Oops, Our Earnings Were Indeed Preliminary

When preliminary earnings announcements and subsequent filings disagree.

Dana Hollie, Joshua Livnat, and Benjamin Segal

Companies traditionally report preliminary earnings to the market through a press release issued 20 to 35 days after the fiscal quarter-end; some firms report preliminary earnings within just a few days after the fiscal quarter-end. All firms then 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 after quarter-end for 10-Qs and 90 days for 10-Ks).

Some companies modify their statements between the preliminary earnings announcement and the SEC filing for various reasons. A firm's auditor (or new auditor) may require the firm to file a different earnings figure with the SEC from that released previously to investors. Sometimes subsequent information may also induce firms to modify an earnings report by the filing date. While changes are not a frequent phenomenon (fewer than 7,000 instances in an initial sample of about 250,000 firm-quarters), our sample yielded about 1,000 firm-quarters with a modification of earnings that represents at least 0.5% of market value (in absolute value), which should be significant enough to cause market reaction at the filing date.

We examine the stock market's reaction when the preliminary earnings announcements and the subsequent earnings reports filed with the SEC disagree. If investors act rationally, one should expect an initial market reaction to any earnings surprise at the time of the preliminary earnings announcement. An additional market reaction would then be expected at the time of the SEC

Dana Hollie is an assistant professor of accounting in the Bauer College of Business of the University of Houston in Houston, TX.
dhollie@uh.edu

Joshua Livnat is a professor of accounting in the Stern School of Business Administration of New York University in New York City.
jlivnat@stern.nyu.edu

Benjamin Segal is an assistant professor of accounting in the Graduate School of Management of the University of California at Davis.
bsegal@ucdavis.edu

filing if the filed earnings are sufficiently different from the initial earnings. As other studies have generally failed to document a market reaction at the time of the SEC filing date, it should be interesting to see whether cases of substantial modifications of earnings cause investors to react around the filing date. We also evaluate whether preliminary earnings announcements and subsequently different SEC filings are associated with 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-reducing. The remainder are income-increasing, A higher proportion of the revisions occur in the fourth fiscal quarter, consistent with audit work at year-end, and more time before the filing date so subsequent events may occur. We find that investors react to an 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, market reactions around the SEC 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 subsequent 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 significant market reactions to the additional earnings surprise around the filing date for firms with income-reducing 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 dates. These results are consistent with the idea that market participants take action on negative earnings news but not on positive earnings news.

We also find that returns subsequent to the filing date through the next quarter's preliminary earnings announcement are negative and significantly different from zero for income-increasing revisions, but insignificantly different from zero for income-reducing revisions in earnings. Thus, investors can take advantage of this market inefficiency by shorting firms that revise earnings upward between the preliminary earnings announcement and the SEC filing date.

Finally, our results show that analysts revise their earnings forecasts when an initial earnings surprise is disclosed to the market in a manner consistent with the actual earnings surprise. Upon filing a revised earnings figure with the SEC, however, 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 we acknowledge these results are tenuous, given the small number of observations in this analysis.

Our findings should be interesting to financial analysts, investors, and academicians. The results suggest 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 actual investor response 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 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 a conclusion that investors do not fully incorporate SEC filing earnings revisions into stock prices.

MARKET REACTIONS TO SEC FILINGS

Research generally shows that the market responds to preliminary earnings announcements and incorporates this information immediately into stock prices (see, e.g., Lev [1989] and Kothari [2001]). Most studies of the market response to SEC filings provide little or no evidence that 10-Q or 10-K filings are incrementally informative beyond earnings announcements.[1]

The published research is based on the full SEC filings database, most of it providing no new earnings information that was not known at the time of the preliminary earnings announcement. Our research is unique in that we study firms with significant earnings revisions (earnings surprises) in their SEC filings.

While the research shows that the ways earnings are announced affect market prices differentially, it does not address the question of why earnings announcements may differ from subsequent SEC filings and whether these differences may affect stock prices.[2] When a firm materially revises earnings figures between the preliminary earnings release and the SEC filing, we expect market reactions to the earnings surprise not only during the pre-

liminary 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, one might argue that the medium of disclosure, the SEC filing, is the cause for the lack of market reaction and not the absence of additional information. Thus, earnings revisions between the preliminary earnings announcement and the SEC filing date may shed some new light on the valuation implications of SEC filings.

