Management Forecasts and Information Asymmetry: An Examination of Adverse Selection Cost around Earnings Announcements

Feb 27, 2007

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ABSTRACT

We investigate the effect of management earnings forecasts on the level of information asymmetry around subsequent earnings announcement. Employing the adverse selection cost method suggested by George, Kaul and Nimalendran (GKN, 1991), we compare for each sample firm the adverse selection cost around earnings announcement in forecasting years with that in non-forecasting years. Consistent with Diamond and Verrecchia (1991) is our finding that the earnings announcement in non-forecasting years decreases information asymmetry during a three-day announcement period and increases in a post–announcement period up to seven days. We find no significant change in information asymmetry between pre- and post-announcement periods when firms released 'good' news forecast. The firms that previously released 'bad' news forecast experience a significantly lower information asymmetry than those that did not forecast during announcement or post-announcement days, and experience a decrease in information asymmetry in a five to seven-day post-announcement period.

Keywords: *Management forecasts, information asymmetry, adverse selection cost.*

Introduction

The notion that managers release forecasts in order to adjust expectations to their own (Ajinkya and Gift, 1984) has been supported by several empirical studies (Hassell and Jennings, 1986; Coller and Yohn, 1997). King, Pownall and Waymire (1990) develop the economic foundation of this hypothesis that managers use voluntary disclosures to adjust investor expectations in order to reduce transaction costs arising from asymmetric information in secondary security markets. Few studies with the exception of Coller and Yohn (1997) have empirically examined the effect of management forecasts on information asymmetry in the market. Coller and Yohn (1997) report that bid-ask spread increases around management forecast release and the spread decreases after the release to the level lower than it is before the release. However, they do not investigate the effect of the forecasts on information asymmetry around the pertaining earnings announcements.

Information asymmetry around earnings announcements has been studied using the dealer's bid-ask spread (Lee, Mucklow and Ready, 1993; Krinsky and Lee, 1996; Affleck-Graves, Callahan and Chipalkatti, 2002; Libby, Mathieu and Robb, 2002). Lee, Mucklow and Ready (1993) find an increase in spreads on each day within three-day window around earnings announcements. Krinsky and Lee (1996) document that the increase in spreads around earnings announcements is due largely to the information asymmetry component of the spread. Affleck-Graves, Callahan and Chipalkatti (2002) report that the increase in spreads around earnings announcements is inversely related to the predictability of earnings. Libby, Mathieu and Robb (2002) also report that spreads are wider and depths are smaller before earnings announcements.

The authors explore the effect of management forecast on information asymmetry around earnings announcement using the concepts and methods employed by prior studies. First, we

investigate if management forecasts, released four to one month prior to the pertaining earnings announcements, affect information asymmetry around the earnings announcements. Then we examine if there is any difference in the effect between *good* and *bad* news forecasts. Although Skinner (1994) and Kasznik and Lev (1995) show that a firm's motivations to forecast good news differ from those to forecast bad news, and that the market reacts differently to each type of forecast, prior studies failed to examine such differences. We also employ a matched sample design and compare a firm's information asymmetry in a forecasting year with the same firm's asymmetry in a non-forecasting year. We measure information asymmetry in the market like George, Kaul and Nimalendran (GKN, 1991): Adverse selection cost. We estimate information asymmetry in pre-announcement, announcement and post-announcement periods: Seven to five-day prior to earnings announcement, one-day before to one -day after earnings announcement, and five to seven-day after earnings announcement, respectively.

Our results show that earnings announcement reduces information asymmetry in the market when firms do not release the forecast or when firms release *bad* news forecasts. It is consistent with Diamond and Verrecchia (1991). Also, there is no significant difference in pre-announcement information asymmetry between forecasting and non-forecasting years. This result is consistent with Coller and Yohn (1997). During the announcement period, there is no significant difference in information asymmetry between bad news forecasters and non-forecasters, while good news forecasters show higher information asymmetry than non-forecasters. The earnings announcements of good news forecasters do not decrease information asymmetry, but the announcements of non-forecasters decrease information asymmetry during the announcement period. During the post-announcement period, bad news forecasters have lower information asymmetry than non-forecasters, but good news forecasters show no difference in

information asymmetry from non-forecasters.

