Timeliness of Firms’ Voluntary Disclosure of Good and Bad News

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ABSTRACT

Mixed views exist about whether firm managers voluntarily disclose good news more timely than they do bad news. Our study investigates this issue by inferring managers’ strategic disclosure behavior from the stock returns in four adjacent windows for a fiscal quarter, prior to and including the earnings announcement. We find that large firms disclose the same proportion of news in each examination window in good- and bad-news quarters; however, very bad news (i.e. severe negative returns) is more frequent during the quarter than after the quarter ends. In contrast, small firms disclose a larger proportion of news early in good- rather than bad-news quarters; however, very bad news is most frequent around earnings announcement. Our results suggest that the timeliness of firms’ voluntary disclosure of good vs. bad news varies with firm size and the degree of news.
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I. INTRODUCTION

In this paper we compare firms’ stock returns in four adjacent windows for a quarter, prior to and including the earnings announcement period, to examine the timeliness of firms’ voluntary disclosures. Managers presumably possess private information about firms’ operations that is not required for disclosure under the securities regulation. Understanding when managers choose to release such information is a fundamental issue in accounting and economics. So far, the economic theories and empirical findings on managers’ use of discretion to strategically disclose good vs. bad news are inconclusive.1 Our study provides new evidence on this issue by using a return-based approach.

Our return-based approach is motivated by McNichols (1988), who compares the skewness of returns in the non-earnings announcement and earnings announcement windows to infer the tendency of managers’ preemptive disclosure of good vs. bad news. We choose the return-based approach over the more conventional event study method because of the former’s advantages in sample selection. First, the return approach allows for a large sample due to minimal data collection costs. Second, the approach mitigates the sample selection biases both from media and commercial database coverage and from managers’ selective disclosure through private channels. The return approach, on the other hand, permits analysis of small firms that are largely ignored in previous disclosure research and provides us with better understanding of managers’ disclosure behaviors in small firms. In addition, examination of returns is interesting per se, and only McNichols

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(1988) has used this approach. Our study thus complements the event studies that use actual firm disclosures.

To investigate the relative timeliness of good- vs. bad- news disclosure, we conduct two different but complementary tests. Our first test compares the proportion of a firm-quarter’s news disclosed in four adjacent windows, for good- vs. bad-news quarters and for large vs. small firms. For this test, we construct a proportion-of-news metric, which is the ratio of a firm’s stock return during each window divided by the firm’s return over the whole quarter. This ratio, therefore, estimates the proportion of a firm-quarter’s total news (as measured by stock returns) disclosed in each window. We find that within a given window, large firms with good news disclose the same proportion of news as large firms with bad news, while small firms with good news disclose a larger proportion of their news early in the quarter than small firms with bad news.

Our second test compares the skewness of return distributions in each examination window, using the return-cutoff approach of McNichols (1988). For various cutoffs, within each window, we calculate the number of firms with returns below the negative of the cutoff to the number of firms above the cutoff. This cutoff ratio represents the frequency of bad news relative to good news in each window for different degrees of news. We compare this ratio within firm-size groups and within similar cutoff groups across the adjacent windows. We find that for large firms very bad news (i.e. severe stock returns) is more frequent during the quarter than after the quarter ends. In contrast, for small firms very bad news is most frequent around earnings announcement.

Therefore, the proportion-of-news and the return cutoff analyses complement each other. The former compares the magnitude of news, scaled by total news, across different
types of firms in each examination window; the latter compares the frequency of bad news relative to good news across different windows. Taken together, our results suggest that the timeliness of firms’ voluntary disclosure of good vs. bad news varies with firm size and the degree of news. Using the return-based approach, we document findings that are different from Kothari, Shu and Wysocki (2005), who conclude that managers delay the release of bad news, from Brown and Kim (1993), who argue that small firms tend to disclosure positive non-earnings news around earnings announcement, and from Anilowski, Feng and Skinner (2005), who observe a good-bad-then good news pattern in the early-, late-, and post-quarter windows. Our study thus contributes to the voluntary disclosure literature by presenting new evidence from a new approach on this important disclosure issue.

The rest of the paper is organized as follows. Section II reviews related research. Section III explains the examination windows and the proportion-of-news and return cutoff tests. Section IV describes the data and reports our test results, Section V provides discussions, and Section VI concludes.

II. PRIOR RESEARCH

Theory

Firm management presumably has private information that is not required for immediate disclosure by the securities laws or by the generally accepted accounting principles. Although investors typically desire timely information, the conditions for full information revelation (Grossman 1981) are rarely met in reality, leaving managers with an opportunity to strategically utilize their informational advantage.
Several theoretical studies address managers’ strategic disclosure behavior, but provide different predictions as a result of their different assumptions used for the costs and benefits of disclosure and nondisclosure. Verrecchia (1983) predicts an asymmetric disclosure strategy in favor of good news in a setting in which disclosure affects firm value but also assists competitors in the product market. A similar strategy could be observed in the signaling framework with two types of firms: those with favorable private signals and those with unfavorable signals. Good-type firms probably have an incentive to distinguish themselves from bad-type firms by providing disclosures as long as the cost of meeting the projections contained in these disclosures is lower than it would be for bad-type firms so that the latter does not imitate the former.

Other studies argue that firms use an asymmetric disclosure strategy in favor of bad-news disclosure. Darrough and Stoughton (1990) show that in a production economy, a monopolist has an incentive to disclose bad news to deter entry, while Dontoh (1989) demonstrates that dual oligopolists may disclose bad news so as to benefit from a reduced product supply after the competitor reduces its production. The recent litigation argument by Skinner (1994, 1997) predicts that firms are more likely to disclose bad news because the nondisclosure costs associated with bad news is higher than those with good news.  

