



Can Stock Recommendations Predict Earnings Management and Analysts' Earnings Forecast Errors?

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ABSTRACT

In this article we present evidence that a firm's stock price sensitivity to earnings news, as measured by outstanding stock recommendation, affects its incentives to manage earnings and, in turn, affects analysts' *ex post* forecast errors. In particular, we find a tendency for firms rated a Sell (Buy) to engage more (less) frequently in extreme, income-decreasing earnings management, indicating that they have relatively stronger (weaker) incentives to create accounting reserves especially in the form of earnings baths than other firms. In contrast, firms rated a Buy (Sell) are more (less) likely to engage in earnings management that leaves reported earnings equal to or slightly higher than analysts' forecasts. Our empirical results provide direct evidence of purported, but heretofore, weakly documented equity market incentives for firms to manage earnings. They are also consistent with a growing body of literature that finds analysts either cannot anticipate or are not motivated to anticipate completely in their forecasts firms' efforts to manage earnings.

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1. Introduction

The belief that firms' earnings management is motivated by equity market considerations is pervasive. Few studies, however, have documented a direct link between variables related to stock values and measures of earnings management. In this article we analyze how a firm's stock price sensitivity to earnings news, as measured by outstanding stock recommendation, affects the direction and magnitude of its earnings management.

Following prior research (e.g., Healy [1985]), we assume that income-increasing or income-decreasing earnings management undertaken in the current period may be used to report earnings that meet or slightly beat relevant earnings targets (e.g., contracting and equity market targets). However, if the sum of available accounting reserves and pre-managed earnings is insufficient to achieve *any* relevant earnings target, firms are expected to undertake extreme, income-decreasing earnings management to maximize accounting reserves for future use (i.e., take an "earnings bath"). One prediction that follows from these rules for managing earnings is that firms whose stock prices are highly sensitive to current earnings surprises (defined as analysts' forecasts errors) are more likely to undertake income-increasing earnings management than firms with low stock price sensitivity to earnings news. This prediction follows from the fact that firms concerned with reporting earnings that meet or beat both contracting targets and analysts' forecasts will have fewer opportunities to create accounting reserves via income-decreasing actions than firms less concerned with meeting their earnings forecasts.

The link between equity market incentives and earnings management has implications for analysts' forecast errors. Specifically, if analysts do not completely anticipate in their forecasts the effects of firms' earnings management, there will be an association between firms' earnings management and the sign and magnitude of analysts' forecast errors. First, there will be an association between strategic earnings management (in either direction) and the incidence of reported earnings observations that are *equal to or are slightly above* analysts' forecasts. Second, there will be a correspondence between extreme, income-decreasing earnings management and *large negative* (i.e., bad news) analysts' forecast errors. More important for the purposes of this article, the likelihood that a firm will manage earnings up or down to analysts' earnings forecasts (to create large reserves) and the corresponding small good-news (large bad news) forecast errors, is predicted to increase (decrease) as a function of firms' *ex ante* stock price sensitivity to earnings news.

We use the outstanding level of analysts' stock recommendations to capture differences in firms' stock price sensitivity to earnings news and show that the incidence of zero and small, *ex post* positive (i.e., good news) analyst forecast errors is significantly higher for firms with more favorable recommendations than other firms. We link this finding indirectly to evidence of earnings management by demonstrating that the incidence of zero and small

positive forecast errors does not differ across recommendation categories when all forecast errors are based on estimates of *pre-managed* (rather than reported) earnings.¹ We also provide direct evidence of a correspondence between extreme, income-decreasing earnings management and extreme, negative analysts' forecast errors. Specifically, we demonstrate that the incidence of both phenomena simultaneously decreases in the favorableness of the outstanding stock recommendations.

Our results are consistent with a growing body of literature that finds analysts are unable or unmotivated to anticipate fully firms' earnings management in forecasts (e.g., Hanna [1999], Degeorge, Patel, and Zeckhauser [1999], Abarbanell and Lehavy [forthcoming], and Baber and Kang [2001]). In addition, the results suggest that there are *ex ante* equity-market-based variables that can predict simultaneously the sign and magnitude of both firm earnings management and resulting analysts' forecast errors. Finally, our analysis and evidence provide a basis for reinterpreting a number of empirical regularities reported in the literature on contracting incentives for earnings management, analyst expectations management, and the association between stock recommendations and analysts' forecast errors.