The paper is organized as follows. We first discuss the prior literature and develop the hypotheses. Next we discuss the research design and provide details of the samples. Then we document and discuss the empirical results. Finally, the last section concludes.

Prior Literature and Hypothesis Development

Researchers have studied both theoretically and empirically the possibility that the release of a management forecast results in differential information asymmetry at the time of the earnings announcement. Diamond and Verrecchia (1991) show how public disclosure may reduce information asymmetry. They assume that there exist informed traders who are endowed with superior knowledge of the underlying performance of a security. Before public disclosure, uninformed traders set a large bid-ask spread over periods of greatest information asymmetry to recover their potential losses in trading with informed traders. Then after a public disclosure that releases inside information, traders narrow the spread because the disclosure eliminates superiority of the informed traders in valuing firm in the market. Therefore, public disclosure reduces information asymmetry measured by the spread.

Alternatively, Kim and Verrecchia (1994) explain that public disclosure may create information asymmetry. Some traders process the disclosed into private information about a firm's performance ("informed judgment"). Thus, earnings announcement stimulates the informed judgment, which in turn creates information asymmetry among traders.

While Morse and Ushman (1983) and Venkatesh and Chiang (1986) find no significant change in bid-ask spreads around earnings announcements, Krinsky and Lee (1996), Yohn (1997), Libby, Mathieu, and Robb (2002), and Lee, Mucklow, and Ready (1993) provide

empirical evidence of an increase in information asymmetry during the period surrounding the announcement. Lee, Mucklow and Ready (1993) and Yohn (1997) report an increase in bid-ask spreads during days -4 to -1, and on 0 and +1 where day 0 is the day of earnings announcements. Krinsky and Lee (1996) find that an increase in spreads around earnings announcement is largely due to an increase of information asymmetry measured by adverse selection cost. Although the results of prior studies are somewhat inconclusive, more recent studies show an increase of bid-ask spread and adverse selection cost from ten days prior to earnings announcement. It may indicate that anticipated earnings release can affect information asymmetry even ten days fore the announcement. Based on these results, we investigate the change of information asymmetry around earnings announcement as follows.[1]

Hypothesis 1: The level of information asymmetry is different between pre-announcement and announcement periods, and between announcement and post-announcement periods.

Coller and Yohn (1997) investigate the behavior of the bid-ask spread around the time of the management forecast. They find evidence that firms that choose to forecast have a higher level of information asymmetry prior to the release of the forecast than a matched sample of non-forecasting firms. While the information asymmetry of forecasting firms does increase on the day of and the day after the forecast, the asymmetry declines in ten days following the forecast below the pre-forecast level. Immediately prior to the earnings announcement, there is no difference in the information asymmetry of the two groups of firms.

This line of research suggests two possibilities for information asymmetry at the time of the earnings announcement for the firms that have previously released a forecast. First, because the release of a management forecast reduces information asymmetry in valuing firms' performance and helps to interpret earnings figure, the reduction in investment uncertainty may

reduce the comparative advantage of the informed trader in interpreting the earnings announcement itself. As such the dealer may not need to widen the bid-ask spread as much as he would otherwise. Thus, in forecasting year when firms have released a forecast, the firms may have a lower level of information asymmetry. A second possibility is that there is no information asymmetry difference at the time of earnings announcement between forecasting and non-forecasting years. Because the release of a management forecast is motivated by a higher level of information asymmetry in the market (Coller and Yohn, 1997), the release of the forecasts reduces information asymmetry only to a similar level when the firm does not release a forecast. Therefore, there is no difference in information asymmetry at the time of earnings announcement. However, the change of information asymmetry from management forecast release to earnings announcement is expected to be different in forecasting years from non-forecasting years.

