Letting the "Tail Wag the Dog": The Debate over GAAP versus Street Earnings Revisited*

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1. Introduction

A variety of alternative definitions and sources of actual earnings realizations are available to investors. In addition to "traditional" earnings numbers produced in conformity with generally accepted accounting principles (GAAP) and filed with the Securities and Exchange Commission (SEC), these alternative measures include the so-called Street earnings numbers that are based on proprietary definitions employed by commercial forecast data providers (FDPs). Increasing visibility of Street earnings in the 1990s gave rise to the hypothesis, articulated in the financial press and by government agencies and standard-setters, that firms, perhaps with the proactive or tacit support of FDPs, are using Street earnings to manipulate investor beliefs in a manner that leads to inflated stock prices (see, e.g., Levitt 1998; MacDonald 1999; Tergesen 1999). The hypothesis that Street earnings are inflated and lead to stock mispricing gained additional currency from some academic studies, which, among other things, provided evidence of stronger market reactions to Street versus GAAP earnings-based surprises (e.g., Bradshaw and Sloan 2002; Doyle, Lundholm, and Soliman 2003; Bagnoli, Eskew, and Watts 2001). A competing view has emerged which posits that evidence of stronger market reactions to Street earnings surprises reflects the fact that Street earnings are generally more informative than GAAP earnings, and thus rational investors prefer to rely on these earnings to make their investment decisions (e.g., Brown and Sivakumar 2003).

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This study reexamines the robustness, generalizability, and consistency of evidence offered in the prior literature to support these competing views. Our analysis focuses on differences between alternative Street and GAAP earnings measures. We show that statistical findings deemed to support either of the competing hypotheses in prior literature are not robust. Furthermore, there is little evidence from prior empirical studies that provides a satisfactory basis for discriminating between the descriptiveness of the hypothesis of Street earnings inflation and market fixation on the one hand and the hypothesis that Street earnings are generally more informative/value-relevant than GAAP earnings on the other.

We preface our examination of prior research by identifying three specific properties of distributions of differences between COMPUSTAT (GAAP) and I/B/E/S (Street) reported earnings and highlighting the institutional factors that give rise to them.[1] The first property is a relatively small frequency of extreme, negative observations (that is, cases in which I/B/E/S earnings exceed COMPUSTAT earnings), for which there are no extreme, positive observations (that is, cases in which COMPUSTAT earnings exceed I/B/E/S earnings) of a similar magnitude. This property is linked to formulaic exclusion of items from I/B/E/S earnings that, because of the nature of conservative accounting principles and/or economic circumstances, are more frequently income-decreasing in the extreme than income-increasing. The second property is an apparent, one-time shift in the mean difference between COMPUSTAT and I/B/E/S reported earnings in 1990 and the similar shift in mean earnings surprises in 1991. This property is associated with procedural and definitional changes undertaken by all FDPs as well as mandated accounting changes at the time that may have permanently altered the relation between FDP and COMPUSTAT reported earnings data and, potentially, unusual economic circumstances faced by a large number of firms. The third property is a high incidence of exactly zero earnings differences (over 50 percent in most years). This property is associated with the relative infrequency of firms' recognition of the items that FDPs systematically adjust out of GAAP earnings.

These properties of earnings difference distributions and the institutional factors associated with them have had a significant and sometimes underappreciated impact on statistical results and their interpretation in prior studies of the competing views of Street earnings. For example, long-established findings in the prior literature confirm that market reactions to extreme, income-decreasing items are relatively small (see, e.g., Lipe 1986; Elliot and Shaw 1988). Thus, a priori, researchers interested in the earnings inflation/investor fixation hypothesis should not be surprised that when FDPs mechanically exclude the most extreme, income-decreasing items, their reported Street earnings produce, ceteris paribus, earnings surprises that are more highly correlated with contemporaneous returns in the overall cross-section. Consistent with this view, we find that observations in the extreme, negative tail of the earnings difference distribution have a disproportionate influence in generating statistical support for investor reliance/preference for Street earnings. Specifically, we document a statistically similar market response to earnings surprises based on GAAP and Street earnings for the vast majority of observations in the distribution of earnings differences. Notably, firms whose GAAP earnings

include large, transitory income-decreasing items are characterized by low share price sensitivity to current earnings news, regardless of whether Street or GAAP earnings are used to calculate the earnings surprise.

A number of other findings raise questions about the generalizability of both the investor fixation and the more informative Street earnings hypotheses. In particular, the statistics relied on to draw inferences about investor fixation or reliance on more informative earnings appear to be disproportionally influenced by observations for which I/B/E/S earnings exceed COMPUSTAT earnings by extreme amounts (items associated with the first property of earnings difference distributions). We also show that these same observations are disproportionally responsible for producing statistics that support the claim that Street earnings are inflated relative to GAAP earnings. The fact that statistical support for these seemingly general claims is highly sensitive to the presence of observations associated with the first property of earnings difference distributions speaks to the importance of understanding this property when working with alternative measures of reported earnings.

Perhaps of greater significance to testing the hypothesis that directly links the inflation of Street earnings to market reactions is the impact that observations associated with the first property can have on inferences. For example, one argument posited in the literature for the inflation of Street earnings is the possibility that prices will in turn be inflated. We test this hypothesis by comparing earnings response coefficients (ERCs) of observations for which Street earnings beat the benchmark of analysts' forecasts but GAAP earnings do not. We find no differences in market reactions (that is, ERCs) to Street-based versus GAAP-based reported earnings surprises. That is, if investors have a preference for inflated earnings (whether that preference is the result of fixation or justifiable reliance on more informative Street earnings), it is not evident in differences in ERCs. In fact, for the set of observations in which GAAP earnings fall short of analysts' forecasts but Street earnings exceeded the forecast, neither reported earnings benchmark produces a significatn ERC. We show that, paradoxically, extreme, negative tail observations appear to be responsible for these nonresults. Furthermore, after extending our tests for a subsample in which both Street and GAAP earnings beat analysts' forecasts, we find that when Street earnings are less (greater) than GAAP earnings, the measured market response for the Street earnings-based surprise is greater (less) than the GAAP earnings-based surprise. These findings directly contradict both the hypothesis that investors prefer Street earnings to GAAP earnings because they are more informative and the hypothesis that investors fixate on inflated earnings.

Our results also suggest that the conclusion drawn in the prior literature that investors have been gradually increasing the weight placed on Street earnings relative to GAAP earnings over the last decade is only supported when the sample straddles the year 1991 (the year associated with the second property of distributions of earnings differences). This year followed an apparent shift in mean earnings differences that has contributed disproportionally to evidence of a gradually increasing market reliance/fixation on Street versus GAAP earnings. The cause of this apparent discontinuity is not completely understood, but is likely linked either to a change in firms' recognition of items typically excluded from FDP reported

earnings or to changes in FDPs' definition of reported earnings, rather than a gradual trend in market fixation on inflated Street earnings or a preference for more informative Street earnings.

Our results also have implications for the literature concerned with identifying an ex ante superior source of reported earnings data (e.g., Philbrick and Ricks 1991; Ramnath, Rock, and Shane 2005). Some of the questions examined in this literature are essentially an analysis of traditional statistics generated by distributions of differences in alternative earnings measures. The similarity of econometric techniques and research designs employed in the "superiority" literature to those used in the Street versus GAAP earnings literatures raise similar concerns about the generalizability of conclusions drawn in these studies.

Overall, our results raise questions about the extent to which investors fixate on inflated or prefer more informative Street earnings. Rather, the evidence suggests that the imposition of a mechanical FDP definition of earnings that excludes certain items will sometimes produce a number that is more informative (for example, closer to investors' assessment) than GAAP earnings and will sometimes produce a number that is less informative. Moreover, neither of the two competing hypotheses appears to dominate the other in explaining existing empirical evidence. It also appears that attempts to identify an ex ante superior measure of reported earnings to expedite or standardize test designs over a broad range of research topics may not be a particularly fruitful exercise because the choice of reported earnings will likely depend on the specific hypothesis and context under consideration.

Although our analysis identifies complications faced by researchers that must be dealt with on a case-by-case basis, two general recommendations follow from our analysis. First, researchers should be aware of the ability of a relatively small number of observations in the negative tail of the distribution of earnings differences to "wag the dog" — that is, to dominate statistics on which inferences concerning a hypothesis (such as investor fixation on earnings) are based, or to obscure a relation that is otherwise strong in particular circumstances. Second, when designing and interpreting evidence from intertemporal tests, researchers should account for the unusual nature of changes in both the distribution of earnings differences and earnings surprises in the early 1990s.

Awareness of salient properties of earnings difference distributions also can improve hypothesis development and research designs. For example, researchers who posit differences in biases in the production or impact of competing reported earnings numbers may be well served to consider how and whether the modal earnings difference observation (that is, zero) should be included in empirical tests, especially since firms with zero earnings differences appear to have very different characteristics from those with nonzero earnings differences. Similarly, our results suggest that hypotheses and tests concerned with the reasons for, and market impact of, Street earnings should explicitly account for differences in firms' current and recent past accounting performance.

The paper proceeds as follows. The next section describes the data used in this study. Section 3 describes properties of reported earnings difference distributions and identifies relevant characteristics of the firms associated with these properties.

Section 4 investigates the relation between these properties and conclusions drawn in prior literature that rely on earnings differences. A summary and conclusions are provided in section 5.[2]

2. Sample description, variable definitions, and data issues

Composition of differences in reported earnings between FDPs and COMPUSTAT

I/B/E/S has been marketing forecasted and reported earnings data since the early 1980s. These forecasted and reported earnings are compiled using proprietary procedures and definitions designed, in general, to exclude from the GAAP-based reported earnings certain nonrecurring items (such as one-time charges or gains associated with acquisitions), other special items, and nonoperating items. In principle, these procedures are intended to eliminate components of earnings the majority of analysts claim they exclude from their forecasts (*I/B/E/S Glossary* 1999). According to officials at I/B/E/S, the practice of excluding certain items from their definition of reported earnings has been in place since 1985.

For purposes of this study, we define the amount added or subtracted by I/B/E/S from reported earnings as the difference between I/B/E/S reported earnings and various definitions of earnings per share before extraordinary items supplied by COMPUSTAT. These include quarterly data item 19 or 9 (primary or fully diluted earnings per share excluding extraordinary items, depending on the I/B/E/S designation of their reported earnings), and quarterly data item 8 (income before extraordinary items divided by average primary or fully diluted shares outstanding). Tabled results are reported only for the earnings difference definition that employs COMPUSTAT data items 19 and 9 but are qualitatively similar for other definitions.

Although the sum of the items that make up an earnings difference can be calculated, it is not always possible to determine which specific items contribute to the difference. I/B/E/S offers a general description of items that are excluded, but conversations with officials of the company reveal that specific items can be dealt with idiosyncratically in individual cases. The problem is compounded by the loss in institutional memory associated with turnover in personnel responsible for maintaining data and missing documentation from earlier years. Thus, from a research perspective, some I/B/E/S reported earnings numbers essentially emerge from a "black box" and can never be traced back to the raw data. We note that similar historical conditions apply to First Call and Zacks data (see Abarbanell and Lehavy 2002).

Sample selection and variable definition

The analyses performed in this paper rely on quarterly earnings data from I/B/E/S and COMPUSTAT. Tests described in section 4 of the paper employ consensus earnings forecasts provided by I/B/E/S.[3] We also use an overlapping (with respect to firm/quarter) sample of consensus earnings forecasts and reported earnings from First Call for the intertemporal tests conducted in section 4. All numbers are

converted to the same split-adjusted basis. To enhance comparability with the majority of studies cited in this paper, all test results reported in the paper are based on the data truncated at the 1st and 99th percentiles. We note that neither truncation nor winsorization of observations at the 1st and 99th percentile had any impact on the basic features of cross-sectional distributions of earnings differences or the qualitative empirical results that we describe.

Our sample consists of 8,651 firms and 159,220 observations for the period covering 1985–98. We compute the earnings differences as the COMPUSTAT reported earnings for a given firm/quarter minus the FDP reported earnings of that firm/quarter. Accordingly, a negative difference implies lower earnings reported by COMPUSTAT for a given firm/quarter than the one reported by I/B/E/S.

Table 1 presents summary statistics for unscaled and scaled (by beginning-of-quarter stock price) distributions of the reported earnings differences. The mean difference over the entire period is significantly less than zero, and the percentage of negative differences is significantly greater than the percentage of positive ones, consistent with alleged inflation of earnings by FDPs. Median earnings differences, however, are always zero (reflecting the high incidence of exactly zero earnings differences), which is inconsistent with pervasive earnings inflation.

Although a complete decomposition of earnings differences is not possible, we rely on the definition of I/B/E/S reported earnings above to identify possible components of the difference. The first component is COMPUSTAT special items (quarterly data item 32). The COMPUSTAT definition of special items includes restructuring charges, inventory write-downs, nonrecurring profits and losses on sales of assets, and write-downs or write-offs of receivables and intangibles. The primary distinction for classifying these items is their transitory nature, consistent with the I/B/E/S reasoning for excluding certain items from its reported earnings. The nature of conservative accounting, which is biased toward immediate recognition of losses to income, makes it more likely that special items will be income-decreasing rather than income-increasing. Table 1 reports summary statistics related to special items. The median special item is zero, reflecting the fact that 87.6 percent of the observations equal zero. The mean special item is negative, reflecting the fact that nonzero special items are more likely to be income-decreasing than income-increasing (9 percent versus 3.4 percent) and, as discernible from the percentiles of the special item distribution reported in Table 1, are more likely to be large income-decreasing than large income-increasing.

