Do Bulls and Bears Listen to Whispers?

Janis K. Zaima[*] and Maretno Agus Harjoto[**]
San Jose State University[*, **] and Pepperdine University[**]

Abstract

A post-earnings announcement drift associated with the market reaction to analyst forecasts errors remains a puzzle. This study suggests that whispers help to explain part of the puzzle. The study examines the market reaction to whispers and analysts in bull and bear markets, and finds that investors listen to whispers in the bull market and whispers help explain the post-announcement drift. In a bear market, reaction to whispers is significantly positive prior to announcement despite a down market, indicating optimism by investors who follow whispers. However, in the bear market, both whispers and analysts contribute to the post-announcement drift.

1. Introduction

Numerous studies document abnormal stock returns surrounding the earnings announcements, but the explanation for the post earnings announcement drift remains a puzzle.[1] Brown (1997) concludes that the post-announcement drift exists separately from the P/E effect, size effect, the Value Line effect, and that both the stock prices and analysts underestimate the persistence of the earnings surprises. Studies by Bernard and Thomas (1989) and Bartov, Radhakrishnan, and Krinsky (2000) focus on the post-earnings announcement drift and find evidence that unsophisticated (or noninstitutional) investors account for the significant abnormal returns after the earnings release. Doukas, Kim and Pantzalis (2002, 2004) argue that the abnormal returns of value stocks found around the earnings announcement cannot be fully explained by analyst forecast errors. They suggest that divergence of opinions among investors plays a role to explain abnormal returns around earnings announcements. Our study adds to the literature by suggesting that investors who follow whispers impact stock movement around the earnings announcement. We suggest that the abnormal returns surrounding the earnings announcement can be explained in part by the market response to whisper forecast errors.

Earlier studies by Bagnoli, Beneish, and Watts (1999) and Zaima and Harjoto (2005) investigate anonymous individual forecasts or whispers surrounding the earnings release. Bagnoli, et al. document that whispers add to the market expectation beyond the analysts forecast. Zaima and Harjoto (2005) find that if a conflict arises between whisper and analyst forecast errors, the market reaction to whispers dominate its response to analysts.

---

[1] See Ball and Brown (1968), Foster, Olsen, and Shevlin (1984), Hughes and Ricks (1987), and others.

Additionally, they create a portfolio that takes a short position when both forecast errors are negative, long position when both forecast errors are positive, and use only whispers when the two conflict, and find that the portfolio generates a post-announcement three-day abnormal return of approximately 6.5% to 8.2%.

These past studies of whispers and analyst forecasts have shown that the two convey different information where one does not subsume the other. To examine the differences of information contained in the two forecasts, we separate the market reaction to whisper and analyst forecasts in the bull and bear markets because expectations might differ in optimistic and pessimistic markets. Moreover, this study contributes to the literature by attempting to explain the post-earnings drift. Hence, we examine two factors: (1) the accuracy of analyst and whisper forecasts during the bull and bear markets and (2) the market reaction to whisper and analyst forecast errors during the two markets over the pre- and post-announcement periods.

The accuracy of whisper and analyst forecasts may differ because analysts generally obtain information about firm earnings expectations from management while whispers are individual investors' expectations obtained from various sources including blogs and Internet message boards. Since whispers rely on various sources of information while analysts receive cues and information from the firms, we expect analyst forecasts to be more accurate and whispers to be more divergent. Furthermore, we examine whether individual investors are swayed by market momentum. In particular, we examine whether whisper forecast errors are greater than analysts during bull markets and whether whispers forecast errors, on average, are less than analysts during bear markets. In order to test the accuracy of the forecasts, we compare the scaled forecast errors. We define scaled forecast errors for analyst (SFE) and whisper (SWE) as:

$$\text{SFE} = (\text{Actual EPS} - \text{Analyst forecast EPS})/|\text{Actual EPS}| \qquad (1)$$
$$\text{SWE} = (\text{Actual EPS} - \text{Whisper forecast EPS})/|\text{Actual EPS}| \qquad (2)$$

Next we analyze the market reaction to individual investor expectations and determine whether whisper forecast errors help to explain the post-announcement drift. We examine the difference in the market reaction to whisper and analyst forecast errors in the bull and bear markets before and after announcement. To test the market response to forecast errors, we compare the market reaction during the pre- and post-announcement period for the following scenarios:

1) $\text{SFE} \geq 0$ and $\text{SWE} \geq 0$ in a bull market;
2) $\text{SFE} < 0$ and $\text{SWE} < 0$ in a bull market;
3) $\text{SFE} \geq 0$ and $\text{SWE} \geq 0$ in a bear market; and
4) $\text{SFE} < 0$ and $\text{SWE} < 0$ in a bear market.

The four scenarios allow us to examine the different expectations conveyed by each forecast during two different market conditions.

