Does the Stock Market See a Zero or Small Positive Earnings Surprise as a Red Flag?

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Abstract: This study shows that firms collectively incur a cost for managing earnings and analyst expectations to meet earnings forecasts. We compare the coefficient in the regression of abnormal stock returns on earnings surprise (the earnings response coefficient (ERC)) across ranges of earnings surprises. The ERC for earnings surprises in the range [0, 1¢] is significantly lower than ERCs for earnings surprises in adjacent ranges for firm-quarters in early and mid 2000s, but not for those in 1990s. The results are robust to controlling for the sign of estimated discretionary accruals and the trajectory of analyst earnings forecasts.

We further find that investors are right to be skeptical about earnings surprises in the range [0, 1¢]. The relation of future earnings surprise with current earnings surprise is more negative for current earnings surprises in that range than for those in any other range. Evidence also suggests analysts react negatively to earnings surprises in that range.

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Despite last week's assurance that GE will meet its targets for third-quarter and 2002 profits, the stock (GE/NYSE) is down 8.7% in three days. The message, analysts say, is that investors are no longer impressed by merely meeting earnings expectations quarter after quarter, especially if a collection of lucky breaks and unusual gains boosts the bottom line (Maich 2002).

A pattern of narrowly meeting or exceeding analysts' estimates is among the characteristics that the Securities and Exchange Commission uses in identifying possible accounting irregularities, says Charles Niemeier, the SEC enforcement division's chief accountant (Bryan-Low 2002).

I. Introduction

Prior studies show that firms manipulate earnings and/or analyst expectations to avoid missing analyst earnings forecasts (see, e.g., Degeorge et al. 1999; Matsumoto 2002; Burgstahler and Eames 2006). Levitt (1998) calls such manipulations the "numbers game." Firms presumably believe that investors are naïve and defenseless to such manipulations. That may not be case, as Akerlof's (1970) analysis of a market with information asymmetry suggests. If potential buyers cannot distinguish good used cars from bad ones, Akerlof (1970) shows, the prices they will pay for all used cars are lower than what good used cars are worth. The analysis suggests an increasing incidence of firms managing earnings and/or analyst expectations will induce investors to discount not only the shares of firms that are confirmed manipulators, but also those of firms that are mere "suspects." To the extent that some of the suspects are actually innocent, lower valuations for the suspect firms would represent a cost jointly borne by all firms for the numbers game that not all of them play.

We investigate whether firms incur the aforementioned cost in two stages. We first document a rising trend in the number of firms meeting or narrowly beating analyst earnings forecasts relative to the number of firms narrowly missing the forecasts in the period 1992-2006. This would suggest to investors a rising prevalence of firms playing the numbers game, given empirical results indicating manipulators prefer to meet or narrowly beat analyst earnings forecasts rather than to beat them by a large margin (see, e.g., Degeorge et al. 1999; Burgstahler and Eames 2006; Ayers et al. 2006). The impression of a rising number of "lemons" (manipulators) is likely to increase investors' skepticism toward firms that "make the numbers," especially those that meet or narrowly beat analyst earnings forecasts, resulting in zero or small positive earnings surprises. We test the hypothesis in the second stage of our investigation. We compare the coefficient in the regression of abnormal stock returns around the earnings announcement on earnings surprise across ranges of earnings surprises. The coefficient is referred to in prior studies as the earnings response coefficient (ERC). We find the ERC is significantly lower for earnings surprises in the range [0, 1¢] than for those in adjacent ranges ([-1¢, 0) and (1¢, 2¢]) for firm-quarters in 2002-2006, but not for those in either the period 1992-1996 or 1997-2001. These results suggest investors' skepticism toward zero and small positive earnings surprises is a fairly recent event, and its development over time was induced by the rising tide of firms playing the numbers game.

Our results are robust to the inclusion of controls. Prior research (e.g., Bartov et al. 2002) suggests the ERC may be affected by the sign of estimated discretionary accruals and the trajectory of analyst forecasts before the earnings announcement. Our results are unchanged after controlling for these variables. This suggests investors see a zero or small positive earnings surprise as a red flag *in and of itself* in 2000s. It is likely that even firms that report a zero or small positive earnings surprise "truthfully" are penalized in the backlash. The penalty is consistent with Akerlof's (1970) prediction that when there is information asymmetry about the quality of a product, even the prices of high quality units will decline.

We also find evidence that investors' skepticism toward zero and small positive earnings surprises is justified. The relation of future earnings surprise with current earnings surprise is more negative for current earnings surprises in [0, 1¢] than for those in any other range throughout the period 1992-2006. It appears that analysts became aware of the problem earlier than investors. We compare the coefficient in the regression of analysts' revision of next-quarter earnings forecast on earnings surprise across ranges of earnings surprises. We term this coefficient the analyst earnings response coefficient (AERC). The AERC is lower for earnings surprises in [0, 1¢] than for those in any other range throughout the period 1992-2006. There is also evidence that investors and analysts are skeptical about firms that narrowly avoid quarterly losses or quarterly earnings declines throughout the same period.

Our results apparently are the first that show firms collectively incur a cost for playing the numbers game as a result of an investor backlash. Moreover, prior research (Bartov et al. 2002; Defond and Park 2001) suggests investors and analysts identify manipulators based on "hard evidence"; i.e., positive estimates of discretionary accruals, or a downward analyst forecast trajectory. Our results suggest investors and analysts associate certain firms with manipulation even in the absence of hard evidence.

The rest of the paper is organized as follows: Section II discusses the study in greater detail. Section III describes the sample and reports key statistics about the sample. Section IV presents the empirical results. Section V contains the concluding remarks.

II. The Study

Akerlof's (1970) analysis of the used car market suggests that if the quality of a product is difficult for buyers to assess and the buyers suspect many units of the product on the market are of low quality, the prices of all units will decline, not just those of low quality units. But how do the buyers become suspicious that quality may be a problem? They may have become so because of what they have observed in the market place. Having heard many friends complain about the quality of the used cars that they bought, for example, a potential buyer is likely to assume many used cars for sale are of low quality. In this study, we argue investors and analysts suspect that many firms meet or beat analyst earnings forecasts by manipulating earnings and/or analyst expectations. Just like potential buyers of used cars, investors and analysts would become suspicious if what they observe in the media or through the grapevine suggests that more and more firms are playing the numbers game.

What the investors and analysts observed in the news in late 1990s and early 2000s certainly was not very encouraging. Brown and Caylor (2005) show the number of firms reporting a small negative earnings surprise declined in the period 1985-2002, suggesting a rising prevalence of firms playing the numbers game. However, their analysis is based on earnings surprises scaled by share price, while earnings surprises reported by the media are unscaled. Moreover, Brown and Caylor (2005) define small negative earnings surprises as those (when scaled by price) that fall in a mathematically determined interval, while earnings surprises are reported by the media in pennies per share. In this study, we measure the impression that investors would have gained from the media that many firms were playing the numbers game by another method. We calculate the "manipulation index," defined as the number of earnings surprises in [0, 2¢] ("just make it") divided by the number in [-2¢, 0) ("just miss it") each year. Similar to the measure used by Brown and Caylor (2005), the manipulation index is based on prior research that suggests firms prefer to meet or narrowly beat analyst earnings forecasts rather than to beat them by a large margin, because both earnings management and expectation management are costly.[1]

We calculate the manipulation index for each year in the period 1992-2006, using data for 139,885 firm-quarters from I/B/E/S's unadjusted files.[2] [3] We measure quarterly earnings surprise as actual earnings minus the latest consensus earnings forecast. Figure 1 shows the manipulation index for each year in the period. There clearly is an upward trend, suggesting a rising incidence of manipulation to avoid negative surprises. The index was at its lowest point (2.16) in 1992, and peaked at 5.01 in 2002. We divide the period into three equal-length periods; 1992-1996, 1997-2001 and 2002-2006. The manipulation index averaged 2.68 in 1992-1996, and 4.19 in 1997-2001, registering an increase of 56%. While the average dropped to 3.92 in 2002-2006, it was still 46% higher than in 1992-1996.

<--- Insert Figure 1 here--->

Sensing a rising tide of firms reporting a zero or small positive earnings surprise rather than a small negative one in late 1990s and early 2000s, investors are likely to have grown skeptical about how firms "make the numbers," especially those that report a zero or small positive earnings surprise. We therefore expect investors to reward firms that report such an earnings surprise less generously now than before. Sensing a dwindling reward to a zero or small positive earnings surprise, manipulating firms would either increase the extent of

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[1]Managing earnings by shifting accruals to the current quarter from future quarters reduces earnings in the future, making it more difficult to meet future earnings expectations. As well, managing earnings upward in the current quarter will raise expectations about future earnings, further reducing the odds of meeting future earnings expectations. Manipulating analyst expectations is also costly; it increases stock price volatility as well as reduces the credibility of the managers with analysts. Thus, as results in Degeorge et al. (1999) and Burgstahler and Eames (2006) show, firms aim to meet or beat analyst forecasts by a small margin.

[2] We use data in I/B/E/S's unadjusted files to avoid the rounding problem that Payne and Thomas (2003) point out with using data in I/B/E/S's adjusted files, which are retroactively adjusted for stock splits and rounded to the nearest penny.

[3] This sample consists of the firm-quarters in 1992-2006 for which we obtain data to measure investors' responses to earnings surprises in various ranges. The sample excludes firm-quarters with SIC codes 4400-5500 (regulated industries) and 6000-6500 (financial institutions), those with missing data, and certain outliers. The details are provided later in the paper.

manipulation to engineer larger positive earnings surprises if the cost of doing so is not unjustifiably high, or quit the numbers game altogether. The result would be a gradual decline over time in number of firms reporting a zero or small positive earnings surprise. There is evidence that the "correction" has already begun. As Figure 1 shows, the manipulation index declined from about 5 in 2002 to about 3 in 2006. In a way, the numbers game can be likened to a game of chess, with investors and firms taking turns to make moves against each other.

To investigate whether skepticism toward zero and small positive earnings surprises has grown, we examine how investors and analysts react to a zero or small positive earnings surprise relative to earnings surprises in adjacent ranges in different periods. For investors, we compare the earnings response coefficient (ERC) across ranges of earnings surprises. If investors see zero and small positive earnings surprises as more likely the result of earnings management than other earnings surprises, they are likely to judge such earnings surprises as less indicative of the firm's future profitability. If investors also see such earnings surprises as more likely the result of analyst expectations management than those in other ranges, such earnings surprises are likely to be proportionally less "surprising," and thus make less impact on investors' views of the firms than other earnings surprises. Each unit of earnings surprise therefore is likely to elicit a smaller response from investors for zero and small positive surprises, resulting in a lower ERC for such earnings surprises.

Following prior studies (e.g., Easton and Zmijewski 1989; Defond and Park 2001; Bartov et al. 2002; Brown and Caylor 2005), we estimate the ERC by regressing abnormal returns on earnings surprise scaled by stock price:

$$CAR = \alpha + \beta(ES/P) + \cdots + \varepsilon$$

where *CAR* is cumulative abnormal returns at the earnings announcement, *ES* is earnings surprise, calculated as actual earnings per share minus analyst expectations, and *P* is share price.[4] The coefficient β in the regression is the ERC. Similar to Brown and Caylor (2005), our *CAR* accumulation period consists of three days, starting one day before the earnings announcement date and ending one day after.

To test whether the ERC is lower for zero and small positive earnings surprises, we partition unscaled earnings surprises (ES's) for all firm-quarters in our sample into 14 ranges using 0 as the reference point, and estimate the ERC for ES's in each range separately. Range R_{-7} comprises ES's less than -8¢ per share, R_{-6} comprises ES's in the range [-8¢,-6¢) (greater or equal to -8 cents and less than -6 cents), R_{-5} comprises ES's in [-6¢, -4¢), R_{-4} comprises ES's in [-4¢,-3¢), R_{-3} comprises ES's in [-3¢ ,-2¢), R_{-2} comprises ES's in [-2¢ , -1¢), R_{-1} comprises ES's in [-1¢,0), R_0 comprises ES's in [0, 1¢], R_1 comprises ES's in (1¢,2¢], R_2 comprises ES's in (2¢,3¢], R_3 comprises ES's in (3¢,4¢], R_4 comprises ES's in (4¢,6¢], R_5 comprises ES's in (6¢,8¢], and R_6 comprises ES's greater than 8¢.

Our regression model is as follows:

$$CAR[-1,1] = \alpha + \beta \times CAR[-20,-2] + \sum_{k=-7}^{6} \beta_k \times D_k \times (ES/P) + \varepsilon \qquad (1)$$

where:

CAR[-1,1]: cumulative abnormal returns from one day before to one day after the earnings announcement;

CAR[-20,-2]: cumulative abnormal returns from 20 days before to two days before the

[4] Prior research scales earnings surprise (ES) by share price (p) when estimating the ERC because investors are likely to judge the importance of an earnings surprise based on the share price. We follow the tradition. Scaling earnings surprise by the absolute value of actual earnings does not change our test results.

earnings announcement;

ES/P: earnings surprise (*ES*) scaled by share price 21 days before the earnings announcement date (*P*);

D_k: earnings surprise dummy, equal to one if unscaled earnings surprise (*ES*) falls in Range R_k and zero otherwise.[5]

The dummy variables D's allow a separate ERC to be estimated for earnings surprises in each of the 14 ranges.

