and in columns (4)-(6) I present the results on future disclosure measures. The coefficients on the interaction variable between *Underpricing* and *Litigation* are not statistically significant, suggesting that firms do not vary in their disclosure response to equity underpricing based on the litigation risk they face.

1.5.5 Additional tests

One advantage of my paper is the expansive sample period. However, the long time horizon contains several periods of financial distress that could potentially drive the findings. These

periods exhibited heightened macro distress that could have triggered firm specific disclosures by firms. To ensure that my inferences do not arise solely from the effects of the financial crisis I re-run my main tests on two separate samples. I define the crisis period as the time between August 1, 2008 to March 31, 2009 and re-estimate equation 1.2 separately using a sample of firms during the financial crisis (5,962 observations; 2,212 firms) as well as a sample of 193,388 observations from 7,963 firms for periods that exclude the financial crisis. The results of these estimations appear in Table 1.9. The results indicate that the impact of equity underpricing does not drive future voluntary disclosure during the financial crisis, as the coefficient on underprpcing is not significant in that setting. However, the results for the propensity to issue a forecast and the number of forecasts issued is positive and significant for the non-crisis sample. However, this difference in inferences between the two samples could arise from the small sample size during the financial crisis.

In addition, the passage of Reg FD changed the way managers communicate information to the market by prohibiting the private sharing of information with equity analysts (Heflin et al., 2012). Due to this change in the attributes and use of management forecasts, I re-estimate equation 1.2 and include a dummy variable for the passage of Reg FD. The results of this estimation appear in Table 1.9. The coefficient on the interaction variable between equity underpricing and the passage of Reg FD is not statistically different from zero implying that firms did not change their disclosure response to equity underpricing after the passage of Reg FD.

1.5.6 Robustness tests

To test the robustness of the results I repeat the main analysis using a different measure of equity underpricing. In a recent paper, Wardlaw (2019) decomposes $MFFlow$ into its components and shows that, other than the relative flow pressure on each stock, the measure includes a component of the stocks return and turnover.[14] The latter two components create a measure that is highly correlated with past returns, which do not necessarily correlate

[14]Wardlaw (2019) provides a full discussion and decomposition of $MFFlow$ to arrive at this measure.

to mutual fund flows. Taking these restrictions into account, Wardlaw (2019) suggests the following measure, $FlowToStock$:

$$FlowToStock_{i,t} = (-1) * \sum_{j=1}^{m} \frac{F_{j,t}}{TA_{j,t-1}} \cdot \frac{SHARES_{i,j,t-1}}{SHROUT_{i,t-1}} \tag{1.6}$$

where $F_{j,t}$ is the total outflow experienced by fund j in quarter t, $TA_{j,t-1}$ is the total assets of fund j at the end of quarter $t-1$, $SHARES_{i,j,t-1}$ is the number of shares of firm i held by fund j in quarter $t-1$, and $SHROUT_{i,t}$ is the number of shares of firm i outstanding at the end of quarter t. This measure is computed only for funds j that experience an outflow of more than 5% during quarter t. Hence, by construction, $FlowToStock$ does not reflect any inflows experienced by some funds or outflows that are lower than 5%. In addition, since $F_{j,t}$ is a negative number, I multiply the measure by -1, ensuring $FlowToStock_{i,t}$ has a lower bound at 0.

In Table 1.10, I present results of the main test in the paper when using the alternative underpricing measure, $FlowToStock$. the results are consistent with the main results and suggest they are not driven by my choice of variable. All of the findings presented earlier remain, and in some cases are more pronounced.

1.6 Conclusion

I study the effect of equity underpricing on voluntary disclosure decisions. The literature provides varying reasons for managers to either provide or avoid from providing voluntary disclosure (Verrecchia, 1983; Skinner, 1994; Weisbach, 1988; Aboody and Kasznik, 2000; Ali et al., 2011; Barth et al., 2020). I find that equity underpricing, measured in the prior quarter, is positively associated with both the likelihood of issuing voluntary disclosures and the quantity of disclosures issued. The results are robust to the inclusion of firm fixed effects, and controlling for past disclosure behavior of the firm. In this respect, my findings support the literature that claims managers use voluntary disclosure to enhance the firms' information environment. This extends prior literature, which is mainly concerned with

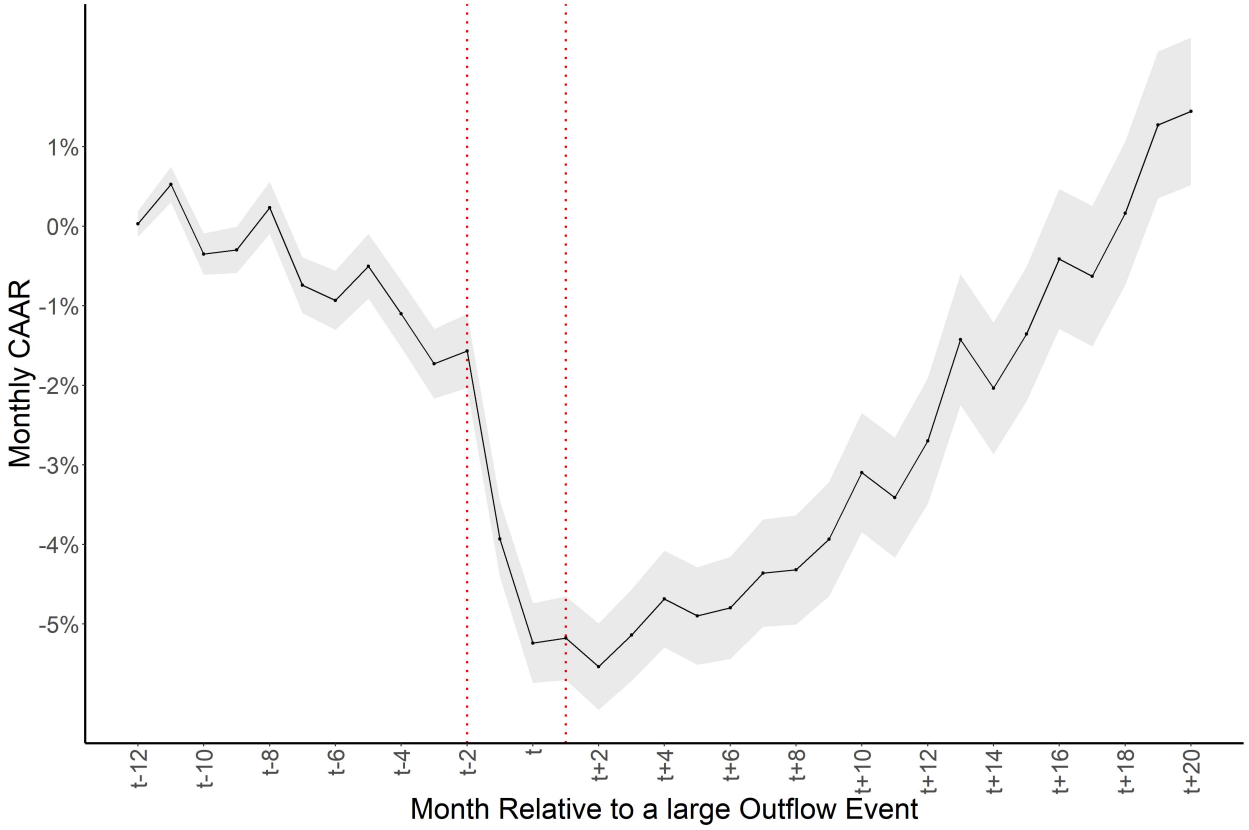
the capital market impacts and real effects (Coval and Stafford, 2007; Edmans et al., 2012; Sulaeman and Wei, 2012; Lou and Wang, 2018) of underpricing. My findings show how equity underpricing affects the information environment of the firm by increasing the number of disclosures provided to the market.