We develop our hypotheses in the next section. Section 3 describes the variables and data employed in our empirical tests. Section 4 presents the empirical results. In section 5 we discuss competing explanations for some of our findings. Section 6 provides a reinterpretation of prior evidence from the earnings management and analyst forecast error literature in light of our empirical findings. A summary and conclusions are offered in section 7.

2. Hypotheses Development and Related Research

Earnings management to influence stock values, whether assumed to be an opportunistic action by managers or action taken in the best interests of shareholders, is a given in capital markets.² However, researchers have proceeded slowly in their attempts to understand earnings management in response to equity market incentives. This condition reflects, arguably, an overly strict interpretation of the implications of the efficient markets

¹ Matsumoto [1999], Brown [2001], and Burgstahler and Eames [2000] also report unusual frequencies of zero and small positive forecast errors. Each of these studies refers to earnings expectations management as an explanation for this result. Consistent with the argument in this paper, Degeorge, Patel, and Zeckhauser [1999] attribute the finding to earnings management. None of these studies, however, offers direct evidence of actions by firms to manage earnings or identifies *ex ante* conditions under which firms are more likely to report earnings that meet or slightly beat forecasts.

² See, for example, remarks by A. Levitt, "The Numbers Game," from a speech at NYU [1998]. He specifically identifies the practices of managing earnings to meet analysts' expectations and taking earnings baths in decrying what he considers to be abuses of financial reporting.

hypothesis that has led some researchers to conclude that earnings management intended to influence stock prices is opportunistic, uninformative, and futile. As such, until recently, empirical tests intended to detect earnings management were based primarily on hypotheses derived from the contracting literature. Despite the presumption that the practice of earnings management is ubiquitous, contracting-based hypotheses have, nevertheless, proven to be of limited use in guiding successful empirical efforts to detect it. Recent literature reviews by Healy and Wahlen [1999] and Dechow and Skinner [2000] arrive at a similar conclusion.

The objective of this paper is to develop and test empirically hypotheses concerning (1) the effects of introducing equity-market-based earnings targets on firms' earnings management, and (2) the effects of such earnings management actions on ensuing analysts' forecast errors. In this section we formulate empirical predictions of differences in firms' earnings management behavior and analysts' forecast errors conditional on the incentive to report earnings that meet or beat analysts' forecasts. This incentive is argued to be increasing in firms' stock price sensitivity to current earnings news.

2.1 EARNINGS TARGETS AND EARNINGS MANAGEMENT UNDER GAAP

The fundamental notion that firms manage earnings implies that managers are willing to forgo reporting income in one period to enhance the possibility that they will meet earnings goals in another period. The fact that managers are willing to make such trade-offs may reflect either efficient management of private information (say, to inform outsiders or to improve contracting within the firm) or opportunistic behavior.

We consider three commonly cited cases of earnings management with respect to relevant earnings targets (e.g., Levitt [1998], Hwang and Ryan [2000]). The first case arises when *pre-managed* earnings for the period are realized below a relevant earnings target *and* available reserves are insufficient to inflate earnings to meet the target. For such realizations, managers are expected to choose their next best option and take an earnings bath to maximize either valuable accounting reserves or payback borrowing from the past.³ This will result in a *reported* earnings number that is artificially low by extreme amounts. Levitt refers to this case as an "earnings bath," that is, extreme, income-decreasing earnings management when no relevant earnings target limits the creation of reserves. The second case arises when firms' pre-managed earnings fall below a relevant earnings target but by an amount less than the maximum available accounting reserves. These firms are expected to use stored reserves (or to borrow amounts from the future) to