Although the I/B/E/S definition of reported earnings also refers to the exclusion of "nonoperating" items, it does not describe what items fall under this definition. The COMPUSTAT definition of nonoperating items (quarterly data item 31) includes dividend income, equity in earnings of unconsolidated subsidiaries, gain/loss on sale of marketable securities, and capitalized interest and other income/expense items. Many of these items are, in principle, operating (see Penman 2004), suggesting that the COMPUSTAT definition may not overlap well with the I/B/E/S definition. We examine this COMPUSTAT item for completeness.[4] Descriptive statistics on nonoperating items are presented in Table 1. Not surprisingly, given the nature of these items, the mean and median are positive, and

TABLE 1
Descriptive statistics*

Statistic	Earnings difference (deflated) (1)	Earnings difference (undeflated) (2)	Special items (3)	Nonoperating items (4)	Other adjustments (5)
n	159,220	159,220	159,220	159,220	159,220
Mean	−0.171	−2.125	−0.173	0.053	−0.058
Median	0	0	0	0.08	0
s.d.	1.68	20.24	1.08	0.91	1.56
Skewness	−3.27	−2.15	−8.00	−3.24	−2.40
Kurtosis	116.85	65.36	80.54	25.76	151.30
% positive	20.7	20.7	3.4	65.1	24.44
% negative	27.7	27.7	9.0	19.7	27.86
% zero	51.7	51.7	87.6	15.2	47.7
P1	−6.667	−85	−5.755	−3.818	−4.260
P5	−1.344	−22	−0.732	−1.261	−0.879
P10	−0.412	−7	0	−0.303	−0.312
P25	−0.029	−1	0	0	−0.028
P75	0	0	0	0.290	0
P90	0.136	3	0	0.656	0.209
P95	0.463	8	0	1.034	0.650
P99	2.364	41	0.688	2.133	3.180

Notes:

* This table presents descriptive statistics on the quarterly distributions of earnings differences, special items, nonoperating items, and computed other adjustments. The earnings difference equals the difference between quarterly earnings per share as reported by COMPUSTAT and quarterly earnings per share as reported by I/B/E/S (thus, a negative earnings difference implies lower earnings reported by COMPUSTAT compared with I/B/E/S). Earnings difference is expressed both on a deflated (by beginning-of-quarter price and multiplied by 100) basis (column 1) as well as undeflated (in cents) basis (column 2). Special items and nonoperating items equal COMPUSTAT quarterly data items 32 and 31, respectively, and are expressed on a per share basis deflated by beginning-of-quarter price and multiplied by 100. Computed other adjustments equal earnings difference minus after-tax special items. The statistics are presented for the 1985–98 sample period.

the percentage of positive values (65.1) is much higher than the percentage of negative ones (19.7).

The remaining component of earnings differences we examine is "estimated other adjustments", which is equal to the earnings difference less COMPUSTAT special items adjusted for the effective tax rate. A reconciliation of this estimate and information in 10-Q reports for a sample of 30 firms revealed that it includes items such as "income from other operations to be disposed of" and "other nonrecurring expenses, net". This suggests that some nonrecurring items excluded from the I/B/E/S definition of reported earnings do not fall under COMPUSTAT's formal definition of special items. Mean estimated other adjustments is negative, and negative values slightly exceed positive ones (28 percent versus 24.4 percent), consistent with adjustments that tend to inflate earnings. However, as in the case of special items, the median other adjustments is zero, reflecting the high frequency of zero values in the distribution (47.7 percent).[5]

3. Properties of distributions of differences in reported earnings

The presence of extreme negative earnings differences

The first notable property of the earnings difference distribution is the frequency of extreme, negative observations for which there are no extreme, positive observations of a similar magnitude. These negative values represent cases in which I/B/E/S earnings exceed COMPUSTAT earnings by extreme amounts. This property is evident in Figure 1, which depicts the 1st through the 99th percentiles of the earnings difference distribution. The figure provides visual evidence of a longer negative than positive tail of the distribution. The presence of this property is also indicated by the negative mean earnings difference (even though the median and mode are zero) reported in Table 1, and the fact that both the measures of skewness and kurtosis reject the hypothesis of a normal distribution. The comparisons of percentiles in Table 1 also provide perspective on the differences between extreme negative observations and extreme positive ones. For example, the 5th percentile of the undeflated earnings difference distribution for the period 1985–98 is −22 cents compared with a value of +8 cents for the 95th percentile. As we describe in section 4, this property critically affects interpretations of evidence concerning the questions whether FDPs systematically inflate Street earnings and whether the market fixates on or prefers such earnings.

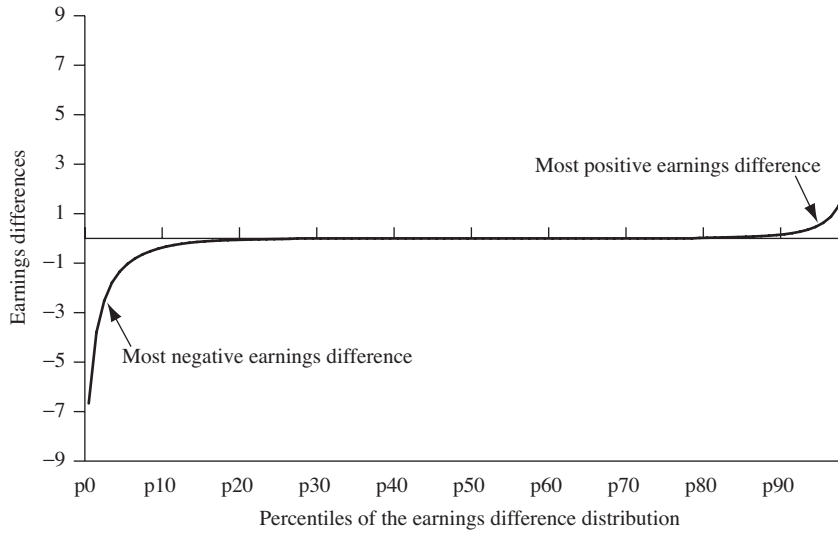
The "regime shift" in mean earnings differences in the early 1990s

The second property we highlight is the apparent shift in the parameters of the earnings difference distribution in the early 1990s. Evidence of this shift is presented in panel A of Table 2, which reports the mean, median, and percentage positive, negative, and zero of earnings differences by sample year. The precipitous increase in the negative mean difference in earnings in 1990 without a related increase in the frequency of negative earnings differences is evident. It appears that this year marked a "regime shift" in mean earnings differences because the sign of these mean differences has remained negative and their magnitude relatively large

in subsequent years. We use the term "regime shift" descriptively to differentiate a large, discontinuous change in the mean or median of a distribution from a gradual monotonic trend.[6]

The change in the mean earnings differences in the early 1990s could be due entirely to I/B/E/S holding its definition for reported earnings fixed while firms changed their accounting recognition practices (for example, as a result of mandated accounting changes or economic circumstances). It also may reflect changes in the I/B/E/S definition of reported earnings in response to events taking place that year. Evidence consistent with the first possibility is shown in Figure 2, which displays the annual means of earnings differences and COMPUSTAT special items. The two lines track each other closely. Note the precipitous increase in the magnitude of the negative mean COMPUSTAT special items in 1990, an increase that was sustained if not magnified in subsequent years. Consistent with the second possibility (changes in the I/B/E/S definition of reported earnings), conversations with I/B/E/S officials indicate that 1989–91 marked a period in which concerted efforts were made to systematically redefine reported earnings and to "clean up" historical data. Greater effort also was undertaken to align earnings forecasts made

Figure 1 Percentiles of quarterly distributions of reported earnings differences



Notes:

This figure depicts percentiles of quarterly distributions of reported earnings differences. The earnings difference is computed as the difference between quarterly earnings per share as reported by COMPUSTAT and quarterly earnings per share as reported by I/B/E/S (thus, a negative earnings difference implies lower earnings reported by COMPUSTAT compared with I/B/E/S). Earnings difference is deflated by beginning-of-quarter price and is multiplied by 100.

by analysts with the definition of I/B/E/S reported earnings and to accommodate the impact of mandated accounting changes.

Lack of detailed institutional memory and documentation for every FDP makes it virtually impossible to determine the extent and nature of changes in general definitions of reported earnings and the degree to which such changes occurred in response to firm performance and/or reporting choices in the early 1990s. Although the exact sources of the change in earnings difference distributions may never be sorted out completely, it is clear from conversations with I/B/E/S officials that events in the early 1990s did cause procedural changes over the next year. These changes were designed to align more closely the definition of earnings that are forecasted by analysts with the definition of actual realized earnings. Below, we provide evidence on the association of these procedural changes with an apparent shift in the magnitude of earnings forecast errors that began to appear in 1991. This shift can significantly influence the validity of longitudinal inferences concerning trends in earnings inflation, purported bias in analysts' forecast errors, and market reliance/fixation on reported earnings.

TABLE 2
Summary statistics on earnings differences and nonrecurring items by year and by ranks of earnings differences

Panel A: Summary statistics on earnings differences, by year*

		Earnings difference				
Year (1)	*n* (2)	Mean (3)	Median (4)	% negative (5)	% positive (6)	% zero (7)
1985	7,621	0.133	0	37	35	29
1986	7,935	0.030	0	33	30	36
1987	8,258	0.051	0	32	27	41
1988	8,214	−0.008	0	30	24	45
1989	8,592	−0.021	0	28	22	50
1990	8,771	−0.180	0	25	18	57
1991	9,034	−0.220	0	27	18	55
1992	10,244	−0.183	0	29	18	53
1993	11,668	−0.196	0	26	16	58
1994	13,972	−0.168	0	25	17	58
1995	14,684	−0.201	0	28	15	57
1996	16,539	−0.278	0	27	14	59
1997	17,670	−0.278	0	23	29	48
1998	16,018	−0.379	0	26	18	56
1985–91	58,425	−0.037	0	30	25	45
1992–98	100,795	−0.248	0	26	18	55
All years	159,220	−0.171	0	28	21	52

(The table is continued on the next page.)

TABLE 2 (Continued)

Panel B: Mean earnings difference, special items, nonoperating items, and other adjustments, by ranks of earnings differences†

Overall (excluding zero earnings difference)	*n*	Earnings difference	Special items	Nonoperating items	Other adjustments
Overall	159,220	−0.171	−0.173	0.053	−0.058
Overall (excluding zero earnings difference)	76,956	−0.353	−0.310	0.020	−0.149
Rank of earnings difference					
1 (most negative)	8,994	−4.322	−2.177	0.047	−2.884
2	8,995	−0.658	−0.280	0.025	−0.473
3	8,995	−0.200	−0.089	−0.014	−0.142
4	8,995	−0.072	−0.033	−0.053	−0.050
5 (least negative)	8,994	−0.030	−0.018	−0.045	−0.017
Zero earnings difference	82,264	0	−0.044	0.083	0.029
6 (least positive)	6,397	0.029	−0.019	−0.045	0.041
7	6,397	0.063	−0.017	−0.003	0.074
8	6,397	0.135	−0.033	0.040	0.156
9	6,397	0.361	−0.017	0.106	0.372
10 (most positive)	6,397	2.385	−0.049	0.202	2.417

Notes:

* Panel A reports summary statistics, by year, on the difference between earnings per share as reported by COMPUSTAT and earnings per share as reported by I/B/E/S. A negative earnings difference implies higher earnings reported by I/B/E/S compared with COMPUSTAT. Earnings difference is expressed on a per share basis, deflated by beginning-of-period price and multiplied by 100.

† Panel B reports averages, by ranks of earnings differences, of the earnings difference (the ranking variable), special items, and nonoperating items (COMPUSTAT data items 32 and 31, respectively), and other adjustments (equals earnings difference minus after-tax special items), expressed on a per share basis, deflated by beginning-of-quarter price and multiplied by 100. The rankings in panel B are determined by first sorting all nonzero earnings difference observations into positive and negative groups, and then ranking the earnings differences within each group into quintiles.

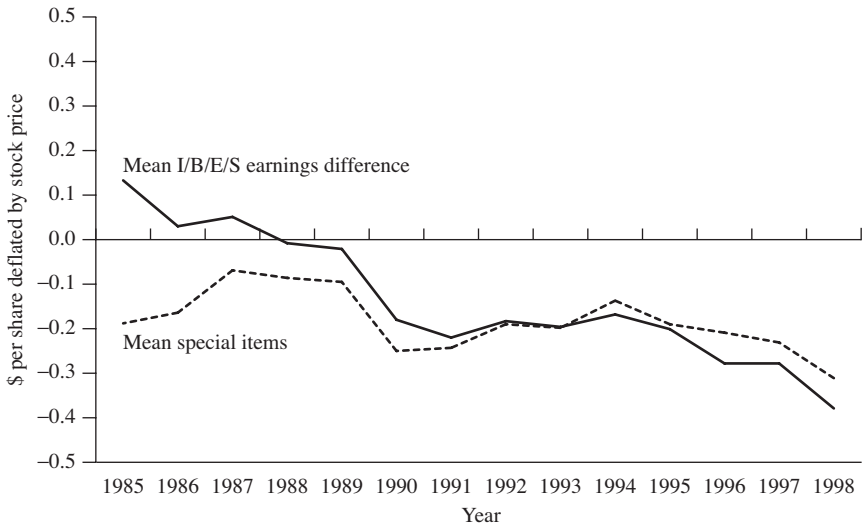
The high frequency of zero earnings differences

Panel A of Table 2 also presents statistics relevant to documenting the third property of earnings difference distributions — that is, the high frequency of a zero earnings difference. As evident from the table, the median and modal earnings differences are zero. For the 1985–91 period earnings, zero differences represented 45 percent of the sample. This percentage increased to 55 percent for the period 1992–98, reaching as high as 59 percent in 1996. The high frequency of zero earnings

difference is not and has never been a result of stock split adjustments applied to reported earnings differences. For example, Doyle, McNichols, and Soliman (2004) examine I/B/E/S data for the period 1988 to 2000 that are not adjusted for stock splits and find an even greater proportion of exactly zero earnings differences (79 percent) compared with the percentage documented in this study (52 percent). Although the data used in this study are I/B/E/S split-adjusted numbers, we examined the potential effect of this issue in our sample by excluding firm/quarters with split adjustment factors greater than 1 and 2 — that is, observations that are most likely to be affected by the split adjustment. Sixty-one percent of observations remain after excluding observations with split factors greater than 1, and 84 percent remain after excluding observations with factors greater than 2. We find that 64 percent and 58 percent, respectively, of these subsamples are composed of zero earnings differences.

