The Effect of Stock Price on Discretionary Disclosure

Ewa Sletten*

Kellogg School of Management

Northwestern University

(Job Market Paper)

Current Version: March 2007

Abstract

I examine the impact of exogenous changes in stock prices on managers' voluntary disclosures. Specifically, I investigate whether stock price declines prompt managers to voluntarily disclose firm-value-related information that was withheld prior to the decline because it was "unfavorable" but became favorable at a lower stock price. Consistent with my predictions, I find that managers are more likely to release good news forecasts following larger stock price declines. Moreover, as expected, there is no association between the likelihood of releasing good news forecasts and the magnitude of an exogenous stock price increase. However, I also document a negative relationship between the likelihood of disclosing bad news forecasts and an exogenous stock price change, possibly related to firms' attempts to reduce litigation costs; my tests of this explanation are inconclusive. Overall, this paper provides evidence that managers tend to withhold bad news from investors, and demonstrates that exogenous changes in stock price can induce disclosure of news that would not otherwise have been released.

---

* I am grateful to my dissertation committee: Thomas Lys (chairman), Ravi Jagannathan, Robert Magee, and Beverly Walther for their valuable comments and numerous discussions. I also greatly appreciate helpful suggestions from Dora Altschuler, Brad Badertscher, Brian Cadman, Daniel Cohen, Aiyesha Dey, Ronald Dye, Yonca Ertimur, Benjamin Lansford, Xiaohui Liu, N.V. Ramanan, Tjomme Rusticus, Thor Sletten, Jayanthi Sunder, Shyam Sunder, Nicolas Vincent and seminar participants at Northwestern University. I gratefully acknowledge the generous financial support from the Kellogg School of Management, Northwestern University.

1. Introduction

When a manager is concerned with his firm's stock price, his disclosure decisions likely depend on what he expects the stock market reaction to his private information to be.[1] This paper tests the hypothesis that the manager characterizes his private information relative to the firm's stock price and that changes in the stock price can affect the manager's incentives to disclose. In particular, I investigate whether managers tend to withhold information with negative value implications (bad news), releasing this information once a stock price decline transforms it into good news (i.e., relative to the lower stock price). Identifying managers' incentives to disclose or withhold information is important because it contributes to our understanding of the information available to capital markets. Traditional capital market research has analyzed the impact of voluntary disclosure on stock prices, but not the reverse relationship.[2] The objective of my paper is to fill this gap.

In order to identify whether changes in stock price induce managers to reconsider the disclosure of withheld information, I examine management forecasts following an exogenous price change. I find that managers whose firms suffer larger negative price shifts are more likely to disclose information associated with a positive market reaction (good news). This is consistent with the hypothesis that managers initially withhold bad news, but release the news in reaction to price declines (as the news is now good, relative to the lower stock price). Thus, I document the impact of stock price on discretionary disclosure and provide evidence consistent with managers withholding bad news from investors.

I derive my hypotheses from the "threshold" models of Dye (1985) and Verrecchia (1983). These models suggest that, in equilibrium, managers choose to reveal news that favorably affects stock price,

---

[1] Managers' incentives to maximize current stock price include option exercises, insider selling, upcoming equity issues, and managers' career concerns (Coughlan and Schmidt 1985; Lang and Lundholm 2000; Noe 1999; Warner, Watts and Wruck 1988; Weisbach 1988). Dye (1985) and Verrecchia (1983), among others, recognize that incentives to maximize current stock price affect discretionary disclosure.

[2] See Foster (1973), Patell (1976), Penman (1980), Ajinkya and Gift (1984), Waymire (1984), Pownall and Waymire (1989), Lev and Penman (1990), Hutton, Miller, Skinner (2002), and Anilowski, Feng, Skinner (2006), among others.

and withhold information that adversely affects price.[3] That is, each piece of new information that a manager receives implies a market value for the firm. There exists a threshold level of implied firm value below which a manager withholds information; the threshold corresponds exactly to the firm's stock price.[4] In such a setting, some managers will possess undisclosed news, which they withheld because it was likely to lead to a stock price decline.

I predict that an exogenous decline in stock price can induce managers to disclose previously withheld news. This exogenous price decline must be triggered by an event that contributes to investors' available knowledge about the value of the firm, but does not add to the manager's private information. As a result of such a decline, the same piece of information becomes more favorable relative to investors' new lower valuation—that is, the disclosure threshold shifts downward. Thus, when managers revisit their past disclosure decisions in the face of an exogenous stock price decline, they should be more likely to disclose the now-good news.[5] The larger the stock price decline, the more likely that a given manager's bad news becomes good news. As a result, I expect larger stock price declines to be associated with a higher likelihood that managers disclose good news after the event.

Note that this prediction applies only to negative stock price revisions: when the stock price increases, previously withheld information remains unfavorable relative to investors' new valuation. Therefore, I expect no association between the magnitude of a stock price increase and the likelihood that managers disclose good news.

To test these predictions, I analyze management forecast propensity after a financial restatement by an industry peer.[6] The primary advantage of this setting is that, while the announcement of a financial

---

[3] In their models there are managers who either have no information (Dye 1985) or find it expensive to disclose (Verrecchia 1983). Because investors cannot distinguish between managers with poor information and managers with no new information (or high disclosure costs), firms with poor information will prefer the pooled price and will not disclose.

[4] Technically, this is only true in Dye (1985); in Verrecchia (1983) the threshold corresponds to stock price plus cost of disclosure. This paper's predictions are the same in either case.

[5] This can be illustrated with the following example. Suppose that the manager has private information that future earnings will be such that the firm should be valued at $27 per share but the current stock price is $30 per share. The manager would like to maintain a high stock price so he chooses not to release the news. However, if the stock price exogenously declines below $27 per share, the manager will release his information about future earnings because his disclosure will be now associated with a positive market reaction.

[6] I obtain the sample of financial restatements from the General Accounting Office Report (2002). The report includes only restatements due to material errors and fraud, i.e. instances in which financial statements were not fairly presented in accordance

restatement affects the stock prices of industry peer firms, it is unlikely to change the value of the private information held by the peer firms' managers.[7] Recent literature (Gleason, Jenkins, and Johnson 2005; Xu, Najand, and Ziegenfuss 2006) documents that, on average, industry peers of restating firms experience negative cumulative abnormal returns at the time of the restatement announcement (henceforth contagion effect). Xu et al. (2006) also find that industry peers of firms whose restatement results in a negative (positive) market reaction incur negative (positive) contagion.

Using this setting, I show that managers reassess earlier disclosure decisions, and that, consistent with the theories above, they release good news which was previously withheld because it was viewed as bad news. Specifically, I find that after restatements by industry peers, the more negative the stock price change the more likely managers are to disclose good news management forecasts. As expected, there is no association between good news forecast propensity and the magnitude of the stock price increase.

One confounding factor in my chosen setting is the effect of litigation risk on bad news disclosure. In Dye (1985) and Verrecchia (1983) managers are not subject to litigation when suppressing bad news; as such, these models do not predict disclosure of bad news. However, empirical evidence suggests that managers of firms subject to high litigation risk reveal bad news, and it is likely that by increasing investor scrutiny, stock price declines also increase litigation risk.[8] Thus, following a stock price decline, managers might disclose because (1) the disclosure now increases the stock price or (2) the disclosure responds to an increase in litigation risk (even though releasing the news further decreases the price). I find that the managers of the firms with the largest stock price declines (increases) are the most (least) likely to release bad news. Tests attempting to attribute this result to changes in litigation risk are inconclusive.

---

with Generally Accepted Accounting Principles. Restatements resulting from stock splits, mergers and acquisitions, or changes in accounting principles are not included in the report. In this paper, industry peers are defined as another firm with the same 4-digit SIC code.

[7] The most obvious effect of a restatement is that investors believe that other firms in the industry are more likely to restate their earnings, and thus adjust other firms' prices according to this new likelihood. However, the manager presumably already knows what the true earnings are, regardless of whether the firm will also restate in the future.

[8] See Skinner (1994, 1997) and Field, Lowry, and Shu (2005), among others, for evidence that litigation risk induces disclosure of bad news. Francis, Philbrick, and Schipper (1994) and Johnson, Nelson and Pritchard (2000) show that stock price declines tend to trigger litigation.

Prior literature has identified incentives for both disclosure and withholding of bad news. Skinner (1994, 1997) provides empirical evidence that some managers disclose bad news early to reduce litigation costs. However, there has been recent interest in the idea that managers might delay or withhold bad news (Anilowski, Feng, and Skinner 2006; Ertimur, Sletten, and Sunder 2006; Kothari, Shu, and Wysocki 2006; Tucker and Zarowin 2006). The main challenge in providing evidence for the withholding of information by managers is determining when they first received the news and when it would have been disclosed under a full-disclosure strategy. I address this issue by identifying an event that changes how the news is interpreted (from bad news to good news), thus prompting the manager to reconsider his disclosure decision.

My study makes two important contributions. First, I show that stock price changes provide strong incentives for managers to disclose private information in a novel setting wherein investors' valuation changes but there is no change in managers' information. Second, I provide incremental evidence for managers' withholding of bad news, while largely avoiding the usual methodological concerns about the timing of news arrival—since the character of news is relative to stock price, a stock price decline transforms bad news to good, inducing managers to reveal hidden information.

This paper is organized as follows. Section 2 presents the related literature and testable hypotheses. Section 3 describes the empirical setting, sample selection process and data. Section 4 discusses the research design and results, and Section 5 presents conclusions.

2. Related Literature and Hypotheses

Previous literature has investigated whether managers' disclosure decisions depend on the favorability of the news they hold.[9] In particular, there has been significant interest in whether managers disclose good news but withhold or delay the disclosure of bad news. Initial empirical approaches to the issue of bad news withholding were cross-sectional, revealing that forecasting firms tend to have higher

[9] See Healy and Palepu (2001), Verrecchia (2001), and Dye (2001) for an extensive review of incentives for disclosure.

market returns and better financial performance. Penman (1980) and Lev and Penman (1990) find that stock returns over the long term are higher for firms that forecast.[10] In a similar spirit, Miller (2002) documents that as earnings performance improves, managers increase their levels of disclosure. Finally, the literature on earnings announcements (Givoly and Palmon 1982; Patell and Wolfson 1982; Chambers and Penman 1984; Cohen, Dey, Lys, and Sunder 2006) finds that managers tend to delay announcements when actual earnings are below market expectations. However, Skinner's (1994, 1997) work and other research on litigation risk supports the argument that investors' legal recourse (via Rule 10b-5 of the Securities and Exchange Act of 1934) gives managers a strong incentive to report bad news.

Recent studies have used more indirect approaches to examine the issue of bad news withholding. Rather than inferring non-disclosure from the characteristics of disclosing firms, they analyze the timing and short-term market impact of disclosure. Anilowski et al. (2006) and Tucker and Zarowin (2006) look at stock returns in general, finding that firms experience positive returns throughout the quarter, while negative returns are observed disproportionately towards the end of the quarter.[11] If disclosure drives the trend in returns, this would be consistent with the release of bad news later than that of good news. Kothari et al. (2006) find that investors react more strongly to bad news than to good news, controlling for the magnitude of the news (defined as either the difference between the earnings forecast and analysts' expectations of earnings or the amount of dividend change). They argue that this is because good news is leaked early and thus is not a surprise to investors. Finally, Ertimur, Sletten, and Sunder (2006) study IPO lockup expiration quarters, when incentives for insider selling are high and litigation risk presumably low (at the time of lockup expirations, many insiders sell their stock for diversification reasons; hence, it may be difficult for investors to distinguish between liquidity- and information-motivated trades). They find that in quarters marked by lockup expiration, managers delay bad news disclosures until the earnings announcement, relative to quarters immediately preceding or following the expiration quarters.

---

[10] They also find that the mean market response (three day cumulative abnormal returns) to management forecasts is positive; however, other studies find the opposite result, either using analysts' forecasts as expected earnings or using more comprehensive samples (Ajinkya and Gift 1984; Hutton, Miller, and Skinner 2002; Anilowski, Feng, and Skinner 2006).

[11] Tucker and Zarowin (2006) condition their analysis on firm size and find that while returns accrue smoothly for large firms, small firms tend to disclose a larger portion of news earlier in good-news quarters than in bad-news quarters.

I also find that managers withhold bad news; however, my contribution relative to the extant literature is that I use a natural experiment, identifying withholding via an event expected to abruptly increase managers' incentive to disclose. I begin with Dye's (1985) and Verrecchia's (1983) threshold strategy—release good news, withhold bad news—and ask: What would a manager who followed this strategy do in the face of an exogenous stock price change? The resulting extension, which is supported by the data, is that managers withhold bad news, revisit the disclosure decision upon a price change and, if the price shift is negative enough, subsequently release the news.

The idea that changes in stock price can affect managers' disclosure decisions is, to the best of my knowledge, new. Prior research has shown that managers might use the market reaction to an announcement of a strategy change (Dye and Sridhar 2002) or a potential merger (Luo 2005) in deciding whether to pursue the opportunity. However, in these papers managers intentionally make announcements to learn from investors' response. In my study stock price changes are exogenous rather than in response to managers' announcements; thus, changes in disclosure patterns represent reactions to such price shifts.

The remainder of this section develops my specific hypotheses and provides a discussion of relevant results from the theoretical literature. The original theoretical framework for voluntary disclosure is based on the work of Grossman (1981) and Milgrom (1981). Their "unraveling" model assumes that all firms receive value-relevant information, and that the distribution of this information is common knowledge. Investors value firms either at a level commensurate with their truthfully disclosed information, or, in the case of no disclosure, at a level that corresponds to the mean value of undisclosed information. In this setting, there can be no equilibrium in which a group of managers choose not to disclose, because the group will always include at least one firm above the mean, and this firm will receive a higher valuation by disclosing than by withholding. Thus there will be full disclosure.

Dye (1985) and Verrecchia (1983) qualify these results, however, finding that firms will disclose according to a simple "threshold" strategy.[12] Their innovation was to add to the model setting an additional factor that prevents some firms from disclosing. Dye (1985) does this by assuming that some firms do not receive a signal, while Verrecchia (1983) supposes that there may be other costs to disclosure, making it prohibitively expensive to reveal private information. In the unraveling models above, the only possible motive for withholding information was if the manager received a low-value signal. In Dye (1985) and Verrecchia (1983), there is another group of firms who do not disclose, either because their managers have not received information or because they have high costs of disclosure. Because this additional group of non-disclosing firms does not consist solely of low-value firms, managers of low-value firms benefit from withholding news and thus pooling with these firms. Dye (1985) and Verrecchia (1983) show that this leads to an equilibrium in which managers compare their signals to a value threshold, and disclose if their value exceeds this threshold.

