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"Oops, Our Earnings Were Indeed Preliminary": Market Reactions to Companies that Subsequently File Different Earnings with the SEC

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Current Draft: March 14, 2004

The authors gratefully acknowledge the preliminary and original Compustat quarterly data provided by Charter Oak Investment Systems Inc. The authors are also grateful for the contribution of Thomson Financial for providing forecast data available through the Institutional Brokers Estimate System. These data have been provided as part of a broad academic program to encourage earnings expectations research.

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Abstract

This study examines market reactions to earnings surprises in those special cases where firms revise earnings in their SEC filings from those reported just a few weeks earlier in the preliminary earnings announcements. We find that investors react to the new surprise in earnings upon the SEC filings in contrast to most of the prior literature which was unable to document market reactions to information in the SEC filings. Thus, our findings provide evidence that when the SEC filings contain material new information, investors incorporate it in pricing the firms' shares. We also find that market reactions are stronger for cases of downward earnings revisions than upward earnings revisions, but that an inverse drift in abnormal returns occurs for upward earnings revisions beyond the SEC filing date. Finally, we document that security analysts revise their forecasts upon the preliminary earnings announcement, but ignore the new information contained in the SEC filings.

Keywords: *earnings announcement, SEC filing, earnings revisions, stock market reaction.*

Data availability: *All data sources are identified in the paper.*

"Oops, Our Earnings Were Indeed Preliminary": Market Reactions to Companies that Subsequently File Different Earnings with the SEC

Introduction

Companies traditionally report preliminary earnings to the market through a press release that is issued about 20-35 days after the fiscal quarter-end, with some firms reporting preliminary earnings within just a few days after the fiscal quarter-end. Subsequently, firms file a 10-Q or 10-K Form with the Securities and Exchange Commission (SEC), typically on the last day or two of the required filing period (45 days for 10-Q and 90 days for 10-K). Some companies actually modify their earnings from the preliminary earnings to the SEC filing due to various reasons. For example, the firm's auditor (or new auditor) may require the firm to file a different earnings figure with the SEC than that released previously to investors. Some subsequent information may also induce firms to modify their earnings by the filing date. While not a frequent phenomenon (less than 7,000 occurrences out of an initial sample of about 250,000 firm-quarters), our sample yielded about 1,000 such firm-quarters with a modification of earnings that is at least 0.5% of market value (in absolute value), which should be significant enough to cause market reaction at the filing date.

The purpose of this study is to examine the stock market's reaction to cases where the preliminary earnings announcements and subsequent earnings filed with the SEC disagree. If investors act rationally, one should expect an initial market reaction to the earnings surprise at the time of the preliminary earnings announcement. However, an additional market reaction is expected at the time of the SEC filing if the filed earnings are sufficiently different from the initial earnings. Since prior studies have generally failed to document a market reaction at the

time of the SEC filing date, it may be interesting to examine whether cases of substantial modifications of earnings cause investors to react around the filing date. In addition, we evaluate whether preliminary earnings announcements and the subsequent different SEC filings are associated with financial analysts' forecast revisions in the same direction of the two earnings surprises.

Our results show that about two thirds of all earnings revisions are income decreasing, with the remainder income increasing, and a larger proportion of the revisions occurring in the fourth fiscal quarter, consistent with audit work at year-end and a longer period before the filing date in which subsequent events may occur. We find that investors react to the initial earnings surprise in a manner consistent with intuition and prior results; the association between the earnings surprise and abnormal returns around the preliminary announcement date is positive and significantly different from zero. More interestingly, the market reactions around the filing date are consistent with a positive and statistically significant association between the additional surprise in earnings and abnormal returns, after controlling for the initial earnings surprise and any news impounded in stock returns between the initial earnings announcement and the filing date. Thus, investors seem to identify and react to the additional earnings surprise although it is provided only in the SEC filing and not in any special press release.

We find that the significant market reactions to the additional earnings surprise around the filing date occur for firms with income decreasing earnings revisions. For firms with income increasing revisions in earnings, filing date abnormal returns are not statistically different from zero after controlling for the initial earnings surprise and news between the preliminary earnings and the filing date. These results are consistent with market participants who take actions on negative earnings news but not on positive earnings news. However, we also find that returns

subsequent to the filing date through the following quarter's preliminary earnings announcement are negative and significantly different from zero for income increasing revisions, but insignificantly different from zero for income decreasing revisions in earnings. Thus, investors can take advantage of this market inefficiency by shorting firms that revise earnings upwards between the preliminary earnings announcement and the SEC filing date. Finally, the study shows that analysts revise their earnings forecasts when the initial earnings surprise is disclosed to the market in a manner consistent with the actual earnings surprise. However, upon filing a revised earnings figure with the SEC, analysts do not revise their forecasts according to the additional surprise in earnings. This implies that analysts do not efficiently incorporate this additional surprise in their forecasts, although these results are tenuous given the small number of observations for this analysis.

Our findings are particularly relevant to financial analysts, investors, and academics. Our results suggest that investors and financial analysts should pay attention not only to earnings surprises at the preliminary earnings announcement but also to the actual earnings figures in the SEC filing. Although market reactions are consistent with investors actually responding to the additional surprise in the revised earnings, it seems that analysts do not use this information in updating their forecasts. Our findings also suggest that an investor can earn abnormal returns by shorting stocks with upward earnings revisions from the SEC filing date to the next quarter's earnings announcement. This is consistent with investors not *fully* incorporating SEC filing earnings revisions into stock prices. The results of this study are also important for prior academic research that generally failed to detect any market reactions to information around the SEC filing date.

The remainder of this paper is organized as follows. Section II discusses the methodology and research design. Section III discusses the sample and presents the empirical findings. Section IV summarizes and concludes the paper.

II. Methodology and Research Design

2.1 Market Reactions to SEC filings:

Prior research shows that the market responds to preliminary earnings announcements and that the market incorporates this information immediately into stock prices (e.g., Lev 1989; Kothari 2001, to name a few). However, most of the prior research related to the market response to SEC filings provides little or no evidence of 10-Q/K filings being incrementally informative beyond earnings announcements. Foster and Vickery (1978) and Wilson (1987) document that 10-K reports contain information content beyond earnings announcements. In contrast, more recent studies suggest that the market fails to fully recognize earnings information contained in SEC filings (Foster et al. 1983; Foster et al. 1986; Cready and Mynatt 1991; Stice 1991; Easton and Zmijewski 1993; and Chung, et al. 2003).