The high incidence of zero earnings differences is consistent with the descriptive statistics reported earlier that show over 87 percent of observations in our sample have a value of zero for special items, and 47 percent have a value of zero for other exclusions (even after I/B/E/S's potential adjustment for items that COMPUSTAT

Figure 2 Annual cross-sectional mean earnings difference and special items



Notes:

This figure depicts annual means of reported earnings differences and special items. The earnings difference is computed as the difference between quarterly earnings per share as reported by COMPUSTAT and quarterly earnings per share as reported by I/B/E/S (thus, a negative earnings difference implies lower earnings reported by COMPUSTAT compared with I/B/E/S). Earnings difference is deflated by beginning-of-quarter price and is multiplied by 100. Special items are COMPUSTAT data item 32, expressed on a per share basis, deflated by beginning-of-quarter price, and multiplied by 100.

defines as nonoperating). The fact that in a preponderance of cases in which I/B/E/S earnings are *identical* to COMPUSTAT earnings has been given surprisingly little weight in the prior literature in assessing the pervasiveness of market reliance/fixation on Street versus GAAP earnings. At a minimum, it should be appreciated that zero earnings difference observations have no direct bearing on researchers' ability to distinguish whether there is a differential bias in or a differential market reaction to Street versus GAAP earnings. In fact, to the extent that zero earnings difference observations are associated with firms' characteristics that are *not* randomly distributed across partitions of the data examined by the researcher, their inclusion in samples can confound interpretations of evidence concerning earnings surprises and investors' reactions to them.[7]

4. Properties of distributions of earnings differences and inferences concerning the information content of GAAP and Street earnings

Prior studies compare COMPUSTAT and FDP definitions of reported earnings and test for differential market reactions to them. Using similar experimental designs and econometric techniques, these studies test hypotheses or rely on assumptions ranging from irrational investor fixation on Street earnings that leads to inflated stock prices to rational investor reliance on FDP earnings that are presumed to be more informative than COMPUSTAT earnings. In this section we investigate the implications of the three empirical properties of earnings difference distributions identified above for the development and testing of hypotheses that concern the information content of and market responses to alternative earnings measures. These implications give rise to a differential measurement error interpretation of many of the findings in prior literature, where measurement error refers to an error in identifying the reported earnings number on which investors base their trading decisions.

Alternative perspectives on the motivation for and impact of Street versus GAAP earnings

As alluded to earlier, there is a growing concern in capital markets that firms, perhaps with the proactive or tacit support of analysts and FDPs, are manipulating investor expectations in a manner that leads to inflated stock prices. Recent academic studies have presented evidence that has been interpreted as support for this concern. For example, Bradshaw and Sloan (2002) raise the possibility that firms have been able to shift investor attention to an earnings measure that reclassifies operating items as nonoperating or nonrecurring. They suggest (2002, 42) that "the increased emphasis on Street earnings may represent an attempt by managers and analysts to garner higher valuations by reporting the higher Street earnings numbers".

To establish the basis for the possibility of market fixation and mispricing, they first show that mean earnings as reported by I/B/E/S are higher than mean earnings reported by COMPUSTAT (quarterly data item 8 after adjustment for stock splits), and then show that earnings response coefficients based on I/B/E/S reported earnings are greater than those based on COMPUSTAT earnings.[8] In contrast, Brown and Sivakumar (2003) interpret evidence from ERCs and price-level

regressions involving earnings difference distributions as consistent with the argument that earnings reported by FDPs (and forecasted by analysts) are more value-relevant to investors than GAAP-based earnings. Bradshaw and Sloan (2002) acknowledge a similar possible interpretation of their findings. While either or both of these interpretations may be descriptive, depending on the context, the basic ERC methodologies these studies rely on do not discriminate the extent to which either or both interpretations explain the empirical evidence.

Prior research also has examined the question whether investors have shown a gradually increasing preference for the I/B/E/S over the COMPUSTAT reported earnings in recent years (Bradshaw and Sloan 2002) and whether the proportion of FDP earnings that meet or exceed the analysts expectations has been steadily increasing (Matsumoto 2002; Brown 2001). Below, we reexamine the robustness and generalizability of the conclusions reached in prior work.

Is the inflation of Street earnings a pervasive phenomenon?

If investors fixate on a single measure of earnings, then firms, FDPs, and analysts can profit from higher stock prices if they can induce investors to focus on inflated Street earnings. The negative mean difference between COMPUSTAT and I/B/E/S earnings and the greater percentage of negative than positive earnings differences in most years reported in Table 2, panel A appear to support the claim of systematic firm/FDP earnings inflation and resulting market mispricing. However, consideration of the properties of the distribution of earnings differences identified above raises questions about the pervasiveness of these purported phenomena.

First, recall that the incidence of zero earnings differences reported in Table 2 is over 50 percent in most years (that is, property 3). Although the high incidence of exactly zero earnings differences does not rule out some systematic inflation of Street earnings, it raises doubts about its extent and its potential contribution to market mispricing. It also raises questions about the completeness of arguments involving incentives for collusion and the effects of cognitive biases on which the prediction of earnings inflation are typically based.

Consider next the impact of the first property of earnings difference distributions (a greater incidence and magnitude of extreme negative than extreme positive values) on the inference in prior literature of earnings inflation. In panel B of Table 2 we sort all nonzero earnings difference observations into positive and negative groups. Within each group we rank the earnings differences and partition them into quintiles. Thus, portfolio 1 contains the most extreme negative earnings differences (that is, the cases in which the I/B/E/S reported earnings exceed the COMPUSTAT reported earnings by extreme amounts), while portfolio 5 contains the least negative differences. Similarly, portfolio 6 contains the smallest positive differences and portfolio 10 contains the most extreme positive differences.

The evidence in this panel indicates that the mean negative earnings difference in portfolio 1 is large and that its absolute value is nearly two times the size of the positive mean associated with portfolio 10. This finding suggests that the impact of the most negative portfolio of earnings differences on the overall mean is disproportional. The longer negative tail of the distribution depicted in Figure 1 reflects

the fact that about 5 percent (or about 8,000 observations) of the overall distribution is represented by negative values that are *greater* in absolute magnitude than the maximum positive value of earnings differences. These extreme negative values account for about 72 percent of the 11,145 excess of negative relative to positive earnings differences in the entire distribution. In their absence, a mere 3,145 (11,145 minus 8,000) of the 159,220 total observations (approximately 2 percent) are responsible for producing the greater percentage of negative than positive earnings differences in the cross-section that provides support for the view that Street earnings are systematically inflated.

The preceding analysis focused on the impact of observations in the tail of the earnings difference distribution in assessing the phenomenon of earnings inflation. It is also possible, however, to focus on other parts of the distribution to assess how pervasive the earnings inflation phenomenon is in the cross-section. For example, analyzing observations falling in small symmetric intervals around a zero earnings difference reveals that ratios of positive to negative earnings differences are sometimes greater than and sometimes less than 1, not consistently below 1 as one might expect if Street earnings are being systematically inflated. In results not reported in the tables, we find the ratios of positive differences of 1, 2, 3, and 4 cents to their respective negative counterparts are 0.84, 1.19, 1.02, and 0.88. Notably, for some earnings differences of relatively small magnitudes, COMPUSTAT earnings are actually more likely to exceed I/B/E/S earnings than vice versa. Once again, this evidence runs contrary to a pervasive tendency for Street earnings to be inflated unless the inflation is of extreme magnitude.

An alternative interpretation of the appearance of earnings inflation

Although the preceding evidence does not preclude the possibility of intentional and/or collusive inflation of earnings by FDPs, it does suggest that extreme negative earnings differences for which there are no extreme positive counterparts have a disproportional impact on summary statistics that have been used to support this possibility. The evidence on the incidence, sign, and magnitude of special items in the cross-section documented in Table 1 suggests that these items alone may be sufficient to account for this result. To further explore this possibility, panel B of Table 2 reports means of COMPUSTAT special items, nonoperating items, and estimated other adjustments associated with the earnings difference deciles. The mean special item associated with this most negative earnings difference portfolio is by order of magnitude larger than that associated with any other decile. In results not reported in the tables we find that portfolio 1 (which represents 5.5 percent of the sample observations) contains 32 percent of observations found in the lowest decile of COMPUSTAT special items. That is, there is a strong association between extreme negative special items and membership in the extreme negative earnings difference portfolio. No other earnings difference portfolio accounts for a disproportionate share of extreme, negative special items.[9]

The preceding evidence suggests a simple, mechanical explanation for results reported in the earnings inflation literature. This explanation, in turn, leads to a new interpretation of prior evidence of apparent earnings inflation and an alternative

way to frame the question whether Street earnings are deliberately inflated. A long stream of capital market studies report that market reactions to nonrecurring items are relatively weak (see, e.g., Lipe 1986; Elliot and Shaw 1988; Hanna and Elliot 1996). If investors have historically placed little weight on such items, then the adoption by FDPs and analysts of a definition of earnings that always excludes them would seem justified. This view is in fact expressed in the documentation of all FDPs, where it is argued that they define earnings in a manner that ensures a measure of earnings surprises that best corresponds to the number analysts are forecasting and investors view as most value-relevant. To the extent that special items reflect the combination of economic events and a faithful application of conservative GAAP, it should be expected that firms, especially the poorest performers in the cross-section, will recognize extreme income-decreasing special items that are larger than extreme income-increasing ones. This, in turn, is expected to produce a longer negative than positive tail in earnings difference distributions, comprising observations that would have been located in the center or shoulders of the a priori distribution in the absence of such accounting rules.

One advantage of the preceding alternative explanation is that it is consistent with the general characteristics of the earnings difference distributions and not just with the summary statistics associated with them. We nevertheless acknowledge that this does not rule out the possibility that firms manipulate, hide, or draw attention to special items and other items in a manner that leads investors to believe that earnings are higher than what the fundamental earnings drivers can support. However, given the fairly stable nature of these formulas over time, one has to grant that FDPs were adept enough to originally choose and then bold enough to retain their formulas over the years so that firms could exploit them to inflate earnings in a manner that continually and systematically fools investors.

On the basis of the stated reasons FDPs give for making adjustments to GAAP earnings and evidence from prior literature, it is left to the reader to judge the extent to which FDPs are motivated to define earnings in a manner that allows firms to strategically inflate earnings numbers. In any event, consideration of the disproportional impact of extreme negative observations on the summary statistics and the substantial proportion of zero earnings differences raises doubts about the strength of the statistical argument that supports a pervasive or even a moderate tendency for Street earnings to be inflated. Accordingly, this suggests the need for researchers to develop more refined hypotheses and econometric techniques to make out a compelling case for pervasive, misleading earnings inflation. For example, the evidence suggests that a powerful setting predicting deliberate earnings inflation is found among firms characterized by recent extreme poor performance.

Are investors fixated on Street earnings?

In this section we turn to a reexamination of evidence of differential market reactions to alternative earnings surprise measures and the conclusions reached in prior studies that investors fixate on inflated or prefer more informative Street earnings. We begin our analysis by computing two competing earnings surprise measures. The first is based on the I/B/E/S forecasted and reported earnings, denoted

FE_{IBES}. The second is based on the I/B/E/S forecasted and the COMPUSTAT reported earnings, denoted FE_{CSTAT}. That is, I/B/E/S earnings forecasts are held constant while the reported earnings benchmark varies. Forecast errors equal quarterly earnings per share minus quarterly consensus forecasted earnings per share outstanding prior to the earnings announcement, deflated by price at the beginning of the quarter and multiplied by 100.

Descriptive statistics for annual distributions of the two forecast error measures are presented in panel A of Table 3. Mean forecast errors are negative in every year for both surprise measures. Median errors are generally negative in the earlier subperiod but are zero in the later subperiod for both surprise measures. The percentage of positive, or good-news, surprises exceeds the percentage of negative, or bad-news, surprises in the later subperiod for the I/B/E/S earnings-based forecast error; we observe the opposite relation in the earlier period. The COMPUSTAT earnings-based measure produces more negative surprises in the early period and a similar number of positive and negative surprises in the later subperiod. Consistent with the evidence in Abarbanell and Lehavy 2003a, the incidence of exactly zero forecast errors for both surprise measures has increased over the years.

Panel B of Table 3 reports the mean forecast errors for the two earnings surprise metrics pertaining to the earnings difference portfolios formed as in panel B of Table 2. The large negative FE_{CSTAT} associated with the most negative earnings differences in portfolio 1 suggests a substantial overlap between extreme negative forecast errors and the most extreme negative earnings differences. To assess the degree of overlap, we ranked FE_{CSTAT} observations and placed them into partitions similar to those constructed for earnings differences in Table 2 — that is, five portfolios of negative forecast errors from the most to the least negative, five portfolios of positive forecast errors from the least to the most positive, and one portfolio of zero forecast error observations. We find that 41 percent (71 percent) of the observations in the most negative forecast error (earnings differences) partition are also found in the most negative earnings differences (forecast error) partition. By comparison, 8,994/159,220 or 5.6 percent of forecast error (15,444/159,220 or 9.7 percent of earnings difference) observations would be expected to overlap if partition placement were random.

The correspondence between extreme FE_{CSTAT} and extreme earnings differences is particularly relevant for interpreting evidence on whether the market fixates on inflated or prefers more informative Street earnings. Table 4 presents the results of estimating regressions of market-adjusted returns around earnings announcement dates on the two alternative forecast error metrics. Returns are measured as the three-day buy-and-hold return centered on earnings announcement date minus the return on a value-weighted New York Stock Exchange (NYSE)/American Stock Exchange (AMEX)/NASDAQ index. The absence of earnings announcement returns reduced the sample size to 140,438 observations for the 1985–98 period and 45,859 and 94,579 observations for the 1985–91 and 1992–98 periods, respectively.