While earnings revisions might be either income-reducing or income-increasing, we expect more income-reducing revisions in earnings because of the conservatism bias in accounting. The appendix provides examples of firms with upward and downward revisions in earnings that are included in our sample.

An example of an upward revision in earnings example is Aspect Communications Corp. (ASPT), which reported income of $10.241 million in its preliminary earnings release on April 18, 2002, but revised this upward to $12.163 million on May 14, 2002, in its SEC filing, an increase of 19% from the preliminary earnings figure. An examination of other news-related stories (through Lexis-Nexis) reveals that multiple Aspect Communications announcements were released between the preliminary earnings announcement and the SEC filing dates. None of these announcements relates to earnings from the previous quarter's earnings release; most relate instead to new marketing relationships that came to fruition after the preliminary earnings release date. Thus, there appears to be no public information between the earnings announcement and the SEC filing date that would suggest an upward revision in Aspect's SEC-filed earnings was forthcoming.[3]

An example of a downward revision of earnings is RMH Teleservices, Inc. (RMHT). It issued its preliminary earnings release on July 30, 2002, reporting a $9.244 million loss. This was followed on August 14 with an SEC filing of a reported loss of $20.257 million, reducing the prior earnings figure by 119%. There is no other RMHT 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 two specific examples) are audit work that uncovers issues not known at the preliminary earnings release date; the hiring of new auditors who are more likely to force audit clients to revise earnings issued under a previous auditor; subsequent information that becomes known after the preliminary earnings announcement; or accounting errors discovered by the filing date. Note that approximately 50% of our firm-quarter observations fall into the fourth quarter, when a full audit is required.

An interesting question is financial analysts' responses (in the form of forecast revisions) to the earnings revisions. If analysts use earnings information provided by the firm to update their forecasts for subsequent quarters, we should expect a positive association between the analyst forecast revisions immediately after the preliminary earnings announcement and the earnings surprise. Similarly, we would expect to see analysts revise their forecasts again when earnings are further revised in the SEC filings, causing a positive association between the analyst forecast revisions after the SEC filing and the additional surprise in earnings due to the revision in earnings by the filing date.

The three research questions related to earnings and forecast revisions between earnings announcements and SEC filings are:

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

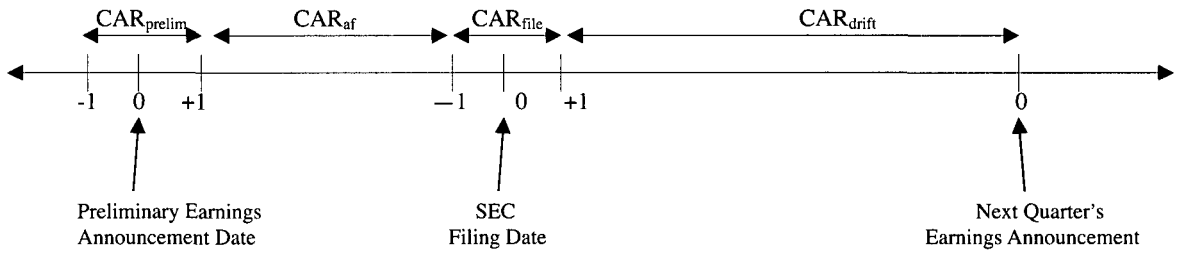
METHODOLOGY

Exhibit 1 portrays the time line of the different events in the study, identifying the various periods over which abnormal returns are cumulated. It shows the short windows around the preliminary earnings announcement and the SEC filing dates. 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.

We test initial market reactions to the preliminary earnings announcement using a short event window around the preliminary earnings announcement date. We also use a short event window for the SEC filing date. To test for the drift, we use an event window from the SEC filing date through the next quarter's preliminary earnings announcement. Finally, we examine analyst forecast revisions immediately after the preliminary earnings announcement and also immediately after the SEC filing date.

EXHIBIT 1

Time Line: Preliminary Earnings Announcements and SEC Filings



CAR_{prelim} = 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 French.

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

CAR_{file} = cumulative abnormal return from day −1 through day +1, where day zero is the SEC filing date of the 10-Q or 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 French.