If management forecasts are indeed effective in adjusting market expectations more in line with private management information, the market reactions to earnings announcements released by the firms that have previously released a management forecast pertaining to those earnings may be different from those by the firms that have not released such a forecast.

Hypothesis 2a: The level of information asymmetry around earnings announcements in forecasting years would be different from that in non-forecasting years.

Hypothesis 2b: The changing pattern of information asymmetry in forecasting years would be different from that in non-forecasting years.

Good news disclosures tend to be different from bad news disclosures in several ways. Skinner's (1994) results support the view that managers face an asymmetric loss function in releasing voluntary disclosures, behaving as if they bear large costs only by surprising investors with negative earnings news. Kasznik and Lev (1995) find that larger earnings disappointments

are preceded by more quantitative forecasts. They also find that bad news forecasts and the subsequent earnings announcement generate relatively large total stock price responses even after controlling for the magnitude of the earnings surprise. We argue that bad news forecasts tend to be released when the earnings decline is permanent and that managers are more concerned with avoiding large negative earnings disappointments than with narrowing positive expectation gaps. Therefore, we propose the following hypothesis:

> ***Hypothesis 3: The effect of management forecast on information asymmetry around earnings announcement is different for the firms that have released a good news forecast from those that have released a bad news forecast.***

Research Design

Sample

In order to analyze the information effects of management forecasting, a sample of firms that released forecasts pertaining to earnings released between January and March of the 1992 through 1997 period was collected.[2] Both annual and quarterly corporate forecasts were collected from a page-by-page reading of the Wall Street Journal and from the Lexis-Nexis database. Forecasts are included only if they were made by a corporation or attributed to a corporate officer. These could be point, range or open-ended estimates. Point and range forecasts give one number (point) or both upper and lower bounds (range), respectively. Open-ended forecast gives either upper or lower bound. This procedure yields an initial sample of 891 forecasts. Then, the initial sample was reduced to 384 forecasts by the application of the following selection criteria:

(i) the firm must be listed on the NYSE, AMEX, or NASDAQ during the period of January, 1992 through March, 1997;

(ii) the earnings announcement date must be available on COMPUSTAT;

(iii) the firm's bid-ask spread data must be available in the NYSE's Trades and Quotes (TAQ) database during the test period; and

(iv) the management forecast must have been released during the accounting period to which it applies.

In order to make comparisons between forecasters and non-forecasters, we employ the matched samples design where each firm serves as its own match. To implement this design, we designate a match as an earnings announcement not preceded by a management forecast from the same firm in the same quarter of the previous or following year.[3] This procedure results in a base sample of 322 observations, including 161 earnings announcements preceded by a management forecast and a matched group of 161 earnings announcements *not* preceded by a management forecast.[4]

Following Skinner (1994), we classify a forecast as a good or bad news one depending on the market expectation (mean analysts' forecast) at the time of the management forecast.[5] Based on the contents of full articles in Lexis-Nexis, disclosures are classified as good news if they indicate that earnings will be better than or the same as the market expectation, or as bad news otherwise. Our final sample is thus categorized as 84 bad news management forecasts and 77 good news management forecasts, where both groups are matched with earnings announcements by the same firm, but not preceded by a forecast. The sample also contains 57 point or range forecasts, and 104 open-ended forecasts.

George, Kaul and Nimalendran (GKN, 1991) Model

Bid-ask spread includes components reflecting order processing and inventory holding costs as well as information asymmetry or the adverse selection component. Since management forecasts

are not likely to affect the first two components, it is necessary to isolate the adverse selection component of the spread. We follow the method suggested by George, Kaul and Nimalendran (GKN, 1991). The GKN (1991) model has been successfully employed in other empirical research (Kumar, Sarin and Shastri, 1998; Affleck-Graves, Hedge and Miller, 1994; Neal and Wheatley, 1998). The model is a two-step procedure that estimates the adverse selection component and the order processing components of the spread, originally developed for *daily* bid-ask spread data. Intra-day data has the features different from daily or monthly data. These features may cause a bias in the estimate of the adverse selection cost component in the GKN model. Neal and Wheatley (1998) filter their intra-day data before applying the GKN model to reduce this problem. We also filter the data by taking the procedures suggested by Neal and Wheatley (1998)[6].