The first two rows of Table 4 present the ERCs for the overall sample and for the sample that excludes zero earnings differences. Like Brown and Sivakumar

TABLE 3
Summary statistics on I/B/E/S-based and COMPUSTAT-based forecast errors by year and by ranks of earnings differences

Panel A: Summary statistics on forecast errors, by year*

		Mean		Median		% negative		% positive		% zero	
Year (1)	n (2)	FE_{IBES} (3)	FE_{CSTAT} (4)	FE_{IBES} (5)	FE_{CSTAT} (6)	FE_{IBES} (7)	FE_{CSTAT} (8)	FE_{IBES} (9)	FE_{CSTAT} (10)	FE_{IBES} (11)	FE_{CSTAT} (12)
1985	7,621	−0.936	−0.789	−0.099	−0.131	55	60	33	35	13	5
1986	7,935	−0.777	−0.741	−0.067	−0.093	53	58	34	37	13	5
1987	8,258	−0.651	−0.595	0	−0.043	49	53	38	41	13	6
1988	8,214	−0.520	−0.529	0	0	45	50	40	43	14	7
1989	8,592	−0.572	−0.596	−0.041	−0.068	51	56	35	37	14	7
1990	8,771	−0.782	−0.961	−0.044	−0.078	51	56	33	36	16	8
1991	9,034	−0.394	−0.612	0	−0.040	47	53	37	39	17	8
1992	10,244	−0.189	−0.372	0	0	42	49	40	42	18	10
1993	11,668	−0.181	−0.377	0	0	42	48	41	42	18	10
1994	13,972	−0.141	−0.308	0	0	38	44	44	45	18	11
1995	14,684	−0.184	−0.387	0	0	38	46	44	43	18	11
1996	16,539	−0.148	−0.427	0	0	34	43	47	45	19	12
1997	17,670	−0.129	−0.409	0	0	33	40	49	49	18	11
1998	16,018	−0.246	−0.616	0	0	35	45	46	43	19	12
1985–91	58,425	−0.656	−0.689	−0.021	−0.066	50	55	36	38	14	7
1992–98	100,795	−0.174	−0.420	0	0	37	45	45	44	18	11
All years	159,220	−0.349	−0.519	0	0	42	48	42	42	17	9

(The table is continued on the next page.)

TABLE 3 (Continued)

Panel B: Mean earnings difference and forecast errors by ranks of earnings differences†

Rank of earnings difference	n	Earnings difference	Mean FE_{IBES}	Mean FE_{CSTAT}
Overall	159,220	−0.172	−0.348	−0.520
Overall (excluding zero earnings difference)	76,956	−0.353	−0.367	−0.721
Ranks of earnings difference				
1 (most negative)	8,994	−4.322	−0.353	−4.674
2	8,995	−0.658	−0.199	−0.857
3	8,995	−0.200	−0.220	−0.420
4	8,995	−0.072	−0.040	−0.112
5 (least negative)	8,994	−0.030	0.021	−0.009
Zero earnings difference	82,264	0	−0.329	−0.329
6 (least positive)	6,397	0.029	−0.045	−0.016
7	6,397	0.063	−0.118	−0.054
8	6,397	0.135	−0.265	−0.130
9	6,397	0.361	−0.486	−0.124
10 (most positive)	6,397	2.385	−2.334	0.051

Notes:

* Panel A reports summary statistics, by year, on two alternative forecast error measures. Forecast errors (*FE*) equal quarterly earnings per share minus quarterly forecasted earnings per share outstanding prior to earnings announcement, deflated by the beginning-of-quarter stock price, and multiplied by 100. Subscripts on *FE* denote the source of reported earnings: COMPUSTAT (*CSTAT*) or I/B/E/S (*IBES*). The source of the consensus earnings forecast is I/B/E/S.

† Panel B reports the averages, by rank of earnings difference, of the earnings difference (ranking variable), I/B/E/S earnings-based forecast errors, and COMPUSTAT earnings-based forecast errors. The rankings in panel B are determined by first sorting all nonzero earnings difference observations into positive and negative groups, and then ranking the earnings differences within each group into quintiles.

2003 and Bradshaw and Sloan 2002, who also employ I/B/E/S data, we find that the overall ERCs are significantly higher for earnings surprises that are calculated with I/B/E/S earnings (0.448) than with COMPUSTAT earnings (0.319). A similar relation is observed when zero earnings differences are removed from the sample.[10] These results are consistent with the view held by many researchers, policymakers, and the business press that analysts, firms, and FDPs collude to inflate earnings and mislead investors. It is also consistent with the argument that Street earnings are simply more informative than GAAP earnings.

ERCs for the separate subperiods 1985–91 and 1992–98 are reported in columns 6–7 and 10–11, respectively. There is no evidence of a market preference

TABLE 4
ERCs associated with alternative earnings surprise measures*

	1985–98				1985–91				1992–98			
	n (1)	ERC_{IBES} (2)	ERC_{CSTAT} (3)	p-values of tests of differences (4)	n (5)	ERC_{IBES} (6)	ERC_{CSTAT} (7)	p-values of tests of differences (8)	n (9)	ERC_{IBES} (10)	ERC_{CSTAT} (11)	p-values of tests of differences (12)
Overall	140,438	0.448	0.319	0.00	45,859	0.248	0.242	0.66	94,579	1.049	0.398	0.00
		40.0	36.2			22.2	22.8			44.1	29.7	
Overall (excluding zero earnings difference)	66,906	0.350	0.235	0.00	24,952	0.198	0.198	0.98	41,954	1.095	0.266	0.00
		24.2	23.6			14.5	15.9			28.9	18.2	
Rank of earnings difference												
1 (most negative)	7,739	0.365	0.092	0.00	2,792	0.178	0.081	0.02	4,945	0.625	0.088	0.00
		9.3	5.2			5.0	4.0			8.4	3.3	
2	7,739	0.438	0.435	0.98	2,792	0.285	0.284	0.99	4,949	1.404	1.274	0.40
		8.3	8.4			5.7	5.7			12.4	11.8	
3	7,741	0.547	0.547	0.98	2,798	0.516	0.515	0.99	4,947	1.293	1.283	0.95
		10.3	10.3			7.4	7.4			9.9	9.9	
4	7,741	1.373	1.373	0.99	2,789	0.841	0.840	0.99	4,946	2.531	2.530	0.96
		13.9	13.9			7.8	7.8			13.2	13.2	
5 (least negative)	7,739	0.774	0.772	0.99	2,793	0.362	0.360	0.98	4,948	2.658	2.659	0.99
		8.2	8.2			4.0	4.0			10.3	10.3	

(The table is continued on the next page.)

TABLE 4 (Continued)

	1985–98				1985–91				1992–98			
	n (1)	ERC_{IBES} (2)	ERC_{CSTAT} (3)	p-values of tests of differences (4)	n (5)	ERC_{IBES} (6)	ERC_{CSTAT} (7)	p-values of tests of differences (8)	n (9)	ERC_{IBES} (10)	ERC_{CSTAT} (11)	p-values of tests of differences (12)
Zero earnings difference	73,532	0.569	0.569	1.00	20,907	0.328	0.328	1.00	52,625	1.015	1.015	1.00
		32.8	32.8			17.4	17.4			33.0	33.0	
6 (least positive)	5,631	0.727	0.727	0.99	2,202	0.511	0.512	0.99	3,445	1.699	1.692	0.98
		7.5	7.5			6.0	6.0			6.4	6.4	
7	5,690	0.610	0.609	0.99	2,213	0.322	0.321	0.99	3,429	3.004	3.008	0.99
		7.4	7.4			4.2	4.2			10.7	10.7	
8	5,609	0.647	0.647	0.98	2,178	0.343	0.347	0.98	3,457	2.067	2.049	0.95
		8.2	8.2			4.6	4.6			9.4	9.3	
9	5,637	0.519	0.511	0.92	2,197	0.277	0.274	0.96	3,444	1.573	1.544	0.88
		8.8	8.6			5.1	5.1			10.7	10.5	
10 (most positive)	5,640	0.168	0.323	0.00	2,198	0.118	0.270	0.00	3,444	0.662	0.611	0.67
		7.4	9.1			5.0	7.0			8.2	6.8	

(The table is continued on the next page.)

TABLE 4 (Continued)

Notes:

* This table reports ERCs and their *t*-statistics from two regressions of market-adjusted return around quarterly earnings announcements on two alternative earnings surprise measures, for three time periods. The first earnings surprise measure is a COMPUSTAT-based forecast error (equals quarterly earnings per share per COMPUSTAT less I/B/E/S earnings forecast outstanding prior to earnings announcement, deflated by price at the beginning of the quarter, and multiplied by 100). The second measure is the I/B/E/S-based forecast error (equals quarterly earnings per share per I/B/E/S less I/B/E/S earnings forecast outstanding prior to earnings announcement, deflated by price at the beginning of the quarter and multiplied by 100). The ERCs are presented for the overall sample (first row), the overall sample excluding observations with zero earnings difference (second row), the subsample of zero earnings difference (third row), and portfolios formed by ranks of the signed difference between COMPUSTAT and I/B/E/S reported earnings. A negative earnings difference, for example, implies higher earnings reported by I/B/E/S compared with COMPUSTAT. Earnings difference is expressed on a per share basis deflated by the beginning-of-quarter price and multiplied by 100. Returns are measured as the three-day buy-and-hold return centered on earnings announcement date less the return on a value-weighted NYSE/AMEX/NASDAQ index. Probability values for tests of differences in the coefficient estimates are reported for each set of regressions.

for or fixation on Street earnings in the early subperiod, with or without exclusion of zero earnings differences. For the later subperiod (the period during which the debate over Street versus GAAP earnings arose), the I/B/E/S earnings-based ERC is significantly higher than the COMPUSTAT earnings-based one (1.049 versus 0.398, respectively). Thus, it appears that the later time period is largely responsible for the overall appearance of a higher association between returns and the I/B/E/S earnings-based surprises than the GAAP earnings-based ones. This finding is weakly consistent with the view that investor fixation on inflated Street earnings or preference for more informative Street earnings is an increasing trend in recent periods, a question we return to in the next subsection.

To gain further insights into the impact of the first property of the earnings difference distribution on the finding of differential market responses to earnings surprises, we estimate ERCs within the portfolios of ranked earnings differences as described above in panel B of Table 2. Results are reported in the lower portion of Table 4. Notably, among the 10 portfolios, the only statistically reliable differences between Street and GAAP earnings-based ERCs for the full (columns 2 and 3) and the early (columns 6 and 7) samples are found in the 1st and 10th portfolios. For the other eight portfolios there is no statistical support for investors benchmarking their earnings expectations with Street rather than GAAP reported earnings. In fact, the evidence from portfolio 10 indicates that in some cases investors benchmark their earnings expectations with COMPUSTAT rather than I/B/E/S earnings.[11]

Thus, it appears that the one persistent finding of larger ERCs when I/B/E/S earnings exceed COMPUSTAT earnings largely depends on a relatively small number of observations in portfolio 1, representing cases of the most extreme, income-increasing I/B/E/S adjustments to GAAP earnings.[12] These observations also represent firms whose stock prices are relatively insensitive to earnings news and that, relative to other firms, are associated with low earnings per share (by either alternative earnings measure), have the lowest trailing-12-months cash flows from operations, and experienced the most negative prior 12-month size-adjusted return and the most negative prior quarter seasonal earnings changes (not reported in tables).

To illustrate further the disproportionate effect of observations in portfolio 1 on the inference of investor fixation on or market preference for Street earnings, we reestimated the overall ERCs excluding observations in portfolio 1.[13] This procedure yields statistically indistinguishable ERCs of 1.10 and 1.04 for the remaining sample for the I/B/E/S and COMPUSTAT earnings-based surprise, respectively, in the 1992–98 (unreported in tables), compared with the values of 1.049 and 0.398 as reported in the top row of Table 4. We note that the small magnitude of the ERCs associated with portfolio 1 in the 1992–98 period (0.625 and 0.088 for the I/B/E/S and COMPUSTAT earnings-based surprise measures, respectively) suggests on an overall "sluggishness" of market responses in cases where Street earnings are much greater than GAAP earnings, regardless of which reported earnings measure is used.

An alternative interpretation of the appearance of investor reliance on Street earnings

The results in Table 4 provide a new perspective on the higher association between FDP-based measures of earnings surprises compared with COMPUSTAT-based ones. First, similar to our assessment of the robustness of evidence that supports the claim of inflated Street earnings presented earlier, it would appear that investors' preference for or fixation on Street earnings is, at the very least, not a pervasive phenomenon. This assessment is based on the facts that, by definition, there can be no preference for Street earnings in over half of the cases in the sample (the zero earnings difference observations) and that, after isolating the most extreme negative earnings difference in the remaining sample, we find that only one partition (containing 7,739 out of 140,438 or 5 percent of the sample observations) is associated with reliably larger I/B/E/S earnings-based ERCs. Second, ERCs associated with observations in the extreme tails of the earnings difference distributions (that is, portfolios 1 and 10) are substantially smaller in magnitude than those associated with other portfolios, regardless of the forecast error metric used. That is, even after adjusting out obvious, explicitly reported items, I/B/E/S earnings-based ERCs remain low in these extreme portfolios.

Thus, at a minimum, it appears that investors attribute a lower persistence to the earnings of companies in portfolios 1 and 10 and, therefore, give less weight to news contained in the earnings reported by these firms. This finding also suggests that the development and testing of the hypothesis that earnings management

is undertaken to fool investors could be focused more effectively on poorly performing firms.

The preceding evidence suggests that the same intuitive mechanical reason for prior statistical evidence that appears to support earnings inflation may account for much of the evidence that supports investor preference for more informative or market fixation on inflated Street earnings. Specifically, the blanket exclusion of certain income items by FDPs provides a benefit by attenuating the effect of cases in which GAAP earnings are particularly ineffective at conveying value-relevant information for poorly performing firms. As noted earlier, long-standing evidence has demonstrated that the market response to earnings that contain large nonrecurring items is low. Thus, it is not unreasonable to expect, a priori, that by removing nonoperating and nonrecurring items as a matter of policy, FDPs simultaneously remove the most extreme, transitory income-decreasing cases that investors appear to give little weight to. That is, it is not surprising that a portion of the measurement error (with respect to the true earnings benchmark relied on by the market) is removed in exactly the cases where the measurement error is the greatest. Such cases are, in turn, largely responsible for an overall statistical difference in cross-sectional earnings response coefficients (see also Appendix 1 for an analogous measurement error interpretation of evidence in the literature on the value-relevance of earnings and book values).

In the next subsection, we examine the implications of the second property of earnings difference distribution on the conclusion that there has been a gradual increase in the reliance of investors on Street earnings in recent years.

Did investors become increasingly reliant on Street versus GAAP earnings in the 1990s?