Large and small firms perhaps use different disclosure strategies if the costs and benefits associated with disclosure and nondisclosure vary with firm size. For example, class action law suits are more probable and more costly for large firms as a result of the method of legal damage estimation (Skinner 1997; Beaver and Marlernee 1990). Based on this observation, one would argue that large firms are more likely to predisclose bad

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2 Trueman (1997) models the litigation costs of nondisclosure and shows that managers tend to disclosure both extreme good news and bad news.
news. On the other hand, Diamond and Verrecchia (1991, Corollary 4) show that the marginal benefit of increased disclosure is greater for large firm than for small firms, because increased disclosures are expected to increase market depth and thus attract large-traders, who are often associated with large firms. Their theory predicts that large firms are more likely to make disclosures than are small firms, regardless of news.

In summary, despite the importance of the issue, there is a no consensus on whether firms are more likely to pre-disclose good vs. bad news and the economic theories on this issue are highly contextual.

**Empirical Evidence**

The empirical literature has documented several different disclosure patterns for aggregate firm groups. Early studies on management earnings forecasts find more good-news disclosures in the 1970s (Patell 1976; Penman 1980; Waymire 1984; Lev and Penman 1990; McNichols 1988) and a symmetric disclosure pattern in the 1980s (Ajinkya and Gift 1984; McNichols 1989; King, Pownall, Waymire 1990). 3

Later studies report a higher tendency of bad-news disclosure. For example, Skinner (1994) finds more incidence of bad news than good news and that bad news is more highly associated with quarterly earnings than with annual earnings, suggesting more timeliness of bad news than good news. Similarly, Kasznik and Lev (1995) find that 20.1% of their bad-news sample firms make earnings-related preemptive disclosure while only 9.4% of good-news firms do so. Using an earnings-based ratio, Soffer, Thiagarajan and Walther (2000) find that firms disclose about 93% of bad news while only 49% of

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3 Using data from 1968-1975, Lev and Penman (1990) find that firms that voluntarily provide earnings forecasts have a higher increase in earnings in the forecasting year than do nonforecasting firms, suggesting an symmetric disclosure pattern in favor of good news.
good news before the earnings announcement.\textsuperscript{4} Furthermore, by examining analysts’ forecast error and dispersion, Dutta and Nelson (2000) conclude that firms with bad news have increased their preemptive disclosures after the Supreme Court’s endorsement of the “fraud on the market” doctrine in 1988.\textsuperscript{5} The above evidence supports an asymmetric disclosure strategy in favor of bad-news disclosure, especially in the more recent time period.

Kothari, Shu and Wysocki (2005), however, conclude that managers delay bad news. They find that the stock market’s reaction to bad-news events, such as dividend cuts and unfavorable management forecasts, is greater in magnitude than that to good-news events. They interpret the results as suggesting that negative news has been accumulated and delayed to a larger degree than has good news.

Anilowski, Feng and Skinner (2005) suggest that systematic differences exist in the intra-quarter pattern of firms’ earnings guidance (i.e. forward-looking disclosures about future earnings). Plotting (their Figure 3) the timing of firms’ earnings guidance collected from First Call, they observe that firms disclose good news more frequently early in the quarter, bad news more frequently late in the quarter, and again good news more frequently in the preannouncement season (after the quarter ends).

All the above studies use firms’ actual disclosures and are subject to three sample selection biases. First, the media has a coverage bias toward large firms, firms in certain industries, or those with other “newsworthy” characteristics. Second, commercial

\footnotesize{\textsuperscript{4} Their measure is the ratio of preannounced news to total news, where preannounced news is the difference between the earnings estimated by a firm and those forecasted by analysts in the 120-day period before the firm’s disclosure and total news is the difference between the realized earnings and those forecasted by analysts.

\textsuperscript{5} The ruling in the Basic Inc. v. Levinson in March 1988 lowered the hurdle for class action lawsuits associated with a sharp price decline mainly by relieving plaintiffs from proving “reliance” on a specific piece of misrepresented information because of the assumption that investors rely on the integrity of the stock market.}
disclosure databases, such as First Call used by Soffer et al., Kothari et al., and Anilowski et al., have selection biases as well. Anilowski et al. point out that First Call biases in favor of including firms that are followed by analysts. Given that firm size and analyst coverage are positively associated (Lang and Lundholm 1996), this observation suggests that the First Call database biases against including small firms. Finally, before Regulation Fair Disclosure, effective on October 23, 2000, most firms’ disclosures were privately communicated to analysts, institutional investors, or other groups (Ajinkya and Gift 1984). The disclosures collected by researchers and the commercial databases, therefore, may not be representative of the totality of firms’ disclosures.

Given the inconclusive views in theory, mixed findings in empirical studies, and the sample selection problems associated with the event-study approach, we investigate the issue of managers’ disclosure timeliness by employing a return-based approach.

III. RESEARCH DESIGN

We adopt McNichols’ (1988) return-based approach to infer managers’ disclosure strategies by comparing the return distributions in four adjacent windows for a quarter (Figure 1). For each quarter we define the total examination period as the period that starts five days after the earnings announcement for the previous quarter and ends one trading day after the current-quarter earnings announcement. In the following, we explain the four examination windows, proportion-of-news test, and return-cutoff analysis.