In addition to examining the quantity of disclosures provided, I find that managers adjust the information content of their disclosures. The tone of disclosures following equity underpricing is more positive. These results are not driven by factors that the literature identified as driving disclosure such as investment activity, litigation risk, or CEO compensation sensitivity. Further analyses show that the impact equity underpricing has on disclosure is concentrated during non-crisis periods and does not change following regulation changes such as Reg FD. In robustness tests I show that my results are not driven by the choice of variable to identify equity underpricing.

Taken together, the results of my study document new evidence that equity underpricing plays an important role in influencing the voluntary disclosure decisions of managers. Managers choose to provide voluntary disclosure to alleviate any negative impact equity underpricing has on share prices. They do so mainly through additional earnings forecasts and more positive tone in their voluntary disclosures. These disclosures provide additional information to the market and promote the efficiency of capital markets. In addition, they are needed to correct equity mispricing even when markets work relatively well.

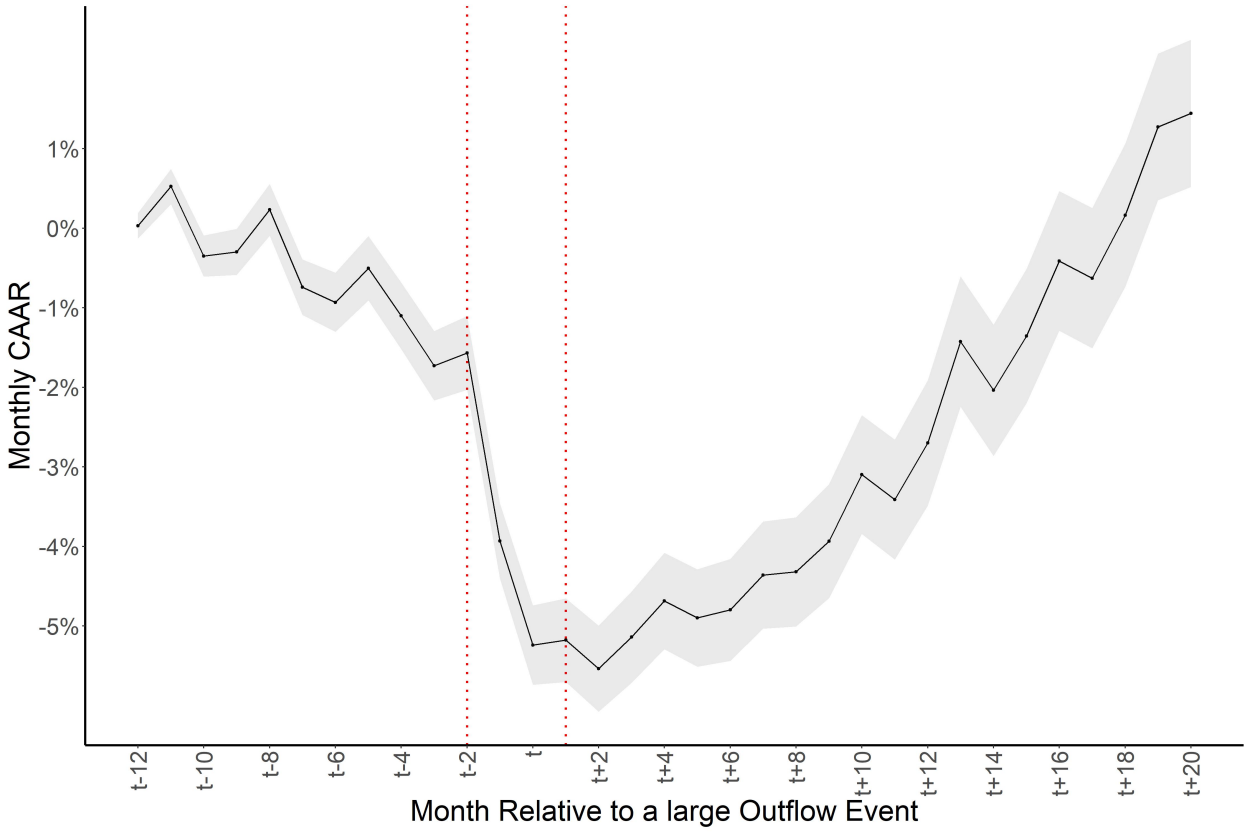
Figures

Figure 1.1: Effect of mutual fund outflows on stock returns.