For example, Stice (1991), Easton and Zmijewski (1993) and Chung, et al. (2003) all examine market reactions to earnings announcements and SEC filings. Stice (1991) examines whether the information content of an earnings announcement can be affected by the method in which the earnings are announced. Specifically, this study investigates firms that filed their 10-Q or 10-K several days **before** the earnings announcement. Stice (1991) findings suggest that earnings filed with the SEC are not fully reflected in prices until subsequent earnings

announcements are made.[1] Stice's results are consistent with Easton and Zmijewski (1993) who fail to document abnormal stock returns around 10-Q filing dates for all firms, where most disclose their preliminary earnings prior to the SEC filings. Chung et. al (2003) also examine firms that file earnings with the SEC prior to and subsequent to WSJ earnings announcements. In addition, they examine whether firms that delay earnings announcements after the SEC filing engage in earnings management. Consistent with Stice (1991), they find that the stock market reaction to earnings releases around SEC filings and the WSJ earnings announcement indicate that the SEC filing is a poor mechanism to communicate earnings information to investors.

Qi et al. (1999) suggest that prior research's inability to detect little, if any, information content around the SEC filing date may be due to the SEC paper filing system in place at the time of the prior studies. Their study compares SEC paper filings with SEC electronic filings to test whether the information content of the 10-Ks have changed as a result of the electronically available SEC filings. In contrast to most of the prior research, Qi et al (1999) provide evidence that 10-K filings through the EDGAR system provides incremental information content that did not exist for the SEC paper filings. However, the sample selection criteria may limit the inferences of this study to prior research. The time-frame (1993-1995) examined for the EDGAR system was a voluntary adoption period of reporting electronically. The EDGAR system did not become mandatory until May of 1996.[2] Therefore, there may be some characteristics that are specific to firms that chose to file electronically before the mandated date.

[1] Stice (1991) conducted this study at a time when SEC filings where not as readily available (e.g., on-line and other media) as they are today. Chung et. al (2003) examine the same issue when filings were available on EDGAR, but used only a handful of quarters from the beginning of the EDGAR database. Their findings seem to suggest that Stice's results hold true even with the availability of EDGAR.

[2] The time-frame of this study is also restricted by the use of the Association for Investment Management and Research's Corporate Information Committee Reports.

Moreover, most prior studies' samples are selected from the full EDGAR filings database. In order for a market response to occur around the SEC filing, new earnings information must exist in the SEC filing that did not exist at the time of the preliminary earnings announcement. Accordingly, our study specifically examines firms that have earnings revisions (e.g., earnings surprises) that are observed by the SEC filing. This component of our research design ensures that there is truly new information that is available to the market. Then, we can evaluate whether the market responds *fully* to this information.

2.2 Earnings Revisions after the Preliminary Announcements

While prior research shows that the methods in which earnings are announced affect market prices differentially, they do not address the issue of why earnings announcements may differ from the subsequent SEC filings and whether these differences may affect stock prices.[3] When a firm materially revises earnings figure from the preliminary earnings release to the SEC filing, we expect market reactions to the earnings surprise not only during the preliminary disclosure but also around the SEC filing date, when a new surprise in earnings is disclosed to the market. If we fail to document a market reaction to the additional surprise during the SEC filing, it can be argued that the medium of disclosure, the SEC filing, is the cause for lack of market reaction and not the lack of additional information. Thus, the case of earnings revisions between the preliminary earnings announcement and the SEC filing date may shed some new light on the question of the valuation implications of SEC filings.

[3] Since the earnings announcements are typically made after the quarter/year has ended and not long before the SEC filing, one would expect the SEC filed earnings to be identical to the previously announced earnings.

Prior studies also document the existence of a post-earnings announcement drift in stock returns.[4] In particular, stock returns do not fully incorporate the earnings surprise immediately upon the initial earnings disclosure and continue to drift in the direction of the earnings surprise for at least one more quarter. Thus, we also study the effects of earnings revisions at the time of SEC filings on the drift in prices from that date through the following quarter's announcement of earnings. It is expected that the documented drift in previous research manifest itself in a similar drift after the SEC filings when material new information about earnings has been released.

It should be noted that earnings revisions might be either income-decreasing or income-increasing, although due to the conservatism bias in accounting we expect more income-decreasing revisions in earnings. Appendix A provides examples of firms with upward and downward revisions in earnings that are included in our sample. An upward revision in earnings example, Aspect Communications Corp. (APST), reported income of $10.241 million in its preliminary earnings release on 4/18/02, but revised it upwards to $12.163 million on 5/14/02 in its SEC filing, an increase of 19% from the preliminary earnings. An examination of other news related stories (through Lexis-Nexis) about Aspect Communications Corporation reveals that multiple announcements were released between the preliminary earnings announcement and SEC filing dates. None of these announcements relate to earnings from the previous quarter's earnings release, instead relating mostly to new marketing relationships that have come to fruition since the preliminary earnings release date.[5] Thus, there appears to be no public information between the earnings announcement and the SEC filing date that would suggest an upward revision in

[4] Prior research that relates to post-earnings announcement drift are: Ball and Brown 1968; Bernard and Thomas 1989, 1990; Bartov 1992; Ball and Bartov 1996; Bartov et al. (2000)

[5] Prior preliminary earnings figures should not be impacted by these new marketing relationships since this new information impacts future earnings and not prior earnings.

SEC filed earnings was forthcoming. A downward revision of earnings example, RMH Technologies Inc. (RMHT), issued its preliminary earnings release on 7/30/02 reporting a $9.244 million loss, and followed with an SEC filing (filed on 8/14/02) of a reported loss of $20.257 million, reducing the prior earnings figure by 119%. There are no other news reported in Lexis-Nexis between the preliminary earnings announcement and the SEC filing date.

Possible explanations for the general phenomenon of revisions (not the previous two examples) are audit work which uncovers issues not known at the preliminary earnings release date, new auditors who are more likely to force audit clients to revise earnings issued under the prior auditor, subsequent information that becomes known after the preliminary earnings announcement, or accounting errors discovered by the filing date. For example, several studies document the existence of accounting errors that are discovered by auditors and corrected before public release of year-end statements.[6] This is consistent with approximately 50% of our firm-quarter observations falling into the fourth quarter, where a full audit is required – see panel D of Table 1 for more detailed information.