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

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

DESCRIPTION OF SAMPLE

The sample comes from Compustat and SEC data.

Original Compustat Quarterly Data

Data have been entered into the Compustat databases 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 two to three 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 time Compustat updates all available information and adds an update code of 3.

Unlike the Compustat annual database, where figures are maintained as originally reported by the firm (except for restated items), the Compustat quarterly database is updated further when a firm restates its earlier reported quarterly results. For example, if a firm is involved in a merger, acquisition, or divestiture in a particular quarter, and restates its previously reported quarterly data to reflect such events, Compustat inserts the restated data into the database instead of the earlier reported numbers. Similarly, when the annual audit is performed and a firm is required to restate its previously reported quarterly results by its auditor as part of the disclosure in Form 10-K, Compustat updates the quarterly database to reflect these restated data.

Charter Oak Investment Systems, Inc., has collected the weekly original CD-ROM that Compustat sent to its personal computer clients, which always included updated data as of that week. From these weekly updates, Charter Oak has constructed a database that provides 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 Compustat put into the database, bearing 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 in the current version of Compustat, which is what most investors use.

The Charter Oak database lets us determine whether an earnings revision has occurred in any quarterly earnings by comparing the preliminary earnings and the first-reported 10-Q or 10-K earnings in the Charter Oak database.

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 for firms traded on the NYSE, the AMEX, or Nasdaq. We exclude firms with missing CUSIP numbers, earnings announcement dates, or earnings; market values or sales of less than $1 million in the prior quarter; or missing earnings data on preliminary earnings (Compustat item #8) or on first-reported earnings. These exclusions yield 243,918 firm-quarters of which 5,193 firm-quarters have differences between preliminary earnings and first-reported earnings in excess of $100,000.

For inclusion, other requirements must be met as follows:

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 0.5%. This requirement is used to increase the power of the tests; we use earnings revisions large enough 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 four quarters before, scaled by market value of equity at quarter end) can be computed.
6. The absolute value of first surprise (as just defined), 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) must be less than 1. This is customary in the literature in regressions of returns on earnings surprises, which are sensitive to outliers (extreme earnings surprises).
7. A cumulative abnormal return (CAR) must be able to 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).

Subsamples—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 subsamples for further analysis: 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 decline 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, 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.

Descriptive Statistics

Panels A, B, and C of Exhibit 2 present statistics for the overall sample and the two subsamples of upward and downward earnings revisions. As Panel A shows, there is considerable variation in market values of firms, but the median firm has 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. 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 period between the preliminary earnings announcement and the SEC filing date, and a negative drift in abnormal returns from the SEC filing date to the following quarterly earnings announcement.

Panel B reports statistics for the 378 firm-quarters (about one-third 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 well as positive 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. Yet 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 statistics for the downward revisions of earnings (in Panel C) are generally consistent with those of the entire sample.

EXHIBIT 2
Descriptive Statistics on Regression Variables

PANEL A – Firms with Revisions

Variable	N	Mean	10th Pctl	Median	90th Pctl
mkt	1063	1620.2600	17.0312	134.7514	2339.1000
salem1	1063	514.1174	4.6780	39.1739	745.2119
fsurp	1063	-0.0201	-0.1317	-0.0017	0.0637
asurp	1063	-0.0157	-0.0616	-0.0081	0.0229
CAR_{prelim}	1063	-0.0070	-0.1192	-0.0062	0.1103
CAR_{file}	880	0.0007	-0.0804	-0.0044	0.0699
CAR_{af}	795	-0.0162	-0.2007	-0.0082	0.1777
CAR_{drift}	847	-0.0064	-0.2816	-0.0176	0.2335

PANEL B – Firms with Upward Revisions

Variable	N	Mean	10th Pctl	Median	90th Pctl
mkt	378	1085.9600	18.8777	136.4878	1741.2400
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
CAR_{prelim}	378	-0.0002	-0.1117	-0.0031	0.1198
CAR_{file}	316	0.0020	-0.0717	-0.0015	0.0697
CAR_{af}	278	0.0040	-0.1576	0.0110	0.1851
CAR_{drift}	304	-0.0011	-0.2660	-0.0067	0.2161

