

Large Shareholders and Disclosure Strategies: Evidence from IPO Lockup Expirations*

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Abstract: We examine the effect of large shareholders' selling incentives on a firm's voluntary disclosure choices. We use the setting of IPO lockup expirations to identify large, influential shareholders with strong *ex ante* selling incentives because lockup expiration is associated with large scale selling by pre-IPO shareholders. Consistent with firms following a disclosure policy favoring the selling incentives of pre-IPO shareholders, we find that firms are more likely to delay the disclosure of bad news in the lockup expiration quarter and that this effect is concentrated among firms with venture-capital backing, high levels of expected selling, high uncertainty and low litigation risk. We also document that by delaying bad news, firms both avoid the negative returns associated with the news and also mitigate the price impact of selling around lockup expiration. Finally, we rule out managers' personal gains from insider trading as a motive for the disclosure strategy.

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1. Introduction

We examine the effect of large shareholders' selling incentives on firms' voluntary disclosure policies. While managers with an equity stake in the firm have both the incentives and the ability to influence voluntary disclosures to improve their trading gains, prior studies (Noe 1999, Cheng and Lo 2006, and Rogers 2008) find no evidence of strategic disclosure prior to insider selling. This is consistent with the disciplinary role of insider trading regulations and litigation risk. However, it is an open question whether other large shareholders influence the firm's voluntary disclosure strategies when they plan to trade.¹ This issue is important given the rise of large shareholders such as venture capitalists, private equity investors, and activist hedge funds who exert considerable influence over management (Gompers and Lerner 2004, Brav, Jiang, Partnoy and Thomas 2008, and Klein and Zur 2009). Such investors typically hold large undiversified stakes and consequently have strong preferences for disclosure strategies that maximize their trading gains. Our findings suggest that large shareholders influence managers to delay disclosure of bad news when selling incentives are high.

We focus on voluntary disclosures around IPO lockup expirations. Lockups are voluntary agreements between the IPO firm and its underwriter, whereby pre-IPO shareholders are prohibited from selling their stock for a contractually agreed period of time after the IPO. This setting offers unique advantages for studying the impact of large shareholders on disclosure. First, it represents a well-defined and anticipated event that is associated with significant selling by pre-IPO shareholders. Prior evidence indicates that this selling results in a significant increase in trading volume and a drop in the stock price. Field and Hanka (2001) find that these effects are particularly pronounced in firms with large shareholders such as corporate investors, including VCs, insurance

¹ The literature has examined the reverse relation—the effect of disclosure on share holdings—in the context of institutions. In particular, Bushee and Noe (2000) find that increases in disclosure are associated with increases in transient institutional investors. This suggests that some institutional investors choose to invest in firms based on disclosure quality, but does not speak to whether institutions actively influence firms' specific disclosures.

companies, investment banks, and pension funds. For instance, while the trading volume on unlock day is 85% higher than prior average volume for the overall sample, it is 135% higher for VC-backed IPOs.² This anticipated large-scale selling induces a short-horizon focus among pre-IPO shareholders.

Second, large pre-IPO shareholders have the ability to influence managerial decisions. Because of their significant ownership stakes and board membership (Barry, Muscarella, Peavy, and Vetsuypens 1990, Lerner 1995, Field and Hanka 2001), these investors can hire and replace the CEOs of IPO firms. They also have strong social ties and long-standing relationships with IPO firms' managers; investors such as VCs or private equity investors may have played an active role in the firm's growth and success. Moreover, VC-backed firms provide their CEOs with short horizon incentives coinciding with the VCs' exit after lockup expiration (Cadman and Sunder 2011). Therefore, large pre-IPO shareholders may derive their influence from either their ownership stake, relationship with management or explicit contracts.

Finally, newly public firms are characterized by particularly high levels of information asymmetry between the managers and the dispersed shareholders, which makes disclosure a powerful tool to manage the stock price at the time of selling. Voluntary disclosure of private news can affect the exit price for pre-IPO shareholders through two distinct channels. First, disclosure has an immediate impact on the stock price when the news is released. To maximize the stock price at the time of exit, pre-IPO shareholders may favor delays in the disclosure of bad news beyond the unlock date and early release of good news. Second, disclosure is likely to affect returns upon lockup expiration through its impact on firm-specific uncertainty. While analytical models predict that disclosure reduces uncertainty (Diamond 1985, Diamond and Verrecchia 1991), the empirical

² See figure 3 in Field and Hanka (2001). Field and Hanka suggest that non-VC corporate shareholders have similar large effects on the unlock day. Officers and directors of IPO firms are also subject to lockup provisions. However, only 17% of firms have at least one trade by officers and directors (Field and Hanka 2001) and therefore their trading behavior is unlikely to motivate disclosure policy. Nevertheless, we specifically examine whether trading by officers and directors is associated with the strategic disclosures.

evidence suggests that disclosure of bad news *increases* firm-specific uncertainty (Brown, Hillegeist, and Lo 2009, Rogers, Skinner and Van Buskirk 2009).^{3,4} Increases in uncertainty following bad-news disclosures may, in turn, worsen the price impact of large scale selling when the lockup expires. This follows from microstructure models (Kyle 1985) that predict greater price impact from trades in the presence of uncertainty.⁵ Consistent with this effect, lockup expiration returns are more negative for firms facing higher uncertainty (Ofek and Richardson 2000, and Bradley, Jordan, Yi, and Roten 2001). Consequently, to mitigate the price impact of selling and to avoid negative returns at lockup expiration, pre-IPO shareholders have an added incentive to delay the disclosure of bad news till after their exit.

We use quarterly management earnings forecasts to examine voluntary disclosure choices around IPO lockup expirations and their impact on lockup expiration returns. Management forecasts allow precise tests of the timing of disclosure relative to an event; by issuing forecasts during the quarter, managers can preempt news that is eventually conveyed by quarterly earnings announcements. This enables us to study whether managers disclose promptly or delay disclosures in anticipation of large-scale selling by pre-IPO shareholders upon lockup expiration. Conditioning on the nature of the news (good versus bad) to be conveyed in the quarter,⁶ we compare forecast propensity in the lockup expiration quarter, characterized by high abnormal sales from large shareholders, with that in benchmark quarters when large shareholders' trading is at a normal level.

³ In untabulated tests we confirm that this finding holds in our sample – disclosures in bad news quarters are accompanied by statistically significant increases in implied volatility of stock options.

⁴ This is consistent with studies showing that market-wide bad-news events are associated with increases in uncertainty (Black 1976, Brown, Harlow and Tinic 1988).

⁵ In most microstructure models the price impact to large trades arises from information asymmetry between informed investors and the price protection that less informed investors demand. In our tests we do not distinguish between information asymmetry and overall uncertainty given the empirical challenges involved in teasing out the information asymmetry part of market uncertainty—information asymmetry effects are likely to be high when there is greater uncertainty over firm value because the potential for private information is greater and any incremental information potentially provides a significant advantage. Therefore, the overall uncertainty acts as an estimate of the upper bound of information asymmetry.

⁶ We estimate the total news for the quarter as actual earnings less the consensus analyst forecast at the beginning of the quarter.

Our evidence indicates that the propensity to issue a forecast, on average, is higher for bad-news relative to good-news quarters, consistent with the intuition that litigation risk induces early disclosure of bad news (Skinner 1994, Field, Lowry and Shu 2005). However, conditional on having bad news, the propensity of issuing a forecast is about 36% lower in the lockup expiration quarter than in benchmark quarters. Interestingly, forecast propensity in good-news lockup expiration quarters is not significantly different from that in the benchmark quarters, presumably because disclosure of good news is less credible (Hutton, Miller and Skinner 2003) and does not reduce firm-specific uncertainty (Rogers et al. 2009). Therefore, the results for the overall sample are consistent with firms choosing a strategy that delays the disclosure of bad news, which favors pre-IPO shareholders.

Forecast propensity should vary cross-sectionally with the pre-IPO shareholders' ability to influence disclosure choices, as well as the benefits and costs of selective non-disclosure. First, focusing on VCs, an easily identifiable large shareholder with strong pre-IPO ties to management, we document that the selective disclosure behavior is concentrated among VC-backed firms.⁷ Second, we find that firms delay bad news only when the predicted trading volume around lockup expiration is high, consistent with the notion that intense selling by pre-IPO shareholders provides a motive for non-disclosure of bad news. Next, we examine the effect of uncertainty. Higher levels of uncertainty may exacerbate the price impact of large-scale selling, and, to the extent that uncertainty captures the level of information asymmetry between managers and dispersed shareholders, may make it easier for managers to delay the disclosure of bad news. Consistent with this prediction, selective disclosure is concentrated among firms with higher levels of uncertainty, as proxied by volatility of returns and implied volatility of stock options. Finally, litigation risk acts as a potential

⁷ However, the effect is not limited to VC-backed firms. In untabulated analysis, we find evidence that even non-VC-backed firms delay bad news when litigation risk is low or when uncertainty is high.

deterrent to selective disclosure behavior (Skinner 1994, Kasznik and Lev 1995, Skinner 1997, Field et al. 2005) and is particularly important for IPO firms (Lowry and Shu 2002). Our findings support this notion: firms delay bad news only when litigation risk is relatively low.

Selective disclosure strategies, if successful, should have a direct effect on the stock price *at the time of forecast announcement* and a moderating effect through the price sensitivity to selling *at the time of lockup expiration*. Indeed, firms that preempt bad news in the lockup expiration quarter with a forecast experience negative returns during the quarter and a large adverse stock price impact to abnormal trading volume at lockup expiration (-7.6% at the average trading volume). In contrast, consistent with Hutton et al. (2003), there are no significant benefits to disclosing good news. Moreover, firms that do not issue a forecast experience similar returns and price sensitivity to trading volume regardless of the underlying news (i.e., “pooling” by non-disclosers occurs as in Verrecchia 1983, Dye 1985, and Acharya, DeMarzo, and Kremer 2011). Our findings also indicate that the direct and moderating effects of disclosure on returns are distinct and do not subsume each other. These results are robust to controlling for the determinants of forecasting behavior.

Finally, we turn our attention to managers, who are also subject to lockup provisions. We do not find a significant relation between selling by managers and the selective withholding of bad news in the lockup expiration quarter. This result is in line with the spirit of SEC Rule 10b-5 and with litigation practice⁸ and reiterates the findings in Noe (1999) and Cheng and Lo (2006). We conclude that the documented strategy of selective non-disclosure is likely motivated by large pre-IPO shareholders’ rather than managers’ selling incentives.

Our paper highlights the role of large pre-IPO shareholders in shaping firms’ voluntary disclosures around lockup expirations. The selective disclosure policy we document results in

⁸ One of the factors that attorneys look for in deciding whether to bring about a class action suit is whether insiders sold shares when they withheld information or made misleading forecasts (see Johnson, Nelson and Pritchard 2000, fn. 38 p. 782).

potential wealth transfers from the new dispersed shareholders to the pre-IPO shareholders, pointing to intra-shareholder conflicts of interest between shareholders with divergent horizons and differential access to information. Brav and Gompers (1998) suggest that VCs exit by distributing over-valued shares; our paper identifies a mechanism, namely the flow of information to the market, through which VCs and other pre-IPO shareholders can achieve this. Our findings have implications for settings beyond IPO lockup expirations where large active shareholders such as hedge funds and private equity investors could similarly influence disclosure choices.

More generally, this study furthers our understanding of how investors' short-horizon incentives affect managerial choices. Bushee and Noe (2000) find that firms that increase their disclosure attract more transient institutions (institutional investors with high portfolio turnover), consistent with these shareholders seeking a better information environment when they plan to trade actively. Our study complements the findings in Bushee and Noe by focusing on a different type of large shareholder—one who exerts influence over managers and is privy to better information than other investors. These large shareholders actively influence the disclosure strategy rather than investing based on the firms' disclosure choices.