2. Data and Methodology

2a. Data Collection and Sample

The actual earnings per share (EPS), the First Call analyst forecasts, and the whisper forecasts are manually collected from a web site currently owned and operated by WhisperNumber.com.[2] A search engine and proprietary software are utilized to examine thousands of messages per day on key Internet message boards that gather whisper numbers on stocks. Additional whispers are obtained from web visitors who are encouraged to enter their whispers for any stock. The staff examines the collected whispers and discards the "absurd" outliers and obvious duplicates. The final whisper number published on the web site is an equally scaled average of the whispers collected for that stock. The Nasdaq high technology stocks appear to receive the greatest attention as compared to other industries.[3] A recent article in Barron's states, "Contrary to what has been reported, WhisperNumber.com doesn't represent analysts".[4] The whispers provided by this web site represent individual investors as opposed to analysts where 95% of its source is individual investors, and only 5% brokers.[5]

Our data collection from WhisperNumber.com spans the period from January 1999 to April 2002. Firms are selected based on the news alert provided by the web site. Additional firms are randomly selected from a Nasdaq listing in the Center for Research in Security Prices (CRSP) tape. After selecting 140 firms for our firm sample, we collect approximately 10 to 12 quarters of First Call analyst forecasts, actual EPS, and whispers forecasts for 136 firms, resulting in a sample size of 1494 actual EPS and 1463 analyst forecasts.[6] Not all firms have whispers every quarter, therefore reducing our sample of whisper numbers to 989. The number of observations for actual EPS, analysts EPS, and whisper EPS reduces further due to missing values. Our final sample consists of 977 firms-quarters for SWE and 1448 firms-quarters for SFE.[7] The stock returns are extracted from the CRSP tape.

---

[2] The web site, www.whispernumber.com, has experienced numerous changes in its design and content. Our data were collected in 2002 when historical information for almost 4 years was provided on the web site.

[3] The description of whisper numbers data collection process is taken from Louis (2000). Data from WhisperNumber.com has been recognized and cited by numerous publications including Collingwood (2002) in the New York Times, Barron's, Business Week, CFO.com and Zaima and Harjoto (2005) among other publications.

[4] Forsyth, Randall, W. "The Electronic Investor." Barron's Technology Week, February 24, 2003, pp. T4.

[5] Ibid.

[6] The analysts forecast and actual EPS in whispersnumber.com were checked and verified with the data in I/B/E/S (First Call).

[7] Our sample size is larger than that of Bagnoli, et al. study; they had 127 firms with 288 firms-quarters.

Exhibit 1: Descriptive Statistics for Sample Firms

This exhibit presents the summary statistics for 136 firms during 1999-2002. All firms' characteristics reported in this exhibit are stated in annually. Total assets, market value of equity, net sales, and net income are stated in millions of dollars. Total shares outstanding are stated in millions of shares. Sales growth and stock return are stated in percent. ROA (return-on-assets) is calculated as net income divided by total assets. The stock price is stated in dollars per share. The stock beta is calculated using the capital asset pricing model of daily returns in one year. Leverage is calculated as total debt divided by total assets.

	Mean	**Median**	**Std. Dev.**
Total assets ($ million)	38,989	6,965	98,916
Market value of equity ($ million)	44,713	15,092	74,983
Net sales ($ million)	16,450	5,380	27,781
Net income ($ million)	1,096	255	2,697
Total shares (million shares)	1,074	424	1,526
Sales growth (%)	38	13	134
Stock return (%)	21.32	12.82	103.23
ROA	0.03	0.05	0.52
Stock Price ($ per share)	40.51	33.2	43.73
Beta	1.38	1.26	0.78
Leverage	0.2	0.17	0.21

The descriptive statistics in Exhibit 1 provide a summary of financial data for 136 firms obtained from COMPUSTAT. The mean for total assets is $38.989 billion (median is $6.965 billion) and mean market value of equity is $44.713 billion (median is $15.092 billion). The sample mean reflects large firms (such as IBM, Microsoft, Intel, and Cisco), but the lower median implies that most of the firms in the sample are smaller firms. Similar results are found for net sales where its mean is $16.450 billion while its median is $5.380 billion as well as for net income; its mean is $1.096 billion and the median is only $255 million. The mean number of shares outstanding equals 1.074 billion while the median equals 424 million shares. Again these statistics attest to the higher frequency of smaller firms.

Firm performance measures also indicate a skewness in the sample. The mean annual stock return is 21.32% while the median is 12.82%. Sales growth is much larger for the mean (38%) compared to the median of 13%. The mean return on assets equals 3% while its median is only 5%. Also the mean stock price is higher ($40.51) than the median ($33.20). However, the mean and median betas and leverage ratios are closer. The mean beta is 1.38 and median is 1.26 whereas the mean leverage ratio is 20% while its median is 17%.