**Examination Windows**

We partition a quarter into four adjacent windows such that we can determine whether a certain type of news is revealed to a larger extent or occurs more often in an
early or late window. From this pattern, we infer the timeliness of news. The first window begins five days after the earnings announcement for the previous quarter and ends at the end of the second fiscal month of the current quarter (hereinafter referred to as the “early-quarter window”). This window is about 35 days, because firms usually announce earnings three or four weeks after the end of a fiscal quarter. The second window is the third fiscal month (“late-quarter window”). The third window begins right after the fiscal-quarter-end and ends on the second trading day before the earnings announcement for the current quarter (“pre-announcement window”). This window is about 25 days. The last window runs from one trading day before the current-quarter earnings announcement to one trading day after it (“announcement window”). The above partitions are similar to Figure 2 of Anilowski et al. except that we start the examination after the previous-quarter earnings announcement to avoid confounding previous-quarter earnings preannouncement and announcement with the informational events for the current quarter.

**Proportion-of-News Test**

We are interested in the timeliness of good- vs. bad-news disclosure conditional on firm size. In particular, we examine the following questions in each examination window and compare the answers from the early vs. late windows:

Q1: Do large firms with bad news disclose a larger proportion of news than do large firms with good news?

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6 In this design we implicitly determine the timeliness of news with respect to a firm’s fiscal-quarter-end, because as with many other studies, we do not observe when managers receive their private signals, and we assume that the news relates to the current-quarter’s earnings.
Q2: Do small firms with bad news disclose a larger proportion of news than do small firms with good news?

Q3: For a given bad-news quarter, do large firms disclose a larger proportion of news than do small firms?

Q4: For a given good-news quarter, do large firms disclose a larger proportion of news than do small firms?

We define total news for a firm-quarter as the buy-and-hold return in the quarterly examination period. The proportion of news in each window is then measured as the ratio of the buy-and-hold return in this window to the total news. Here we use buy-and-hold returns instead of market-adjusted returns because the denominator is less likely to be close to zero when the former are used.

We use the market capitalization at the beginning of a firm-quarter to determine firm size. For each year-quarter, we rank all firms by market capitalization and referred to those in the top two quintiles as “large firms” and those in the bottom two quintiles as “small firms.” The observations in the middle quintile are excluded from analysis.

For this particular test, we define “good-news” and “bad-news” quarters by the cumulative market-adjusted return for a firm-quarter. We pool all firm-quarters in our sample and rank them by this return metric. The observations that fall in the top two quintiles are referred to as “good-news” firm quarters and those in the bottom two quintiles as “bad-news” firm quarters. We exclude the observations that belong to the middle quintile (i.e. no-news quarters). Here, we use cumulative market-adjusted returns

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7 This measure is similar to that used in Soffer, Thiagarajan and Walther (2000) except that their measure is based on reported and predisclosed earnings by a company and forecasted earnings by its analysts. As a result, their sample is limited to firms that have analysts’ forecasts and have disclosed a point or range earnings estimate collected by First Call.
instead of raw (buy and hold) returns to determine the type of news, because with the latter, observations in the bull market would concentrate in the good-news quarter portfolios and vice versa.

We use dummy variables for firm size and the nature of news in the following regressions to test whether the proportion of news is significantly different across four groups: (1) bad-news large-firm quarter, (2) good-news large-firm quarter, (3) bad-news small-firm quarter, and (4) good-news small-firm quarter. For ease of exposition, we estimate two equivalent regressions on the pooled firm-quarter observations within each window.  

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\begin{align*}
\text{News}_i &= a_0 + a_1 \text{Good}_i + a_2 \text{Small}_i + a_3 \text{Good}_i \times \text{Small}_i + \varepsilon_i \quad (1) \\
\text{News}_i &= b_0 + b_1 \text{Bad}_i + b_2 \text{Large}_i + b_3 \text{Bad}_i \times \text{Large}_i + \eta_i \quad (2)
\end{align*}
\]

Here, News is the proportion of news. In Regression (1), Good is a dummy variable that takes the value of 1 for good-news firm quarters and 0 otherwise, and Small is a dummy variable that takes the value of 1 for small firms and 0 otherwise. In Regression (2), Bad is a dummy variable that takes the value of 1 for bad-news firm quarters and 0 otherwise, and Large is a dummy variable that takes the value of 1 for large firms and 0 otherwise.

Figure 2 illustrates the coefficient composition of the proportion of news for each of the four groups. For example, News for a bad-news large-firm quarter is \(a_0\) while that for a good-news large-firm quarter is \(a_0+a_1\). Therefore, a significantly negative \(a_1\) would imply that large firms disclose a larger proportion of their total quarter’s news in bad-news quarters than they do in good-news quarters. Similarly, a positive \(b_1\) would imply that small firms disclose a larger proportion of their total quarter’s news in bad-news quarters. 

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\(8\) For example, testing whether \(a_1+a_3<0\) in (1) is equivalent to testing whether \(b_1>0\).
quarters than they do in good-news quarters. A negative $a_2$ would imply that for a given bad-news quarter, a larger proportion of news arrives in a particular window for large firms than for small firms. A positive $b_2$ would imply that for a given good-quarter, a larger proportion of their total quarter’s news arrives in a particular window for large firms than for small firms. These implications are summarized in Figure 2.9

**Return-Cutoff Test**

Following McNichols (1988), we compare the skewness of return distribution across adjacent windows. If firms have a higher tendency of releasing bad news than good news in a particular window, the cross-sectional return distribution in that window is negatively skewed. If this tendency is higher in a given window than in its adjacent windows, the cross-sectional returns in this window exhibit more negative skewness than those in the adjacent windows.

