Earnings Momentum and Earnings Management*

by

Linda A. Myers

and

Douglas J. Skinner

University of Michigan Business School
701 Tappan Street
Ann Arbor, MI 48109-1234

May 1998
Revised: April 1999

Abstract

This paper examines whether managers of firms with a long series of consecutive increases in quarterly EPS practice earnings management, either by smoothing earnings to help sustain their firms' earnings strings *ex-ante*, or by managing earnings upward to try and achieve earnings increases *ex-post*. This evidence is important given recent arguments, in the financial press and in academia, that managers' incentives to achieve earnings targets ("make the quarter's numbers") and avoid earnings disappointments have increased in recent years.

*We are grateful to I/B/E/S for providing the analyst forecast data used in this research, to James Myers for detailed comments and discussion, and to workshop participants at Emory, Harvard, and Penn State for helpful comments. Skinner gratefully acknowledges financial support from KPMG. Skinner may be contacted via email at dskinner@umich.edu.

1. Introduction and Motivation

Earnings management is an important topic in both accounting research and to practitioners. Although the accounting literature documents particular instances of earnings management, researchers have struggled to quantify the overall extent to which managers exercise their accounting discretion to achieve particular earnings realizations (e.g., see Healy and Wahlen (1998)). Nevertheless, discussions of earnings management have become increasingly common in the business press, and earnings management "abuses" are the subject of recent regulatory attention.[1] And in contrast to previous periods (where earnings management was discussed almost exclusively in pejorative terms), articles in the business press sometimes highlight the virtues of earnings management, discussing the fact that managers of visibly successful companies (such as GE and Microsoft) practice earnings management as part of their overall financial reporting strategy,[2] as well as the idea that earnings management can be used opportunistically to mislead investors (as with recent examples such as Oxford Health Plans, Sunbeam, Cendant, etc.).

Our objective in this paper is to provide stronger evidence than currently available on managers' incentives for and practice of earnings management. We provide evidence on how earnings are managed for a sample of firms whose managers are likely to have particularly strong incentives to manage earnings. Specifically, we focus on a sample of firms that achieve long strings of consecutive increases in quarterly earnings-per-share

---

[1] For example, see the speech by SEC Chairman Arthur Levitt, "The Numbers Game," NYU Center for Law and Business, September 28, 1998.

[2] "Learn to Play the Earnings Game (and Wall Street will *Love* You)," *Fortune*, March 31, 1997, pp. 77-80; "Microsoft's Earnings Hot Streak Cools -- Results for 4th Period Mask a Potent Performance as Special Reserves Swell," *Wall Street Journal*, July 18, 1997, at B2. Healy and Palepu (1993) discuss how earnings management can be used to provide investors with information rather than to obfuscate poor financial performance.

(EPS) because we believe that managers of these firms have stronger incentives than managers of other firms to practice earnings management.[3] This follows because these firms tend to have high stock-market valuations (relative to accounting metrics such as earnings and book value), making them especially susceptible to earnings disappointments when their earnings growth stops.[4]

We address two specific research questions. First, we investigate whether there is evidence that managers of firms with consistent earnings growth practice income smoothing to help them accomplish and maintain that growth. Clearly, for firms to sustain long periods of consistent growth requires more than just earnings management – these firms' economic performance must also be above average over a long period of time. Thus, we ask whether, *over and above* the effect of their firms' strong underlying economics, managers of these firms make accounting decisions to increase the likelihood that their firms will report smooth and consistent earnings growth. We refer to this practice as *ex-ante* earnings management since managers are exercising their accounting discretion today to affect the properties of earnings realizations in future periods (e.g., by transferring current earnings to balance sheet "reserves"). Second, we ask whether managers of those sample firms that suffer an earnings decline use their accounting discretion to postpone the initial decline. That is, we look in quarters just before the initial decline for evidence of income-increasing accounting decisions. We refer to this

---

[3] Consider the following quote from General Electric CEO Jack Welch, discussing a bond-trading scheme at then GE subsidiary Kidder Peabody which resulted in GE reporting a 1994 first quarter charge of $210 million. Mr. Welch said that investors prize GE's ability "to deliver strong, consistent earnings growth in a myriad of global economic conditions. *Having this reprehensible scheme...break our more-than-decade-long string of 'no surprises' has all of us damn mad* (emph. added)." As quoted in the Wall Street Journal "Managing Profits: How General Electric Damps Fluctuations in its Annual Earnings," November 3, 1994, page A1.

as *ex-post* earnings management since managers are making accounting decisions today to boost today's reported earnings performance.

A distinguishing feature of our research design is that we do not condition sample selection on a particular event or realization. Many previous earnings management papers sample firms that suffer some adverse realization (e.g., debt covenant violations, SEC investigations) and then examine periods before those events to investigate whether managers exercise their accounting discretion in an (obviously unsuccessful) attempt to avoid the realization.[5] A recognized limitation of this approach is that firms whose managers "successfully" manage earnings, thus avoiding (say) the debt covenant violation, are systematically excluded from the sample, resulting in a bias against finding evidence of earnings management. We avoid this selection problem by sampling firms that whose managers have incentives to manage earnings *ex-ante*.

Barth, Elliott, and Finn (1997) also examine firms that report long strings of earnings increases, although their focus is on whether these firms are valued more highly by stock market participants (and they look at strings of annual, rather than quarterly, earnings increases). They find that, other things held constant, firms reporting continuous growth in annual earnings are priced at a premium to other firms, that this premium increases with the length of the string, and that the premium is reduced when the earnings string ends. This reinforces the idea that managers of these firms have incentives to maintain their firms' earnings strings. Barth, Elliott, and Finn do not discuss or investigate whether managers of their firms engage in earnings management,

---

[4] Skinner and Sloan (1998) document that managers of "growth" firms (those with relatively high rates of past earnings growth, and low book-market and earnings-price ratios) suffer disproportionately large stock price declines when they announce earnings disappointments.

other than to indicate that it is unlikely that these firms could sustain their earnings growth solely through earnings management.

Similar to Barth, Elliott, and Finn, we find that firms with long strings of consecutive increases in reported EPS enjoy unusually strong stock performance (cumulative buy-hold market-adjusted returns of 300% over four years) and that they suffer large stock price declines around the time their earnings strings end (of around 27%). These declines are steeper than those associated with the end of strings of annual earnings growth. For example, in their study of NYSE firms reporting at least nine consecutive increases in annual earnings, DeAngelo, DeAngelo and Skinner (1996) report that firms suffer market-adjusted stock price declines of about 15% in the year of an initial decline in annual earnings. These declines provide managers of sample firms with clear incentives to avoid reporting earnings declines.

Consistent with the idea that managers of sample firms practice earnings and disclosure management to minimize the magnitude and likelihood of negative earnings surprises, we find that analysts' earnings forecasts for sample firms are less dispersed than those of otherwise similar firms not reporting continuous earnings strings, that the magnitude of analysts' earnings forecast errors (earnings surprises) is substantially smaller for these firms, and that they report (proportionally) about half as many negative earnings surprises as other firms. This suggests that by reporting smoother earnings than otherwise similar firms, these firms enjoy benefits that are similar to those that are more forthcoming in their discretionary disclosure choices (e.g., see Lang and Lundholm, 1996)

---

[5] For example, see Healy and Palepu (1990), Sweeney (1994), DeAngelo, DeAngelo, and Skinner (1994), DeFond and Jiambalvo (1994), Dechow, Sloan, and Sweeney (1996), and Beneish (1997).

We find evidence that managers of sample firms engage in earnings management. First, we demonstrate that the number of firms reporting continuous increases in quarterly EPS is much larger than would be expected by chance, which is strong *prima facie* evidence of earnings management. Although it is likely that not all of this very consistent earnings growth can be attributed to earnings management *per se* (e.g., managers can make "real" decisions to smooth earnings as in Bushee (1998)), the evidence suggests that earnings management is likely at work here. In this sense our evidence is similar to recent research by Burgstahler and Dichev (1997), Burgstahler (1997), and Degeorge, Patel, and Zeckhauser (1999) who document cross-sectional evidence that: (1) small reported losses are unusually rare while small reported profits are unusually common; and (2) small declines in reported earnings are unusually rare while small increases in reported earnings are unusually common, suggesting that managers use their accounting discretion to avoid reporting losses and earnings declines.

Second, we find evidence that managers of sample firms smooth earnings, in that: (1) the correlation between changes in cash flows and changes in accruals is unusually low (close to –1) and more negative for sample firms than for matched control firms, (2) the likelihood that these firms report positive special items is higher when their earnings would otherwise be unusually low, (3) these firms tend to report increases (decreases) in EPS more (less) often than would be expected given the relative frequency with which they report increases (decreases) in net income, suggesting that managers of these firms manage shares outstanding to maximize the chance of reporting increases in EPS, and (4) sample firms' effective tax rates are unusually low in quarters when their pretax earnings are unusually low, suggesting that managers artificially lower their firms' tax provisions

to boost quarterly earnings. Finally, we find some evidence that managers of those sample firms that report a decline in EPS practice income-increasing earnings management in the quarters before that decline, which is expected if managers of these firms attempt to prolong their firms' earnings strings.

Overall, our evidence suggests that managers of firms that report long strings of EPS growth practice earnings management to help their firms sustain that growth. Previous earnings management research suggests that certain factors – debt covenant constraints, compensation plan provisions, political costs, the need to issue equity capital, etc. – provide managers with incentives to manage earnings (Watts and Zimmerman (1986)). Like recent papers by Burgstahler and Dichev (1997) and Degeorge, Patel, and Zeckhauser (1999), our evidence suggests that managers also respond to incentives provided by less explicit contracts defined in terms of simple benchmarks, such as the need to report consistent increases in EPS.

The next section describes managers' incentives to report consistent increases in quarterly EPS. Section 3 describes sample selection procedures and provides descriptive statistics. Section 4 provides our evidence and section 5 concludes.

2. Hypothesis Development: Managers' incentives to report consistent increases in EPS

Managers may have incentives to report smooth and consistent increases in quarterly EPS for several reasons. First, managers may believe that market participants or other parties to the firm rely on simple heuristics to evaluate management

performance.[6] Thus, managers may believe that investors value a firm more highly if that firm delivers consistent increases in EPS than if it delivers the same economic performance while reporting both increases and decreases in EPS; in other words, managers may believe that investors value smoothness *per se*. There is some evidence to support this belief. Barth, Elliott, and Finn (1997) examine firms that report long strings of increases in annual earnings, and ask whether these firms are valued more highly by stock market participants. They find that, other things held constant, firms reporting continuous growth in annual earnings are priced at a premium relative to other firms, that this premium increases with the length of the string, and that the premium is reduced when the earnings strings end. In addition, the evidence in Burgstahler and Dichev (1997) and Degeorge, Patel, and Zeckhauser (1999) indicates that managers practice earnings management to: (1) avoid losses, (2) report increases in quarterly EPS, and (3) report earnings that meet or exceed analysts' forecasts.