Exhibit 2: Actual Earnings, Forecasts and Forecast Errors During Bull Market

This exhibit presents the distribution, mean and standard deviation of actual earnings per share (EPS), analyst and whispers forecasts, and forecasts errors from the analysts and the whispers during bull stock market (January 1999 through March 2000) and bear stock market (April 2000 through April 2002). The earnings per share are stated in dollars per share. The SFE is the scaled analyst forecast error defined as (actual EPS - Analyst forecast)/(absolute value of actual EPS). The SWE is the scaled whisper forecast error defined as (actual EPS - Whisper forecast)/(absolute value of actual EPS).

Percentiles	Panel A. Bull Market		Panel B. Bear Market	
	SFE	SWE	SFE	SWE
1%	-1.08	-3.00	-1.09	-2.00
5%	-0.19	-0.59	-0.19	-0.70
10%	-0.03	-0.25	-0.06	-0.40
25%	0	-0.09	0	-0.09
50%	0.04	0	0.03	0
75%	0.11	0.06	0.11	0.09
90%	0.25	0.22	0.33	0.25
95%	0.38	0.45	0.53	0.45
99%	2.00	0.86	2.00	2.00
Mean	0.08	-0.13	0.10	-0.02
Std. Dev.	1.02	1.24	0.96	1.03
Observations (N)	591	317	857	660
Wilcoxon Sign-Rank Test:	**H0: SFE = SWE** **H1: SFE ≠ SWE**			
Z-test	5.606		Z-test	6.538
P-value	0.0001		P-value	0.0001

The summary statistics in Exhibit 2, Panel A, allow us to examine the accuracy of whisper and analyst forecast errors in the bull market. During the boom, the analyst forecast errors are very conservative with their median equaled to +0.04 and 75% of the forecast errors are positive, indicating that forecasts were less than or equaled to the actual earnings. The mean of the analyst forecast errors equals +0.08, again supporting the conservatism displayed by analysts. In contrast, the whisper forecast errors during the bull market exhibits optimism with a mean forecast error of –0.13, indicating whispers, on average, were greater than actual earnings. However, the median of whisper forecast errors is zero showing that individual investors are relatively unbiased.[8] Together, the two results show that individual investors are generally optimistic, but not entirely swayed by market momentum. Exhibit 2, Panel A, also displays the results of the Wilcoxon sign rank statistics testing the null hypothesis that the difference between SFE and SWE equals zero. We reject the null hypothesis at the 1% significance level

---

[8] The median forecast errors may be forced to equal zero by Whispernumber.com, and may not be a true reflection of individual investor expectations.

with z-statistics equaled to 5.61. This result infers that the analyst and whisper forecast errors are statistically different during the boom.

Exhibit 2, Panel B, presents the forecast errors during the bear market. During the bust, we find that analyst forecast errors are similar to the ones during the boom. That is, the median is +0.03 and 75% of the forecast errors are positive, again indicating analyst conservatism in estimating earnings. Furthermore, the mean of the analyst forecast errors is +0.10 providing additional support for analyst conservatism. There is also additional evidence of optimism by investors who forecast whispers. Our analysis rejects the conjecture that individual investors are swayed by the downward market momentum as whispers do not reflect the pessimism of the market. The mean of SWE equals –0.02 indicating individual investor forecasts, on average, were higher than actual earnings. Although whispers remain optimistic, investors adjust to the general market conditions, as mean SWE is much lower during the bust period than the boom (-0.02 versus -0.13). So individual investors recognize the change in market conditions and adjust their expectations downward. Similar to the boom period, the median for the whisper forecast error equals zero indicating an unbiased estimate of firms' earnings. The Wilcoxon sign rank statistics testing the null hypothesis that the difference between SFE and SWE equals zero is rejected. It provides supporting evidence that the difference between analyst and whisper forecast errors is statistically different during the bust with a z-statistic equaled to 6.54.

In summary, the forecast errors imply that individual investors are more optimistic than analysts regardless of the market. Although whispers remain relatively optimistic during the bust, the whisper forecast errors are adjusted downward. In contrast, the analyst forecasts appear to be unaffected by the general market conditions based on the fact that 75% of the time their forecasts fall below actual earnings. During the boom the standard deviation for whispers and analysts are 1.24 and 1.02, respectively, and during the bust it is 1.03 and 0.96 respectively. The range of SFE during the boom is –1.08 to +2.00 while the range for SWE is –3.00 to +0.86. During the bust, the range for SFE is –1.09 to +2.00 and for SWE, it is –2.00 to +2.00. These results support the conjecture that whispers exhibit higher variability reflecting a wider range of market expectations.