As in McNichols (1988), for return skewness, we employ a return cutoff analysis within large and small firms. The return metric we use is the market-adjusted return, similar to the market-model adjusted returns by McNichols (1988).¹⁰ We use a series of return cutoffs from 0.01 to 0.06 with the increment of 0.01, calculate the ratio of the number of observations below the negative of the cutoff (referred to as “bad news”) to the number of observations above the cutoff (referred to as “good news”), and compare

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⁹ We do not compare News across the windows because of their different length. A longer window is expected to have a higher proportion of news if news arrives randomly throughout the quarter.

¹⁰ McNichols (1988) uses market-model-adjusted returns. We use market-adjusted returns to avoid sampling error from using a market-model regression estimate (i.e. beta) in the second-stage analysis (Patell 1976). In unreported analysis, our conclusion is similar with market-model-adjusted returns, though the ratios for the first two small cutoffs are smaller in all windows than those with market-adjusted returns.
this ratio across windows. The return-cutoff approach has two advantages over the use of standard skewness measures. For one, the cutoff analysis allows us to examine the frequency of bad news relative to good news for gradual increases in the degree of news. For the other, the return-cutoff method is less influenced by extreme outliers, while the traditional skewness measure could be seriously affected by even a couple of extreme outliers.

In short, the proportion-of-news test and the return cutoff analysis complement each other. The former compares the proportion of a total quarter’s news within each window, between large vs. small firms and between bad-news vs. good-news quarters. We then determine disclosure timeliness from the pattern of this metric across four windows. This test uses a firm’s own quarterly performance as a control (i.e. denominator), mitigating the effect of possibly omitted asset-pricing factors as long as these factors are constant across the four windows. The second test compares the frequency of bad news relative to good news within firm-size groups across windows and enables us to examine whether disclosure timeliness varies with the degree of news.

IV. EMPIRICAL RESULTS

Data

We use 1990Q1-2004Q3 as our primary sample period. It begins in 1990 so that the findings would be most relevant because managers might have changed their disclosure behavior after the Supreme Court’s ruling in 1988. It ends with 2004Q3, the most recent quarter with available data. We collect firm quarters from the Compustat Combined

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11 Note that in this test our definition for “good” and “bad” news is consistent with McNichols (1988), but slightly different from that in our first test.
Industry Quarterly data file and require them to have the earnings announcement date for both the current quarter and the previous quarter. To avoid data errors, we exclude the observations for which the two dates are more than 170 days apart. Further, to avoid newly listed stocks, we require a firm-quarter to have at least 100 trading days of returns data before the earnings announcement for the previous quarter.

For each firm-quarter, we calculate the buy-and-hold return and the market-adjusted return for the whole quarter as well as for each of the four examination windows. If a firm quarter does not have returns data for any of the windows, it is excluded from the sample. Consequently, 9% of the observations are excluded.\textsuperscript{12} We then rank the observations within each year-quarter by firm size and delete the middle quintile (i.e. medium-size firms). These procedures result in 203,598 firm-quarter observations, which we use in the return cutoff analysis.

For the proportion-of-news test, we rank the above firm-quarters by the market-adjusted quarterly return to determine good- and bad-news quarters (we exclude the middle quintile, that is, the no-news firm-quarters). The firm-quarters are thus reduced to 162,878. It comes as no surprise that our News variable has serious outliers. We delete 17 firm-quarters that have a zero denominator and delete the firm quarters whose News in any of the four windows is in the top or bottom 2% of the distribution of News pooled from all windows. As a result, 151,244 firm-quarters remain.

\textit{Proportion-of-News Tests}

Table 1 presents the mean, median, the first and third quintiles of the proportion of news in the four partitioning windows for the four firm groups. The proportion of news

\textsuperscript{12} This situation is due either to infrequent trading or to the previous-quarter earnings announcement date being later than the end of the current fiscal quarter.
could be negative if the return in the examination window has the opposite sign of that for the whole quarter; it could be larger than 1 if the sum of returns in the other three windows has the opposite sign of that for the whole quarter.

Visual comparisons of News in each window across the firm groups show that for both large and small firms, most of the news arrives well before the earnings announcement, consistent with Ball and Brown (1968). In addition, we find different patterns for large vs. small firms. Regardless of good or bad news, a higher proportion of the quarter’s news arrives in the early-quarter window for large firms than for small firms, while a higher proportion of the quarter’s news arrives in the preannouncement window for small firms than for large firms (the news has been pushed back for small firms). These comparisons suggest that voluntary disclosures from large firms are more timely than those for small firms. This result is consistent with the litigation argument for bad news disclosure, if large firms have higher expected litigation costs than small firms.

Table 2 reports the regression estimation for each window. To avoid overstating statistical significances in the presence of positive cross-section correlations, we estimate Regressions (1) and (2) in each year-quarter and then determine the coefficient and t-statistics from the time series of 59 observations of coefficient estimates, using the Fama-MacBeth approach. The estimate of $a_1$ is insignificant in all three non-earnings announcement windows, suggesting symmetric disclosures by large firms in good- and bad-news quarters. It is weakly significantly positive around earnings announcement (coefficient 0.022, t-statistic 1.68), suggesting that for large firms a marginally larger proportion of news is released at earnings announcement for good- than for bad-news quarters.

13 We find no outliers in the regressions using the criteria of Cook’s D.
The estimate of $b_1$ is significantly negative in the early-quarter window (coefficient -0.052, t-statistic -3.15), suggesting that in good-news quarters small firms disclose a larger proportion of news early in the quarter than they do in bad-news quarters. This coefficient is statistically insignificant for other windows, suggesting symmetric disclosure by small firms later in a quarter or after the quarter ends.