Following Matsunaga and Park (2001), Defond and Park (2001) and Matsumoto (2002), we measure earnings surprise as actual earnings minus the latest consensus analyst forecast before the earnings announcement.[6] But information may arrive after the date that the latest consensus is calculated and change expectations. Moreover, some analyst earnings forecasts used to calculate the consensus may be stale. These problems may introduce a missing variable bias in the test results. Following Easton and Zmijewski (1989), we address this issue by including stock returns over a short window immediately before the earnings announcement in the regression. For firm-quarters in our sample, analyst forecasts used to calculate the consensus were issued on average about 20 days before the earnings announcement date. We therefore include CAR[-20.-2] in the regression.

To measure abnormal stock returns around the earnings announcement, we estimate the following market model over the 255-day period ending 41 days before the earnings announcement:

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[5] We estimate the regression model with data pooled across all firm-quarters in our sample. The subscripts for firm and quarter are suppressed for simplicity.

[6] Our test results are qualitatively unchanged if we measure earnings surprise as actual earnings minus the latest individual analyst forecast.

$$R_{jt} = \alpha + \beta_j R_{mt} + \varepsilon_{jt};$$

where R_{jt} is the return for firm j on day t; R_{mt} is the equally weighted market return on day t. Estimates of the coefficients of the market model are used to estimate daily abnormal returns using the equation:

$$AR_{jt} = R_{jt} - (\hat{\alpha}_j + \hat{\beta}_j R_{mt});$$

Cumulative abnormal returns from the day before the earnings announcement (day -1) to the day after (day +1) are calculated as follows:

$$CAR_j[-1,1] = \sum_{t=-1}^{1} AR_{jt};$$

Cumulative abnormal returns from 20 day before to 2 days before the earnings announcement are calculated as follows:

$$CAR_j[-20,-2] = \sum_{t=-20}^{-2} AR_{jt}.$$

III. Data and Sample Statistics

Our preliminary sample for this study consists of firm-quarters in 1992-2006 in the intersection of I/B/E/S and CRSP. We obtain actual earnings and consensus earnings forecasts from I/B/E/S, and stock and market return data and share price data from CRSP.

Following Burgastahler and Dichev (1997) and Brown and Caylor (2005), we delete from our sample firms with SIC codes 4400-5500 (regulated industries) and 6000-6500 (financial institutions). We also delete firm-quarters with abnormal returns and/or earnings surprises in the top or bottom one percent to mitigate the effect of potential outliers. These deletions leave 139,885 firm-quarters in the sample for the primary test (Regression (1)).[7]

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[7] The sample size is reduced somewhat for tests involving control variables, as a result of missing data. Data required to estimate discretionary accruals from the modified Jones model are obtained from *Compustat*, for example. Firm-quarters

Table 1 shows the means of key variables for firm-quarters with earnings surprises in each range - three-day CAR (*CAR[-1,1]*), scaled earning surprise (*ES/P*), share price (*P*) - as well as the number of observations (*N*). We also calculate the means of the variables for firm-quarters in 1992-1996, 1997-2001, and 2002-2006. Average CAR[-1,1] declines over time for negative earnings surprises in every range. As for non-negative earnings surprises, average CAR[-1,1] declines over time for zero earnings surprises and earnings surprises in (0, 1¢] and (1¢, 2¢], but it rises over time for those in every other range. The result is consistent with growing investor skepticism toward zero and small positive earnings surprises.

<------ Insert Table 1 here ----->

IV. Test Results

Investors' Skepticism

We estimate Regression (1) with data pooled across firm-quarters. We report the results for firm-quarters in the periods 1992-1996, 1997-2001, and 2002-2006 separately in Table 2 and Figure 2. For both the 1992-1996 and 1997-2001 samples, as Panels A and B of Figure 2 show, the ERC is an inverted U-shaped function of earnings surprise, with higher ERCs for moderate earnings surprises than for extreme earnings surprises. This suggests that investors perceive moderate earnings surprises to be more sustainable.[8] Moreover, the variation in ERC across ranges of earnings surprises is smooth and continuous for both samples, with few abrupt rises or falls between adjacent ranges. More importantly, there is nothing unusual about ERCs for zero and small positive earnings surprises. Neither the ERC for earnings

with missing data are deleted from samples for these tests.

[8] While different test designs prevent us from comparing our results with those in prior research, our result that ERCs for moderate earnings surprises are higher is consistent with prior research that shows the relation of abnormal stock returns with scaled earnings surprise is S-shaped (i.e., Freemen and Tse 1992; Lipe et al. 1998, Kinney et al. 2002).

surprises in [0,1¢] nor that for earnings surprises in (1¢,2¢] appears low compared with ERCs for earnings surprises in adjacent ranges. The high reward for meeting or beating the consensus forecast by a small margin perhaps contributed to the rising tendency of firms to manage earnings and/or analysts forecasts to avoid a negative earnings surprise.

<------ Insert Table 2 here ----->

<----- Insert Figure 2 here ----->

Turning to Panel C of Figure 2, the variation in ERC for the 2002-2006 sample is not as smooth. There is an obvious discontinuity at earnings surprises in the range [0,1¢]. Not only is the ERC for earnings surprises in this range negative, while the ERC for earnings surprises in every other range is positive, but it is significantly lower than ERCs for earnings surprises in adjacent ranges (1¢,2¢] and [-1¢,0). For earnings surprises in [0,1¢], the lowest value of ES/P is zero. The predicted CAR[-1,1] for this value of ES/P is negative, as indicated by the negative intercept of the regression. Every 1% increase in ES/P from zero on average reduces CAR[-1,1] by 0.48%, as indicated by the ERC of -0.48 for earnings surprises in [0,1¢], while every 1% increase in ES/P on average increases CAR[-1,1] by 1.68% and 4.59% respectively for earnings surprises in (1¢,2¢] and [-1¢,0). The result is consistent with investors seeing earnings surprises in [0,1¢] as a red flag in early 2000s.

We notice another anomaly. While the ERC for earnings surprises in (1¢,2¢] is one of the highest among all ranges for both the 1992-1996 and 1997-2001 samples, it is one of the lowest for the 2002-2007 sample. Moreover, it is significantly lower than the mean of ERCs for earnings surprises in [-1¢,0) and (2¢,3¢]. The result is also consistent with growing investor skepticism toward zero and small positive earnings surprises, as a result of the dramatic increase in the number of firms with zero and small positive earnings surprises in late 1990s and early 2000s.

Results in Degeorge et al. (1999) and Brown and Caylor (2005) suggest firms manage earnings not only to meet analyst earnings forecasts, but also to avoid reporting negative earnings or negative earnings changes. Both studies find the number of firms with zero or small positive earnings and the number of firms with a zero or small positive earnings change from the same quarter in the previous year are abnormally high. Beaver et al. (2007) argue, however, that the empirical finding may be explained by accounting conservatism and a difference in tax treatment between profits and losses.

We examine investors' separate reactions to zero and small positive earnings, earnings changes, and earnings surprises by estimating the following regression model:

$$CAR[-1,1] = \alpha + \beta\ CAR\ [-20,-2] + \sum_{k=-7}^{6} \beta_k \times D_k \times ES' + \beta_7 \times DC + \beta_8 \times DL + \varepsilon \qquad (2)$$

where

ES' = ES/P, or earnings surprise scaled by share price;

DC = earnings change dummy, equal to 1 if actual EPS minus EPS in the same quarter in the previous year fall in [0,1¢], and 0 otherwise;

DL = earnings level dummy, equal to 1 if actual EPS fall in [0,1¢], and 0 otherwise.

We replace ES/P with ES' in Regression (2) to simplify the equation. The coefficient on *DC* (*DL*) should be negative if investors are skeptical about earning changes (levels) in [0,1¢].

<---- Insert Table 3 here--->

The results of Regression (2) are presented in Table 3. The ERC for earnings surprises in

[0,1¢] remains significantly lower than those for earnings surprises in [-1¢,0) and (1¢,2¢] for the 2002-2006 sample. The coefficients on *DC* and *DL* are both negative for each sample. Moreover, while the t-values vary somewhat across the samples, they are consistently high. This suggests investors penalized firms with a zero or small positive earnings change or level throughout the 15-year period, and is consistent with results in Brown and Caylor (2005) that show while the problem of firms striving to meet the analyst forecast benchmark did not become serious until recently, the problem of firms striving to meet the zero earnings and zero earnings change benchmarks has always been serious. We note, however, the coefficients on *DC* and *DL* are both significant at the 1% level for the 2002-2006 sample, suggesting investor skepticism toward firms reporting a zero or small positive earnings level or earnings change has grown over time. This suggests that mounting evidence that firms use unconventional ways to meet analyst earnings forecasts also has an effect on how investors react to firms reporting a suspicious earnings level or change.[9]

Results in Bartov et al. (2002) suggest the ERC is lower for firms with a downward trajectory of analyst earnings forecasts before the earnings announcement – a sign of analyst expectations management. This result may translate into a lower ERC for earnings surprises in [0, 1¢], if firms with a downward trajectory of analyst earnings forecasts report earnings surprises in [0, 1¢] more often than others. As well, based on abnormal returns accumulated until 50 days after the earnings announcement, results in Bartov et al. (2002) suggest the ERC is lower for firms with positive discretionary accruals estimated from Jones type models – a sign of earnings management. This result may translate into a lower ERC for earnings

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[9] We also investigate whether firms reporting a zero or small positive earnings level or change will have a lower ERC rather than a lower regression intercept. We include interaction variables in the regression that allow the ERC to change when actual EPS or EPS change falls in [0, 1¢]. The coefficients on these variables are mostly insignificant.

surprises in [0, 1¢] if: (1) firms with positive estimated discretionary accruals report earnings surprises in [0, 1¢] more often than others; and (2) investors have access to balance sheet data, which are needed to estimate discretionary accruals, on the earnings announcement date.

To control for the trajectory of analyst earnings forecasts and the sign of estimated discretionary accruals, we estimate the following regression model:

$$CAR[-1,1] = \alpha + \beta\ CAR\ [-20,-2] + \sum_{k=-7}^{6} \beta_k \times D_k \times ES' + \beta_7 \times PDA \times ES'(\geq 0) + \beta_8 \times PDA \times ES'(<0)$$

$$+ \beta_9 \times TEF \times ES'(\geq 0) + \beta_{10} \times TEF \times ES'(<0) + \varepsilon \qquad (3)$$

where:

PDA = positive discretionary accruals dummy, equal to 1 if estimated discretionary accruals are positive, and zero otherwise;

TEF = analyst earnings forecast trajectory dummy, equal to 1 if the trajectory is downward before the earnings announcement, and zero otherwise;

$ES'(\geq 0)$ = ES' if ES' is non-negative (zero or positive), and zero otherwise;

$ES'(<0)$ = ES' if ES' is negative, and zero otherwise.

$PDA \times ES'(\geq 0)$ ($PDA \times ES'(<0)$) is included to capture changes in ERC for non-negative (negative) earnings surprises when estimated discretionary accruals are positive. We include separate control variables since a positive estimate of discretionary accruals is likely to raise ERCs for negative earnings surprises but lower ERCs for non-negative earnings surprises. Similarly, $TEF \times ES'(\geq 0)$ ($TEF \times ES'(<0)$) captures changes in ERC for non-negative (negative) earnings surprises when the trajectory of earnings forecasts is downward.

To calculate PDA, we estimate discretionary accruals from the modified Jones model with current ROA:

$$TTAC_{it} / AST_{it-1} = \beta_0 (1 / AST_{it-1}) + \beta_1 ((\Delta REV_{it} - \Delta REC_{it}) / AST_{it-1}) + \beta_2 (PPE_{it} / AST_{it-1}) +$$

$$\beta_3 ROA_t + \beta_4 Q_4 + e_{it}$$

where $TTAC_{it}$ is total accruals taken by firm *i* in quarter *t* (net income before extraordinary items minus cash flow from operations); AST_{it-1} is total assets of firm *i* at the end of quarter *t-1*; ΔREV_{it} is the change in net revenues for firm *i* in quarter *t* from quarter *t-1*; ΔREC_{it} is the change in receivables in quarter t from quarter t-1; PPE_{it} is the gross book value of property, plant and equipment of firm *i* at the end of quarter *t*; ROA_t is net income before extraordinary items in quarter t scaled by total assets at the end of quarter t-1; Q_4 is a dummy variable, equal to 1 if quarter *t* is the fourth fiscal quarter for firm *i* and 0 otherwise.