The histogram in Exhibit 3A presents the distribution of scaled forecast errors for analysts (SFE) and whispers (SWE) during the boom. The distribution of SWEs is generally more dispersed than the SFEs. The analyst forecast errors are somewhat positively skewed, again, exhibiting analyst conservatism. In contrast, SWEs are generally more negative during the boom displaying their optimism. The histogram of the bear market shown in Exhibit 3B, depicts SFE to be slightly more positive, again, indicating analysts' conservatism   During the bust, the whisper forecast errors adjust down with the highest frequency at +0.05 although there are numerous occurrences of negative SWEs. These results indicate that whispers adjust their earning expectations based on the general market conditions while analysts are consistently conservative.

Exhibit 3A: The Distribution of the Scaled Analyst and Whisper Forecast Errors During Bull Market

This exhibit shows the frequency distribution of the scaled analyst forecast errors (SFE) and the scaled whisper forecast errors (SWE) across 136 firms during five quarters of January 1999-March 2000 (Bull market). The vertical axis represents the percentage of frequencies (%) and the horizontal axis represents the scaled forecast errors.
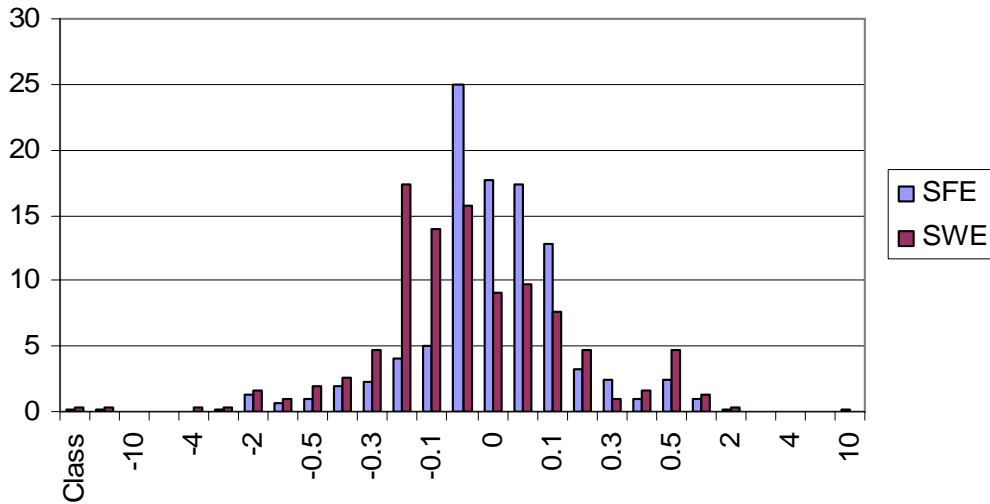

Exhibit 3B: The Distribution of the Scaled Analyst and Whisper Forecast Errors during Bear Market

This exhibit shows the frequency distribution of the scaled analyst forecast errors (SFE) and the scaled whisper forecast errors (SWE) across 136 firms during eight quarters of April 2000-April 2002 (Bear market). The vertical axis represents the percentage of frequencies (%) and the horizontal axis represents the scaled forecast errors.
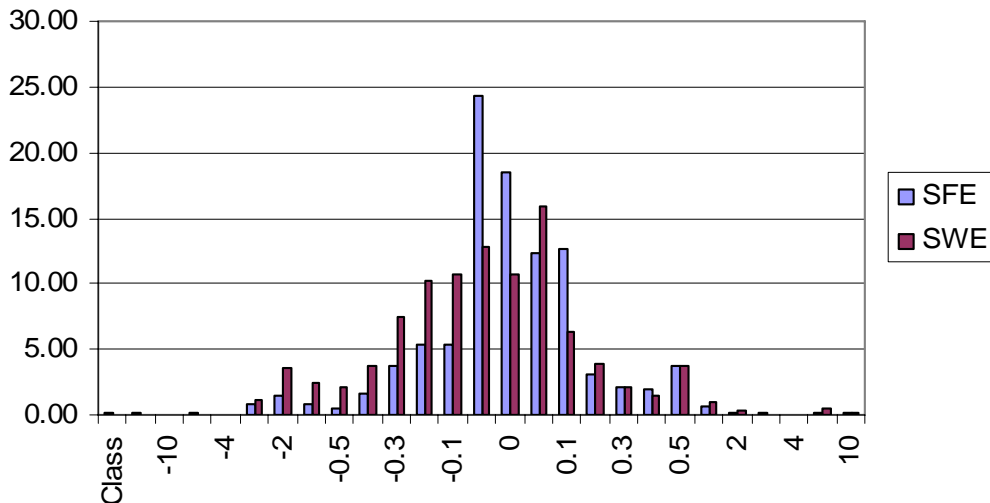
2b. Event Study Methodology

We use standard event study methodology to test the market reactions to analyst and whisper forecast errors. The market adjusted abnormal return is calculated by subtracting the value-weighted CRSP portfolio return from the actual stock return. Average abnormal returns (AARs) are obtained by taking a cross-sectional average of abnormal returns for all firms in the sample for each relative event date. Cumulative abnormal returns (CARs) are obtained by summing the AARs over the relative dates, -3 to -1, -2 to -1, -1 to 0, 0 to +1, +1 to +1, and +1 to +3, where -3 is defined as three days prior to the earnings announcement, 0 is defined as the announcement date, and +3 is defined as three days after the announcement date. We define -3 to -1 and -2 to -1 as the pre-announcement periods, and +1 to +2 and +1 to +3 as the post-announcement periods. Day -1 to 0 is defined as the announcement period.