Finally, we offer insights into a previously neglected cost of disclosure—exacerbating uncertainty—and how this cost affects disclosure strategies. Prior literature focused on the effect of disclosure on investors' assessment of firm value and on disclosure incentives this generates (Aboody and Kasznik 2000, Lang and Lundholm 2000, and Sletten 2011). Building on the findings from Rogers et al. (2009) that disclosure of bad news increases uncertainty, we document that the cost of increased uncertainty is manifested in greater price sensitivity to selling at lockup expiration. Further, our findings show that the anticipation of such negative capital market consequences provides a motive to delay the disclosure of bad news.

The paper proceeds as follows. Section 2 describes the institutional background and develops the hypotheses. Section 3 outlines sample selection. Sections 4 through 6 discuss the results and Section 7 concludes.

2. Institutional Background and Hypotheses Development

Lockup agreements in IPO firms are common and binding. The vast majority of IPO firms enter into a lockup agreement with the underwriting investment bank that places restrictions on when the pre-IPO shareholders are allowed to sell shares. Such restrictions appear to be binding on average—trading volume spikes to about 85% of previous average volume when the lockup expires and then settles at about 40% higher than the lockup period volume (Field and Hanka 2001). The increase in trading volume has been attributed to pre-IPO shareholders selling their shares for the first time, which increases the float of shares. Therefore, the lockup expiration marks a time of large scale selling by pre-IPO shareholders who are likely to be better informed than dispersed shareholders. An appealing aspect of such selling from the standpoint of a researcher is that the lockup expiration date is well known and specified in the IPO prospectus.

While some pre-IPO shareholders may continue to hold on to their shares past lockup expiration, the spike in trading volume around lockup expirations at firms with large pre-IPO shareholders (Field and Hanka 2001, Bradley et al. 2001) suggests that many of these shareholders sell or exit the IPO firm. Supporting this conjecture, Brav and Gompers (2003) state that a significant number of VCs distribute shares to their investors upon lockup expiration and many of these investors automatically sell the stock. Therefore, the stock price at the time of lockup expiration, which directly affects the proceeds to their sales, is important to these pre-IPO shareholders. Interestingly, even though the lockup date is publicly known and anticipated, average abnormal returns around lockup expiration are negative—an unresolved puzzle in the finance

literature. This drop in stock price erodes the trading gains to the pre-IPO shareholders and creates a strong preference for disclosure strategies that allows them to exit at favorable prices.

Pre-IPO shareholders can wield significant influence over management and they are able to do so for a variety of reasons. First, large shareholders such as corporate shareholders hold a significant fraction of shares in the IPO firm relative to managers (Field and Hanka 2001). Second, many of these investors have board representation and Cadman and Sunder (2011) find that the investors use this power to write contracts to align the incentives of managers with their own. Finally, large pre-IPO shareholders form close relationships with managers over the life of the firm and can use these ties to persuade the managers to follow desirable disclosure strategies.

In order to understand what disclosure strategies would be favored by pre-IPO shareholders, it is useful to consider how disclosure choices affect stock price in our setting. First, there is extensive prior evidence that disclosure affects share price by altering investors' assessment of firm value (Ajinkya and Gift 1984, Waymire 1984, and Hutton et al. 2003). Therefore, disclosing good news early and delaying the disclosure of bad news till earnings announcements following the lockup expiration will maximize trading gains. Second, disclosure also affects investors' uncertainty about the firm value. While it is generally believed that transparent disclosure reduces market uncertainty (Diamond and Verrecchia 1991), empirical evidence seems to contradict this intuition, at least with respect to the disclosure of bad news.⁹ Recent evidence by Rogers et al. (2009) indicates that while good-news management forecasts do not have a significant effect on uncertainty (measured with implied volatility of stock options), bad-news management forecasts increase it. When coupled with intense selling by pre-IPO shareholders, such increases in uncertainty can have

⁹ Several explanations have been proposed in the finance literature for the increase in volatility after bad news events, a well-documented empirical finding. Black (1976) attributes it to the leverage effect resulting from the drop in price in response to the bad news. Christie (1982) and Schwert (1989) subsequently argue that this effect is small. Campbell and Hentschel (1992) propose a model for a volatility feedback explanation. Brown, Harlow and Tinic (1988) find evidence consistent with this explanation when they document that returns to bad news tend to be larger than returns to good news. More recently, the accounting literature has focused on one channel for news, i.e. voluntary disclosures by firms and documented an increase in volatility surrounding bad news disclosures (see Brown, Hillegeist and Lo 2009, Rogers, Skinner, and Van Buskirk 2009).

negative consequences for the stock price. Specifically, theoretical models (e.g. Kyle 1985) predict greater price impact from trades when investors believe that they are more informationally disadvantaged. Consistent with this expectation, negative returns upon lockup expiration are more pronounced for firms characterized by greater uncertainty (Bradley et al. 2001, Ofek and Richardson 2000). Therefore, delaying the disclosure of bad news until after lockup expiration will mitigate the price impact of selling at lockup expiration, and increase the trading gains to pre-IPO shareholders.

Overall, both effects described above are likely to result in incentives to delay the disclosure of bad news until the earnings announcement, and the first effect (on investors' assessment of firm value) provides a motive to disclose good news early via a management forecast. In our setting the disclosure strategy that would allow pre-IPO shareholders to exit at favorable prices would involve lower (higher) forecast propensity for firms with bad (good) news in the lockup expiration quarter relative to the benchmark quarters with normal levels of selling. This suggests a selective disclosure strategy that is conditioned on the nature of the underlying news.

H1A: Forecast propensity for firms with bad quarterly news is significantly lower in the lockup expiration quarter than in quarters with normal levels of selling.

H1B: Forecast propensity for firms with good quarterly news is significantly higher in the lockup expiration quarter than in quarters with normal levels of selling.

The ownership structure of IPO firms includes several different types of large shareholders such as VCs, non-VC corporate investors, angel investors, and so on. Among these, VCs are easily identifiable and fit the description of an influential pre-IPO shareholder very well. VCs play an important role in nurturing start-ups, professionalizing them and preparing them to go public (Hellman and Puri 2000, 2002). In fulfilling this role, they not only form particularly strong ties with management, but also affect decision making, including hiring, compensating and replacing

the CEOs. Therefore, career concerns make CEOs susceptible to VCs' requests. In addition to their ability to influence managers, VCs have strong incentives to exert that influence. VCs can exit their investment in newly public firms either by directly selling their shares or distributing the shares to the limited partners (or investors) in the VC fund. Since distributions are also subject to lockup provisions, the lockup expiration is the first day after the IPO when the VCs can exit the firm. Gompers and Lerner (1998) highlight VCs' incentives to exit the firm when the stock is "over-valued" and document stock price reactions consistent with VCs exiting when the price is still high. One mechanism that allows VCs to exit at a favorable price is the timing and the nature of the news disclosed around the IPO lockup expiration. We therefore predict that the disclosure strategies depicted in H1A and H1B are going to be significantly more pronounced among VC-backed firms.

H2: The strategy of delaying the disclosure of bad news and promptly releasing good news in the lockup expiration quarter is more pronounced for firms with venture capital backing.

As discussed earlier, there are pre-IPO shareholders other than VCs that sell significant fraction of their shares after lockup expiration. We expect the resulting higher expected selling activity and more pronounced negative returns to create stronger incentives for pre-IPO shareholders at these firms to use selective disclosure strategies. Consequently, we anticipate selective disclosure strategies to be particularly pronounced among firms that, based on ex ante predictors, are expected to experience high levels of abnormal trading volume.

H3: The strategy of delaying the disclosure of bad news and promptly releasing good news in the lockup expiration quarter is more pronounced for firms that anticipate high abnormal trading volume.

The level of uncertainty varies across IPO firms (Fama and French 2004, Lowry, Officer, and Schwert 2010); moreover, greater uncertainty is associated with more pronounced negative returns around lockup expiration (Bradley et al. 2001, Ofek and Richardson 2000), creating stronger

incentives for selective disclosure that mitigates these returns. In particular, firms characterized by greater uncertainty are likely to be more concerned about further exacerbating the uncertainty and, therefore, more likely to delay disclosure of bad news. Moreover, to the extent that high uncertainty also translates into greater information asymmetry between managers and dispersed shareholders, managers' ability to delay disclosure till earnings announcements is stronger in such firms. We predict that the firms facing high levels of uncertainty at the beginning of the lockup expiration quarter are more likely to follow the selective disclosure strategy.

H4: The strategy of delaying the disclosure of bad news and promptly releasing good news in the lockup expiration quarter is more pronounced for firms with high firm-specific uncertainty.

One of the significant costs of non-disclosure is litigation risk (Skinner 1994, Skinner 1997, Kasznik and Lev 1995, Field et al. 2005, Billings and Lewis 2010). Litigation risk is of particular importance to IPO firms which can be sued under Section 11 as well as Section 10b-5 of the Securities Exchange Act of 1934. Section 11 relates to disclosures made in the IPO prospectus (Lowry and Shu, 2002), while Section 10-b5 covers subsequent disclosures and makes illegal any act or omission resulting in fraud or deceit in connection with the purchase or sale of security. In choosing a disclosure policy managers must weigh the benefits of maintaining high prices at the time pre-IPO shareholders exit against the litigation costs of selective non-disclosure. When firm-specific litigation risk is lower, this cost-benefit trade-off is more likely to result in delayed disclosure of bad news. We therefore predict that selective disclosure strategies are more pronounced among firms with low litigation risk.

H5: The strategy of delaying the disclosure of bad news and promptly releasing good news in the lockup expiration quarter is more pronounced for firms with low litigation risk.

If firms adopt selective disclosure strategies and these strategies are successful, we would anticipate systematic differences in returns around lockup expiration. Specifically, we expect to find

two types of stock price effects: first, earnings forecasts should have an immediate effect on the stock price and second, the disclosure of bad news should also impact the price sensitivity to trading volume at the time of lockup expiration. Such evidence would imply that the market is unable to fully glean the private information of managers without disclosures, which is reasonable in light of the vast literature that documents the price reaction to disclosures by firms. Although this part of the analysis is primarily to corroborate the findings in the forecast propensity tests and we do not set up formal hypotheses, we generally expect to find that disclosure choices favored by pre-IPO shareholders result in more beneficial exit prices.

3. Sample Selection

Our sample spans the January 1995 – January 2008 period. We begin with firms in the SDC database that had an IPO in the January 1995 – December 2005 period. The lockup expiration dates of these IPO firms fall in the May 1995 – November 2006 period. We exclude ADRs, unit offers, and firms that had a secondary offering during the lockup period. We further merge this dataset with CRSP and COMPUSTAT, which yields 2,973 firms. For these IPO firms, we obtain quarterly earnings announcement dates from COMPUSTAT.¹⁰ We limit the sample to firm-quarter observations for which the beginning and the ending dates of the announcement quarter are available, where announcement quarter is defined as the period starting on the day of the quarterly earnings announcement for quarter $t-1$ and ending on the day before the quarterly earnings announcement for quarter t . For each of our sample firms, we identify the announcement quarter in which the lockup expires and, because this is the primary event quarter, require the availability of necessary data for this quarter. This results in a sample of 2,308 IPO firms. We then extend the

¹⁰ When earnings announcement dates are not available on COMPUSTAT, we supplement them with I/B/E/S earnings announcement dates.

sample to include the quarter immediately preceding the lockup expiration quarter and four subsequent quarters.¹¹ We require the lockup expiration to be a separate and distinct event from the earnings announcement and, therefore, drop firms for which the lockup expiration coincides with or falls within the 10 days prior to the earnings announcement. This also allows the pre-IPO shareholders some time to trade after the lockup expires and before information is released through the earnings announcement. We also exclude firms with lockup expiration falling within the first ten days of the quarter because this period serves as our estimation window for quarterly news. These filters result in a sample of 1,705 firms. Finally, we require all firm-quarters in our sample to have the requisite data to compute control variables. Among these, an important restriction pertains to our ability to compute quarterly news- we only use firm quarters with at least one one-quarter-ahead analyst forecast issued in the first ten days of the quarter. This is because we compute the news in the quarter as the difference between the actual earnings announced at the end of the quarter and the consensus of analysts' forecasts of these earnings issued at the beginning of the quarter (see Appendix A for a detailed definition). While requiring the availability of analysts' forecasts reduces the sample size, it results in a significantly more timely estimate of quarterly news than alternatives (such as the random walk) since it impounds all information available at the start of the quarter. The final sample with all required data consists of 3,124 announcement quarters for 776 unique IPO firms. There are 294 firm-quarters with quantitative EPS forecasts.