We estimate the modified Jones model with current ROA annually for each SIC two-digit industry, pooling data across quarters in the year and across firms in the industry. The variable Q_4 is included in the regression as prior research shows that the fourth quarter may be different from the other fiscal quarters due to increased auditor scrutiny and firms' tendency to report special items in that quarter (Francis et al. 1996). The annual regression residuals are our estimates of discretionary accruals for the firms in the quarters of the year.

We calculate TEF by comparing the latest analyst consensus forecast before the earnings announcement date with the first analyst consensus forecast after the announcement for the previous quarter's earnings. If the former is lower (higher) than the latter, TEF equals 1 (0).

<------ Insert Table 4 here ----->

We caution that controlling for the sign of estimated discretionary accruals in our test may have an unintended effect on the test results. Firms with earnings surprises in [0,1¢] are more likely to be manipulators of accruals than others, as results in Burgstahler and Eames (2006) suggest. Therefore, some of the penalty for firms with a zero or small positive earnings surprise will be captured by the coefficients on the discretionary accruals variables although investors in many cases do not have balance sheet data on the earnings announcement date. To the extent that is the case, the chance of finding the ERC for earnings surprises in the range [0,1¢] to be lower than those for earnings surprises in adjacent ranges is reduced.

We report the results of Regression (3) in Table 4. The coefficient on $TEF \times ES'(\geq 0)$ ($TEF \times ES'(< 0)$) is negative (positive) for each of the three samples. While the t-values vary across the three samples, the overall impression is that a downward analyst forecast trajectory lowers (raises) the ERC for positive (negative) earnings surprises, suggesting a downward analyst forecast trajectory reduces abnormal returns for both positive and negative earnings surprises. The coefficient on $TEF \times ES'(\geq 0)$ is larger than that on $TEF \times ES'(< 0)$ in absolute value, suggesting the penalty is greater for firms with positive earnings surprises.

The coefficient on $PDA \times ES'(\geq 0)$ is negative and significant for each of the samples, suggesting positive estimated discretionary accruals lower ERCs for non-negative earnings surprises (i.e., reduce abnormal returns for such earnings surprises). On the other hand, positive estimated discretionary accruals do not always reduce abnormal returns for negative earnings surprises. The coefficient on $PDA \times ES'(< 0)$ is negative for two subsamples, suggesting investors interpret positive estimated discretionary accruals as good news for firms with negative earnings surprises in some years, rather than as a sign of earnings management. The result is consistent with results in Abarbanell and Bushee (1997; 1998) that suggest increases in accruals in some years are signs of business expansions and therefore are positive signals for future earnings.

More importantly, after controlling for PDA and TEF, the ERC for earnings surprises in the range [0,1¢] remains lower than ERCs for earnings surprises in [-1¢, 0) and (1¢, 2¢] for the 2002-2006 sample. The ERC for earnings surprises in (1¢, 2¢] is also much lower for this sample than for the other two samples. These results suggest investors see a zero or small positive earnings surprise as a red flag in and of itself in 2002-2006. In other words, a zero or small positive earnings surprise is treated as an incremental signal by investors, and it increases investors' estimates of the chance that earnings and/or analyst expectations management has occurred to a higher level than is justified by other signs of manipulation.

Finally, we estimate an expanded regression model that includes the control variables in Regressions (2) and (3). The results on ERCs (untabulated) are qualitatively identical.

Additional Issues:

We notice the drop in the estimated ERC for earnings surprises in [0, 1¢] in 2002-2006 from 1997-2001 is accompanied by an increase in the estimated ERC for earnings surprises in [-1¢, 0). Are the two changes related? Payne and Thomas (2003) show that non-zero earnings surprises may be misclassified as zero earnings surprises if earnings surprises are calculated based on data obtained from the I/B/E/S summary files, which contain data retroactively adjusted for stock splits. The problem may cause some earnings surprises in [-1¢, 0) to "migrate" to [0, 1¢]. We obtain our data, however, from the I/B/E/S unadjusted files, which are unadjusted for stock splits.

We also perform an array of other robustness tests:

1) The ERC is likely to be affected by certain firm-specific attributes (see Easton and Zmjewski 1989; Collins and Kothari 1989; DeFond and Park 2001). We re-estimate the ERC for earnings surprises in each range while controlling for number of analysts following the firm, firm size, market-to-book ratio, earnings volatility, growth in book value of equity and earnings persistency. The results on ERCs (untabulated) are qualitatively similar.

2) Hayn (1995) shows the ERC tends to be smaller for negative earnings. The tendency may bias our test results because earnings surprises in [0, 1¢] are more likely to be associated with negative earnings levels than are positive earnings surprises in other ranges. We delete firm-quarters with negative earnings from our sample and re-estimate the regression models.

The results on ERCs (untabulated) are qualitatively similar.

(3) Skinner and Sloan (2002) show abnormal returns to negative earnings surprises are more negative for growth stocks than for value stocks. This suggests high growth firms are more likely to manage earnings and/or analyst expectations to avoid negative earnings surprises, and that investors should be more skeptical about zero and small positive earnings surprises reported by such firms. We partition firm-quarters in 2002-2006 into quintiles based on the market-to-book ratio, and estimate Regression (1) for firm-quarters in 1st (lowest growth) and 5th (highest growth) quintiles separately. The results are presented in Figure 3. The ERC for negative earnings surprises in virtually every range is higher for high growth firms than for low growth firms. The result is consistent with the result in Skinner and Sloan (2002) that investors react more strongly to negative earnings surprises reported by high growth firms than those reported by low growth firms. We also find that the ERC for non-negative earnings surprises in virtually every range is higher for high growth firms than for low growth firms, suggesting that investors also react more strongly to positive earnings surprises reported by high growth firms.

<------ Insert Figure 3 here ----->

For high growth firms, ERCs for earnings surprises in [0, 1¢] and (1¢,2¢] are significantly lower than those for earnings surprises in adjacent ranges. For low growth firms, the result is weaker; ERCs for earnings surprises in [0, 1¢] and (1¢,2¢] are just slightly lower than those for earnings surprises in adjacent ranges. The result supports the argument that investors see zero and small positive earnings surprises as more of a red flag for high growth firms.

Bid-Ask Spread

While our results suggest investors as a whole see a zero or small positive earnings surprise as a red flag in 2002-2006, subsets of investors may view such earnings surprises differently.

Copeland and Galai [1983] and Glosten and Milgrom [1985] argue the market consists of informed traders and uninformed ones, including liquidity traders and specialists. If only a subset of investors sees a zero or small positive earnings surprise as a red flag and they use it as a trading strategy against uninformed traders, specialists might increase the bid-ask spreads of the shares of firms with such earnings surprises to protect themselves. To explore this issue, we compare the average bid-ask spreads of firm-quarters in 2002-2006 with a zero or small positive earnings surprise with those of other firm-quarters in the same period. Following Lee et al. (1993) and Christie and Huang (1994), we employ the effective bid-ask spread for this analysis, which equals two times the absolute value of the difference between the trade price and the quote midpoint (average of the bid and ask prices).[10] We calculate effective spreads at the ends of day 0 and day 1 for each sample observation. Prior research suggests the bid-ask spread is also affected by factors such as the specialist's inventory costs and order processing costs. We control for these by subtracting from each daily spread the median estimated from data for the period from 40 days before to 2 days before the earnings announcement. We also control for spread volatility by scaling each median-adjusted daily spread by the standard deviation estimated from data for the same period.[11] We compute the average of the two daily adjusted spreads for each firm-quarter. Figure 4 shows the mean average adjusted bid-ask spread for firm-quarters with earnings surprises in each range.

<------ Insert Figure 4 here ----->

[10] Trades can take place at prices other than the best quoted bid and offer (BBO). Large trades often occur at prices inside the BBO (Hasbrouck 1991). Lee and Ready (1991) find that about 30% of the transactions they examine occurred inside the BBO. Thus, Christie and Huang (1994) and Lee et al. (1993) suggest that researchers use the effective bid-ask spread instead of the quoted bid-ask spread.

[11] Another measure of volatility used in prior research is the interquartile range. Controlling for spread volatility by dividing the median-adjusted daily spread by the inter-quartile range does not change the test result qualitatively.

We notice the mean average adjusted spread is positive for earnings surprises in every range, consistent with results in prior studies that show an earnings announcement tends to increase the bid-ask spread (Lee et al.1993; Krinsky and Lee 1996). We also notice the mean average adjusted bid-ask spread is generally higher for earnings surprises in extreme ranges, suggesting that specialists perceive it as riskier to trade shares of firms with extreme earnings surprises. More importantly, earnings surprises in the ranges [0, 1¢] and (1¢,2¢] are associated with higher mean average spreads than earnings surprises in any other range. The result is consistent with greater information asymmetry for firms with a zero or small positive earnings surprise. It is also interesting that earnings surprises in [-1¢,0) are associated with the lowest mean average spread, suggesting that specialists regard such earnings surprises as the most unlikely to be the result of manipulation. We caution, however, that the results of the bid-ask spread test need to be interpreted with care. As Barron et al. (2002) and Joos (2000) argue, the bid-ask spread is a noisy proxy for information asymmetry.

Future Earnings Surprise

Our test results suggest investors see a zero or small positive earnings surprise as red flag. But is such an earnings surprise indeed a red flag? To answer the question, we compare the coefficient in the regression of future earnings surprise on current earnings surprise across ranges of current earnings surprises. We call the coefficient the future earnings response coefficient (FERC). Our results are robust to various regression specifications, and we report only the results of the following regression:

$$FES/P = \alpha + \sum_{k=-7}^{6} \beta_k \times D_k \times ES' + \beta_7 \times DC + \beta_8 \times DL + \beta_9 \times PDA \times ES'(\geq 0)$$

$$+ \beta_{10} \times PDA \times ES'(<0) + \beta_{11} \times TEF \times ES'(\geq 0) + \beta_{12} \times TEF \times ES'(<0) + \varepsilon \qquad (4)$$

where *FES* (future earnings surprise) is next quarter's earnings surprise, measured as next-quarter's actual earnings minus the latest consensus earnings forecast for the next quarter before the announcement of the current quarter's earnings.[12]

<------ Insert Table 5 here ----->

<------ Insert Figure 5 here ----->

The results of this regression are presented in Table 5 and Figure 5. The relation of the FERC with earnings surprise is asymmetric, with lower FERCs for zero and positive earnings surprises than for negative earnings surprises. To understand why that is the case, note that future earnings surprise is defined as:

$$FES = E(q+1) - F(q+1, q),$$

where E(q+1) is actual earnings in quarter q+1, and F(q+1, q) is the consensus earnings forecast for quarter q+1 before the earnings of quarter q are announced. And current earnings surprise is defined as:

$$ES = E(q) - F(q, q),$$

where E(q) is actual earnings in quarter q, and F(q, q) is the consensus earnings forecast for quarter q before the earnings of quarter q are announced.

Prior research shows many analysts issue upwardly biased earnings forecasts to curry favors with managers and then lower the forecasts subsequently to levels that the firms can beat (Gleason and Lee 2003; Ke and Yu 2006). As a result, long-horizon earnings forecasts issued long before the earnings announcement are more likely to contain an upward bias than

[12] We do not measure future earnings surprise as actual next-quarter earnings minus the latest consensus earnings forecast before next quarter's earnings are announced. Information contained in the earnings announcement for the current quarter will cause analysts to revise their next-quarter earnings forecasts. If analysts suspect that firms with a zero or small positive earnings surprise in the current quarter are manipulators, they are likely to issue new next-quarter forecasts for these firms that are more pessimistic and therefore easier to meet. Thus, our test would be less powerful in showing firms with a zero or small positive earnings surprise are likely to have negative future earnings surprises if we measured future earnings surprise as actual next-quarter earnings minus the latest consensus earnings forecast before next quarter's earnings are announced.

short-horizon earnings forecasts issued close to the earnings announcement date. In our analysis, F(q+1, q) is issued long before quarter q+1's earnings are announced, and F(q,q) is issued right before quarter q's earnings are announced. Therefore, the former is likely to be more upwardly biased and therefore higher than the latter.[13] With F(q+1, q) > F(q,q), and assuming E(q+1) and E(q) are equal or only slightly different, two implications follow: First, when ES is negative, FES is more negative than ES. Second, when ES is zero or positive, FES can be negative, zero or positive but less positive than ES. In most cases, therefore, the ratio of FES to ES is greater than one when ES is negative, and lower than one or even negative when ES is zero or positive. As a result, when one regresses FES/P on ES/P to estimate the FERC, the estimate is likely to be higher (lower) than one when ES is negative (zero or positive). The variation in FERC across ranges of earnings surprises shown in Figure 5 is consistent with these predictions. For each of three samples, all the estimated FERCs for zero and positive earnings surprises are below one, and most of the estimated FERCs for negative earnings surprises are above one. We show evidence in the Appendix that upward biases in next-quarter earnings forecasts largely, if not entirely, explain why FERCs for non-negative earnings surprises are lower than those for negative earnings surprises.