Bradshaw and Sloan (2002, 56) conclude that "consistent with our first prediction, the difference between Street and GAAP earnings has been gradually growing over the last decade". The conclusion is based on statistical tests that indicate a significant relation between ERCs and time over the sample period 1985–97. It should be noted that market exposure to FDP earnings as well as their use by researchers for empirical testing did not become prevalent until the early 1990s. Furthermore, a search of the business press before 1991 revealed no evidence of a debate over Street versus GAAP earnings and no indications of systematic firm reporting of pro forma earnings. These facts suggest that attention to the conjecture of an increasing reliance/fixation on Street earnings is a relatively recent phenomenon. Below, we reexamine the robustness of the statistical evidence supporting the conclusion of an increasing reliance by investors in recent years.

We begin by examining the role of the extreme, negative earnings differences on the two competing ERC measures over time. Panel A of Figure 3 provides a graph of the mean quarterly ERCs by year for the I/B/E/S earnings-based and COMPUSTAT earnings-based forecast error measures. There are two noteworthy points. First, there is a clear divergence between the ERCs calculated with the competing forecast error measures that begins in 1991 and is sustained thereafter. Second, there appears to be an upward trend in the ERCs calculated with the

FE_{IBES} in the years after 1990 and before 1997. Panel B of Figure 3 presents evidence of the influential role of extreme, negative earnings differences in explaining the divergence in ERCs over time. This panel presents ERCs similar to those in panel A, estimated after removing observations in portfolio 1 (the extreme negative tail of the earnings difference distribution). The upward trend in ERCs for both measures of surprise after 1990 is still apparent even after removing these observations. However, the divergence in ERCs observed in panel A is essentially eliminated in most years, reinforcing the cross-sectional evidence presented earlier on the role of the first property.[14]

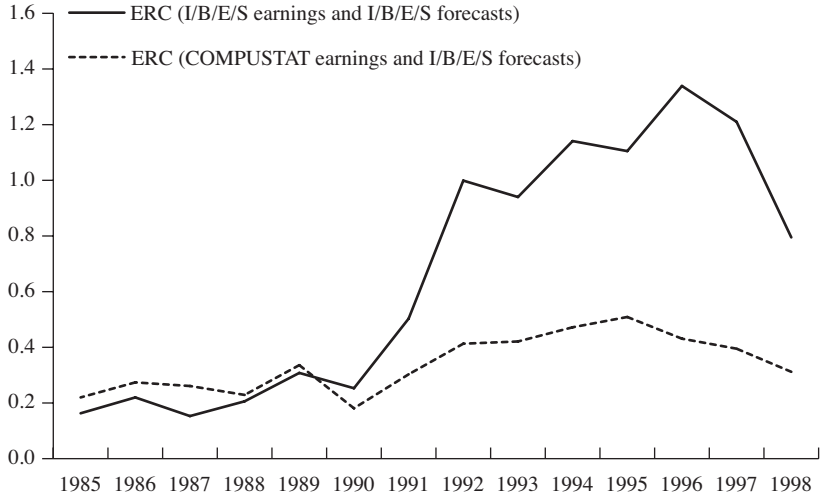
Additional statistical evidence concerning the longitudinal properties of forecast error measures and their associated ERCs is provided in Table 5. This table presents mean forecast errors and ERCs by year for the two earnings surprise measures. Differences between the two subperiods are evident. For example, the largest annual mean forecast error after 1991 is significantly smaller than even the smallest mean forecast error before 1991 for both forecast error measures (with the exception of the COMPUSTAT mean earnings surprise in 1998). Similarly, the smallest ERC after 1991 is still larger than the largest ERCs prior to 1991 for both I/B/E/S and COMPUSTAT earnings-based surprises. The differences between the 1985–91 and 1992–98 subperiods mean forecast errors and ERCs are statistically significant (unreported in tables).

Although statistical differences between the two subperiods are evident, the question at hand is whether there has been a gradually increasing trend in the market reliance on Street relative to GAAP earnings in the 1990s, or whether the apparent trend represents a one-time shift or some other phenomenon. We examine this question by computing the correlations between yearly ERCs and time. The first set of correlations, reported at the bottom of panel A of Table 5, pertains to the entire sample period 1985–98. It can be seen that there is a significant positive correlation between ERCs and time for both earnings surprise measures, with the higher of the two belonging to the FE_{IBES} metric (0.88 versus 0.70). This result appears to confirm the conjectures in prior research that investors have become increasingly fixated or reliant on Street relative to GAAP earnings.

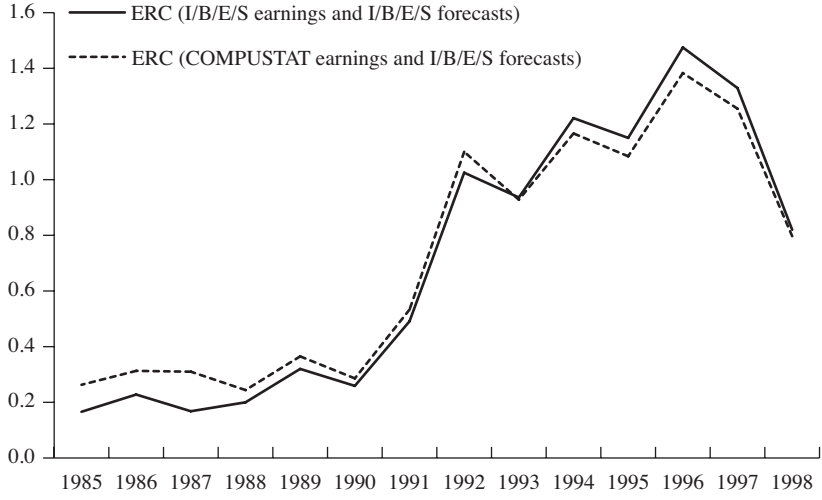
The relevant question is, however, whether the estimated correlation is largely an artifact of the shifts in earnings surprises and ERCs in 1991 as described earlier. Accordingly, we recalculated the correlation restricting the sample to the years 1992–98, the period over which the debate over Street versus GAAP earnings arose. As seen in Table 5, the correlations between ERCs and time for both earnings surprise metrics are now considerably smaller (negative in the case of the COMPUSTAT-based ERC) and statistically insignificant for this period. To test for the effect of the apparent shift in mean earnings differences and in mean forecast errors and ERCs in the early 1990s, we recalculated the correlations after dropping the year 1998 and adding the year 1991 to this sample. This is done to ensure that the insignificant correlations between ERC and time for 1992–98 are not simply the result of reducing the number of years used to calculate them. It can be seen that inferences change dramatically once the sample period straddles 1991. Now the correlation between ERCs based on the FE_{IBES} metric is highly significant

Figure 3 Earning response coefficients for I/B/E/S-based and COMPUSTAT-based forecast error measures

Panel A: Earnings response coefficients for I/B/E/S and COMPUSTAT-based forecast surprise measures, entire sample



Panel B: Earnings response coefficients for I/B/E/S and COMPUSTAT-based forecast surprise measures, excluding the most extreme negative earnings difference observations



(The figure is continued on the next page.)

Figure 3 (Continued)

Notes:

This figure depicts means of ERCs from two regressions of market-adjusted return around quarterly earnings announcements on two alternative earnings surprise measures. The first measure is a COMPUSTAT-based forecast error (equals quarterly COMPUSTAT earnings per share less I/B/E/S earnings forecast outstanding prior to earnings announcement, deflated by price at the beginning of the quarter, and multiplied by 100). The second measure is the I/B/E/S-based forecast error (equals quarterly I/B/E/S earnings per share less I/B/E/S earnings forecast outstanding prior to earnings announcement, deflated by price at the beginning of the quarter and multiplied by 100). The ERCs are presented for the overall sample (panel A) and for the subsample, which comprises observations after excluding the most extreme, negative earnings difference portfolios (5% of the total number of observations in portfolio 1 in Table 2). The earnings difference is computed as the difference between quarterly earnings per share as reported by COMPUSTAT and quarterly earnings per share as reported by I/B/E/S. Earnings difference is deflated by beginning-of-quarter price and multiplied by 100. Returns are measured as the three-day buy-and-hold return centered on earnings announcement date less the return on a value-weighted NYSE/AMEX/NASDAQ index.

(0.89 with a p-value of 0.01) and is almost identical in magnitude to that calculated for the entire sample period 1985–98. The correlation between ERCs based on the FE_{CSTAT} metric, however, remains insignificant.[15]

As a final sensitivity check on our intertemporal results, we repeated the correlation tests in Table 5 employing forecasts and earnings from First Call. The First Call service began providing data in 1992, after the apparent regime shift in earnings differences. Results for the First Call sample are reported in panel B of Table 5. It can be seen that there is no evidence of an increasing correlation between ERCs and time either for the surprise measure calculated with First Call forecasts and reported earnings or for the surprise measured with First Call forecasts and COMPUSTAT-based earnings surprise metric. There is also no relation between ERCs and time when the sample is restricted to cases for which I/B/E/S and First Call data completely overlap with respect to firm and quarter.

Further tests of the hypotheses of market fixation on and preference for Street earnings

As indicated earlier, proprietary documentation indicates that FDPs exercise discretion over which reported earnings number to publish and closely monitor analysts' forecasts for large deviations from the consensus to ensure a measure of earnings surprise that "best" corresponds to market expectations. Implicit in this exercise of discretion is the idea that such adjustments to reported earnings will result in a better reflection of the benchmark that investors compare with their ex ante earnings expectations (whether that expectation represents investor fixation on intentionally biased firm earnings or informed beliefs that align with FDP earnings definitions) and, hence, determine stock price responses to earnings surprises. That is, the

implicit assertion is that earnings surprises based on reported earnings that exclude certain nonoperating and nonrecurring items will *always* have greater information content and higher value-relevance. In this section we test this assertion and offer additional evidence on the descriptiveness of the competing views of GAAP versus Street earnings.

The case of good-news FE_{IBES} but bad-news FE_{CSTAT}

The notion of firms inflating earnings for the purpose of beating earnings benchmarks is frequently cited when motivating the market fixation argument (see, e.g., Schonfeld 1998; Zacks 2003). This suggests that a particularly relevant set of observations for testing the earnings inflation/market fixation hypothesis are those

TABLE 5
Intertemporal trends in forecast errors and earnings response coefficients

Panel A: I/B/E/S-based and COMPUSTAT-based measures*

	Mean		ERC	
Year (1)	FE_{IBES} (2)	FE_{CSTAT} (3)	ERC_{IBES} (4)	ERC_{CSTAT} (5)
1985	−0.936	−0.789	0.163	0.220
1986	−0.777	−0.741	0.220	0.274
1987	−0.651	−0.595	0.153	0.261
1988	−0.520	−0.529	0.206	0.229
1989	−0.572	−0.596	0.308	0.336
1990	−0.782	−0.961	0.253	0.181
1991	−0.394	−0.612	0.503	0.303
1992	−0.189	−0.372	0.999	0.413
1993	−0.181	−0.377	0.940	0.421
1994	−0.141	−0.308	1.141	0.472
1995	−0.184	−0.387	1.105	0.509
1996	−0.148	−0.427	1.339	0.431
1997	−0.129	−0.409	1.210	0.395
1998	−0.246	−0.616	0.795	0.312
1985–91	−0.656	−0.689	0.248	0.242
1992–98	−0.174	−0.420	1.049	0.398
All years	−0.349	−0.519	0.448	0.319
Correlation of mean forecast error with year				
Rank correlation (all years)	0.84	0.49	0.88	0.70
p-value	0.00	0.08	0.00	0.01
Rank correlation (1992–98)	0.07	−0.86	0.14	−0.39
p-value	0.88	1.00	0.76	1.00
Rank correlation (1991–97)	0.82	−0.11	0.89	0.36
p-value	0.02	1.00	0.01	0.43

(The table is continued on the next page.)

TABLE 5 (Continued)

Panel B: First Call–based and COMPUSTAT-based measures†

Year (1)	Mean $FE_{First\ Call}$ (2)	Mean FE_{CSTAT} (3)	ERC $ERC_{First\ Call}$ (4)	ERC ERC_{CSTAT} (5)
1992	−0.203	−0.400	0.805	0.368
1993	−0.160	−0.372	0.731	0.345
1994	−0.179	−0.345	0.782	0.391
1995	−0.235	−0.398	0.882	0.519
1996	−0.197	−0.431	1.078	0.449
1997	−0.263	−0.513	0.867	0.416
1998	−0.363	−0.861	0.711	0.275
All years	−0.242	−0.507	0.838	0.370
Correlation of mean forecast error with year				
Rank correlation (all years)	−0.71	−0.75	0.04	0.07
p-value	0.93	0.95	0.94	0.88

Notes:

* Panel A reports, by year, means of two alternative earnings surprise measures and ERCs estimated from two regressions of market-adjusted return around earnings announcements on the two alternative earnings surprise measures. The bottom part of the panel reports rank correlation coefficients and probability values of the statistics with time. The first earnings surprise measure is COMPUSTAT-based forecast error (equals quarterly earnings per COMPUSTAT less I/B/E/S earnings forecast outstanding prior to earnings announcement, deflated by price at the beginning of the quarter, and multiplied by 100). The second is the I/B/E/S-based forecast error (equals quarterly earnings per I/B/E/S less I/B/E/S earnings forecast outstanding prior to earnings announcement, deflated by price at the beginning of the quarter, and multiplied by 100). Returns are measured as the three-day buy-and-hold return centered on earnings announcement date less the return on a value-weighted NYSE/AMEX/NASDAQ index.

† Panel B presents results of analysis similar to that in panel A by replacing I/B/E/S reported earnings and forecasts with measures reported by First Call.

cases in which FDP earnings produce a positive earnings surprise and GAAP earnings produce a negative surprise for the same forecast. Below, we test this conjecture and assess the effects of the general properties of earnings difference distributions on the evidence. Panel A of Table 6 reports two sets of ERCs calculated in the manner described in Tables 4 and 5 for the 6 percent (5,616 of the 94,579) of observations from 1992–98 for which I/B/E/S adjustments to COMPUSTAT earnings led to a flip in the sign of the forecast error from a negative value to a positive one. The results in panel A indicate that both earnings surprise metrics produce small ERCs that are statistically indistinguishable from zero, as well as from each other.