Note: This figure plots the monthly cumulative average abnormal returns (CAAR) of stocks around the event months, where an event is defined as a firm-month observation in which $MFFlow$ falls within the top percentile value of the full sample. CAAR is computed over the benchmark of CRSP equal-weighted index from 12 months before the event to 20 months after. There are three event months because holdings are only recorded at the quarterly level, while returns are recorded at a monthly frequency. The gray shaded area denotes confidence intervals at the 95% level.

Figure 1.2: Effect of subsequent mutual fund outflows on stock returns.



Note: This figure plots the monthly cumulative average abnormal returns (CAAR) of stocks around the event months, where an event is defined as a firm-month observation in which $MFFlow$ falls within the top percentile value of the full sample. The top percentile is split into firms experiencing subsequent outflow events and those who experience only one. CAAR is computed over the benchmark of CRSP equal-weighted index from 12 months before the event to 20 months after. There are three event months because holdings are only recorded at the quarterly level, while returns are recorded at a monthly frequency.

Tables

Table 1.1: Descriptive Statistics

Statistic	N	Mean	St. Dev.	Pctl(25)	Median	Pctl(75)
$MFFlow$	199,349	0.691	1.886	0.006	0.186	0.628
$FlowToStock$	199,349	0.180	0.274	0.002	0.070	0.244
$NumForecast$	199,349	0.429	0.727	0	0	1
$Specificity$	63,848	2.256	0.444	2.000	2.000	2.500
$Delta$	84,894	725.889	5,084.075	69.652	181.692	493.858
$OptionDelta$	84,729	196.211	511.630	15.042	66.903	190.709
$LnMVE$	199,349	6.054	1.667	4.840	5.980	7.182
BTM	199,349	0.562	1.588	0.268	0.467	0.752
$Loss$	199,349	0.225	0.418	0	0	0
$Leverage$	199,349	0.630	74.931	0.005	0.255	0.770
$LnNumAnalysts$	199,349	3.583	4.665	0	2	5
SUE	199,349	0.026	0.323	-0.091	0.027	0.151
$SUENeg$	199,349	0.398	0.489	0	0	1
$Return_t$	199,349	0.053	0.283	-0.091	0.028	0.158
$Return_{t-1}$	199,349	0.055	0.289	-0.091	0.029	0.159
$Volatility_{t-1}$	199,349	0.030	0.018	0.018	0.026	0.037
$Investment$	182,019	0.035	0.048	0.008	0.020	0.043
$Num8K$	199,349	1.534	1.870	0	1	2
$Item202$	199,349	0.493	0.604	0	0	1
$Item701$	199,349	0.282	0.816	0	0	0
$lmNegative$	80,075	0.015	0.010	0.008	0.013	0.019
$lmPositive$	80,075	0.012	0.005	0.008	0.011	0.014
$lmTone$	80,075	-0.003	0.011	-0.008	-0.002	0.003

Note: The sample consists of 199,348 firm-quarter observations (7,840 unique firms) between 1992 Q1 and 2017 Q4. All variables are defined in the appendix.

Table 1.2: Equity Underpricing and Management Forecasts

	Dependent variable:			
	$ForecastInd_t$	$Num\_Forecast_t$	$ForecastInd_{t+1}$	$Num\_Forecast_{t+1}$
	(1)	(2)	(3)	(4)
$MFFlow_t$	0.001	0.0004	0.001^{***}	0.001^{***}
	(0.0004)	(0.0003)	(0.0003)	(0.0003)
$LnMVE$	0.011^{***}	0.010^{***}	0.016^{***}	0.017^{***}
	(0.002)	(0.002)	(0.002)	(0.002)
BTM	0.0001	0.0001	0.00001	−0.00001
	(0.0002)	(0.0002)	(0.0001)	(0.0001)
$Loss$	-0.012^{***}	-0.010^{***}	-0.013^{***}	-0.012^{***}
	(0.002)	(0.002)	(0.003)	(0.002)
$Leverage$	−0.00001	−0.00000	0.00002^{***}	0.00001^{*}
	(0.00001)	(0.00001)	(0.00001)	(0.00001)
$LnNumAnalyst$	0.054^{***}	0.050^{***}	0.016^{***}	0.010^{***}
	(0.003)	(0.003)	(0.002)	(0.002)
$Return_t$	-0.031^{***}	-0.026^{***}	-0.014^{***}	-0.012^{***}
	(0.004)	(0.003)	(0.003)	(0.003)
$Return_{t-1}$	-0.008^{***}	-0.006^{**}	−0.0004	−0.001
	(0.003)	(0.003)	(0.002)	(0.002)
$Volatility_{t-1}$	-0.284^{***}	-0.258^{***}	-0.140^{**}	-0.113^{**}
	(0.078)	(0.064)	(0.064)	(0.056)
SUE	0.005^{*}	0.005^{*}	0.010^{***}	0.008^{***}
	(0.003)	(0.003)	(0.003)	(0.002)
$SUENeg$	0.004^{**}	0.004^{**}	−0.001	0.0001
	(0.002)	(0.002)	(0.002)	(0.001)
Lagged Controls?	YES	YES	YES	YES
N.	199,349	199,349	199,349	199,349
Adjusted R^2	0.690	0.677	0.712	0.695

*Note:*This table presents regression results of the following equation:

$$VoluntaryDisclosure_{i,t+1} = \beta_1 * Underpricing_{i,t} + \Gamma \cdot Controls_{i,t} + \theta_y * FirmFE + \theta_z * YearQuarterFE + \varepsilon_{i,t}$$

where $VoluntaryDisclosure_{i,t+1}$ is $ForecastInd_{i,t+1}$, an indicator variable equal to 1 if firm i issues a forecast in quarter $t+1$ and 0 otherwise or $Num\_Forecast_{i,t+1}$ the logarithm of 1 plus the number of management forecasts issued by firm i in quarter $t+1$. $Underpricing_{i,t}$ is measured by $MFFlow_{i,t}$. The sample consists of 199,348 firm-quarter observations (7,840 unique firms) between 1992 Q1 and 2017 Q4. All variables are defined in the appendix. All specifications are estimated using OLS, contain firm and quarter fixed effects, and have standard errors that are clustered at the firm and quarter levels. ***, **, * Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 1.3: Equity Underpricing and Voluntary Disclosure through Form 8-Ks