While the variation in FERC across all earnings surprise ranges is not smooth, the variation in FERC across ranges of negative earnings surprises is smooth. For each sample, moreover, FERCs for moderate negative earnings surprises are higher than those for extreme ones. This result is as expected given that moderate earnings surprises are more sustainable under normal circumstances.

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[13] Indeed, F(q+1, q) is higher than F(q,q) for 64% of the observations in the sample that we use to estimate Regression (4). F(q+1, q) is equal to F(q,q) for 7% of the sample observations, and less than F(q,q) for 29% of the sample observations.

The variation in FERC across ranges of non-negative earnings surprises is more complicated. Of the FERCs for the positive earnings surprises in the three most extreme ranges ((4¢,6¢], (6¢,8¢] and (>8¢)), the FERC for earnings surprises in (>8¢)) is generally the lowest. This suggests more moderate positive earnings surprises are more sustainable, and therefore is also as expected. But the FERCs for earnings surprises in [0,1¢], (1¢,2¢], (2¢,3¢] and (3¢,4¢] are generally lower than those for earnings surprises in the three most extreme ranges. The result shows the most moderate positive earnings surprises are actually less sustainable than more extreme positive earnings surprises. This result supports the suspicion that zero and small positive earnings surprises are more likely than other positive earnings surprises to be the result of earnings and/or analyst expectations management, which reduce the sustainability of earnings surprises. Note the FERC for earnings surprises in [0,1¢] is particularly "abnormal." Not only is it lower than the FERC for earnings surprises in any other range and indistinguishable from zero for the 1992-1996 and 1997-2001 samples, but it is negative and significant for the 2002-2006 sample while the FERC for earnings surprises in every other range is positive. The negative FERC means that for earnings surprises in this range, the higher current earnings surprise is, the lower future earnings surprise is going to be. This result supports the conjecture that many of these firms "borrow" earnings from the future by such means as taking more accruals and deferring discretionary expenditures on R&D, advertising etc. to future quarters.

Durtschi and Easton (2005) show negative earnings surprises tend to be larger in magnitude than positive earnings surprises. This result, they argue, suggests earnings management may not explain why, as reported in prior research, there are more zero and small positive earnings surprises than small negative earnings surprises. We notice, however, their result (that negative earnings surprises tend to be larger in magnitude than positive earnings surprises) is likely to be itself explained by earnings management. If firms manage earnings to precisely meet or narrowly beat earnings forecasts, the median of positive earnings surprise should be smaller than that of negative earnings surprises. Moreover, while it is difficult to compare the result in Durtschi and Easton (2005) with ours because of differences in research design, our result that the FERC for earnings surprises in [0,1¢] is the lowest suggests many firms with a zero or small positive earnings surprise are indeed manipulators.

For each sample, the coefficients on *DL* and *DC* are both negative, and the coefficient on *DL* is statistically significant. The results show investors are right to be skeptical about firms reporting a zero or small positive earnings level or change.[14] For each sample, the coefficients on $PDA \times ES'(\geq 0)$ and $PDA \times ES'(< 0)$ are negative and positive respectively, and the coefficients on $TEF \times ES'(\geq 0)$ and $TEF \times ES'(< 0)$ are negative and positive respectively. And most of these coefficients are statistically significant.

Analysts' skepticism

Are analysts aware that a zero or small positive earnings surprise is a red flag, as our results above suggest? To answer the question, we compare the coefficient in the regression of analyst revision of next-quarter earnings forecast on current earnings surprise across ranges of current earnings surprises. We call the coefficient the analyst earnings response coefficient (AERC). Our results are robust to various regression specifications, and we report only the

[14] Our results do not support the argument by Beaver et al. (2007) that the abnormally large numbers of firms with a zero or small positive earnings level or change are the result of accounting conservatism and tax issues. But our results do not rule out the possibility that accounting conservatism and tax issues are contributing factors for the abnormally large numbers of firms with a zero or small positive earnings level or change earnings level and earnings change.

results of the following regression:

$$FREV/P = \alpha + \sum_{k=-7}^{6} \beta_k \times D_k \times ES' + \beta_7 \times DC + \beta_8 \times DL + \beta_9 \times PDA \times ES'(\geq 0)$$

$$+ \beta_{10} \times PDA \times ES'(< 0) + \beta_{11} \times TEF \times ES'(\geq 0) + \beta_{12} \times TEF \times ES'(< 0) + \varepsilon \quad (5)$$

where *FREV* is analyst revision of the next-quarter earnings forecast, calculated as the first next-quarter earnings forecast issued by an analyst after the current-quarter's earnings are announced minus the latest consensus next-quarter earnings forecast before the current-quarter's earnings are announced.

<------ Insert Table 6 here ----->

<------ Insert Figure 6 here ----->

We report the results of Regressions (5) in Table 6 and Figure 6. The variation in AERC across earnings surprise ranges resembles that in FERC, with higher AERCs for negative earnings surprises than for zero and positive ones. This result is not surprising. Not only are Regressions (4) and (5) identical except that they have different dependent variables, but the dependent variables, FREV/P and FES/P, are very similar in construct. The former (latter) is the scaled difference between the new next-quarter earnings forecast (actual next-quarter earnings) and the old next-quarter forecast. Unless analysts do a poor job in forecasting next-quarter earnings, therefore, the variation in AERC should resemble that in FERC. Moreover, we gave a detailed reasoning as to why higher FERCs for negative earnings surprises are largely if not entirely explained by the fact that in most cases, F(q+1, q) > F(q, q). One needs to make only minor changes to the reasoning to see that the condition F(q+1, q) > F(q, q) will also make AERCs for negative earnings surprises higher than those for zero and positive earnings surprises. We also note the AERC is lower than the FERC for earnings surprises in many ranges, consistent with prior research that shows analysts under-react to the most recent earnings surprise (see Mendenhall 1991; Abarbanell and Bernard 1992).

Given that the AERC tends to be lower for zero and positive earnings surprises than for negative ones because of upward biases in long-horizon analyst forecasts (i.e., F(q+1, q) > F(q,q)), we examine AERCs for non-negative earnings surprises for signs of analyst skepticism. We note that AERCs for zero and moderate positive earnings surprises tend to be lower than those for extreme positive earnings surprises for every sample. Moreover, of the AERCs for zero and positive earnings surprises in the four most moderate ranges (those in [0,1¢], (1¢,2¢], (2¢,3¢] and (3¢,4¢]), the AERC for earnings surprises in [0,1¢] is the lowest for every sample. Furthermore, the AERC for earnings surprises in [0,1¢] is negative for both the 1992-96 and 1997-2001 samples, and significant for the 1997-2001 sample, which is from the period in which the manipulation index suggests the number of firms playing the numbers game was rapidly increasing. These results suggest analysts were quicker than investors to associate zero and small positive earnings surprises with manipulation.

V. Concluding Remarks

This study explores how investors and analysts react to an increasing number of firms playing the numbers game. For investors, we report evidence that the ERC is lower for zero and small positive earnings surprises than for earnings surprises in adjacent ranges for the period 2002-2006, but not the period 1992-1996 or 1997-2001. The results suggest that investors gradually learned over time to associate a zero or small positive earnings surprise with manipulation. We obtain the same results after controlling for the signs of estimated discretionary accruals and the trajectory of analyst earnings forecasts. The results suggest that investors see a zero or small positive earnings surprise as a red flag in and of itself.

We also find evidence that investors are right to be skeptical about zero and small positive earnings surprises. The relation of future earnings surprise with current earnings surprise is more negative for current earnings surprises in the range [0, 1¢] than for those in any other range throughout the period 1992-2006. But investors apparently learned to be skeptical about zero and small positive earnings surprises later than analysts. We compare the coefficient in the regression of analyst revision of next-quarter earnings forecasts on current earnings surprise across ranges of current earnings surprises. The results suggest analysts see a zero or small positive earnings surprise as a red flag throughout the period 1992-2006.

Our results are consistent with Akerlof's (1970) prediction that if the quality of a good is difficult for potential buyers to assess, they will pay lower prices even for units of the good that are of high quality. This study apparently is the first that shows firms collectively incur a cost for playing the numbers game as a result of a backlash by analysts and investors.

Appendix

If optimistic biases in analyst next-quarter forecasts explain the large differences in FERC between positive and negative earnings surprises, the differences should gradually vanish when the biases are progressively reduced. Here we show that is indeed the case. We proxy for the upward bias in F(q+1,q) for each sample observation by the difference between F(q+1,q) and F(q,q); i.e., the bias

$$B = F(q+1,q) - F(q,q).$$

If B is zero or negative, we assume there is no bias in F(q+1, q) and leave the value of F(q+1,q) unchanged. If B is positive, we reduce the bias by x percent by setting F(q+1,q) equal to F(q,q) + (1- x%)×B, and recalculate the value of FES. We then re-estimate Regression (4) using data for firm-quarters in 1992-2006 (the full sample) and obtain a set of “as if” FERCs.

Figure A.1 shows FERCs for earnings surprises in all ranges when biases in next-quarter earnings forecasts are reduced by 0% (black bars), 50% (dark grey bars), 75% (light grey bars), and 87.5% (white bars) respectively. Comparing the heights of the four bars at each earnings surprises range, one can see the effects of reducing biases in next-quarter earnings forecasts on the FERCs. Every increase in bias reduction invariably leads to an increase (decrease) in FERC for positive (negative) earnings surprises in every range. Thus, reducing biases in next-quarter earnings forecasts progressively makes the variation in FERC across current earnings surprise ranges more and more bell-shaped and symmetric. Differences in FERC between large positive and negative earnings surprises almost vanish when the biases are reduced by 87.5%, For example, FERCs for earnings surprises in (2¢,3¢] and [-3¢,-2¢) are almost identical, and so are those for earnings surprises in (4¢,6¢] and [-6¢,-4¢). The result suggests that biases in analyst next-quarter earnings forecasts largely, if not entirely, explain why the original FERCs for negative earnings surprises are much higher than those for positive earnings surprises.

<------ Insert Figure A.1 here ----->

Regardless of the extent of bias reduction, FERCs for earnings surprises in [0,1¢] and (1¢,2¢] are lower than that for earnings surprise in any other range. Thus, the result that a zero or small positive earnings surprise is bad news is robust to alternative methods of measuring next-quarter earnings expectations.

References

Abarbanell, J., and V. Bernard. 1992. Test of analysts' overreaction/underreaction to earnings information as an explanation for anomalous stock price behavior. *Journal of Finance* 47: 1181-1207.

Abarbanell, J. and B. Bushee. 1997. Fundamental analysis, future Earnings, and Stock prices. *Journal of Accounting Research* 35 (1): 1-24.

Abarbanell, J. and B. Bushee. 1998. Abnormal returns to a fundamental analysis strategy. *The Accounting Review* 73 (1): 19-45.

Akerlof, G. A. 1970. The Market for 'Lemons': Quality Uncertainty and the Market Mechanism. *Quarterly Journal of Economics* 84 (3): 488–500.

Ashbaugh, H., R. Lafond, and B. Mayhew. 2003. Do nonaudit services compromise auditor independence? Further evidence. *The Accounting Review* 78: 611-640.

Ayers, B, J. Jiang, and P. Yeung. 2006. Discretionary accruals and earnings management: An analysis of pseudo earning targets. *The Accounting Review* 81: 617-653.

Barron, O., D. Byard, and O. Kim. 2002. Changes in analysts' information around earnings announcements. *The Accounting Review* 77 (October): 821-846.

Bartov, E., D. Givoly, and C. Hayn. 2002. The rewards to meeting or beating earnings expectations. *Journal of Accounting and Economics* 33 (June): 173-204.

Beaver, W, M. Nichols, and K. Nelson, 2007. An alternative interpretation of the Discontinuity in Earnings Distributions. *Review of Accounting Studies* 12 (December): 525–556

Brown, L. 2001. A temporal analysis of earnings surprises: Profits versus Losses. Journal of Accounting Research 39 (September):221-241.

———, and M. Caylor. 2005. A temporal analysis of quarterly earnings threshold: propensity and valuation consequences. *The Accounting Review* 80 (April): 423-440

Bryan-Low, C. 2002. Meeting expectations used to draw favor, now it invites scrutiny. *The Wall Street Journal* (August 5).

Burgstahler, D., and I. Dichev. 1997. Earnings management to avoid earnings decreases and losses. *Journal of Accounting & Economics* 24 (December): 99-126.

Burgstahler, D. and M. Eames. 2003. Earnings management to avoid losses and small decreases: Are analysts' fooled? *Contemporary Accounting Research* 20 (Summer):

253-294.

_______ 2006. Management of Earnings and Analysts` Forecasts to Achieve Zero and Small Positive Earnings Surprises. *Journal of Business Finance & Accounting* 33 (June/July): 633-652.