The estimate of $a_2$ is significantly negative in the early-quarter window (coefficient -0.054, t-statistic -3.24), suggesting that for a given bad-news quarter, a larger proportion of news arrives early in the quarter for large firms than for small firms. This coefficient becomes significantly positive in the preannouncement, suggesting that bad news catches up for small firms after the quarter is over. The coefficient remains significantly positive around earnings announcement, implying that small firms postpone more bad news than do large firms.

The estimate of $b_2$ is significantly positive in the early-quarter window (coefficient 0.043, t-statistic 2.79), suggesting that for a given good-news quarter, a larger proportion of news arrives early in the quarter for large firms than for small firms. This coefficient is weakly significantly positive later in the quarter and turns to be significantly positive in the preannouncement window, suggesting that good news catches up later for small firms. For good-news quarters, no difference exists in the news around earnings announcement between large- and small-size firms.

Taken together, the proportion-of-news tests show that within each window, large firms with good news disclose the same proportion of their total quarter’s news as large firms with bad news, while early in the quarter small firms disclose a larger proportion of news in good- rather than bad-news quarters and are symmetric about news disclosure in
other windows. Conditional on either good- or bad-news quarters, a larger proportion of news arrives early in the quarter for large firms than for small firms and this pattern reverses after the fiscal-quarter-end.  

*Return Cutoff Tests*

Table 3 presents the return skewness tests using the return cutoff approach. The table reports the frequency of bad news relative to good news (i.e. the ratio of negative returns to positive returns for each cutoff) in each window and the contingency-table test $\chi^2$ statistics between the adjacent windows. The first half of the table is for large firms and the second half is for small firms. Both large and small firms display different patterns for small and large return cutoffs.

For large firms, using cutoffs of 0.04 or smaller, the frequency of bad news relative to good news is significantly higher in the early-quarter window than in the late-quarter window, and this measure is significantly higher in the pre-announcement window than in its adjacent windows. For large firms, using cutoffs of 0.05 and 0.06, the frequency of bad news relative to good news is significantly higher first in the early-quarter window, and then in the late-quarter window, than in other windows. These results suggest that for large firms, small bad news relative to small good news is more frequent early in the quarter or in the preannouncement window than in other windows; however, very bad

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14 As a robustness test, we use a 5% instead of a 2% deletion rule to examine whether some of our primary results are due to excess noise in the measurement of News. Overall, the use of the 5% deletion rule yields similar results as the 2% rule. The coefficient $a_1$ turns from insignificant to weakly significant for the preannouncement window (coefficient -0.045, t-statistic -1.73), suggesting that large firms disclose a marginally larger proportion of bad news than good news in this window. In addition, the coefficient on $b_1$ changes from insignificant to significantly positive for the late-quarter window, suggesting that in this window small firms disclose a larger proportion of news in bad- than good-news quarters after these firms inverse the pattern in the early-quarter window. Moreover, the coefficient $b_2$ changes from insignificant to significantly negative for the announcement window, suggesting that for good-news quarters, a larger proportion of news arrives at earnings announcement for small firms than for large firms.
news relative to very good news is more frequent early in the quarter than after the quarter ends.

The pattern for small firms is different. For return cutoffs of 0.02 or smaller, the frequency of bad news relative to good news is significantly higher in the early-quarter window than in other windows. For the return cutoffs of 0.03 or larger, the frequency of bad news relative to good news is significantly higher around earnings announcement than in other windows. These results suggest that for small firms, small bad news relative to small good news is more frequent early in the quarter, but very bad news is delayed until the earnings announcement.

Taken together, the proportion-of-news tests show that within each window, large firms with good news disclose the same proportion of news as these firms with bad news, while the cutoff analysis indicates that for large firms very bad news is more frequent during the quarter than after the quarter ends. For small firms, the proportion-of-news tests indicate that these firms tend to release a larger proportion of news early in the quarter when they have a good quarter than when they have a bad quarter; the cutoff tests suggest that these firms delay very bad news until the earnings announcement.

V. DISCUSSIONS

Using a return-based approach, we document new findings about firms’ disclosure timeliness of good vs. bad news. In this section we compare our evidence with that in the event-based studies.

Soffer et al. (2000), using a proportion-of-news metric based on earnings and a First Call earnings guidance sample of 335 firms, find that firms predispose mostly bad news and only predispose about half of their good news. Their evidence suggests that firms
disclose bad news in a more timely fashion than they do good news. By comparison, we
find that large and small firms use different disclosure strategies: in terms of magnitude
of news (i.e. proportion of news), the disclosures by large firms are symmetric in good-
and bad-news quarters, while small firms disclose a larger proportion of news early in the
quarter when they experience a good quarter than when they are in a bad quarter.

Anilowski et al. (2005) study the timing of firms’ upward (i.e. good news) vs.
downward (i.e. bad news) earnings guidance collected by First Call. They find more
frequent good news early in the quarter, more frequent bad news late in the quarter, and
again more frequent good news in the preannouncement season. We show that large and
small firms exhibit different patterns and that the patterns also vary with the degrees of
news. In particular, for large firms, small bad news relative to good news is more
frequent early in the quarter or in the preannouncement season than in other windows and
very bad news occurs more often during the quarter than after the quarter ends. For small
firms, small bad news relative to small good news occurs more often early in the quarter
than in other window, but very bad news is delayed until the earnings announcement.

Kothari et al. (2005) conclude that managers on average delay the release of bad news
to investors by examining the magnitude of stock returns around specific announcements
such as dividends cuts and earnings projections. They assume that the magnitude of
returns measures how much time has passed from the unobservable underlying news
events until firms’ announcement of. Unlike them, we assume that the underlying news
are related to the forthcoming quarterly earnings and that the time point (with respect to
their fiscal-quarter-end) when managers have private information about these earnings is
the same for all firms. Based on these assumptions we find that large firms predisclose serious bad news while small firms delay it.