In addition, we examine financial analysts' responses (e.g., forecast revisions) to the earnings revisions. Prior research documents that financial analysts cite 10-Q/Ks as one of the most important sources of information for a firm (e.g., Lees 1981; and Knutson 1992). If analysts use earnings information provided by the firm to update their forecasts for subsequent quarters, then we should expect a positive association between the analyst forecast revisions immediately after the preliminary earnings announcement with the earnings surprise. Similarly, we expect to see analysts revising their forecasts again when earnings are further revised in the SEC filings,

[6] Some related studies are: Kinney 1979; Johnson et al. 1981; Hylas and Ashton 1982; and Ham et al. 1985, to name a few.

causing a positive association between the analyst forecast revisions after the SEC filing with the additional surprise in earnings due to the revision in earnings by the filing date.

Thus, this paper investigates three research questions related to earnings and forecast revisions between earnings announcements and SEC filings:

1. Do investors notice and react when the SEC filed earnings are different from preliminary earnings announcements?
2. Do investors fully react to the additional earnings surprises on the SEC filing date? In other words, does a post-earnings announcement drift exist subsequent to the SEC filings?
3. Do financial analysts revise their earnings forecast around the preliminary earnings announcement and then again around the SEC filing dates?

2.3 Methodology

Figure 1 portrays the timeline of the different events in the study, highlighting the various periods over which abnormal returns are cumulated. It shows the short windows around the preliminary earnings announcement and the SEC filing which follows. It also shows the long windows between the preliminary earnings announcement and the SEC filing, and also between the SEC filing and the date of the preliminary earnings announcement of the subsequent quarter.

(Insert Figure 1 about here)

2.3.1 Market Reactions on the Preliminary Earnings Announcement Date

We conduct an analysis of stock returns to provide initial evidence on the effect of earnings surprises in preliminary earnings announcements. Consistent with prior research (e.g., Lev, 1989 and Kothari, 2001), we expect a positive and significant relation between stock market

returns and earnings announcements. We measure the preliminary earnings surprise (FSURP, for first surprise) as the preliminary earnings reported (earnings before extraordinary items and discontinued operations, Compustat Quarterly Item 8) minus earnings for the same quarter in the prior year, scaled by market value at the end of the quarter. Stock returns (CAR_{prelim}) are measured as the three-day (-1 to +1) cumulative abnormal returns centered on the earnings announcement date, day 0.[7] The daily abnormal return is calculated as the raw daily return from CRSP minus the daily return on a portfolio of firms with the same size (the market value of equity as of June) and book-to-market (B/M) ratio (as of December). The daily returns (and cut-off points) for the size and B/M portfolios are obtained from Professor Kenneth French's data library, based on classification of the population into six (two size and three B/M) portfolios.[8] We investigate the relation between FSURP and CAR_{prelim} using the following regression:

$$CAR_{prelim\ it} = \beta_0 + \beta_1 FSURP_{it} + \varepsilon_{it} \qquad (1)$$

The coefficient on β_1 represents the overall earnings response coefficient (ERC) for the preliminary earnings surprise and is expected to be positive and significantly different from zero.

2.3.2 Stock market reaction to SEC filed earnings:

We then examine the stock market reaction to the SEC filings. We measure the additional earnings surprise (ASURP) at the SEC filing date as SEC filed earnings minus the preliminary earnings, scaled by market value at the end of the quarter. In a similar manner to CAR_{prelim}, we define CAR_{file} as the three-day (-1 to +1) cumulative abnormal returns centered on the SEC filing date (date 0). To control for additional news that market participants obtained between the

[7] Consistent with prior research (e.g., Lev 1989; Han et al. 1992; and Balsam et al. 2002, to name a few), we use a three day window when testing the association between stock returns around earnings announcements and SEC filing dates. This window selection should ensure that the stock returns around the preliminary announcements and SEC filing dates is mostly due to the earnings information. While too long a window may reduce statistical power, a short window may fail to capture related stock market reactions (lev 1989; Balsam et al. 2002).
[8] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

preliminary earnings announcement and the SEC filing date, we include in the regression the cumulative abnormal return between the preliminary earnings release and the SEC filing date. The assumption is that all news during this event period is captured by changes in stock prices. Specifically, CAR_{af} is the cumulative abnormal return from two days after the preliminary earnings announcement through two days before the SEC filing date. Thus, we investigate the relation between ASURP, FSURP, CAR_{af} and CAR_{file} using the following regression models:

$$CAR_{file\ it} = \beta_0 + \beta_1 ASURP_{it} + \beta_2\ CAR_{af\ it} + \varepsilon_{it} \quad (2)$$

$$CAR_{file\ it} = \beta_0 + \beta_1 ASURP_{it} + \beta_2 FSURP_{it} + \beta_3\ CAR_{af\ it} + \varepsilon_{it} \quad (3)$$

The coefficient on β_1 represents the market reaction to the additional earnings surprise contained in the SEC filing beyond earnings reported in the preliminary announcement. It is expected to be positive and statistically different from zero. The coefficient on β_2 captures the market reaction at the time of the SEC filing to the already known initial earnings surprise in preliminary earnings. We expect β_2 to be insignificantly different from zero if the stock market has already fully impounded this information into price during the preliminary earnings announcement window.

For completeness, we also examine the combined market reaction to the two surprises in earnings by investigating their associations with stock returns around both the preliminary earnings announcement and the SEC filing. Thus, we define CAR_{both} as the sum of CAR_{prelim} and CAR_{file}. We then estimate the following regression:

$$CAR_{both\ it} = \beta_0 + \beta_1 FSURP_{it} + \beta_2 ASURP_{it} + \beta_3 CAR_{af\ it} + \varepsilon_{it} \quad (4)$$

It is expected that both β_1 and β_2 will be positive and significantly different from zero.

2.3.3 Post-earnings announcement drift:

To determine whether a drift in returns occurs after the SEC filing date, we estimate the following regressions:

$$CAR_{drift\ it} = \beta_0 + \beta_1 FSURP_{it} + \beta_2 ASURP_{it} + \varepsilon_{it} \quad (5)$$

$$CAR_{drift\ it} = \beta_0 + \beta_1 SSURP_{it} + \varepsilon_{it} \quad (6)$$

where FSURP and ASURP are as previously defined, and SSURP is their sum. $CAR_{drift\ it}$ is the cumulative abnormal return from two days after the SEC filing date through one day after the next quarterly earnings announcement. These equations test whether the market fully incorporates the earnings surprises into stock market prices by the SEC filing date.