Cassell B. L. 2002. Meeting expectation used to draw favor, now it invites scrutiny. *The Wall Street Journal* (August 5)

Christie, W., and R. Huang. 1994. Market structures and liquidity, a transactions data study of exchange listings. *Journal of Financial Intermediation* (October): 300-326.

Copeland, T., and D. Galai. 1983. Information effects on the bid-ask spread. Journal of Finance 38 (December): 1457-69.

Das, S, and B. Lev. 1994. Nonlinearity in the returns-earnings relation: Tests of alternative specifications. *Contemporary Accounting Research* 11 (Summer): 353-379.

Dechow, P., S Richardson, and I. Tuna. 2003. Why are earnings kinky? An examination of the earnings management explanation. Review of Accounting Studies 8: 355-384.

DeFond, M. L., and C. W. Park. 2001. The reversal of abnormal accruals and the market valuation of earnings surprises. *The Accounting Review* 76 (July):375-404.

Degeorge, F., J. Patel, and R. Zeckhauser. 1999. Earnings management to exceed thresholds. *Journal of Business* 72 (January): 1-33.

Durtschi, C. and P. Easton. 2005. Earnings management? The shapes of the frequency distributions of earnings metrics are not evidence ipso facto. Journal of Accounting Research 43 (September): 557-592.

Easton, P. and M. W. Zmijewski. 1989. Cross-sectional variation in the stock market responses to the announcement of accounting earnings. *Journal of Accounting and Economics* 11 (July): 117-141.

Francis, J., J. Hanna, and L. Vincent. 1996. Causes and effects of discretionary asset write-offs. *Journal of Accounting Research* 34 (Supplement):117-134.

Freeman, R., and S. Tse. 1992. A non-linear model of security price response to unexpected earnings. *Journal of Accounting Research* 30 (Autumn): 185-209.

Gleason, C. and C. Lee. 2003. Analyst forecast revsions and market price discovery. The Accounting Review 78 (January): 193-225.

Glosten, L., and P. Milgrom. 1985. Bid, ask and transaction prices in a specialist Market with heterogeneously informed traders. *Journal of Financial Economics* 14 (March): 71-100.

Hasbrouck, J. 1991. The summary informativeness of stock trades, an econometric analysis. *Review of Financial Studies* 4 (Fall): 571-595.

Hayn, C. 1995. The information content of losses. *Journal of Accounting and Economics* 20 (September):125-154.

Joos, P. 2000. Discussion of the economic consequences of increased disclosure. *Journal of Accounting Research*. 38 (Supplement): 125-136.

Ke, B., and Y. Yu. 2006. The effect of issuing biased earnings forecasts on analysts' access to management and survival. *Journal of Accounting Research* 44 (December): 965 – 999.

Kinney W., D. Burgstahler, and R. Martin. 2002. Earnings surprises "materiality" as measured by stock returns. *Journal of Accounting Research* 40 (December): 1297-1329.

Kothari S., A. Leone and C. Wasley. 2005. Performance matched discretionary accrual measures. *Journal of Accounting & Economics* 29 (February): 163-197.

Krinsky, I., and J. Lee. 1996. Earnings announcements and the components of the bid-ask spread. *Journal of Finance* 51: 1523-1535.

Lee, C.M.C., B. Mucklow, and M.J. Ready. 1993. Spreads, depths, and the impact of earnings information: an intraday analysis. *Review of Financial Studies* 6: 345-374.

Lee. C., and M. Ready, 1991. Inferring trade direction from intraday data. *Journal of Finance* 46 (June): 733-746.

Levitt, A. 1998. *The numbers game.* Speech at the New York University Center for Law and Business, New York, September 28.

Liang L.H. 2003. Post-earnings announcement drift and market participants' information processing biases. *Review of Accounting Studies* 8: 321-345.

Lipe R. C., L. Bryant, S. K. Widener. 1998. "Do nonlinearity, firm-specific coefficients, and losses represent distinct factors in the relation between stock returns and accounting earnings?" *Journal of Accounting and Economics* 25 (1998): 195-214

Maich, S. 2002. GE earnings quality in question: Too many lucky breaks. *The Financial Post*

(October 1).

Matsumoto, D. 2002. Management's incentives to avoid negative earnings surprises. *The Accounting Review* 77 (September): 483-514.

Matsunaga, S. R., and C. W. Park. 2001. The Effect of missing a quarterly earnings benchmark on the CEO's annual bonus. *The Accounting Review* 76 (September): 313-333.

Mendenhall, R. 1991. Evidence of possible underweighting of earnings-related information. *Journal of Accounting Research,* 29: 170-180

O'Brien, P. 1988. Analysts' forecasts as earnings expectations. *Journal of Accounting and Economics* 10: 53-83.

Payne, J., and W. B. Thomas. 2003. The implications of using stock-split adjusted I/B/E/S data in empirical research. *The Accounting Review* 78 (October): 1049-1067.

Richardson. S., S. H. Teoh, and P. D. Wysocki. 2004. The walk-down to beatable analyst forecasts: the role of equity issuance and insider trading incentives. *Contemporary Accounting Research* 21 (Winter): 885–924

Skinner, D., and R. Sloan. 2002. Earnings surprises, growth expectations, and stock returns: Don't let an earnings torpedo sink your portfolio. *Review of Accounting Studies* 7 (June): 289-312.

Vickers, M. 1999. Ho-hum, another earnings surprise. *Business Week* (May 24) 83-8.

Table 1
Sample Statistics

		All ES	*ES (<-4¢)*	*ES [-4¢,-3¢)*	*ES [-3¢,-2¢)*	*ES [-2¢,-1¢)*	*ES [-1¢,0)*	*Zero ES*	*ES (0,1¢]*	*ES (1¢,2¢]*	*ES (2¢,3¢]*	*ES (3¢,4¢]*	*ES (>4¢)*
CAR[-1,1]	*1992-2006*	0.0009	-0.0240	-0.0229	-0.0168	-0.0136	-0.0118	-0.0058	0.0034	0.0062	0.0155	0.0178	0.0271
	1992-1996	0.0015	-0.0183	-0.0127	-0.0117	-0.0074	-0.0064	-0.0004	0.0063	0.0084	0.0149	0.0151	0.0256
	1997-2001	0.0016	-0.0231	-0.0227	-0.0143	-0.0124	-0.0073	-0.0043	0.0037	0.0071	0.0153	0.0181	0.0264
	2002-2006	-0.0002	-0.0320	-0.0333	-0.0246	-0.0213	-0.0208	-0.0116	0.0013	0.0038	0.0161	0.0190	0.0286
ES/P	*1992-2006*	-0.0015	-0.0176	-0.0045	-0.0033	-0.0016	-0.0015	0.0000	0.0012	0.0012	0.0024	0.0031	0.0069
	1992-1996	-0.0020	-0.0143	-0.0036	-0.0025	-0.0013	-0.0011	0.0000	0.0009	0.0010	0.0020	0.0026	0.0058
	1997-2001	-0.0025	-0.0246	-0.0049	-0.0037	-0.0016	-0.0016	0.0000	0.0012	0.0012	0.0024	0.0032	0.0080
	2002-2006	0.0000	-0.0127	-0.0049	-0.0036	-0.0018	-0.0019	0.0000	0.0014	0.0014	0.0026	0.0032	0.0065
P	*1992-2006*	20.16	16.42	17.72	16.31	18.18	13.04	19.33	16.03	21.92	21.62	24.34	25.26
	1992-1996	19.61	16.86	18.74	16.76	18.36	14.93	19.19	16.45	21.52	20.86	23.55	24.11
	1997-2001	19.39	13.45	16.23	15.01	17.87	12.27	19.34	17.10	22.52	22.24	24.16	23.31
	2002-2006	21.41	19.68	18.23	17.18	18.33	12.01	19.41	14.70	21.54	21.47	24.98	27.56
N	*1992-2006*	139,885	24,899	3,376	6,715	9,444	3,715	21,085	6,612	17,800	12,762	6,260	27,217
	1992-1996	41,143	8,989	1,197	2,388	3,289	1,223	5,597	1,707	4,636	3,252	1,594	7,271
	1997-2001	51,490	9,107	1,130	2,253	3,253	1,201	8,535	2,490	6,951	4,844	2,260	9,466
	2002-2006	47,252	6,803	1,049	2,074	2,902	1,291	6,953	2,415	6,213	4,666	2,406	10,480

Variable Definitions:
CAR[-1,1]: cumulative abnormal returns from one day before the earnings announcement date to one day after.
ES: earnings surprise, calculated as actual earnings per share reported by I/B/E/S minus latest analyst consensus forecast in I/B/ES unadjusted data set.
P: share price 21 days before the earnings announcement.
N: number of observations.

Table 2
Variation of the Earnings Response Coefficient across Earnings Surprise Ranges[a]

Equation (1):[b] $CAR[-1,1] = \alpha + \beta\ CAR\ [-20,-2] + \sum_{k=-7}^{6} \beta_k \times D_k \times (ES/P) + \varepsilon$

Variables	1992-1996 Coef.	1992-1996 t-stat.	1997-2001 Coef.	1997-2001 t-stat.	2002-2006 Coef.	2002-2006 t-stat.
Intercept	0.00	1.22	0.00	2.67	0.00	-0.67
CAR[-20,-2]	-0.03	-11.68	-0.03	-15.61	-0.02	-8.50
ES/P for ES in						
(<-8¢)	0.65	19.30	0.41	17.59	0.90	18.61
[-8¢,-6¢)	1.18	7.28	1.24	9.28	1.13	7.62
[-6¢,-4¢)	1.69	8.43	1.16	7.60	1.62	10.40
[-4¢,-3¢)	2.17	5.90	1.85	5.53	3.65	12.89
[-3¢,-2¢)	2.20	5.55	2.25	7.70	2.44	9.79
[-2¢,-1¢)	3.11	5.28	3.79	7.29	3.84	9.81
[-1¢,0)	3.03	2.46	2.56	2.63	4.59	6.76
[0,1¢]	5.44	4.55	2.68	3.38	-0.48	-0.79
(1¢,2¢]	7.01	10.63	2.86	6.58	1.68	5.13
(2¢,3¢]	5.13	12.52	2.87	10.55	2.52	11.53
(3¢,4¢]	4.25	9.69	2.27	7.77	2.45	10.46
(4¢,6¢]	3.95	16.29	2.26	13.58	2.35	14.98
(6¢,8¢]	3.11	11.05	1.51	9.61	3.44	18.02
(>8¢)	2.67	21.97	1.33	16.16	2.15	26.45
Adj.R-sq	0.06		0.04		0.05	

[a]This table shows estimated earnings response coefficients for earnings surprises in various ranges, each representing the coefficient in the regression of cumulative abnormal returns on earnings surprise for earnings surprises in a specific range.
[b]Variable definitions:
CAR[-1,1]: Cumulative abnormal returns from 1 day before the earnings announcement date to 1 day after;
CAR[-20,-2]: cumulative abnormal returns from 20 days before the earnings announcement date to 2 days before;
ES/P: earnings surprise (*ES*) scaled by the share price 21 days before the earnings announcement date (*P*);
D_k: earnings surprise dummy, equal to one if the unscaled earnings surprise (*ES*) falls in Range R_k and zero otherwise.

Table 3
Variation of the Earnings Response Coefficient across Earnings Surprise Ranges[a]

Equation (2):[b] $CAR[-1,1] = \alpha + \beta\ CAR\ [-20,-2] + \sum_{k=-7}^{6} \beta_k \times D_k \times ES' + \beta_7 \times DC + \beta_8 \times DL + \varepsilon$

	1992-1996		1997-2001		2002-2006	
Variables	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.
Intercept	0.00	1.90	0.00	1.93	0.00	1.25
CAR[-20,-2]	-0.03	-10.37	-0.03	-15.58	-0.02	-8.68
ES/P for ES in						
(<-8¢)	0.65	17.71	0.49	21.13	0.76	15.75
[-8¢,-6¢)	1.19	6.74	1.23	9.61	1.20	7.94
[-6¢,-4¢)	1.77	8.09	1.47	9.71	1.42	9.33
[-4¢,-3¢)	2.12	5.24	2.15	6.56	3.43	11.99
[-3¢,-2¢)	1.82	4.27	2.40	8.72	2.32	9.27
[-2¢,-1¢)	2.75	4.28	3.47	7.10	3.60	9.13
[-1¢,0)	2.02	1.50	2.56	2.77	3.37	4.92
[0,1¢]	5.32	4.11	2.23	2.91	0.31	0.50
(1¢,2¢]	6.12	8.60	2.58	6.20	2.06	6.18
(2¢,3¢]	4.36	9.91	2.82	10.83	2.57	11.60
(3¢,4¢]	3.86	8.26	2.48	8.41	2.30	9.96
(4¢,6¢]	3.10	12.33	2.30	14.12	2.41	15.28
(6¢,8¢]	2.78	9.34	1.80	11.65	2.96	15.85
(>8¢)	2.50	19.12	1.60	19.50	2.10	25.56
DC	0.00	-1.15	0.00	-1.63	-0.01	-4.16
DL	-0.01	-4.22	0.00	-1.48	0.00	-3.02
Adj.R-sq	0.05		0.05		0.05	

[a]This table shows estimated earnings response coefficients for earnings surprises in various ranges, each representing the coefficient in the regression of cumulative abnormal returns on earnings surprise for earnings surprises in a specific range, while controlling for the effects on abnormal returns when EPS falls in [0, 1¢] and when EPS change from the same quarter in the previous year falls in the same range.