¹¹ Since the maximum length of a quiet period after the IPO in our sample period is 40 days and the majority of IPO firms have lockups extending for 180 days, starting the sample only with the quarter immediately preceding the lockup expiration quarter alleviates concerns regarding the potential impact of the quiet period on forecast propensity.

4. Firms' Propensity to Issue Management Forecasts Around Lockup Expirations

4.1 Research Design

In this section, we examine firms' propensity to issue management earnings forecasts around lockup expirations conditional on the nature of the earnings news that is eventually released in the quarter. If the selling incentives of large pre-IPO shareholders influence disclosure policy, firms will be more likely to provide good-news forecasts and to withhold bad-news forecasts in the lockup expiration quarter, when there is a spike in selling by these relatively better informed shareholders, compared to subsequent quarters with normal anticipated levels of informed sales. To test this, we compare the probability of forecasting during the lockup expiration quarter to the probability of forecasting during the subsequent quarters. We estimate the following probit model with standard errors clustered at the firm level:

$$\begin{aligned} \text{Forecast} = & \beta_0 + \beta_1 \text{Bad News} + \beta_2 \text{Lockup Expiration Quarter} \times \text{Good News} \\ & + \beta_3 \text{Lockup Expiration Quarter} \times \text{Bad News} + \beta_{4-19} \text{Controls} \\ & + \text{Industry Fixed Effects} + \text{Year Fixed Effects} + \varepsilon \end{aligned} \quad (1)$$

Given the total earnings-related news that will be disclosed from the start of the quarter till the earnings announcement, to the extent managers receive the news early, they can voluntarily reveal part of the news at an interim point in the quarter through a management forecast or avoid the interim forecast and reveal the news only at the end of the quarter.¹² In order to capture forecasting behavior and measure the news during the quarter, we divide each announcement quarter into two periods. We use the first 10 days (the estimation window) to measure analysts' expectations of earnings, which we then compare with actual earnings to calculate earnings news for the quarter.

¹² In our analysis we focus exclusively on management forecasts as the channel through which managers communicate earnings news. Managers could provide information about components of performance that have implications for the current quarter earnings without providing direct guidance on earnings (for example, through press releases about contracts won or lost etc.). In addition, analysts and investors could (partially) infer earnings news that arise from industry- or economy-wide shocks without any management forecasts. However, management forecasts are an important component of a firm's disclosure strategy, particularly with respect to conveying earnings news (Beyer et al. 2010). Moreover, abstracting from other information channels is unlikely to introduce any systematic bias into our analyses.

We use the remainder of the quarter (the forecast window), beginning 11 days after the previous earnings announcement, to collect management forecasts (see Figure 1 for a timeline). The dependent variable, *Forecast*, is an indicator variable equal to one if the firm issues at least one quantitative management forecast pertaining to the current quarter's earnings per share (hereafter, "EPS") in the forecast window in a given announcement quarter (as captured by the First Call Company Issued Guidelines Database) and zero otherwise.¹³

Bad News and *Good News* capture the nature of earnings news to be conveyed during the quarter—*Bad News* (*Good News*) is an indicator variable equal to one when the actual earnings are less (greater) than the market's expectations of earnings. The market's expectation of earnings is computed as the mean analyst forecast issued over the estimation window.¹⁴ The quarterly news variables allow us to condition the forecasting choice on the nature of the private news.¹⁵

Our analysis compares firms across event time; specifically, we contrast the forecasting behavior in the lockup expiration quarter with the subsequent quarters. We therefore identify the quarter in which the lockup expires using an indicator variable, *Lockup Expiration Quarter*, which takes on the value of one if the lockup expiration date falls within the announcement quarter and zero otherwise. The baseline case in the regression is good-news quarters in the post lockup period, when the *Lockup Expiration Quarter* and *Bad News* indicators take the value zero. The explanatory variables of interest are the interactions of *Lockup Expiration Quarter* with the news variables, *Good News* and *Bad News*. If managers *increase disclosure* of good news to prop up the stock

¹³ Firms may disclose management forecasts during the first 10 days of the quarter but because we would like to measure forecast propensity after the analysts' consensus was estimated, we code *Forecast* as equal to 0 if a firm released forecasts only during this estimation window.

¹⁴ Our *Bad News* and *Good News* variables are similar in spirit to the "expectations gap" measure in Kasznik and Lev (1995). Similar to our approach, Kasznik and Lev (1995) use the first 30 days of the announcement quarter to measure the market's expectations of earnings and focus on the management forecasts issued in the remainder of the announcement quarter.

¹⁵ In untabulated tests, we confirm that the news conveyed in the forecast corresponds to the underlying quarterly news that we compute. Specifically, for firms with good quarterly news, the median forecast news (measured as earnings forecast less analyst consensus over the first 10 days of the quarter, scaled by price) is 0.002 and the forecast news for bad-quarterly-news firms is -0.004.

price, we expect the coefficients of *Lockup Expiration Quarter* x *Good News*, β_2 , to be greater than zero. If they *selectively withhold* bad news to mitigate uncertainty and avoid a price drop, then we expect a lower likelihood of bad-news disclosure, i.e., the coefficient of *Lockup Expiration Quarter* x *Bad News*, β_3 , to be less than zero.

For completeness, we identify and control for quarters that are entirely covered by the lockup provisions using an indicator variable, *Pre-Lockup Expiration Quarter*, which is equal to one if the announcement quarter falls entirely before the lockup expiration date and zero otherwise. We do not use these quarters as a benchmark against which to evaluate disclosure strategies in the lockup quarter for two reasons. First, managers may adjust their forecasting behavior in the pre-lockup expiration quarters (e.g., by refraining from providing any forecasts) in order to have flexibility with respect to disclosure strategy in the lockup quarter. This is because management forecast practices tend to be sticky—once a firm initiates quarterly earnings forecasts, investors expect the firm to continue forecasting on a quarterly basis (Bhojraj, Libby, and Yang 2011, Chen, Matsumoto, and Rajgopal 2010). Second, selling by pre-IPO shareholders is restricted in the pre-lockup expiration quarters. This alters both the benefits and the costs of selective disclosure—while there are no private gains to withholding bad news (decreasing the benefits of selective disclosure), litigation risk is likely lower in the absence of insider selling (decreasing the costs of selective disclosure). Our inferences are unchanged if we drop the pre-lockup period from our analysis.

We include various control variables motivated by prior literature. First, in order to assess whether firms are more likely to forecast as the magnitude of the news increases, we include control variables for the magnitude of good and bad news, *Bad News Magnitude* and, *Good News Magnitude*. We measure the magnitude of the news as the difference between actual earnings and analysts' expectations of earnings scaled by the beginning of the quarter price.

The second set of control variables capture the presence of key market participants, such as VCs, analysts, institutional shareholders, and underwriters, that may influence management forecast propensity. Appendix A outlines the measurement of all the variables. We control for *Venture Capitalists*, because they typically sell or distribute a significant portion of their holdings after lockup expiration and have strong incentives to influence the firm's disclosure policy. We control for *Analyst Following* since disclosure quality is related to analyst following (Lang and Lundholm 1996, and Healy, Hutton, and Palepu 1999). Further, Graham, Harvey and Rajgopal (2005) present survey evidence that small and insider-dominated firms use disclosure to attract analysts. We include institutional ownership (*% of Institutional Ownership*), because the presence of institutional shareholders is usually positively associated with disclosure decisions (Bushee and Noe 2000, and Ajinkya, Bhojraj and Sengupta 2005). Finally, we also control for the underwriter's reputation using an indicator variable for *Top-tier* underwriters, as Brav and Gompers (2003) suggest that reputed underwriters tend to be associated with IPO firms with lower levels of information asymmetry.

The third set of control variables capture firm characteristics identified in previous literature as related to the decision to issue a management forecast. An important factor that increases the conditional likelihood of disclosing bad news is the litigation risk that a given IPO firm faces (Skinner 1994, Field, Lowry and Shu 2005). We proxy for litigation risk prevailing in a given quarter using *Litigation Probability*, the fitted value from the litigation probability model in Rogers and Stocken (2005), who focus on litigation under SEC Rule 10b-5.¹⁶

¹⁶ We confirm the validity of using the Rogers and Stocken (2005) measure for our setting by examining the incidence of securities class action lawsuits in our sample firms over the two-year period following the IPO. When we partition the sample into two, based on median litigation probability using the Rogers and Stocken (2005) model, we find that the frequency of lawsuits related to disclosure choices for the high litigation sample is 22.4% compared to 7.47% for the low litigation probability sample (the difference is significant at the 1% level), suggesting that the Rogers and Stocken (2005) model successfully captures litigation probability for our sample of newly public firms.

Our results are robust to using an alternative measure of litigation risk introduced by Francis, Philbrick and Schipper (1994) that is based on industry classification. This industry-based measure also successfully predicts actual litigation, with high litigation risk industries experiencing a litigation rate of over 20%, and low litigation risk industries experiencing a litigation rate of 11.8% (the difference is significant at the 1% level). We report our analysis using the

We also include in the regressions firm size, market-to-book ratio, profitability, financial health and uncertainty (Kasznik and Lev 1995, Bamber and Cheon 1998, Miller 2002, Ajinkya, Bhojraj and Sengupta 2005, Hribar and Yang 2010). Specific to the IPO context, we control for % of *Shares Locked*, which captures the potential intensity of the selling pressure upon lockup expiration. Appendix A provides detailed variable descriptions.

Finally, we control for the regulatory environment with respect to forecasting behavior of firms. Specifically, given the impact of Regulation Fair Disclosure (hereafter, “FD”) on firms’ voluntary disclosures (Heflin, Subramanyam, and Zhang 2002, Mohanram and Sunder 2006), we control for the shift in regulatory regime with an indicator variable, *After Regulation FD*, equal to one if the announcement quarter ends after the enactment of Regulation FD (October 23, 2000) and zero otherwise. We also include year and industry fixed effects.

Table 1 provides descriptive statistics on the variables described above for the whole sample as well as univariate tests of differences between firm-quarters with and without management forecasts. With respect to the presence of key market participants, on average, 44% of the firm-quarters in our sample are backed by venture capitalists (similar to the 48% figure reported in Field and Hanka (2001)) and more than half have top-tier underwriters. Mean analyst following is 4.7, suggesting a reasonable level of analyst interest in sample firms. The average institutional ownership is 36%, which is of a similar order of magnitude to Field and Lowry (2009). Univariate comparisons show that analyst following is higher and the probability of venture capitalist backing is lower in firm-quarter observations where the firm provides a forecast. The mean percentage of shares locked is 72%, somewhat higher than the 63% reported by Field and Hanka (2001). Sample firms are growth firms—the mean *Market-to-Book* ratio is 4.4—with low levels of profitability—

litigation risk measure from Rogers and Stocken (2005) since its ability to predict actual litigation is slightly superior to the industry-based measure.

the mean *Return on Assets* is -0.025. Finally, consistent with our expectations, firm-quarter observations where firms provide forecasts are characterized by significantly higher levels of litigation probability.