A related argument is that firms that enjoy consistent earnings growth are valued more highly by stock market participants and so suffer disproportionately large stock price declines when that earnings growth ceases. Consistent with this, Skinner and Sloan (1998) report evidence that growth firms suffer disproportionately large negative stock price reactions when they report earnings disappointments. In addition, Brown (1998) shows that the proportion of growth firms that exactly meet or slightly exceed analysts forecasts has increased through time, while the proportion of these firms that just miss analysts forecasts has declined, consistent with managers of these firms becoming increasingly concerned with avoiding earnings disappointments. Further, Skinner (1994),

[6] Burgstahler and Dichev (1997) and Degeorge, Patel, and Zeckhauser (1999) invoke prospect theory and related behavioral arguments to explain managers' apparent (based on their results) desire to: (1) avoid

Kasznik and Lev (1995), and Soffer, Thiagarajan, and Walther (1999) show that managers are more likely to preannounce adverse earnings news and that this phenomenon is especially pronounced for growth stocks. These facts support the idea that managers of firms with consistent earnings growth have especially strong incentives to manage earnings and/or investors' expectations about earnings in such a way as to avoid earnings disappointments.[7]

The structure of managers' compensation packages may further increase their incentives to maintain their firms' EPS growth to avoid negative earnings surprises and maintain the level of their firms' stock prices. In particular, we know that: (1) the usage of executive stock options (ESO) as part of top management compensation has increased over the last decade or so, (2) this tendency is stronger for "high-tech" growth firms (Smith and Watts, 1992), which are overrepresented in our sample, and (3) the run-up in stock prices that sample firms have enjoyed means that top management of these firms are likely to have large, unrealized gains in their unexercised ESO positions. These facts together imply that managers' personal wealth would be significantly adversely affected by an earnings disappointment and the accompanying stock price decline.

Overall, we expect that managers of firms with a long history of consistent quarterly earnings increases practice earnings management to help them sustain and extend that earnings growth and so our first hypothesis is as follows:

---

losses, (2) report increases in quarterly EPS, and (3) beat analysts' consensus EPS estimates.

[7] We do not sample based on an alternative benchmark more closely related to earnings surprises – firms' ability to consistently meet or exceed analysts' forecasts – for two reasons. First, Degeorge et al. (1999) report evidence to support the view that managers believe that reporting EPS increases is more important than meeting analysts' earnings forecasts. Second, in specifying the earnings smoothing tests it is desirable to have clearly defined earnings benchmarks; with analysts' forecasts, it is less obvious what managers' smoothing targets would be.

H1: *Ceteris paribus*, managers of firms with smoothly increasing quarterly EPS are more likely to make accounting decisions to reduce fluctuations in their firms' operating performance than are managers of otherwise similar firms.

If consistent earnings growth is important, it is also likely that managers of firms whose earnings growth is threatened by subpar economic performance will seek to postpone the earnings effect of that performance by making income-increasing accounting decisions. Thus, we expect to observe managers making income-increasing accounting choices in the periods just before an initial earnings decline. We hypothesize that:

H2: *Ceteris paribus*, managers of firms who foresee a decline in EPS after a long period of consistent increases in EPS are more likely to make income-increasing accounting decisions to help them sustain their firms' EPS growth than are managers of other firms.

3. Sample Selection, Control Sample, and Descriptive Statistics

3.1 Is consistent EPS growth unusually common?

To obtain a sample of firms with consecutive earnings increases, we select all Compustat firms with at least 17 consecutive increases in split-adjusted quarterly EPS after 1987, where the increase is defined relative to split-adjusted EPS from the same quarter of the previous year, EPS numbers must always be positive, and EPS is defined as primary EPS before extraordinary items.[8] After eliminating one of the two strings for

[8] That is, we eliminate loss firms and do not consider earnings for fiscal 1987 or before, so the first possible quarter of any earnings string is the first fiscal quarter of 1988. The choice of 17 quarters as the cutoff for our sample is arbitrary.

firms that appear in the sample twice,[9] there are 399 firms that meet this criterion. We summarize information about their strings of consecutive EPS increases (hereafter just "earnings strings") in table 1.

As one might expect, the proportion of firms reporting earnings strings of a particular length decreases in the length of the string, presumably because longer strings are more difficult to achieve. There are 195 firms (49% of the sample) that report earnings strings of 17-20 quarters, 106 firms (27%) that report earnings strings of 21-24 quarters, 46 firms (12%) that report strings of 25-28 quarters, but only 11 firms (3%) that report earnings strings of 33-40 quarters. As in Barth et al. (1997), however, the distribution is bimodal – there are 12 firms (3%) that report strings of 41-43 quarters (the maximum given our sample period) – so that some firms enjoy very long strings (in this case more than ten years of continuous quarterly increases in EPS). In addition, of the 399 sample firms, there are 160 (40%) for which the earnings string is ongoing. As shown below, these frequencies are much higher than one would expect to observe by chance.

Panel B of table 1 reports statistics on the ratio of the number of quarters in the earnings string to the total number of quarters in which EPS are reported. Strikingly, the average (median) ratio is .74 (.74), indicating that for most firms the string encompasses three-quarters of the available quarters since 1987. Moreover, a number of sample firms (36 or 9% of the sample) have a ratio of one, indicating that the string accounts for all quarters in this period and is ongoing. The sample includes such well-known (and sometimes notorious) 'growth' stocks as Abbott Labs, Blockbuster Entertainment,

[9] There are nine firms for which there are two separate strings of at least 17 separate increases in quarterly EPS. For these firms we eliminate the first of the two strings.

Callaway Golf, Coca Cola, Eli Lilly, GE, HFS Inc., Home Depot, McDonalds, Merck, Microsoft, Outback Steakhouse, Oxford Health Plans, Sunbeam, and Wal-Mart.

The fact that so many firms report long strings of earnings increases is itself *prima facie* evidence of earnings management. To demonstrate this, table 2 reports the probabilities of observing earnings strings of at least 17 quarters in length given at least X quarters of available EPS data, where X varies from 17 to 43 (the maximum number of available quarters of data since 1987 on the most recent Quarterly Compustat tape). We estimate these probabilities using computer simulations since the theoretical probabilities are very difficult to derive,[10] and assume that the unconditional probability of reporting an increase in split-adjusted EPS compared to the same quarter of the previous year is .6 and that each quarter is an independent draw.[11] To compute the expected number of firms with 17 or more consecutive increases in quarterly EPS given X quarters of available EPS data, we multiply these probabilities by the actual number of Compustat firms with X quarters of available data, also shown in table 2. This product thus comprises the expected number of firms with earnings strings of particular lengths given a certain number of available quarters of data under the null hypothesis of no earnings management. Finally, we compare this expectation with the actual number of sample firms with earnings strings of a particular length given a certain number of available quarters of data.

---

[10] Clearly, the theoretical probability of observing X consecutive increases in EPS given X quarters of available data (and choosing an increase probability of .6) is $.6^X$. Similarly, the theoretical probability of observing X-1 consecutive increases given X quarters of data is just $2 \times .6^{X-1} \times .4$. However, the number of permutations increases dramatically after this point, so we estimate these probabilities by randomly generating sequences of length X one million times and calculating the empirical distributions.

[11] The empirical likelihood is .55, which we compute as the total number of increases in seasonally-adjusted quarterly EPS reported by Compustat firms during 1988-1996, divided by the total number of quarters in which these firms report non-missing quarterly EPS data during this period. So selecting .6 for these tests results in conservative numbers (probabilities that are overstated).

The results in table 2 indicate very clearly that the number of firms reporting earnings strings of any given length over 17 quarters is substantially higher than would be expected by chance. There are 399 firms in our sample that report earnings strings of at least 17 quarters while the number of firms expected to be in the sample by chance, given the number of firms on Compustat and an increase probability of .6, is only nine. The differences between the expected and actual frequencies are similarly dramatic at all string lengths. These numbers illustrate that it is extremely unlikely that these firms' earnings strings appear randomly – evidently, managers have been exercising their accounting discretion to produce these earnings strings because they believe reporting such consistent earnings performance is somehow important.

One reaction to these numbers may be that it is somehow natural to expect that a firm reporting an increase in one quarter is more likely to report an increase in the next, perhaps because good economic performance tends to be persistent. In other words, perhaps our benchmark probability for a reported increase in EPS should increase as the string increases in length. We have performed two calculations to buttress the conclusion that these earnings strings are unusually long. First, we reperform our selection process requiring at least 17 consecutive increases in quarterly cash from operations rather than in EPS. One can view cash from operations as a "higher quality" measure of performance, in the sense that it is less subject to management than EPS. When we conduct this test we find only 79 firms that report at least 17 quarters of consecutive increases in cash flow from operations, supporting the notion that our sample of 399 firms is unusually large. Second, as shown in table 2, we have reperformed the calculations in table 2 using a benchmark increase probability of .7 (rather than .6), which is more conservative. Even

when we use this higher probability, we obtain an expected sample size of 101 firms, still substantially less than the 399 firms we actually observe. Overall, we believe that our sample of 399 firms is unusually large, in the sense that we would not naturally expect so many firms to report consistent EPS increases if the process generating reported EPS numbers was random.

Based on the evidence in table 2, we view the existence of these earnings strings as evidence of earnings management in the same spirit as recent papers by Burgstahler (1997), Burgstahler and Dichev (1997), and Degeorge, Patel, and Zeckhauser (1999), who examine cross-sectional distributions of earnings levels and earnings changes. These authors report that there are significant discontinuities in these distributions around zero; in particular, they find that there are "too few" observations just below zero and "too many" observations just above zero, and interpret this as evidence that managers manage reported earnings to avoid losses and earnings decreases. Our evidence is similar, in that it is also difficult to explain the unusually high occurrence of long strings of EPS increases absent earnings management.

3.2 Formation of the Control Sample

Ideally, our test procedures would allow us to make inferences about the effect of the sample firms' consistent EPS growth *per se*, once other things are held constant. To perform these tests thus requires comparison of sample firms to firms that are otherwise similar but that do not report the same consistency of EPS growth. Accordingly, we construct a control sample of firms that are matched to sample firms on three attributes: (1) overall earnings growth, (2) firm size, and (3) sample period. Matching in this

manner is important for several reasons. First, and perhaps most important, by selecting our sample based on consistent EPS growth, we naturally sample firms with unusually strong underlying economic performance and so need to control for the effect of this overall earnings growth in our tests. (Our sample firms report mean (median) average annualized earnings growth rates of 32% (26%) over the period during which they report consistent increases in EPS.) Second, the sample firms tend to be unusually large; mean (median) total assets are $6,670 million ($631 million) for our firms. Finally, given the possibility that some of the effects we observe are attributable to specific calendar time periods, we also match sample and control firms' earnings series based on the year in which they end.