In practice, this means that as news arrives, managers choose between two possible stock prices—one a consequence of disclosure, and the other the result of withholding. In equilibrium, the threshold discussed above is the current stock price. If the news suggests a firm value above the current stock price, the manager discloses the news. If it implies a value below the current stock price, the manager withholds the news. Thus, at any given time, some managers possess undisclosed news, because disclosing that information would have reduced the current stock price. The empirical approach of this paper is to use an exogenous change in the stock price of a firm to determine, by observing resulting changes in the disclosure threshold, whether managers follow such a disclosure strategy. That is, do they release undisclosed news after an exogenous stock price change?

The empirical setup is as follows. The exogenous stock price change must be an unexpected event for the manager, which (1) adds to investors' available knowledge about the value of the firm, but (2)

[12] Farrell (1986) comes to similar conclusions as Dye (1985), while Jung and Kwon (1988) extend the model developed by Dye (1985). Jovanovic (1982) develops a model based on Akerlof's (1970) market for lemons that has the same implications as Verrecchia (1983).

does not add to the manager's private information on the value of the firm.[13] Consistent with theories described above, I define good (bad) news as news about firm value that suggests a stock price higher (lower) than the current stock price. I suppose that managers promptly disclose good news and withhold some bad news from investors. When there is an exogenous adverse shock to the stock price, some news that previously had implied firm value lower than the stock price now implies firm value higher than the revised stock price. This news, previously considered bad (based on the previous stock price) and withheld from investors, is now considered good (relative to the revised stock price) and is thus disclosed. The more the stock price declines, the more likely previously withheld information is to be interpreted as good news after the shock and disclosed. If the stock price increases following an exogenous shock, the manager is not more likely to disclose good news because previously withheld information still implies a lower stock price than the revised valuation.

Figure 1 presents the logic underlying this event study. If managers are following the strategy described above, then at the point in time just before the exogenous shift (marked t=0 in both diagrams), some managers will possess previously withheld private information. P_{Mgmt} reflects the firm's value based on this private information. Because this information was withheld, it must have been considered bad news when the market price was P_0. Thus P_{Mgmt} must be lower than the market price P_0. At time t=1 in both diagrams, the market price shifts exogenously to P_1, with no change in P_{Mgmt}. Figure 1a depicts a negative shift in stock price, Figure 1b a positive one. When the price shifts down, for some managers this will be a sufficient shift such that the market price P_1 is now lower than the price implied by the manager's previously withheld news, P_{Mgmt}. In response, the manager will disclose this news (as it is now good news), and at time t=2 the new market price will be P_{Mgmt} (Figure 1a). When the price shifts up, on the other hand, managers who have withheld news in the past (because $P_{Mgmt} < P_0$) will continue withholding (because $P_{Mgmt} < P_0 < P_1$). The final price at time t=2 will remain at P_1 (Figure 1b).

[13] The event must be unexpected so that the manager's disclosure can be attributed to the restatement; it must be of use to investors so that the stock price shifts; yet, it must not affect the manager's value of the firm so that the value of the manager's information does not shift with the stock price.

For any given firm, a larger exogenous stock price drop leads to a greater chance that the manager will interpret private information about firm value as good news and disclose it. Over the whole sample, then, I expect to see an association between the magnitude of a *stock price decline* and the propensity to disclose good news. In contrast, regardless of the magnitude of a *stock price increase*, previously withheld bad news still implies a firm value lower than the revised stock price and, hence, such information will not be more likely to be disclosed. I state these relationships formally via the following hypothesis:

Hypothesis 1A:

In the absence of new private information, the higher the magnitude of a stock price decline, the more likely the manager is to disclose good news (i.e., information associated with a favorable market reaction). However, there is no association between the magnitude of the stock price increase and the propensity to disclose good news.

The goal of this paper is to show, following an exogenous price decline, that managers disclose previously withheld information rather than new information. Thus, the caveat in the hypothesis above—"in the absence of new private information"—is necessary because I measure discretionary disclosure over an extended window following the exogenous event that drives the stock price change. This window introduces the possibility that new private information about firm value arrives during the period of interest, and that disclosures in the sample may be a product of this new information, rather than of previously withheld information. Ideally, to reduce the potentially confounding effect of new private information, the window should include only the day of the exogenous shock. However, managers may require some time after the price shift to disclose. Accordingly, I measure disclosure over an extended window; nevertheless, I also check the sensitivity of my results to short windows (i.e., those not exceeding one week). The shorter the window, the less likely that new private information would confound observed disclosures.

In order to rule out the possibility that observed disclosure patterns result from new information, I also develop and test alternative predictions concerning the disclosure of new information. What is the nature of this new information? One possibility is that managers who did not previously receive a signal (or received an imprecise signal) are now receiving (precise) signals about their firms' value.

For now, suppose that the exogenous stock price change is not related to this new realization of the signal. Figure 2 illustrates this case. Prior to the exogenous shock to prices, at time t=0, the manager has not received any private information about firm value. The bold black line represents potential values of signals that the manager might subsequently receive. Thus, P_{Mgmt} is equal to the current stock price P_0 (the expected firm value). An exogenous shock to prices can result in a stock price increase or a stock price decrease. First consider the consequences of a stock price increase. At time t=1, when the stock price has increased to P_{1H}, the manager who follows a threshold-type strategy discloses newly received signals as long as they fall above P_{1H} (i.e., within the black region in the figure). The region below P_{1H} represents the non-disclosure region. For any given firm the more the stock price increases, the smaller the disclosure region. When the stock price decreases to P_{1L}, the manager discloses new signals as long as they fall above P_{1L} (i.e., within the dark gray and black regions in the figure). For any given firm the more the stock price declines, the larger the disclosure region and, therefore, the more likely the manager is to disclose.

Hence, in this case as opposed to the hypothesis above, if managers follow a threshold-type disclosure strategy, I expect to see less disclosure of good news for firms with larger stock price increases. However, the prediction for stock price declines is in line with the hypothesis above. Specifically, the more negative the stock price change, the more likely that the news will be interpreted as good.

Since this case provides a different prediction with respect to positive stock price changes, I propose the following additional hypothesis:

Hypothesis 1B:

If managers receive new private information following an exogenous stock price change and the information is uncorrelated with the price change, the higher the magnitude of the negative (positive) price change, the more (less) likely the manager is to disclose good news (i.e., news associated with a favorable market reaction).

The second possible case is that in which a new realization of firm value is related to the stock price change (i.e., relaxing the assumption in the previous paragraphs). For example, investors may learn something about firm value from the event that caused the exogenous stock price change. Because investors are rational, the new stock price must include the expected value of the information investors learned. Thus any surprise to investors (i.e., the market's reaction to managers' disclosure) must be mean-independent of the stock price change, because otherwise it suggests that investors incorrectly priced their new information in the first place. It is still possible that the presence of new information could interfere with my results, if the skewness (or some other mean-preserving change in shape) of the distribution of the new information's value is related to the stock price shift, but I have no *a priori* expectation of such a relationship.

In summary, this is a setting in which threshold strategies provide clear predictions about disclosure. If managers follow this threshold-type strategy, then the more their stock price *declines*, the more likely they are to subsequently interpret their withheld news as good relative to the new stock price, and thus disclose the now-good news. Disclosure patterns for firms with *stock price increases* differ depending on whether managers receive new information about the firm value or not. This allows me to rule out an alternative explanation: that disclosure following a stock price change is based on newly arriving rather than previously withheld information. In particular, when there is an increase in stock price and managers receive no new information, the likelihood of disclosing good news is not related to the magnitude of the increase in stock price. However, when managers receive new private information, the more the stock price increases the less likely they are to disclose good news.

Throughout this section the implied null hypothesis has been the strategy of full disclosure: in general, I do not expect an association between stock price shifts and disclosure of good news if managers follow the strategy of full disclosure.

Finally, because models offered by Dye (1985) and Verrecchia (1983) do not consider the impact of litigation risk on the disclosure of bad news, the manager in these models always suppresses bad news in order to receive a higher stock price. Consequently, I do not develop any formal hypotheses with respect to bad news. However, in practice some managers do reveal bad news (news with a negative market reaction). Therefore, in Section 4 I discuss how litigation risk is likely to impact the disclosure of bad news in this study, based on empirical findings from prior research.

3. Empirical Setting, Sample Selection and Data

3.1 Empirical Setting

3.1.1 Restatement by an Industry Peer

Testing the hypotheses developed in Section 2 requires a setting with an exogenous shift in stock prices. To be precise, it requires a stock price change that is a result merely of a change in investor perception, and not a result of a change in the underlying (manager's) value of the firm.

In this paper I use financial restatements by industry peers as such a setting. Previous research finds significantly negative cumulative abnormal returns for industry peers of the restating firm (Gleason, Jenkins, and Johnson 2005; Xu, Najand, and Ziegenfuss 2006). This is evidence that investors update their valuation of the peers based on the information conveyed by the restatement. However, the manager's private information about the firm value is unlikely to be affected by this event.[14] Hence, restatements are exogenous to the underlying value of peer firms. I thus examine the disclosure propensity of industry peers of firms that have announced a financial restatement—specifically, how their disclosure

[14] For example, a likely cause of negative abnormal returns is investors' fear that the peer firm will also restate earnings. In this case, the peer firm's manager presumably already knows whether the firm will be forced to restate in the future; hence, the manager's private information does not change.

propensity is related to the cumulative abnormal returns that the firm experienced upon the news of a restatement by its industry peer.

Gleason et al. (2005) document that the average cumulative abnormal returns on the three days surrounding the restatement announcement date for non-restating industry peers are -0.38%. However, in order for the changes in stock price experienced by industry peers to be consistent with an information transfer, these changes not only must be different from zero but also must be of the same sign as the returns of the restating firm. Even though abnormal returns for the restating firms are on average negative, in some cases the market reaction to a restatement announcement can be positive. For example, Callen, Livnat, and Segal (2006) report a significantly positive market reaction to income-increasing restatements related to irregularities in capitalization or expensing. Moreover, in 29% of restatement announcements analyzed by Palmrose, Richardson, and Scholz (2004) the restating firm experienced non-negative abnormal returns.

Xu et al. (2006) provide evidence that the stock prices of industry peers move on average in the same direction as the stock prices of the restating firms. They find that the average abnormal returns on the three days surrounding the restatement announcement are -0.76% for industry peers of restating firms with negative stock price changes, and 0.89% for peers of restating firms with positive stock price changes (both significantly different from zero). Xu et al. (2006) interpret these results as consistent with an intra-industry information transfer. Following the terminology in Gleason et al. (2005) and Xu et al. (2006), I refer to industry peer firms' cumulative abnormal returns on the three days surrounding a restatement announcement as the "contagion effect".

Prior literature provides some insight into why there is a contagion effect. Firms are more likely to restate financial statements after their industry peers restate (Pfarrer et al. 2005). Therefore, following a restatement announcement, investors are likely to revise the probability that the peer firms will restate as well. Assuming that the peer's earnings are likely to be revised in the same direction as earnings of the restating firm, the increased probability of a restatement can result in higher (lower) expected earnings for industry peers when the original restatement was income-increasing (income decreasing).

Additional evidence provided by Xu et al. (2006) is consistent with this explanation; they find that the contagion effect is likely due to a revision in short-term earnings expectations. Xu et al. (2006) use the implied cost of capital technique of Claus and Thomas (2001), Gebhardt, Lee, and Swaminathan (2001), and Easton and Monahan (2003) to examine whether the contagion effect can be attributed to a change in the cost of capital and/or a revision in expected future performance. They find no significant changes in the cost of capital or in long term growth analysts' forecasts. However, the average one-year-ahead and two-year-ahead analyst earnings forecasts decrease significantly for the industry peers of the restating firms with negative market reactions to the restatement.[15] This is important for my study, as managers' disclosure decisions regarding expected short-run future performance (i.e. management forecasts) are exactly what I analyze in this setting.

3.1.2 Management Forecasts

I focus on management forecasts as a proxy for discretionary disclosure. Information about future performance released through management forecasts can be interpreted by investors differently depending on their expectations. It constitutes good news whenever the disclosed estimate is above the level expected by investors and bad news whenever the estimate is below the expected level. When the stock price decreases (i.e. when investors lower their expectations) managers' private information about future financial performance can be interpreted as good news given the revised expectations. This is what makes management forecasts a suitable form of discretionary disclosure for this study.

In this study I define good news as information about firm value that, if released, increases the stock price and bad news as information that decreases the stock price. Consequently, in my empirical tests, I classify forecasts as good (bad) news forecasts when the cumulative abnormal returns at forecast announcement are positive (negative).[16]

[15] I confirmed that the average one-quarter-ahead and one- and two-year-ahead analyst earnings forecasts revisions for the industry peers of the restating firms with negative market reactions are also significantly negative in my sample (results not tabulated).

[16] Noe (1999), and Cheng and Lo (2006) among others use a similar approach to classifying forecasts as good news and bad news forecasts.

3.2 Sample Selection and Data

I obtained a list of financial restatements from the General Accounting Office Report (2002). The report identifies 919 announcements of financial restatements which took place between 01/01/1997 and 06/30/2002. The GAO report includes only restatements due to material errors and fraud, i.e. instances in which financial statements were not fairly presented in accordance with Generally Accepted Accounting Principles. Restatements resulting from stock splits, mergers and acquisitions, or changes in accounting principles are not included in the report.

Table 1, Panel A illustrates the sample selection process. Data for only 618 of the restatement announcements was available on COMPUSTAT and CRSP. I retained the announcements for which there was no preceding industry restatement for at least 90 days, which resulted in 438 restatement announcements. This restriction follows from the periodicity of management forecasts. The majority of forecasts are quarterly[17] and managers rarely provide more than one forecast per quarter. Therefore, if managers reveal their private forward-looking information after the first industry restatement, subsequent restatements within the quarter are unlikely to trigger additional disclosure, unless the manager has received new information about this quarter's performance in the meantime, or the stock price decline after the first restatement was not sufficiently large to trigger disclosure.[18]

Table 1, Panel B presents the industry distribution of these 438 restatements. Although in my tests I use a finer industry classification (4-digit SIC code), Panel B lists the number and frequency of restatements by 2-digit SIC code for clarity of presentation. For comparison, I also present the frequency of firms on COMPUSTAT in fiscal year 2000 (midpoint of my sample) by 2-digit SIC code. Restating firms come from various industries and approximate the industry distribution of firms on COMPUSTAT. Therefore, I conclude that financial restatements are widely spread rather than limited to certain industries.[19]

---

[17] In my final sample, approximately 85% of all forecasts are quarterly.
[18] I verified the sensitivity of my results to this restriction. My main results are robust to 60 and 120 days as alternative cutoffs.
[19] Industrial and Commercial Machinery Equipment (code 35), and Measuring, Analyzing and Controlling Instruments (code 38) are overrepresented relative to COMPUSTAT, while some Financial Institutions and Business Services are slightly underrepresented.