[b]Variable definitions:
CAR[-1,1]: Cumulative abnormal returns from 1 day before the earnings announcement date to 1 day after;
CAR[-20,-2]: cumulative abnormal returns from 20 days before the earnings announcement date to 2 days before;
ES' = ES/P, or earnings surprise scaled by share price;
D_k: earnings surprise dummy, equal to one if the unscaled earnings surprise (*ES*) falls in Range R_k and zero otherwise.
DL = earnings level dummy, equal to 1 if actual earnings fall in [0,1¢], and 0 otherwise;
DC = earnings change dummy, equal to 1 if actual earnings minus earnings in the same quarter in the previous year fall in [0,1¢], and 0 otherwise

Table 4
Variation of the Earnings Response Coefficient across Earnings Surprise Ranges[a]

Equation (3):[b] $CAR[-1,1] = \alpha + \beta\ CAR\ [-20,-2] + \sum_{k=-7}^{6} \beta_k \times D_k \times ES' \ +$

$\beta_7 \times PDA \times ES'(\geq 0) + \beta_8 \times PDA \times ES'(< 0) + \beta_9 \times TEF \times ES'(\geq 0) + \beta_{10} \times TEF \times ES'(< 0) + \varepsilon$

	1992-1996		1997-2001		2002-2006	
Variables	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.
Intercept	0.00	0.53	0.00	2.42	0.00	-0.85
CAR[-20,-2]	-0.03	-11.83	-0.03	-15.91	-0.02	-7.51
ES/P for ES in						
(<-8¢)	0.59	11.82	0.35	11.06	0.87	14.20
[-8¢,-6¢)	1.13	6.84	1.21	8.81	1.09	7.09
[-6¢,-4¢)	1.65	8.06	1.20	7.74	1.59	10.06
[-4¢,-3¢)	2.13	5.77	2.08	6.04	3.62	12.76
[-3¢,-2¢)	2.07	5.23	2.22	7.58	2.31	9.31
[-2¢,-1¢)	3.07	5.20	3.70	7.11	3.80	9.68
[-1¢,0)	2.99	2.43	2.55	2.61	4.53	6.68
[0,1¢]	5.72	4.77	2.90	3.65	-0.33	-0.54
(1¢,2¢]	7.26	10.92	3.09	7.05	1.91	5.74
(2¢,3¢]	5.45	12.96	3.18	11.43	2.73	12.25
(3¢,4¢]	4.52	10.10	2.55	8.68	2.67	11.21
(4¢,6¢]	4.21	16.35	2.56	14.48	2.61	15.80
(6¢,8¢]	3.37	11.46	1.82	11.03	3.60	18.35
(>8¢)	2.92	19.49	1.72	16.70	2.30	24.49
PDA x *ES'(≥0)*	-0.39	-1.95	-0.73	-5.60	-0.61	-4.41
PDA x *ES'(<0)*	-0.04	-0.66	-0.08	-1.78	0.10	1.08
TEF x *ES'(≥0)*	-0.46	-2.36	-0.40	-2.91	-0.08	-0.55
TEF x *ES'(<0)*	0.15	2.45	0.35	7.08	0.03	0.31
Adj.R-sq	0.067		0.041		0.06	

[a]This table shows estimated earnings response coefficients for earnings surprises in various ranges, each representing the coefficient in the regression of cumulative abnormal returns on earnings surprise for earnings surprises in a specific range, while controlling for the effects on the ERC when estimated discretionary accruals are positive and when the analyst forecast trajectory is downward.

[b]Variable definitions:
CAR[-1,1]: Cumulative abnormal returns from 1 day before the earnings announcement date to 1 day after;
CAR[-20,-2]: cumulative abnormal returns from 20 days before the earnings announcement date to 2 days before;
ES' = ES/P, or earnings surprise scaled by share price;
D_k: earnings surprise dummy, equal to one if the unscaled earnings surprise (*ES*) falls in Range R_k and zero otherwise.
PDA = positive discretionary accruals dummy, equal to 1 if estimated discretionary accruals are positive, and zero otherwise;
TEF = trajectory of analyst earnings forecast dummy, equal to 1 the trajectory is downward before the earnings announcement, and zero otherwise;
ES'(≥ 0) = ES' if ES' is non-negative (zero or positive), and zero otherwise;
ES'(<0) = ES' if ES' is negative, and zero otherwise

TABLE 5[a]
Variation of the Future Earnings Response Coefficient across Earnings Surprises Ranges

Equation (4):[b] $FES/P = \alpha + \sum_{k=-7}^{6} \beta_k \times D_k \times ES' + \beta_7 \times DC + \beta_8 \times DL +$

$\beta_9 \times PDA \times ES'(\geq 0) + \beta_{10} \times PDA \times ES'(<0) + \beta_{11} \times TEF \times ES'(\geq 0) + \beta_{12} \times TEF \times ES'(<0) + \varepsilon$

	1992-1996		1997-2001		2002-2006	
Variables	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.
Intercept	0.00	-14.22	0.00	-22.56	0.00	-6.96
ES/P for ES in						
(<-8¢)	0.49	35.03	0.55	56.19	0.44	30.19
[-8¢,-6¢)	0.88	22.28	0.96	38.06	0.93	29.79
[-6¢,-4¢)	1.06	21.84	1.22	42.87	1.09	25.50
[-4¢,-3¢)	1.17	14.93	1.23	21.73	1.11	16.68
[-3¢,-2¢)	1.55	21.68	1.47	27.49	1.09	18.22
[-2¢,-1¢)	1.93	17.41	2.02	23.68	1.46	16.06
[-1¢,0)	2.01	8.56	2.17	13.16	1.68	11.87
[0,1¢]	-0.02	-0.07	0.05	0.34	-0.30	-2.47
(1¢,2¢]	0.15	1.13	0.37	4.68	0.12	1.70
(2¢,3¢]	0.48	5.65	0.34	6.30	0.47	10.38
(3¢,4¢]	0.40	4.62	0.29	4.94	0.36	6.82
(4¢,6¢]	0.61	11.89	0.67	20.05	0.40	11.68
(6¢,8¢]	0.57	10.61	0.61	18.01	0.56	15.26
(>8¢)	0.52	19.79	0.56	28.80	0.47	22.43
DC	0.00	-1.76	0.00	-0.99	0.00	-1.06
DL	0.00	-1.84	0.00	-7.85	0.00	-6.29
PDA x *ES'(≥0)*	-0.12	-3.72	0.00	-0.01	-0.02	-0.99
PDA x *ES'(<0)*	0.19	12.65	0.16	13.76	0.17	10.01
TEF x *ES'(≥0)*	-0.41	-12.78	-0.50	-19.97	-0.42	-15.29
TEF x *ES'(<0)*	0.05	3.21	0.01	1.26	0.04	2.32
Adj.R-sq	0.36		0.43		0.29	

[a]This table shows estimated future earnings response coefficients for earnings surprises in various ranges, each representing the coefficient in the regression of future earnings surprise on current earnings surprise for current earnings surprises in a specific range, while controlling for the effects on future earnings surprise when current EPS level falls in [0, 1¢] and when current EPS change from the quarter in the previous year falls in the same range, and controlling for the effects on the coefficient when estimated discretionary accruals are positive and the trajectory of analysts earnings forecasts is downward.

[b]Variable definitions:

FES: actual next-quarter earnings minus the latest consensus analyst next-quarter earnings forecast before the current-quarter earnings announcement;

ES' : ES/P, or earnings surprise scaled by share price;

D_k: earnings surprise dummy, equal to one if the unscaled earnings surprise (*ES*) falls in Range R_k and zero otherwise.

DL : earnings level dummy, equal to 1 if actual earnings fall in [0,1¢], and 0 otherwise;

DC : earnings change dummy, equal to 1 if actual earnings minus earnings in the same quarter in the previous year fall in [0,1¢], and 0 otherwise;
ES'(≥0): equal to ES/P if ES/P is zero or positive, and zero if ES/P is negative;
ES'(<0): equal to ES/P if ES/P is negative, and zero if ES/P is zero or positive;
PDA: estimated discretionary accruals dummy, equal to 1 if estimated discretionary accruals are positive, and zero otherwise;
TEF: trajectory of analyst earnings forecast dummy, equal to 1 if the trajectory is downward before the earnings announcement and zero otherwise.

TABLE 6[a]
Variation of the Analyst Earnings Response Coefficient across Earnings Surprise Ranges.

Equation (5):[b] $FREV/P = \alpha + \sum_{k=-7}^{6} \beta_k \times D_k \times ES' + \beta_7 \times DC + \beta_8 \times DL +$

$\beta_9 \times PDA \times ES'(\geq 0) + \beta_{10} \times PDA \times ES'(<0) + \beta_{11} \times TEF \times ES'(\geq 0) + \beta_{12} \times TEF \times ES'(<0) + \varepsilon$

	1992-1996		1997-2001		2002-2006	
Variables	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.
Intercept	0.00	-7.60	0.00	-16.51	0.00	-20.35
ES/P for ES in						
(<-8¢)	0.19	17.89	0.40	46.13	0.21	20.39
[-8¢,-6¢)	0.69	24.52	0.75	34.00	0.52	21.35
[-6¢,-4¢)	0.75	22.90	0.93	40.90	0.55	21.61
[-4¢,-3¢)	0.64	10.88	0.91	23.97	0.77	16.09
[-3¢,-2¢)	1.02	17.93	1.30	31.76	0.81	21.21
[-2¢,-1¢)	1.13	13.89	1.86	23.54	1.00	16.41
[-1¢,0)	1.15	6.33	1.58	12.05	1.59	14.17
[0,1¢]	-0.21	-1.11	-0.47	-3.51	0.08	1.01
(1¢,2¢]	-0.02	-0.27	-0.03	-0.54	0.24	5.20
(2¢,3¢]	0.09	1.59	-0.07	-1.70	0.28	8.49
(3¢,4¢]	0.03	0.43	0.21	4.02	0.12	3.46
(4¢,6¢]	0.19	4.97	0.09	3.26	0.23	9.71
(6¢,8¢]	0.23	5.32	0.22	7.65	0.21	7.72
(>8¢)	0.10	5.71	0.11	7.18	0.18	14.08
DC	0.00	-0.90	0.00	-0.20	0.00	-0.20
DL	0.00	-3.35	0.00	-2.70	0.00	-3.40
PDA x *ES'(≥0)*	0.03	1.35	-0.07	-3.70	-0.01	-0.76
PDA x *ES'(<0)*	-0.01	-1.32	0.02	2.44	-0.01	-1.29
TEF x *ES'(≥0)*	-0.13	-6.31	-0.13	-6.70	-0.12	-6.39
TEF x *ES'(<0)*	0.04	3.54	0.00	-0.29	0.00	0.04
Adj.R-sq	0.29		0.44		0.24	

[a]This table shows estimated analyst earnings response coefficients for earnings surprises in various ranges, each representing the coefficient in the regression of analyst earnings forecast revision for the next quarter after the earnings announcement for the current quarter on earnings surprise for earnings surprises in a specific range, while controlling for the effects on forecast revision when current EPS level falls in [0, 1¢]and when current EPS change from the quarter in the previous year falls in the same range, and controlling for the effects on the coefficient when estimated discretionary accruals are positive and the trajectory of analysts earnings forecasts is downward.

[b]Variable definitions:

FREV: analyst forecast revision for next-quarter earnings, calculated as the first next-quarter earnings forecast made by an analyst after the current-quarter earnings announcement minus the latest consensus analyst next-quarter earnings forecast before the current-quarter earnings announcement;

ES' : ES/P, or earnings surprise scaled by share price;

D_k: earnings surprise dummy, equal to one if the unscaled earnings surprise (*ES*) falls in Range R_k and zero otherwise.

DL : earnings level dummy, equal to 1 if actual earnings fall in [0,1¢], and 0 otherwise;
DC : earnings change dummy, equal to 1 if actual earnings minus earnings in the same quarter in the previous year fall in [0,1¢], and 0 otherwise;
ES'(≥0): equal to ES/P if ES/P is zero or positive, and zero if ES/P is negative;
ES'(<0): equal to ES/P if ES/P is negative, and zero if ES/P is zero or positive;
PDA: estimated discretionary accruals dummy, equal to 1 if estimated discretionary accruals are positive, and zero otherwise;
TEF: trajectory of analyst earnings forecast dummy, equal to 1 if the trajectory is downward before the earnings announcement and zero otherwise.