³ Our analysis assumes that accounting reserves—that is, the capacity to inflate earnings in the future—are valuable to firms. This is consistent with managers' using accounting discretion to signal information about future firm prospects in a "fully" rational setting (e.g., Subramanyam [1996], Dye [1988], Verrecchia [1986], Kirschenheiter and Melumad [2002]), or attempting to fool either the market or parties that contract with the firm (e.g., Teoh and Wong [1997]). We do not attempt to differentiate between these possibilities in this article.

inflate earnings, thus meeting or slightly beating the target.⁴ The last case occurs when a firm's pre-managed earnings realization exceeds a relevant earnings target. Because reserves are assumed to be valuable, firms will deflate earnings to a reported level equal to or slightly above the relevant target, thus reserving a portion of the current good performance for future use (or to pay back past borrowing). Levitt refers to this case as cookie jar reserving.⁵

These exogenously defined rules for mapping pre-managed to reported earnings are similar to those assumed by Healy [1985]. The choice was intentional, as these rules have formed the implicit basis for a number of hypotheses tested in studies examining earnings management in contracting as well as regulatory settings. Most of these studies allow for or depend on the possibility that, in any given period, the realization of pre-managed earnings relative to the earnings target can lead a firm to take an earnings bath, inflate earnings to meet the target (subject to accounting constraints), or create cookie jar reserves. Use of the same basic framework employed in the previous literature facilitates an evaluation of the impact of introducing incentives to achieve equity market earnings expectations on both firms' earnings management and analysts' forecast errors.

2.2 THE EFFECT OF EQUITY MARKET EARNINGS TARGETS

Using the preceding rules and an example adapted from Abarbanell [1999], we develop the intuition underlying our empirical predictions concerning the effects of introducing equity market earnings targets on firms' earnings management and analysts' forecast errors. The analysis is summarized in figure 1. The figure depicts the predicted direction of earnings management in various regions of the distribution of possible *pre-managed* earnings outcomes for two representative firms, one with a weak incentive to report earnings that meet or beat analysts' forecasts and one with a strong incentive to do so. It is assumed that all firms face a relevant earnings threshold, denoted T that is fixed, say, by a contract at the beginning of the period. To simplify the discussion, T is assumed to be an unbiased expectation of pre-managed earnings known at the beginning of the period.⁶

⁴ The prediction that firms might prefer to slightly beat rather than exactly meet targets can be supported by a number of intuitive explanations but has, nevertheless, never been formalized in the earnings management or analyst forecast literature. We acknowledge this shortcoming in the analysis and take this behavior as given as is done in prior studies.

⁵ Avoidance of ratcheting effects is identified as an additional motivation for cookie jar reserves in prior studies (e.g., Degeorge, Patel, and Zeckhauser [1999]).

⁶ The predictions offered below could apply to a variety of assumed distributions of firms' pre-managed earnings with a variety of assumed location parameters. For example, pre-managed earnings distributions could be skewed (say, because the initial target was set lower than the expected pre-managed earnings outcome), and the basic intuition underlying our predictions would hold. Other predictions would hold with relatively mild additional assumptions about parameters of the distribution and the level of available accounting reserves. Note that it is also possible for the value of T to be set by contracting parties with rational conjectures about the sign and magnitude of earnings management that will be undertaken for given pre-managed earnings outcomes (see Kirschenheiter and Melumad [2002]).

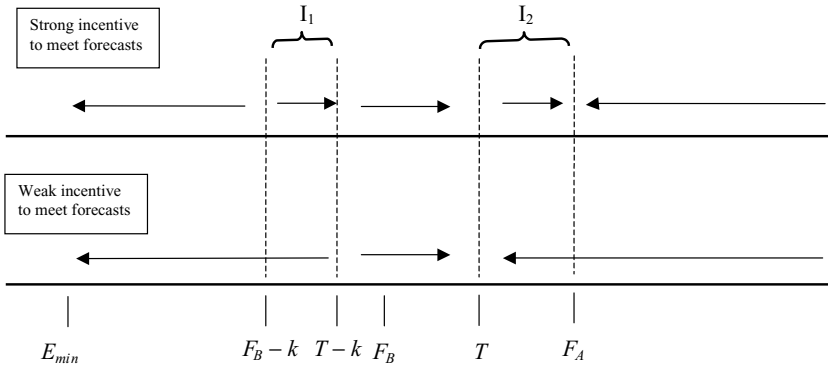


FIG. 1.—Differences in earnings management and forecast errors as a function of firm incentives to meet or slightly beat analysts' forecasts. Arrows indicate the direction of predicted discretionary accruals in various regions of the distribution of possible pre-managed earnings realizations. k is the level of pre-managed earnings below which firms have insufficient slack to meet the expected earnings in the event of a shortfall. F_i is the level of the outstanding analyst forecast. E_{min} is the lowest level of possible earnings that can be reported. It is defined by its distance from T .