PANEL C – Firms with Downward Revisions

Variable	N	Mean	10th Pctl	Median	90th Pctl
mkt	685	1915.1000	16.2175	132.8735	2500.8800
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
CAR_{prelim}	685	-0.0108	-0.1279	-0.0068	0.1083
CAR_{file}	564	-0.0000	-0.0838	-0.0058	0.0727
CAR_{af}	517	-0.0271	-0.2235	-0.0184	0.1761
CAR_{drift}	543	-0.0094	-0.2825	-0.0220	0.2396

PANEL D – 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

*, **, *** Statistically significant (two-tailed test) at 0.1, 0.05, and 0.01 levels, respectively.
MKT = market value at fiscal quarter-end ($millions).
SALEM1 = sales ($millions).
FSURP = 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 end of quarter.
ASURP = scaled additional earnings surprise, SEC filed earnings minus preliminary earnings reported, scaled by market value at quarter end.
SSURP = sum of FSURP and ASURP.
CAR_{prelim} = 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).
CAR_{file} = cumulative abnormal return from day −1 through day +1, where day zero is the SEC filing date of the 10-Q or 10-K. The abnormal return is the raw return minus the average return on a same size-B/M portfolio (six portfolios).
CAR_{drift} = cumulative abnormal return between SEC filing date and the next quarter earnings announcement.
CAR_{af} = cumulative abnormal return between preliminary earnings announcement and SEC filing date windows. Controls for information released to the market between the two time periods.

Panel D of Exhibit 2 presents the number of firm-quarter earnings revisions by year and quarter. The subsamples consist of 378 upward revisions (35%) and 685 downward revisions (65%) for a total of 1,063 revisions. Almost 50% of the earnings revisions in the sample occur in the fourth quarter. As auditors are required to conduct a formal audit of fourth-quarter earnings in connection with the year-end audit, revisions are likely to occur more often in the fourth quarter than in other quarters during a fiscal year.

REGRESSION RESULTS

We analyze reactions according to announcement or filing time, post-announcement drift, and analyst forecast revisions.

Market Reactions to Preliminary Earnings Announcements and SEC Filings

In analysis of stock returns to provide initial evidence on the effect of earnings surprises in preliminary earnings announcements, 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 announce-

EXHIBIT 3

Regressions of Market Reactions to Preliminary Earnings Announcement

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	**0.0090**	0.1094	**0.0040**	0.0160	**0.0046**

CAR_{prelim} is the dependent variable. Expected sign of FSURP coefficient is positive.

ment date, day 0. The daily abnormal return is calculated as the raw daily return from the Center for Research in Security Prices minus the daily return on a portfolio of firms with the same size (market value of equity as of June) and book-to-market (B/M) ratio (as of December). The daily returns (and cutoff points) for the size and B/M portfolios are obtained from the French data library, classifying the population into six portfolios (two size and three B/M).[4]

We investigate the relation between FSURP and CAR_{prelim} using the regression:

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

The results for Equation (1) are presented in Exhibit 3. 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 the entire sample, as well as for the two subsamples of upward and downward earnings revisions, although the results for the subsample of upward revisions are slightly less significant.

To examine stock market reaction to the SEC filings, we measure the additional earnings surprise (ASURP) at the SEC filing date as the firm's SEC-filed earnings minus its 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 may have obtained between the 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 CAR_{file} and ASURP, FSURP, and CAR_{af} using the 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 conveyed in the SEC filing beyond the earnings reported in the preliminary announcement, and 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, and is therefore expected to be insignificantly different from zero.

The results for market reactions to the earnings revisions in the SEC filings are reported in Exhibit 4. 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 that 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 subsample 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.

Exhibit 4 also shows that the first earnings surprise (on the preliminary earnings announcement) is not associated significantly with abnormal returns around the SEC filing date, consistent with the intuition that the reactions to this news took place at the time of 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. The coefficient for this variable is negative and statistically different from zero for the entire sample, but positive (and statistically indistinguishable from zero) for the subsample of upward revisions.

For completeness, we also examine the combined

EXHIBIT 4

Regressions of Market Reactions to SEC Filings

Revisions	N	Intercept	Sig.	FSURP	Sig.	asurp	Sig.	CAR_{af}	Sig.	R^2	Sig.
All Revisions	770	0.00327	0.3887	0.03916	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			0.0523	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**

CAR_{file} is the dependent variable. Expected sign of FSURP and ASURP coefficients is positive.