Regression analysis is also utilized to test the role of both forecasts and to examine whether there is a structural change in the market's response to whispers and to analysts during the bull and bear markets. A dummy variable is utilized with January 1999 to March 2000 defined as the bull market and April 2000 to April 2002 defined as the bear market. Regression analysis is conducted over the pre-announcement and post-announcement periods. The regression equation incorporates a dummy variable to represent the bull and bear markets and interaction terms.

$$CAR_j(T1,T2) = \alpha_0 + \alpha_1 SFE + \alpha_2 SWE + \alpha_3 BULL + \alpha_4 BULLSFE + \alpha_5 BULLSWE + e_j \qquad (3)$$

where: T1=-2 and T2=-1 for the pre-announcement period and
        T1=+1 and T2=+2 for the post-announcement period
BULL =   1 if announcement occurred on or before March 2000
        0 otherwise;
BULLSFE = SFE if announcement occurred on or before March 2000
        0 otherwise;
BULLSWE = SWE if announcement occurred on or before March 2000
        0 otherwise

If the slope of SFE (SWE) is significant, we can conclude that analyst (whisper) forecast errors contribute to the CARs around the earnings announcements. If the slope coefficient of BULL is statistically significant, we can deduce that there is a structural change in the market response to earnings announcements. If the coefficient for the interaction term BULLSFE is significant, then the correlation between the CAR and SFE changes when the market changes from bull to bear, and if BULLSWE is significant, then the correlation between CAR and SWE changes when the market fluctuates from bull to bear.

3. Empirical Results

3a. Market Reactions to Actual Earnings Announcements

First, our samples of analyst forecasts and whispers are split into positive and negative forecast errors. Next we divide the four subsamples into two markets, bull and bear, resulting in a total of eight subsamples. Finally, we categorize the eight subsamples into four scenarios to make a direct comparison between whisper and analyst forecast errors under each market condition.

> Scenario 1: $SFE \geq 0$ and $SWE \geq 0$ in a bull market;
> Scenario 2: $SFE < 0$ and $SWE < 0$ in a bull market;
> Scenario 3: $SFE \geq 0$ and $SWE \geq 0$ in a bear market; and
> Scenario 4: $SFE < 0$ and $SWE < 0$ in a bear market.

The cumulative abnormal return (CAR) in Exhibit 4, Panel A, provides results for Scenario 1. The market reactions to both analyst and whisper forecast errors are similar in timing, but different in magnitude. When actual EPS meets/beats analyst expectations ($SFE \geq 0$) the CARs are statistically significant and positive over the pre- and post-announcement periods. The CAR(-3,-1) equals 1.39% (4.36) and CAR(-2,-1) is 1.09% (4.20) over the pre-announcement period and CAR(-1,0) equals 0.99% (3.81) for the announcement date with t-statistics in parenthesis. The CARs are significant for only two days after announcement where CAR(0,+1) is 0.64% (2.47) and CAR(+1,+2) equals 0.51% (1.96). Similarly, when actual EPS meets/beats the whispers ($SWE \geq 0$) the CARs are statistically significant and positive over the pre- and post-announcement periods. Market reaction to whispers exhibits CARs of 1.10% (2.13) for CAR(-3,-1) and 0.87% (2.07) for CAR(-2,-1). The CAR(-1,0), which is the announcement date, is statistically significant and equals 1.84% (4.35). During the post-announcement period, the market reaction to whispers exhibit significant CARs over two days, with CAR(0,+1) equaled to 1.37% (3.24) and CAR(+1,+2) equaled to 1.19% (2.81). These results suggest that the timing of the market reaction to the whispers forecast error is the same as the analysts. However, the magnitude of CARs is different. In the bull market, the market response to analyst is stronger over the pre-announcement period where CAR(-3,-1) equals 1.39% for analysts compared to 1.10% for whispers. Conversely, its reaction to whispers is stronger over the post-announcement period where CAR(+1,+2) is 0.51% for analysts and 1.19% for whispers. Moreover it provides support that investor reaction to whispers contributes to the post-announcement drift.