The equity market target of analysts' forecasts is distinguished from the contracting-based target T by the fact that it can be revised during the period to reflect the arrival of new information. For simplicity, the analysts' initial forecast is assumed to equal the unbiased expectation of pre-managed earnings, T . Depending on new information acquired during the period and possible randomness in forecasting, revised forecasts can take on realized values at the end of the period equal to T , or to values above or below T (represented by $F_i = F_A$ or F_B , respectively, in figure 1).⁷ We note that the characterization of forecasts' being directed at an estimate of pre-managed (rather than reported) earnings is consistent with the assumption that analysts are unable or unmotivated to fully anticipate the managed component of reported earnings. Several recent studies provide theoretical and empirical support for this assumption.⁸

⁷ Forecasting need not be perfect in our setting. For example, analysts' forecasts can be based on a signal that is equal to true pre-managed earnings plus a normally distributed error with a zero mean. This raises the possibility that one reason for firms to manage earnings is to eliminate noise in earnings surprises without disclosing proprietary information or committing to policies of managing analysts' expectations without credible disclosure.

⁸ The analysis in Fischer and Verrecchia [2000] suggests that users of financial reports may be incapable of completely unraveling reporting bias when managers' objective functions are unobservable. As discussed in Abarbanell [1999] and Abarbanell and Lehavy [forthcoming], even if analysts and investors are able to anticipate reporting bias, a question arises as to whether they have an economic incentive to incorporate it into their forecasts. Ultimately, the question is an empirical one. The results in Abarbanell and Lehavy [forthcoming, 2002] and Hanna [1999] provide direct evidence that analysts do not fully incorporate firm reporting biases in their forecasts. It should be noted that the assumption that analysts do not anticipate completely firms' earnings management is implicit in the conclusions drawn in Degeorge, Patel, and Zeckhauser [1999], Burgstahler and Eames [2000], and Baber and Kang [2001], among others.

In figure 1, firms with no incentive to meet forecasts but an incentive to meet the target T will engage in the following forms of earnings management: take an earnings bath and report earnings equal to E_{min} when pre-managed earnings fall below T by more than available reserves (denoted k), inflate pre-managed earnings to T when they are below T by less than k , and deflate pre-managed earnings to T when earnings are above T . In contrast, firms with a *strong* incentive to meet both contracting targets and analysts' forecasts will take an earnings bath and report earnings equal to E_{min} when pre-managed earnings are below F_B by more than k , inflate pre-managed earnings to F_B when earnings are below F_B by less than k , inflate pre-managed earnings to T when earnings are below T by less than k , inflate pre-managed earnings to F_A when earnings are below F_A by less than k , and, finally, deflate pre-managed earnings to F_A when earnings are above F_A .⁹

As seen in figure 1, the preceding rules for earnings management lead to two intervals of pre-managed earnings outcomes in which firms with strong incentives to meet forecasts behave differently from those with no incentive. The first interval, denoted I_1 , is composed of pre-managed earnings realizations that fall below T by more than k , but below F_B by less than k . In these cases pre-managed earnings are mapped to F_B rather than to the minimum earnings report, E_{min} . That is, pre-managed earnings realizations that, absent strong incentives to meet the forecasts, would have been deflated to an artificially low reported earnings number, are inflated instead to a reported earnings number equal to or slightly in excess of the forecast. The second interval, denoted I_2 , is composed of pre-managed realizations that fall above T but below F_A by less than k . These realizations are inflated by firms with strong incentives to meet forecasts, whereas firms with weak incentives will deflate earnings to T .¹⁰ The expected direction of earnings management is the same between the two types of firms for all other pre-managed earnings outcomes; therefore, combining the expected direction of firms' earnings management behavior in these two intervals produces the following prediction:

H1: The likelihood of income-increasing earnings management *increases* in a firm's stock price sensitivity to earnings news (i.e., the incentive to report earnings that meet or beat earnings forecasts).