	Dependent variable:					
	$Num8K_t$	$Item202_t$	$Item701_t$	$Num8K_{t+1}$	$Item202_{t+1}$	$Item701_{t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)
$MFFlow_t$	−0.002	0.0003*	−0.001	0.0004	0.001**	0.0001
	(0.001)	(0.0002)	(0.0004)	(0.0005)	(0.0002)	(0.0003)
$LnMVE$	0.014***	−0.003***	0.004**	0.009***	0.004***	0.005***
	(0.003)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
BTM	−0.001***	0.0001	−0.0003	−0.0001	−0.00002	−0.0003
	(0.0001)	(0.0001)	(0.0002)	(0.0004)	(0.0001)	(0.0003)
$Loss$	0.020***	0.003**	−0.003	0.003	−0.003**	−0.001
	(0.003)	(0.001)	(0.002)	(0.003)	(0.001)	(0.002)
$Leverage$	0.00002**	0.00000	0.00000	0.00001	0.00001**	0.00000
	(0.00001)	(0.00000)	(0.00001)	(0.00001)	(0.00000)	(0.00001)
$LnNumAnalyst$	0.034***	0.023***	0.017***	0.008***	0.003**	0.006***
	(0.003)	(0.003)	(0.002)	(0.003)	(0.001)	(0.002)
$Return$	0.035***	0.001	0.009***	0.022***	−0.006***	−0.001
	(0.004)	(0.002)	(0.003)	(0.005)	(0.002)	(0.002)
$Return_{t-1}$	0.029***	0.002	0.003*	0.006*	−0.002	0.004
	(0.005)	(0.002)	(0.002)	(0.003)	(0.001)	(0.002)
$Volatility_{t-1}$	0.187*	−0.154***	0.232***	−0.121	−0.058	0.159***
	(0.096)	(0.037)	(0.054)	(0.081)	(0.038)	(0.058)
SUE	−0.015***	0.003**	−0.006**	−0.006*	−0.001	0.001
	(0.004)	(0.001)	(0.003)	(0.004)	(0.002)	(0.002)
$SUENeg$	0.019***	0.001	0.004**	0.004	0.001	0.001
	(0.003)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Lagged Controls?	YES	YES	YES	YES	YES	YES
N.	199,349	199,349	199,349	199,349	199,349	199,349
Adjusted R^2	0.730	0.853	0.565	0.742	0.852	0.568

*Note:*This table presents regression results of the following equation:

$$VoluntaryDisclosure_{i,t+1} = \beta_1 * Underpricing_{i,t} + \Gamma \cdot Controls_{i,t} + \theta_y * FirmFE + \theta_z * YearQuarterFE + \varepsilon_{i,t}$$

where $VoluntaryDisclosure_{i,t+1}$ is a measure of voluntary disclosure derived from Form 8-Ks. $Underpricing_{i,t}$ is measured by $MFFlow_{i,t}$. The sample consists of 199,348 firm-quarter observations (7,840 unique firms) between 1992 Q1 and 2017 Q4. All variables are defined in the appendix. All specifications are estimated using OLS, contain firm and quarter fixed effects, and have standard errors that are clustered at the firm and quarter levels. ***, **, * Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 1.4: Equity Underpricing and Management Forecast Specificity

	Dependent variable:	
	$Specificity_t$	$Specificity_{t+1}$
	(1)	(2)
$MFFlow_t$	−0.001	0.0002
	(0.001)	(0.001)
$LnMVE$	0.003	0.005**
	(0.002)	(0.002)
BTM	0.002	0.00001
	(0.003)	(0.003)
$Loss$	−0.0005	0.00000
	(0.002)	(0.002)
$Leverage$	−0.00000	0.00000
	(0.00000)	(0.00000)
$LnNumAnalyst$	0.002	−0.0005
	(0.001)	(0.001)
$Return$	−0.010***	−0.007***
	(0.003)	(0.002)
$Return_{t-1}$	−0.004**	−0.006***
	(0.002)	(0.002)
$Volatility_{t-1}$	0.180**	0.146**
	(0.069)	(0.062)
SUE	0.003	0.001
	(0.002)	(0.002)
$SUENeg$	0.002	0.0001
	(0.001)	(0.001)
Lagged Controls?	YES	YES
N.	47,671	53,504
Adjusted R^2	0.433	0.414
Note:	*p<0.1; **p<0.05; ***p<0.01	

*Note:*This table presents regression results of the following equation:

$$VoluntaryDisclosure_{i,t+1} = \beta_1 * Underpricing_{i,t} + \Gamma \cdot Controls_{i,t} + \theta_y * FirmFE + \theta_z * YearQuarterFE + \varepsilon_{i,t}$$

where $VoluntaryDisclosure_{i,t+1}$ is $Specificity_{i,t+1}$, a variable that equals 1 if the firm issues an open range estimate, 2 if the firm issues a closed range estimate, or 3 if the firm issues a point estimate. $Underpricing_{i,t}$ is measured by $MFFlow_{i,t}$. The sample consists of 53,504 firm-quarter observations (3,280 unique firms) between 1992 Q1 and 2017 Q4. All variables are defined in the appendix. All specifications are estimated using OLS, contain firm and quarter fixed effects, and have standard errors that are clustered at the firm and quarter levels. ***, **, * Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 1.5: Equity Underpricing and Textual Attributes of Voluntary Disclosure