Exhibit 4: Cumulative Abnormal Returns during Bull and Bear Markets

*This exhibit presents univariate tests of market adjusted cumulative abnormal return (CAR) between analysts forecast and ahispers. The POSITIVE SFE indicates actual EPS meet/beat the analysts forecast and the POSITIVE SWE denotes actual EPS meet/beat the whispers. The NEGATIVE SFE represents actual EPS do not meet the analysts forecast and the NEGATIVE SWE indicates actual EPS do not meet the whispers. Scenario (1) represents the actual earnings meet/beat the whisper or analyst forecasts during the bull market. Scenario (2) signifies the actual earnings do not meet the whisper or analyst forecasts during the bull market. Scenario (3) implies the actual earnings meet/beat the whisper or analyst forecasts during the bear market. Scenario (4) indicates the actual earnings do not meet the whisper or analyst forecasts during the bear market. The t-ratio is presented in the parenthesis. The *, ** and *** indicate the significance at 10%, 5%, and 1% levels respectively.*

Panel A. Bull Market

	SCENARIO (1)		SCENARIO (2)	
	POSITIVE SFE	POSITIVE SWE	NEGATIVE SFE	NEGATIVE SWE
(-3,-1)	1.39%	1.10%	0.72%	1.19%
	(4.36)***	(2.13)**	(0.98)	(2.12)*
(-2,-1)	1.09%	0.87%	0.49%	0.72%
	(4.20)***	(2.07)**	(0.81)	(1.59)
(-1,0)	0.99%	1.84%	0.84%	0.80%
	(3.81)***	(4.35)***	(1.40)	(1.76)*
(0,+1)	0.64%	1.37%	-0.42%	-0.02%
	(2.47)**	(3.24)***	(-0.71)	(-0.05)
(+1,+2)	0.51%	1.19%	-0.82%	-1.97%
	(1.96)**	(2.81)***	(-1.37)	(-4.31)***
(+1,+3)	-0.01%	0.54%	-0.93%	-2.89%
	(-0.05)	(1.05)	(-1.26)	(-5.14)***

Panel B. Bear Market

	SCENARIO (3)		SCENARIO (4)	
	POSITIVE SFE	POSITIVE SWE	NEGATIVE SFE	NEGATIVE SWE
(-3,-1)	0.85%	0.99%	0.76%	1.39%
	(2.86)***	(2.38)**	(1.07)	(2.80)***
(-2,-1)	0.53%	0.80%	0.51%	0.86%
	(2.20)**	(2.35)**	(0.89)	(2.12)**
(-1,0)	-0.03%	0.38%	-0.33%	-0.01%
	(-0.16)	(1.13)	(-0.57)	(-0.05)
(0,+1)	0.00%	0.50%	-2.15%	-1.63%
	(0.00)	(1.49)	(-3.69)***	(-4.02)***
(+1,+2)	0.14%	0.54%	-2.66%	-2.30%
	(0.59)	(1.58)	(-4.56)***	(-5.67)***
(+1,+3)	0.61%	0.92%	-3.08%	-1.97%
	(2.05)**	(2.19)**	(-4.32)***	(-3.96)***

Scenario 2 examines the negative forecast errors during the bull market. When actual EPS misses the analyst forecasts, the pre- and post-announcement CARs are not statistically significant where CAR(-3,-1) is 0.72% (0.98) and CAR(+1,+2) equals –0.82% (-1.37) with t-statistics in parenthesis. However, when actual EPS falls short of whispers the results are noticeably different. The pre-announcement CARs are significant and positive as investors expect good news in a bull market. The pre-announcement CAR(-3,-1) equals 1.19% (2.12). The CARs over other subperiods do not exhibit statistical significance where CAR(-2,-1) is 0.72% (1.59) and CAR(-1,0) equals 0.80% (1.76). However, after the bad news is released, the post-announcement CARs are significantly negative and equal –1.97% (- 4.31) for CAR(+1,+2) and –2.89% (-5.14) for CAR(+1,+3). The results suggest that investors following whispers are more optimistic during the bull market indicated by statistically significant positive pre-announcement returns. The CAR(-3,-1) for whispers equals 1.19% compared to 0.72% for analysts. Additionally, whispers react more negatively after the bad news is released with CAR(+1,+3) equaled to –2.89% which is statistically significant while the post-announcement CAR for analyst is –0.93% and not statistically significant. Although it could reflect market correction for the unwarranted positive returns before announcement, the market reaction to whispers (not analysts) accounts for the post-announcement drift. By and large, the market appears to ignore the negative analyst forecast errors during the bull market.

The strong whisper effect during the post-announcement period is consistent with results found by Bartov et al., Brown, and Doukas, et al. Bartov et al. conjecture that "the trading activity of unsophisticated investors underlies the predictability of stock returns after earnings announcements" (Bartov et al., 2000, p. 43). They define unsophisticated investors as noninstitutional investors, which is consistent with the group who utilize whispers.[9] Therefore, investors using whispers explain, in part, the post earnings announcement drift.