4.2 Results

4.2.1 Is there Evidence of Selective Disclosure in the Lockup Expiration Quarter?

Table 2 presents univariate tests of forecast propensity in event time, conditional on the nature of earnings news over the entire quarter. About 31% ($=239/(239+537)$) of *Lockup Expiration* and 37% ($=723/(723+1,246)$) of *Post-Lockup Expiration* firm-quarters have bad news during the quarter. 11.7% (18.7%) of these bad-news *Lockup (Post-Lockup) Expiration* firm-quarters have a quantitative EPS forecast compared with 4.5% (6.2%) of positive-information *Lockup Expiration (Post-Lockup) Expiration* firm-quarters, consistent with evidence in the prior literature that bad-news firms are more likely to disclose management forecasts in general (Kasznik and Lev 1995). More importantly, the mean forecast propensity for firm-quarters with bad news is significantly lower in the lockup expiration quarter than in the post-lockup-expiration quarters: 11.7% versus 18.7%. In contrast, the mean forecast propensity for firm-quarters with good news is not significantly different between the lockup expiration and the post-lockup expiration period: 4.5% versus 6.2%. These findings are consistent with our Hypothesis 1A but not consistent with Hypothesis 1B. For completeness, Table 2 also presents mean forecast propensity for pre-lockup-expiration quarters: 16.8% for bad-news and 4.6% for good-news quarters. Because forecasts are more frequent in the pre-lockup quarter than in the lockup expiration quarter, a time-trend in forecasting propensity or an increase in First Call coverage over a firm's life cannot explain our results.¹⁷

¹⁷ We repeat the analysis in Table 2 for a constant sample of firms for which we have observations in the pre-lockup, lockup-expiration and the four post-lockup expiration quarters. We find that forecast propensity is fairly constant for good news quarters and ranges between 7.69% and 8.5%. In contrast, there is a drop in forecast propensity in the lockup-expiration quarters for firms with

Table 3 reports the results from the estimation of Equation (1). Consistent with the intuition in Skinner (1994) that firms are more likely to disclose bad news than good news, in the post-lockup period the likelihood of a forecast is higher in firm quarters with bad news than in quarters with good news—the coefficient on *Bad News* is positive, $\beta_1 = 0.64$, and significant at 1% level. This translates to an increase in predicted probability of 9.9 percentage points, from 4.4% for good-news quarters to 14.3% for bad-news quarters.¹⁸ More relevant for our research question, the likelihood of bad-news disclosure is significantly lower during the lockup expiration quarter relative to the post-expiration quarters—the coefficient of *Lockup Expiration Quarter x Bad News* is negative, $\beta_3 = -0.27$, and significant at 5% level.¹⁹ This result is also economically significant. The predicted probability of a forecast is 9.1% in a bad-news lockup expiration quarter; this is about 36% lower than the predicted probability for a bad-news post-lockup expiration quarter. This is consistent with H1A.

In contrast, we find no evidence in support of H1B. The likelihood of good-news disclosure is not different during the lockup expiration quarter, as evidenced by the insignificant coefficient, β_2 , on *Lockup Expiration Quarter x Good News*. This is probably driven by the low credibility that firms have when disclosing good news as documented in Hutton et al. (2003).

With respect to the control variables, we find that the magnitude of news is associated with the likelihood of forecasting only in the case of bad news. We also find that the propensity to provide management forecasts during the quarters preceding the lockup expiration does not differ from the propensity in the quarters subsequent to the lockup expiration—the coefficients of both

bad news. Specifically, forecast propensity drops from 20% in the pre-lockup period to 12.5% in the lockup-expiration quarter and increases to 19% in the post-lockup expiration quarters. These results further alleviate the concern that our results may be driven by a time trend in forecasting.

¹⁸ To calculate predicted probabilities we set *Lockup Expiration Quarter* and *Pre-Lockup Expiration Quarter* to zero and all other variables to their mean values. We then calculate predicted probability of forecasting when *Bad News* is equal to one and zero.

¹⁹ We find that $\beta_1 + \beta_3 - \beta_2$ is significantly negative with a χ^2 of 21.62 and p-value < 0.001, which suggests that while firms reduce their forecast propensity for bad news during the lockup expiration quarter, they are still more likely to disclose bad news relative to good news. This is reassuring in that the incentive to withhold bad news in the lockup expiration quarter is not strong enough to reverse the well-established result originally documented in Skinner (1994) that firms are more likely to disclose bad news.

Pre-Lockup Expiration Quarter x *Good News* and *Pre-Lockup Expiration Quarter* x *Bad News* are not different from zero. Consistent with the predictions of the prior literature, we find that forecast propensity is increasing in analyst following and profitability. At the same time, forecast propensity is higher for financially distressed firms, perhaps because of greater demand for information from creditors. Finally, consistent with prior literature (Skinner 1994, Field, Lowry and Shu 2005) firms facing greater litigation risk are more likely to provide management forecasts.

4.2.2 Does the Selective Disclosure Behavior Vary with its Costs and Benefits?

In this section, we examine whether disclosure propensity with respect to bad news during the lockup-expiration quarter varies with the costs and benefits of providing management forecasts as predicted by H2-5.

First, we examine the effect of an active influential large shareholder, the VC. H2 predicts that disclosure choices in VC backed firms are more likely to favor the exiting pre-IPO shareholders. Therefore, we separate the sample into firms with and without VC backing and re-estimate Equation (1). The results are reported in Table 4 Panel A in Models 1a and 1b. We find that the propensity to delay the bad news in the lockup-expiration quarter is driven by the VC-backed subsample. Wald tests from seemingly unrelated regression estimations reported in Panel B show that the coefficient of *Lockup Expiration Quarter* x *Bad News*, β_3 , is significantly different across Models 1a and 1b ($\chi^2 = 3.71$, p-value = 0.054). Our results suggest that we are able to isolate the influence of pre-IPO shareholders better in the VC-backed sample.

Next we examine the effect of overall selling without limiting the effect to VC-backed firms. Expected trading volume captures the intensity of selling incentives from all pre-IPO shareholders. Consequently, when the expected trading volume is higher, pre-IPO shareholders would be more likely to benefit from selective disclosure strategies that maintain a high stock price before lockup expires. Additionally, since the price impact that arises upon lockup expiration is exacerbated by a

marked increase in selling by pre-IPO shareholders, firms with higher levels of trading volume tend to experience more negative abnormal returns on the unlock day (Field and Hanka 2001). Mitigating the negative impact by employing the most beneficial disclosure strategy is thus particularly important to the pre-IPO shareholders in these firms. To examine the effect of anticipated selling intensity on disclosure, we start by estimating a model for the change in trading volume around the lockup expiration date that relies solely on ex ante measurable factors.²⁰ Similar to Field and Hanka (2001), to measure the change in trading volume we first calculate the ratio of average trading volume over days -1 to +1, where day zero is the lockup expiration day, to average trading volume over days -50 to -6. We then subtract one from this ratio. Appendix B reports the results of the estimation—VC-backing, the percentage of shares locked and underwriter reputation are the significant determinants of the change in trading volume around lockup-expiration.²¹ We then use the fitted values from this model to classify sample firms into two groups (above versus below median) based on the expected change in trading volume around the lockup-expiration day, and estimate Equation (1) separately for these two groups.

The results are reported in Table 4, Panel A, Models 2a and 2b. We find that the lower likelihood of bad-news disclosure in the lockup-expiration quarter relative to post lockup-expiration quarters is driven by the sample of firms with above-median expected change in trading volume around lockup expiration consistent with H3. The coefficient of *Lockup Expiration Quarter* x *Bad News* is negative, $\beta_3 = -0.54$, and significant at the 1% level in the *High Expected Trading* subsample; it is insignificant in the *Low Expected Trading* subsample.

Next, if bad-news forecasts increase uncertainty, which in turn has negative consequences for lockup expiration returns, then firms that face relatively high levels of uncertainty about firm

²⁰ We base our model on factors that Field and Hanka (2001) find to be significant determinants of abnormal trading volume around lockup expirations.

²¹ Field and Hanka (2001) show that VCs tend to sell or distribute significant numbers of shares at lockup-expiration. The percentage of shares locked captures the extent of the selling restriction and undiversified holdings by pre-IPO shareholders.

value will be more likely to withhold bad news around lockup expiration, as predicted by H4. To examine whether this is the case, we estimate Equation (1) separately for the sample of firms with above-median uncertainty in the lockup expiration quarter (high-uncertainty sample) and for those with below-median uncertainty (low-uncertainty sample). In the high uncertainty sample we expect a lower likelihood of bad-news disclosure in the lockup-expiration quarter relative to the post-lockup expiration quarters, i.e. the coefficient of *Lockup Expiration Quarter x Bad News*, β_3 , should be less than zero. In the low uncertainty sample, we expect to find weaker or no evidence of decreased disclosure propensity with respect to bad news.

Our primary proxy for uncertainty is an *ex ante* measure: implied volatilities from exchange-traded equity options prices (Rogers et al. 2009). We obtain implied volatilities from the OptionMetrics Standardized Options dataset. These implied volatilities are derived from hypothetical at-the-money options with various durations and are calculated on a daily basis. We use the most recent implied volatility for a hypothetical 30-day at-the-money call option over the 30-day period prior to the start of the lockup expiration quarter (*Implied Volatility*). Because only a subset of our sample firms have exchange-traded equity options, we also rely on a secondary - and more noisy - proxy for uncertainty: the standard deviation of daily stock returns in the quarter preceding the lockup expiration quarter (*Standard Deviation of Returns*).

Table 4 Panel B presents the results.²² Models 3a and 3b show that, when we use implied volatilities to measure uncertainty, we observe selective nondisclosure of bad news *only* for the subset of firms with above median implied volatilities—the coefficient of *Lockup Expiration Quarter x Bad News*, β_3 , is negative and significant in the *High Implied Volatility* subsample ($\beta_3 = -$

²² Note the following. First, in Table 4, Panel A Models 1a and 1b, we are unable to estimate the coefficient of *Venture Capital Backed* because of collinearity. Second, in Table 4 Panel B Models 3a and 3b, we are unable to estimate some of the coefficients of *Pre-Lockup Quarter x Good News* and *Pre-Lockup Quarter x Bad News* because of lack of availability of implied volatility data for the pre-IPO period. Third, throughout Table 4, the sum of the number of observations in sub-samples does not equal the total number of observations in our sample, 3,126, because in each sub-sample a handful of observations for which industry membership perfectly predicts the outcome (*Forecast*) drop out of the analyses.

1.05, significant at 1% level) and is not significantly different from zero in the *Low Implied Volatility* subsample ($\beta_3 = 0.61$). Moreover, Wald tests from a seemingly unrelated regression estimation show that β_3 is significantly different in the two subsamples— $\chi^2 = 5.54$, p-value = 0.0190. Similarly, when we proxy for uncertainty with the standard deviation of stock returns, we find that firms in the high uncertainty sample are less likely to disclose bad news relative to the subsequent quarters—the coefficient of *Lockup Expiration Quarter x Bad News* is negative and significant, $\beta_3 = -0.45$, significant at 5% level (results reported in Models 4a and 4b). This result is consistent with these firms not wanting to exacerbate the already high level of uncertainty with bad-news disclosures. In contrast, we do not observe any selective non-disclosure behavior in the low uncertainty sample. When we use this more noisy measure of uncertainty, we find that the coefficients of *Lockup Expiration Quarter x Bad News* are not significantly different from each other across the two subsamples based on traditional two-sided tests— $\chi^2 = 2.58$, p-value = 0.1079. However, given our directional predictions across the uncertainty samples, one-sided tests may be more appropriate, leading us to conclude that the coefficients are (weakly) different from each other. Taken together, the results in Models 3 and 4 with respect to delays in the disclosure of bad news are consistent with H4.