⁹ Note that in this example firms with strong incentives to meet forecasts will also be concerned about achieving the contracting target subject to meeting the analyst forecast target whenever possible. That is, the example abstracts from possible equilibria that can arise in a multiperiod setting in which the firm may have incentives to create reserves even when one or both earnings targets are attainable with income-increasing earnings management.

¹⁰ To simplify the discussion we have drawn the graph so that $F_A - k$ is equal to T . Although there are quantitative effects when this condition is not met, what does not change are the qualitative differences between the earnings management behavior and forecast errors of firms as a function of their incentives to meet analysts' expectations for normal or approximately normal distributions of pre-managed earnings.

The next prediction relates to the correspondence between firms' earnings management and subsequently observed analysts' forecast errors. Specifically, if analysts' forecasts do not completely anticipate firm earnings management, then the more sensitive the firm's stock price sensitivity is to earnings news, the more likely they will report earnings that meet or beat analysts' forecasts. As seen in figure 1, when pre-managed earnings are below T , firms with high stock price sensitivity to earnings news are more likely than firms with low sensitivity to engage in income-increasing earnings management to meet or slightly beat analysts' forecasts. Pre-managed earnings outcomes in the interval I_1 account for this difference, as firms with high sensitivity inflate earnings whereas firms with low sensitivity take a bath. Similarly when pre-managed earnings are above T , firms with high stock price sensitivity will inflate earnings to meet or beat the forecast (for outcomes in interval I_2) or deflate earnings to meet or beat forecasts (for outcomes above I_2). In contrast firms with no sensitivity always manage earnings down to T , and thus below the forecast. The preceding argument is formalized in the following hypothesis:

H2: The likelihood of a zero and small positive forecasts errors increases in a firm's stock price sensitivity to earnings news.

A testable implication of the arguments underlying H2 is that the reduction in the incidence of zero and small positive forecast errors when forecast errors are based on pre-managed rather than reported earnings will increase in firms' stock price sensitivity to earnings news. Such a test is performed in section 4 along with direct tests of the prediction in H2.

The arguments underlying our two final predictions are also summarized with the aid of figure 1. The arrows in the figure indicate that when pre-managed earnings fall far below or rise far above all relevant earnings targets, firms are expected to engage in extreme, income-decreasing earnings management. When cases of earnings baths and extreme cookie jar reserves occur, they will correspond to extreme, negative forecast errors, regardless of the strength of the firm's incentive to meet or beat forecasts. That is:

H3a: Extreme negative forecast errors are associated with extreme, income-decreasing earnings management.

Our final prediction concerning forecast errors follows from the effect of introducing equity market incentives on the frequency of earnings baths and large cookie jar reserves. As seen in figure 1, for pre-managed earnings outcomes that fall into interval I_1 and above F_A , firms with low sensitivity to earnings news engage in more frequent and more extreme, income-decreasing earnings management that, in turn, leads to extreme, negative errors than do firms with high sensitivity. This follows from the fact that in the interval I_1 , these firms take an earnings bath, whereas firms with a high sensitivity manage earnings upward to meet or beat forecasts. The prediction is reinforced by the fact that firms with low sensitivity also take systematically larger cookie jar reserves with progressively larger realizations

of pre-managed earnings that fall above F_A . The argument is formalized in our final hypothesis:

H3b: The *likelihood* and *magnitude* of extreme, income-decreasing earnings management and corresponding extreme, negative analysts' forecast errors simultaneously *decrease* in a firm's stock price sensitivity to earnings news.