Krinsky and Lee (1996) examine information asymmetry during two-day period from the time of earnings announcement (days 0 to +1), while Lee, Mucklow and Ready (1993) employ three- day period (days -1 to +1). We follow Lee, Mucklow and Ready (1993) for several reasons. First, sufficient transactions data are required to apply the GKN model. We can avoid losing many observations and estimate better with a three-day period instead of a two-day period. Second, Lee et al. (1993) show an increase of information asymmetry the day before, the day of, and the day after the earnings announcement. We employ the same length of period to be comparable with their empirical results. We also investigate the structural rather than temporal differences in information risk around earnings announcement by using a little longer measuring period.

Using the GKN model and transaction-by-transaction data, we estimate the following ordinary least square regressions:

$$ES_i = \alpha_1 + \alpha_2 RSD_i + \varepsilon_i \quad (1)$$

$$ES_i = \alpha_1 + \alpha_2 RSD_i + \alpha_3 MF_i + \alpha_4 (RSD_i \times MF_i) + \varepsilon_i \quad (2)$$

Where: ES_i is the effective spread for firm i estimated as $2\sqrt{-Cov}$, where Cov is the serial covariance of the difference between returns based on transaction prices and returns based on the bid price quoted subsequent to the time of this transaction price; RSD_i is the relative spread, calculated as the difference of the bid and the ask divided by the mean of the bid and the ask; MF_i is a dummy variable that takes the value of one if a prior management forecast exists, and zero otherwise.

Using the equation (1), we estimate the adverse selection cost for each test period in each sample of good news forecasters, bad news forecasters, and non-forecasters. The slope coefficient in this regression reflects the order-processing component of the spread. The estimate of the adverse selection component is then one minus the slope coefficient. We then investigate whether there is a change of the adverse selection cost component over the test periods. The equation (2) is employed to investigate if management forecasts release affects the level of information asymmetry for each test period. We compose the following three groups for the tests: (1) forecasting years and all matched non-forecasting years (all years), (2) bad news forecasting years and the matched non-forecasting years for the bad news forecasters (bad news group), and (3) good news forecasting years and the matched non-forecasting years for the good news forecasters (good news group). Using the regression model above, we compare information asymmetry in forecasting years with that in non-forecasting years in each group. To test Hypothesis 3, instead of comparing directly between good news forecasters and bad news forecasters, we use non-forecasting year as a benchmark in this comparison to control potential effects of other variables, and compare the patterns of the differences between in forecasting year

and in non-forecasting year for each type of news group. The primary interest is in α_4, the estimates of the change in the slope coefficients of the regression due to management forecasts. For example, a positive α_4 implies an increase in the proportion of the bid-ask spread by order processing costs, i.e., a decrease in the adverse selection component, related to the release of a management forecast.

Results

Table 1 reports effective spread and relative spread. The effective spread is estimated as $2\sqrt{-\text{Cov}}$, where Cov is the serial covariance of the difference between returns based on transaction prices and returns based on the bid prices quoted subsequent to the time of this transaction price. Relative spread is calculated as the difference of the bid price and the ask price divided by the mean of the bid price and the ask price. Using parametric and non-parametric tests, we do not find any significant change of the spread measures over the periods for all groups (not reported in Table 1), nor do we find any significant difference in spread between forecasting and non-forecasting years (not reported in Table 1).