Figure 1
Annual Ratio of Number of Earnings Surprises in the Range [0¢, 2¢] to Number of Earnings Surprises in the Range [-2¢, 0) in 1992-2006.

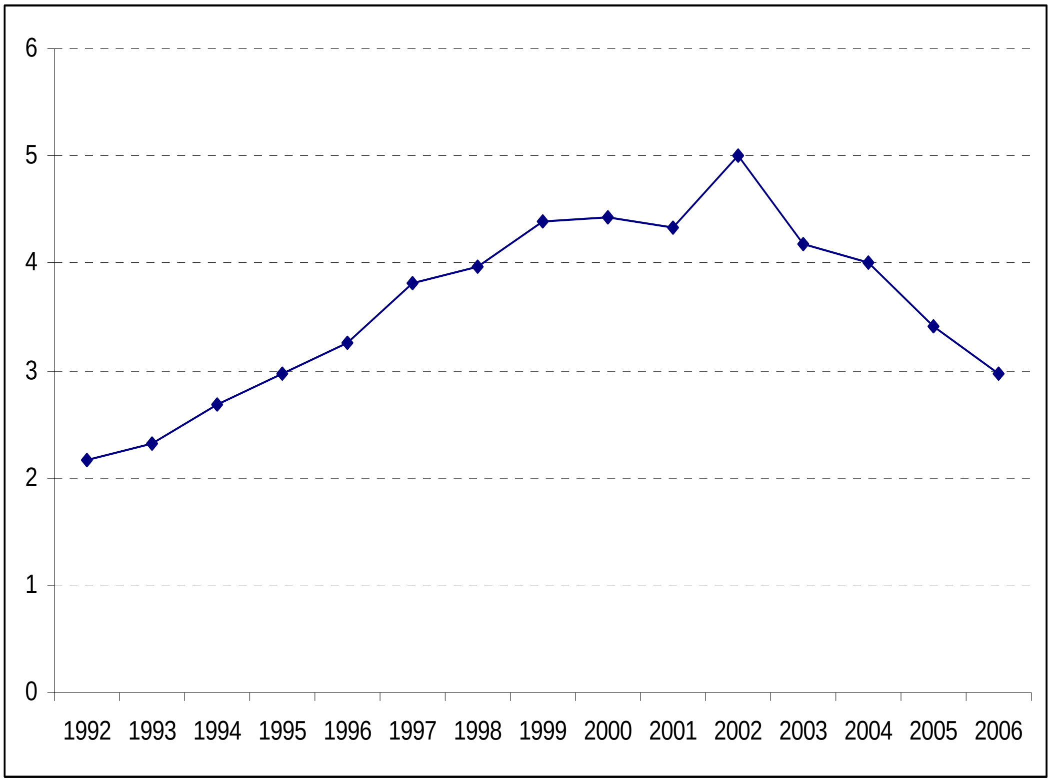
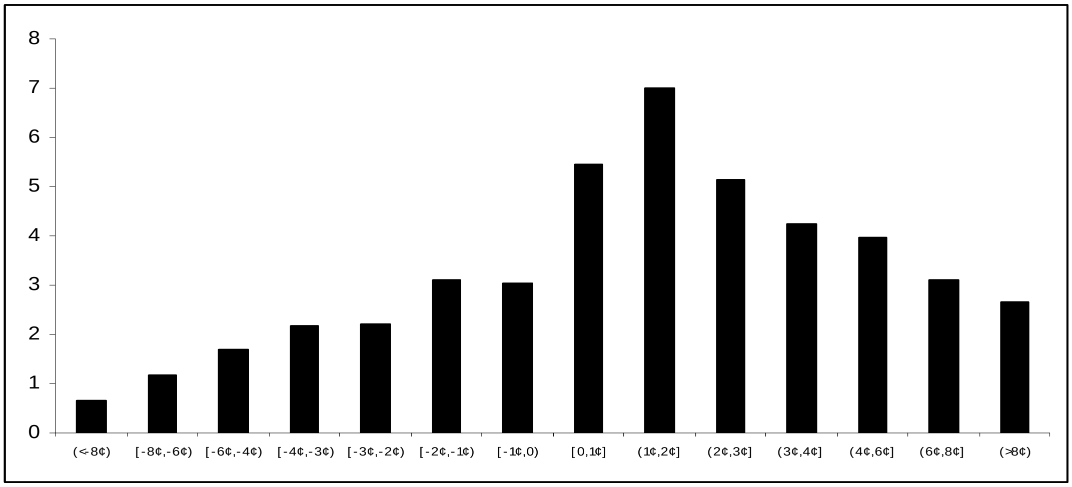
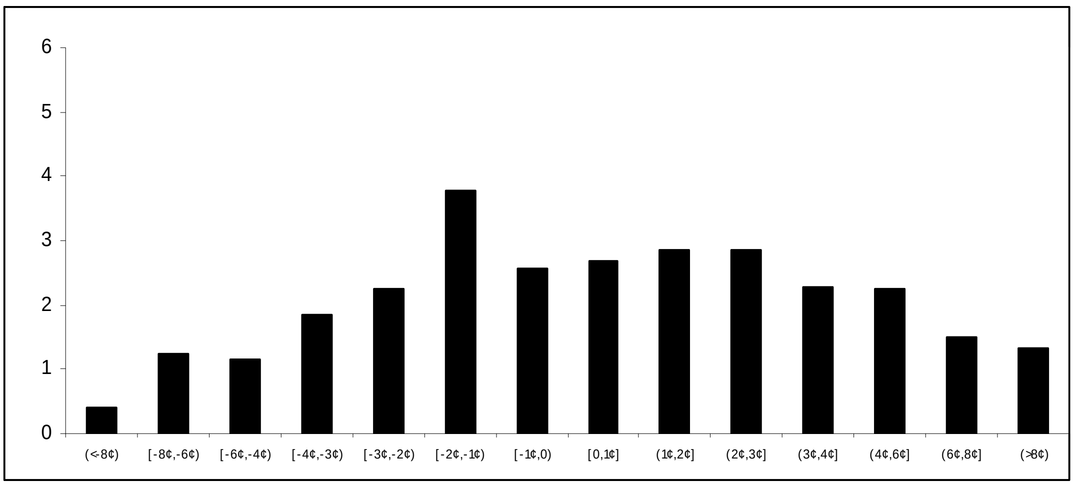


Figure 2:
Variation in ERC across Earnings Surprise Ranges

Panel A: 1992-1996 Sample



Panel B: 1997-2001 Sample



Panel C: 2002-2006 Sample

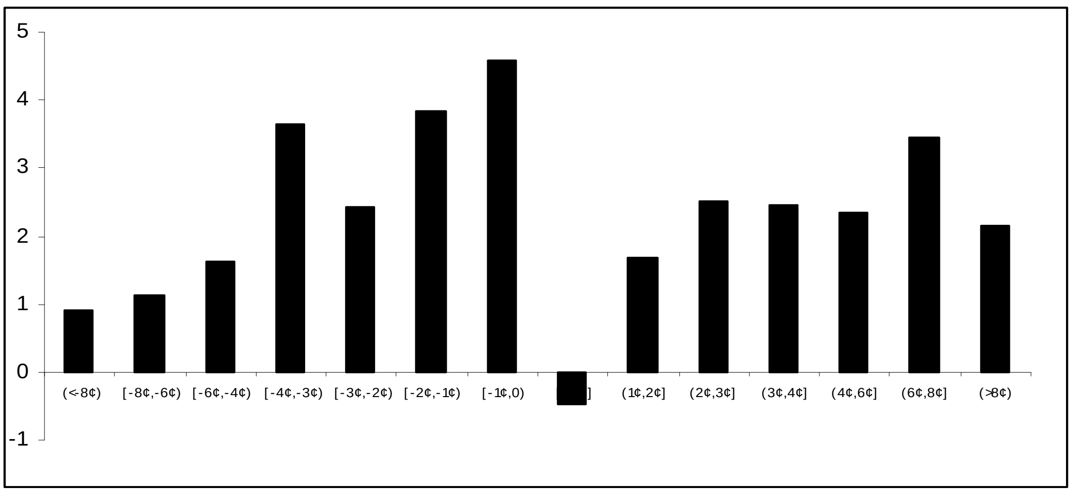


Figure 3:
Variation in ERC across Earnings Surprise Ranges for Low M/B firms (white bars) and High M/B firms (black bars)

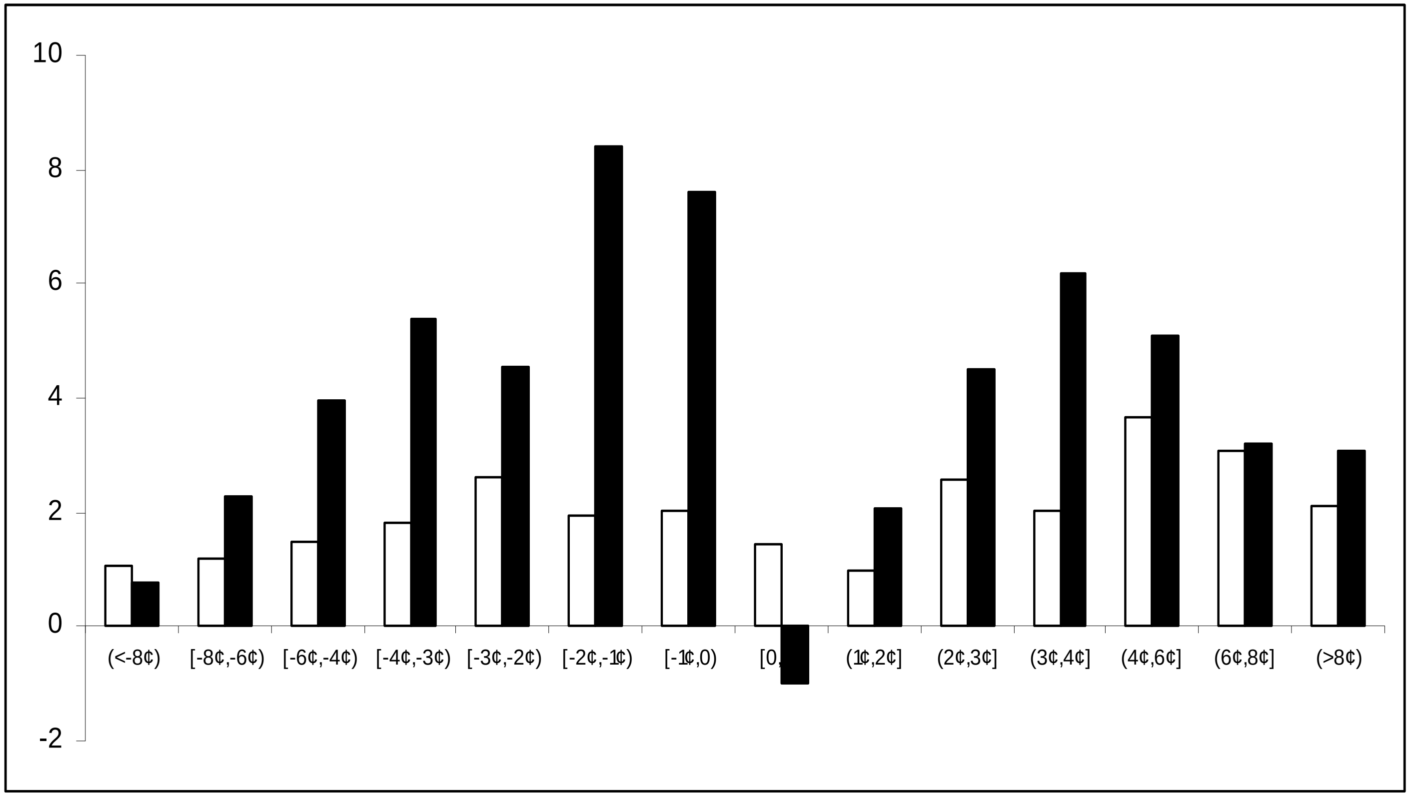


Figure 4:
Mean Average Adjusted Bid/Ask Spreads for Firm-Quarters in 2002-2006 with Earnings Surprises in Various Ranges