Finally, our examination of frequency of bad news relative to bad news is closely related to McNichols (1988, Table 4) but for a more recent time period. Comparing return distributions in the non-earnings-announcement window with those in the announcement window during 1976-1982, for large firms she documents no difference with small news but very bad news (relative to very good news) is more frequent around earnings announcements. For small firms, her results indicate that small bad news is more frequent in the non-announcement window but very bad news is more frequent around earnings announcements. In contrast, our findings on small firms are similar but we also find that large firms predisclose bad news, especially very bad news, more often early rather than late. Our results reflect firms’ disclosure behavior in the more recent time period from 1990-2004 has changed.

In summary, using the return-based approach and finer partitioning the sample by firm size, degrees of news, and examination windows, we find that the timeliness of firms’ voluntary disclosure of good vs. bad news varies with firm size and the degrees of news. These findings complement the evidence based on the traditional event-study approach.

VI. CONCLUSION

Our study sheds new light on managers’ strategic disclosure behavior: Do they voluntarily disclose good news and bad news in a similar timely fashion? Do managers of large firms behave different from those of small firms? We investigate this issue by
inferring managers’ strategic disclosure behavior from the stock returns in four adjacent windows for a fiscal quarter, prior to and including the earnings announcement.

Our tests suggest that large firms disclose the same proportion of news in each examination window in good- and bad-news quarters; however, very bad news is more frequent during the quarter than after the quarter ends. In contrast, small firms disclose a larger proportion of news early in good- than bad-news quarters; however, very bad news is most frequent around the earnings announcement. Our study enriches our understanding about managers’ strategic disclosure behavior.

Our results are subject to a caveat in the research design. We infer firms’ disclosure behavior from the return patterns; yet information could be impounded in the stock price through private information search activities. As long as the intensity of private information search does not vary across windows in a quarter for the same firm, nor vary across good- vs. bad-news quarters for the same firm, most of our results hold. Our comparisons between large and small firms, however, should be interpreted with caution, because large firms attract more private information search than do small firms.
REFERENCES


More.
“Q” represents fiscal-quarter-end and “A” represents earnings announcement date.

“Early-quarter window” begins five days after the earnings announcement for the previous quarter and ends at the end of the second fiscal month.

“Late-quarter window” is the third fiscal month.

“Pre-announcement window” begins after the fiscal-quarter-end and ends on the second trading day before earnings announcement.

“Announcement window” begins one trading day before earnings announcement and ends one trading day after it.
FIGURE 2
Summary of Research Design for the Proportion-of-News Test

Regression:

\[
\text{News}_i = a_0 + a_1 \text{Good}_i + a_2 \text{Small}_i + a_3 \text{Good}_i \times \text{Small}_i + \varepsilon_i
\]

\[
\text{News}_i = b_0 + b_1 \text{Bad}_i + b_2 \text{Large}_i + b_3 \text{Bad}_i \times \text{Large}_i + \eta_i
\]

Matrix of Coefficients:

<table>
<thead>
<tr>
<th>Groups</th>
<th>a0</th>
<th>a1</th>
<th>a2</th>
<th>a3</th>
<th>b0</th>
<th>b1</th>
<th>b2</th>
<th>b3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large firm, bad news</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Large firm, good news</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Small firm, bad news</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Small firm, good news</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Illustration of Empirical Tests of Operationalized Questions:

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Test</th>
<th>Equivalent Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 Do large firms with bad news disclose a larger proportion of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>quarterly news in a particular window than do large firms with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>good news?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2 Do small firms with bad news disclose a larger proportion of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>quarterly news in a particular window than do small firms with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>good news?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3 For a given bad-news quarter, do large firms disclose a larger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>proportion of news in a particular window than do small firms?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4 For a given good-news quarter, do large firms disclose a larger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>proportion of news in a particular window than do small firms?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. *News* is the proportion of news, defined as the ratio of the buy-and-hold return during a specific window to that for the whole quarter.
2. *Large* is 1 if a firm’s market capitalization at the beginning of the quarter is in the top quintiles of the quarterly cross-section and 0 otherwise.
3. *Small* is 1 if a firm’s market capitalization at the beginning of the quarter is in the bottom quintiles of the quarterly cross-section and 0 otherwise.
4. *Good* is 1 if a firm’s market-adjusted return over the quarter is in the top two quintiles in the sample and 0 otherwise.
5. *Bad* is 1 if a firm’s market-adjusted return over the quarter is in the bottom two quintiles in the sample and 0 otherwise.
6. “X’ indicates that the coefficient is an additive component of *News* for the specific firm group.
TABLE 1
Descriptive Statistics of Proportion-of-News

Panel A: Bad-News Large-Firms Quarters

<table>
<thead>
<tr>
<th></th>
<th>Early-Quarter</th>
<th>Late-Quarter</th>
<th>Pre-announcement</th>
<th>Announcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>39,152</td>
<td>39,152</td>
<td>39,152</td>
<td>39,152</td>
</tr>
<tr>
<td>Mean</td>
<td>0.287</td>
<td>0.328</td>
<td>0.271</td>
<td>0.090</td>
</tr>
<tr>
<td>Median</td>
<td>0.272</td>
<td>0.355</td>
<td>0.290</td>
<td>0.083</td>
</tr>
<tr>
<td>Q1</td>
<td>-0.116</td>
<td>-0.092</td>
<td>-0.145</td>
<td>-0.190</td>
</tr>
<tr>
<td>Q3</td>
<td>0.705</td>
<td>0.784</td>
<td>0.727</td>
<td>0.377</td>
</tr>
</tbody>
</table>