=== Insert table 1 around here ===

Table 2 provides evidence that supports Hypotheses 1 and 2b. Panel A of Table 2 shows the estimation of the adverse selection cost in each group for each period. The percentage adverse selection costs ranges from 20.5% to 49.8%. The range is consistent with the prior studies such as Kumar, Sarin and Shastri (1998), and Krinsky and Lee (1996). Kumar, Sarin and Shastri (1998) employ the GKN model to estimate the adverse selection cost for 100-day period

and find that about 25% of the relative spread is the adverse selection cost. Krinsky and Lee (1996) use the Stoll's (1989) method and find 46.6% to 76.4% of the relative spread as adverse selection cost for two days around earnings announcement. Smaller adverse selection costs reported by Kumar, Sarin and Shastri (1998) result from a longer estimation period and lack of any special news disclosure, which can cause a sharp increase in information asymmetry. Our test period is shorter than Kumar, Sarin and Shastri (1998) but longer than Krinsky and Lee (1996).

In Panel B of Table 2, we use the Chow test that examines a structural change of the regression over the periods to investigate the change of the adverse selection cost over the periods in each group. In non-forecasting years, information asymmetry is decreasing in the announcement period, and increasing in the post-announcement period.

Prior studies like Lee et al. (1993) and Krinsky and Lee (1996) report an increase in information asymmetry around earnings announcements. Krinsky and Lee (1996) use a two-day benchmark period (-16 to –15) and report an increase in spread. Prior studies, however, suggest that anticipated earnings announcements might affect the spread from ten days before announcement, and Krinsky and Lee's (1996) benchmark period may not be affected by earnings announcement. Also Lee et al. (1993) use a benchmark period that spans more than 200 days excluding four days around earnings announcement. The current study does not examine a general change of spread around earnings announcement, but focuses on the period when (anticipated) earnings announcement affects information asymmetry and compares the levels of information asymmetry in sub-periods. While Krinsky and Lee (1996) use as their test period two days immediately following the earnings announcement and investigate a short-term change in market liquidity, we employ a three-day period starting from one day prior to the

announcement and examine a structural change in information asymmetry.

Our findings on decreasing asymmetry in the announcement period in non-forecasting years are consistent with Diamond and Verrecchia (1991), who explains the disclosure may decrease information asymmetry. Information asymmetry, however, increases during the post-announcement period and becomes significantly higher than that during the pre-announcement period. Earnings announcement brings a temporary decrease in information asymmetry around the announcement and reduces superiority of informed traders. After the announcement, however, some traders create the informed judgment for firm's future performance and information asymmetry may increase (Kim and Verrecchia, 1994).

For the good news forecasters, we do not find any significant change in information asymmetry across the sub-periods. For the bad new forecaster sample, however, we find a significant decrease as from the pre-announcement to the announcement period, and from the announcement to the post-announcement period. Earnings announcement seems to reduce information asymmetry, and this effect survives the announcement period.

=== Insert table 2 around here ===

We investigate any difference in information asymmetry between forecasting and non-forecasting years (Hypotheses 2a and 3), and report the results in Table 3. The coefficient estimates of Q*MF in all groups during the pre-announcement period are not significant, which indicates no difference in information asymmetry between forecasting and non-forecasting years. During the announcement period, we find a larger information asymmetry in forecasting years only for the good news group. As shown in Table 2, firms experience a decrease in information

asymmetry during the announcement period in non-forecasting years, but good news forecasters do not experience a decrease during the same period. Thus, during the announcement period, the good news forecasters have higher information asymmetry in forecasting years than in the same firms' non-forecasting years.

In the bad news group, there is no difference between forecasting and non-forecasting years during the announcement period. We find that bad news forecasters experience lower information asymmetry in forecasting years than non-forecasting years during the post-announcement period. The results suggest that the earnings announcement after an earlier bad news forecast further reduces the advantage of informed traders until five to seven days after the announcement.