2.3.4 Financial analysts' forecast revisions to preliminary earnings announcement and SEC filing:

To determine whether financial analysts revise earnings forecasts based on the preliminary earnings announcements and then update them again once a firm reports an additional earnings surprise with the SEC filing, we focus on the following variables: FSURP, ASURP, and SSURP are as previously defined. REVANN is the mean IBES forecast for quarter t+1 using all forecasts (from the detailed IBES database) made between the preliminary earnings announcement for quarter t and the SEC filing date for quarter t, minus the mean earnings forecast for quarter t+1 using all forecasts made in the 90-day period prior to the preliminary earnings announcement, scaled by price per share at the end of quarter t. Thus, REVANN measures the revision in quarter t+1 mean forecast induced by the preliminary earnings announcement of quarter t. REVFILE is the mean analyst forecast for quarter t+1 using all forecasts made in the 20-day period following the SEC filing date minus the mean IBES forecast for quarter t+1 using all forecasts (from the detailed IBES database) made between the preliminary earnings announcement for quarter t and the SEC filing date for quarter t, scaled by market price at the end of year t. REVFILEA is the total of REVANN and REVFILE. We estimate the following regressions:

$$REVANN_{it} = \beta_0 + \beta_1 FSURP_{it} + \varepsilon_{it} \quad (7)$$

$$REVFILE_{it} = \beta_0 + \beta_1 ASURP_{it} + \varepsilon_{it} \quad (8)$$

$$REVFILEA_{it} = \beta_0 + \beta_1 ASURP_{it} + \varepsilon_{it} \quad (9)$$

The coefficient on FSURP represents the association between the preliminary earnings surprise and the analyst forecast revisions resulting from the news in the preliminary earnings announcement, and is expected to be positive and significantly different from zero. The coefficient on ASURP represents the association between the additional earnings surprise in the SEC filing and the analyst forecast revisions resulting from the news in the SEC filing, and is expected to be positive and statistically different from zero.

III. Description of Sample and Empirical Findings

3.1 The Original Compustat Quarterly Data

Data entry into the Compustat databases has been performed in a fairly structured manner over the years. When a firm releases its preliminary earnings announcement, Compustat takes as many line items as possible from the preliminary announcement and enters them into the quarterly database within 2-3 days. The preliminary data in the database are denoted by an update code of 2, until the firm files its Form 10-Q (10-K) with the SEC or releases it to the public, at which point Compustat updates all available information and uses an update code of 3. Unlike the Compustat Annual database, which is maintained as originally reported by the firm (except for restated items), the Compustat Quarterly database is further updated when a firm restates its previously reported quarterly results. For example, if a firm engages in mergers, acquisitions, or divestitures at a particular quarter and restates previously reported quarterly data to reflect these events, Compustat inserts the restated data into the database instead of the

previously reported numbers. Similarly, when the annual audit is performed and the firm is required to restate its previously reported quarterly results by its auditor as part of the disclosure contained in Form 10-K, Compustat updates the quarterly database to reflect these restated data.

Charter Oak Investment Systems, Inc. (Charter Oak) has collected the weekly original CD-Rom that Compustat sent to its PC clients, which always contained updated data as of that week. From these weekly updates, Charter Oak has constructed a database that contains for each firm in the Compustat Quarterly database three numbers for each Compustat line item in each quarter. The first number is the preliminary earnings announcement that Compustat inserted into the database when it bore the update code of 2. The second number is the "As First Reported" (AFR) figure when Compustat first changed the update code to 3 for that firm-quarter. The third number is the number that exists in the current version of Compustat, which is the one academics use to conduct various research studies, including earnings management (e.g., Balsam et al., 2002). The Charter Oak database allows us to determine whether an earnings revision has occurred in any quarterly earnings by comparing the preliminary earnings and the first-reported 10-Q/K earnings in the Charter Oak database.

3.2.1 Sample Selection

The initial population for the study consists of 371,994 observations (firm-quarters) in the Compustat database between 1993 (the first year of the SEC EDGAR database) and 2002, which were traded on the NYSE, AMEX or NASDAQ. We exclude firms with missing CUSIP, earnings announcement date, earnings, market value or sales less than $1 million in the prior quarter, or missing earnings data on the preliminary earnings (Compustat item #8) or on first-reported earnings. These exclusions yield 243,918 firm-quarters with 5,193 firm-quarters that

have differences between preliminary earnings and first-reported earnings in excess of $100,000. In addition, the following requirements must be met:

1. Price at quarter end exceeds $1.00 per share.
2. Book value of equity at prior quarter end is positive.
3. The absolute value of the difference between preliminary earnings and filed earnings scaled by market value of equity at quarter end has to be at least .5%. This requirement is used to increase the power of our tests; we use earnings revisions of sufficiently large magnitudes that are likely to cause significant market reactions.
4. If the preliminary earnings announcement is later than the presumed filing date (45 days after fiscal quarters 1-3 and 90 days after fiscal quarter 4) the firm-quarter is deleted (eliminating observations subject to the Stice, 1981, effect).
5. The first surprise (earnings at preliminary minus earnings 4 quarters before, scaled by market value of equity at quarter end) can be computed.
6. The absolute value of first surprise (as defined in (5) above), additional surprise (earnings at filing date minus earning at preliminary, scaled by market value of equity at quarter end), or second surprise (sum of first and additional surprise) is less than 1. This is customary in the literature when regressing returns on earnings surprises, which are sensitive to outliers (extreme earnings surprises).
7. The Cumulative Abnormal Return (CAR) can be calculated for the short window (-1, +1), where day zero is the preliminary earnings announcement date, the SEC filing date, or the interval between them.

8. The preliminary earnings announcement date for quarter t+1 is available on Compustat.

Our sample selection criteria yield a final sample of 1,063 observations (firm-quarters).

3.2.2 Sub-Samples – Upward and Downward Earnings Revisions

To examine whether directional changes in earnings revisions that occur between the preliminary earnings announcement and the SEC filed earnings have differing effects on stock market reactions, the sample is subdivided into two sub-samples for further analysis. These two sub-samples are "upward" and "downward" revisions. Upward revisions are defined by an increase in earnings from the preliminary earnings announcement to the SEC filed earnings. Downward revisions are defined by a decrease in earnings from the preliminary earnings announcement to the SEC filed earnings. Downward revisions could potentially be an attempt to delay bad news, if the market does not fully see through this delay – Stice (1991) shows that SEC-mandated filings are not fully reflected in prices – then this method may be effective for some firms. Hence, we evaluate whether the direction (upward/downward) of the earnings revision has differential effects on market returns.