Panel B: Good-News Large-Firms Quarters

<table>
<thead>
<tr>
<th></th>
<th>Early-Quarter</th>
<th>Late-Quarter</th>
<th>Pre-announcement</th>
<th>Announcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>33,359</td>
<td>33,359</td>
<td>33,359</td>
<td>33,359</td>
</tr>
<tr>
<td>Mean</td>
<td>0.318</td>
<td>0.353</td>
<td>0.224</td>
<td>0.114</td>
</tr>
<tr>
<td>Median</td>
<td>0.286</td>
<td>0.306</td>
<td>0.191</td>
<td>0.076</td>
</tr>
<tr>
<td>Q1</td>
<td>-0.005</td>
<td>0.000</td>
<td>-0.071</td>
<td>-0.079</td>
</tr>
<tr>
<td>Q3</td>
<td>0.627</td>
<td>0.670</td>
<td>0.513</td>
<td>0.278</td>
</tr>
</tbody>
</table>

Panel C: Bad-News Small-Firms Quarters

<table>
<thead>
<tr>
<th></th>
<th>Early-Quarter</th>
<th>Late-Quarter</th>
<th>Pre-announcement</th>
<th>Announcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>36,899</td>
<td>36,899</td>
<td>36,899</td>
<td>36,899</td>
</tr>
<tr>
<td>Mean</td>
<td>0.226</td>
<td>0.323</td>
<td>0.323</td>
<td>0.108</td>
</tr>
<tr>
<td>Median</td>
<td>0.214</td>
<td>0.345</td>
<td>0.375</td>
<td>0.092</td>
</tr>
<tr>
<td>Q1</td>
<td>-0.038</td>
<td>0.000</td>
<td>0.000</td>
<td>0.121</td>
</tr>
<tr>
<td>Q3</td>
<td>0.547</td>
<td>0.716</td>
<td>0.762</td>
<td>0.371</td>
</tr>
</tbody>
</table>

Panel D: Good-News Small-Firms Quarters

<table>
<thead>
<tr>
<th></th>
<th>Early-Quarter</th>
<th>Late-Quarter</th>
<th>Pre-announcement</th>
<th>Announcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>41,834</td>
<td>41,834</td>
<td>41,834</td>
<td>41,834</td>
</tr>
<tr>
<td>Mean</td>
<td>0.274</td>
<td>0.292</td>
<td>0.353</td>
<td>0.118</td>
</tr>
<tr>
<td>Median</td>
<td>0.156</td>
<td>0.223</td>
<td>0.263</td>
<td>0.038</td>
</tr>
<tr>
<td>Q1</td>
<td>-0.077</td>
<td>-0.105</td>
<td>-0.066</td>
<td>-0.103</td>
</tr>
<tr>
<td>Q3</td>
<td>0.575</td>
<td>0.683</td>
<td>0.777</td>
<td>0.316</td>
</tr>
</tbody>
</table>
Notes:

1. “Early-Quarter” is from five days after the previous-quarter earnings announcement until the end of the 2nd fiscal month of the current quarter. “Late-Quarter” is the third fiscal month of the current quarter. “Pre-announcement” starts right after the fiscal-quarter-end and ends on the second trading day before the earnings announcement for the current quarter. “Announcement” is the three-trading-day window around the earnings announcement of the current quarter.

2. Firm-size groups are determined by the beginning-of-quarter market capitalization. Firms are ranked by this measure in each year-quarter. Those in the top two quintiles are referred to as “large firms” and those in the bottom two quintiles are referred to as “small firms.”

3. Good and bad-news quarters are determined by the market-adjusted quarterly returns. We rank these returns in the full sample and refer to the top two quintiles as “good-news firm quarters” and the bottom two quintiles as “bad-news firm quarters.” We refer to the middle quintile as the “no-news and exclude it from the sample.”

4. Proportion-of-news is measured as the buy-and-hold return in a particular window over the buy-and-hold return in the whole quarter, where “the whole quarter” is five days after the previous-quarter earnings announcement to one trading day after the current-quarter earnings announcement. The sample excludes median-size firms and no-news firm-quarters. We delete the firm-quarters if the proportion of news in any window is in the top or bottom 2% of the distribution pooled from the four windows.
TABLE 2
Proportion-of-News Test

Regressions:

\[ \text{News}_i = a_0 + a_1 \text{Good}_i + a_2 \text{Small}_i + a_3 \text{Good}_i \times \text{Small}_i + \epsilon_i \]

\[ \text{News}_i = b_0 + b_1 \text{Bad}_i + b_2 \text{Large}_i + b_3 \text{Bad}_i \times \text{Large}_i + \eta_i \]

Fama-MacBeth Coefficient Estimates (t-statistics in parentheses)

<table>
<thead>
<tr>
<th>RQ</th>
<th>Coefficient to be tested</th>
<th>Early-Quarter</th>
<th>Late-Quarter</th>
<th>Pre-announcement</th>
<th>Announcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>a_1</td>
<td>0.041</td>
<td>-0.002</td>
<td>-0.035</td>
<td>0.022*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.18)</td>
<td>(-0.06)</td>
<td>(-1.14)</td>
<td>(1.68)</td>
</tr>
<tr>
<td>Q2</td>
<td>b_1</td>
<td>-0.052***</td>
<td>0.023</td>
<td>-0.022</td>
<td>-0.004</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-3.15)</td>
<td>(1.18)</td>
<td>(-1.14)</td>
<td>(-0.43)</td>
</tr>
<tr>
<td>Q3</td>
<td>a_2</td>
<td>-0.054***</td>
<td>-0.012</td>
<td>0.050***</td>
<td>0.020***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-3.24)</td>
<td>(-0.68)</td>
<td>(3.20)</td>
<td>(2.59)</td>
</tr>
<tr>
<td>Q4</td>
<td>b_2</td>
<td>0.043***</td>
<td>0.032*</td>
<td>-0.107***</td>
<td>-0.002</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.79)</td>
<td>(1.75)</td>
<td>(-6.18)</td>
<td>(-0.22)</td>
</tr>
</tbody>
</table>