Finally, we examine whether variation in litigation risk, the primary deterrent to withholding bad news, has an impact on the selective non-disclosure behavior during the lockup-expiration quarter. We split the sample into two groups based on whether litigation risk during the lockup expiration quarter is above/below the median. The results, reported in Panel C, show that firms with high levels of litigation risk do not alter their disclosure patterns in event time—the coefficient of *Lockup Expiration Quarter x Bad News*, β_3 , equals -0.11 and is not statistically significant. In contrast, firms that face low levels of litigation risk are less likely to disclose bad news during the lockup-expiration quarter relative to the post-lockup quarters— $\beta_3 = -0.99$, significant at 1% level.

This selective non-disclosure behavior is significantly more pronounced in the *Low Litigation* subsample—the coefficient of *Lockup Expiration Quarter* x *Bad News*, β_3 , is significantly different across the two subsamples— $\chi^2 = 5.84$, p-value = 0.016. These results provide some support for H5 and reiterate the findings in the literature that litigation risk deters firms from withholding unfavorable news (Skinner 1994, Field et al. 2005).

To summarize, the results in Table 4 show that the non-disclosure of bad news is more pronounced when the potential benefits are high (high uncertainty and/or trading volume) and the potential costs are low (low litigation risk). This behavior manifests itself in an economically significant manner. In the benchmark post-lockup quarter, the probability of forecasting bad news in the high benefit/low cost subsamples varies between 8.5% and 21.0% and this likelihood decreases by 55 – 89% in bad-news lockup expiration quarters.

5. Disclosure Strategy and Stock Price Consequences

The results so far are consistent with managers selectively withholding bad news in the lockup expiration quarter, a strategy that favors pre-IPO shareholders who plan to exit the firm. A natural next question is whether by delaying bad news firms secure higher returns in the period leading up to lockup expiration and mitigate the adverse reaction to selling when lockup expires.

First, in untabulated analysis, we evaluate whether forecasts have the anticipated immediate effect on returns. We examine three-day market-adjusted abnormal returns centered on the forecast announcement date conditioning on the nature of the quarterly news. We find that firms with bad quarterly news experience significantly negative average abnormal returns of -21.1% (two-sided t-statistic of -4.36), but that the average returns to forecast announcement for firms with good quarterly news are 0.3% - not significantly different from zero (two-sided t-statistic of 0.12). This finding is consistent with Hutton et al. (2003) who conclude that good-news forecasts are less

credible and result in no significant market reaction unless they are supported with additional verifiable statements. Lack of credibility can be particularly acute in the case of newly public firms without an established forecasting history.

As we discussed earlier, a selective disclosure strategy affects investors' perception of firm value as well as investors' uncertainty about firm value. The implications of disclosed information for firm value are typically impounded into the stock price at the time the information is released and thus unlikely to affect returns at the time of lockup expiration. However, the resulting uncertainty can moderate the price impact of selling upon lockup expiration and therefore affect lockup expiration returns. We first examine a short window of returns around lockup expiration where we test for a link between disclosure and the price impact of selling. We then analyze an extended window (including the forecast window), which allows us to also test for the direct effect of disclosure on stock price and evaluate whether the direct effect and the price-impact effect are independent.

To study the effect of selective non-disclosure on the sensitivity of the stock price to selling activity over the short window around lockup expiration, we condition the price impact of selling on the nature of the news over the quarter and whether the firm issued a forecast during the lockup expiration quarter. We then estimate the following regression in the lockup expiration quarter:

$$\begin{aligned}
 \text{Abnormal Returns} = & \beta_0 + \beta_1 \text{ Good News x Forecast Before Lockup} & (2) \\
 & + \beta_2 \text{ Bad News x No Forecast Before Lockup} \\
 & + \beta_3 \text{ Bad News x Forecast Before Lockup} \\
 & + \beta_4 \text{ Change in Volume x Good News x No Forecast Before Lockup} \\
 & + \beta_5 \text{ Change in Volume x Good News x Forecast Before Lockup} \\
 & + \beta_6 \text{ Change in Volume x Bad News x No Forecast Before Lockup} \\
 & + \beta_7 \text{ Change in Volume x Bad News x Forecast Before Lockup} \\
 & + \beta_8 \text{ Venture Capital Backed} + \beta_9 \% \text{ of Shares Locked} \\
 & + \beta_{10} \text{ Standard Deviation of Returns} + \text{Industry Fixed Effects} + \varepsilon
 \end{aligned}$$

The dependent variable, *Abnormal Returns*, is the market-adjusted buy-and-hold returns over days -1 to +1, where day zero is the lockup expiration day. The main variables of interest are interactions between *Abnormal Volume*, the nature of the news (*Good News* versus *Bad News*) and forecasting choice (*Forecast Before Lockup* versus *No Forecast Before Lockup*). *(No) Forecast Before Lockup* is an indicator variable that is equal to one if the firm (does not issue) issues a forecast in the lockup expiration quarter from the beginning of the forecast estimation window to the day before lockup expiration, and zero otherwise (see Figure 2 for a timeline of events in the lockup expiration quarter). Limiting forecasts to those issued in the lockup expiration quarter but before the lockup expiration date ensures that the disclosure choice is in the information set of market participants. *Good News* and *Bad News* are as defined before. *Change in Volume*, as defined in Appendix A captures the extent of selling on the lockup expiration day.

We control for variables that Field and Hanka (2001) find to be significantly associated with abnormal returns around lockup expiration (*Venture Capital Backed* and *% of Shares Locked*, defined as before). We also include *Standard Deviation of Returns* (as defined before) in Equation (2) to account for the association between the level of uncertainty and abnormal returns documented by Ofek and Richardson (2000) and Bradley et al. (2001). This helps us to understand the effect of managing uncertainty through disclosure strategy while controlling for the effect of the level of uncertainty as of the beginning of the lockup quarter.

We study two main questions. First, for firms with bad news, is the adverse price impact of selling worse for firms that disclosed a forecast relative to those that stay silent? Second, for firms that do not disclose any forecasts, we examine whether the market is able to distinguish between firms that have bad versus good news. That is, is there some pooling between the two types of non-disclosers, those with bad versus good news?

Model (1) in Table 5 Panel A reports the results. Consistent with our expectations, we find that, conditional on having bad news, returns sensitivity to volume is negative and significant for firms that issue a forecast in the lockup expiration quarter—the coefficient of *Change in Volume x Bad News x Forecast Before Lockup*, $\beta_7 = -0.115$, significant at 1% level. This translates to abnormal returns of approximately -7.6% for a firm with an average change in trading volume of 0.66. In contrast, abnormal return sensitivity to trading volume is not significantly different from zero for firms that do not disclose bad news—the coefficient of *Change in Volume x Bad News x No Forecast Before Lockup*, β_6 , is not significantly different from zero and β_6 is greater than β_7 at the 1% level.²³ Finally, there is no significant difference in the price impact between firms with good news that remain silent and non-disclosing firms with bad news it, consistent with managers benefiting from non-disclosure of their bad news.

We next extend the returns window to include the forecast announcement returns. This allows us to test for direct effects of disclosure strategies on returns when we take into account the forecast announcement window and examine whether the price impact results are robust to these direct effects. The extended window for returns includes all days in the quarter starting after the estimation period and ending one day after lockup expiration (see Figure 2). We next re-estimate Equation (2) replacing the dependent variable with returns over this extended window – *Abnormal Returns (Extended)*. The results are reported in Model (2) in Table 5 Panel A. Since this window now includes the forecast announcement when there is one, we now find that bad-news forecasts are associated with significant negative returns—the coefficient of *Bad News x Forecast Before Lockup*, $\beta_3 = -0.24$. Moreover, this result is in addition to the significant adverse price impact of

²³ Our results are unlikely to be related to different magnitudes of *News* between the group of bad-news firms that do and do not disclose a forecast. In untabulated t-tests we cannot reject the null hypothesis that *News* is of the same magnitude for the two groups of firms.

selling for firms disclosing bad news—the coefficient of *Change in Volume x Bad News x Forecast Before Lockup*, $\beta_7 = -0.135$.

Taken together, the analysis of returns over the short and long windows suggests that bad news disclosures during the lockup expiration quarter have two effects on returns. First, bad news is associated with immediate negative returns. Second, disclosures by firms with bad news made during the quarter amplify the adverse price impact of selling on the lockup expiration date. While the former effect is well established in the disclosure literature, the latter is a new result that speaks to the persistent effects of disclosure. These results on the effects of disclosure versus non-disclosure, conditional on the type of news provides support for our hypotheses that pre-IPO shareholders would prefer a selective disclosure policy to maximize the price at which they exit the firm at lockup expiration.

One potential concern in interpreting the price impact of disclosures is that disclosing firms might be systematically different from non-disclosing firms. For instance, if firms disclosing their bad news face greater magnitudes of bad news relative to the silent firms, the magnitudes of the news, rather than the act of forecasting, may drive the difference in returns. In univariate tests, we find that the magnitude of news for disclosers is not significantly different from non-disclosers for subsamples of both good- and bad-news firms. However, a similar concern could extend to other determinants of forecast propensity. To address this concern, we expand the specification in Equation (2) to include all of the controls from our forecast propensity model (Equation (1)).²⁴ The results from this expanded specification, reported in Table 5 Panel B shows that our results are robust to controlling for all the additional determinants of management forecasting.

²⁴ Since the litigation risk measure in Rogers and Stocken (2005) includes several inputs based on the quarter's stock returns (such as minimum returns etc.), including it as one of the independent variables in the returns regressions creates a mechanical relation. To address this issue, in our returns-related analysis we use an alternative measure of litigation risk based industry classification from Francis et al. (1994). As mentioned in footnote 16, this measure also performs well in terms of capturing the litigation risk in the IPO sample.

6. Disclosure Strategy and Insider Trading Behavior

The findings in Section 5 suggest that overall firms' shareholders benefit from the non-disclosure of bad news. In this section, we explore whether managers, who are themselves subject to lockup provisions, personally benefit from this disclosure strategy. That is, it is possible that the non-disclosure choices of firms are driven primarily by managers' personal selling needs. To address this possibility, we examine whether managers of firms that do not disclose bad news before the lockup expiration are more likely to sell their personal shares once the lockup expires. We estimate the following ordinary least squares regression for the magnitude of net insider sales by the officers of the firm during the lockup expiration quarter:

$$\begin{aligned} \text{Net Insider Sales} = & \beta_0 + \beta_1 \text{Good News} \times \text{Forecast Before Lockup} & (3) \\ & + \beta_2 \text{Bad News} \times \text{No Forecast Before Lockup} \\ & + \beta_3 \text{Bad News} \times \text{Forecast Before Lockup} + \beta_4 \text{Run-up} \\ & + \beta_5 \text{Venture Capital Backed} + \beta_6 \text{Top-tier Underwriter} \\ & + \beta_7 \% \text{ of Shares Locked} + \beta_8 \% \text{ of Institutional Ownership} \\ & + \beta_9 \text{Analyst Following} + \beta_{10} \text{Litigation Probability} + \varepsilon \end{aligned}$$

Net Insider Sales is the number of shares sold minus the number of shares purchased by company officers during the lockup expiration quarter scaled by shares outstanding at the beginning of the quarter. All other variables are as defined before. The coefficient of *Bad News x No Forecast Before Lockup*, β_2 , greater than zero would suggest that the non-disclosure behavior is at least partially driven by managers' desire to sell their shares at more favorable prices at the lockup expiration.