TABLE 6
Relative informativeness of forecast error measures in conditional distributions*

Panel A: Positive I/B/E/S-based and negative COMPUSTAT-based forecast errors ($FE_{IBES} > 0$ and $FE_{CSTAT} < 0$)

	n (1)	ERC_{IBES} (2)	ERC_{CSTAT} (3)	p-values of tests of differences (4)	Mean: Earnings difference (5)	Mean: FE_{IBES} (6)	Mean: FE_{CSTAT} (7)
Overall	5,616	0.17	0.01	0.52	−1.804	0.262	−1.542
Overall after removing negative tail observations	3,776	2.46†	−0.02	0.00	−0.521	0.153	−0.368

Panel B: Negative I/B/E/S-based and positive COMPUSTAT-based forecast errors ($FE_{IBES} < 0$ and $FE_{CSTAT} > 0$)

	n (1)	ERC_{IBES} (2)	ERC_{CSTAT} (3)	p-values of tests of differences (4)	Mean: Earnings difference (5)	Mean: FE_{IBES} (6)	Mean: FE_{CSTAT} (7)
Overall	2,192	0.28	0.00	0.32	0.958	−0.414	0.544
Overall after removing positive tail observations	956	−0.51	3.26	0.22	0.242	−0.112	0.130

(The table is continued on the next page.)

TABLE 6 (Continued)

Panel C: Both forecast error measures are negative ($FE_{IBES} < 0$ and $FE_{CSTAT} < 0$)

Sign of earnings difference	n (1)	ERC_{IBES} (2)	ERC_{CSTAT} (3)	p-values of tests of differences (4)	Mean: Earnings difference (5)	Mean: FE_{IBES} (6)	Mean: FE_{CSTAT} (7)
Overall	31,504	0.28†	0.11†	0.00	−0.412	−0.855	−1.267
Positive earnings difference	3,166	0.20†	0.29†	0.50	0.318	−0.969	−0.650
Negative earnings difference	7,735	0.39†	0.06†	0.00	−1.810	−0.827	−2.637
Zero earnings difference	20,603	0.26†	0.26†	1.00	0	−0.849	−0.849

Panel D: Both forecasts error measures are positive ($FE_{IBES} > 0$ and $FE_{CSTAT} > 0$)

Sign of earnings difference	n (1)	ERC_{IBES} (2)	ERC_{CSTAT} (3)	p-values of tests of differences (4)	Mean: Earnings difference (5)	Mean: FE_{IBES} (6)	Mean: FE_{CSTAT} (7)
Overall	36,355	1.64†	1.22†	0.00	0.041	0.311	0.352
Positive earnings difference	7,510	2.45†	0.69†	0.00	0.288	0.250	0.538
Negative earnings difference	6,061	1.60†	2.77†	0.00	−0.113	0.341	0.228
Zero earnings difference	22,784	1.51†	1.51†	1.00	0	0.332	0.332

(The table is continued on the next page.)

TABLE 6 (Continued)

Notes:

* This table reports ERCs from two regressions of market-adjusted return around earnings announcements on two alternative earnings surprise measures by the respective sign of the two earnings surprise measures and by the sign of the difference between COMPUSTAT and I/B/E/S reported earnings for the 1992–98 sample period. A negative earnings difference, for example, implies higher earnings reported by I/B/E/S compared with COMPUSTAT. Column 4 reports *p*-values of test of differences in the ERCs, and columns 5, 6, and 7, provide mean earnings difference between COMPUSTAT and I/B/E/S reported earnings, I/B/E/S-based forecast errors, and COMPUSTAT-based forecast errors, respectively. Panels A and B also report results of estimations after removing observations included in the negative tail of earnings difference distributions (portfolio 1 observations as defined in Table 4). Panels C and D present results by sign of earnings difference and for observations with earnings difference equal to zero. Earnings difference is expressed on a per share basis deflated by the beginning-of-quarter price and multiplied by 100. Returns are measured as the three-day buy-and-hold return centered on the earnings announcement date less the return on a value-weighted NYSE/AMEX/NASDAQ index. The first earnings surprise measure is COMPUSTAT-based forecast error (equals quarterly earnings per COMPUSTAT less I/B/E/S earnings forecast outstanding prior to earnings announcement, deflated by price at the beginning of the quarter, and multiplied by 100). The second is the I/B/E/S-based forecast error (equals quarterly earnings per I/B/E/S less I/B/E/S earnings forecast outstanding prior to earnings announcement, deflated by price at the beginning of the quarter and multiplied by 100).

† Statistically significant at a 5 percent level or better.

At first glance the result in panel A does not appear to support the superiority of I/B/E/S reported earnings or the market's fixation on inflated Street earnings hypotheses. Further investigation, however, reveals that a relatively large percentage of these observations (33 percent) are drawn from the most negative decile of the earnings difference distribution — that is, the observations associated with property 1.[16] This ERC result is somewhat puzzling given the evidence from Table 4, which indicates that the presence of extreme earnings difference observations is the primary reason for the statistical evidence of higher I/B/E/S earnings-based ERCs than COMPUSTAT earnings-based ERCs. The question therefore arises, "Why doesn't this basic result hold for the partition of the data in which the extreme positive adjustments lead to a good-news rather than bad-news earnings surprise (that is, the partition in which earnings are presumed to be either dishonestly inflated to beat expectations or, alternatively, honestly adjusted to inform investors that the 'true' earnings are actually good news)?"

The ERC results are even more puzzling when the test is rerun after removing observations from the lowest earnings difference portfolio (in Table 4). As seen in

panel A of Table 6, the qualitative conclusion is now reversed. The ERC reported for I/B/E/S earnings-based surprises rises from an insignificant value of 0.17 to a highly significant value of 2.46, while the COMPUSTAT earnings-based surprise remains small and insignificant. The difference between the two coefficients is now highly significant.

The result in panel A of Table 6 indicates that the presence of extreme tail observations that lead to a flip in the sign of the earnings surprise is not associated with larger ERCs. In contrast, earnings differences of smaller magnitude are associated with larger ERCs when such differences lead to a change in the sign of the earnings surprise. These findings suggest the need for a more nuanced view than the standard earnings inflation/market fixation hypothesis that accounts for the magnitude and nature of the adjustment, as well as the sign of the resulting earnings surprise. Furthermore, while the results in Table 4 demonstrate how a small number of extreme observations can produce the appearance of systematic market reliance or fixation on inflated Street earnings even when the phenomenon is not pervasive, the evidence in Table 6, panel A provides an example of how these same observations can obscure evidence consistent with an apparent market preference for or fixation on FDP earnings in a subset of the data that is highly relevant to the question at hand. Combined, the findings suggest that researchers must be particularly sensitive to the ability of a relatively small number of observations in the negative tail of the distribution of earnings differences to "wag the dog" — that is, to sometimes support but at other times obscure evidence of a hypothesized relation.

The case of bad-news FE_{IBES} but good-news FE_{CSTAT} surprises

We are unaware of any hypotheses in the literature that predict that firms and/or FDPs have incentives to deflate GAAP earnings below analysts' expectations (distinguished from the hypothesis that firms manage analysts' forecasts to a number below the earnings eventually reported). Panel B of Table 6 reports that there are, nevertheless, 2,192 observations consistent with such behavior. The existence of observations in which I/B/E/S earnings-based surprises are negative and COMPUSTAT earnings-based surprises are positive runs contrary to the earnings inflation hypothesis and raises several other questions. For example, is there a heretofore unidentified incentive for firms and FDPs to deliberately deflate reported earnings to a number below analysts' expectations? If such an incentive exists, what is the impact of deliberately deflating reported earnings on stock prices?[17] If no such incentive exists, how many cases in which the sign of the earnings surprise flips with an adjustment of reported earnings by FDPs should be expected to occur randomly? Given the nature of conservative accounting, should we expect the number of times an earnings difference leads to a good-news surprise according to an FDP but a bad-news surprise according to GAAP be the same as when the opposite occurs?[18]

Evidence on ERCs for the competing earnings surprise measures reported in panel B of Table 6 also raises doubts about the hypothesis that FDP earnings are more informative than COMPUSTAT earnings. Under this hypothesis, I/B/E/S earnings-based surprises should always produce larger ERCs than COMPUSTAT

surprises even when the FDP earnings imply bad news and COMPUSTAT earnings imply good news. However, the evidence in panel B does not support this prediction. The COMPUSTAT earnings-based surprise actually produces a larger ERC, although the difference is statistically insignificant. This result holds even after removing the most positive earnings differences observations found in portfolio 10 (that is, observations for which COMPUSTAT earnings exceed the I/B/E/S earnings by extreme amounts). Thus, the evidence in panel B directly contradicts the notion that investors fixate on Street earnings and fails to support the argument that FDP reported earnings are always more informative than COMPUSTAT earnings.[19]

Is the choice of one source of reported earnings data over another costless?

Philbrick and Ricks (1991) find that cross-sectional ERCs are, on average, higher for earnings surprises composed of FDP forecasts and FDP reported earnings than for earnings surprises based on FDP forecasts and COMPUSTAT earnings. This general result is replicated in Ramnath, Rock, and Shane 2005.[20] One concern for the conclusions in this literature raised by the evidence in Table 4 is that test designs that give disproportionate weight to large negative earnings difference observations can produce a distorted view of the pervasiveness and economic importance of the superiority of FDP over COMPUSTAT reported earnings (that is, understate or overstate the superiority in specific contexts of interest to researchers). Another concern raised by the results pertaining to portfolio 10 reported in Table 4 is that there may be circumstances in which COMPUSTAT earnings-based surprises actually produce systematically *larger* ERCs and are, by traditional definitions, more value-relevant than I/B/E/S earnings. This raises the possibility that routine FDP adjustments to earnings that presume some income items are of low informational value to investors actually could induce rather than reduce measurement error relative to COMPUSTAT earnings in certain circumstances.

On the basis of the results in Table 4 and the first two panels of Table 6, one might be tempted to settle on the view that investors sometimes prefer FDP (Street) earnings to COMPUSTAT (GAAP), and at other times are indifferent to the choice. This, in turn, may lead researchers to conclude that by always pairing FDP earnings with forecasts, they can gain much in practical convenience and standardization across studies without sacrificing power or introducing bias. We explore the soundness of this view through an examination of the two other possible partitions of observations that are determined by the relative signs of the forecast errors produced by the COMPUSTAT and I/B/E/S earnings.

Panel C of Table 6 reports evidence on the relative magnitude of the ERCs for a subsample for which both forecast error metrics produce negative (or bad-news) earnings surprises. The two earnings surprise metrics yield small ERCs for the whole subsample as well as when the sample is further partitioned into negative and positive earnings differences. Of course, the metrics produce identical ERCs when earnings differences are zero. When earnings differences are negative, I/B/E/S earnings-based surprises do produce a slightly larger ERC than COMPUSTAT earnings-based surprises; but once again, ERCs in both cases are very small, rais-

ing questions about the economic relevance of the statistical difference (that is, the value of dishonestly inflating earnings or honestly attempting to adjust earnings to be more informative).[21]

The results in panel C appear to support the idea that there would be little empirical slippage if forecasts were always benchmarked against FDP reported earnings. However, the evidence reported in panel D of Table 6 raises doubts about whether this prescription is benign in all circumstances. The panel reports the ERCs for the subsample in which I/B/E/S and COMPUSTAT earnings are paired with a given forecast resulting in a positive (that is, good-news) forecast error for both measures of earnings surprise. ERCs for both earnings surprise metrics are large relative to those reported for the overall sample, as well as the other subsamples in panels A–C of Table 6. The first row of panel D reports that the overall ERC associated with FE_{IBES} is, once again, significantly larger than the one associated with the FE_{CSTAT}. As seen in the table, however, the result is driven by cases in which COMPUSTAT earnings exceed I/B/E/S earnings (that is, the opposite of Street earnings inflation), resulting in a larger ERC for FE_{IBES} than FE_{CSTAT} (2.45 versus 0.69, respectively). In contrast, when I/B/E/S earnings exceed COMPUSTAT earnings for this subsample (that is, negative earnings differences that are purported to reflect earnings inflation), COMPUSTAT earnings-based surprises actually produce a significantly larger ERC than I/B/E/S earnings-based surprises (2.77 versus 1.60, respectively). That is, when both reported earnings numbers exceed the forecast, the lower of the two alternatives is closer to the actual earnings benchmark on which the market appears to rely.

One possible explanation for the result in panel D is that when firms report GAAP earnings that beat the forecast, investors view competing Street earnings that still beat the forecast (but are free of large negative transitory earnings) as highly informative. That is, the market may view the earnings of firms that have the ability to recognize large negative, transitory items while still beating market earnings expectations as more persistent. Anecdotally, such firms may be perceived as storing "cookie jar" reserves, which, in turn, could be construed by the market as a signal of financial strength. Regardless of the explanation of this finding, however, we note that the prospect of inflated I/B/E/S earnings numbers leading to a reduction in the price–earnings relation has not been considered in prior studies in the Street versus GAAP literature, studies that seek to identify ex ante superior sources of earnings data, or studies that use analyst forecast errors as indicators of earnings management (e.g., Bagnoli et al. 2001; Abarbanell and Lehavy 2003b).

The results in Table 6 speak to the question whether it is possible or even desirable to identify ex ante a superior earnings number to benchmark against forecasts. While it is true that I/B/E/S earnings-based surprises produce ERCs that are no smaller than COMPUSTAT earnings-based surprises for the entire cross-section and for some partitions of the sample, one does not need to search very far to find an interesting context (that is, a partition of the data) in which the opposite is true. We provide evidence of a similar phenomenon in the context of the "value-relevance" of earnings and book values in Appendix 1. This suggests that different tests of hypotheses — for example, the hypothesis that earnings are inflated to inflate stock

prices — have the potential to produce results that are qualitatively at odds, depending on the particular sample and research design employed.

More generally, while some of the results in Table 4 and panels A and C of Table 6 are weakly consistent (or not inconsistent) with both prevalent views of Street earnings, these results must be reconciled with the results in panel D of Table 6, which indicate that Street earnings can produce ERCs that are lower than those based on GAAP earnings. More important for researchers, our evidence could be interpreted as consistent with a very sophisticated market that weights the components of earnings adjustments in a manner more complicated than the formulas adopted by FDPs or suggested by either the market fixation on or market preference for Street earnings hypotheses — a possibility that is obscured by property 1 of earnings difference distributions.