=== Insert table 3 around here ===

Conclusion

We examine information asymmetry around earnings announcement when there is a management forecast released during the accounting period. We find that the results are consistent with Diamond and Verrecchia (1991) and Kim and Verrecchia (1994). Earnings announcements following the release of a bad news forecast decrease information asymmetry until seven-days after the announcement. Those firms experience lower information asymmetry in forecasting years than the same firms in non-forecasting years. Our results are consistent with the prediction of Diamond and Verrecchia (1991): The earnings announcement following a bad news forecast reduces the advantage of informed traders until five to seven days after the announcement. For the firms that earlier forecast a good news, there is no change of information asymmetry around earnings announcement, while a temporary decrease in information

asymmetry around earnings announcement is experienced by the same firms but in non-forecasting years. The firms in non-forecasting years experience an increase in information asymmetry after announcement, and the level of information asymmetry is higher than that of pre-announcement period.

The current study increases the understanding of the role of management forecasts in the stock market, and provides practical implications for policy makers. Beginning in 1978, the Securities and Exchange Commission (SEC) began to encourage voluntary forecast disclosures and issued guidelines to assist firms wishing to include forecasts in filed documents. The next year, the SEC adopted a Safe Harbor Rule to shelter firms from liability for unattained forecasts.[7] This change in policy is based on the belief that the disclosure of prospective information makes prices more informative. More recently, the Private Securities Litigation Reform Act of 1995 created a statutory safe harbor for statements that are identified as forward-looking and contain cautionary language. This law protects firms from liability more generally unless it can be proven that the statements were made with actual knowledge that they were false or misleading. In passing this law, the U.S. Congress was attempting to encourage the release of prospective information. In particular, the Congress noted that abusive litigation was deterring managers from communicating forward-looking information.[8]

Clearly, both the SEC and the U.S. Congress view forward looking disclosures in general as relevant information and have an ongoing interest in encouraging such releases. However, it appears that not all types of forecasts are equally effective in achieving broad information dissemination. A better understanding of the effects of forecasts on information asymmetry may allow policymakers to better specify their rules of protection in order to encourage particular types of disclosures.

Future studies may enhance the understanding of the role of management forecasts by using a larger and updated sample. Also beneficial will be an examination of change in investors' perception on firm value. It is still unknown if a lower level of information asymmetry leads to better investment decision-making. Investors may be misled to a wrong direction although they may show a stronger consensus.

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Table 1. Descriptive statistics of the spread measures: Mean (Standard Deviation)

		(-7, -5)	(-1, +1)	(+5, +7)
All years	Effective spread	0.0105 (0.0105)	0.0111 (0.0113)	0.0111 (0.0133)
	Relative spread	0.0171 (0.0171)	0.0162 (0.0151)	0.0168 (0.0166)
Bad News forecasting years	Effective spread	0.0099 (0.0101)	0.0110 (0.0125)	0.0113 (0.0153)
	Relative spread	0.0177 (0.0192)	0.0164 (0.0162)	0.0170 (0.0182)
Good News forecasting years	Effective spread	0.0111 (0.0109)	0.0112 (0.0100)	0.0109 (0.0108)
	Relative spread	0.0165 (0.0145)	0.0160 (0.0139)	0.0166 (0.0148)
Non-forecasting years	Effective spread	0.0113 (0.0121)	0.0116 (0.0113)	0.0109 (0.0108)
	Relative spread	0.0167 (0.0160)	0.0173 (0.0173)	0.0176 (0.0179)

All years include forecasting years and matched non-forecasting years. Non-forecasting years are the matched years when the firms in the forecasting sample do not forecast. Effective spread is estimated by $2\sqrt{-\mathrm{Cov}}$, where Cov is the serial covariance of the difference between returns based on transaction prices and returns based on the bid prices quoted subsequent to the time of this transaction price, and the relative spread is calculated as the difference of the bid price and the ask price divided by the mean of the bid price and the ask price

Table 2. Adverse selection costs in each group

Panel A. Adverse Selection Cost: $ES_i = \alpha_1 + \alpha_2 RSD_i + \varepsilon_i$

	(-7, -5)	(-1, +1)	(+5, +7)
All forecasting years	0.3951	0.3179	0.2503
Bad news forecasting years	0.4195	0.2887	0.2054
Good news forecasting years	0.3648	0.3610	0.3249
Non-forecasting years	0.3900	0.2386	0.4977