We thus identify control firms that are matched to the sample firms based on overall earnings growth, firm size, and time period, in that order. Specifically, based on the fact that sample firms enjoy mean (median) annualized earnings growth of 32% (26%) over a period of four years,[12] we compute, using Annual Compustat, the same four-year annualized growth rates for each calendar year for each non-sample Compustat firm, along with these firms' size (total assets) at that time. For the sample firms, the last year is the last full fiscal year in the period of consecutive quarterly EPS increases (for those sample firms with ongoing strings this is the last fiscal year with data on Compustat). We use these data to match each sample firm to that non-sample firm with the closest annualized four-year earnings growth rate (rounded to the nearest percent) and total assets, measured as of the same calendar year.

[12] This period begins with the first full fiscal year included in the string of continuous increases in quarterly EPS and ends with the last such year.

As indicated in table 3, the matching process is reasonably successful: the earnings growth rates and total assets of the sample firms are very similar. Average (median) annualized earnings growth rates are 32.0% (26.2%) for the sample firms compared to 31.5% (26.0%) for the control firms. Differences between the two groups of firms are not significant. Similarly, average (median) total assets for the sample firms are $6,670 million ($631 million) compared to $7,269 million ($567 million) for the control firms (differences also not significant). Using sales as a size measure provides similar results. Calendar year was successfully matched in 344 of 397 cases (no acceptable control firm could be identified for two sample firms).

Other descriptive statistics for the two samples of firms are also reported in table 3 and indicate that the sample firms are systematically different from the control firms in ways that we might expect. Sample firms have higher price-earnings (PE) and market-to-book (MB) ratios than the control firms, indicating that they are relatively more highly valued on the stock market. The mean (median) PE ratio for the sample firms is 29 (24) compared to 25 (17) for the control firms, differences that are significant at the 5% level or better under two-tailed tests. In addition, sample firms have MB ratios that are substantially higher than those of the control sample – the mean (median) MB ratio for sample firms is 4.3 (3.5) compared to 3.0 (2.1) for the control firms; these differences are significant at better than the 1% level. This evidence suggests that, like that in Barth et al. (1997), firms with persistent EPS increases are valued more highly by stock market participants than are other firms with similar underlying economic performance.

We also find that sample firms are less highly levered and enjoy higher sales growth rates than the control firms. Mean (median) debt-to-assets for the sample firms is

.48 (.46) for sample firms compared to .57 (.56) for the control firms. This result is not surprising since Smith and Watts (1992) report that firms whose assets comprise relatively more intangible "growth opportunities" (which tend to have higher MB ratios) also tend to have lower levels of debt than other firms. Mean (median) annualized sales growth rates for our firms are 23% (18%) compared to 17% (10%) for the control firms, differences that are again significant at better than the 1% significance level. Overall, these attributes suggest that we can characterize sample firms as 'growth' stocks, which makes them especially susceptible to earnings disappointments (Skinner and Sloan, 1998), which in turn provides their managers with especially strong incentives to continue reporting strong earnings growth.

4. Evidence

4.1 Attributes of Analysts' Earnings Forecasts

One of the benefits of earnings and disclosure management for these firms is to reduce the magnitude and likelihood of negative earnings surprises through the management of analysts' earnings forecasts. To provide evidence on this issue, table 4 provides information on various attributes of analysts' earnings forecasts for these firms, using data from I/B/E/S, along with comparative data for the control firms. We compute the table 4 data for all firm/quarters with available data. Because the sample firms are, on average, available on I/B/E/S for longer periods than the control firms, there are more firm/quarter observations for these firms.

The evidence in table 4 supports the view that analysts' have "tighter" expectations for sample firms' earnings and that earnings surprises are smaller for sample

firms. First, we find that more analysts cover sample firms than control firms (even though these firms are about the same size) – the mean (median) number of earnings estimates is 7.7 (7) for the sample firms compared to 7.2 (6) for the control firms, differences that are statistically significant at better than the 1% level. This evidence supports the idea that these firms' consistent earnings growth and accompanying high valuation multiples attract greater analyst following than for otherwise similar firms without this earnings growth. Second, consistent with our expectations, we find that changes in estimates are relatively less common for sample firms compared to control firms – on average, analysts change their estimates 14% of the time for sample firms versus 17% of the time for control firms, differences that are statistically significant but modest in economic terms. Third, when we compare the standard deviation of analysts' forecasts, we find that dispersion of forecasts is substantially larger for the control firms – the average is 1.2% for the sample firms compared to 4.3% for the control firms and is zero 41% of the time for sample firms compared to 27% of the time for sample firms, differences that are again highly significant. This evidence suggests that, consistent with managers practicing expectations and earnings management, analysts' forecasts fall in a much "tighter" range for the sample firms, and that analysts' forecasts are more uniform and more consistent for sample firms. This is to be expected if sample firms smooth earnings and if smoother earnings are easier to forecast.

We also find that both the proportion of negative surprises and the magnitude of earnings surprises are larger for control firms than for sample firms, consistent with our predictions. As usual, we define earnings surprises as the difference between realized EPS and the consensus analyst forecast, deflated by stock price. For the sample firms,

the average (median) surprise is -.16% (.03%) of price, and 65% of the observations are nonnegative. In contrast, the average surprise for control firms is -.53% of stock price, the median is .00%, and only 57% of the observations are nonnegative. This evidence indicates that there are systematically fewer negative surprises for the sample firms than for the control firms. The differences between these distributions are significant at the 1% level under two-tailed t and Wilcoxon tests. All of this suggests that managers of sample firms are successful in minimizing the extent of negative earnings surprises for their firms.

Finally, we find that the standard deviation of earnings surprises is much larger for the control firms – 4.91% of stock price compared to 1.75% for sample firms – and that the average (median) absolute value of the surprise is also much larger for the control firms; the absolute value is 1.60% (.26%) for the control firms compared to .39% (.09%) for the sample firms, differences that are again highly significant.

Overall, the evidence in table 4 demonstrates that analysts' expectations of earnings are less dispersed for sample firms than for control firms, and that sample firms' earnings surprises are both smaller and less likely to be negative than those of the control firms. This evidence is consistent with the notion that managers of sample firms practice earnings and expectations management and that these practices are effective. In addition, these findings are related to those of Lang and Lundholm (1996), who find that firms with more forthcoming disclosure policies are followed by more analysts, have less dispersion in their analyst forecast errors, and have smaller earnings surprises. This supports the idea that managers view producing smooth and consistently increasing EPS

streams as having some benefits in common with providing more forthcoming disclosures, presumably in terms of potentially lowering their firms' costs of capital.

4.2 Stock price changes associated with the end of earnings strings

The argument that managers of sample firms manage reported earnings is based on the premise that reporting consistent increases in EPS is rewarded by market participants through unusually good stock price performance and that (presumably as a result) adverse earnings realizations are especially costly for these firms. Thus, before moving on to our tests of earnings management, we document two empirical facts about our sample firms: (1) these firms' relative stock-market valuations increase as the length of their earnings strings increases, and (2) these firms suffer substantial stock price underperformance around the time their string of earnings increases is broken. Our evidence is consistent with but stronger than that in Barth et al. (1997), who document that PE multiples increase with the length of firms' reported annual earnings strings and decrease once these strings are broken, and with DeAngelo et al. (1996), who report that NYSE firms with at least nine years of consecutive increases in annual earnings suffer abnormal stock price declines of approximately 15% in the year the string ends.

To provide this evidence we examine the subset of our sample of 399 firms for which the earnings string is broken – there are 239 sample firms that suffer at least one decline in quarterly EPS. For these firms we use monthly CRSP data to compute long-run buy-and-hold abnormal (market-adjusted) stock returns cumulated over the five years ending with the quarter in which earnings initially decline. 219 sample firms have sufficient data for these tests – we require that returns are available for at least 40 of the

60 months. Following Barber and Lyon (1997), we compute long-run abnormal returns by cumulating monthly returns for each security for each period and then subtracting the corresponding cumulative return on the market portfolio (we use the CRSP equal-weighted market portfolio). To provide an additional performance benchmark, we also compute these returns for the set of control firms matched to the 219 sample firms.

These abnormal returns are shown in figure 1. It is clear that the sample firms outperform the market by substantial amounts during the period they report consistent increases in EPS and suffer a significant decline in stock price around the time this string ends. Specifically, from month –60 through month –36 (a two year period), these firms earn average cumulative abnormal returns of about 100%; this is large both in absolute terms and relative to the matched control sample, which earns average cumulative abnormal returns of about 40% over the same period. Over the next 12 months (through month –24), sample firms enjoy an additional 85% cumulative abnormal return (vs. 23% for the control firms) and over the 12 months after that (through month –12), an additional 100% (vs. 43%). Thus, over the entire three-year period, these firms outperform the market by 300% (vs. 106% for the control firms). Thus, there appears to be a substantial market reward associated with reporting *consistently* increasing EPS *over and above* that associated with reporting long-run earnings growth of the same magnitude. It appears that, for whatever reason, market participants place a high premium on smooth and consistent earnings growth.

There is also a significant market penalty associated with the end of the period of consistent EPS growth: on average, these firms underperform the market by 27% during the 11 month period that ends with the initial decline quarter. (We can make no

meaningful comparison to the control firms since they do not suffer earnings reversals.) The fact that this negative stock price performance occurs before the initial decline likely reflects that fact that, before reporting an actual decline, these firms report slowing EPS growth and are likely to disclose the expected decline to market participants as soon as management realizes that earnings disappointments are inevitable (Skinner (1994), Kasznik and Lev (1995)). However, the important point for our purposes is that these firms suffer a substantial stock price penalty around the time their consistent EPS growth ends.

4.3 Evidence of earnings management I: Smoothing (ex-ante earnings management) tests

Managers of sample firms may undertake earnings management *ex-ante*, *ex-post*, or both. By *ex-ante* earnings management we mean that managers undertake earnings smoothing to ensure that their firms' earnings growth is smooth and steady, enabling them to avoid future earnings disappointments before the fact. That is, we expect managers to take actions to reduce earnings in periods when earnings would otherwise be unusually high and increase earnings in periods when earnings would otherwise be unusually low. A difficulty with providing evidence of this type of earnings management is that it is difficult for the researcher to specify the right benchmark.[13] One advantage of the current sample is that we have chosen firms for which the earnings benchmark is relatively unambiguous – these managers likely care most strongly about reporting increases in EPS relative to the same quarter of the previous year (Degeorge et al. (1999), Schrand and Walther (1997)).

Another difficulty with examining income smoothing is that of measuring earnings management. While researchers have developed a number of earnings management measures, these measures are most powerful when researchers have a clear prediction about the direction in which earnings will be managed in a particular event period.[14] These problems are exacerbated in an earnings smoothing context when overall directional predictions cannot be made.