My primary sample, however, is not the sample of restating firms but that of their industry peers, i.e. firms with the same 4-digit SIC code at the time of the restatement announcement. The final sample consists of 13,718 industry peer firm-quarters with sufficient available COMPUSTAT and CRSP data. I obtain returns and stock prices from CRSP, financial statements items from COMPUSTAT, and analysts' and management forecasts from First Call. I define announcement quarters as the period between quarterly earnings announcements; that is, for fiscal quarter t the announcement quarter starts the day after the earnings announcement for fiscal quarter t-1, and ends on the day of the earnings announcement for fiscal quarter t. I exclude observations for which the beginning and the end dates of the announcement quarter are not available.[20] I require each firm to have data available for the fiscal quarter corresponding to the announcement quarter with the date of the restatement. Additionally, I restrict my sample to firm-quarters with dates of two prior quarterly earnings announcements available. This restriction enables me to identify the dates of the previous announcement quarter and examine post-restatement disclosure strategies conditional on disclosure propensity in the preceding quarter.

Since my interest is in voluntary disclosure of any information about firm value, I analyze all management forecasts of earnings and other financial measures such as cash flows, etc.[21] My sample includes both quarterly and annual forecasts; quarterly forecasts comprise approximately 84% of all forecasts. I analyze management forecast propensity between the restatement date and the day before the quarterly earnings announcement. 788 firms release at least one forecast during this period and have cumulative abnormal returns on day 0, +1 relative to forecast announcement available on CRSP.[22] I classify firms as issuing good or bad news forecasts based on the direction of market reaction to the first forecast disclosed by the firm on or after the date of the industry restatement announcement. All 788 forecasts are used in tests of management forecast propensity. However, only 638 meet data requirements

[20] When earnings announcements dates are not available on COMPUSTAT I supplement them with First Call earnings announcement dates.

[21] About 94% of forecasts in my final sample are forecasts of earnings.

[22] This amounts to 5.74% of all observations. The fraction seems within the range documented by prior research. Anilowski, Feng, and Skinner (2006) show that 11% to 25% of firms issue at least one forecast per year in my sample period 1997-2002. However, I measure disclosure over a much shorter horizon than a year (my measurement window starts on the day of the restatement announcement and ends one day before the quarterly earnings announcement—47 days on average).

for the forecast bias analysis. Additionally, in a supplemental analysis of forecast propensity I use shorter windows to measure disclosure (3, 5, and 7 days following the restatement announcement). These shorter windows produce significantly smaller numbers of forecasts: 71, 91, and 131 respectively.

Table 2, Panel A reports summary statistics on the contagion effect, defined as the cumulative market value weighted adjusted returns on days -1, 0, +1 relative to the restatement announcement for non-restating industry peers. The mean (median) contagion effect is significantly negative at -0.33% (-0.69%). The proportion of observations with positive contagion effect is 43.39%. These statistics are similar to those presented by Gleason et al. (2005).[23]

Table 2, Panel B compares the mean contagion effect and the fraction of peer firms with a negative contagion effect conditional on the sign of the restating firm's cumulative abnormal returns. Industry peers of the restating firms with a positive (negative) market reaction experience a mean contagion effect of 0.18% (-0.54%). These values are significantly different from each other with p-value smaller than 0.01. Similar conclusions can be drawn from the Wilcoxon rank-sum and non-parametric median tests. These tests compare the distributions (Wilcoxon test) and medians (median test) of the two groups of peer firms (the group for which the restating firm had a positive market reaction with the group for which the restating firm had a negative market reaction). Additionally, the fraction of peer firms with negative contagion effect is significantly higher when the restating firm experienced negative cumulative abnormal returns around the restatement announcement. These results are consistent with the peer restatement affecting returns of other firms in the industry. It should be noted that the fraction of peer firms experiencing negative contagion exceeds 50% even when the restating firm experienced a positive market reaction. It seems likely that there are other, unrelated fluctuations in stock prices causing the contagion effect to be measured with some error.

[23] In their study the mean contagion effect is -0.38%, and 45.5% of observations have positive cumulative abnormal returns. Gleason et al. supplement the sample of restatements from the GAO Report with 189 restatements announced in the Wall Street Journal between 1990 and 1997.

Table 2, Panel C reports descriptive statistics on the contagion effect by accounting reason for restatement and by the sign of the restating firm's cumulative abnormal returns. Reasons for restatements were obtained from the GAO (2002) report, and Appendix B defines these reasons using GAO (2002) as a source. Revenue recognition and cost or expense related restatements are the most common, with 5,315 and 2,066 industry peers respectively. There is some variation in the magnitude of the contagion effect based on the accounting reason; however, the only non-negative contagion effect results from restatements due to improper accounting for acquisitions and mergers. The second half of the panel shows how the contagion effect varies by the reason for restatement and the sign of the restating firm's cumulative abnormal returns. Generally, the sign of the mean contagion effect is consistent with the sign of the restating firm's returns. Restatements due to improper accounting for acquisitions and mergers, securities, and in process research and development are notable exceptions. Since these restatements seem the most likely to result in a contagion effect measured with error, I check the sensitivity of my multivariate results to the exclusion of each one of these three groups of industry peers from my sample. My results remain qualitatively unchanged.

Table 3, Panel A presents general descriptive statistics and descriptive statistics by the sign of the contagion effect (positive versus negative). Firms with negative contagion effect are significantly smaller, with slightly more negative return on assets, and come from less concentrated industries. They also have lower analyst following and release fewer good news forecasts following the restatement. The latter result is surprising and seemingly inconsistent with the disclosure patterns I predict. However, these results are univariate and do not control for other factors that affect both disclosure and the sign of the contagion effect, such as firm size or analyst following. Thus, I defer any inferences until Section 4, where I discuss the multivariate results.

In Table 3, Panel B firms are classified into two groups, forecasters and non-forecasters, by whether they have disclosed at least one management forecast between the restatement date and the day before the next quarterly earnings announcement. Consistent with prior literature, the descriptive statistics demonstrate that size, analyst following, return on assets, and litigation risk are higher for firms issuing forecasts. Additionally, managers are more likely to issue forecasts when investors' expectations are optimistic (measured using analysts' forecasts or a seasonal random walk for firms with no analyst following). Forecasting firms come from more concentrated industries, possibly because of proprietary costs. All these variables have been previously demonstrated to affect managers' disclosure decisions, and are included in my multivariate tests as control variables. Finally, firms with more days remaining before the end of the announcement quarter are also more likely to issue forecasts, as are firms who restate their own financial statements within the following 90 days.[24] I further investigate how these factors affect disclosure propensity in my multivariate tests.

4. Research Design and Results

This section describes research design and empirical results. Section 4.1 contains my primary analysis: I test Hypotheses 1A and 1B analyzing management forecast propensity following a restatement by an industry peer. Sections 4.2 and 4.3 present robustness checks. In Section 4.2 I examine whether the forecast error is associated with the stock price change. This test is meant to rule out the possibility that good news forecasts appear good only because managers release overly optimistic estimates. In Section 4.3 I investigate whether the stock price change is associated with a change in litigation risk, and whether this change in litigation risk influences disclosure of bad news forecasts.

4.1 Management Forecast Propensity

Both Hypotheses 1A and 1B predict specific patterns in the discretionary disclosure of good news following an exogenous shock to stock prices. In my empirical tests I use a restatement by an industry peer as such a shock. To test the hypotheses, I examine the association between the magnitude of the

[24] Note that my sample selection criteria exclude restatement announcements that are preceded by another industry restatement within 90 days before the announcement. However, once the restatement announcement satisfies the sample selection criteria, I incorporate in the sample all industry peers of the restating firm, including industry peers that restate their own financial statements subsequently.

change in stock price following a peer restatement (the contagion effect) and the likelihood that a firm discloses good news management forecasts. Figure 2 summarizes hypotheses 1A and 1B in my specific empirical setting. In the sections below I first discuss the expected impact of litigation risk upon the disclosure of bad news, and then introduce my research design and multivariate results.

4.1.1 Disclosure of Bad News Management Forecasts

As noted in Section 2, because of the lack of underlying theory, I do not define any hypotheses with respect to the disclosure of bad news. However, for the sake of completeness, in my empirical analysis I examine both the disclosure of good and bad news forecasts. Should the exogenous stock price change affect the disclosure of bad news? Empirical studies (Skinner 1994, 1997; Field, Lowry, and Shu 2005) suggest that litigation risk induces managers to reveal bad news.[25] Below I consider how litigation risk is likely to impact disclosure of bad news in this study.

If litigation risk does not increase following the exogenous change in stock price, one would expect no association between the magnitude of the stock price change and managers' disclosure of bad news. Nevertheless, prior literature finds that large stock price declines tend to be followed by litigation.[26] This may result from the interpretation of Rule 10b-5 of Securities and Exchange Act of 1934. Lawsuits based on Rule 10b-5 allege that managers have failed to release adverse information or have released overly optimistic information that led plaintiffs to purchase stock at inflated prices. Hence, dramatic stock price declines are likely to draw investors' scrutiny and increase litigation risk. Managers who hold old bad news or receive new bad news will then respond to this increased scrutiny by disclosing their bad information. If the exogenous change in stock price examined in this study is indeed accompanied by an

[25] Prior literature provides plentiful evidence supporting the link between litigation risk and bad news disclosure, but not litigation risk and good news disclosure (see Skinner 1994, 1997, Kasznik and Lev 1995, Trueman 1997, Field, Lowry, and Shu 2005, Cao and Narayanamoorthy 2005, among others). In fact, there is some evidence that firms subject to higher litigation are less likely to disclose good news (Frankel, McNichols, Wilson 1995). The only exception I am aware of is Brown, Hillegeist, and Lo (2005) who find that litigation risk affects both the disclosure of good and bad news forecasts but that the effect of litigation risk is stronger on bad news than good news disclosures. Based on prior evidence, in this study I consider the impact of litigation risk on disclosure of bad news.

[26] See for example Francis, Philbrick, and Schipper (1994) and Johnson, Nelson and Pritchard (2000).

increase in litigation risk, then managers of firms with larger stock price declines may be subject to additional scrutiny and thus more likely to disclose bad news.

My empirical model of management forecast propensity controls for the level of litigation risk using the fitted value from the litigation probability model in Rogers and Stocken (2005). However, as discussed above, the increase in litigation risk rather than its level is likely to trigger disclosure of bad news following a peer restatement. As far as I know there are no existing proxies for change in litigation risk in the literature; I have created an imperfect one from the Rogers and Stocken (2005) model, and the results can be found in section 4.3.

4.1.2 Research Design and Empirical Results on Management Forecast Propensity

To test hypotheses 1A and 1B, I examine the association between the magnitude of the contagion effect following a restatement in the industry and the firm's subsequent propensity to issue good news management forecasts. As stated above, although the theories I rely on are silent regarding the disclosure of bad news, for completeness I analyze the propensity to disclose bad news and good news forecasts in one empirical model. I estimate the following multinomial logit model, with three alternatives of the dependent variable: 0 – no forecast, 1 – bad news forecast, and 2 – good news forecast:

$$\begin{aligned} \textit{Forecast} &= \beta_0 + \beta_1 \text{ neg. contagion} * \text{absolute contagion} + \sum_{i=2}^{14} \beta_i \text{ neg. contagion} * \text{controls} \\ &+ \beta_{15} \text{ pos. contagion} * \text{absolute contagion} + \sum_{i=16}^{27} \beta_i \text{pos. contagion} * \text{controls} + \text{year fixed effects} + \varepsilon \end{aligned} \quad (1)$$

My hypotheses concern the relationship between the forecast propensity and the magnitude of the stock price change (contagion effect). Therefore, my primary variable of interest is *absolute contagion*. However, I predict that this relationship will differ depending on whether the contagion effect was positive or negative. As a result, my model contains interactions of *absolute contagion* with indicator variables for *negative contagion* and *positive contagion* rather than *absolute contagion* by itself. The impact of other factors that have been previously shown to affect forecasting behavior may vary with the sign of the contagion effect. Consequently, all other explanatory variables are interacted with *positive contagion* and *negative contagion* as well.[27]

I control for a number of variables specific to my setting as well as variables that, based on evidence in prior research, generally affect disclosure propensity. All variables are defined in Appendix A. Variables specific to my setting are *number of days until quarter end, restater, forecast in previous quarter*, and *forecast before restatement.* General control variables are *litigation risk*, *log market capitalization, log # of analysts, negative expectation gap, industry adjusted ROA, concentration*, and *after FD.*

As previously explained, I measure forecasting propensity between the day of the industry restatement announcement and one day before the next quarterly earnings announcement. Because restatements by an industry peer can occur at various points of the firm's announcement quarter, the number of days left in the quarter will vary by firm. Hence, I control for the *number of days until quarter end.* However, firms with more days remaining in the quarter are in general more likely to receive new information about future performance and release forecasts as a result. To account for this possible dilution of the effect of the restatement on firm's disclosure policy by forecasts of managers who received new information, I include the interaction term *number of days until quarter end*absolute contagion* in my model.

The indicator variable *restater* identifies firms who themselves restate their financial statements within the 90 days following the initial industry restatement. I expect that industry peers with similar accounting problems who eventually restate financial statements themselves will preempt their bad news more than other firms. Gleason, Jenkins, and Johnson (2005) show that the contagion effect tends to be on average more negative for firms within the same industry who announce a restatement within the following 24 months. This is consistent with investors being more skeptical of these firms' earnings, and attributing a higher likelihood of significant revision in earnings to them. These firms, therefore, are

[27] The results from a Wald test show that there is incremental explanatory power in using this model, relative to a simple model with no interaction terms.

subject to higher scrutiny and their litigation risk is likely to have increased. On the other hand, firms who will restate their earnings in the near future and for whom investors correctly updated the stock price might be less likely to hold information that is not already reflected in the stock price and be therefore less likely to disclose. To control for this effect, I include in my model an interaction of *restater* and *absolute contagion* for the group of firms with negative contagion effect. In my sample, firms which later restate their financial statements experience both negative and positive contagion effects (see Table 3, Panel A), but only the firms with negative contagion effects issue forecasts. Because there is no variation in forecast propensity among restaters with positive contagion effects, I do not include this interaction term (*restater*absolute contagion*) for the group of firms with positive contagion. Additionally, all forecasts issued by restaters are bad news forecasts. As a result, my model does not estimate the effect of *restater* on good news forecast propensity.

Forecast in previous quarter and *forecast before restatement* capture the firm's prior disclosure behavior. They are important to control for, because some managers regularly provide investors with guidance, and this study focuses on the behavior of managers who are not committed to regular disclosure.