Table 6 presents the results. We find no evidence that the non-disclosure behavior is affected by managers' selling activities during the lockup expiration quarter—the coefficient of *Bad News x No Forecast Before Lockup* is insignificant and not different from the coefficient of *Bad News x Forecast Before Lockup*. This result is consistent with managers facing a higher litigation risk when they personally benefit from non-disclosure or false disclosures (see Johnson, Kasznik and Nelson 2001, Johnson, Nelson and Pritchard 2000). Interestingly, managers sell significantly

more shares when they have disclosed good news—the coefficient of *Good News x Forecast Before Lockup*, β_1 equals 0.0090 and is significant at 10%—compared to when they remained silent about their good news.²⁵ This is consistent with Noe (1999) who shows that while firms do not strategically disclose to maximize insider selling gains, they do trade when disclosures affect prices favorably.

7. Conclusion

Upon lockup expiration firms experience substantial selling by pre-IPO shareholders accompanied by a significant price decline. In this paper, we examine whether large and influential pre-IPO shareholders impact the firm’s voluntary disclosure strategies to manage investors’ perceptions of firm value and mitigate uncertainty-related stock price consequences around lockup expirations.

Our primary empirical tests compare management forecast propensity in the lockup expiration quarter with that in subsequent quarters, conditioning on the nature (good versus bad) of the information (“news”) to be conveyed in the quarter. We find that conditional on having bad news to convey, the propensity of issuing an earnings forecast is significantly lower in the lockup expiration quarter than in later quarters, a strategy that allows pre-IPO shareholders to sell or exit at favorable prices.

This selective non-disclosure strategy varies predictably with VC-backing, the anticipated trading volume upon lockup expiration, firm-specific uncertainty and litigation risk. VCs are a readily identifiable influential pre-IPO shareholder and we find that strategic non-disclosure of bad

²⁵ The results are robust to including the magnitude of good and bad news. Further, we obtain similar results in an untabulated test that corresponds to our cross-sectional tests in Table 4. Specifically, we re-estimate Equation (1) for the subsamples with *Net Insider Sales* equal to one and *Net Insider Sales* equal to zero. We do not find any evidence of selective non-disclosure of bad news when there is net insider selling by managers. However, we do not report this analysis since we ideally require an ex ante measure of managers’ selling incentives for the cross-sectional tests of forecast propensity. In contrast, the tests reported in Table 6 constitute an ex post evaluation of whether insiders benefit from selected disclosure strategies.

news is concentrated in the sample of VC-backed firms. Without limiting ourselves to VC-backed firms, we document delays in bad news disclosure among firms with high expected trading volume when lockup expires. We also find that firms facing high levels of uncertainty at the beginning of the lockup expiration quarter follow a markedly selective disclosure strategy. The high uncertainty affects both the incentives to use non-disclosure of bad news to dampen the price impact on unlock day and also potentially makes it easier for the manager to avoid conveying their private news. Finally, we find that when the litigation risk is high, it is effective in mitigating the influence of pre-IPO shareholders.

Our analysis of abnormal returns around lockup expiration suggests that firms that do not voluntarily disclose bad news face a less adverse stock price reaction in response to the abnormal trading volume than firms that disclose their bad news prior to lockup expiration. This finding is independent of the previously documented, and replicated here, immediate negative effect that bad-news disclosures have on returns. This suggests that the strategy of selective non-disclosure is successful in maintaining a high stock price and mitigating the adverse stock market consequences of selling that occurs upon lockup expiration.

Overall, our findings are consistent with the selling incentives of large influential shareholders shaping the firm's disclosure choices. Our findings lend insights into various other settings in which large active shareholders such as hedge funds and private equity investors have incentives and ability to influence the flow of information to dispersed shareholders.

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Appendix A – Variable Definitions

Variable Name	Variable Definition
<i>Abnormal Returns</i>	Market adjusted buy and hold returns over the [-1,+1] window where day 0 is the lockup expiration day. Source: CRSP
<i>Abnormal Returns (Extended)</i>	Market adjusted buy and hold returns from 11 days after the previous earnings announcement through day +1 relative to lockup expiration. Source: CRSP
<i>After Regulation FD</i>	An indicator variable that is equal to one if the announcement quarter ends after the enactment of Regulation FD (October 23, 2001) and zero otherwise.
<i>Analyst Following</i>	Natural logarithm of one plus the number of analysts that issue at least one (one-quarter- or one-year-ahead) earnings forecast for the firm during the announcement quarter. Source: I/B/E/S.
<i>Bad News</i>	An indicator variable that is equal to one when management's expectations of earnings (proxied by the actual quarterly earnings per share) less analysts' expectations of earnings (proxied by the average one-quarter ahead forecasts issued over the first 10 days of a given quarter) is less than zero. Source: I/B/E/S, First Call and CRSP.
<i>Bad News Magnitude</i>	The magnitude of news when there is bad news. The magnitude of the news is measured as management's expectations of earnings (proxied by the actual quarterly earnings per share) less analysts' expectations of earnings (proxied by the average earnings forecasts issued over the first 10 days of a given quarter) scaled by beginning of quarter stock price. When news is positive <i>Bad News Magnitude</i> is set to zero. Source: I/B/E/S, First Call and CRSP.
<i>Change in Trading Volume</i>	The ratio of average trading volume over days -1 to +1, where day zero is the lockup expiration day, to average trading volume over days -50 to -6. We then subtract one from this ratio. Source: CRSP
<i>Forecast</i>	An indicator variable that is equal to one if the firm issued at least one quantitative forecast pertaining to this quarter's EPS in a given quarter (excluding those issued in the first 10-days since this is the estimation period for earnings news of the quarter), and zero otherwise. Source: First Call
<i>Forecast Before Lockup</i>	An indicator variable that is equal to one if the firm issues at least one quantitative forecast pertaining to this quarter's EPS during the lockup expiration quarter (excluding the first 10 days) and before the lockup expiration date. Source: First Call
<i>Good News</i>	An indicator variable that is equal to one when management's expectations of earnings (proxied by the actual quarterly earnings per share) less analysts' expectations of earnings (proxied by the average earnings forecasts issued over the first 10 days of a given quarter) is greater than zero. Source: I/B/E/S, First Call and CRSP.
<i>Good News Magnitude</i>	The magnitude of news when there is good news. The magnitude of the news is measured as management's expectations of earnings (proxied by the actual quarterly earnings per share) less analysts' expectations of earnings

(proxied by the average earnings forecasts issued over the first 10 days of a given quarter) scaled by beginning of quarter stock price. When news is negative *Good News Magnitude* is set to zero. Source: I/B/E/S, First Call and CRSP.

<i>High Tech Firm</i>	An indicator variable that is equal to one for firms in the following SIC industries: 2833 (Medicinal chems, botanical pds), 2834 (Pharmaceutical preparations), 2835 (In vitro, in vivo diagnostics), 2836 (Biological pds, ex diagnostics), 3570 (Computer & office equipment), 3571 (Electronic computers), 3572 (Computer storage devices), 3576 (Computer communications equip), 3577 (Computer peripheral eq, nec), 3661 (Tele & telegraph apparatus), 3674 (Semiconductor, related device), 4812 (Radiotelephone communication), 4813 (Phone comm ex radiotelephone), 5045 (Computers & software-whsl), 5961 (Catalog, mail-order houses), 7370 (Comp programming, data process), 7371 (Computer programming service), 7372 (Prepackaged software), 7373 (Computer integrated system design). Source: Compustat
<i>Implied Volatility</i>	The implied-volatility for a hypothetical 30-day at-the-money call option over the 30-day period prior to the start of the lockup expiration quarter. Source: OptionMetrics.
<i>Litigation Probability</i>	The cumulative density function of the fitted value from the litigation probability model in Rogers and Stocken (2005) computed for a given announcement quarter. Source: CRSP and Compustat.
<i>Lockup Expiration Quarter</i>	An indicator variable that is equal to one for the announcement quarter during which the lockup expires.
<i>Market-to-Book Ratio</i>	Market capitalization scaled by the book value of equity at the end of a given fiscal quarter. Source: Compustat.
<i>Net Insider Sales</i>	The number of shares sold minus the number of shares purchased by company officers during the lockup expiration quarter deflated by shares outstanding at the beginning of the quarter. Source: Thomson Financial.
<i>No Forecast Before Lockup</i>	An indicator variable that is equal to one if the firm does not issue at least one quantitative forecast pertaining to this quarter's EPS during the lockup expiration quarter starting 11 days after the beginning of the quarter and ending the day before lockup expiration. Source: First Call.
<i>% of Institutional Ownership</i>	Percentage of shares held by institutional shareholders measured at the latest TFN report date that falls in the announcement quarter. Source: Thomson Financial.
<i>% of Shares Locked</i>	One minus the percentage of shares sold in the IPO. Source: SDC
<i>Post-Lockup Expiration Quarter</i>	An indicator variable that is equal to one for the four announcement quarters subsequent to the announcement quarter during which the lockup expires.
<i>Pre-Lockup Expiration Quarter</i>	An indicator variable that is equal to one for announcement quarters preceding the announcement quarter during which the lockup expires.
<i>Return on Assets</i>	Income before extraordinary items for a given quarter scaled by total assets as of the end of the quarter. Source: Compustat.

<i>Run-up</i>	Market adjusted buy and hold returns over the window starting from the issue date of the IPO and ending one day before the start of the announcement quarter during which the lockup expires. Source: CRSP.
<i>Size (in millions)</i>	The market value of equity at the beginning of the announcement quarter. Source: Compustat.
<i>Standard Deviation of Returns</i>	The standard deviation of daily stock returns in the preceding quarter. Source: CRSP
<i>Venture Capital Backed</i>	An indicator variable that is equal to one if the firm is venture capital backed and zero otherwise. Source: SDC
<i>Top-tier Underwriter</i>	An indicator variable that is equal to one if the underwriter for the IPO is a top-tier investment bank. Top tier banks are identified as investment banks with a modified Carter Manaster Rank of 9.1 as constructed by Jay Ritter based on the original Carter-Manaster Reputation Ranks (Carter and Manaster 1990, Loughran and Ritter 2004). We thank Jay Ritter for making the data available at http://bear.cba.ufl.edu/ritter/ipolink.htm .
<i>Trading Volume</i>	Average abnormal trading volume over the [-1,+1] window where day zero is the lockup expiration day. Abnormal trading volume on a given day is calculated as trading volume during that day less normal trading volume scaled by normal trading volume. Normal trading volume is calculated as the average trading volume over the [-50, -6] window where day zero is the lockup expiration day. Source: CRSP.
<i>Z-Score < 1.81</i>	An indicator variable that is equal to one if the firm has an Altman Z-score of less than 1.81 in a given quarter and zero otherwise. Source: CRSP and Compustat.

Appendix B – Expected Trading Volume Prediction Model

The following table presents the results from an OLS regression in which *Change in Trading Volume* is the dependent variable. The sample consists of 776 IPO-firm-lockup expiration quarters over the 1995-2007 period. Standard errors clustered at the firm level. ***, **, and * denote p-values less than 0.01, 0.05 and 0.1, respectively. All variables are defined in Appendix A.