Because of these difficulties, we use several tests to investigate whether managers of sample firms smooth earnings. First, we examine the time-series correlation between changes in cash flows and changes in accruals and argue that this correlation should be *unusually* strong for firms whose managers are practicing earnings smoothing. It is well known and expected that there is a negative relation between cash flows and accruals (e.g., Dechow (1994)). However, because smoothing involves, by definition, taking unusual actions to affect the accruals process so that managers' accrual choices offset cash flow changes that would otherwise affect reported earnings, we expect that firms whose managers practice income smoothing will display an *unusually* strong negative relation between changes in cash flows and changes in accruals, and this is the question that our tests are designed to investigate.

To assess whether the correlations between changes in our firms' accruals and cash flows are unusual, we compare the correlations for our firms to those of the matched control firms. In table 5 we report statistics that describe the distribution of firm-level

---

[13] For example, how do we know that earnings would *otherwise* be unusually high or unusually low? Should we use last year's earnings?, last year's earnings with a "drift" term added? (if so, how large?), an analysts' forecast measure? (if so, which one?), etc.

[14] Even in these cases it is generally acknowledged that discretionary accruals models are not very good and that the associated research designs lack power. See Dechow, Sloan, and Sweeney (1995) and Bernard and Skinner (1996) for discussions.

time-series correlations between changes in operating cash flows and changes in accruals calculated using quarterly data. Given the high degree of seasonality in these data, changes are defined as fourth differences in cash flow from operations and total accruals, both deflated by total assets. Consistent with smoothing by sample firm managers, we find that sample firms' correlations are uniformly negative and close to –1, and that these correlations are more negative than those of the control firms. For sample firms, the mean (median) correlation is -0.98 (-.99) with a standard deviation of only .04. For the control firms, the mean (median) correlation is -.89 (-.96) with a standard deviation of .18. Tests of differences in means and medians indicate that these correlations are significantly more negative for the sample firms at the .1% level.

Another earnings management technique conceivably used for income smoothing is the strategic reporting of special items. We next investigate whether there is evidence that managers of sample firms strategically report special items to either: (1) boost earnings to avoid an earnings decline, or (2) smooth earnings. We report the special items tests in table 6.[15]

First, in panel A of table 6, we report the relative frequency with which the 239 firms that experience at least one decline in EPS report positive, negative, and no special items during the 20 event quarters before the initial decline quarter. The results provide some modest support for the idea that these firms use special items to maintain their earnings strings in the year immediately before the initial decline. We find that sample firms report an unusually large number of positive special items in event quarters –4 through –1: over this year we find that these firms report a total of 29 positive special items, compared to 15 positive special items in the previous year (quarters –5 through –8)

and 19 in the year before that (quarters -9 through -12). However, there are about the same number of negative special items in this last year: there are 30 negative special items in the year immediately before the decline year, compared to 29 in the previous year, and 19 in the year before that. As we might expect, in the period after the initial decline there is a large increase in the proportion of these firms reporting negative special items: 65 firms (33% of the sample) report negative special items in quarter 0 while 22 firms (12%) do so in quarter 1. This result is consistent with bath-taking behavior, which may also be interpreted as indicating overstatement of earnings in prior periods.

To investigate smoothing, we test whether there is a relation between these firms' operating earnings and their propensity to report positive and negative special items. If managers of these firms use special items to smooth earnings, we expect them to report positive special items in those quarters when earnings would otherwise be unusually low and to report negative special items in those quarters when earnings would otherwise be unusually high. To operationalize this idea, we divide the sample of firm/quarters into three groups based on the percentage seasonal change in operating earnings (before depreciation and special items). Specifically, the top group represents those firm/quarters in the top quartile of earnings changes, the bottom group represents those firm/quarters in the bottom quartile of earnings changes, while the middle group comprises the remaining half of the sample.

The results are reported in panel B of table 6. Under smoothing we expect an unusually large number of observations in the NE and SW cells and an unusually small number of observations in the NW and SE cells. However, if these firms take earnings baths, we might also expect an unusually large number of observations in the SE cell.

---

[15] See Kinney and Trezevant (1997) for similar tests.

The results offer modest support for smoothing. We find that, consistent with smoothing, relatively more positive special items are reported when earnings are low than would be expected by chance (32% vs. 25% under the null, difference significant at the 1% level) and that relatively fewer positive special items are reported when earnings are high than would be expected by chance (21% vs. 25%, difference not significant). However, we do not find the expected pattern for the negative special items. Here, we find an unusually *low* number of negative specials when earnings are high (15% vs. 25%) which is opposite to what smoothing predicts, although (consistent with bath-taking) there is an unusually large number of negative special items when earnings are low (32% vs. 25%, significant at 1%).

To assess the extent to which these results are unusual, we also perform this analysis for the sample of control firms, and report the results in panel C of table 6. For the control firms the number of observations in all cells is close to what we would expect by chance, supporting the idea that the results in panel B are indicative of smoothing by sample firm managers.[16]

Our third test of smoothing involves a comparison of changes in net income to changes in EPS. While most earnings management tests (naturally) focus on whether managers manage the numerator of EPS, it is also possible that managers manage the denominator of EPS, perhaps through their firms' share repurchase programs. This test thus assumes that managers have stronger incentives to report increases in EPS than increases in net income. We believe this is plausible given the emphasis on EPS in press reports, analysts' forecasts, annual reports, firm press releases, and so on; Degeorge,

[16] We have also performed these tests using the change in operating profits rather than the level of operating profits, with similar results.

Patel, and Zeckhauser (1999) also focus on this benchmark. Our specific hypothesis is that firms report increases in EPS more often than would otherwise be expected *given changes in net income*. Because it is not obvious what we would normally expect of this relation, we take the relation between changes in net income and changes in EPS for the control sample as our benchmark for the 'normal' relation between these two variables.[17] The relation between changes in EPS and changes in net income for the control firms is reported in panel B of table 7. As expected, there is a strong relation between changes in EPS and changes in net income. When net income increases, EPS increases 95% of the time. When net income does not increase, EPS does not increase 98% of the time. We use these proportions to compute the expected frequencies in panel A of the table for the sample firms.

The results in panel A of table 7 support the idea that managers of these firms manage their firms' shares outstanding to maximize the likelihood their firms report increases in EPS. When net income increases, sample firms report increases in EPS 99% of the time, a proportion that significantly exceeds that for the control firms (using a binomial test, at the .1% level). Perhaps more strikingly, when net income does not increase, these firms are able to report increases in EPS an impressive 12% of the time, which is substantially higher than the corresponding proportion (2%) for the control firms (difference again highly significant using a binomial test). Overall, this evidence suggests that managers of these firms are able to manage their firms' shares outstanding in a way that maximizes their firms' chances of reporting increases in EPS.

[17] Note that we cannot take as our null hypothesis the expected number of observations in each cell assuming that the row and column classifications are independent since we know they are not – clearly, we expect increases in net income to be associated with increases in EPS and vice versa.

To strengthen the conclusion that managers of sample firms strategically manage shares outstanding to maximize the chances of reporting EPS increases, we also report, for each of the cells in panel A, net stock repurchase activity for these firms (stock repurchases in the quarter net of common stock sales) in panel C and the change in shares outstanding in panel D. In panel C, the results show clearly that net repurchases are substantially higher in the SE cell than in other cells, as we would expect if managers strategically use repurchases to report increases in EPS. Similarly, panel D documents a substantial decline in shares outstanding in this cell, which also reinforces out findings.

Overall, the evidence in table 7 provides evidence that managers of sample firms strategically manage their firms' shares outstanding to increase the chances of reporting higher EPS. We believe this evidence is important for two reasons. First, it supports our contention that managers of sample firms smooth reported EPS. Second, the test is (at least as far as we know) new to the earnings management literature – previous researchers typically consider management of the numerator of EPS.

As a final test of income smoothing, table 8 reports regressions of these firms' effective tax rates (ETRs) on various measures of profitability. The idea behind this test is that managers manage their firms' effective tax rates in such a way as to smooth reported EPS. For example, managers clearly have discretion over the deferred portion of tax expense (Miller and Skinner (1998)). In our context, we expect that managers artificially boost the ETR in years when earnings are unusually high and artificially reduce the ETR in years when earnings are unusually low. To test this idea, we regress these firms' quarterly ETRs on reported pretax profitability (measured as pretax return on assets, or ROA), indicator variables for whether pretax ROA is unusually high or low

(top or bottom decile of the distribution), and the same indicator variables interacted with a sample vs. control firm indicator variable. The coefficients on these latter interaction terms indicate whether managers of sample firms practice income smoothing to a greater extent than managers of control firms. We estimate these regressions using all firm/quarter observations with available data for the sample and control firms in periods before the initial EPS decline (if any).

We report the results of these tests in table 8. The first regression is a simple regression of ETR on pretax ROA. The intercept in this regression is .346, indicating that the mean unconditional ETR is about 35%, close to the statutory rate for US firms. In addition, there is evidence that ETRs increase with profitability – the coefficient on pretax ROA is .17 (t = 6.8), which indicates that increasing pretax ROA by 5.88% increases the ETR by 1%. However, the next regression indicates that this relation is not linear. When we include the high and low pretax ROA indicator variables, the coefficients on both variables are reliably negative, suggesting that firms are able to lower their effective tax rates at extreme income levels. The latter, but not the former, is consistent with income smoothing in general. Finally, when we also include interaction terms between the high and low ROA variables and the sample indicator variables, we find results consistent with sample firm managers being more likely than control firm managers to smooth reported EPS. Specifically, the coefficient on the LO ROA/Sample Indicator is -.018 (t = -3.6), indicating that when pretax earnings are low for sample firms, their managers are able to reduce the ETR by 1.8% *more* than for the control firms. Thus, when earnings are low, managers of sample firms reduce their firms' ETRs by 3.3% in total, an economically material number. Moreover, when earnings are unusually

high, we find no evidence that sample firms' managers reduce their firms' ETRs more than managers of other firms (the coefficient on this term is positive, but not significant). Both pieces of evidence are consistent with the view that managers of sample firms are more likely to practice earnings smoothing.

4.4 Evidence of earnings management II: Ex-post earnings management tests

The foregoing tests focus principally on whether managers of sample firms practice income smoothing (*ex-ante* earnings management). Our final set of tests examine whether managers of sample firms that face a relatively high likelihood of reporting an EPS decline manage EPS to avoid reporting that decline (*ex-post* earnings management). To perform these tests, we first eliminate those sample firms whose earnings string is ongoing since we cannot be sure when or if these firms' managers faced impending earnings problems. There are 239 sample firms that report at least one decline in quarterly EPS.

Figure 2 plots the quarterly earnings, cash flows, and accruals (all deflated by total assets) of these 239 firms by event quarter relative to the first reported decline in EPS.[18] As we might expect, these firms report smoothly increasing earnings in the period before the first decline, followed by a sharp decline in event quarter 0. If managers of these firms practice earnings management to postpone this decline, we expect to observe unusually low cash flows in quarters just before the decline, accompanied by unusually high accruals. There is some evidence of this, with cash flows moving somewhat lower in the year or two before the initial decline and accruals moving somewhat higher compared to past levels.