My model also includes a number of variables found in prior literature to impact forecast propensity. Litigation risk has been shown to induce managers to disclose bad news early (see Skinner 1994, 1997, Field, Lowry, and Shu 2005 among others). To control for *litigation risk* I include in the model the fitted value from the litigation probability model in Rogers and Stocken (2005), measured over the announcement quarter in which the peer restatement was announced.[28] I control for firm size using *log market capitalization*, for analyst following using *log # of analysts*, for the negative gap between investors expectations and actual earnings using *negative expectation gap*, and for firm performance relative to industry peers using *industry adjusted ROA*. *Concentration* is intended to capture proprietary

[28] Results are not sensitive to using industry membership as an alternative measure of high litigation risk. Following Francis, Phlibrick, and Schipper (1994) I defined high litigation risk industries as biotechnology (SIC codes 2833-2836 and 8731-8734), computers (SIC codes 3570-3577), electronics (SIC codes 3600-3674), retail (SIC codes 5200-5961), and computer software (SIC codes 7371-7379).

costs of disclosure. It seems likely that if proprietary costs are strategic in nature, more concentrated industries would be reticent to disclose bad news, and vice versa for good news; on the other hand, if proprietary costs are related to regulation, more concentrated industries should be more willing to disclose bad news, and vice versa for good news. My sample period (1997 until 2002) covers an important shift in disclosure regime – the enactment of Regulation FD on October 20, 2000. Following the passage of Regulation FD managers are precluded from revealing news to selected groups of recipients. Since prior literature documents that Regulation FD significantly affected managers' disclosure policy, I control for this shift in regime using an indicator variable *after FD*. [29] Additionally, year fixed effects are included to capture potential time trends. Finally, I cluster by restatement event in order to obtain robust standard errors and adjust for within-cluster correlation.

Table 4, Panel A presents results from the multinomial logit model of bad news (Level 1) and good news (Level 2) forecast propensity, measured between the industry restatement and the day prior to the subsequent quarterly earnings announcement. In this study I focus on the association between disclosure propensity and a stock price change. Therefore, the main variables of interest are interaction terms *negative contagion*absolute contagion* and *positive contagion*absolute contagion.* Level 2 of the dependent variable (Good News Forecast) provides evidence with respect to Hypothesis 1A and 1B. Consistent with Hypothesis 1A, I find that the coefficient on *negative contagion*absolute contagion* is positive and statistically significant, while the coefficient on *positive contagion*absolute contagion* is negative but not statistically significant. Thus, managers of firms with greater stock price declines are more likely to disclose good news management forecasts. However, the magnitude of the stock price increase is not associated with disclosure of good news forecasts. Overall, I find support for my main hypothesis of news withholding and subsequent release, Hypothesis 1A, rather than the alternative explanation of new information arrival, Hypothesis 1B.

Level 1 of the dependent variable concerns bad news forecast propensity. I find that the coefficient on the interaction term *negative contagion*absolute contagion* is positive and statistically

[29] See for example Heflin, Subramanyam, and Zhang (2003), Bushee, Matsumoto, Miller (2004).

significant and the coefficient on *positive contagion*absolute contagion* is negative and significant. This implies that the more negative (positive) the stock price change the more (less) likely managers are to disclose bad news forecasts. A pure threshold disclosure strategy does not predict such a relationship. However, as discussed in Section 4.1.1, one potential explanation for this finding is that there is an increase in litigation risk following a restatement in the industry, and that this increase is negatively associated with the stock price change. Hence, firms with greater increase in litigation risk are more likely to reveal bad news. Model (1) controls for the level of litigation risk rather than the change in litigation risk following a restatement. In Section 4.3 of the paper I attempt to control for the change in litigation risk in order to explore this explanation further.

Consistent with prior literature, the firm-specific level of *litigation risk* is positively associated with the propensity to disclose bad news management forecasts both for firms with a positive contagion effect and firms with a negative contagion effect. For good news forecasts the coefficient on *litigation risk* is negative but not statistically significant. This suggests no association between litigation risk and the disclosure of good news. *# of days until quarter end* is positively associated with forecast propensity in general, implying that when there are more days left in the announcement quarter firms are more likely to disclose both good and bad news. Interestingly, the coefficient on the interaction term *neg. contagion*# of days*absolute contagion* is negative and significant. This suggests that when firms disclose information in response to the stock price decline, they tend to disclose it relatively soon after the change in price.

Restating financial statements within 90 days following the announcement of the first industry restatement tends to be accompanied by a greater (smaller) propensity to disclose bad news forecasts for firms with a negative (positive) contagion effect. Additionally, the interaction term *negative contagion*restater*absolute contagion* is negative for firms with bad news forecasts, suggesting that when the future restater experiences sufficiently negative contagion, investors seem to have correctly inferred the bad news and thus there is no need for the manager to disclose it formally. *Forecast in the previous quarter* is positively (negatively) associated with bad and good news forecast propensity when the firm experienced a negative (positive) contagion effect. However, *forecast before restatement* only increases the likelihood that a firm with a negative contagion effect releases bad news and that a firm with a positive contagion effect releases good news.

Consistent with prior research, *negative expectation gap* increases the likelihood that managers disclose bad news forecasts (in order to adjust investors' expectations to more realistic levels), but has no impact on the disclosure of good news. Also, firms who experienced a negative contagion effect and outperform their industry peers (as measured by higher *industry adjusted ROA*) are more likely to disclose. Finally, firms in more concentrated industries tend to disclose more.

Panel B of Table 4 shows the results from model (1) re-estimated using a short window (5 days following the industry restatement announcement) in order to measure forecast propensity. This short window reduces the likelihood that newly arriving signals about the firm's future performance confound the disclosure of previously withheld information. The results are similar using alternative short windows of 3 or 7 days following the industry restatement (not reported). Again, consistent with Hypothesis 1A, I find that the coefficient on *negative contagion*absolute contagion* is positive and statistically significant, while the coefficient on *positive contagion*absolute contagion* is negative but not statistically significant. These results confirm my findings with respect to good news management forecasts reported in Table 4, Panel A. As in Panel A, I find that firms with more negative contagion effect are more likely to disclose bad news forecasts. However, contrary to the results reported in Panel A, when I measure the disclosure over a short window (Panel B) the coefficient on the interaction term *positive contagion*absolute contagion* is no longer statistically significant.

It is important to note that the association between the magnitude of the negative contagion effect and the good news forecast propensity becomes stronger as disclosure is measured over shorter windows. Table 4, Panel C presents the percentage increase in the baseline probability of good news forecasts associated with 1% more negative contagion effect for four windows of different lengths. Baseline probabilities are the probabilities of good news forecast disclosure when all continuous independent variables are at their means and indicator variables are at 0. For example, the baseline probability of good news disclosure for the extended window until subsequent quarterly earnings announcement is 0.0097. The marginal effect of 1% more negative contagion effect is 0.0006. Given that the baseline probability is 0.0097, an increase of 0.0006 amounts to an increase of 6.93% in the probability of good news disclosure. This effect increases monotonically as the window length is reduced. The percentage increase in the baseline probability of good news disclosure associated with 1% more negative contagion effect is 10.07%, 14.85%, and 18.74% for windows of 7, 5, and 3 days respectively.

Overall, the results concerning good news forecast propensity are consistent with Hypothesis 1A. In particular, some managers seem to release previously withheld news when, after an exogenous price shift, this news compares favorably to the new investors' valuation. Propensity to disclose bad news is negatively related to the contagion effect, which is not consistent with the pure threshold strategy of disclosure, but can be driven by an increase in litigation risk. I examine this potential explanation in Section 4.3.

4.2 Truthful Disclosure

Analytical disclosure threshold models (Dye 1985 and Verrecchia 1983) assume that managers can either withhold or disclose their private information, but when the manager chooses to disclose his information, he does not misreport. This assumption is reasonable whenever investors can ex post verify the manager's claim and impose a penalty for misrepresentation. However, prior research suggests that investors are not always perfectly able to assess the credibility of managers' disclosure. Rogers and Stocken (2005) find that when it is more difficult for investors to assess the credibility of managers' disclosure, managers tend to bias their forecasts in response to their incentives. Therefore, misrepresentations may occur in practice. To confirm that the relationship between the disclosure of good news forecasts and the stock price decline documented in this study is not driven by managers reporting overly optimistic estimates, I examine the management forecast error. More specifically, I test whether the forecast error in good news forecasts is associated with the magnitude of the contagion effect. Since managers choose whether to issue a forecast, and thus self select into the sample, I use a Heckman selection model in order to mitigate the effect of this selection bias.[30] The first stage of the Heckman model is a probit model with all the same explanatory variables as in model (1) but with only two levels of the dependent variable: one if the firm has issued at least one management forecast and zero otherwise. The following model is estimated as the second stage:

$$\begin{aligned}
&\text{Forecast error} = \delta_0 + \delta_1 \text{ neg. contagion * absolute contagion} + \delta_2 \text{ neg. contagion * good} \\
&+ \delta_3 \text{ neg. contagion * good * absolute contagion} + \sum_{i=4}^{8} \delta_i \text{ neg. contagion * controls} \\
&+ \delta_9 \text{ pos. contagion * absolute contagion} + \delta_{10} \text{ pos. contagion * good} \\
&+ \delta_{11} \text{ pos. contagion * good * absolute contagion} + \sum_{i=12}^{16} \delta_i \text{ pos. contagion * controls} + \text{year fixed effects} + \varepsilon
\end{aligned} \tag{2}$$

Forecast error is calculated as the management forecast less the actual value of the forecasted measure deflated by the stock price one day prior to the issuance of the forecast. Positive (negative) values reflect an optimistic (pessimistic) bias in forecasts. As in model (1), I allow the coefficients on all explanatory variables to vary by the direction of the contagion effect. Hence, my model includes interaction terms of all explanatory variables with the indicator variables *negative contagion* and *positive contagion*. I expect no relationship between the forecast error and the contagion effect for good news forecasts. This can be tested by examining the sum of coefficients δ_1 and δ_3 for the negative contagion firms and the sum of δ_9 and δ_{11} for the group of firms with a positive contagion effect. I include a number of control variables which previous studies have shown to be associated with forecast error: *horizon, log market capitalization, log # of analysts*, *mb* (market to book ratio), and *litigation risk*.[31]

Table 5, Panel A presents the results from model (2). Panel B reports total coefficients for the magnitude of the contagion effect for good news forecasts, separately for the negative and positive contagion group ($\delta_1 + \delta_3$ and $\delta_9 + \delta_{11}$, respectively). Based on the results reported in Panel B, the

[30] My results are qualitatively unchanged when I estimate the forecast error model using Ordinary Least Squares Regression.
[31] See for example Baginski and Hassel (1997), Bamber and Cheon (1998), McNichols (1989), Rogers and Stocken (2005), and Ziebart and Guo (2000),

magnitude of the contagion effect is not significantly related to the forecast error either for the group of firms with a positive contagion effect or for the group of firms with a negative contagion effect. Therefore, there is no evidence that the association between the magnitude of the negative contagion effect and good news forecast propensity could be due to managers strategically biasing their estimates.

Forecast error in bad news forecasts is not related to the magnitude of the negative contagion effect (the coefficient on *negative contagion*absolute contagion* is not statistically significant), but surprisingly, the more positive the contagion effect the lower the forecast error in bad news forecasts (the coefficient on *positive contagion*absolute contagion* is negative and statistically significant). Consistent with prior research, *horizon* is positively associated with the forecast error. Finally, forecast error is smaller for firms with negative contagion effect and higher litigation risk.

4.3 Change in Litigation Risk

In this section I extend the analysis of disclosure propensity from Section 4.1.2 to include a change in litigation risk, which is likely to follow industry restatements. Model (1) in Section 4.1.2 controls for the level of litigation risk rather than for the change in litigation risk. The level of litigation risk in a given announcement quarter is computed using the fitted value from the litigation probability model developed by Rogers and Stocken (2005), which estimates the litigation probability as a function of share turnover, various characteristics of returns (such as minimum returns, cumulative abnormal returns, and return skewness), firm size, and industry classification. Because minimum returns are included in this model, firms with the most negative contagion effects experience a mechanical increase in this measure of litigation risk. Conceptually this seems to be justified, based on evidence from prior research which shows that dramatic stock price declines tend to trigger litigation (Francis, Philbrick, and Schipper 1994; Johnson, Nelson and Pritchard 2000). However, econometrically this is a problem due to the collinearity introduced by this mechanical relationship. It is not clear whether there is enough variation in the rest of the Rogers and Stocken (2005) model variables so that the coefficient on change in litigation risk can be independently identified.

Given these caveats, the approach I take in this paper is to treat this model as a separate analysis. First, I use the Rogers and Stocken (2005) model to compute the change in litigation risk as the difference between the litigation probability before the restatement (estimated over 90 days ending two days before the industry restatement), and after the restatement (estimated over 90 days starting one day before the industry restatement). Second, I analyze whether the change in litigation risk is a function of the magnitude of the contagion effect. If so, then this change in litigation risk could explain why managers with higher contagion effect are less likely to reveal bad news (as documented in Table 4 Panel A). In order to study this relationship, I use Ordinary Least Squares Regression to estimate the following model:

$$\text{Change in litigation risk} = \gamma_0 + \gamma_1 \text{ neg. contagion} * \text{absolute contagion} + \\ + \gamma_2 \text{ pos. contagion} * \text{absolute contagion} + \gamma_3 \text{restating firm's CAR} + \text{year fixed effects} + \varepsilon \quad (3)$$

Change in litigation risk is computed as described above. The main variables of interest are the interaction terms *neg. contagion*absolute contagion* and *pos. contagion*absolute contagion*. I also control for the market reaction to the restatement announcement of the restating firm (*restating firm's CAR*) which is meant to reflect the general change in litigation risk for the industry.

Table 6, Panel A presents the results from this model. The coefficient on *neg. contagion*absolute contagion* is positive and weakly significant (p-value smaller then 0.1), implying that firms with a larger stock price drop experience a greater increase in litigation risk. The coefficient on *pos. contagion*absolute contagion* is of the predicted sign (negative) but not statistically significant. Thus, subject to the limitations of the measure that I use to compute the change in litigation risk, I confirm that litigation risk increases more for firms with more negative contagion effect.

Finally, I re-estimate model (1), replacing the level of *litigation risk* with the *change in litigation risk*. The main purpose of this analysis is to see whether, controlling for the *change in litigation risk*, managers are still more (less) likely to disclose bad news forecasts when their firm has experienced a greater negative (positive) contagion effect.

Table 6, Panel B and Panel C report results from the multinomial logit model of management forecast propensity with the interaction terms *neg. contagion*litigation risk* and *pos. contagion*litigation risk* included in the model. In Panel B forecast propensity is measured over the extended window (between the day of the industry restatement announcement and the day prior to the subsequent quarterly earnings announcement), while in Panel C it is measured over the short 5 day window.

Panel B documents that the results with respect to good news forecast propensity (Level 2 of the dependent variable) are qualitatively unchanged from the results in Table 4, Panel A: the coefficient on *neg. contagion*absolute contagion* is significant and positive, while the coefficient on *pos. contagion*absolute contagion* is negative but not statistically significant. These results confirm that managers of firms with more negative contagion effects are more likely to disclose good news forecasts while there is no significant association between good news forecast propensity and the magnitude of the contagion effect for firms with a positive contagion effect.