EXHIBIT 5

Regressions of Both Preliminary Earnings Announcement and SEC Filing Date Returns to Announcement and SEC Filings

Revisions	N	Intercept	Sig.	FSURP	Sig.	ASURP	Sig.	CAR_{af}	Sig.	R^2	Sig.
All Firms	770	-0.0016	0.7654	0.1560	**<0.0001**	0.3240	**<0.0001**	-0.0040	0.8594	0.0549	**<0.0001**
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**

CAR_{both} is the dependent variable. Expected sign of FSURP and ASURP coefficients is positive.

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 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.

Exhibit 5 provides the results of regressing CAR_{both} on the two earnings surprises. 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 subsamples 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.

All these 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. That is, investors do not simply ignore the SEC filings as providing irrelevant information, but react to relevant information about earnings in the SEC filings when the information involves material revisions in earnings. We also find that market participants tend to react more forcefully to downward earnings revisions than to upward earnings revisions.

Post-Earnings Announcement Drift

To determine whether a drift in returns occurs after the SEC filing date, we estimate the 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 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 sur-

prises into stock market prices by the SEC filing date.

Exhibit 6 presents results for the estimated regression Equations (5) and (6). 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 ($p = 0.0312$) and firms with upward revisions ($p = <0.0001$). This finding indicates that, contrary to the typical earnings drift literature, the drift in returns in our sample, and particularly for the subsample 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 based on taking advantage of extreme earnings surprises.

Financial Analyst Forecast Revisions

To determine whether financial analysts revise earnings forecasts based on preliminary earnings announcements and then update them again once a firm reports an additional earnings surprise in the SEC filing, we look at mean forecast changes: 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 before 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 forecasts 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. The regressions are:

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

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

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

Exhibit 7 presents the results of regression Equations (7) and (8). We do not differentiate the results for the two subsamples because of insufficient forecast data. The coefficient on the first earnings surprise, FSURP, is positive and significant ($p = 0.0075$), suggesting that financial analysts revise their forecasts in response to information in the preliminary earnings announcement. We find no significant response, however, to the subsequent earnings revision in the SEC filing.

Analysts may be slow to revise their forecasts a second time after the first revision induced by the preliminary earnings announcement, waiting to collect more information. Analysts may also completely ignore the SEC filing as a source of company information after the preliminary earnings release and the subsequent conference calls.

The limited number of sample observations with sufficient data to compute the forecast revision variables

EXHIBIT 6

Regressions of Post-Earnings Announcement Drift Between SEC Filing Date and Next Quarter's Earnings Announcement

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	**<0.0001**	-0.5161	**0.0086**			0.0676	**<0.0001**
		0.0035	0.8201					-0.5165	**<0.0001**	0.0676	**<0.0001**
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

CAR_{drift} is the dependent variable. Expected sign of FSURP, ASURP, and SSURP coefficients is unknown.

EXHIBIT 7

Regressions of Financial Analyst Revisions to Preliminary Earnings Announcement and to SEC Filing

Dependent Variable	N	Intercept	Sig.	FSURP	Sig.	ASURP	Sig.	R^2	Sig.
REVANN	164	-0.0022	**0.0218**	0.0212	**0.0075**			0.0433	**0.0075**
REVFILE	164	-0.0006	0.6028			-0.0003	0.9809	0.0000	0.9809

Expected sign of REVANN, REVFILE and REVFILEA coefficients is 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.

should caution us to take these results with a grain of salt, however.

SUMMARY AND CONCLUSIONS

Our study of stock market reactions to earnings announcements and their revisions when preliminary earnings numbers differ from those subsequently filed with the SEC reveals a significant market reaction not only to the surprise in preliminary earnings announcements, but also to the surprise in the subsequent revised SEC filing. Most other studies have generally failed to document significant market reaction to SEC filings, but our tests have increased power, focusing on unique cases of substantial revisions in earnings from the preliminary earnings releases to the subsequent SEC filings.