To examine these firms' accruals changes more carefully, figure 3 plots these firms' accruals changes (fourth differences) through event time. Consistent with managers of these firms increasing accruals to boost earnings, these firms report positive quarterly changes in accruals for all six quarters that precede the initial decline.[19] This sequence of positive accrual changes is unusual compared to accruals in previous event quarters. To assess statistical significance, figure 4 reports the t-statistics associated with the means reported in figure 3. The means are marginally significant (at the 5% level in one-tailed tests) in quarters –6 and –4, although not in any of the other quarters. Thus, we find modest support for the idea in H2 that managers of these firms manage accruals to boost earnings in the quarters immediately before the initial earnings decline.

5. Conclusion

We examine whether managers of firms with a long series of consecutive increases in quarterly EPS practice earnings management, either by smoothing earnings to help sustain their firms' earnings strings *ex-ante*, or by managing earnings upwards to try and achieve earnings increases *ex-post* when their firms' EPS growth is threatened. This evidence is important given recent arguments, in the financial press and in academia, that managers' incentives to achieve EPS targets ("make the quarter's numbers") and avoid earnings disappointments have increased in recent years. In addition, while most previous research examines managers' incentives to practice earnings management *ex-post* (when their firms are in particular economic circumstances,

[18] There are typically less than 239 firms with available data for a given quarter.
[19] We do not use the Jones (1987) model for these tests since: (1) we predict earnings management by these firms' managers in all periods, so it is not obvious how to obtain an "estimation" period for this model, and (2) these are unusual firms, making us reluctant to estimate the model using cross-sectional data.

especially financial difficulty), our research examines whether managers practice earnings management before the fact to avoid being placed in a position where they have to manage earnings upwards. As a result, we develop several new earnings management tests that we believe may be helpful to other researchers in documenting earnings management.

We find that managers of firms with long strings of increases in quarterly EPS have strong incentives to maintain these strings: similar to Barth et al. (1997), we find that these firms enjoy unusually strong stock performance in the period they report increases in EPS and suffer large stock price declines around the time their earnings strings end. In addition, we document benefits of smoothing earnings that are similar to the benefits that accrue to firms that are relatively more forthcoming in their discretionary disclosure practices (e.g., Lang and Lundholm, 1996). We find that sample firms have greater analyst following, fewer revisions of analysts' forecasts, lower dispersion of analyst forecasts as well as smaller and less negative earnings surprises than a sample of otherwise similar control firms. The latter suggests that these firms are relatively more successful than other firms in avoiding earnings surprises, as we might expect given that the costs of earnings disappointments are likely to be larger for these firms.

We document a number of regularities that jointly support the view that managers of these firms practice both *ex-ante* and *ex-post* earnings management. First, we find that the number of firms reporting strings of consecutive increases in quarterly EPS is larger than would be expected by chance, which is strong circumstantial evidence that earnings management is at work here, similar to evidence in Burgstahler (1997), Burgstahler and Dichev (1997), and Degeorge, Patel, and Zeckhauser (1999) on cross-sectional earnings

distributions. Second, we find several more direct pieces of evidence that these firms' managers practice earnings management: (1) the negative correlations between these firms' cash flows and accruals is unusually strong (very close to –1), and is reliably more negative than those of a control sample; (2) managers of these firms tend to strategically report positive special items to reduce fluctuations in reported EPS; (3) the relative frequencies of increases in EPS and increases in earnings suggest that managers of these firms manage shares outstanding (through strategic timing of stock repurchases, etc.), to increase the likelihood of reporting increases in EPS; (4) there is evidence that when earnings are unusually low, managers of sample firms lower their firms' effective tax rates to boost earnings. Finally, we find modest evidence that managers of firms that subsequently suffer earnings declines manage earnings upwards in the last several quarters before the decline, apparently to try and postpone the decline – we find that changes in these firms' accruals are unusually positive in the quarters before the decline.

Overall, our evidence paints a fairly consistent picture of how managers of these firms benefit from and practice earnings management to sustain their firms' strings of reported EPS increases, thus maintaining and increasing their firms' stock market valuations. We believe this evidence is important in at least two respects – first, because of the apparent importance in the economy of performing well relative to simple earnings benchmarks (such as reporting positive and increasing EPS, beating analysts' forecasts, etc.); and, second, because it adds to the relatively slim body of academic evidence on earnings management as related to income smoothing.

References

Barber, B. M., and J. D. Lyon, 1997, "Detecting long-run abnormal stock returns: The empirical power and specification of test statistics," *Journal of Financial Economics* 43: 341-372.

Barth, M. E., J. A. Elliott, and M. W. Finn, 1997 "Market Rewards Associated with Patterns of Increasing Earnings," Working paper, Stanford University, November.

Bartov, E., 1993, "The Timing of Asset Sales and Earnings Manipulation," *The Accounting Review* 68: 840-855.

Beneish, M. D., 1997, "Detecting GAAP violation: Implications for assessing earnings management among firms with extreme financial performance," *Journal of Accounting & Public Policy* 16: 271-309.

Bernard, V. L., and D. J. Skinner, 1996, "What motivates managers' choice of discretionary accruals?" *Journal of Accounting & Economics* 22: 313-325.

Brown, L. D., 1998, "Managerial behavior and the bias in analysts' earnings forecasts," Working paper, Georgia State University, November 24.

Burgstahler, D., and I. Dichev, 1997, "Earnings Management to Avoid Earnings Decreases and Losses," *Journal of Accounting & Economics* 24: 99-126.

Burgstahler, D., 1997, "Incentives to Manage Earnings to Avoid Earnings Decreases and Losses: Evidence from Quarterly Earnings," Working paper, University of Washington, August 14.

Bushee, B. J., 1998, "The Influence of Institutional Investors on Myopic R&D Investment Behavior," *The Accounting Review* 73: 305-333.

DeAngelo, H., L. DeAngelo, and D. J. Skinner, 1994, "Accounting Choice in Troubled Companies." *Journal of Accounting & Economics* 17: 113-143.

DeAngelo, H., L. DeAngelo, and D. J. Skinner, 1996, "Reversal of Fortune: Dividend Policy and the Disappearance of Sustained Earnings Growth." *Journal of Financial Economics* 40: 341-371.

Dechow, P. M., 1994, "Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals," *Journal of Accounting & Economics*, 18: 3-42.

Dechow, P. M., R. G. Sloan, and A. P. Sweeney, 1995, "Detecting earnings management," *Accounting Review* 70: 193-225.

Dechow, P. M., R. G. Sloan, and A. P. Sweeney, 1996, "Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC," *Contemporary Accounting Research* 13: 1-36.

DeFond, M. L., and J. Jiambalvo, 1994, "Debt covenant violation and manipulation of accruals," *Journal of Accounting & Economics* 17: 145-176.

Degeorge, F., J. Patel, and R. Zeckhauser, 1999, "Earnings Management to Exceed Thresholds," *Journal of Business* 72: 1-33.

Healy, P. M., and K. G. Palepu, 1990, "Effectiveness of Accounting-Based Dividend Covenants," *Journal of Accounting & Economics* 12: 97-123.

Healy, P. M., and K. G. Palepu, 1993, "The Effect of Firms' Financial Disclosure Strategies on Stock Prices," *Accounting Horizons* 7: 1-11.

Healy, P. M., and J. M. Wahlen, 1998, "A Review of the Earnings Management Literature and Its Implications for Standard Setting," Manuscript prepared for 1998 AAA/FASB Conference, Harvard Business School and Indiana University, November.

Jones, J. J., 1987, "Earnings Management During Import Relief Investigations," *Journal of Accounting Research* 29: 193-228.

Kasznik, R., and B. Lev, 1995, "To warn or not to warn: Management disclosures in the face of an earnings surprise," *Accounting Review* 70: 113-134.

Kinney, M., and R. Trezevant, 1997, "The Use of Special Items to Manage Earnings and Perceptions," *Journal of Financial Statement Analysis* 3: 45-53.

Lang, M., and R. Lundholm, 1996, "Corporate Disclosure and Analyst Behavior." *The Accounting Review* 71: 467-492.

Miller, G. S., and D. J. Skinner, 1998, "Determinants of the Valuation Allowance for Deferred Tax Assets under SFAS-109," *The Accounting Review* 73: 213-233.

Schrand, C., and B. Walther, 1997, "Evidence on Strategic Announcement of Earnings Components and the Market's Response," Working paper, University of Pennsylvania.

Skinner, D. J., 1994, "Why Firms Voluntarily Disclose Bad News," *Journal of Accounting Research* 32: 38-60.

Skinner, D. J., and R. G. Sloan, 1998, "Earnings Surprises, Growth Expectations, and Stock Returns," Working paper, University of Michigan.

Smith, C. W., and R. L. Watts, 1992, "The investment opportunity set and corporate financing, dividend, and compensation policies," *Journal of Financial Economics* 32: 263-292.

Sweeney, 1994, "Debt-covenant violations and managers' accounting responses," *Journal of Accounting & Economics* 17: 281-308.

Soffer, L. C., S. R. Thiagarajan, and B. R. Walther, 1998, "Earnings Preannouncements," Working paper, Northwestern University, January.

Watts, R. L., and J. L. Zimmerman, 1986, Positive Accounting Theory, Prentice Hall (Englewood Cliffs, NJ).