3.3 Descriptive Statistics

Panel A, B, and C of Table 1 present descriptive statistics for the overall sample as well as for two sub-samples of upward and downward earnings revisions. As Panel A shows, there is considerable variation in market values of firms, with the median firm having a market value of $135 million at the end of the quarter. Firms in the sample tend to have more negative first earnings surprises on the preliminary earnings announcement dates, with a negative second surprise at the SEC filing date. Consistent with expectations about market reactions to the initial negative earnings surprises, the average abnormal return around the preliminary earnings

announcement date is negative. However, the average abnormal return around the filing date is positive, although the median is negative in line with the negative average second earnings surprise. On average, sample firms also have negative abnormal returns during the interval between the preliminary earnings announcement and the SEC filing date, as is the drift in abnormal returns from the SEC filing date to the following quarterly earnings announcement.

(Insert Table 1 about here)

Panel B reports descriptive statistics for the 378 firm-quarters (about 1/3 of the sample) with upward revisions in earnings from the preliminary earnings to the SEC filings. By construction, these firms have a second positive earnings surprise, as are the abnormal returns around the SEC filing date. Although these firms also have on average a negative first earnings surprise and negative abnormal returns around the preliminary earnings release date, the abnormal returns between the preliminary earnings release and the SEC filing are on average positive, consistent with positive subsequent news that may have prompted the upward revision in earnings. However, the drift from the SEC filing date through the following quarter's earnings announcement is still negative on average for this group, possibly implying that the second earnings surprise may have been excessive. The descriptive statistics for the cases of downward revisions of earnings (in Panel C) are generally consistent with those of the entire sample.

Panel D of Table 1 presents the number of firm-quarter earnings revisions by year and quarter. The sub-samples consist of 378 (35%) upward revisions and 685 (65%) downward revisions for a total 1,063 revisions. Almost 50% of the earnings revisions in the sample occur in the fourth quarter. Since auditors are required to conduct a formal audit of fourth-quarter earnings in conjunction with the year-end audit, revisions are likely to occur more often in the fourth quarter than in other quarters during the fiscal year.

3.4 Regression Results

3.4.1 Stock market reactions to preliminary earnings announcements and SEC filings

The results for preliminary earnings announcements are presented in Table 2. All p-values are two-tailed and capture the expected positive and significant relationship between unexpected earnings and abnormal returns. The short window design provides evidence that the market responds to preliminary earnings on the announcement date for firms with earnings revisions in a manner expected by prior studies. These results are true for the entire sample, as well as for the two sub-samples of upward and downward earnings revisions, although the results for the sub-sample of upward revisions are slightly less significant.

(Insert Table 2 around here)

The results for market reactions to the earnings revisions contained in the SEC filings are reported in Table 3. For the full sample and firms with downward earnings revisions, the coefficient on ASURP is positive and significantly different from zero. This finding indicates that the market responds to the additional surprise in earnings which becomes known at the time of the SEC filing, as is expected if market participants process the new earnings information and immediately act on it. Note, however, that although the coefficient on ASURP is positive for the sub-sample of upward earnings revisions, it is insignificantly different from zero. This may indicate that market participants either ignore the favorable surprises in earnings, or that most of this information was already impounded in prices by the time of the SEC filing.

(Insert Table 3 about here)

Table 3 also shows that the first earnings surprise (from the preliminary earnings announcement) is not associated significantly with the abnormal returns around the SEC filing date, consistent with the intuition that the reactions to this news took place already around the

preliminary earnings announcement. Note that controlling for any additional information between the preliminary earnings announcement and the SEC filing date through the abnormal return CAR_{af} is important in the regression. Its coefficient is negative and statistically different from zero for the entire sample, but positive (and statistically indistinguishable from zero) for the sub-sample with upward revisions.

Table 4 provides the results of regressing CAR_{both} (i.e. the sum of the two short-window abnormal returns around the preliminary earnings announcement date and the SEC filing date, CAR_{prelim} and CAR_{file}) on the two earnings surprises. As can be seen in the table, both the first earnings surprise and the second surprise (upon the SEC filing) are positively and significantly associated with abnormal returns. This is true for the entire sample, as well as for the two sub-samples of upward and downward earnings revisions. Note that the regression R^2 is higher than is typical for short-window event studies, potentially because of the significance of the additional earnings surprise (by construction, it must be at least 0.5% of the firm's market value). Finally, the control variable for news items between the two short event windows, CAR_{af}, is statistically indistinguishable from zero for the sample, although it is positive for the upward earnings revisions and negative for the downward earnings revision.

(Insert Table 4 about here)

In summary, the above results indicate that the market reacts in the anticipated manner to the first earnings surprise around the preliminary earnings announcement, and then again to the second surprise in the earnings revision on the SEC filing date. Thus, investors do not just ignore the SEC filings as irrelevant information, but react to relevant information about earnings in the SEC filings when such information contains material revisions in earnings. We also find that

market participants tend to react more forcefully to downward earnings revisions than to upward earnings revisions. The next sub-section examines market reactions after the SEC filing date.

3.4.2 Post-earnings Announcement drift

Table 5 presents the post-SEC filing drift in abnormal returns between the SEC filing date and next quarter's earnings announcement. The coefficient on the sum of the first earnings surprise and the additional earnings surprise (the earnings revision), SSURP, is significant and negative for the entire sample (p = .0312) and firms with upward revisions (p = <.0001). This finding indicates that contrary to the typical earnings drift literature, the drift in returns in our sample, and, in particular, for the sub-sample of upward earnings revisions is inversely related to the earnings revision. Thus, an investor who observes an upward earnings revision between the preliminary earnings announcement and the subsequent SEC filing can earn abnormal returns by shorting the stock through the next quarterly earnings announcement. This may be different from the typical drift strategy, which is concentrated in extreme earnings surprises.

(Insert Table 5 about here)

3.4.3 Financial analysts' forecast revisions to preliminary earnings announcement and SEC filing

Table 6 presents the results of regressing financial analysts' forecast revisions on the first and additional earnings surprises after the preliminary earnings announcement and the SEC filings for the entire sample of firms with I/B/E/S data to compute the dependent variables. We do not segregate the results to the two sub-samples due to insufficient forecast data for the two sub-samples. The coefficient on the first earnings surprise, FSURP, is positive and significant (p = .0075) suggesting that financial analysts revise their forecasts in response to information in the

preliminary earnings announcement. However, we find no significant response by financial analysts to the subsequent earnings revision in the SEC filing. These results may be driven by analysts who do not hasten to revise their forecast a second time after the first revision induced by the preliminary earnings announcement, waiting to collect more information before making such forecast revisions. It could also be due to analysts who completely ignore the SEC filing as a source of company information after the preliminary earnings release and the subsequent conference calls. However, due to the limited number of sample observations with sufficient data to compute the forecast revision variables, these results should be taken with a grain of salt.