The analysis of bad news forecast propensity in Table 6, Panel B (Level 1 of the dependent variable) yields somewhat different conclusions than Table 4, Panel A does. The results are qualitatively unchanged for firms with a negative contagion effect (the coefficient on *neg. contagion*absolute contagion* is positive and significant). However, controlling for *change in litigation risk* alters the results concerning bad news forecasts for the positive contagion group of firms—the coefficient on *pos. contagion*absolute contagion* is no longer statistically significant. Therefore, including a measure of the change in litigation risk in the model explains the relationship between bad news forecast propensity and the magnitude of the positive contagion effect but not a similar relationship for the firms with a negative contagion effect.[32] These divergent outcomes for firms with positive and negative contagion effects,

[32] The results in Table 6, Panel C are qualitatively similar to those reported in Table 4, Panel B, both with respect to good and bad news forecast propensity.

coupled with the lack of a clear theory on how exactly litigation risk affects bad news disclosure, make it hard to draw reliable inferences from this part of my analysis.

5. Conclusion

The goal of this paper is to analyze the impact of stock price on managers' strategic disclosure (or withholding) of private information concerning firm value. I propose a natural experiment to determine whether a stock price decline can trigger disclosure of previously withheld unfavorable information about firm value. In particular, I identify an event (a financial restatement by an industry peer) which impacts the stock price but is unlikely to affect the manager's private information about firm value. If managers disclose good news but not bad news (i.e. follow a "threshold" strategy), such a stock price drop should cause managers to disclose their private information when, as a result of this event, disclosure of previously withheld information results in a positive market reaction.

Indeed, I find that managers in firms which experience more negative cumulative abnormal returns around a restatement by an industry peer are more likely to disclose good news (defined as management forecasts resulting in a positive market reaction). Also as expected, there is no relationship between the magnitude of positive cumulative abnormal returns and the propensity to disclose good news forecasts.

These results are robust to measuring disclosure over various windows following the industry restatement announcement. Moreover, as the window over which disclosure is measured is shortened, the impact of negative cumulative returns on the likelihood of good news disclosure increases monotonically. This finding supports the conclusion that observed disclosure patterns are driven by previously withheld information. Finally, an examination of the forecast error shows that the results in this study are not driven by managers strategically releasing overly optimistic estimates.

Although not predicted, I also find that financial restatements by an industry peer can induce managers to disclose forecasts with a negative market reaction (bad news). In particular, the higher the cumulative abnormal returns the less likely the firm is to disclose bad news management forecasts. My investigation into whether this pattern can be attributed to a change in litigation risk is inconclusive.

Overall, this paper documents the impact of stock prices on managers' disclosure decisions. The evidence is consistent with some managers withholding bad news concerning firm value but changing their disclosure decision and revealing the news when (as a result of an exogenous stock price decline) it constitutes a positive update to investors' valuation. Thus, I not only provide incremental evidence that managers withhold bad news, but also show that they reconsider previous non-disclosure decisions when the stock price implications of withheld news change.

References:

Ajinkya B. B., and M. J. Gift, 1984, Corporate Managers' Earnings Forecasts and Symmetrical Adjustments of Market Expectations, *Journal of Accounting Research*, Vol. 22, No.2, 425-444.

Anilowski, C., M. Feng, and D. J. Skinner, 2006, Does Earnings Guidance Affect Market Returns? The Nature and Information Content of Aggregate Earnings Guidance, *Journal of Accounting and Economics*, forthcoming.

Baginski S. P., and J. M. Hassell, 1997, Determinants of Management Forecast Precision, *The Accounting Review*, Vol. 72 (2), 303-312.

Bamber, L. S., and Y. S. Cheon, 1998, Discretionary Management Earnings Forecast Disclosures: Antecedents and Outcomes Associated with Forecast Venue and Specificity Choices, *Journal of Accounting Research*, Vol. 36 (2), 167-190.

Brown, S., S. A. Hillegeist, and K. Lo, 2005, Management Forecasts and Litigation Risk, *Working Paper,* Emory University.

Bushee, B. J., D. A. Matsumoto, and G. S. Miller, 2004, Managerial and Investor Responses to Disclosure Regulation: The Case of Reg FD and Conference Calls, *The Accounting Review,* Vol. 79, No. 3, 617-643.

Callen, J., Livnat J., and D. Segal, 2006, Accounting Restatements: Are They Always Bad News for Investors? *Journal of Investing*, Vol. 15, Issue 3, p. 57-68.

Chambers, A., and S. Penman, 1984, Timeliness of Reporting and the Stock Price Reaction to Earnings Announcements, *Journal of Accounting Research*, Vol. 22, 21-47.

Cheng, Q., and K. Lo, 2006, Insider Trading and Voluntary Disclosures, *Journal of Accounting Research,* Vol. 44, No. 5, 815-1033.

Claus, J., and J. Thomas, 2001, Equity Premia as Low as Three Percent? Evidence from Analysts' Earnings Forecasts for Domestic and International Stock Markets, *Journal of Finance*, Volume 56, 1629.

Cohen, D., Dey A., T. Lys, and S. Sunder, 2006, Earnings Announcement Premia and the Limits to Arbitrage, *Working Paper*, Northwestern University.

Coughlan, A. T., and R. M. Schmidt, 1985, Executive Compensation, Managerial Turnover, and Firm Performance: An Empirical Investigation, *Journal of Accounting and Economics*, Vol. 7, 43-66.

Dye, R. A., 1985, Disclosure of Nonproprietary Information, *Journal of Accounting Research*, Vol. 23, 123-145.

Dye, R. A., 2001, An Evaluation of "Essays on Disclosure" and the Disclosure Literature in Accounting. *Journal of Accounting and Economics*, Vol. 32, 181-235.

Dye, R.A., and S. S. Sridhar, 2002, Resource Allocation Effects of Price Reactions to Disclosures, *Contemporary Accounting Research*, Vol. 19, No. 3, 385-410.

Easton, P., and S. Monahan, 2003, An Evaluation of the Reliability of Accounting Based Measures of Expected Returns: A Measurement Error Perspective, *Working Paper*.

Ertimur, Y., E. Sletten, and J. Sunder, 2006, Voluntary Disclosure Strategy around IPO Lockup Expirations, *Working Paper*, Northwestern University.

Farrell, J., 1986, Voluntary Disclosure: Robustness of the Unraveling Result, and Comments on Its Importance. In *Antitrust and Regulation*, edited by R. Grieson. New York, NY: Lexington Books.

Field, L., M. Lowry, and S. Shu, 2005, Does Disclosure Deter or Trigger Litigation?, *Journal of Accounting and Economics*, Vol. 39, 487-507.

Foster, G., 1973, Stock Market Reaction to Estimates of Earnings per Share by Company Officials, *Journal of Accounting Research*, Vol. 11, No. 1, 25-37.

Francis, J., D. Philbrick, and K. Schipper, 1994, Shareholder Litigation and Corporate Disclosures, *Journal of Accounting Research*, Vol. 32, No. 2, 137-164.

Frankel, R., M. McNichols, and G. P. Wilson, 1995, Discretionary Disclosure and External Financing, *The Accounting Review*, Vol. 70, 135-150.

Gebhardt, W., C. Lee, and B. Swaminathan, 2001, Toward and Implied Cost of Capital, *Journal of Accounting Research*, Vol. 39, 135-176.

General Accounting Office, 2002, Financial Statements Restatements: Trends, Market Impacts, Regulatory Responses, and Remaining Challenges. Washington, D.C.: GAO-03-138.

Givoly, D. and D. Palmon, 1982, Timeliness of Annual Earnings Announcements: Some Empirical Evidence, *The Accounting Review*, Vol. 57, 486-508.

Gleason, C. A., N. T. Jenkins, and W. B. Johnson, 2005, Financial Statement Credibility: The Contagion Effects of Accounting Restatements, *Working Paper*, University of Iowa.

Grossman, S., 1981a, An Introduction to the Theory of Rational Expectations under Asymmetric Information, *Review of Economic Studies*, Vol. 48, 541-559.

Grossman, S., 1981b, The Informational Role of Warrantees and Private Disclosure About Product Quality", *Journal of Law and Economics*, Vol. 24, 461-483.

Healy, P., and K. G. Palepu, 2001, Information Asymmetry, Corporate Disclosure and the Capital Markets: A Review of the Empirical Disclosure Literature, *Journal of Accounting and Economics*, Vol. 31, 405-440.

Heflin, F., Subramanyam, K. R. and Zhang, Yuan, 2003, Regulation FD and the Financial Information Environment: Early Evidence, *The Accounting Review*, Vol. 78, 1-37.

Hutton, A. P., Miller, G. S., and D. J. Skinner, 2003, The Role of Supplementary Statements with Management Forecasts, *Journal of Accounting Research*, Vol. 41, No. 5, 867-890.

Johnson, M., R. Kasznik, and K. Nelson, 2001, The Impact of Securities Litigation Reform on the Disclosure of Forward-Looking Information by High Technology Firms, *Journal of Accounting Research*, Vol. 39 (2), 297-327.

Johnson, M. F., K. K. Nelson, and A. C. Pritchard, 2000, In re Silicon Graphics Securities Litigation: Shareholder Wealth Effects of the Interpretation of the Private Securities Litigation Reform Act's Pleading Standard, *Southern California Law Review*, Vol. 73(4), 773-810.

Jovanovic, B., 1982, Truthful Disclosure of Information, *The Bell Journal of Economics*, Vol. 13, No. 1, 36-44.

Jung W., and Y. Kwon, 1988, Disclosure When the Market Is Unsure of Information Endowment of Managers, *Journal of Accounting Research*, Vol. 26, No.1, 146-153.

Kasznik, R. and M. F. McNichols, 2002, Does Meeting Earnings Expectations Matter? Evidence from Analyst Forecast Revisions and Share Prices, *Journal of Accounting Research*, Vol. 40 (3), 727-759.

Kasznik, R., and B. Lev, 1995, To Warn or Not to Warn: Management. Disclosures in the Face of an Earnings Surprise, *The Accounting Review*, Vol. 70, 113-134.

Kothari, S. P., S. Shu, and P. Wysocki, 2006, Do Managers Withhold Bad News? *Working paper*, MIT Sloan School.

Lang, M., and R. Lundholm, 2000, Voluntary Disclosure and Equity Offerings: Reducing Information Asymmetry or Hyping the Stock? *Contemporary Accounting Research,* Vol. 17, No. 4, 623 – 662.

Lev, B., and S. H. Penman, 1990, Voluntary Forecast Disclosure, Nondisclosure, and Stock Prices, *Journal of Accounting Research*, Vol. 28, 49-76.

Luo, Y., 2005, Do Insiders Learn from Outsiders? Evidence from Mergers and Acquisitions, *Journal of Finance*, No. 4, 1951-1982.

McNichols, M., 1989, Evidence of Information Asymmetries from Management Earnings Forecasts and Stock Returns, *The Accounting Review*, Vol. 64 (1), 1-27.

Milgrom, P., 1981, Good News and Bad News: Representation Theorems and Applications, *Bell Journal of Economics*, Vol. 12, 380-91.

Miller, G. S., 2002, Earnings Performance and Discretionary Disclosure, *Journal of Accounting Research*, Vol. 40, 173 – 204.

Narayanamoorthy, G., and Z. Cao, 2005, The Effect of Litigation Risk on Management Earnings Forecasts, *Working Paper*, Yale SOM.

Noe, C. F., 1999, Voluntary Disclosures and Insider Transactions, *Journal of Accounting and Economics*, Vol. 27, 305 - 326.

Patell, J., 1976, Corporate Forecasts of Earnings Per Share and Stock Price Behavior: Empirical Tests, *Journal of Accounting Research*, 246-76.

Patell, J., and M. Wolfson, 1982, Good News, Bad News, and the Intradey Timing of Corporate Disclosures, The Accounting Review, Vol. 57, 509-527.

Palmrose Z., V. Richardson, and S. Scholz, 2004, Determinants of Market Reactions to Restatement Announcements, *Journal of Accounting & Economics*, Vol. 37, No. 1, 59-89.

Penman, S. H., 1980, An Empirical Investigation of the Voluntary Disclosure of Corporate Earnings Forecasts, *Journal of Accounting Research*, Vol. 18, 132-160.

Pownall, G., and G. Waymire, 1989, Voluntary Disclosure Credibility and Securities Prices: Evidence from Management Earnings Forecasts, 1969-73, *Journal of Accounting Research*, Vol. 27, No. 2, 227-245.

Pfarrer, M. D., K. G. Smith, K. M. Bartol, D. M. Khanin, and X. Zhang, 2005, Coming Forward: Institutional Influences on Voluntary Disclosure, *Working Paper*, University of Maryland.

Rogers, J., and P. Stocken, 2005, Credibility of Management Forecasts, *The Accounting Review*, Vol. 80., 1233-1260.

Skinner, D. J., 1994, Why Firms Voluntarily Disclose Bad News, *Journal of Accounting Research*, Vol. 32, No. 1, 38-60.

Skinner, D. J., 1997, Earnings Disclosures and Stockholder Lawsuits, *Journal of Accounting and Economics,* Vol. 23, 249-282.

Trueman, B., 1997, Managerial Disclosures and Shareholder Litigation, *Review of Accounting Studies*, Vol.2, 181-199.

Tucker, J. W., and P. Zarowin, 2006, Timeliness of Firms' Voluntary Disclosure of Good and Bad News, *Working paper*, University of Florida.

Verrecchia, R., 1983, Discretionary Disclosure, *Journal of Accounting and Economics*, Vol. 5, 179-194.

Verrecchia, R., 2001, Essays on Disclosure, *Journal of Accounting and Economics*, Vol. 32, 97-180.

Warner, J. B., R. L. Watts, and K. H. Wruck, 1988, Stock Prices, Event Prediction, and Event Studies: An Examination of Top Management Restructurings, *Journal of Financial Economics*, Vol. 20, 461-492.

Waymire, G., 1984, Additional Evidence on the Information Content of Management Earnings Forecasts, *Journal of Accounting Research*, Vol. 22, No. 2, 703-18.

Weisbach, M. S., 1988, Outside Directors and CEO Turnover, *Journal of Financial Economics*, Vol. 20, 431-460.

Xu, T., M. Najand, and D. Ziegenfuss, 2006, Intra-Industry Effects of Earnings Restatements Due to Accounting Irregularities, *Journal of Business Finance and Accounting*, Vol. 33, No. 5 & 6, 696-714.

Ziebart, D., and H. Guo, 2000, The Effect of Earnings Management, Inside Information, and Voluntary Disclosure Choice on Management Earnings Forecasts, *Asian Pacific Journal of Accounting and Economics*, Vol. 7, 33-58.