	Dependent variable:					
	$lmNeg_t$	$lmPositive_t$	$lmTone_t$	$lmNeg_{t+1}$	$lmPositive_{t+1}$	$lmTone_{t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)
$MFFlow_t$	−0.00003	0.00002*	0.00005**	−0.00001	−0.00000	0.00001
	(0.00002)	(0.00001)	(0.00002)	(0.00002)	(0.00001)	(0.00002)
$LnMVE$	−0.001***	−0.0001***	0.001***	−0.001***	−0.0002***	0.001***
	(0.0001)	(0.00005)	(0.0001)	(0.0001)	(0.00004)	(0.0001)
BTM	0.0004***	0.0001*	−0.0002*	0.0004***	0.0002***	−0.0002
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)
$Loss$	0.005***	−0.0001***	−0.005***	0.001***	0.0002***	−0.001***
	(0.0001)	(0.00005)	(0.0001)	(0.0002)	(0.00004)	(0.0002)
$Leverage$	−0.00000	−0.00000	0.00000	−0.00000	0.00000	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
$LnNumAnalyst$	0.00005	−0.0001	−0.0001	0.0002***	−0.00001	−0.0002***
	(0.0001)	(0.00004)	(0.0001)	(0.0001)	(0.00004)	(0.0001)
$Return$	−0.0003*	0.001***	0.001***	0.00004	0.0002***	0.0003**
	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
$Return_{t-1}$	−0.0001	0.0003***	0.0005***	0.0001	0.00003	−0.00004
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
$Volatility_{t-1}$	0.011***	−0.001	−0.013***	0.009***	0.0001	−0.009***
	(0.003)	(0.002)	(0.003)	(0.003)	(0.001)	(0.003)
SUE	0.0001	0.0002***	0.0001	−0.0002**	0.0004***	0.001***
	(0.0001)	(0.00004)	(0.0001)	(0.0001)	(0.00005)	(0.0001)
$SUENeg$	0.0004***	−0.0001***	−0.0005***	0.001***	−0.0002***	−0.001***
	(0.0001)	(0.00003)	(0.0001)	(0.0001)	(0.00003)	(0.0001)
Lagged Controls?	YES	YES	YES	YES	YES	YES
N.	75,558	75,558	75,558	80,075	80,075	80,075
Adjusted R^2	0.605	0.643	0.582	0.573	0.641	0.554

*Note:*This table presents regression results of the following equation:

$$VoluntaryDisclosure_{i,t+1} = \beta_1 * Underpricing_{i,t} + \Gamma \cdot Controls_{i,t} + \theta_y * FirmFE + \theta_z * YearQuarterFE + \varepsilon_{i,t}$$

where $VoluntaryDisclosure_{i,t+1}$ is one of three measures of the tone managers use in their disclosures during quarter $t+1$. $lmNeg$ is the number of words carrying a negative tone scaled by the total number of words in the disclosure, $lmPositive$ is the number of words carrying a positive tone scaled by the total number of words in the disclosure, and $lmTone$ is the difference between positive and negative words scaled by the total number of words in the disclosure. All variables are defined in the appendix. All specifications are estimated using OLS, contain firm and quarter fixed effects, and have standard errors that are clustered at the firm and quarter levels. ***, **, * Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 1.6: Equity underpricing, investment, and voluntary disclosure

	Dependent variable:					
	$ForecastInd_t$	$Num\_Forecast_t$	$Specificity_t$	$ForecastInd_{t+1}$	$Num\_Forecast_{t+1}$	$Specificity_{t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)
$MFFlow_t$	0.0005	0.0004	−0.001	0.001***	0.001***	0.001
	(0.0004)	(0.0004)	(0.001)	(0.0003)	(0.0003)	(0.001)
$Investment_{t-1}$	0.041	0.052**	0.033*			
	(0.025)	(0.023)	(0.018)			
$Investment_t$	−0.100***	−0.070***	0.007	−0.012	0.001	0.038*
	(0.028)	(0.026)	(0.021)	(0.021)	(0.019)	(0.020)
$Investment_{t+1}1$				−0.058**	−0.039*	0.002
				(0.024)	(0.022)	(0.025)
$LnMVE$	0.011***	0.010***	0.004*	0.017***	0.018***	0.004*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
BTM	0.0001	0.0001	0.003	0.00003	0.00001	−0.002
	(0.0002)	(0.0002)	(0.003)	(0.0001)	(0.0001)	(0.004)
$Loss$	−0.013***	−0.010***	−0.0005	−0.014***	−0.013***	−0.0001
	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
$Leverage$	−0.00001	−0.00001	−0.00000	0.00002***	0.00001*	0.00000***
	(0.00001)	(0.00001)	(0.00000)	(0.00001)	(0.00001)	(0.00000)
$LnNumAnalyst$	0.056***	0.051***	0.002	0.015***	0.009***	−0.0002
	(0.003)	(0.003)	(0.001)	(0.002)	(0.002)	(0.002)
$Return_t$	−0.032***	−0.027***	−0.010***	−0.010***	−0.008***	−0.006**
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
$Return_{t-1}$	−0.009***	−0.007**	−0.003	0.001	0.0001	−0.003
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)
$Volatility_{t-1}$	−0.314***	−0.287***	0.127*	−0.219***	−0.185***	0.167**
	(0.083)	(0.068)	(0.070)	(0.067)	(0.060)	(0.078)
SUE	0.005*	0.004	0.003	0.010***	0.007**	0.003
	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)
$SUENEG$	0.005**	0.004**	0.002*	0.001	0.001	0.001
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
N.	182,019	182,019	49,731	182,019	182,019	48,912
Adjusted R^2	0.689	0.676	0.415	0.717	0.698	0.369

*Note:*This table presents regression results of the following equation:

$$VoluntaryDisclosure_{i,t+1} = \beta_1 * Underpricing_{i,t} + \beta_2 * Investment_{i,t+1} + \Theta \cdot Controls_{i,t} + \theta_y * FirmFE_i + \theta_z * QuarterFE_t + \varepsilon_{i,t}$$

where $VoluntaryDisclosure_{i,t+1}$ is $ForecastInd_{i,t+1}$, an indicator variable equal to 1 if firm i issues a forecast in quarter $t+1$ and 0 otherwise, $Num\_Forecast_{i,t+1}$ the logarithm of 1 plus the number of management forecasts issued by firm i in quarter $t+1$, or $Specificity_{i,t+1}$, a variable that equals 1 if the firm issues an open range estimate, 2 if the firm issues a closed range estimate, or 3 if the firm issues a point estimate. $Underpricing_{i,t}$ is measured by $MFFlow_{i,t}$. $Investment_{t+1}$ is measured by capital expenditures scaled by total assets. All specifications are estimated using OLS, contain firm and quarter fixed effects, and have standard errors that are clustered at the firm and quarter levels. ***, **, * Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 1.7: Equity Underpricing and Voluntary Disclosure in the cross-section of CEO Compensation Sensitivity