Figure 1: Monthly Cumulative Buy-Hold market-Adjusted Returns (in 100%) for Sample firms Whose EPS Growth Stopped

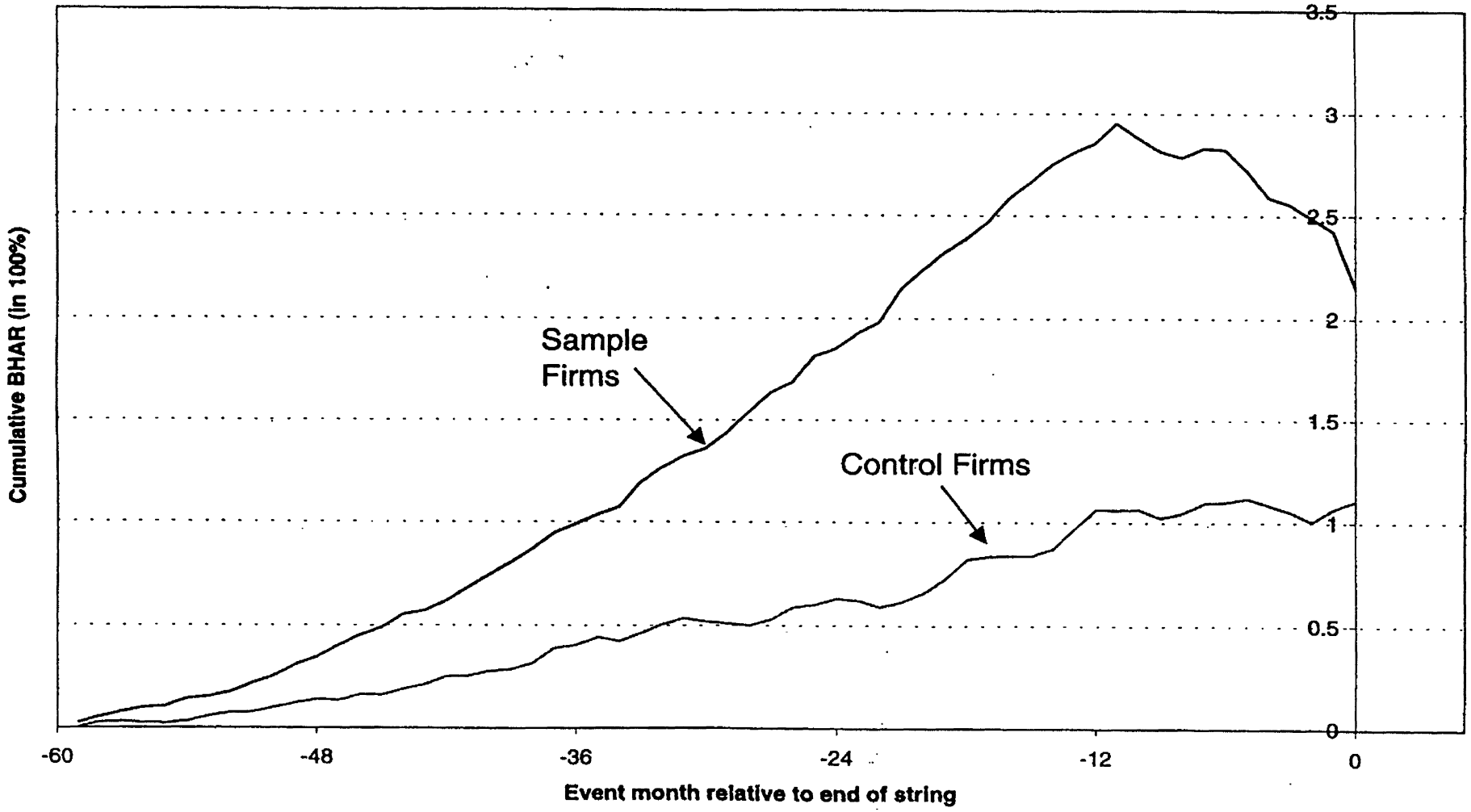

Figure 2: Earnings, Cash Flows, and Accruals (deflated by total assets) for Sample Firms with Decline in Quarterly EPS

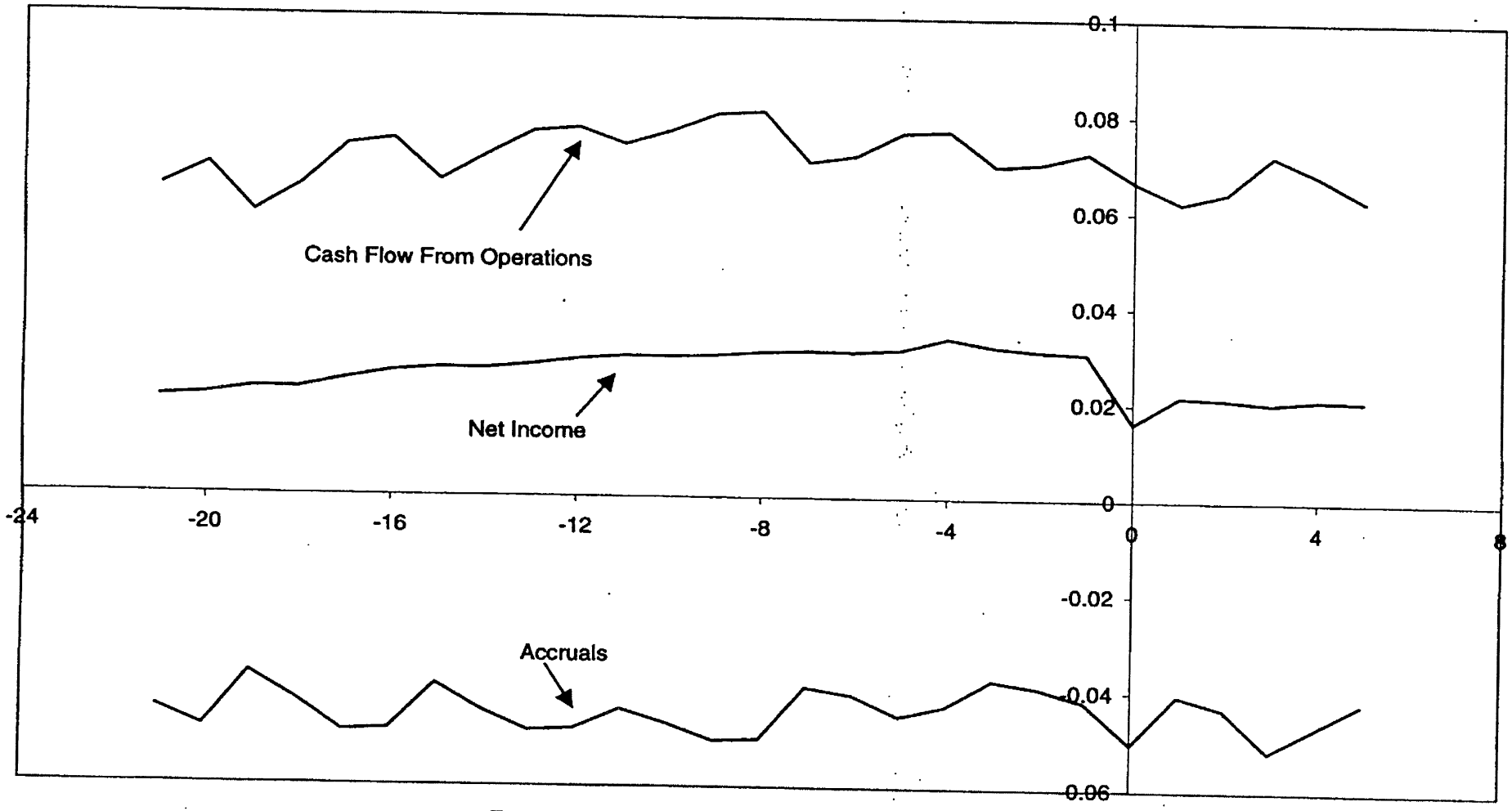

Figure 3: Mean Change in Accruals (Fourth Differences) For Sample Firms with Decline in Quarterly EPS

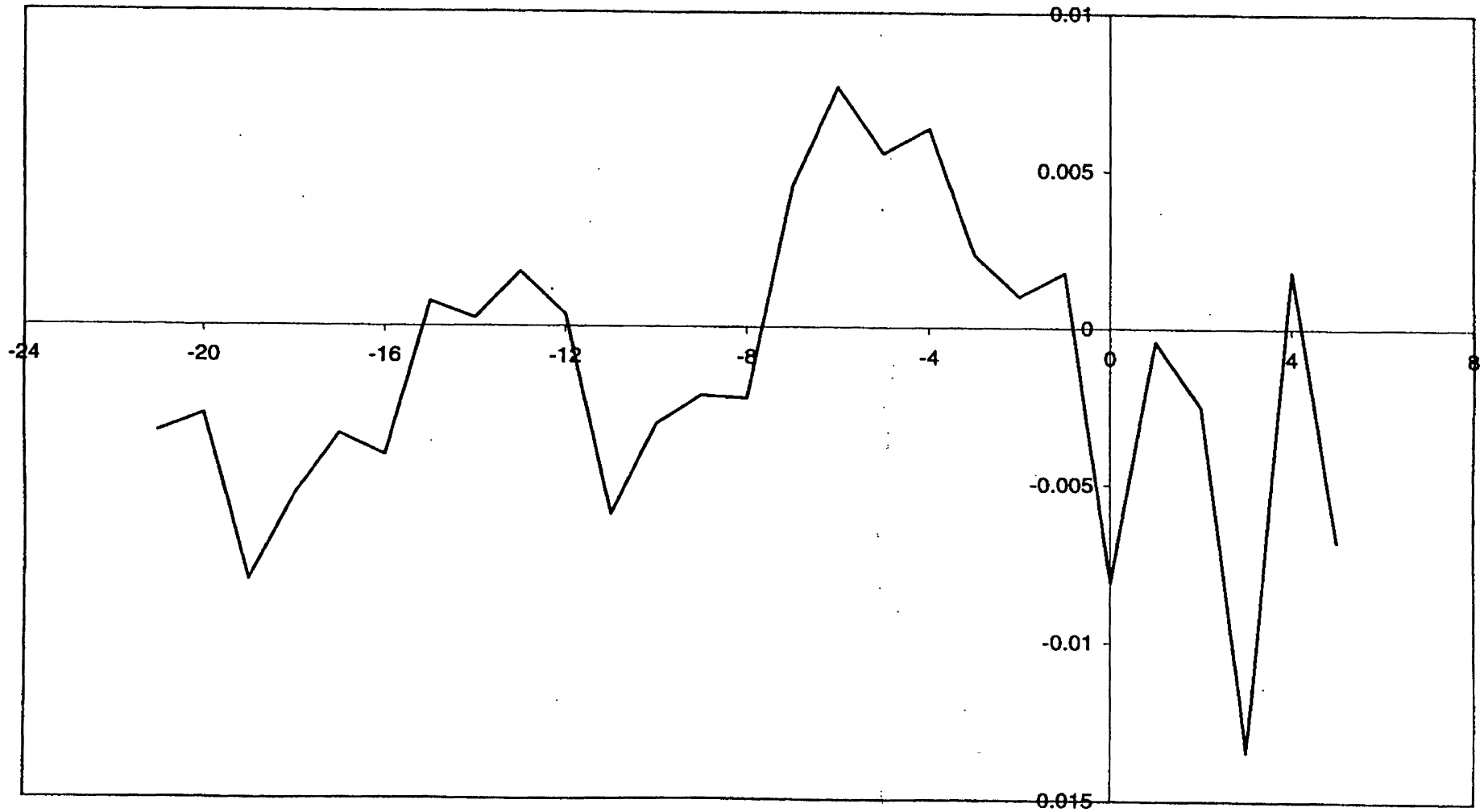

Figure 4: T-Statistics Associated with Change in Accruals (4th Differences) for Sample Firms with Decline in Quarterly EPS