Panel B. Test for the Change of Adverse Selection Cost: F-value(P-value)

	(-7, -5) to (-1, +1)	(-1, +1) to (+5, +7)	(-7, -5) to (+5, +7)
All forecasting years	2.99 (0.05)	2.38 (0.10)	8.43*** (0.00)
Bad news forecasting years	5.13** (0.01)	1.80 (0.17)	12.28*** (0.00)
Good news forecasting years	0.11 (0.89)	0.72 (0.49)	0.30 (0.74)
Non-forecasting years	6.46*** (0.00)	25.69*** (0.00)	3.73** (0.03)

*, **, and *** indicate statistically significant at 0.1, 0.05, and 0.01 (two-tail) respectively.

Table 3. Regression analyses

	(-7, -5)			(-1, +1)			(+5, +7)		
	Whole	**Bad Mews**	**Good News**	**Whole**	**Bad Mews**	**Good News**	**Whole**	**Bad Mews**	**Good News**
Intercept	.0011 (1.54)	.0018** (2.48)	-.0002 (-.17)	-.0016*** (-2.80)	.0000 (.01)	-.0031*** (-3.51)	.0020*** (3.29)	.0026*** (3.12)	.0005 (.64)
Q	.6099*** (19.69)	.5172*** (16.76)	.7347*** (13.02)	.7615*** (33.04)	.6550*** (21.63)	.8491*** (25.51)	.5023*** (20.60)	.4334*** (13.68)	.6230*** (17.16)
MF	-.0006 (-.57)	-.0014 (-1.34)	.0008 (.46)	.0016* (1.95)	-.0007 (-.74)	.0040*** (3.13)	-.0035*** (-4.07)	-.0049*** (-4.09)	-.0009 (-.71)
Q*MF	-.0050 (-.11)	.0633 (1.38)	-.0996 (-1.23)	-.0794** (-2.26)	.0563 (1.32)	-.2101*** (-3.78)	.2474*** (6.91)	.3613*** (7.72)	.0521 (.99)
Adj-R^2	.6916***	.7743***	.6524***	.8453***	.8592***	.8485***	.7945***	.8122***	.7969***

*, **, and *** indicate statistically significant at 0.1, 0.05, and 0.01 respectively.

Endnotes

[1] Prior studies examine no more than two days after announcement. Our choice of a longer period is arbitrary.

[2] This criterion was necessary because of the availability of bid-ask spread data.

[3] Accounting period is used as a matching variable because prior studies document that interim forecasts are more informative than annual forecasts (Baginski and Hassell, 1990; Pownall, Wasley and Waymire, 1993).

[4] 112 firms are excluded because they have sales or related forecasts or another news release during the ten-day period prior to the earnings announcements. Additional 45 firms are excluded because they released earnings forecasts every year. 66 firms are deleted because they have a missing value of effective spread in a test period.

[5] Each forecast article in the sample includes the market expectation (mean analyst forecast).

[6] Price changes that span the overnight interval or occur after 4:00, E.S.T., are omitted from the analysis because we focus on intra-day behavior. The trades that occur at the same price and within five seconds are aggregated into a single trade because Hasbrouck (1991) argues that if a sequence of trades occurs at the same price and within a brief interval, they likely reflect one large trade that is divided into multiple pieces. The trades which occur within five seconds following a quote are resequenced to precede the quote since specialists tend to update their quotes faster than they report their trades (Lee and Ready, 1991).

[7] Prior to 1973, the SEC maintained a negative attitude toward management forecasts, prohibiting them in documents filed with the SEC under the federal securities laws. Pownall and Waymire (1989) discuss the 1978 policy change. See Securities Act Release No. 6084 for the text of the Safe Harbor Rule.

[8] The SEC was also in the process of evaluating the effectiveness of its safe harbor rule when Congress placed the issue on its docket. Johnson, Kasnik and Nelson (2001) discuss the Act and the safe harbor provisions. See Conference Report (1995) for further details.