	Dependent variable:					
	$ForecastInd_t$	$Num\_Forecast_t$	$Specificity_t$	$ForecastInd_{t+1}$	$Num\_Forecast_{t+1}$	$Specificity_{t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)
$MFFlow_t * CompensationDelta_t$	−0.0004	−0.001	0.001	−0.0004	0.0001	0.00000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
$MFFlow_t$	0.002	0.003	−0.001	0.002	0.001	−0.0002
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
$CompensationDelta_t$	0.002	0.002	0.001	0.001	0.001	0.001*
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Controls?	YES	YES	YES	YES	YES	YES
N	84,894	84,894	31,008	84,894	84,894	36,625
Adjusted R^2	0.671	0.649	0.428	0.680	0.663	0.401

*Note:*This table presents regression results of the following equation:

$$\begin{aligned} VoluntaryDisclosure_{i,t+1} =& \beta_1 * Underpricing_{i,t} + \beta_2 * CompensationDelta_{i,t} \\ &+ \beta_3 * Underpricing_{i,t} * CompensationDelta_{i,t} \\ &+ \Theta \cdot Controls_{i,t} + \theta_y * FirmFE + \theta_z * YearQuarterFE + \varepsilon_{i,t} \end{aligned}$$

where $VoluntaryDisclosure_{i,t+1}$ is $ForecastInd_{i,t+1}$, an indicator variable equal to 1 if firm i issues a forecast in quarter $t+1$ and 0 otherwise, $Num\_Forecast_{i,t+1}$ the logarithm of 1 plus the number of management forecasts issued by firm i in quarter $t+1$, or $Specificity_{i,t+1}$, a variable that equals 1 if the firm issues an open range estimate, 2 if the firm issues a closed range estimate, or 3 if the firm issues a point estimate. $Underpricing_{i,t}$ is measured by $MFFlow_{i,t}$. All specifications are estimated using OLS, contain firm and quarter fixed effects, and have standard errors that are clustered at the firm and quarter levels. ***, **, * Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 1.8: Equity Underpricing and Voluntary Disclosure in the cross-section of Litigation Risk

	Dependent variable:					
	$ForecastInd_t$	$Num\_Forecast_t$	$Specificity_t$	$ForecastInd_{t+1}$	$Num\_Forecast_{t+1}$	$Specificity_{t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)
$MFFlow_t * Litigation_t$	−0.002	−0.002	−0.001	−0.0005	−0.0001	−0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
$MFFlow_t$	0.001*	0.001*	−0.0005	0.001***	0.001***	0.001
	(0.0005)	(0.0004)	(0.001)	(0.0003)	(0.0003)	(0.001)
$Litigation_t$	−0.112***	−0.055	−0.006	−0.106***	−0.059***	0.016***
	(0.035)	(0.034)	(0.005)	(0.027)	(0.021)	(0.004)
Controls?	YES	YES	YES	YES	YES	YES
Observations	199,349	199,349	52,700	199,349	199,349	53,504
Adjusted R^2	0.690	0.677	0.413	0.712	0.695	0.414

*Note:*This table presents regression results of the following equation:

$$\begin{aligned} VoluntaryDisclosure_{i,t+1} =& \beta_1 * Underpricing_{i,t} + \beta_2 * LitigationRisk_{i,t} \\ &+ \beta_3 * Underpricing_{i,t} * LitigationRisk_{i,t} \\ &+ \Theta \cdot Controls_{i,t} + \theta_y * FirmFE_i + \theta_z * QuarterFE_t + \varepsilon_{i,t} \end{aligned}$$

where $VoluntaryDisclosure_{i,t+1}$ is $ForecastInd_{i,t+1}$, an indicator variable equal to 1 if firm i issues a forecast in quarter $t+1$ and 0 otherwise, $Num\_Forecast_{i,t+1}$ the logarithm of 1 plus the number of management forecasts issued by firm i in quarter $t+1$, or $Specificity_{i,t+1}$, a variable that equals 1 if the firm issues an open range estimate, 2 if the firm issues a closed range estimate, or 3 if the firm issues a point estimate. $Underpricing_{i,t}$ is measured by $MFFlow_{i,t}$. All specifications are estimated using OLS, contain firm and quarter fixed effects, and have standard errors that are clustered at the firm and quarter levels. ***, **, * Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 1.9: Additional Tests