(Insert Table 6 about here)

IV. Summary and Conclusions

This study examines stock market reactions to earnings announcements and their revisions where preliminary earnings numbers differ from those subsequently filed with the SEC. We document a significant market reaction not only to the surprise in preliminary earnings announcements, but also to the surprise in the subsequent revised SEC filing. This later result is in contrast to most prior studies which generally failed to document significant market reaction upon SEC filings. This is likely due to the increased power of our tests, focusing on unique cases of substantial revisions in earnings from the preliminary earnings releases to the subsequent SEC filings. Our results are consistent with market participants who take actions on negative earnings revisions but not on positive earnings revisions. Returns subsequent to the filing date through the following quarter's preliminary earnings announcement are negative and significantly different from zero for the income increasing revisions, yielding a potentially profitable trading strategy

by shorting firms that revise earnings upwards between the preliminary earnings announcement and the SEC filing date.

We also evaluate financial analysts' response to preliminary earnings announcements and the subsequent different SEC filings. Our findings show that financial analysts do not revise their earnings forecasts to incorporate the SEC filing revisions.

This study has implications for both the finance profession and academics. Consistent with prior research, our findings suggest that the method of disclosing earnings impacts how the market incorporates the information embodied in those earnings. It shows that new earnings information contained in SEC filings may not be fully incorporated in prices if an upward revision, and that it is accompanied by a drift in the opposite direction after the filing date. However, market participants seem to react to the negative earnings revisions through downward price changes, indicating that when there is material information disclosed in the 10Q about earnings, market participants act on it immediately.

Appendix A
Examples of Upward and Downward Revisions

Example of Upward Revision from Preliminary Earnings Announcement to SEC Filed Earnings

Firm: Aspect Communications Corporation (Ticker: ASPT)
Period: First quarter ended March 31, 2002

Preliminary Earnings Announcement Date: April 18, 2002

Earnings Announcement: First quarter revenues were $106.2 million, a decrease of $8.284 million for the quarter ended March 31, 2002. Net income for the first quarter was $10.241 million compared to a loss of $46.156 million in the first quarter of the prior year.

SEC Filing Date: May 14, 2002

10-Q Reported Earnings: Consistent with the preliminary earnings announcement, first quarter revenues were $106.2 million. However, net income for the first quarter reported in the 10-Q was $12.163 million compared to the $10.241 million reported in the preliminary earnings announcement just 26 days earlier. This change in earnings translates to an additional earnings surprise of $1.922 million, or a 19% increase in earnings from that reported in the preliminary earnings announcement on April 18, 2002.

Appendix A (Cont'd)
Examples of Upward and Downward Revisions

Example of Downward Revision from Preliminary Earnings Announcement to SEC Filed Earnings

Firm: RMH Teleservices, Inc. (Ticker: RMHT)
Period: Second quarter ended June 30, 2002

Preliminary Earnings Announcement Date: July 30, 2002

Earnings Announcement: Second quarter revenues were $58.651 million, an increase of 26 percent over revenues of $46.592 million for the quarter ended June 30, 2001. Net income for the second quarter was a $9.244 million loss, or $0.69 per diluted share compared to net income of $4.768 million, or $0.46 per diluted share in the second quarter of the prior year.

SEC Filing Date: August 14, 2002

10-Q Reported Earnings: Consistent with the preliminary earnings announcement, second quarter revenues were $58.651 million. However, net income for the second quarter reported in the 10-Q was a $20.257 million loss compared to the $9.244 million loss reported in the preliminary earnings announcement just 15 day earlier. This translates to an additional earnings surprise (loss) of $11.013 million, or 119% decrease in earnings from that reported in the preliminary earnings announcement on July 30, 2002.

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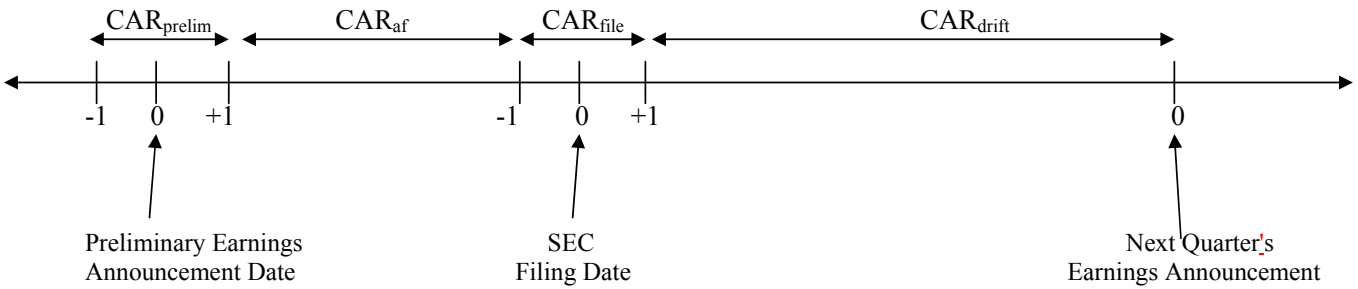
Figure 1
Timeline: Preliminary Earnings Announcements and SEC Filings



CAR_{prelim} = the cumulative abnormal return from day -1 through day +1, where day zero is the preliminary earnings announcement date. The abnormal return is the raw return minus the average return on a same size-B/M portfolio (six portfolios), as provided by professor French.

CAR_{af} = the cumulative abnormal return between preliminary earnings announcement (CARPRELIM) and SEC filing date (R^F) windows. Controls for information released to the stock market between the two time periods.

CAR_{file} = the cumulative abnormal return from day -1 through day +1, where day zero is the SEC filing date of 10-Q/10-K. The abnormal return is the raw return minus the average return on a same size-B/M portfolio (six portfolios), as provided by professor French.

CAR_{both} = the sum of CAR_{prelim} and CAR_{file}.

CAR_{drift} = the cumulative abnormal return between SEC filing date and the next quarter earnings announcement.