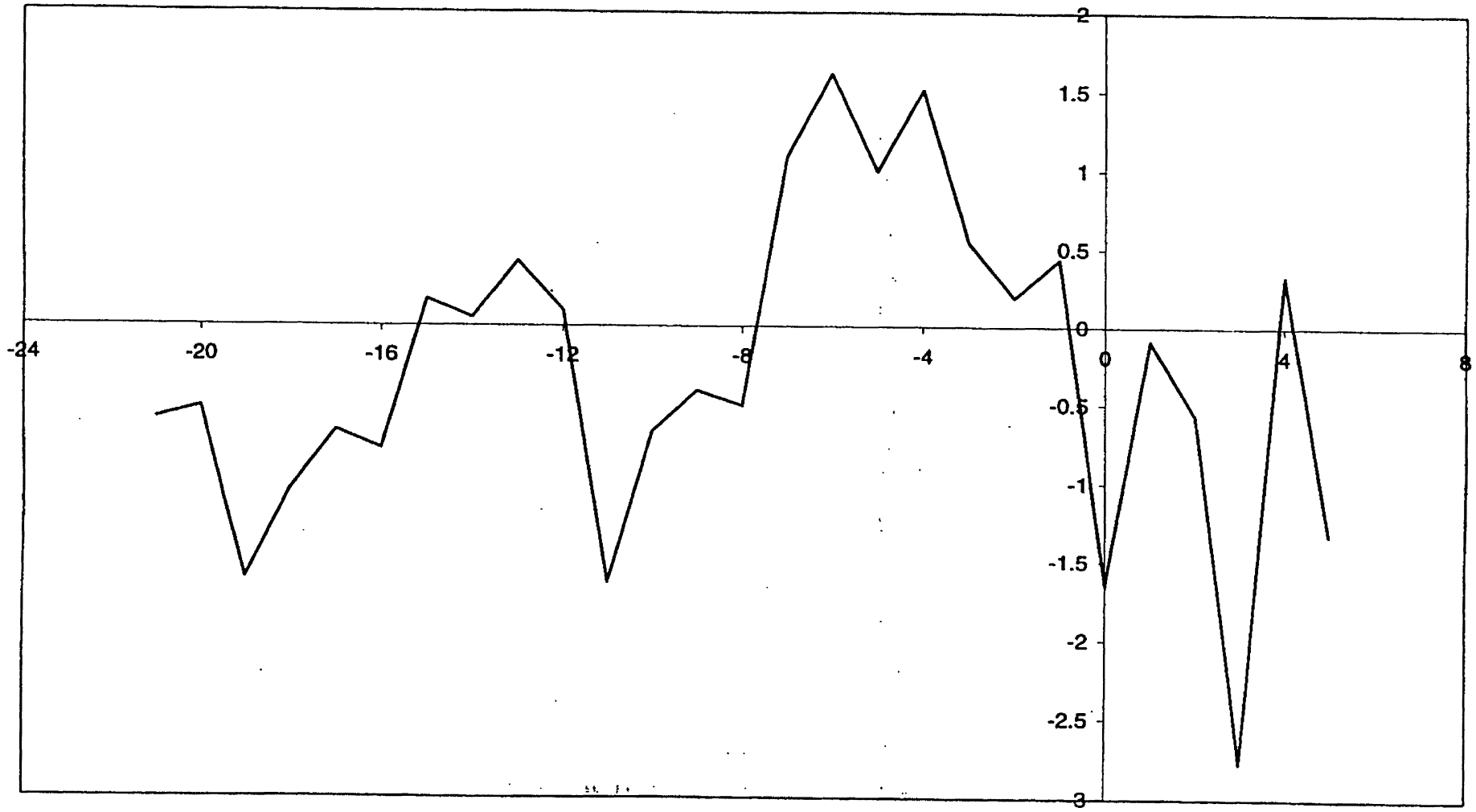

Table 1
Descriptive statistics on the length of consecutive earnings strings for 399 firms with 17 or more quarters of consecutive increases in quarterly EPS after 1987

A. Length of Earnings Strings

Length of String:	Firms:	Percent:
17-20 quarters	195	48.9%
21-24 quarters	106	26.6%
25-28 quarters	46	11.5%
29-32 quarters	29	7.3%
33-36 quarters	7	1.8%
37-40 quarters	4	1.0%
41-43 quarters	12	3.0%
Total firms	399	
Number of firms for which string is ongoing	160	40.1%

B. Ratio of the number of consecutive increase quarters to total number of quarters with EPS data

Obs.	399
Mean	.74
Minimum	.40
Q1	.55
Median	.74
Q3	.95
Maximum	1.00
Number (%) equal to one	36 (9%)

Table 2

Comparison of the expected to the actual number of Compustat firms that report strings of at least 17 consecutive increases in quarterly EPS given X of consecutive quarters of available EPS data[1]

Number of consecutive quarters of available EPS data (X)	Number of Compustat firms with X quarters of available EPS data[2]	Probability (in percent) of observing 17 or more consecutive increases in EPS given X quarters of available data – assuming probability of increase = .6[3]	Expected number of Compustat firms reporting 17 or more consecutive increases in EPS given X quarters of available EPS data – assuming probability of increase = .6[4]	Probability (in percent) of observing 17 or more consecutive increases in EPS given X quarters of available data – assuming probability of increase = .7[3]	Expected number of Compustat firms reporting 17 or more consecutive increases in EPS given X quarters of available EPS data – assuming probability of increase = .7[4]	Observed number of Compustat firms reporting 17 or more consecutive increases in EPS given X quarters of available EPS data[5]
(1)	(2)	(3)	(4)	(5)	(6)	(7)
43	285	.193	.55	2.037	5.81	26
42	400	.185	.74	1.971	7.88	33
41	1,915	.178	3.40	1.899	36.37	171
40	352	.167	.60	1.831	6.45	27
39	467	.164	.77	1.764	8.24	18
38	140	.158	.22	1.691	2.37	1
37	182	.150	.27	1.620	2.95	11
36	81	.144	.12	1.549	1.27	6
35	148	.138	.20	1.481	2.19	6
34	124	.130	.16	1.411	1.75	6
33	182	.125	.23	1.341	2.44	4
32	113	.118	.13	1.273	1.44	3
31	175	.113	.20	1.204	2.11	8

30	118	.105	.12	1.137	1.34	1
29	217	.099	.22	1.072	2.33	11
28	127	.092	.12	1.002	1.27	8
27	214	.085	.18	.931	1.99	2
26	174	.078	.14	.862	1.50	5
25	294	.072	.21	.795	2.34	17
24	110	.067	.07	.727	.80	3
23	211	.060	.13	.656	1.39	6
22	191	.054	.10	.592	1.13	4
21	355	.046	.16	.519	1.84	9
20	165	.039	.07	.447	.74	1
19	247	.032	.08	.375	.93	1
18	228	.025	.06	.309	.71	5
17	474	.018	.08	.235	1.12	6
Totals	7,689		9.33		100.70	399

Table Notes

[1]Increases in EPS are defined as increases relative to split-adjusted EPS from the same quarter of the previous year, and EPS is defined as primary EPS before extraordinary items.

[2]The number of firms on the most recent quarterly Compustat file that report non-missing EPS data for X consecutive quarters beginning with the first fiscal quarter of 1988.

[2]We compute these probabilities based on computer simulations that assume that the probability of a firm reporting an increase in quarterly EPS is .6 (.7) and that each quarter represents an independent and identically distributed draw. We estimate these probabilities by randomly generating sequences of length X one million times and calculating the empirical distributions.

[4]The product of columns (2) and (3) [(2) and (5)].

[5]The number of firms on the most recent quarterly Compustat file that report at least 17 consecutive quarters of increases in quarterly EPS given X quarters of available EPS data beginning with the first fiscal quarter of 1988.

Table 3

Descriptive information [mean (median) values] for: (1) 399 sample firms with 17 or more quarters of consecutive increases in quarterly EPS after 1987; and (2) a sample of control firms matched on EPS growth, size, and time period

	Sample firms	Control firms
Average Annual Long-term EPS Growth	32.0% (26.2%)	31.5% (26.0%)
Total Assets ($ million)	6,670 (631)	7,269 (567)
Sales ($ million)	2,601 (625)	3,334 (562)
PE Ratios	29.3 (23.8)	25.0* (17.0**)
MB Ratios	4.26 (3.48)	3.03** (2.12**)
Leverage	.48 (.46)	.57** (.56**)
Sales Growth Rate	23.2% (17.6%)	16.9%** (10.4%**)

Table notes

For sample and control firms, variables are measured as of the end of the last fiscal year before the decline year or (for firms that do not report declines) as of the end of fiscal 1997 (the most recent year for which data are available). Variables are defined as follows:

Average Annual Long-term EPS Growth is defined as the annual geometric growth rate in EPS, calculated as the fourth root of the ratio of EPS for year t divided by EPS in year t-4, minus one, where year t is the fiscal year discussed above. EPS is annual Compustat item #56 divided by #27.
Total assets is taken as annual Compustat item #6.
Sales is taken as annual Compustat item #12.
PE ratio is taken as year-end stock price (Compustat item #24) divided by annual EPS (annual Compustat item #58).
MB ratio is taken as year-end market value (annual Compustat item #24 x #25) divided by year-end book value (annual Compustat #60).
Leverage is defined as book value of debt at year-end (total assets minus book value (as defined above)) divided by year-end total assets.
Sales growth is defined as the annual geometric growth rate in sales, calculated as the fifth root of the ratio of sales for year t divided by sales in year t-5, minus one, where year t is the fiscal year discussed above.

**(*) Denotes a significant difference between the samples at the 1% (5%) level under a two-tailed two-sample t-test for means and a two-tailed two-sample Wilcoxon test for medians.

Table 4

Comparison of various attributes of I/B/E/S analysts' earnings forecasts [mean (median) values] for: (1) 399 sample firms with 17 or more quarters of consecutive increases in quarterly EPS after 1987 vs. (2) a sample of control firms matched on overall EPS growth, size, and time period. Table reports for each attribute.

	Sample Firms	Control firms
Obs.	6,842	5,303
Number of earnings estimates	7.7 (7.0)	7.2* (6.0)*
Number of changes in estimates/number of estimates	.14 (.07)	.17* (.10)*
Standard deviation of AF	.012	.043*
% = 0	(.01) 40.9%	(.01)* 26.9%
Surprise = (EPS-AF)/P		
Mean	-.0016	-.0053*
t-statistic	t = -7.2	t = -7.1
Median	.0003	.0000*
% = 0	10.8%	7.5%
% < 0	34.6%	42.7%
Std. Devn.	.0175	.0491
|*Surprise*|		
Mean	.0039	.0160*
Median	.0009	.0026*

Table notes

Observations = the total number of observations (quarterly EPS) available on I/B/E/S for the sample and control firms.

Number of earnings estimates = the number of analysts' estimates of quarterly EPS as reported by I/B/E/S, for the quarter.

Number of changes in estimates = the number of analysts' estimates of quarterly EPS that were lowered or raised in the four weeks prior to the final estimate (excluding new estimates or multiple changes in estimates).