Notes:
1. “Early-Quarter” is from five days after the previous-quarter earnings announcement until the end of the 2nd fiscal month of the current quarter. “Late-Quarter” is the third fiscal month of the current quarter. “Pre-announcement” starts right after the fiscal-quarter-end and ends on the second trading day before the earnings announcement for the current quarter. “Announcement” is the three-trading-day window around the earnings announcement of the current quarter.

2. News is measured as the buy-and-hold return in a particular window over the buy-and-hold return in the whole quarter, where “the whole quarter” is five days after the previous-quarter earnings announcement to one trading day after the current-quarter earnings announcement. The sample excludes median-size firms and no-news firm-quarters. We pool the remaining observations from the four windows and delete firm-quarters whose News in any window is in the top or bottom 2% of the distribution. Large is 1 if a firm’s market capitalization at the beginning of the quarter is in the top quintiles of the quarterly cross-section and 0 otherwise. Small is 1 if a firm’s market capitalization at the beginning of the quarter is in the bottom quintiles of the quarterly cross-section and 0 otherwise. Good is 1 if a firm’s market-adjusted return over the quarter is in the top two quintiles in the sample and 0 otherwise. Bad is 1 if a firm’s market-adjusted return over the quarter is in the bottom two quintiles in the sample and 0 otherwise.

3. Q1-Q4 are the operationalized research questions: (1) Do large firms disclose a larger proportion of news in bad-news quarters than they do in good-news quarters? (a_1 < 0?), (2) Do small firms disclose a larger proportion of news in bad-news quarters than they do in good-news quarters? (b_1>0?), (3) For a given bad-news quarter, do large firms disclose a larger proportion of news than do small firms? (a_2<0?), and (4) For a given good-news quarter, do large firms disclose a larger proportion of news than do small firms? (b_2>0?)
### TABLE 3
Return Skewness Test

<table>
<thead>
<tr>
<th>Firm Size</th>
<th>Return Cutoff</th>
<th>Early-Quarter (1)</th>
<th>Compare (1) vs. (2)</th>
<th>Late-Quarter (2)</th>
<th>Compare (2) vs. (3)</th>
<th>Pre-announce. (3)</th>
<th>Compare (3) vs. (4)</th>
<th>Announce. (4)</th>
<th>Compare (1) vs. (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Ratio</td>
<td>$\chi^2$</td>
<td>Ratio</td>
<td>$\chi^2$</td>
<td>Ratio</td>
<td>$\chi^2$</td>
<td>Ratio</td>
<td>$\chi^2$</td>
</tr>
<tr>
<td>Large</td>
<td>0.00</td>
<td>1.246</td>
<td>42.87</td>
<td>1.175</td>
<td>-209.97</td>
<td>1.337</td>
<td>959.77</td>
<td>1.015</td>
<td>531.28</td>
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<tr>
<td></td>
<td>0.01</td>
<td>1.298</td>
<td>50.51</td>
<td>1.179</td>
<td>-242.79</td>
<td>1.442</td>
<td>1036.25</td>
<td>1.006</td>
<td>462.74</td>
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<td>1.261</td>
<td>18.13</td>
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<td>509.76</td>
<td>0.988</td>
<td>211.58</td>
</tr>
<tr>
<td></td>
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<td>1.314</td>
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<td>1.190</td>
<td>-15.74</td>
<td>1.329</td>
<td>281.97</td>
<td>0.962</td>
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<td>1.416</td>
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<td>1.243</td>
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<td>1.282</td>
<td>150.29</td>
<td>0.947</td>
<td>158.65</td>
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<tr>
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<td>1.442</td>
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<td>1.318</td>
<td>3.14*</td>
<td>1.205</td>
<td>64.15</td>
<td>0.939</td>
<td>107.69</td>
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<tr>
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<td>0.06</td>
<td>1.484</td>
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<td>1.197</td>
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<td>1.89*</td>
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<td>103.69</td>
<td>1.054</td>
<td>0.68*</td>
<td>1.046</td>
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<tr>
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<td>0.01</td>
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<td>0.368</td>
<td>-918.16</td>
<td>0.968</td>
<td>-94.93</td>
</tr>
</tbody>
</table>

Notes:
1. “Early-Quarter” is from five days after the previous-quarter earnings announcement until the end of the 2nd fiscal month. “Late-Quarter” is the third fiscal month. “Pre-announcement” starts right after the fiscal-quarter-end and ends on the second trading day before the current-quarter earnings announcement. “Announcement” is the three-trading-day window around earnings announcement.
2. Firm-size groups are determined by the beginning-of-quarter market capitalization. Firms are ranked by this measure in each year-quarter. Those in the top two quintiles are referred to as “large firms” and those in the bottom two quintiles are referred to as “small firms”.
3. Ratio is the ratio of the number of observations below the negative of the cutoff to the number of observations above the cutoff.
4. The sign before the contingency-table test $\chi^2$ statistics indicates whether the ratio for the left window is higher than that for the right window. “***” and “**” denote statistical significance at 5% and 1%, respectively. “#” denotes statistical insignificance at 10%. The unmarked $\chi^2$ are statistical significant at 1%.