Our results are consistent with a conclusion that market participants take actions on negative earnings revisions but not on positive earnings revisions. Returns after the filing date through the following quarter's preliminary earnings announcement are negative and significantly different from zero for income-increasing revisions, yielding a potentially profitable trading strategy of shorting firms that revise earnings upward between the preliminary earnings announcement and the SEC filing date.

We also evaluate financial analysts' response to preliminary earnings announcements and subsequently different SEC filings. The findings indicate financial analysts do not revise their earnings forecasts to incorporate the SEC filing revisions.

This study has implications for both financial practitioners and academicians. Our findings are consistent with other research in that the method of disclosing earnings impacts how the market incorporates the information embodied in those earnings. New earnings information in SEC filings may not be fully incorporated in prices if it represents an upward revision; earnings information is also accompanied by a drift in the opposite direction after the filing date. In the case of negative earnings revisions, market participants seem to react through downward price changes, indicating that when a 10-Q discloses material information about earnings, market participants act on this immediately. There is no question that financial analysts should use newly disclosed information in SEC filings to update their forecasts.

APPENDIX

Examples of Upward and Downward Revisions

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, representing a decline 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 previous year.

SEC Filing Date: May 14, 2002

10-Q Reported Earnings: Consistent with the preliminary earnings announcement, first-quarter revenues were $106.2 million. Net income for the first quarter reported in the 10-Q, however, 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 into 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.

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% 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. Net income for the second quarter reported in the 10-Q, however, was a $20.257 million loss compared to the $9.244 million loss reported in the preliminary earnings announcement just 15 days earlier. This translates into an additional earnings surprise (loss) of $11.013 million, or a 119% decline in earnings from that reported in the preliminary earnings announcement on July 30, 2002.

ENDNOTES

The authors gratefully acknowledge preliminary and original Compustat quarterly data provided by Charter Oak Investment Systems, Inc., and also thank Thomson Financial for providing forecast data available through the Institutional Brokers Estimate System in a broad academic program to encourage earnings expectations research. The authors also gratefully acknowledge the SEC filing date data provided by Compustat.

[1]See, for example, Foster, Jenkins, and Vickery [1983, 1986]; Cready and Mynatt [1991]; Stice [1991]; Easton and Zmijewski [1993]; and Chung, Jacob, and Tang [2003]. Studies that do find some market reactions are Qi, Wu, and Haw [2000] and Griffin [2003].

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

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

[4]Available at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

REFERENCES

Chung, K.-H., R. Jacob, and Y.B. Tang. "Earnings Management by Firms Announcing Earnings After SEC Filing." *International Advances in Economic Research,* (9) (2003), pp. 152-162.

Cready, W., and P. Mynatt. "The Information Content of Annual Reports: A Price and Trading Response Analysis." *The Accounting Review,* (66) (1991), pp. 291-312.

Easton, P.D., and M.E. Zmijewski. "SEC Form 10K/10Q Reports and Annual Reports to Shareholders: Reporting Lags and Squared Market Model Prediction Errors." *Journal of Accounting Research,* (31:1) (Spring 1993), pp. 113-129.

Foster, T., D. Jenkins, and D. Vickery. "Additional Evidence on the Incremental Information Content of the 10-K." *Journal of Business, Finance and Accounting,* (10) (1983), pp. 57-66.

——. "The Incremental Information Content of the Annual Report." *Accounting Business and Research,* 24 (1986), pp. 91-98.

Griffin, P. "Got Information? Investor Response to Form 10-K and Form 10-Q EDGAR filings." *Review of Accounting Studies,* 8 (2003), pp. 433-460.

Kothari, S.P. "Capital Markets Research in Accounting." *Journal of Accounting and Economics,* 31 (2001), pp. 105-231.

Lev, B. "On the Usefulness of Earnings and Earnings Research: Lessons and Directions from Two Decades of Empirical Research." *Journal of Accounting Research,* 1989 (Supplement), pp. 153-201.

Qi, D., W. Wu, and I. Haw. "The Incremental Information Content of SEC 10-K Reports Filed Under the EDGAR System." *Journal of Accounting, Auditing, and Finance,* 15 (2000), pp. 24-46.

Stice, E. "The Market Reaction to 10-K and 10-Q Filings and to Subsequent *Wall Street Journal* Earnings Announcements." *The Accounting Review,* Vol. 66, No. 1 (January 1991), pp. 42-55.