Appendix A – Variables Definitions

absolute contagion	The absolute value of the cumulative market value-weighted adjusted returns on days -1, 0,+1 relative to the date of the announcement of a restatement by an industry peer with the same 4-digit SIC code.
bad news forecast	An indicator variable equal to one if *forecast* is equal to one and if cumulative market value-weighted adjusted returns on the day of and the day after the announcement of the first forecast after the restatement are negative, and zero otherwise.
change in litigation risk	The change in the fitted value from the litigation probability model in Rogers and Stocken (2005), estimated as litigation probability after the industry restatement minus litigation probability before the restatement. Litigation probability is computed over 90 days beginning the day before the restatement and 90 days ending two days before the restatement respectively.
concentration	The industry concentration ratio, computed as sales of the largest five firms in the firm's industry divided by total industry sales, based on 4-digit SIC code.
contagion	The cumulative market value-weighted adjusted returns on days -1, 0,+1 relative to the date of the announcement of a restatement by an industry peer with the same 4-digit SIC code.
forecast	An indicator variable which equals one if a firm issued one or more forecasts between the restatement announcement date and the day before the quarterly earnings announcement, and zero otherwise.
forecast before restatement	An indicator variable equal to one if the firm released at least one management forecast in the period between the last quarterly earnings announcement and the day before the industry restatement announcement, and zero otherwise.
forecast error	The management forecast less actual earnings deflated by the pre-release stock price.
forecast in prev. quarter	An indicator variable equal to one if the firm released at least one management forecast in the announcement quarter immediately preceding the quarter with the industry restatement, and zero otherwise.
good news forecast	An indicator variable equal to one if *forecast* is equal to one and cumulative market value-weighted adjusted returns on the day of and the day after the announcement of the first forecast after the restatement are non-negative, and zero otherwise.
industry adjusted ROA	The industry adjusted return on assets computed as income before extraordinary items divided by total assets (both measured at the end of the quarter in which the industry restatement was announced) adjusted by the median industry return on assets.
litigation risk	The fitted value from a litigation probability model in Rogers and Stocken (2005) computed over the announcement quarter in which the restatement took place.
log # analysts	The natural logarithm of one plus the number of analysts who issue at least one earnings forecast for the firm during the announcement quarter.
log market capitalization	The natural logarithm of the market value of equity at the beginning of the announcement quarter.
log # of industry peers	The natural logarithm of the number of firms listed in the same 4-digit SIC code in a given quarter.
negative contagion	An indicator variable equal to one when contagion is negative, and zero otherwise
negative expectation gap	An indicator variable equal to one when the management's expectations less market's expectations of earnings deflated by price are less than 0, where the corresponding actual quarterly earnings per share proxy for the management's expectations, and (1) the corresponding consensus analyst forecast if available, (2) corresponding earnings from a seasonal random walk model, or (3) earnings from a random walk model if neither (1) nor (2) are available proxy for the market’s expectation.

Appendix A – Variables Definitions (continued)

# of days until quarter end	The number of days between the date of the restatement and the quarterly earnings announcement.
positive contagion	An indicator variable equal to one when contagion is non-negative and zero otherwise
ROA	The return on assets, computed as income before extraordinary items divided by total assets both measured at the end of the quarter in which the industry restatement was announced.
restater	The indicator variable equal to one if a firm restates its own financial statements within 90 days following the date of the industry restatement, and zero otherwise.
restating firm's CAR	The cumulative market value-weighted adjusted returns on days -1, 0,+1 relative to the date of the announcement for the restating firm

Appendix B – Accounting Reasons for Restatement based on General Accounting Office (2002) Classification

Acqusitions and mergers	Restatements of acquisitions or mergers that were improperly accounted for or not accounted for at all. These include instances in which the wrong accounting method was used or losses or gains related to the acquisition were understated or overstated. This does not include in-process research and development or restatements for mergers and acquisitions, and discontinued operations when appropriate accounting methods were employed.
Cost or expense	Restatements due to improper cost accounting. This category includes instances of improperly recognizing costs or expenses, improperly capitalizing expenditures, or any other number of mistakes or improprieties that led to misreported costs. It also includes restatements due to improper treatment of tax liabilities, income tax reserves, and other tax-related items.
In-process research and development	Restatements resulting from instances in which improper accounting methodologies were used to value in-process research and development at the time of an acquisition.
Other	Any restatement not covered by the listed categories. Cases included in this category include restatements due to inadequate loan-loss reserves, delinquent loans, loan write-offs, or improper accounting for bad loans and restatements due to fraud, or accounting irregularities that were left unspecified.
Reclassification	Restatements due to improperly classified accoutning items. These include restatements due to improprieties such as debt payments being classified as investments.
Related-party transactions	Restatements due to inadequate disclosure or improper accounting of revenues, expenses, debts, or assets involving transactions or relationships with related parties. This category includes those involving special purpose entities.
Restructuring, assets, or inventory	Restatements due to asset impairment, errors relating to accounting treatment of investments, timing of asset write-downs, goodwill, restructuring activity and inventory valuation, and inventory quantity issues.
Revenue recognition	Restatements due to improper revenue accounting. This category includes instances in which revenue was improperly recognized, questionable revenues recognized, or any other number of mistakes or improperties that led to misreported revenue.
Securities related	Restatements due to improper accounting for derivatives, warrants, stock options and other convertible securities.

Source: GAO (2002), p.22.

Figure 1 – Stock Price Change and Disclosure of Good News with No New Private Information

Figure 1a – Stock Price Decline

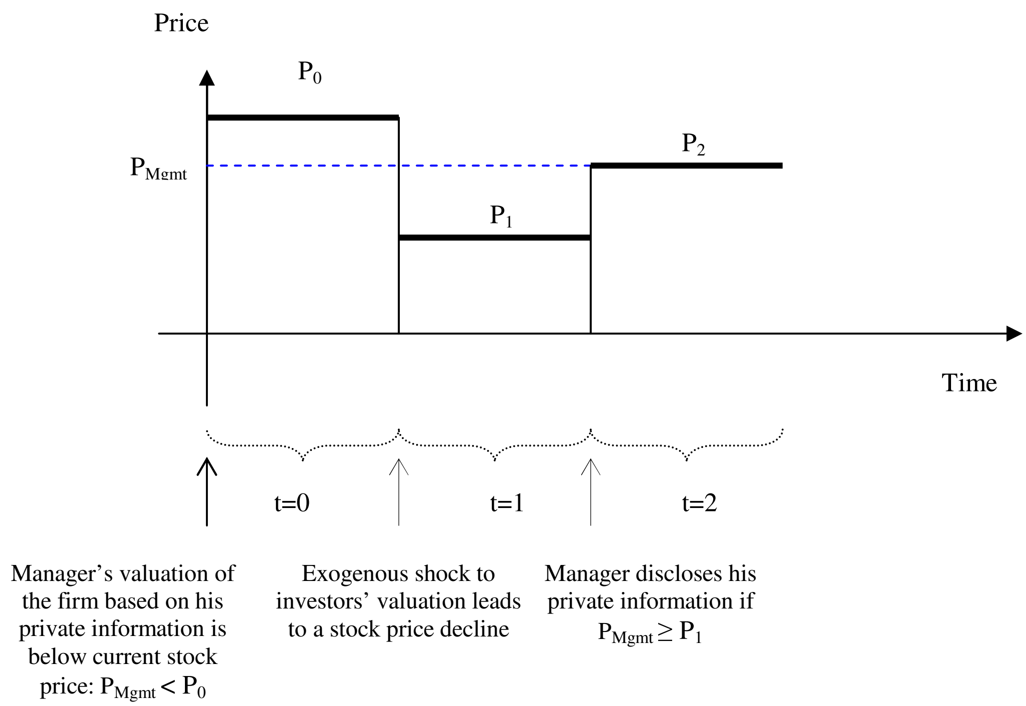

Figure 1b – Stock Price Increase

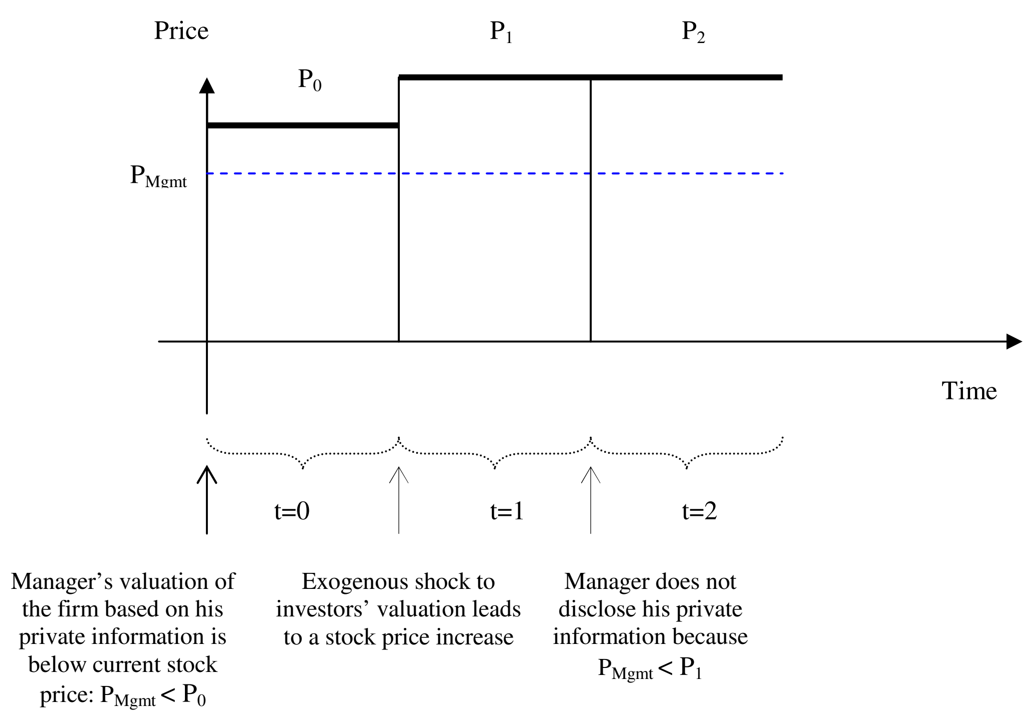

Figure 2 – Stock Price Change and Disclosure of Good News with New Private Information

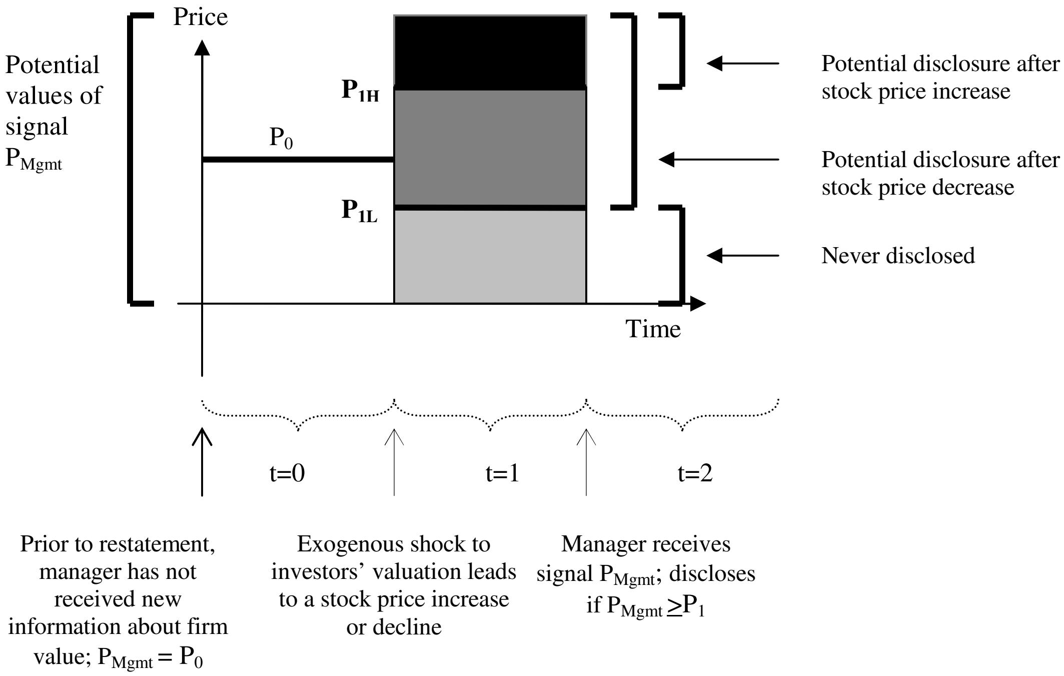

Figure 3 - Summary of Hypotheses: Predicted Association between Good News Management Forecast Propensity and the Absolute Contagion Effect Conditional on the Sign of the Contagion Effect when Managers Receive No New Private Information (Hypothesis 1A) and when Managers Receive New Private Information (Hypothesis 1B)

		Good News Disclosure Propensity	
		Managers Receive No New Private Information	Managers Receive New Private Information
Absolute Contagion	Negative Contagion	H1A: +	H1B: +
	Positive Contagion	H1A: none	H1B: -

Table 1 - Sample Selection and Industry Distribution of Restatements Used to Create the Sample of Industry Peers

Table 1 depicts the sample selection process and the industry distribution of 438 financial restatements used to create the final sample of industry peers of restating firms. Industry in this paper is defined by 4-digit SIC code. However, for clarity of presentation, I present the industry distribution of restating firms in Panel B using 2-digit SIC codes. For comparison I present the frequency of corresponding 2-digit SIC codes among all firms available on COMPUSTAT in fiscal year 2000 (the midpoint of my sample).