Variable	<i>Dependent Variable = Change in Trading Volume</i>	
	Coeff.	SE
<i>Intercept</i>	-0.542	0.336
<i>Run-up</i>	0.120*	0.068
<i>Venture Capital Backed</i>	0.930***	0.192
<i>Top-tier Underwriter</i>	0.226	0.181
<i>% of Shares Locked</i>	0.008*	0.004
<i>High Tech Firm</i>	0.073	0.196
Observations	776	
Adjusted R ²	4.36%	

Table 1 – Descriptive Statistics

Table 1 reports descriptive statistics for our final sample of 3,124 firm-quarter observations. ***, **, and * denote p-values less than 0.01, 0.05 and 0.1, respectively. All variables are defined in Appendix A.

Variable	<i>All Observations</i> N = 3,126		<i>Forecast = 0</i> N = 2,832	<i>Forecast = 1</i> N = 294	<i>Forecast = 1</i> <i>vs. Forecast = 0</i>	
	Mean	Standard Deviation	Mean	Mean	Difference in Means	t-statistic
<i>Good News</i>	0.660	0.474	0.688	0.388	-0.300	0.47***
<i>Bad News</i>	0.340	0.474	0.312	0.612	0.300	0.47***
<i>Good News Magnitude</i>	0.002	0.006	0.002	0.001	-0.001	0.01***
<i>Bad News Magnitude</i>	0.004	0.012	0.003	0.008	0.004	0.01***
<i>Venture Capital Backed</i>	0.442	0.497	0.450	0.367	-0.083	0.50***
<i>Top-tier Underwriter</i>	0.528	0.499	0.525	0.551	0.026	0.50
<i>Analyst Following</i>	4.739	3.366	4.624	5.844	1.220	3.37***
<i>% of Institutional Ownership</i>	0.360	0.243	0.359	0.369	0.011	0.24
<i>% of Shares Locked</i>	72.23	21.32	72.28	71.76	-0.517	21.32
<i>Size (in millions)</i>	1,028	3,201	1,002	1,276	274	3,201
<i>Market-to-Book Ratio</i>	4.415	18.670	4.365	4.905	0.541	18.67
<i>Return on Assets</i>	-0.025	0.205	-0.026	-0.013	0.013	0.20
<i>Z-Score < 1.81</i>	0.397	0.489	0.393	0.435	0.042	0.49
<i>Litigation Probability</i>	0.005	0.013	0.005	0.011	0.006	0.01***
<i>Standard Deviation of Returns</i>	0.046	0.025	0.046	0.047	0.001	0.03
<i>After Regulation FD</i>	0.379	0.485	0.376	0.405	0.028	0.49

Table 2 – Distribution of Forecasts by Period Relative to Lockup Expiration and by Sign of Information

Table 2 reports the fraction of EPS management forecasts by period relative to lockup expiration and by the nature of the quarterly news (*Good News* versus *Bad News*). ***, **, and * denote p-values less than 0.01, 0.05 and 0.1, respectively. All variables are defined in Appendix A.

Period	<i>Good News</i>		<i>Bad News</i>	
	Number of Firm-Quarters	Mean of Forecast	Number of Firm-Quarters	Mean of Forecast
<i>(1) Pre-Lockup Expiration Quarter</i>	280	0.046	101	0.168
<i>(2) Lockup Expiration Quarter</i>	537	0.045	239	0.117
<i>(3) Post-Lockup Expiration Quarter</i>	1,246	0.062	723	0.187
T-test for differences	(2) vs. (3)	-1.43	(2) vs. (3)	-2.49**

Table 3 – Management Forecast Propensity

Table 3 reports results from the Probit regression (Equation (1) in the paper) estimated for the final sample of 3,124 firm-quarter observations. The dependent variable, *Forecast*, takes the value of one if the firm issued at least one quantitative EPS forecast in a given quarter, and zero otherwise. Standard errors are clustered at the firm level. ***, **, and * denote p-values less than 0.01, 0.05 and 0.1, respectively. Year and industry fixed effects are suppressed. All explanatory variables are defined in Appendix A.

Variable	<i>Dependent Variable = Forecast</i>	
	Coefficient	Standard Error
<i>Intercept</i>	-5.80 ^{***}	0.81
<i>Bad News</i>	0.64 ^{***}	0.10
<i>Lockup Expiration Quarter</i> x <i>Good News</i>	-0.03	0.12
<i>Lockup Expiration Quarter</i> x <i>Bad News</i>	-0.27 ^{**}	0.12
<i>Pre-Lockup Expiration Quarter</i> x <i>Good News</i>	0.00	0.14
<i>Pre-Lockup Expiration Quarter</i> x <i>Bad News</i>	0.06	0.17
<i>Good News Magnitude</i>	6.07	7.04
<i>Bad News Magnitude</i>	7.28 ^{***}	2.73
<i>Venture Capital Backed</i>	-0.14	0.10
<i>Top-tier Underwriter</i>	-0.07	0.09
<i>Analyst Following</i>	0.53 ^{***}	0.10
<i>% of Institutional Ownership</i>	-0.02	0.18
<i>% of Shares Locked</i>	0.00	0.00
<i>Size (in millions)</i>	-0.04	0.04
<i>Market-to-Book Ratio</i>	0.00	0.00
<i>Return on Assets</i>	2.07 ^{***}	0.65
<i>Z-Score < 1.81</i>	0.19 ^{**}	0.08
<i>Litigation Probability</i>	8.87 ^{***}	2.75
<i>Standard Deviation of Returns</i>	1.19	2.45
<i>After Regulation FD</i>	0.35 [*]	0.21
Observations	3,126	
Pseudo R ²	13.81%	

Table 4 – Cross-Sectional Analysis of Management Forecast Propensity

Table 4 reports results from estimating Equation (1) on subsamples based on uncertainty (Panel A), trading volume (Panel B) and litigation risk (Panel C). The dependent variable is *Forecast* which takes the value of one if the firm issued at least one quantitative EPS forecast in a given quarter, and zero otherwise. Standard errors are clustered at the firm level. ***, **, and * denote p-values less than 0.01, 0.05 and 0.1, respectively. Year and industry fixed effects are suppressed. All explanatory variables are defined in Appendix A.

Panel A – The role of VC-Backing and Overall Selling by Pre-IPO Shareholders

Variable	Model 1a <i>VC-Backed</i>		Model 1b <i>Non-VC Backed</i>		Model 2a <i>High Expected Trading</i>		Model 2b <i>Low Expected Trading</i>	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
<i>Intercept</i>	-0.37	1.54	-6.80***	1.12	-0.11	1.40	-7.22***	1.22
<i>Bad News</i>	0.61***	0.15	0.70***	0.12	0.56***	0.14	0.74***	0.13
<i>Lockup Expiration Quarter x Good News</i>	-0.23	0.21	0.08	0.14	-0.26	0.20	0.13	0.15
<i>Lockup Expiration Quarter x Bad News</i>	-0.62***	0.21	-0.12	0.16	-0.54***	0.19	-0.10	0.17
<i>Pre-Lockup Expiration Quarter x Good News</i>	-0.46*	0.26	0.11	0.19	0.01	0.20	-0.21	0.24
<i>Pre-Lockup Expiration Quarter x Bad News</i>	-0.23	0.27	0.23	0.23	-0.21	0.27	0.18	0.23
<i>Good News Magnitude</i>	-9.82	9.85	26.63***	10.19	-11.03	9.48	32.69***	10.65
<i>Bad News Magnitude</i>	6.74	4.53	6.68*	3.62	9.97**	4.31	5.13	3.70
<i>Venture Capital Backed</i>					-0.28	0.19	0.12	0.41
<i>Top-tier Underwriter</i>	-0.14	0.16	0.05	0.13	-0.16	0.14	0.01	0.14
<i>Analyst Following</i>	0.45***	0.14	0.67***	0.15	0.43***	0.14	0.68***	0.16
<i>% of Institutional Ownership</i>	-0.35	0.36	-0.01	0.21	-0.15	0.29	-0.02	0.24
<i>% of Shares Locked</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00*	0.00
<i>Size (in millions)</i>	-0.07	0.08	-0.04	0.06	-0.11	0.07	0.01	0.06
<i>Market-to-Book Ratio</i>	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01
<i>Return on Assets</i>	1.68**	0.65	3.06**	1.40	2.09***	0.76	2.48*	1.47
<i>Z-Score < 1.81</i>	0.27**	0.13	0.20*	0.12	0.20*	0.12	0.23*	0.12
<i>Litigation Probability</i>	6.04**	2.68	21.93***	4.69	7.31***	2.77	19.84***	4.86
<i>Standard Deviation of Returns</i>	-3.25	4.27	6.91**	3.07	-1.00	3.50	6.06	3.84
<i>After Regulation FD</i>	0.60**	0.31	0.05	0.30	0.58**	0.28	-0.10	0.36
Observations	1,270		1,743		1,441		1,561	
Pseudo R ²	16.9%		16.7%		15.6%		17.1%	

Panel A (cont.)

Comparison of Lockup Expiration Quarter x Bad News Across Subsamples	Coeff.	χ^2	p-value	Coeff.	χ^2	p-value
Model 1a versus Model 1b	-0.51	3.71*	0.054			
Model 2a versus Model 2b				-0.44	2.91*	0.088

Panel B – The Role of Uncertainty

Variable	Uncertainty = Implied Volatility				Uncertainty = Std. Dev. of Returns			
	Model 3a		Model 3b		Model 4a		Model 4b	
	High Uncertainty	Low Uncertainty	High Uncertainty	Low Uncertainty	High Uncertainty	Low Uncertainty	High Uncertainty	Low Uncertainty
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
<i>Intercept</i>	-0.65	4.02	-4.04	4.14	-2.62**	1.21	-5.69***	1.22
<i>Bad News</i>	0.76**	0.32	0.93***	0.31	0.73***	0.14	0.59***	0.14
<i>Lockup Expiration Quarter x Good News</i>	-0.48	0.43	0.60*	0.36	-0.04	0.18	-0.10	0.16
<i>Lockup Expiration Quarter x Bad News</i>	-1.05***	0.40	0.61	0.59	-0.45**	0.18	-0.04	0.19
<i>Pre-Lockup Expiration Quarter x Good News</i>			0.22	0.54	0.15	0.20	-0.24	0.23
<i>Pre-Lockup Expiration Quarter x Bad News</i>	-1.23**	0.54			0.34	0.21	-0.53	0.41
<i>Good News Magnitude</i>	24.51	25.43	84.24***	22.73	1.18	9.15	21.05*	11.72
<i>Bad News Magnitude</i>	34.80**	14.57	2.10	26.34	8.08**	3.59	2.00	4.95
<i>Venture Capital Backed</i>	0.23	0.35	-0.45	0.55	-0.38***	0.12	0.20	0.16
<i>Top-tier Underwriter</i>	-0.11	0.40	-0.90**	0.36	-0.09	0.14	0.03	0.14
<i>Analyst Following</i>	0.38	0.32	2.12***	0.41	0.39***	0.15	0.64***	0.15
<i>% of Institutional Ownership</i>	0.08	0.79	2.40***	0.52	0.32	0.28	-0.25	0.27
<i>% of Shares Locked</i>	-0.02	0.01	0.02***	0.01	0.01	0.00	-0.01**	0.00
<i>Size (in millions)</i>	-0.04	0.19	-0.36*	0.20	-0.04	0.06	-0.04	0.06
<i>Market-to-Book Ratio</i>	0.02	0.02	0.00	0.01	0.00	0.00	0.02**	0.01
<i>Return on Assets</i>	1.37	1.41	3.92	5.92	1.54**	0.66	1.55	1.06
<i>Z-Score < 1.81</i>	-0.10	0.38	0.33	0.32	0.20*	0.11	0.20	0.13
<i>Litigation Probability</i>	0.79	3.72	4.89	21.79	7.55***	2.71	26.44***	9.38
<i>Standard Deviation of Returns</i>	9.68	6.66	-74.09**	36.85	1.66	3.20	7.37	8.89
<i>After Regulation FD</i>	-0.18	0.72	1.49	0.91	0.38*	0.23	0.06	0.54
Observations	214		268		1,518		1,487	
Pseudo R ²	27.5%		39.4%		16.9%		18.2%	