Implications for tests of market fixation on FDP earnings that rely on subsequent returns

The preceding analyses suggest that tests of stock price responses to contemporaneous earnings surprises performed in prior literature do not adequately discriminate between a market that fixates on unjustifiably inflated earnings and one that prefers FDP more informative formulations of earnings benchmarks.

A common approach in the literature for detecting whether earnings inflation misleads investors relies on the assumption that the market eventually corrects initial pricing mistakes. So-called subsequent returns tests are typically motivated by one of two views of the world. Either investors initially overreact or underreact to information that was not reported strategically by the firm (e.g., Burgstahler, Jiambalvo, and Shevlin 2002), or investors subsequently react in an apparently appropriate manner to information that was discovered to have been strategically manipulated previously (e.g., Doyle, Lundholm, and Soliman 2003).

Our analysis suggests that the most influential evidence in support of the claims that Street earnings are inflated and that the market fixates on them is associated with the most extreme negative differences between FDP and COMPUSTAT definitions of earnings. The evidence presented in Doyle et al. 2003 is relevant to assessing whether these same observations reflect cases of earnings inflation that the market eventually discovers and corrects. They document that a trading strategy of short positions in stocks with the most extreme negative earnings difference (that is, Street earnings exceed COMPUSTAT earnings) and long positions in stocks with the most extreme positive earnings differences (in which GAAP earnings exceed Street earnings) produces a hedge return of 11.3 percent three years after portfolio formation. However, none of this hedge return is accounted for by the short positions in the extreme negative earnings differences, which are the positions consistent with initial market fixation on inflated Street earnings. The return to the trading strategy derives entirely from taking long positions in stocks with earnings differences that are consistent with extreme FDP earnings *deflation*. We note again that no extant hypothesis in the GAAP versus street literature identifies an incentive for firms in collusion with FDPs to deflate earnings by extreme amounts in an effort to mislead investors (see also discussion in Easton 2003).

Additional evidence reported in Doyle et al. 2003 suggests that larger abnormal returns can be earned by establishing trading positions based on the sign and magnitude of the special items and other exclusions that comprise earnings differences. Notably, however, all profit generated by the refined strategy derives from positions taken in extreme positive values of other exclusions, which, unlike COMPUSTAT-defined special items, are not disproportionally represented in the extreme negative earnings differences portfolio. These results suggest that to get a better understanding of the association between possible inflation of GAAP earnings by FDPs and subsequent price corrections, one would need to isolate the observations for which there is the possibility of earnings inflation and then test for subsequent returns in this partition of the data.

5. Summary and conclusions

In this paper we reexamine inferences in the literature concerning the information content of alternative sources of reported earnings through the lens of the properties of the distribution of differences in earnings reported by I/B/E/S and COMPUSTAT. Our analysis indicates that some interpretations of statistical evidence as supporting a generalized market fixation on inflated or preference for more informative Street earnings versus GAAP earnings may be premature or, at the very least, in need of further refinement. At a minimum, our findings raise doubts about how pervasive are the purported phenomena of intentional earnings inflation, investor fixation on Street earnings, gradual changes in investor reliance on Street earnings over time, and the extent to which FDP reported earnings are superior to COMPUSTAT earnings for benchmarking market earnings expectations.

Thus far, studies have set a fairly low hurdle for generating and interpreting the strength of statistical support for sweeping hypotheses whose construct validity has not, somewhat surprisingly, been seriously challenged in the prior literature. Furthermore, some econometric techniques used in prior studies are simply too blunt to produce evidence that discriminates between support for the stated hypotheses and a simple measurement error interpretation of the data. Accordingly, going forward, more challenging tests of hypotheses, more explicit assumptions about investors' behavior, and tighter linkages between the hypothesis tested and empirical test designs will be required to make a compelling case for earnings inflation and/or potential market fixation on Street earnings.

Several cautions to researchers follow from the analysis of the properties of earnings differences. First, beware of the potential for the negative tail of the distribution to "wag the dog" when developing research designs, deciding on statistical tests, and choosing samples for testing specific hypotheses. Second, in any longitudinal study that employs FDP forecast and reported earnings data that straddles the year 1991, be aware of an apparent shift in mean earnings differences and forecasts errors that has the potential to distort inferences concerning hypothesized economic trends or changes in the behavior of market participants over time. Third, in tests that hypothesize initial market fixation on inflated earnings followed by subsequent price corrections, it is important to isolate the observations for which there is an appearance of inflation (that is, Street earnings should be greater than GAAP

earnings), and then to establish a direct link to market fixation on a given earnings measure as the cause of purported mispricing.

Finally, our analysis offers an alternative perspective on evidence from prior literature on the relative information content and value-relevance of earnings (see Appendix 1). This perspective relies on the notion that investors process the information content and value-relevance of specific components of earnings in a manner that is more sophisticated than the rules that are applied to exclude such items from I/B/E/S and other FDP reported earnings. This process gives rise to circumstances in which COMPUSTAT earnings-based surprises are more highly associated with market responses and to other circumstances in which FDP earnings-based surprises are more highly associated with market responses. To the extent that this contextual characterization applies, there may be limited benefits to conducting or relying on analyses that attempt to identify ex ante superior measures of reported earnings, because the superiority of one measure over another is likely to depend on the specific hypothesis or context under investigation.

Appendix 1: Measurement error and the relative value-relevance of earnings and book values

In this appendix we extend our analysis of the properties of earnings difference distributions to the literature concerned with the cross-sectional determinants of the value-relevance of earnings and book values (see, e.g., Francis and Schipper 1999; Collins, Maydew, and Weiss 1997; Brown and Sivakumar 2003). The evidence we present expands the measurement error interpretation of our findings by assessing the trade-off between the value-relevance of book values and earnings in price-level regressions (see Abarbanell 1999).

Table 7 presents the estimated coefficients and adjusted R^2s from regressions of prices on earnings and book values within the portfolios of ranked earnings differences identified in Table 4. Results are reported for the sample period 1992–98. Columns 3–5 report the regression results for COMPUSTAT book values and earnings. The coefficient on COMPUSTAT earnings is the lowest (actually negative), while the coefficient on book value is the highest in portfolio 1, indicating that the largest trade-off between the value-relevance of earnings and book value occurs in this decile. Recall that portfolio 1 represents observations with the largest, negative earnings differences between COMPUSTAT and I/B/E/S. Note also that the adjusted R^2 in this portfolio is very low. This suggests that measurement error in earnings (relative to the market's true earnings benchmark) is associated with the most extreme negative earnings difference observations in the distribution. These observations appear to bias downward the coefficient on earnings and inflate the coefficient on book value, which must compensate for the measurement error in earnings.[22] Nevertheless, the amount of error in measuring the markets' true earnings benchmark is sufficiently large in portfolio 1 that book value cannot fully compensate for the information lost, as suggested by the low R^2.

The evidence of a trade-off between book value and earnings and its impact on R^2 in portfolio 1 parallels the measurement error interpretation of the findings on ERCs in Table 4 discussed earlier. That is, the market is well aware of the transitory

TABLE 7
Comparison of "value-relevance" regressions by rank of earnings difference, 1992–98*

Rank of earnings difference	n (1)	Mean earnings difference (ranking variable) (2)	Coefficient estimates of COMPUSTAT-based "value-relevance" regressions			Coefficient estimates of I/B/E/S-based "value-relevance" regressions		
			BPS_{CSTAT} (3)	EPS_{CSTAT} (4)	Adj. R^2 (5)	BPS_{IBES} (6)	EPS_{IBES} (7)	Adj. R^2 (8)
1 (most negative)	4,641	−3.632	1.039	−0.39	0.31	0.657	16.94	0.49
			45.4	−1.0		30.0	37.9	
2	4,642	−0.749	0.939	9.98	0.34	0.638	20.34	0.46
			36.5	14.6		25.9	36.0	
3	4,639	−0.247	0.797	16.85	0.40	0.681	20.13	0.45
			29.9	25.0		26.1	32.3	
4	4,644	−0.082	0.739	19.51	0.39	0.676	21.42	0.41
			24.5	24.1		22.6	27.4	
5 (least negative)	4,641	−0.031	0.428	22.22	0.34	0.410	22.75	0.35
			13.7	25.9		13.1	26.7	
Zero earnings difference	51,195	0	0.699	15.72	0.43	0.699	15.72	0.43
			91.7	96.0		91.7	96.0	
6 (least positive)	3,251	0.029	0.668	23.20	0.44	0.688	22.73	0.44
			17.0	23.5		17.5	22.9	
7	3,254	0.055	0.542	25.16	0.46	0.583	24.16	0.45
			15.7	27.9		16.7	26.1	

(The table is continued on the next page.)

TABLE 7 (Continued)

Rank of earnings difference	n (1)	Mean earnings difference (ranking variable) (2)	Coefficient estimates of COMPUSTAT-based "value-relevance" regressions			Coefficient estimates of I/B/E/S-based "value-relevance" regressions		
			BPS_{CSTAT} (3)	EPS_{CSTAT} (4)	Adj. R^2 (5)	BPS_{IBES} (6)	EPS_{IBES} (7)	Adj. R^2 (8)
8	3,251	0.102	0.600	23.76	0.56	0.671	22.45	0.53
			18.7	30.6		20.7	27.5	
9	3,256	0.234	0.591	18.49	0.52	0.716	15.59	0.48
			21.8	27.4		26.2	21.2	
10 (most positive)	3,252	1.066	0.523	16.54	0.50	0.754	10.55	0.38
			21.6	31.6		29.9	16.3	
Overall	90,666	−0.172	0.804	12.63	0.40	0.675	17.59	0.44
			140.5	107.1		116.7	134.8	

Notes:

* This table reports coefficients estimates and their t-statistics from two regressions of stock price on book value of equity and earnings, by ranks of the difference between COMPUSTAT and I/B/E/S reported earnings. Columns 3–5 report the coefficient estimates and adjusted R^2s from a regression of stock prices on book values and earnings per COMPUSTAT (BPS_{CSTAT} and EPS_{CSTAT}, respectively). Columns 6–8 report coefficient estimates and adjusted R^2s from a regression of stock prices on I/B/E/S-adjusted book values (equals book value per COMPUSTAT plus the difference between COMPUSTAT and I/B/E/S reported earnings) and I/B/E/S earnings (BPS_{IBES} and EPS_{IBES}, respectively).

nature of large, negative nonrecurring items that decrease the informativeness of earnings for the set of observations in portfolio 1. The evidence in Table 7 further indicates that as earnings differences become more positive, there is a diminution in the trade-off between the information in book value and COMPUSTAT earnings. That is, book value is not being called upon to compensate to as great an extent for concentrations of observations that include extreme negative transitory components of earnings.

Columns 6–8 of Table 7 present the results of the value-relevance tests for I/B/E/S reported earnings.[23] There are three effects of note when comparing these results with those based on COMPUSTAT earnings. First, after I/B/E/S exclusion of the most extreme negative items from reported earnings (observations in portfolio 1), there appears to be little trade-off in the value-relevance of book values and I/B/E/S earnings evident in the coefficients. That is, book value is not being called upon to compensate for error in earnings to the extent that it would have been if FDP reported earnings did not exclude such items. Second, R^2 is greater in portfolio 1 observations as a result of excluding extreme items that make COMPUSTAT reported earnings relatively less informative. Third, I/B/E/S earnings begin to display decreasing value-relevance as earnings differences take on large positive values and book value is once again called upon to compensate for information that is apparently lost when I/B/E/S adjusts COMPUSTAT earnings by extreme negative amounts. A comparison of R^2s for regressions in portfolio 10 (the largest positive earnings differences portfolio) indicates that information loss is greatest when I/B/E/S excludes items that leave their reported earnings number well below COMPUSTAT reported earnings (R^2 is 0.50 for COMPUSTAT versus 0.38 for I/B/E/S). Recall that a similar result was observed in the case of ERCs for portfolio 10 in the earlier subperiod (see Table 4). These results reinforce the interpretation that some FDP earnings adjustments actually produce lower associations between prices and earnings.

Table 7 also presents evidence on the large subsample of firms for which I/B/E/S earnings are identical to COMPUSTAT earnings. Columns 3 and 4 (6 and 8) for COMPUSTAT (I/B/E/S) indicate that moving from the least negative differences found in portfolio 5 to the zero earnings difference portfolio, there is a large decrease (increase) in the magnitude of the coefficient on earnings (book value). Conversely, moving from the portfolio containing zero differences to portfolio 6, which contains the least positive differences, we find that the coefficient on earnings increases to the largest value among all the portfolios. Thus, there is a significant difference in the value-relevance of earnings relative to book values between cases in which no adjustment to COMPUSTAT earnings is undertaken by I/B/E/S and cases in which the smallest negative or smallest positive adjustment is undertaken. Recall in Table 4 that a similar drop in the information content of earnings (that is, ERC) was observed when moving from the smallest positive to zero earnings difference and then from zero to the smallest negative earnings difference portfolios.

The findings for zero earnings differences in Table 7 appear to be counterintuitive in light of the fact that reported earnings for these cases are relatively free of

the large negative transitory components of earnings that are associated with low ERCs and small earnings coefficients in price-level regressions. A partial explanation for this finding is suggested by comparison of the earnings of firms in partitions formed on the sign of the earnings difference — that is, zero, positive, and negative earnings difference groups. The percentage of firms reporting a loss (according to I/B/E/S) in the zero earnings difference group is 20 percent, a significantly higher proportion than the 13 percent and 8 percent of I/B/E/S loss firms found in the negative and positive difference groups, respectively. That is, the likelihood of a loss firm, according to I/B/E/S, falling into the zero earnings group is approximately equal to the combined likelihood of an I/B/E/S loss firm falling into the negative and positive earnings difference groups. In contrast, and as one would expect, a significantly higher proportion of loss firms, according to COMPUSTAT, are found among the negative earnings difference group (28 percent) than are found in either the positive (6 percent) or zero earnings difference groups (20 percent).[24]

It is well known that loss firms are associated with severe nonlinearities in regressions of short window returns on earnings surprises that result in attenuation of ERCs (e.g., Hayn 1995). The results in Table 7 suggest that a "loss firm" effect is also present in regressions of prices on earnings and book values and, especially among firms for which COMPUSTAT and I/B/E/S agree, on the reported earnings. If loss firms are dispersed (or removed) nonrandomly over partitions of the data of interest to researchers, they have the potential to confound inferences. This evidence suggests that in tests that predict differences in ERCs or the relative value-relevance of earnings across alternative reported earnings sources, researchers must pay attention to the possibility of confounding inferences by including zero earnings difference firms.