Panel A - Sample Selection

	N
All Restatements in GAO Report 01.01.1997-06.30.2002	919
Restatements with a Match on COMPUSTAT	730
Restatements with PERMNO and CRSP Returns Available	618
Restatements with no Prior Industry Restatement for at least 90 days	438
Industry Peer Firms Matched with the Restatements by Four-Digit SIC Codes	
(QEA dates available to identify the quarter in which a restatement by the peer was announced)	14,174
Industry Peer Firms with COMPUSTAT and CRSP Data Available	13,718

Panel B - Industry Distribution of Restating Firms Used to Create the Sample of Industry Peers

Two-digit SIC code	Industry Description	# of Restating Firms	% of Restatements	% of All Firms on COMPUSTAT in a Given SIC Code
10	Metal Mining	2	0.46%	1.11%
13	Oil and Gas Extraction	5	1.14%	2.93%
15	Building Construction-General Contractors and Operative Builders	1	0.23%	0.52%
16	Heavy Construction Other than Building Construction-Contractors	2	0.46%	0.27%
17	Construction-Special Trade Contractors	1	0.23%	0.31%
20	Food and Kindred Products	10	2.28%	1.80%
21	Tobacco Products	2	0.46%	0.10%
22	Textile Mill Products	1	0.23%	0.42%
23	Apparel and Other Finished Products Made From Fabrics	4	0.91%	0.78%
25	Furniture and Fixtures	5	1.14%	0.40%
26	Paper and Allied Products	4	0.91%	0.74%
27	Printing, Publishing, and Allied Industries	8	1.83%	0.99%
28	Chemicals and Allied Products	23	5.25%	6.50%
29	Petroleum Refining and Related Industries	2	0.46%	0.52%
30	Rubber and Miscellaneous Plastics Products	7	1.60%	0.86%
32	Stone, Clay, Glass, and Concrete Products	4	0.91%	0.51%
33	Primary Metal Industries	9	2.05%	1.05%
34	Fabricated Metal Products, Except Machinery and Transportation Equip.	4	0.91%	0.99%
35	Industrial and Commercial Machinery and Computer Equipment	39	8.90%	4.64%
36	Electronic and Other Electrical Equipment and Components, Except Computers	28	6.39%	6.01%
37	Transportation Equipment	12	2.74%	1.58%
38	Measuring, Analyzing and Controlling Instruments	31	7.08%	4.81%
39	Miscellaneous Manufacturing Industries	5	1.14%	1.02%
42	Motor Freight Transportation and Warehousing	2	0.46%	0.56%
44	Water Transportation	1	0.23%	0.40%
45	Transportation By Air	1	0.23%	0.57%
47	Transportation Services	2	0.46%	0.32%
48	Communications	20	4.57%	4.11%
49	Electric, Gas, and Sanitary Services	17	3.88%	3.31%
50	Wholesale Trade & Die; Durable Goods	11	2.51%	2.00%
51	Wholesale Trade & Die; Nondurable Goods	8	1.83%	1.31%
52	Building Materials, Hardware, Garden Supply, and Mobile Home Dealers	1	0.23%	0.14%
53	General Merchandise Stores	5	1.14%	0.43%
54	Food Stores	2	0.46%	0.41%
55	Automotive Dealers and Gasoline Service Stations	1	0.23%	0.27%
56	Apparel and Accessory Stores	6	1.37%	0.61%
57	Home Furniture, Furnishings, and Equipment Stores	5	1.14%	0.42%
58	Eating and Drinking Places	4	0.91%	1.33%
59	Miscellaneous Retail	7	1.60%	1.77%
60	Depository Institutions	16	3.65%	7.62%
61	Nondepository Credit Institutions	6	1.37%	1.39%
62	Security and Commodity Brokers, Dealers, Exchanges, and Services	7	1.60%	1.05%
63	Insurance Carriers	9	2.05%	2.09%
64	Insurance Agents, Brokers, and Service	1	0.23%	0.40%
65	Real Estate	4	0.91%	1.02%
67	Holding and Other Investment Offices	7	1.60%	7.45%
70	Hotels, Rooming Houses, Camps, and Other Lodging Places	1	0.23%	0.40%
72	Personal Services	2	0.46%	0.26%
73	Business Services	45	10.27%	12.74%
76	Miscellaneous Repair Services	1	0.23%	0.04%
78	Motion Pictures	6	1.37%	0.81%
79	Amusement and Recreation Services	5	1.14%	1.00%
80	Health Services	7	1.60%	1.38%
82	Educational Services	3	0.68%	0.31%
83	Social Services	2	0.46%	0.17%
87	Engineering, Accounting, Research, Management, and Related Services	11	2.51%	1.80%
99	Nonclassifiable Establishments	3	0.68%	1.61%

Table 2 - Descriptive Statistics - Contagion Effect

Table 2, Panel A presents descriptive statistics pertaining to the contagion effect. The contagion effect is defined as the cumulative market value-weighted adjusted returns on days -1, 0,+1 relative to the date of the announcement of a restatement by an industry peer with the same four digit SIC code. A two-sided T-test with clusters accounts for the cross-sectional correlation in returns of firms in the same industry around their industry peer restatement announcement. Panel B compares the contagion effect and the fraction of peer firms with a negative contagion effect between two groups: (1) peers of the restating firms for which the restating firm experienced positive cumulative abnormal returns (CAR) on the three days centered on the restatement announcement date; (2) peers of the restating firms for which the restating firm experienced negative CAR on the three days centered on the restatement announcement date. The Wilcoxon rank-sum statistic tests the hypothesis that two independent samples are from populations with the same distribution. The non-parametric median test tests the null hypothesis that two samples were drawn from populations with the same median. Panel C provides descriptive statistics on the contagion effect by the accounting reason for restatement (as defined by GAO 2002), and by the sign of the restating firm's CAR. Contagion and negative contagion are defined in Appendix A. Accounting reasons for restatement defined by GAO (2002) are described in Appendix B. ***, **, and * denote p-values less than 0.01, 0.05 and 0.1 respectively.

Panel A - Descriptive Statistics on the Contagion Effect

Statistic	Contagion Effect	Two-sided T-test		Two-sided T-test with Clusters		Wilcoxon Signed-rank Test	
N	13718						
mean	-0.33%	-4.73	***	-1.85	*		
sd	0.0806						
minimum	-67.61%						
1st percentile	-19.96%						
25th percentile	-3.58%						
median	-0.69%					-13.86	***
75th percentile	2.46%						
99th percentile	24.79%						
maximum	159.76%						

Panel B - Descriptive Statistics on the Contagion Effect by the Sign of the Restating Firm's CAR

	(1) Restating Firms with Positive CAR		(2) Restating Firms with Negative CAR			
Variable	N	Mean	N	Mean	T-test of Diff in Means (1) - (2)	
contagion effect (continous variable)	4082	0.00176	9636	-0.00537	4.74	***
negative contagion (indicator variable)	4082	0.53356	9636	0.57980	-5.00	***

Two-sample Wilocoxon rank-sum test	Z=6.056	***
Non-parametric two-sample median test	Chi2=18.1297	***

Panel C – Descriptive Statistics on the Contagion Effect by the Accounting Reason for Restatement and the Sign of the Restating Firm's CAR

Reason for restatement	N	Mean	Median	Std. Dev.
Revenue recognition	5315	-0.0020	-0.0060	0.0902
Cost or expense	2066	-0.0032	-0.0076	0.0925
Restructuring, assets or inventory	1124	-0.0062	-0.0085	0.0616
Acquisitions and mergers	1078	0.0020	-0.0036	0.0641
Securitues related	819	-0.0088	-0.0084	0.0624
IPR&D	348	-0.0129	-0.0109	0.0813
Other (including reclassifications and related-party transactions)	2968	-0.0037	-0.0079	0.0683

Reason for restatement	Restater's CAR	N	Mean	Median	Std. Dev.
Revenue recognition	+	1770	0.0027	-0.0024	0.0738
	-	3545	-0.0043	-0.0081	0.0973
Cost or expense	+	811	0.0059	-0.0068	0.0743
	-	1255	-0.0091	-0.0084	0.1021
Restructuring, assets or inventory	+	284	0.0007	-0.0039	0.0590
	-	840	-0.0086	-0.0100	0.0623
Acquisitions and mergers	+	206	0.0012	-0.0002	0.0475
	-	872	0.0022	-0.0048	0.0674
Securities related	+	369	-0.0105	-0.0121	0.0707
	-	450	-0.0075	-0.0059	0.0547
IPR&D	+	132	-0.0123	-0.0058	0.0725
	-	216	-0.0132	-0.0181	0.0863
Other (including reclassifications	+	510	0.0051	-0.0006	0.0827
and related-party transactions)	-	2458	-0.0055	-0.0089	0.0648

Table 3 - General Descriptive Statistics, and Descriptive Statistics by the Sign of the Contagion Effect and Forecasting Propensity

Table 3, Panel A reports general descriptive statistics and descriptive statistics by the sign of the contagion effect (negative and positive), while Panel B reports descriptive statistics by forecasting propensity (whether the firm released at least one management forecast between the day of the restatement announcement and the day before quarterly earnings announcement). ***, **, * denote p-values less than 0.01, 0.05 and 0.1 respectively. All variables are defined in Appendix A.

Panel A - General Descriptive Statistics and Descriptive Statistics by the Sign of the Contagion Effect

	(1) All Firms			(2) Firms with Negative Contagion Only			(3) Firms with Positive Contagion Only			Two-sided T-test
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Diff. in means (2) vs (3)
market capitalization	2455.256	194.617	14263.180	2154.007	176.972	13726.680	2848.201	221.495	14926.080	-694.194 ***
return on assets	-0.020	0.003	0.106	-0.022	0.003	0.109	-0.017	0.003	0.101	-0.005 ***
restater	0.003	0	0.053	0.003	0	0.052	0.003	0	0.053	0.000
# of days until quarter end	47.511	49	28.761	47.901	49	28.873	47.003	49	28.609	0.899 *
concentration	0.565	0.565	0.223	0.557	0.556	0.223	0.575	0.577	0.221	-0.019 ***
litigation risk	0.004	0.001	0.012	0.004	0.001	0.013	0.004	0.001	0.010	0.000
analyst following	3.456	1	4.982	3.255	1	4.784	3.717	2	5.218	-0.462 ***
negative expectation gap	0.398	0	0.489	0.401	0	0.490	0.393	0	0.489	0.008
forecast	0.057	0	0.233	0.055	0	0.229	0.060	0	0.238	-0.005
good news forecast	0.021	0	0.143	0.018	0	0.134	0.024	0	0.153	-0.005 **
bad news forecast	0.037	0	0.188	0.037	0	0.189	0.036	0	0.187	0.001
N	13,718			7765			5,953			

Panel B - Descriptive Statistics by the Forecast Propensity

	(1) Firms with No Forecasts			(2) Firms with Forecasts			Two-sided T-test
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Diff. in means (1) vs (2)
market capitalization	2266.239	181.118	13678.230	5556.769	564.943	21493.900	-3290.530 ***
return on assets	-0.020	0.003	0.108	-0.009	0.005	0.062	-0.012 ***
restater	0.002	0	0.050	0.008	0	0.087	-0.005 ***
# of days until quarter end	46.631	48.000	28.827	61.962	64.000	23.331	-15.331 ***
concentration	0.562	0.556	0.223	0.616	0.638	0.217	-0.054 ***
litigation risk	0.004	0.001	0.010	0.011	0.004	0.025	-0.007 ***
analyst following	3.195	1	4.745	7.735	6	6.581	-4.540 ***
negative expectation gap	0.387	0	0.487	0.577	1	0.494	-0.190 ***
negative contagion	0.567	1	0.495	0.546	1	0.498	0.022
N	12930			788			

Table 4 - Multinomial Logit Model of Propensity of Good News and Bad News Management Forecasts

Table 4 reports results from a Multinomial Logit regression (model 1) for the final sample of firms in the same 4-digit SIC code as the restating firm. The levels of the dependent variable are as follows: 0) Level 0 – *No Forecast*, (1) Level 1 – *Bad News Forecast*, (2) Level 2 – *Good News Forecast*. In Panel A forecast propensity is measured using an extended window (from the industry restatement announcement date to the day prior to the subsequent quarterly earnings announcement), and in Panel B it is measured using a short window of 5 days following the restatement announcement. Reported standard errors are robust and clustered by restatement event. All variables are defined in Appendix A. ***, **, * denote p-values less than 0.01, 0.05 and 0.1 respectively. Baseline probability is the probability of bad and good news forecast disclosure respectively when all continuous independent variables are at their means and indicator variables are at 0. Panel C compares the percentage increase in the baseline probability of good news forecast disclosure associated with a 1% increase in the magnitude of the negative contagion effect among 4 windows of different lengths: an extended window (until quarterly earnings announcement), 7 days, 5 days, and 3 days following the industry peer restatement announcement.

Panel A – Management Forecast Propensity Over an Extended Window

Dependent variable level		Level 1: Bad News Forecast			Level 2: Good News Forecast		
		Coef.	Std. Error	Marg. Effect	Coef.	Std. Error	Marg. Effect
	intercept	-3.853 ***	0.860		-7.058 ***	1.087	
*neg. contagion**	*absolute contagion*	6.069 ***	1.823	0.0746	7.070 ***	2.676	0.0672
*neg. contagion**	*litigation risk*	19.815 ***	2.735	0.2487	-20.015	14.085	-0.1947
*neg. contagion**	*# of days until quarter end*	0.025 ***	0.003	0.0003	0.029 ***	0.004	0.0003
*neg. contagion**	*# of days*absolute contagion*	-0.066 **	0.027	-0.0008	-0.121 ***	0.042	-0.0012
*neg. contagion**	*restater*	2.245 ***	0.753	0.0943			
*neg. contagion**	*restater*absolute contagion*	-11.871 **	4.681	-0.1476			
*neg. contagion**	*forecast in prev. quarter*	0.994 ***	0.169	0.0181	1.256 ***	0.213	0.0201
*neg. contagion**	*forecast before restatement*	0.357 *	0.213	0.0052	0.154	0.267	0.0015
*neg. contagion**	*log market capitalization*	-0.231 ***	0.046	-0.0029	0.044	0.055	0.0005
*neg. contagion**	*log # of analysts*	1.262 ***	0.100	0.0156	0.784 ***	0.123	0.0074
*neg. contagion**	*negative expectation gap*	1.562 ***	0.139	0.0248	-0.047	0.191	-0.0007
*neg. contagion**	*concentration*	0.933 ***	0.362	0.0115	0.878 **	0.415	0.0083
*neg. contagion**	*industry adjusted ROA*	0.983 *	0.549	0.0117	3.947 **	1.556	0.0378
*neg. contagion**	*after FD*	-0.384	0.340	-0.0046	0.531 *	0.288	0.0057
*pos. contagion**	*absolute contagion*	-6.714 **	3.000	-0.0825	-7.422	4.855	-0.0705
*pos. contagion**	*litigation risk*	23.430 ***	4.918	0.2926	-11.235	20.944	-0.1108
*pos. contagion**	*# of days until quarter end*	0.018 ***	0.003	0.0002	0.017 ***	0.004	0.0002
*pos. contagion**	*# of days*absolute contagion*	0.096 ***	0.034	0.0012	0.083	0.060	0.0008
*pos. contagion**	*restater*	-28.761 ***	0.482	0.0812			0.0000
*pos. contagion**	*forecast in prev. quarter*	1.287 ***	0.162	-0.1434	1.002 ***	0.204	-0.0022
*pos. contagion**	*forecast before restatement*	0.303	0.239	0.0174	0.487 *	0.294	0.0239
*pos. contagion**	*log market capitalization*	-0.191 ***	0.047	0.0056	0.116 **	0.056	0.0022
*pos. contagion**	*log # of analysts*	1.066 ***	0.109	-0.0053	0.627 ***	0.131	-0.0010
*pos. contagion**	*negative expectation gap*	1.381 ***	0.173	0.0135	-0.071	0.200	0.0072
*pos. contagion**	*concentration*	0.957 ***	0.367	0.0252	0.438	0.471	-0.0049
*pos. contagion**	*industry adjusted ROA*	0.222	0.509	0.0023	1.623	1.588	-0.0139
*pos. contagion**	*after FD*	-0.422	0.329	0.0112	0.695 **	0.279	0.0395
	year fixed effects	yes	yes	yes	yes	yes	yes
	Baseline Probability			0.012584			0.009701
	N	13,718					
	Pseudo R2	22.15%					