Comparison of Lockup Expiration Quarter x Bad News Across Subsamples	Model 3a versus Model 3b			Model 4a versus Model 4b		
	Coeff.	χ^2	p-value	Coeff.	χ^2	p-value
Model 3a versus Model 3b	-1.66	5.54**	0.0190			
Model 4a versus Model 4b				0.05	2.58	0.1079

Panel C – The Role of Litigation Risk

Variable	Model 5a		Model 5b	
	<i>Low Litigation Risk</i>		<i>High Litigation Risk</i>	
	Coeff.	SE	Coeff.	SE
<i>Intercept</i>	-8.07***	1.42	-1.72	1.14
<i>Bad News</i>	0.59***	0.15	0.70***	0.13
<i>Lockup Expiration Quarter x Good News</i>	-0.04	0.17	0.01	0.18
<i>Lockup Expiration Quarter x Bad News</i>	-0.99***	0.33	-0.11	0.15
<i>Pre-Lockup Expiration Quarter x Good News</i>	0.17	0.20	-0.16	0.22
<i>Pre-Lockup Expiration Quarter x Bad News</i>	0.30	0.30	-0.21	0.24
<i>Good News Magnitude</i>	16.83	11.30	-4.24	8.95
<i>Bad News Magnitude</i>	5.09	4.60	7.09*	3.71
<i>Venture Capital Backed</i>	-0.21	0.18	-0.18	0.12
<i>Top-tier Underwriter</i>	-0.04	0.15	-0.10	0.12
<i>Analyst Following</i>	0.68***	0.17	0.45***	0.13
<i>% of Institutional Ownership</i>	0.08	0.26	0.09	0.25
<i>% of Shares Locked</i>	0.00*	0.00	0.01	0.00
<i>Size (in millions)</i>	-0.14*	0.08	-0.06	0.05
<i>Market-to-Book Ratio</i>	0.01	0.01	0.00	0.00
<i>Return on Assets</i>	3.71**	1.81	1.71**	0.71
<i>Z-Score < 1.81</i>	0.16	0.13	0.27**	0.11
<i>Litigation Probability</i>	32.68***	9.94	5.67**	2.38
<i>Standard Deviation of Returns</i>	5.87	4.92	-2.01	2.89
<i>After Regulation FD</i>	-0.08	0.57	0.43*	0.23
Observations	1,487		1,544	
Pseudo R ²	20.4%		15.5%	
Comparison of Lockup Expiration Quarter x Bad News Across Subsamples				
	Coeff.	χ^2	p-value	
Model 5a versus Model 5b	-0.88	5.84**	0.016	

Table 5 – Abnormal Returns around Lockup Expiration

Table 5 presents the results from the estimation of Equation (2). The dependent variable in model (1), *Abnormal Returns*, are market adjusted buy and hold returns on days -1 to +1 relative to lockup expiration. The dependent variable in model (2), *Abnormal Return (Extended)*, are market adjusted buy and hold returns from 11 days after the previous earnings announcement through day +1 relative to lockup expiration. The sample consists of 776 IPO-firm-lockup expiration quarters over the 1995-2007 period. ***, **, and * denote p-values less than 0.01, 0.05 and 0.1, respectively. Industry fixed effects are suppressed. All explanatory variables are defined in Appendix A.

Panel A - Disclosure Strategy and Returns

	Model 1			Model 2		
	<i>Lockup Expiration Event Window</i>			<i>Extended Window</i>		
	Coeff.	SE		Coeff.	SE	
<i>Intercept</i>	0.118***	0.02		-0.170***	0.04	
<i>Good News x Forecast Before Lockup</i>	0.011	0.01		0.025	0.05	
<i>Bad News x No Forecast Before Lockup</i>	0.001	0.01		-0.028	0.02	
<i>Bad News x Forecast Before Lockup</i>	0.005	0.04		-0.240***	0.05	
<i>Abnormal Volume x Good News x No Forecast Before Lockup</i>	-0.001	0.00		-0.001	0.01	
<i>Abnormal Volume x Good News x Forecast Before Lockup</i>	0.065	0.04		0.169*	0.10	
<i>Abnormal Volume x Bad News x No Forecast Before Lockup</i>	0.002	0.01		0.027	0.03	
<i>Abnormal Volume x Bad News x Forecast Before Lockup</i>	-0.115***	0.03		-0.135***	0.04	
<i>Venture Capital Backed</i>	-0.029***	0.01		-0.049*	0.03	
<i>% of Shares Locked</i>	0.000**	0.00		0.000	0.00	
<i>Standard Deviation of Returns</i>	-0.178	0.22		0.161	0.56	
Observations	776			776		
Adjusted R ²	3.20%			1.60%		
Selected Wald Tests for <i>Abnormal Volume</i> Interactions	Coeff.	χ^2	p-value	Coeff.	χ^2	p-value
<i>Forecast Before Lockup - Good News versus Bad News</i>	0.180	12.96***	0.000	0.265	7.96***	0.005
<i>No Forecast Before Lockup - Good News versus Bad News</i>	-0.003	0.28	0.600	-0.028	1.08	0.300
<i>Good News - Forecast Before Lockup versus No Forecast Before Lockup</i>	0.066	2.68	0.102	0.170	2.86*	0.091
<i>Bad News - Forecast Before Lockup versus No Forecast Before Lockup</i>	-0.117	14.86***	0.000	-0.162	11.78***	0.001

Panel B – Disclosure Strategy and Returns after Controlling for Determinants of Forecast Propensity

	Model 1		Model 2	
	<i>Lockup Expiration Event Window</i>		<i>Extended Window</i>	
	Coeff.	SE	Coeff.	SE
<i>Intercept</i>	0.171 ^{**}	0.07	0.125	0.20
<i>Good News x Forecast Before Lockup</i>	0.008	0.02	0.031	0.05
<i>Bad News x No Forecast Before Lockup</i>	0.000	0.01	-0.007	0.03
<i>Bad News x Forecast Before Lockup</i>	0.003	0.04	-0.224 ^{***}	0.05
<i>Abnormal Volume x Good News x No Forecast Before Lockup</i>	-0.001	0.00	0.000	0.01
<i>Abnormal Volume x Good News x Forecast Before Lockup</i>	0.068	0.05	0.162	0.10
<i>Abnormal Volume x Bad News x No Forecast Before Lockup</i>	0.002	0.01	0.027	0.03
<i>Abnormal Volume x Bad News x Forecast Before Lockup</i>	-0.116 ^{***}	0.03	-0.119 ^{***}	0.04
<i>Good News Magnitude</i>	-0.293	0.51	2.819	2.07
<i>Bad News Magnitude</i>	-0.048	0.33	-0.921	0.89
<i>Venture Capital Backed</i>	-0.030 ^{***}	0.01	-0.054 ^{**}	0.03
<i>Top-tier Underwriter</i>	-0.003	0.01	-0.009	0.02
<i>Analyst Following</i>	0.011	0.01	0.070 ^{**}	0.03
<i>% of Institutional Ownership</i>	0.005	0.01	-0.043	0.04
<i>% of Shares Locked</i>	0.000	0.00	0.000	0.00
<i>Size (in millions)</i>	-0.003	0.00	-0.018 [*]	0.01
<i>Market-to-Book Ratio</i>	0.000	0.00	0.000 [*]	0.00
<i>Return on Assets</i>	-0.026	0.04	-0.050	0.09
<i>Z-Score < 1.81</i>	-0.010	0.01	-0.029	0.02
<i>Litigation Probability</i>	-0.009	0.01	-0.017	0.03
<i>Standard Deviation of Returns</i>	-0.088	0.23	0.112	0.61
<i>After Regulation FD</i>	0.011	0.01	-0.006	0.02
Observations	776		776	
Adjusted R ²	2.51%		1.91%	

Panel B (cont).

	Model 1			Model 2		
	<i>Lockup Expiration Event Window</i>			<i>Extended Window</i>		
Selected Wald Tests for <i>Abnormal Volume</i> Interactions	Coeff.	χ^2	p-value	Coeff.	χ^2	p-value
<i>Forecast Before Lockup - Good News versus Bad News</i>	0.184	11.59***	0.001	0.281	7.43***	0.007
<i>No Forecast Before Lockup - Good News versus Bad News</i>	-0.003	0.32	0.575	-0.027	0.97	0.324
<i>Good News - Forecast Before Lockup versus No Forecast Before Lockup</i>	0.069	2.29	0.131	0.162	2.75*	0.098
<i>Bad News - Forecast Before Lockup versus No Forecast Before Lockup</i>	-0.118	14.59***	0.000	-0.146	8.42***	0.004

Table 6 – Insider Selling in the Lockup Expiration Quarter

Table 6 presents the results from the estimation of Equation (3). The Dependent variable, *Net Insider Sales*, the number of shares sold minus the number of shares purchased by company officers during the lockup expiration quarter deflated by shares outstanding at the beginning of the quarter. The sample consists of 776 IPO-firm-lockup expiration quarters over the 1995-2007 period. Year fixed effects are suppressed. Standard errors are clustered at the firm level. ***, **, and * denote p-values less than 0.01, 0.05 and 0.1, respectively. All explanatory variables are defined in Appendix A.

Variable	Dependent Variable = Net Insider Sales		
	Coeff.		SE
<i>Intercept</i>	-0.002		0.00
<i>Good News x Forecast Before Lockup</i>	0.009*		0.01
<i>Bad News x No Forecast Before Lockup</i>	0.000		0.00
<i>Bad News x Forecast Before Lockup</i>	-0.002		0.01
<i>Run-up</i>	0.001***		0.00
<i>Venture Capital Backed</i>	0.000		0.00
<i>Top-tier Underwriter</i>	-0.002*		0.00
<i>% of Shares Locked</i>	0.000		0.00
<i>% of Institutional Ownership</i>	0.002		0.00
<i>Analyst Following</i>	0.001		0.00
<i>Litigation Probability</i>	-0.030		0.04
Observations	776		
Adjusted R ²	0.7%		
Selected Wald Tests	Coeff.	χ^2	p-value
<i>Bad News x No Forecast Before Lockup</i> versus <i>Bad News x Forecast Before Lockup</i>	0.002	0.14	0.7089

Figure 1: Timeline for Any Given Announcement Quarter t for Forecast Propensity Analysis

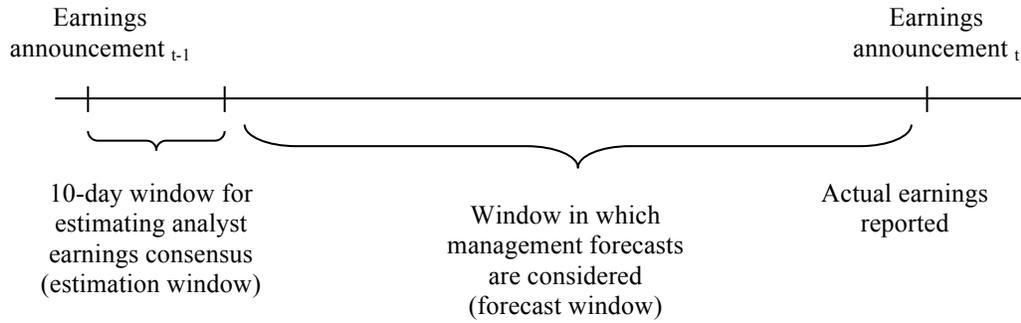


Figure 2: Timeline for Lockup Expiration Quarter for Returns Analysis