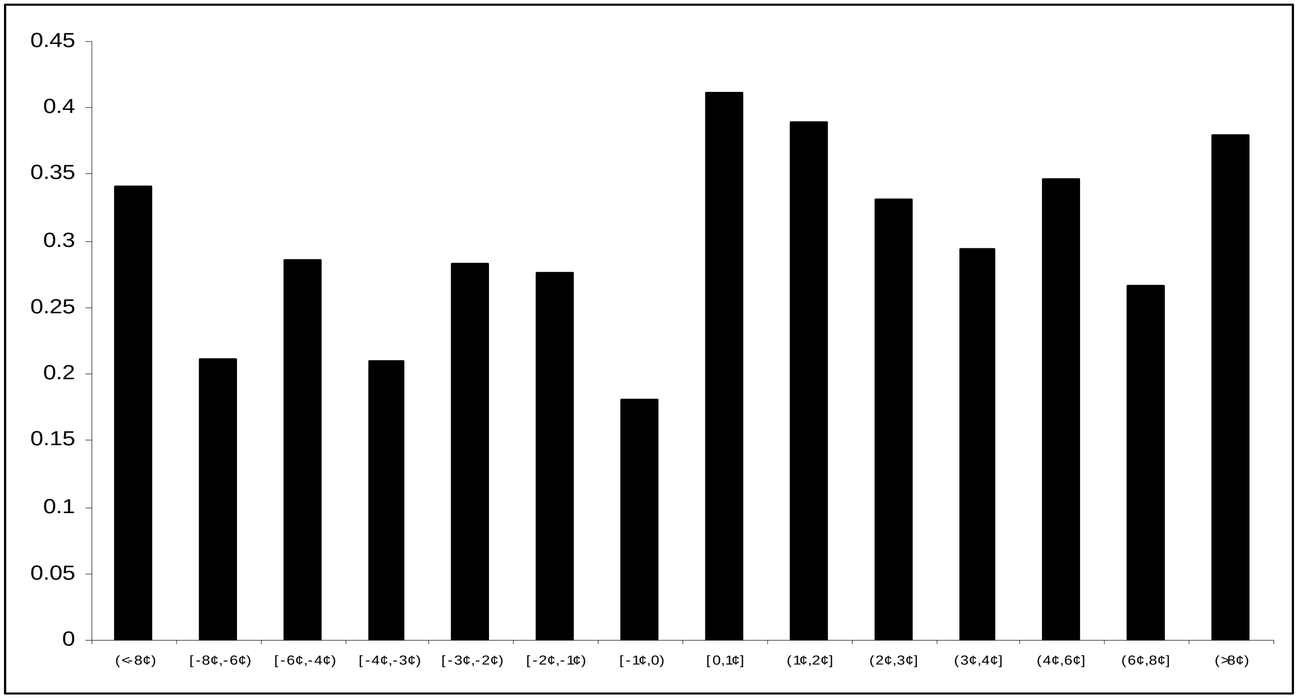
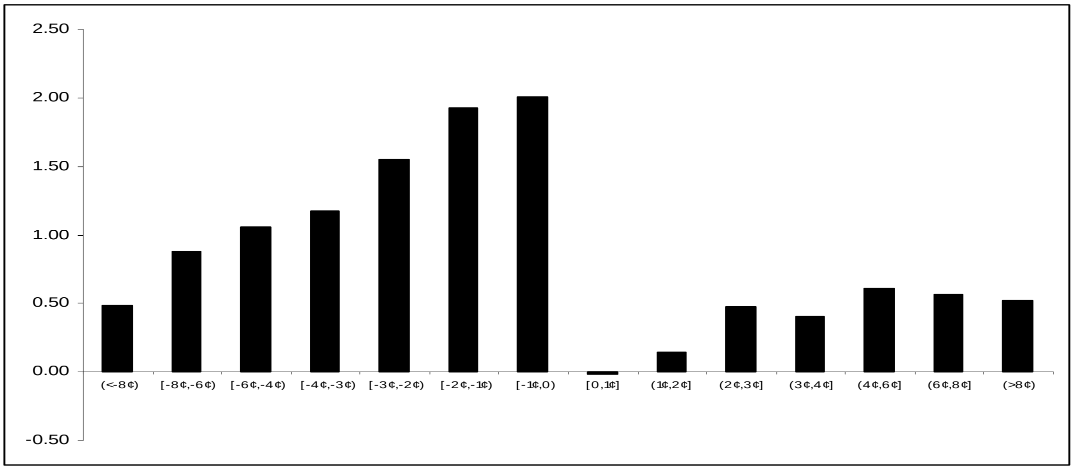
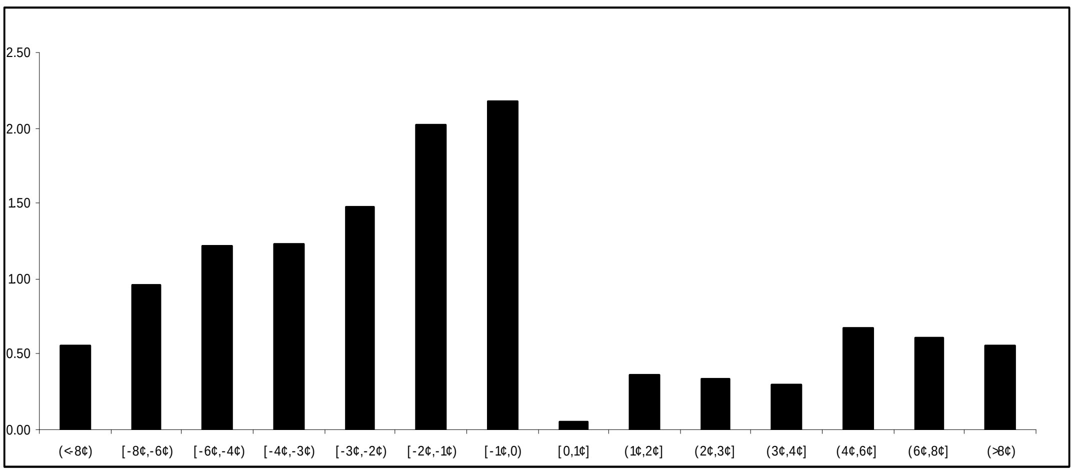


Figure 5
Variation in FERC across Earnings Surprise Ranges

Panel A: 1992-1996



Panel B: 1997-2001



Panel C: 2002-2006

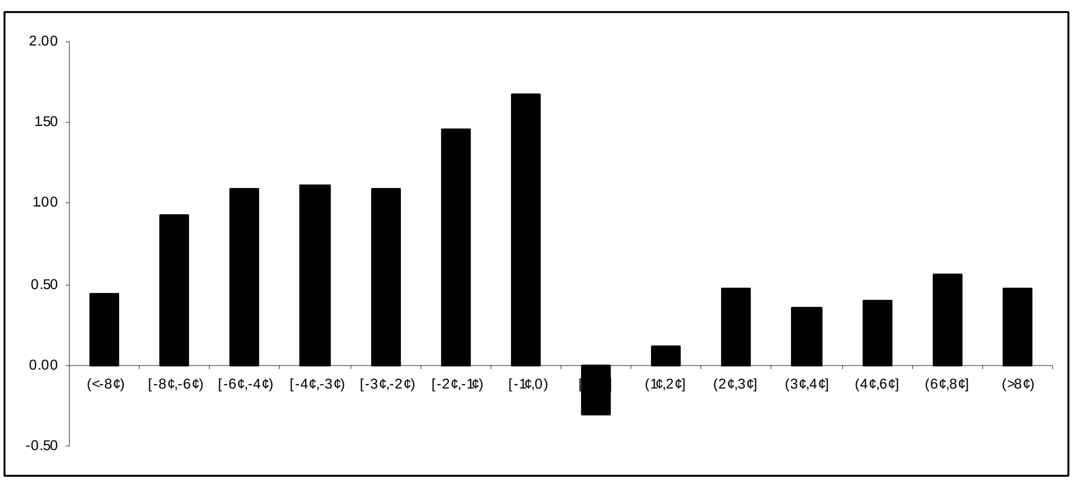
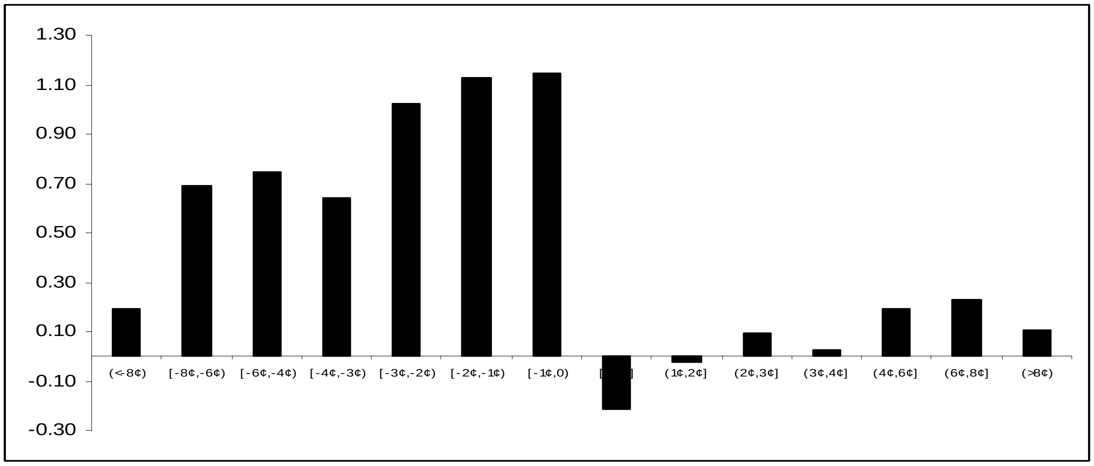
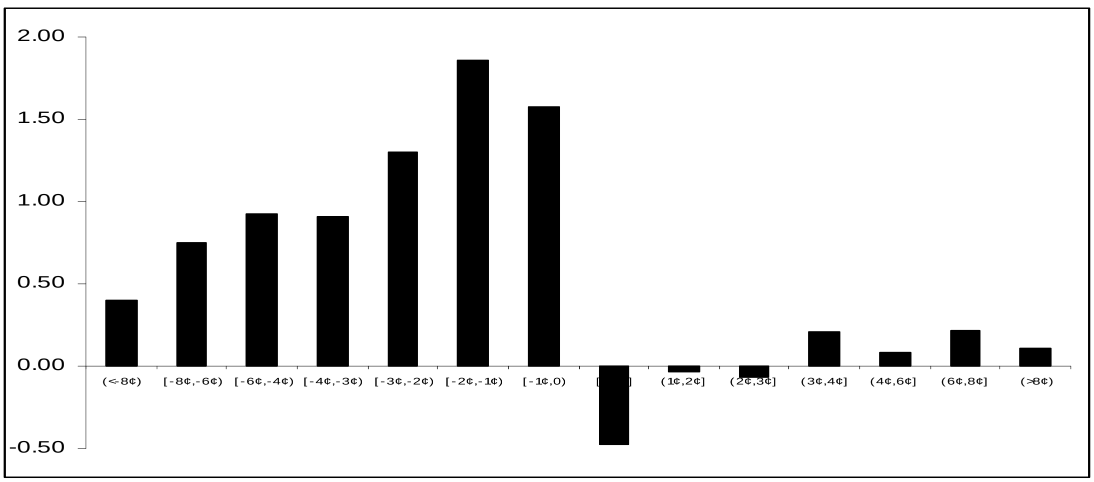


Figure 6:
Variation in AERC across Earnings Surprise Ranges

Panel A: 1992-1996



Panel B:1997-2001



Panel C: 2002-06

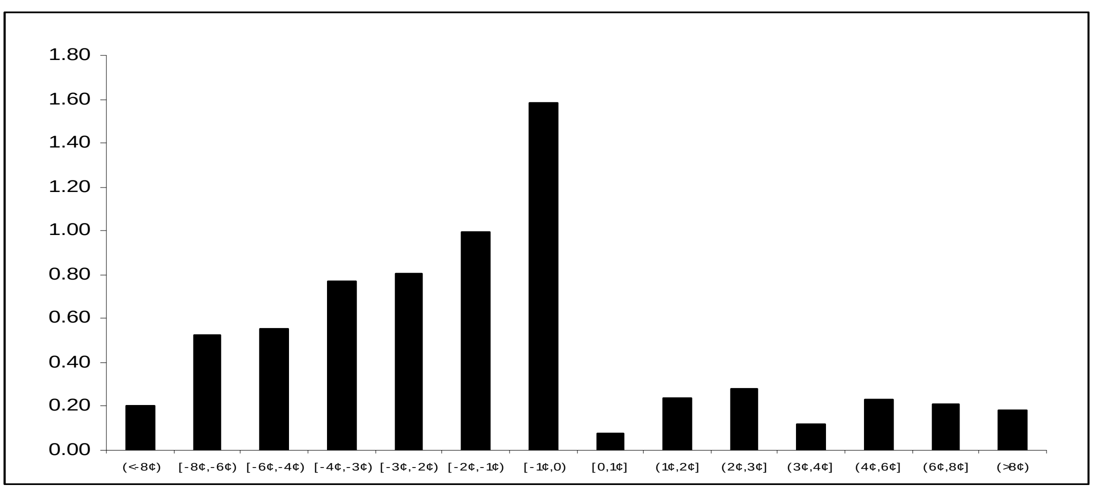


Figure A.1
Changes in FERC When Optimism in Analyst Next-Quarter Earnings Forecasts Is Progressively Reduced