Exhibit 4, Panel B, reports the results of Scenario 3 where we examine positive forecast errors during the bear market. The results show that the timing of the market reaction to both analyst and whisper forecast errors are similar although the size of CARs is slightly larger for whispers. When actual EPS meets/beats analyst forecasts the CARs exhibit significant positive returns before and after the announcement period. The subperiod CARs for analysts equal 0.85% (2.86) over CAR(-3,-1) and 0.61% (2.05) over CAR(+1,+3) with t-statistics in parenthesis. When actual EPS meets/beats whispers, CARs also exhibit positive significant returns before and after the announcement date. The cumulative abnormal return for the pre-announcement period, CAR(-3,-1), is 0.99% (2.38) and the post-announcement period, CAR(+1,+3), equals 0.92% (2.19). The CARs are slightly larger for whispers than analysts over pre- and post-announcement periods. However, both forecast errors contribute to the post-announcement drift.

In Scenario 4, where forecast errors are negative and the market is in a slump, we find the market reaction during the post-announcement period for analysts and whispers is similar

---

[9] Forsyth (2003), in Barron's, states that 95 percent of whispers represent individual investors as opposed to analysts.

in timing, but different in magnitude. When actual EPS are less than the analyst forecasts, the CAR results in Exhibit 4, Panel B, report significant negative CARs during the post-announcement period (CAR(+1,+2) equals –2.66% (-4.56) and CAR(+1,+3) is –3.08% (-4.32)). However, the market reaction to whispers during the pre-announcement indicate that it anticipates positive news even in a bear market and exhibits positive and significant subperiod CARs. CAR(-3,-1), equals 1.39% (2.80), and CAR(-2,-1) is 0.86% (2.12). As soon as the bad news is released, the market reacts negatively with significant CAR(0,+1) equal to –1.63% (-4.02). Also post-announcement CARs equal –2.30% (-5.67) for CAR(+1,+2), and –1.97% (-3.96) for CAR(+1,+3) with t-statistics in parenthesis. It provides evidence that the investors following whispers are generally more optimistic than ones following the analysts indicated by the smaller negative CARS (-1.97% versus –3.08%). However, in the bear market, both forecasts contribute to the post-announcement drift.

Our final analysis examines the relationship between cumulative abnormal returns and the analyst and whisper forecast errors as well as a dummy variable to represent the bull and bear markets.

3b. Regression Analysis

Exhibit 5 shows that SWE is statistically significantly correlated to the pre- and post-announcement periods while SFE is not. It implies that SWE is more strongly correlated to the market response surrounding the earnings releases than SFE. Moreover when forecast errors are positive (Scenarios 1 and 3), results show that the interaction term, BULLSWE, is marginally significant (1.93) in the post-announcement period. When forecast errors are negative (Scenarios 2 and 4), results show that the interaction term, BULLSWE, is statistically significant over the pre- and post-announcement periods, but BULLSFE is not. It provides evidence that whispers contribute to the pre- and post-announcement drift and the relationship between CAR and whispers changes when the market changes from bull to bear.

In summary, the regression findings indicate that not only are whispers correlated to CARs in the pre- and post-announcement periods, but the relationship between CARs and whispers is significantly stronger during the bull, compared to the bear. The results suggest that whispers add to the analyst forecasts to explain the pre- and post-announcement drifts during the bull market.

Exhibit 5: Regression Analysis Results

This exhibit presents the regression analyses of two days market adjusted cumulative abnormal returns (CARs) prior and after the actual EPS announcements. The columns utilize regression model:

$$CAR(T_1,T_2)_{i,t} = \gamma_0 + \eta_1 SFE_{i,t} + \eta_2 SWE_{i,t} + \eta_3 BULLSFE_{i,t} + \eta_4 BULLSWE_{i,t} + \eta_3 BULL_{i,t} + \upsilon_{i,t}.$$

The dependent variables are CAR(-2,-1) and CAR(+1,+2) as defined above. The independent variables are SFE, SWE, a dummy variable, BULL, and two interaction terms, BULLSFE and BULLSWE. BULL is a dummy variable that takes a value of one if the period is during the Bull stock market of January 1999 through March 2000, and zero otherwise. BULLSFE is an interaction term between BULL and the SFE variable. BULLSWE is an interaction term between BULL and the SWE variable. Robust t-statistics are in parentheses. We also examine the Scholes-Williams excess return using the value-weighted portfolio (Scholes and Williams, 1977) and the results are similar to the results presented below. The *, ** and *** indicate the significance at 10%, 5%, and 1% levels respectively.