Panel B – Management Forecast Propensity Over a Short Window

Dependent variable level		Level 1: Bad News Forecast			Level 2: Good News Forecast		
		Coef.	Std. Error	Marg. Effect	Coef.	Std. Error	Marg. Effect
	intercept	-5.384 **	2.256		-15.832 ***	2.459	
*neg. contagion**	*absolute contagion*	15.237 ***	2.206	0.0151	14.877 ***	4.292	0.0092
*neg. contagion**	*litigation risk*	1.076	10.048	0.0011	-98.385	88.032	-0.0612
*neg. contagion**	*# of days until quarter end*	0.003	0.008	0.0000	0.016	0.013	0.0000
*neg. contagion**	*# of days*absolute contagion*	-0.078 **	0.039	-0.0001	-0.234 **	0.121	-0.0001
*neg. contagion**	*restater*	3.665 ***	1.084	0.0361			
*neg. contagion**	*restater*absolute contagion*	-19.323 **	8.340	-0.0192			
*neg. contagion**	*forecast in prev. quarter*	0.449	0.497	0.0005	0.050	0.991	0.0000
*neg. contagion**	*forecast before restatement*	-0.220	0.594	-0.0002	-0.586	1.467	-0.0003
*neg. contagion**	*log market capitalization*	-0.287 **	0.128	-0.0003	0.406 ***	0.125	0.0003
*neg. contagion**	*log # of analysts*	1.831 ***	0.292	0.0018	0.548	0.351	0.0003
*neg. contagion**	*negative expectation gap*	1.676 ***	0.377	0.0029	0.099	0.624	0.0001
*neg. contagion**	*concentration*	1.629 *	0.864	0.0016	1.408	1.159	0.0009
*neg. contagion**	*industry adjusted ROA*	2.472 **	0.976	0.0024	1.726	1.740	0.0011
*neg. contagion**	*after FD*	-0.175	0.691	-0.0002	0.007	1.169	0.0000
*pos. contagion**	*absolute contagion*	-1.826	7.720	-0.0018	-17.925	13.963	-0.0112
*pos. contagion**	*litigation risk*	3.314	10.585	0.0033	-61.479	41.905	-0.0382
*pos. contagion**	*# of days until quarter end*	-0.007	0.011	0.0000	-0.009	0.009	0.0000
*pos. contagion**	*# of days*absolute contagion*	-0.082	0.175	-0.0001	0.269 *	0.150	0.0002
*pos. contagion**	*restater*	-42.058 ***	0.707	-0.0010			
*pos. contagion**	*forecast in prev. quarter*	1.412 ***	0.498	0.0028	2.293 ***	0.573	0.0049
*pos. contagion**	*forecast before restatement*	-1.339 *	0.742	-0.0008	-1.852 **	0.761	-0.0006
*pos. contagion**	*log market capitalization*	-0.130	0.123	-0.0001	0.503 ***	0.127	0.0003
*pos. contagion**	*log # of analysts*	0.809 ***	0.302	0.0008	0.357	0.322	0.0002
*pos. contagion**	*negative expectation gap*	1.300 ***	0.466	0.0021	-0.168	0.499	-0.0001
*pos. contagion**	*concentration*	1.146	1.017	0.0011	0.202	1.086	0.0001
*pos. contagion**	*industry adjusted ROA*	4.824 **	2.206	0.0048	4.838	3.080	0.0030
*pos. contagion**	*after FD*	0.652	0.756	0.0008	0.846	0.939	0.0007
	year fixed effects	yes	yes	yes	yes	yes	yes
	Baseline Probability			0.00099			0.00062
	N	13,718					
	Pseudo R2	22.55%					

Panel C – Percentage Increase in the Baseline Probability of Good News Forecasts Associated with 1% More Negative Contagion Effect by Window Length

Window length	Baseline probability	Marg. effect of 1% more negative contagion	% Increase in baseline probability
until QEA	0.009701	0.000672	6.93%
7 days	0.001010	0.000102	10.07%
5 days	0.000622	0.000092	14.85%
3 days	0.000363	0.000068	18.74%

Table 5 - Heckman Model of Management Forecast Error

Table 5, Panel A reports results from the second stage of the Heckman Selection Model (model 2) for the final sample of firms in the same 4-digit SIC code as the restating firm with data available to estimate the forecast error. The first stage of the model is a Probit Model with *forecast* as the dependent variable and the same explanatory variables as those in the Multionomial Logit Model (model 1) presented in Table 4, Panel A. Panel B presents total coefficients and standard errors for linear combinations of coefficients for good news forecasts. All variables are defined in Appendix A. Reported standard errors are robust and clustered by restatement event. ***, **, * denote p-values less than 0.01, 0.05 and 0.1 respectively.

Panel A - Second Stage of Heckman Selection Model

Dependent Variable: Forecast Error		Coef.		Std. Error
	intercept	0.01475		0.01460
*neg. contagion **	*absolute contagion*	0.05010		0.03396
*neg. contagion **	*good*	0.00239		0.00368
*neg. contagion **	*good*absolute contagion*	-0.03511		0.10521
*neg. contagion **	*horizon*	0.00007	***	0.00003
*neg. contagion **	*log market capitalization*	-0.00003		0.00080
*neg. contagion **	*log # of analysts*	-0.00384		0.00298
*neg. contagion **	*mb*	0.00000		0.00003
*neg. contagion **	*litigation risk*	-0.05233	**	0.02520
*pos. contagion**	*absolute contagion*	-0.03521	**	0.01609
*pos. contagion**	*good*	-0.00047		0.00339
*pos. contagion**	*good*absolute contagion*	0.01753		0.02844
*pos. contagion**	*horizon*	0.00006	***	0.00002
*pos. contagion**	*log market capitalization*	-0.00002		0.00089
*pos. contagion**	*log # of analysts*	-0.00221		0.00305
*pos. contagion**	*mb*	-0.00014		0.00019
*pos. contagion**	*litigation risk*	-0.02317		0.02413
	year fixed effects	yes		yes
	N	638		
	Wald test of independent equations	0.02		p= 0.9003

Panel B – Magnitude of the Contagion Effect and Good News Forecasts

Magnitude of Contagion Effect and Good News Forecasts for Negative Contagion Group	Coef.	Std. Error
*neg. contagion * absolute contagion+ neg. contagion * good *absolute contagion*	0.01499	0.09948

Magnitude of Contagion Effect and Good News Forecasts for Positive Contagion Group	Coef.	Std. Error
*pos. contagion * absolute contagion+ pos. contagion * good * absolute contagion*	-0.01768	0.02337

Table 6 -Analysis of the Change in Litigation Risk

Table 6, Panel A reports results from OLS regression of *change in litigation risk* on explanatory variables (model 3). Panel B and C report results from a Multinomial Logit regression (model 1) modified to include *change in litigation risk*. All regressions are estimated on the final sample of firms in the same 4-digit SIC code as the restating firm with sufficient data available to compute *change in litigation risk*. In Panel B forecast propensity is measured using an extended window, from the industry restatement announcement date to the day prior to the subsequent quarterly earnings announcement, and in Panel C it is measured using a short window of 5 days following the restatement announcement. The alternatives of the dependent variable in Panel B and C are as follows: (0) Level 0 – *No Forecast*, (1) Level 1 – *Bad News Forecast*, (2) Level 2 – *Good News Forecast*. Baseline probability is the probability of bad and good news forecast disclosure respectively when all continuous independent variables are at their means and indicator variables are at 0. All variables are defined in Appendix A. Reported standard errors are robust and clustered by restatement event. ***, **, * denote p-values less than 0.01, 0.05 and 0.1 respectively.

Panel A - Ordinary Least Squares Analysis of the Change in Litigation Risk and Contagion Effect

Dependent Variable: Change in Litigation Risk	Coef.	Std. Error
intercept	0.0010	0.0004
*negative contagion*absolute contagion*	0.0091 *	0.0050
*positive contagion*absolute contagion*	-0.0063	0.0044
restating firm's CAR	-0.0009	0.0009
year fixed effects	yes	yes
N	13,702	
Adjusted R2	0.44%	

Panel B - Multinomial Logit Model of Good and Bad News Mgmt Forecast Propensity with Change in Litigation Risk (Forecast Propensity Measured over Extended Window)

Dependent variable level		Level 1: Bad News Forecast			Level 2: Good News Forecast		
		Coef.	Std. Error	Marg. Effect	Coef.	Std. Error	Marg. Effect
	intercept	-4.394 ***	0.828		-6.522 ***	0.911	
*neg. contagion**	*absolute contagion*	7.260 ***	2.166	0.0897	6.057 **	2.547	0.0582
*neg. contagion**	***change in litigation risk***	15.520 ***	0.003	0.1933	0.306	4.522	0.0011
*neg. contagion**	*# of days until quarter end*	0.025 ***	0.026	0.0003	0.029 ***	0.004	0.0003
*neg. contagion**	*# of days*absolute contagion*	-0.070 ***	0.717	-0.0009	-0.115 ***	0.042	-0.0011
*neg. contagion**	*restater*	2.300 ***	4.739	0.0999			
*neg. contagion**	*restater*absolute contagion*	-11.890 **	0.166	-0.1481			
*neg. contagion**	*forecast in prev. quarter*	0.997 ***	0.208	0.0182	1.265 ***	0.212	0.0207
*neg. contagion**	*forecast before restatement*	0.425 **	0.044	0.0063	0.148	0.272	0.0015
*neg. contagion**	*log market capitalization*	-0.200 ***	0.099	-0.0025	0.015	0.045	0.0002
*neg. contagion**	*log # of analysts*	1.279 ***	0.140	0.0158	0.780 ***	0.116	0.0075
*neg. contagion**	*negative expectation gap*	1.606 ***	0.378	0.0258	-0.068	0.190	-0.0009
*neg. contagion**	*concentration*	0.977 ***	0.508	0.0121	0.815 **	0.415	0.0078
*neg. contagion**	*industry adjusted ROA*	0.733	0.364	0.0086	4.012 ***	1.521	0.0390
*neg. contagion**	*after FD*	-0.369	2.977	-0.0044	0.550 **	0.280	0.0060
*pos. contagion**	*absolute contagion*	-4.014	2.456	-0.049	-7.715	4.860	-0.075
*pos. contagion**	***change in litigation risk***	16.645 ***	3.381	0.206	8.466 **	3.879	0.081
*pos. contagion**	*# of days until quarter end*	0.020 ***	0.003	0.000	0.017 ***	0.004	0.000
*pos. contagion**	*# of days*absolute contagion*	0.070 **	0.031	0.001	0.086	0.060	0.001
*pos. contagion**	*restater*	-32.349 ***	0.475	0.087	0.000		0.000
*pos. contagion**	*forecast in prev. quarter*	1.318 ***	0.168	-0.143	1.037 ***	0.203	-0.002
*pos. contagion**	*forecast before restatement*	0.393 *	0.237	0.018	0.497 *	0.300	0.025
*pos. contagion**	*log market capitalization*	-0.166 ***	0.044	0.007	0.084 *	0.048	0.002
*pos. contagion**	*log # of analysts*	1.102 ***	0.108	-0.005	0.645 ***	0.128	-0.001
*pos. contagion**	*negative expectation gap*	1.448 ***	0.172	0.014	-0.080	0.200	0.007
*pos. contagion**	*concentration*	0.978 ***	0.378	0.026	0.378	0.468	-0.005
*pos. contagion**	*industry adjusted ROA*	-0.028	0.437	0.003	1.729	1.593	-0.014
*pos. contagion**	*after FD*	-0.394	0.348	0.008	0.726 ***	0.272	0.041
	year fixed effects	yes	yes	yes	yes	yes	yes
	Baseline Probability			0.01255			0.00985
	N	13,702					
	Pseudo R2	21.59%					

Panel C - Multinomial Logit Model of Good and Bad News Mgmt Forecast Propensity with Change in Litigation Risk (Forecast Propensity Measured over Short Window)

Dependent variable level		Level 1: Bad News Forecast			Level 2: Good News Forecast		
		Coef.	Std. Error	Marg. Effect	Coef.	Std. Error	Marg. Effect
	intercept	-5.181 **	2.198		-13.459 ***	1.962	
*neg. contagion**	*absolute contagion*	15.961 ***	2.353	0.0152	12.448 ***	3.718	0.0090
*neg. contagion**	***change in litigation risk***	9.576 ***	3.735	0.0091	-17.228 ***	3.508	-0.0125
*neg. contagion**	*# of days until quarter end*	0.004	0.008	0.0000	0.016	0.013	0.0000
*neg. contagion**	*# of days*absolute contagion*	-0.093 **	0.041	-0.0001	-0.241 *	0.125	-0.0002
*neg. contagion**	*restater*	3.841 ***	1.041	0.0413			
*neg. contagion**	*restater*absolute contagion*	-21.098 **	8.541	-0.0201			
*neg. contagion**	*forecast in prev. quarter*	0.501	0.489	0.0006	0.041	0.956	0.0000
*neg. contagion**	*forecast before restatement*	-0.249	0.584	-0.0002	-0.760	1.472	-0.0004
*neg. contagion**	*log market capitalization*	-0.311 **	0.125	-0.0003	0.276 ***	0.092	0.0002
*neg. contagion**	*log # of analysts*	1.935 ***	0.290	0.0018	0.534 *	0.323	0.0004
*neg. contagion**	*negative expectation gap*	1.690 ***	0.376	0.0029	0.027	0.623	0.0000
*neg. contagion**	*concentration*	1.562 *	0.866	0.0015	1.213	1.187	0.0009
*neg. contagion**	*industry adjusted ROA*	2.461 ***	0.948	0.0023	2.141	1.855	0.0016
*neg. contagion**	*after FD*	0.017	0.708	0.0000	-0.029	1.163	0.0000
*pos. contagion**	*absolute contagion*	-1.600	7.485	-0.0015	-18.849	13.750	-0.0137
*pos. contagion**	***change in litigation risk***	11.098 *	5.924	0.0105	5.530	4.852	0.0040
*pos. contagion**	*# of days until quarter end*	-0.007	0.011	0.0000	-0.010	0.009	0.0000
*pos. contagion**	*# of days*absolute contagion*	-0.083	0.180	-0.0001	0.278 *	0.147	0.0002
*pos. contagion**	*restater*	-30.071 ***	0.707	-0.0010			
*pos. contagion**	*forecast in prev. quarter*	1.444 ***	0.500	0.0028	2.325 ***	0.579	0.0059
*pos. contagion**	*forecast before restatement*	-1.281 *	0.715	-0.0007	-1.886 **	0.778	-0.0007
*pos. contagion**	*log market capitalization*	-0.142	0.121	-0.0001	0.377 ***	0.093	0.0003
*pos. contagion**	*log # of analysts*	0.826 ***	0.304	0.0008	0.358	0.322	0.0003
*pos. contagion**	*negative expectation gap*	1.300 ***	0.466	0.0020	-0.168	0.491	-0.0001
*pos. contagion**	*concentration*	1.074	1.013	0.0010	-0.040	1.128	0.0000
*pos. contagion**	*industry adjusted ROA*	4.731 **	2.307	0.0045	4.682	3.141	0.0034
*pos. contagion**	*after FD*	0.800	0.777	0.0010	0.898	0.934	0.0009
	year fixed effects	yes	yes	yes	yes	yes	yes
	Baseline Probability			0.00095			0.00073
	N	13,702					
	Pseudo R2	22.64%					