Table 1
Descriptive Statistics on Regression Variables for All Firms and Firms with Upward or Downward Revisions from Preliminary Earnings Announcement to SEC Filed Earnings

PANEL A –ALL FIRMS WITH REVISIONS

Variable	N	Mean	10th Pctl	Median	90th Pctl
mkt	1063	1620.26	17.0312	134.7514	2339.10
salem1	1063	514.1174	4.678	39.1739	745.2119
fsurp	1063	-0.0201	-0.1317	-0.0017	0.0637
asurp	1063	-0.0157	-0.0616	-0.0081	0.0229
$\mathbf{CAR_{prelim}}$	1063	-0.0070	-0.1192	-0.0062	0.1103
$\mathbf{CAR_{file}}$	880	0.0007	-0.0804	-0.0044	0.0699
$\mathbf{CAR_{af}}$	795	-0.0162	-0.2007	-0.0082	0.1777
$\mathbf{CAR_{drift}}$	847	-0.0064	-0.2816	-0.0176	0.2335

PANEL B – ALL FIRMS WITH UPWARD REVISIONS

Variable	N	Mean	10th Pctl	Median	90th Pctl
mkt	378	1085.96	18.8777	136.4878	1741.24
salem1	378	348.1478	5.4419	37.9109	594.8669
fsurp	378	-0.0363	-0.1706	-0.0091	0.0533
asurp	378	0.0371	0.0056	0.0126	0.0638
$\mathbf{CAR_{prelim}}$	378	-0.0002	-0.1117	-0.0031	0.1198
$\mathbf{CAR_{file}}$	316	0.0020	-0.0717	-0.0015	0.0697
$\mathbf{CAR_{af}}$	278	0.0040	-0.1576	0.0110	0.1851
$\mathbf{CAR_{drift}}$	304	-0.0011	-0.2660	-0.0067	0.2161

PANEL C – ALL FIRMS WITH DOWNWARD REVISIONS

Variable	N	Mean	10th Pctl	Median	90th Pctl
mkt	685	1915.10	16.2175	132.8735	2500.88
salem1	685	605.7036	4.1689	40.3519	910.9328
fsurp	685	-0.0111	-0.1177	0.0010	0.0694
asurp	685	-0.0449	-0.0988	-0.0171	-0.0060
$\mathbf{CAR_{prelim}}$	685	-0.0108	-0.1279	-0.0068	0.1083
$\mathbf{CAR_{file}}$	564	-0.0000	-0.0838	-0.0058	0.0727
$\mathbf{CAR_{af}}$	517	-0.0271	-0.2235	-0.0184	0.1761
$\mathbf{CAR_{drift}}$	543	-0.0094	-0.2825	-0.0220	0.2396

Table 1 (Cont'd)

Panel D: Number of Revisions by Year and Quarter

Year	*Upward Revisions*	*Downward Revisions*	*All Revisions*	*Qtr1*	*Qtr2*	*Qtr3*	*Qtr4*
1993	10	35	45	12	4	5	24
1994	14	26	40	8	3	7	22
1995	35	32	67	9	9	14	35
1996	35	39	74	17	4	10	43
1997	35	42	77	8	11	19	39
1998	53	96	149	23	26	29	71
1999	51	84	135	26	18	22	69
2000	42	122	164	28	21	28	87
2001	64	134	198	37	34	24	103
2002	39	75	114	27	38	23	26
All	378	685	1063	195	168	181	519

*, **, *** indicate statistical significance of the two-tailed test at the 0.1, 0.05, 0.01 levels respectively. *The regression variables are defined as follows:

MKT = the market value at fiscal quarter-end ($millions)
SALEM1 = sales ($millions)
FSURP = the preliminary earnings reported (earnings before extraordinary items and discontinued operations, Compustat Quarterly Item 8) minus earnings for the same quarter in the prior year, scaled by market value at the end of the quarter.
ASURP = the scaled additional earnings surprise, is SEC filed earnings minus preliminary earnings reported, scaled by market value at quarter end.
SSURP = the sum of FSURP and ASURP.
CAR_{af} = the cumulative abnormal return between preliminary earnings announcement and SEC filing date windows. Controls for information released to the market between the two time periods.
CAR_{prelim} = the cumulative abnormal return from day -1 through day +1, where day zero is the preliminary earnings announcement date. The abnormal return is the raw return minus the average return on a same size-B/M portfolio (six portfolios), as provided by professor French.
CAR_{file} = the cumulative abnormal return from day -1 through day +1, where day zero is the SEC filing date of 10-Q/10-K. The abnormal return is the raw return minus the average return on a same size-B/M portfolio (six portfolios), as provided by professor French.
CAR_{both} = the sum of CARPRELIM and CARFILE.
CAR_{drift} = the cumulative abnormal return between SEC filing date and the next quarter earnings announcement.
REVANN = the mean IBES forecast for quarter t+1 between the preliminary earnings announcement for quarter t and the filing date for quarter t, minus the mean earnings forecast for quarter t+1 in the 90-day period prior to the preliminary earnings announcement, scaled by price per share at quarter t's end.
REVFILE = the mean analyst forecast for quarter t+1 in the 20-day period following the filing date minus that formed between the announcement and filing date as explained for REVANN. REVFILEA = the total of REVANN and REVFILE

Table 2
Regressions of Stock Market Reactions to Preliminary Earnings Announcement
For all Firms and firms with upward and downward revisions

Revisions	N	Intercept	Sig.	fsurp	Sig.	R^2	Sig.
All Revisions	770	-0.0088	**0.0353**	0.0979	**0.0010**	0.0141	**0.0010**
Upward Revisions	272	0.0012	0.8460	0.0854	**0.0584**	0.0132	**0.0584**
Downward Revisions	498	-0.0144	**0.009**	0.1094	**0.004**	0.0160	**0.0046**

Notes: Regressions are estimated with CAR_{prelim} as the dependent variable. Expected sign of fsurp coefficient: Positive.

The regression variables are defined as follows:

CAR_{prelim} = the cumulative abnormal return from day -1 through day +1, where day zero is the preliminary earnings announcement date. The abnormal return is the raw return minus the average return on a same size-B/M portfolio (six portfolios), as provided by professor French.

FSURP = the preliminary earnings reported (earnings before extraordinary items and discontinued operations, Compustat Quarterly Item 8) minus earnings for the same quarter in the prior year, scaled by market value at the end of the quarter.