	SCENARIO (1) and (3)		SCENARIO (2) and (4)	
	CAR(-2,-1)	CAR(+1,+2)	CAR(-2,-1)	CAR(+1,+2)
SFE	0.0040	-0.0077	-0.0025	0.0036
	(1.01)	(1.07)	(0.67)	(0.86)
SWE	0.0099	0.0135	0.0102	0.0161
	(3.80)***	(2.54)**	(3.68)***	(2.51)**
BULLSFE	-0.0011	0.0032	0.0097	0.0133
	(0.21)	(0.41)	(1.43)	(1.72)
BULLSWE	0.0104	0.0167	0.0113	0.0213
	(1.62)	(1.93)*	(2.09)**	(2.56)**
BULL	0.0016	-0.0013	-0.0040	-0.0071
	(0.38)	(0.19)	(0.72)	(0.75)
Intercept	0.0045	-0.0022	0.0087	-0.0139
	(1.75)*	(0.51)	(2.31)**	(2.38)**
R-squared	0.03	0.01	0.02	0.02
F-ratio	3.87	1.66	10.1	37.24
p-value	(0.0018)***	(0.1407)	(0.0000)***	(0.0000)***
Observations	860	860	466	466

4. Conclusions

Do bulls and bears listen to whispers or analysts? The whisper forecast errors are more optimistic than analysts in both bull and bear markets. Furthermore the market reacts more optimistically to whispers than to analysts during the pre-announcement period, regardless of the market conditions.

During the boom, the market reacts more significantly to positive analyst forecast errors in the pre-announcement period while it reacts more significantly to whispers during the post-announcement period. Moreover, the significant negative CARs for whispers indicate that bulls respond to negative whisper forecast errors (SWEs), but they appear to ignore the negative analyst forecast errors.   These results imply that negative SWEs significantly contribute to the post-announcement drift.

In a bear market, both positive whisper and analyst forecast errors produce significant positive CARs before and after announcements. When both forecast errors are negative, bears react significantly only after the earnings release. However, bears that listen to whispers appear to be optimistic even in a down market as CARs are marginally significant and positive before the bad news is released. However, when it is released, the market reaction to both whispers and analyst is significantly negative during the post-announcement period. Therefore, the bears listen to analysts and whispers and both affect the post-announcement drift.

In summary, the market reaction to whispers is stronger than to analysts in a bull market, implying that investors listen more to whispers during the boom. However, in the bear market there is no distinct difference between the market reactions to analyst forecasts and whispers. The results suggest that individual investors respond more exuberantly to whispers during a market boom, but lose interest when the market is down. Finally, the market response to whispers, in particular, is the main source of market movements during the post-announcement period providing evidence that whispers help to explain the post-announcement drift in the bull market.

References

Bagnoli, Mark, Messod. D. Beneish, and Susan G. Watts, 1999, Whisper forecasts of quarterly earnings per share, *Journal of Accounting and Economics* 28, 27-50.

Ball, Ray, and Phillip Brown, 1968, An empirical evaluation of accounting income numbers, *Journal of Accounting Research* 6, 159-178.

Bartov, Eli, Suresh Radhakrishnan, and Itzhak Krinsky, 2000, Investor sophistication and patterns in stock returns after earnings announcement, *The Accounting Review* 75, 43-63.

Bernard, Victor L., and Jacob K. Thomas, 1989, Post-earnings-announcement drifts: Delayed price response or risk premium?, *Journal of Accounting Research,* Supplement, 1-36.

Brown, Lawrence D, 1997, Earnings surprise research: Synthesis and perspectives (literature review), *Financial Analysts Journal* 53, 13-19.

Collingwood, H., 2002, The earnings cult, *The New York Times*, June 9, 68-72, 129 and 134.

Doukas, John A., Chansog Kim, and Christos Pantzalis, 2002, A test of the errors-in-expectations explanation of the value/glamour stock returns performance: Evidence from analysts' forecasts, *Journal of Finance* 57, 2143-2165.

Doukas, John A., Chansog Kim, and Christos Pantzalis, 2004, Divergent opinions and the performance of value stocks, *Financial Analysts Journal* 60, 55-64.

Foster, George, Chris Olsen, and Terry Shevlin, 1984, Earnings releases, anomalies, and the behavior of securities returns, *The Accounting Review* 59, 574-603.

Forsyth, R. W., 2003, The electronic investor, *Barron's Technology Week*, February 24, T4.

Hughes, John S., and William E. Ricks, 1987, Association between forecast errors and excess returns near to earnings announcements, *The Accounting Review* 62, 158-175.

Louis, A., 2000, Heard the latest?, *The San Francisco Chronicle*, April 25, E1 and E3.

Scholes, Myron, and Joseph Williams, 1977, Estimating betas from non-synchronous data, *Journal of Financial Economics* 5, 309-327.

Zaima, Janis K. and Maretno A. Harjoto, 2005, Conflict in whispers and analyst forecasts: Which one should be your guide?, *Financial Decisions*, Fall, Article 6.