	Dependent variable:					
	$ForecastInd_{t+1}$		$Num\_Forecast_{t+1}$		$ForecastInd_{t+1}$	$Num\_Forecast_{t+1}$
	Fin. Crisis	*Non Fin. Crisis*	*Fin. Crisis*	*Non Fin. Crisis*	*Full Sample*	*Full Sample*
$MFFlow_t$	−0.003	0.001***	−0.002	0.001***	0.001***	0.001***
	(0.002)	(0.0003)	(0.001)	(0.0003)	(0.0003)	(0.0002)
$MFFlow_t * RegFD$					−0.001	0.0002
					(0.001)	(0.001)
$RegFD$					0.107***	0.089***
					(0.003)	(0.002)
MVE_t	0.044	0.016***	0.049*	0.017***	0.019***	0.019***
	(0.022)	(0.002)	(0.021)	(0.002)	(0.001)	(0.001)
BTM_t	0.007	0.00002	0.006	0.00000	0.0002	0.0001
	(0.009)	(0.0001)	(0.007)	(0.0001)	(0.0003)	(0.0002)
$Loss_t$	0.014	−0.014***	0.004	−0.012***	−0.014***	−0.013***
	(0.016)	(0.003)	(0.014)	(0.002)	(0.002)	(0.002)
$Leverage_t$	0.0001	0.00002***	0.00000	0.00001*	0.00002***	0.00001*
	(0.0001)	(0.00001)	(0.0002)	(0.00001)	(0.00001)	(0.00001)
$LnNumAnalyst$	−0.012	0.016***	−0.026*	0.010***	0.016***	0.009***
	(0.008)	(0.002)	(0.009)	(0.002)	(0.002)	(0.001)
$Return_t$	−0.017	−0.014***	−0.019	−0.011***	−0.017***	−0.014***
	(0.011)	(0.003)	(0.010)	(0.003)	(0.002)	(0.002)
$Return_{t-1}$	−0.029	−0.001	−0.020	−0.001	−0.005**	−0.006***
	(0.020)	(0.002)	(0.023)	(0.002)	(0.002)	(0.002)
$Volatility_{t-1}$	0.036	−0.128*	−0.097	−0.094	0.179***	0.173***
	(0.395)	(0.067)	(0.333)	(0.058)	(0.046)	(0.039)
SUE	0.032	0.010***	0.017	0.007***	0.011***	0.009***
	(0.017)	(0.003)	(0.017)	(0.003)	(0.003)	(0.002)
$SUENeg$	0.00003	−0.0004	−0.004	0.0005	0.001	0.001
	(0.019)	(0.002)	(0.017)	(0.001)	(0.002)	(0.001)
Controls?	YES	YES	YES	YES	YES	YES
Firm Fixed Effects?	YES	YES	YES	YES	YES	YES
Year-Quarter Effects?	YES	YES	YES	YES	NO	NO
N.	5,962	193,387	5,962	193,387	199,349	199,349
Adjusted R^2	0.757	0.710	0.738	0.693	0.704	0.686

*Note:*This table repeats the main analyses in the paper with (1) samples split into financial crisis periods and non financial crisis periods and (2) with an addition variable $RegFD$ which is equal to 1 if the observation is after the passage of Regulation FD. $VoluntaryDisclosure_{i,t+1}$ is $ForecastInd_{i,t+1}$, an indicator variable equal to 1 if firm i issues a forecast in quarter $t+1$ and 0 otherwise, $Num\_Forecast_{i,t+1}$ the logarithm of 1 plus the number of management forecasts issued by firm i in quarter $t+1$, or $Specificity_{i,t+1}$, a variable that equals 1 if the firm issues an open range estimate, 2 if the firm issues a closed range estimate, or 3 if the firm issues a point estimate. $Underpricing_{i,t}$ is measured by $MFFlow_{i,t}$. All specifications are estimated using OLS, contain firm and quarter fixed effects (where applicable), and have standard errors that are clustered at the firm and quarter levels (where applicable). ***, **, * Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 1.10: Alternative Measure of Equity Underpricing and Management Forecasts

	Dependent variable:					
	$ForecastInd_t$	$Num\_Forecast_t$	$Specificity_t$	$ForecastInd_{t+1}$	$Num\_Forecast_{t+1}$	$Specificity_{t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)
$FlowToStock_t$	0.015***	0.015***	0.000	0.014***	0.017***	0.005**
	(0.004)	(0.003)	(0.000)	(0.003)	(0.003)	(0.002)
$LnMVE$	0.010***	0.009***	0.000***	0.016***	0.016***	0.005**
	(0.002)	(0.002)	(0.000)	(0.002)	(0.002)	(0.002)
BTM	0.0001	0.0001	0.000	0.00002	−0.00001	−0.00004
	(0.0002)	(0.0002)	(0.000)	(0.0001)	(0.0001)	(0.003)
$Loss$	−0.012***	−0.009***	0.000***	−0.013***	−0.012***	0.0001
	(0.002)	(0.002)	(0.000)	(0.003)	(0.002)	(0.002)
$Leverage$	−0.00001	0.00000	0.000	0.00002***	0.00001*	0.00000
	(0.00001)	(0.00001)	(0.000)	(0.00001)	(0.00001)	(0.00000)
$LnNumAnalyst$	0.054***	0.049***	−0.000***	0.016***	0.009***	−0.001
	(0.003)	(0.003)	(0.000)	(0.002)	(0.002)	(0.001)
$Return$	−0.030***	−0.025***	0.000	−0.014***	−0.011***	−0.007***
	(0.004)	(0.003)	(0.000)	(0.003)	(0.003)	(0.002)
$Return_{t-1}$	−0.007**	−0.005**	0.000	0.0001	−0.0003	−0.006**
	(0.003)	(0.003)	(0.000)	(0.002)	(0.002)	(0.002)
$Volatility_{t-1}$	−0.288***	−0.261***	0.000	−0.150**	−0.123**	0.143**
	(0.077)	(0.063)	(0.000)	(0.064)	(0.056)	(0.062)
SUE	0.005*	0.005*	0.000	0.010***	0.008***	0.001
	(0.003)	(0.003)	(0.000)	(0.003)	(0.002)	(0.002)
$SUENeg$	0.005**	0.004**	0.000	−0.001	0.0002	0.0001
	(0.002)	(0.002)	(0.000)	(0.002)	(0.001)	(0.001)
Lagged Controls?	YES	YES	YES	YES	YES	YES
N.	199,349	199,349	53,504	199,349	199,349	53,504
Adjusted R^2	0.691	0.677	1.000	0.712	0.695	0.414

*Note:*This table presents regression results of the following equation:

$$VoluntaryDisclosure_{i,t+1} = \beta_1 * Underpricing_{i,t} + \Gamma \cdot Controls_{i,t} + \theta_y * FirmFE + \theta_z * YearQuarterFE + \varepsilon_{i,t}$$

where $VoluntaryDisclosure_{i,t+1}$ is $ForecastInd_{i,t+1}$, an indicator variable equal to 1 if firm i issues a forecast in quarter $t+1$ and 0 otherwise, $Num\_Forecast_{i,t+1}$ the logarithm of 1 plus the number of management forecasts issued by firm i in quarter $t+1$, or $Specificity_{i,t+1}$, a variable that equals 1 if the firm issues an open range estimate, 2 if the firm issues a closed range estimate, or 3 if the firm issues a point estimate. $Underpricing_{i,t}$ is measured by $FlowToStock_{i,t}$. All specifications are estimated using OLS, contain firm and quarter fixed effects, and have standard errors that are clustered at the firm and quarter levels. ***, **, * Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