Table 3
Regressions of Stock Market Reactions to SEC Filings
For all Firms and Firms with Upward and Downward Revisions

Revisions	N	Intercept	Sig.	fsurp	Sig.	asurp	Sig.	CAR_{af}	Sig.	R^2	Sig.
All Revisions	770	0.00317	0.3887	0.03906	0.1282	0.1197	**0.0021**	-0.0428	**0.0150**	0.0200	**0.0014**
		0.0023	0.5242			0.1114	**0.0038**	-0.0424	**0.0158**	0.0171	**0.0014**
Upward Revisions	272	0.0031	0.5299	-0.0003	0.9917	0.0521	0.3817	0.0073	0.7840	0.0035	0.8142
		0.0032	0.5269			0.05232	0.3462	0.0073	0.7838	0.0035	0.6225
Downward Revisions	498	0.0046	0.3940	0.0497	0.1463	0.1533	**0.0068**	-0.0618	**0.0064**	0.0309	**0.0014**
		0.0040	0.4593			0.1526	**0.0071**	-0.0619	**0.0064**	0.0267	**0.0012**

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Notes: Regressions are estimated with CAR_{file} as the dependent variable. Expected sign of fsurp and asurp coefficients: Positive
The regression variables are defined as follows:

FSURP the preliminary earnings reported (earnings before extraordinary items and discontinued operations, Compustat Quarterly Item 8) minus earnings for the same quarter in the prior year, scaled by market value at the end of the quarter.
ASURP = the scaled additional earnings surprise, is SEC filed earnings minus preliminary earnings reported, scaled by market value at quarter end.
CAR_{af} = the cumulative abnormal return between preliminary earnings announcement date and SEC filing date windows. Controls for information released to the market between the two time periods.
CAR_{file} = the cumulative abnormal return from day -1 through day +1, where day zero is the SEC filing date of 10-Q/10-K. The abnormal return is the raw return minus the average return on a same size-B/M portfolio (six portfolios), as provided by professor French.

Table 4
Regressions of both Preliminary Earnings Announcement and SEC Filing Date Returns to Earnings Announcement and SEC Filing Earnings For all Firms and Firms with Upward and Downward Revisions

Revisions	N	Intercept	Sig.	fsurp	Sig.	asurp	Sig.	CAR_{af}	Sig.	R^2	Sig.
All firms	770	-0.0016	0.7654	0.1560	**<.0001**	0.3240	**<.0001**	-0.004	0.8594	0.0549	**<.0001**
Positive	272	0.0001	0.9808	0.1146	**0.0494**	0.1960	**0.0359**	0.0748	0.0736	0.0337	**0.0268**
Negative	498	0.0009	0.8983	0.1605	**0.0011**	0.3919	**<0.0001**	-0.0357	0.2689	0.0657	**<0.0001**

Notes: Regressions are estimated with CARBOTH as the dependent variable.
Expected sign of fsurp and asurp coefficients: Positive
The regression variables are defined as follows:

FSURP = the preliminary earnings reported (earnings before extraordinary items and discontinued operations, Compustat Quarterly Item 8) minus earnings for the same quarter in the prior year, scaled by market value at the end of the quarter.
ASURP = the scaled additional earnings surprise, is SEC filed earnings minus preliminary earnings reported, scaled by market value at quarter end.
CAR_{af} = the cumulative abnormal return between preliminary earnings announcement and SEC filing date windows. Controls for information released to the market between the two time periods.
CAR_{both} = the sum of CAR_{prelim} and CAR_{file}.

Table 5
Regressions of Post-Earnings Announcement Drift between SEC Filing Date and Next Quarter's Earnings Announcement
For all Firms and Firms with Upward and Downward Revisions

Revisions	N	Intercept	Sig.	fsurp	Sig.	asurp	Sig.	ssurp	Sig.	R^2	Sig.
All Revisions	770	-0.0102	0.3160	-0.1506	**0.0344**	-0.0961	0.3691			0.0063	**0.0887**
		-0.0105	0.2989					-0.1355	**0.0312**	0.0060	**0.0312**
Upward Revisions	272	0.0034	0.8340	-0.5165	**<.0001**	-0.5161	**0.0086**			0.0676	**<.0001**
		0.0035	0.8201					-0.5165	**<.0001**	0.0676	**<.0001**
Downward Revisions	498	-0.0124	0.3806	-0.0115	0.8969	-0.0457	0.7539			0.0002	0.9444
		-0.0114	0.3899					-0.0206	0.7856	0.0001	0.7856

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Notes: Regressions are estimated with CAR_{drift} as the dependent variable.
Expected sign of fsurp, asurp and ssurp coefficients: ?
The regression variables are defined as follows:

FSURP = the preliminary earnings reported (earnings before extraordinary items and discontinued operations, Compustat Quarterly Item 8) minus earnings for the same quarter in the prior year, scaled by market value at the end of the quarter.
ASURP = the scaled additional earnings surprise, is SEC filed earnings minus preliminary earnings reported, scaled by market value at quarter end.
SSURP = the sum of FSURP and ASURP.
CAR_{drift} = the cumulative abnormal return between SEC filing date and the next quarter earnings announcement.

Table 6
Regressions of Financial Analysts' Revision to Preliminary Earnings Announcement and then to SEC Filing - All firms[9]

Dependent Variable	N	Intercept	Sig.	fsurp	Sig.	asurp	Sig.	R^2	Sig.
REVANN	164	-.0022	**.0218**	.0212	**.0075**			.0433	**.0075**
REVFILE	164	-.0006	.6028			-.0003	.9809	.0000	.9809
REVFILEA	164	-.0032	**.0300**			.0230	.2163	.0094	.2163

Notes:
Expected sign of REVANN, REVFILE and REVFILEA coefficients: Positive
The regression variables are defined as follows:

FSURP = the preliminary earnings reported (earnings before extraordinary items and discontinued operations, Compustat Quarterly Item 8) minus earnings for the same quarter in the prior year, scaled by market value at the end of the quarter.
ASURP = the scaled additional earnings surprise, is SEC filed earnings minus preliminary earnings reported, scaled by market value at quarter end.
REVANN = the mean IBES forecast for quarter t+1 between the preliminary earnings announcement for quarter t and the filing date for quarter t, minus the mean earnings forecast for quarter t+1 in the 90-day period prior to the preliminary earnings announcement, scaled by price per share at quarter t's end.
REVFILE = the mean analyst forecast for quarter t+1 in the 20-day period following the filing date minus that formed between the announcement and filing date as explained for REVANN.
REVFILEA = the total of REVANN and REVFILE.

[9] We only investigate "all firms" due to insufficient data to segregate upward and downward revisions.