Surprise = [actual EPS (as reported by Compustat) - the mean analysts' forecast of EPS] / price at the end of the prior fiscal quarter.

|Surprise| = the absolute value of surprise, as defined above.

*Difference is significant at the 1% level (two-tailed) or better.

Table 5

Descriptive statistics for the correlation between changes in accruals and changes in cash flow from operations calculated using quarterly Compustat data for sample and control firms

	Sample Firms	Control Firms
Obs.	342	256
Mean	-.984	-.887*
Median	-.995	-.958*
Q1	-.998	-.984
Q3	-.985	-.877
P95	-.929	-.454
Standard Deviation	.040	.181

Table notes

The table reports descriptive statistics for the sample of firm-level correlations, calculated from changes in cash flow from operations (Compustat 108Q) and changes in total accruals (defined as net income, Compustat 8Q minus cash flow from operations). Based on quarterly data. Changes are fourth differences. Both variables are deflated by total assets. To be included, a firm must have at least ten quarters of data; firm/quarters are drawn from quarters –20 through –1 in event time relative to the initial quarterly decline or (for firms with ongoing strings) the last quarter of available Compustat data.

*Difference significant at better than the 0.1% level, two-tailed tests.

Table 6
Special items reporting by 399 firms with 17 or more quarters of consecutive increases in quarterly EPS after 1987

Panel A: Relative frequency of special items by event quarter relative to first quarter in which quarterly EPS decline – 239 sample firms whose string of EPS increases is subsequently broken

Event Quarter	Positive Special Items	No Special Items	Negative Special Items
-20	4 (2.7%)	132 (90.4%)	10 (6.9%)
-19	6 (3.9%)	143 (92.3%)	6 (3.9%)
-18	4 (2.5%)	150 (92.6%)	8 (4.9%)
-17	6 (3.6%)	155 (92.8%)	6 (3.6%)
-16	8 (4.7%)	157 (91.3%)	7 (4.1%)
-15	3 (1.7%)	172 (95.6%)	5 (2.8%)
-14	4 (2.2%)	177 (96.7%)	2 (1.1%)
-13	6 (3.2%)	179 (95.7%)	2 (1.1%)
-12	4 (2.1%)	182 (95.3%)	5 (2.6%)
-11	7 (3.6%)	181 (93.8%)	5 (2.6%)
-10	3 (1.6%)	184 (95.8%)	5 (2.6%)
-9	5 (2.6%)	184 (95.3%)	4 (2.1%)
-8	4 (2.0%)	182 (92.9%)	10 (5.1%)
-7	5 (2.5%)	190 (94.1%)	7 (3.5%)
-6	3 (1.5%)	193 (96.5%)	4 (2.0%)
-5	3 (1.5%)	193 (95.1%)	7 (3.5%)
-4	12 (5.8%)	187 (90.8%)	7 (3.4%)
-3	4 (1.9%)	199 (95.7%)	5 (2.4%)
-2	4 (2.0%)	187 (92.6%)	11 (5.5%)
-1	9 (4.5%)	183 (92.0%)	7 (3.5%)
0	3 (1.5%)	128 (65.3%)	65 (33.2%)
1	5 (2.7%)	156 (85.3%)	22 (12.0%)
2	8 (4.8%)	144 (85.7%)	16 (9.5%)
3	5 (3.2%)	134 (85.4%)	18 (11.5%)

Panel B: The Relation Between the Reporting of Special Items and the Level of Operating Profit for All Sample Firms (Event Quarters –20 through –1)

	Top Quartile of Operating Earnings	Middle Quartiles of Operating Earnings	Bottom Quartile of Operating Earnings	Row Total
Positive Special Items	44 [20.9%]	99 [46.9%]	68** [32.2%]	211 [3.3%]
No Special Items	1,508 [25.4%]	2,970 [50.0%]	1,460 [24.6%]	5,938 [94.4%]
Negative Special Items	21** [14.9%]	75 [53.2%]	45* [31.9%]	141 [2.2%]
Column Total	1,573 [25.0%]	3,146 [50.0%]	1,573 [25.0%]	6,290

Panel C: The Relation Between the Reporting of Special Items and the Level of Operating Profit for Control Firms (Event Quarters –20 through –1)

	Top Quartile of Operating Earnings	Middle Quartiles of Operating Earnings	Bottom Quartile of Operating Earnings	Row Total
Positive Special Items	105 [22.5%]	242 [51.8%]	120 [25.7%]	467 [9.3%]
No Special Items	1,095 [25.5%]	2,115 [49.3%]	1,077 [25.1%]	4,287 [85.7%]
Negative Special Items	51 [20.5%]	144 [57.8%]	54 [21.7%]	249 [5.0%]
Column Total	1,251 [25.0%]	2,501 [50.0%]	1,251 [25.0%]	5,003

Table Notes:

Level of operating profit in quarter t is defined as Compustat #21Q, operating income before depreciation in quarter t, deflated by total assets in quarter t-4 (#44Q).

Special items is Compustat #32Q, coded as either positive, zero, or negative.

** (*) Proportion of observations in cell reliably different from .25 at the 1% (5%) level using a binomial test.

Table 7
Test of whether managers manage the denominator of EPS to increase the likelihood of reporting increases in quarterly EPS

A. The relation between increases (non-increases) in net income and increases (non-increases) in EPS for 399 sample firms.

	ΔNI ≤ 0	ΔNI > 0	Row Total
ΔEPS ≤ 0	181 (201)[1] [88.3%][2]	39 (331) [0.6%]	220 (3.3%)
ΔEPS > 0	24 (4) [11.7%]	6,445 (6,153) [99.4%]	6,469 (96.7%)
Column Total	205 (3.0%)	6,484 (97.0%)	6,689

B. The relation between increases (non-increases) in net income and increases (non-increases) in EPS for control firms.

	ΔNI ≤ 0	ΔNI > 0	Row Total
ΔEPS ≤ 0	2,005 [98.2%]	224 [5.1%]	2,229 (34.9%)
ΔEPS > 0	37 [1.8%]	4,124 [94.9%]	4,161 (65.1%)
Column Total	2,042 (32.0%)	4,348 (68.0%)	6,390

Table Notes

[1]Numbers in parentheses are expected cell frequencies based on the relative frequencies reported in panel B for the control firms.

[2]Numbers in square brackets represent the percentage of the column total represented by the observations in that cell.

Observations represent all firm/quarters from 20 quarters before through the quarter before the initial decline quarter for those sample firms that experience at least one decline in quarterly EPS, and all firm/quarters from 20 quarters before through the last quarter with available data for those firms for which the earnings string is ongoing.
NI is defined as quarterly net income before extraordinary items (Compustat 8Q).
EPS is defined as primary (quarterly) EPS before extraordinary items (Compustat 19Q).

C. Net stock repurchase activity for sample firms partitioned according to the relation between increases (non-increases) in net income and increases (non-increases) in EPS.

	$\Delta NI \leq 0$	$\Delta NI > 0$
$\Delta EPS \leq 0$	181 -.613 (-.043**) [66%] {20%}	39 -2.484** (-.009**) [56%] {13%}
$\Delta EPS > 0$	24 140.705* (16.675**) [8%] {75%}	6,445 5.943** (-.221**) [63%] {31%}

Table Notes
Information in cells comprises the following:

Number of observations.
Mean level of net repurchase activity (in $ millions) for observations in cell, defined as purchases of common stock in that quarter (Compustat 93Q) minus sales of common stock in that quarter (Compustat 84Q).
(Median level of net repurchase activity.)
[Percent of observations that are negative, indicating that dollars of stock sales exceeded dollars of stock repurchases.]
{Percent of observations with stock repurchases defined as when Compustat 93Q greater than zero.}

* (**) Significantly different from zero at the 10% (5%) level, two tailed test.

D. Changes in shares outstanding (from prior quarter) for sample firms partitioned according to the relation between increases (non-increases) in net income and increases (non-increases) in EPS.

	$\Delta NI \leq 0$	$\Delta NI > 0$
$\Delta EPS \leq 0$	181 .160 (.003**) [31%]	39 .532* (.013**) [30%]
$\Delta EPS > 0$	24 -2.067** (-.083**) [63%]	6,445 3.085** (.036**) [24%]

Table Notes
Information in cells comprises the following:

Number of observations.
Mean change in shares outstanding (in millions of shares) for observations in cell, defined as shares used to compute primary EPS (Compustat 15Q) minus the corresponding number from the prior quarter.
(Median change in shares outstanding as defined above.)
[Percent of observations that are negative, indicating a decline in shares outstanding.]

* (**) Significantly different from zero at the 10% (5%) level, two tailed test.

Table 8

Estimated OLS Regressions of Effective Tax Rates (ETR) on Various Measures of Pretax Profitability (ROA) for Sample and Control Firms – Quarterly Data

Intercept	*Sample Indicator (SI)*	*Pretax ROA*	*HI Pretax ROA Indicator*	*LO Pretax ROA Indicator*	*HI Pretax ROA Indicator x SI*	*LO Pretax ROA Indicator x SI*	*Adj. R^2*
.346 (299.1**)		.172 (6.80**)					.33%
.348 (230.0**)		.226 (5.51**)	-.018 (-4.77**)	-.022 (-8.20**)			1.17%
.346 (208.3**)	.005 (2.93**)	.203 (4.84**)	-.022 (-3.77**)	-.015 (-4.49**)	.006 (1.07)	-.018 (-3.58**)	1.30%

Regressions are of the following form:

$$ETR_{it} = \alpha_0 + \alpha 1.SI_{it} + \beta_1.\text{Pretax ROA}_{it} + \beta_2.\text{HI Pretax ROA}_{it} + \beta_3.\text{LO Pretax ROA}_{it} + \beta_4.(SI_{it} \text{ x HI Pretax ROA}_{it}) + \beta_5.(SI_{it} \text{ x LO Pretax ROA}_{it}) + \xi_{it}$$

Where:

ETR_{it} = Effective tax rate for firm i in quarter t, defined as provision for tax (Compustat 6Q) divided by pretax income (Compustat 23Q).
Pretax ROA_{it} = Pretax return on assets fof firm i in quarter t, defined as pretax income (Compustat 23Q) divided by total assets (Compustat 44Q).
HI Pretax ROA_{it} = Indicator variable that takes a value of one if pretax ROA is in the top decile and zero otherwise.
LO Pretax ROA_{it} = Indicator variable that takes a value of one if pretax ROA is in the bottom decile and zero otherwise.
SI_{it} = Indicator variable that takes a value of one if firm i is a sample firm and zero otherwise (if firm i is a control firm).

Firm/quarters with Effective Tax Rates greater than or equal to (less than or equal to) 100% (0%) are eliminated.
Firm/quarters with Pretax ROA less than or equal to zero are eliminated.

**Significantly different from zero at the 1% level. Tests are two-tailed.
*Significantly different from zero at the 5% level. Tests are two-tailed.