Appendix 2: A comment on the use of FDP earnings to proxy for firms' self-reported pro forma earnings

In some studies researchers attempt to extrapolate findings from FDP-based earnings differences to other relevant earnings differences. An example of this is found in the literature that examines firms that announce pro forma earnings along with their GAAP earnings. A common allegation is that investors fixate on a misleading pro forma number, one that is typically higher than its GAAP counterpart.

On the basis of findings from analyses of differences between I/B/E/S and COMPUSTAT earnings, Brown and Sivakumar (2003) and Bradshaw and Sloan (2002) conclude that investors place more weight on pro forma earnings than on GAAP earnings. In contrast, studies that employ actual, hand-collected samples of pro forma earnings find mixed evidence on the question of the relative informativeness of pro forma versus GAAP earnings. For example, Johnson and Schwartz (2005) find no evidence that pro forma firms enjoy a stock return premium at the quarterly earnings announcement date, while Bhattacharya et al. (2003) conclude that pro forma earnings are more informative and more permanent than GAAP operating earnings. Lougee and Marquardt (2004) find that investors place more weight on pro forma earnings than on GAAP earnings when the latter have low historical informativeness or when they exceed the outstanding forecast, but

appear to ignore pro forma numbers when GAAP earnings have high historical informativeness or when they fall below the analyst forecast. They also find limited evidence of subsequent price corrections. Their evidence, they conclude, leaves the debate over whether pro forma disclosures are used to inform or mislead investors unresolved, or at best "context-dependent".

The fact that distributions of FDP reported earnings produce some summary statistical evidence that is similar to that produced by distributions of pro forma earnings has been cited as a justification for the use of the former as a proxy for the latter in empirical tests.[25] However, comparisons of these statistics are made conditional on a firm having reported pro forma earnings, which limits the generalizability of the comparison. For example, Bhattacharya et al. (2003, footnote 2) estimate that only about 11 percent of the companies covered by I/B/E/S actually report pro forma earnings. Johnson and Schwartz (2005) argue (a) that there are significant differences in the frequency of management-issued pro forma earnings compared with the frequency of nonzero earnings difference between Zacks and COMPUSTAT and (b) that pro forma earnings for their sample equal Zacks' Street earnings in only about 59 percent of the cases "underscores why so-called 'street' earnings is often not a reliable proxy for the company constructed pro forma earnings figures reported by management" (Johnson and Schwartz 2005, footnote 15).

One condition under which it would be appropriate to extrapolate findings from the FDP versus GAAP earnings literature to the issue of market reliance on pro forma earnings occurs where firms that report pro forma earnings are distributed approximately randomly across distributions of FDP versus GAAP earnings differences. Evidence in studies that use actual pro forma data, however, suggests that this condition does not hold. For example, Johnson and Schwartz (2005) report that 39 percent of their pro forma observations fall into the lowest quintile of the GAAP reported earnings populations (see panel C of their Table 2). Although they do not report this percentage for quintiles on the basis of differences in reported earnings, we find in our own analysis that nearly 40 percent of the observations that fall into the most negative quintile of Zacks (the FDP used in Johnson and Schwartz 2005) versus GAAP earnings differences also fall into the lowest quintile of observations ranked on Zacks reported earnings.[26]

The collection of these descriptive statistics suggests that there is a high likelihood that pro forma earnings will fall into the negative tail of distributions of differences between FDP and COMPUSTAT earnings. The evidence presented in Table 4 of this paper indicates that this partition is the only one that produces larger ERCs when FDP earnings rather than GAAP earnings are used to calculate earnings surprises. One could argue that because a disproportionate number of pro forma firms falls into this tail, where the advantage of using the FDP earnings is the greatest, this advantage could be extrapolated to the rest of the pro forma earnings observations. However, the evidence in Lougee and Marquardt 2004 suggests that this might not be the case. In panel B of their Table 6, they report that the difference between R^2s of regressions of announcement returns on pro forma and GAAP earnings-based surprises is only marginally significant at the 10 percent

level. Johnson and Schwartz (2005) find no advantage to using pro forma earnings over GAAP reported earnings.

The discussion above suggests that extrapolation from the cross-section or even a specific part of an FDP versus GAAP earnings difference distribution to infer something about market responses to firms' self-reported pro forma earnings may be inappropriate. More generally, it suggests that FDP reported earnings may be a very noisy proxy for pro forma earnings constructed and reported by management.

Endnotes

1. In the interest of brevity, most of the results presented in the paper are based on I/B/E/S data. To ensure that all our conclusions hold across competing FDPs, we replicated, where applicable, all our results using the Zacks and First Call data. Our findings also hold when we employ a sample consisting of firm/quarters that completely overlap between I/B/E/S and Zacks. Both of these controls are suggested by the evidence in Abarbanell and Lehavy 2002, which examines how inferences from a given test can differ depending on the choice of FDP, sample data, and firm coverage. In addition, results were replicated for various definitions of reported earnings according to COMPUSTAT (see data description below). Again, our results were qualitatively similar.
2. In Appendix 1 we examine the implications of the properties of earnings differences distributions on evidence in the literature on the value-relevance of earnings and book values. We discuss our results in relation to the literature on firms' self-reported pro forma earnings in Appendix 2.
3. Using Zacks data we confirmed that all our results hold for a consensus forecast constructed using the three most recent individual forecasts outstanding before an earnings announcement as well as the last forecast produced before an announcement.
4. See also Bhattacharya, Black, Christensen, and Larson 2003 for a discussion of recurring operating items that are excluded from firms' reported pro forma earnings. Abarbanell and Lehavy (2003a) also present evidence consistent with the exclusion of such items from FDP reported earnings contributing to asymmetries in earnings surprise distributions even when transitory items are removed from both analysts' forecasts and related reported earnings numbers
5. While we offer some evidence on the components of the reported earnings differences, we emphasize that investigating these components is not the primary focus of this study. Rather, we treat earnings differences as the primitive variable of interest, attempt to understand their distributional properties, and assess the implications of these properties on conclusions drawn in the extant literature.
6. Additional, although less dramatic, changes in earnings differences are evident for 1996 and 1997. While there is no change in the mean earnings difference between these two years, there are statistically significant declines in the percentage of zero and negative earnings differences in 1997. These percentage declines are offset by a large and statistically significant rise in the number of positive earnings differences.
7. In results not reported in tables we find that firms with zero earnings differences are smaller and characterized by relatively poor earnings, cash flows, and prior stock return performance compared with randomly selected firms in our sample. We note

also that zero earnings differences firms comprise a higher percentage of firms reporting losses than would be expected if such firms were distributed randomly in the earnings difference distribution. See also the discussion in Appendix 1.

Descriptive statistics reported in empirical studies that employ data subsequent to 1998 indicate that the first and third properties of earnings difference distribution persist (e.g., Doyle, McNichols, and Soliman 2004, Table 1 and footnote 23) and that there is no indication that another regime shift in mean reported earnings differences (property 2) has occurred since 1991.

8. In a similar vein, Bagnoli, Eskew, and Watts (2001) find that ERCs of firms whose First Call forecasted and reported earnings exclude both recurring (for example, goodwill amortization) and nonrecurring items are higher than ERCs of firms whose First Call forecasted and reported earnings only exclude nonrecurring items. They interpret their evidence to suggest that such firms are more successful at managing reported and expected earnings by convincing analysts to permanently exclude a recurring expense from their forecasts.
9. In contrast to COMPUSTAT special items, observations from the lowest deciles of estimated other adjustments and COMPUSTAT nonoperating items are proportionally represented in portfolio 1 (6 percent each). Notably, extreme other adjustments make a fairly symmetrical contribution to the most extreme positive and negative earnings differences. Finally, there is no indication that COMPUSTAT nonoperating items systematically contribute to extreme earnings differences.
10. Brown and Sivakumar (2003) and Bradshaw and Sloan (2002) include zero earnings difference observations in their main regressions. In principle, these observations, which are likely to comprise over half of their samples, should play no role in supporting, rejecting, or differentiating between the two views of Street earnings. Although the inclusion of zero earnings differences does not appear to alter the statistical inference in Table 4, including these observations in tests of the information content or the value-relevance of alternative earnings measures has the potential to confound inferences (see also the discussion above under the heading "The High Frequency of Zero Earnings Differences").
11. The tests of difference in ERCs in columns 10 and 11 indicate that an apparent market preference for GAAP earnings in cases where COMPUSTAT earnings exceed I/B/E/S earnings (that is, portfolio 10) does not hold for the 1992–98 subperiod, suggesting that the early subperiod drives the overall sample result for portfolio 10 in column 4.
12. It could be argued that when I/B/E/S earnings differ from COMPUSTAT earnings by small amounts, there may be little power to detect differences in respective ERCs. However, in the prior literature (e.g., Skinner and Sloan 2002), small earnings surprises have been shown to create disproportionally high stock responses. This suggests that lack of power may not be a relevant consideration for small forecast errors accompanied by small earnings differences. Evidence presented in a subsequent section confirms large price reactions to such observations. Note also that low power is unlikely to explain the lack of significant differences in ERCs for many of the portfolios where mean differences in reported earnings and, therefore, earnings surprises are still relatively large.

13. We emphasize that excluding observations in this test and subsequent robustness tests is undertaken for the purpose of uncovering and disentangling the impact of specific observations associated with the three properties of earnings difference distributions on cross-sectional and intertemporal statistical tests. It is not a recommendation for researchers to truncate, winsorize, or strategically sample from data used in their tests. This paper is silent on these issues. See Kraft, Leone, and Wasley 2006 and Core 2006 for a discussion of these questions.
14. The strength of market response to earnings news increases after 1990 even after tail observations are removed, regardless of what earnings benchmark is used. This suggests that a reliance on more informative or fixation on deliberately biased Street earnings is not the sole source of any apparent trend in how the market interprets earnings. It also highlights the importance of empirical designs that account for the cross-sectional properties of earnings difference distributions to allow for an adequate discrimination of any longitudinal hypothesis under examination.
15. Note also that the findings for the correlations between mean forecast errors and time for both earnings surprise measures mirror those found for ERCs. That is, if the sample does not straddle 1991, there is no statistical evidence of a gradual decline in analyst forecast errors over time. Evidence of a negative correlation has been used to support the argument that there has been a decreasing trend in apparent analysts' optimism during the 1990s (see, e.g., Brown 2001). No such correlation is evident without including at least one year from the pre-1991 period.
16. The fact that 33 percent of the observations of this subsample of forecast errors are from the most extreme negative difference portfolio is not surprising, because the most extreme mechanical FDP adjustments are more likely to result in a sign flip in the forecast errors. However, this fact raises the difficult question, "How many cases in which the sign of the earnings surprise flips with an adjustment of reported earnings by FDPs should be expected to occur randomly?" when identifying the null hypothesis for tests of either of the prevalent views of Street earnings.
17. We note that such an observation may be consistent with firm incentives to manage earnings downward for which analysts do not have the ability or incentive to account in their earnings forecasts (see Abarbanell and Lehavy 2003b). However, in this case FDPs would not be actively or tacitly involved in the manipulation of earnings or, necessarily, in a position to know how the market will respond to the resulting earnings surprise.
18. Note from panel B that 1,236 observations (54 percent) of this subsample are from the most extreme positive earnings difference portfolio, which, again, is not surprising if FDPs follow mechanical rules of adjusting reported earnings.
19. It is also noteworthy that in only 8 percent of cases in the full sample does an I/B/E/S adjustment to earnings lead to a sign flip in the surprise in either direction (observations in panels A and B of Table 6). Furthermore, an excess of only 4 percent (6 percent − 2 percent) of such cases are in the direction that supports the phenomenon of inflating Street earnings to generate positive earnings surprises.
20. The stated motivation for conducting market association tests in the superiority literature is to create earnings surprises with the least amount of slippage in representing market expectations, and not to address explicitly the question whether a

higher association represents market fixation on inflated or more informative earnings, which is the issue of concern in the Street versus GAAP earnings literature. While both the research questions and the underlying assumptions about market efficiency in the superiority literature differ from those in the Street versus GAAP literature, the results in the two literatures are nevertheless closely linked because they employ similar data and empirical test designs. That is, holding the forecast component of the earnings surprise constant, one of the basic questions addressed in the superiority literature is essentially the same as asking whether investors rely more on FDP (Street) earnings than COMPUSTAT (GAAP) earnings.

21. These results also hold after removing the most negative and the most positive earnings differences in portfolios 1 and 10 (unreported in tables).
22. We acknowledge the possibility in a multiple regression of pathological cases in which measurement error will not attenuate the coefficient on earnings. The evidence in Table 7 indicates that even if these cases are present, they are not sufficiently influential to alter the regression results reported in this section.
23. To maintain the clean surplus relation, book values are adjusted for the difference between I/B/E/S and COMPUSTAT reported earnings. Results are qualitatively unaltered without this adjustment.
24. See also supra note 7 for a discussion of the generally poor performance of firms with a zero earnings difference.
25. For example, Doyle et al. (2003) justify the use of FDP for pro forma earnings on the basis of evidence in Johnson and Schwartz 2005, who report the equivalence of pro forma and FDP earnings for 58 percent of their sample and show that the median Zacks earnings track median pro forma earnings closely in the 20 portfolios of firms ranked by GAAP earnings.
26. Furthermore, Johnson and Schwartz (2005) find a substantially higher number of firms reporting GAAP losses among pro forma firms than observed for the overall Zacks population. Lougee and Marquardt (2004, Table 3) report negative, nonrecurring charges among pro forma firms that are more extreme relative to such items reported by a control sample.

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