APPENDIX A

Appendix: Variable Definitions

A.1 Tables

Table A.1: Variable definitions

Variable	Description
$BTM_{i,t}$	Book to market ratio for firm i in quarter t. Calculated from *Compustat*.
$CompensationDelta_{i,t}$	The natural logarithm of 1 plus the sensitivity of the compensation portfolio of the CEO of firm i to a 1% change in stock price for year t. The measure is based on Coles et al. (2006) and Core and Guay (2002).
$FlowToStock_{i,t}$	Flow To Stock for firm i in quarter t. Calculated based on Wardlaw (2019)
$Forecast\_Ind_{i,t}$	An indicator variable equal to 1 if firm i issued a management forecast during quarter t and 0 otherwise.
$Investment_{i,t}$	Capital expenditures of firm i during quarter t scaled by total assets at the beginning of quarter t, all variables are from *Compustat*.
$Item202_{i,t}$	The number of 8-K forms that contain Item 2.02 filed by firm i in quarter t
$Item701_{i,t}$	The number of 8-K forms that contain Item 7.01 filed by firm i in quarter t
$Leverage_{i,t}$	Interest carrying debt divided by equity.

$Litigation_{i,t}$	An indicator variable equal to 1 if the firm is part of a high litigation industry. *Litigation* is set to 1 for biotech firms (SIC codes 2833–2836 and 8731–8734), computer firms (3570–3577 and 7370–7374), electronics firms (3600–3674), and retail firms (5200–5961), and 0 otherwise. Based on Francis et al. (1994) and Kim and Skinner (2012).
$lmComplex_{i,t}$	The number of complex words scaled by the total number words in the form 8-K of firm i during quarter t. If there is more than one 8-K the measure is an average of all disclosures. Complex words are defined by the Loughran and McDonald (2011) dictionary
$lmLit_{i,t}$	The number of litigious words scaled by the total number words in the form 8-K of firm i during quarter t. If there is more than one 8-K the measure is an average of all disclosures. Litigious words are defined by the Loughran and McDonald (2011) dictionary
$lmNegative_{i,t}$	The number of negative words scaled by the total number of words in the form 8-K of firm i during quarter t. If there is more than one 8-K the measure is an average of all disclosures. Negative words are defined by the Loughran and McDonald (2011) dictionary.
$lmPositive_{i,t}$	The number of positive words scaled by the total number of words in the form 8-K of firm i during quarter t. If there is more than one 8-K the measure is an average of all disclosures. Negative words are defined by the Loughran and McDonald (2011) dictionary.
$lmStrongModal_{i,t}$	The number of strong modal verbs scaled by the total number of words in the form 8-K of firm i during quarter t. If there is more than one 8-K the measure is an average of all disclosures. Strong modal word definitions are based on the Loughran and McDonald (2011) dictionary and include: always, best, clearly, definitely, definitively, highest, lowest, must, never, strongly, unambiguously, uncompromising, undisputed, undoubtedly, unequivocal, unequivocally, unparalleled, unsurpassed, will.

$lmTone_{i,t}$	The difference between the number of positive words and negative words in the form 8-K of firm i during quarter t. If there is more than one 8-K the measure is an average of all disclosures. Negative words are defined by the Loughran and McDonald (2011) dictionary.
$lmUncertainty_{i,t}$	The number of words conveying uncertainty scaled by the total number words in the form 8-K of firm i during quarter t. If there is more than one 8-K the measure is an average of all disclosures. Uncertainty words are defined by the Loughran and McDonald (2011) dictionary
$lmWeakModal_{i,t}$	The number of weak modal verbs scaled by the total number of words in the form 8-K of firm i during quarter t. If there is more than one 8-K the measure is an average of all disclosures. Weak modal word definitions are based on the Loughran and McDonald (2011) dictionary and include: almost, apparently, appeared, appearing, appears, conceivable, could, depend, depended, depending, depends, may, maybe, might, nearly, occasionally, perhaps, possible, possibly, seldom, seldomly, sometimes, somewhat, suggest, suggests, uncertain, uncertainly.
$LnMVE_{i,t}$	The natural logarithm of market value of equity for firm i at the start of quarter t. Calculated from *Compustat*.
$lnNumAnalysts_{i,t}$	The number of analysts that issued a forecast for firm i during quarter t.
$Loss_{i,t}$	An indicator variable equal to 1 if the firm reported a loss in the previous quarter.
$MFFlow_{i,t}$	Mutual fund flow for firm i in quarter t. Calculated based on Edmans et al. (2012)
$Num8K_{i,t}$	The number of 8-K forms filed by firm i in quarter t
$Num\_Forecasts_{i,t}$	The number of forecasts issued by management of firm i in quarter t.

$OptionDelta_{i,t}$	The natural logarithm of 1 plus the sensitivity of the option based compensation portfolio of the CEO of firm i to a 1% change in stock price for year t. The measure is based on Coles et al. (2006) and Core and Guay (2002).
$Return_{i,t}$	Return for firm i in the current quarter.
$Return_{i,t-1}$	Return for firm i in the previous quarter.
$Specificity_{i,t}$	The information content of the management forecasts of firm i during quarter t. If management provided a point estimate it is equal to 3, if management provided a closed range 2, and 1 if management provided an open ended range.
$SUE_{i,t}$	Standardized Unexpected Earnings, calculated as the difference between quarter t earnings and quarter $t-4$ earnings scaled by price at the end of quarter t following Livnat and Mendenhall (2006).
$SUENEG_{i,t}$	An indicator variable equal to 1 if $SUE_{i,t-4}$ is negative.
$Volatility_{i,t-1}$	Return volatility for firm i in the previous quarter.

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