2.3 STOCK RECOMMENDATIONS AS A MEASURE OF FIRMS' STOCK PRICE SENSITIVITY TO EARNINGS NEWS

Several factors are likely to contribute to a firm's stock price sensitivity to current earnings news. These include firm-specific expected earnings growth, investor preferences or sentiment, and financial distress. Hagin [1991] and Skinner and Sloan [2002] report that small, bad news earnings surprises lead to negative stock price reactions of a larger magnitude than positive stock reactions to good news earnings surprises of a comparable magnitude. They demonstrate that this "torpedo" effect is the strongest among firms with high price-to-earnings and market-to-book ratios and expected growth. These variables are used in the literature as indicators of investment style (e.g., glamour vs. value).

We argue that firms with higher growth expectations or glamour designations have stronger incentives than other firms to manage earnings to meet or beat analysts' earnings forecasts.¹¹ Conversely, value firms, firms with high leverage, and firms facing financial distress have relatively weaker incentives than other firms to manage earnings to meet or beat analysts' forecasts. This argument is supported by the evidence in Dhaliwal, Lee, and Fargher [1991], Dhaliwal and Reynolds [1994], and Subramanyam and Wild [1996], which indicates that firms with both high financial leverage and financial distress have less sensitive stock price reactions to current earnings surprises than do either firms with lower leverage or firms in good financial health.

Our choice of stock recommendations to capture differences in stock price sensitivity to earnings surprises is based, in part, on an extensive literature that links stock recommendations with the same variables that have been shown to be associated with asymmetric price reactions to earnings surprises. For example, a number of empirical studies confirm that the favorableness of stock recommendations increases in expected long-term earnings growth, price-to-earnings, and market-to-book ratios, and decreases in debt-to-equity ratios and measures of financial distress (e.g., Stickel [1995, 2001], Finger and Landsman [1998], Womack [1996], Jegadeesh et al. [2002]), Barber et al. [2001]). In results not tabled we

¹¹ For example asymmetric price responses to small surprises of opposite signs are consistent with predictions from settings in which prices are formed rationally (e.g., Veronesi [1999]) or are affected in the short run by investor sentiment (Daniel, Hirshleifer, and Subramanyam [1998]). Additional empirical support on a marketwide level for the theoretical predictions in these studies is found in Conrad, Cornell, and Landsman [2002].

confirm that these individual relations hold in our sample. Because these financial variables are related to stock recommendations in directions that are mutually reinforcing with respect to capturing *ex ante* price sensitivity to earnings news (i.e., recommendations are increasing in growth and glamour and decreasing in leverage and distress), stock recommendations serve as something akin to a latent variable for measuring a collection of firm incentives that may be affected by whether reported earnings meet or beat analysts' forecasts.¹²

We chose stock recommendations to measure price sensitivity to earnings news for two additional reasons. First, they are issued or outstanding contemporaneous to earnings forecasts, which are generated by the same source, that is, analysts. This implies that the information in analysts' earnings forecasts is aligned with the information in the recommendation and that it is possible, in principle, that analysts can produce a strategic forecast accounting for a firm's expected reporting response to the recommendation. If analysts incorporate in their earnings forecasts a firm's expected response to their recommendations, we should *not* find results consistent with our hypotheses. A second additional advantage to using stock recommendations is that doing so allows a comparison of our findings to those in the emerging stock recommendation literature, which furthers our goals of using both our hypotheses and our empirical results to offer alternative interpretations of previous findings.

Finally, we note that if stock recommendations are the actual cues to which investors and managers respond, even a coarse partitioning scheme is likely to be effective at capturing differences in firms' incentives and the likelihood that they will manage earnings relative to outstanding forecasts or taking earnings baths. Moreover, even if recommendations only summarize the actual variables that influence stock price sensitivity to current earnings news and incentives to manage earnings, use of coarsely partitioned recommendations will imply reduced power to detect earnings management but should not bias the results in favor of our hypotheses. Before presenting our main results in section 4, we confirm empirically the ability of outstanding stock recommendations to reflect the sensitivity of stock price to earnings news as indicated by differential price responses to small earnings surprises.

¹² An alternative approach to choosing a contemporaneous measure is to use a historical estimate of price sensitivity; for example, prior announcement-period ERCs. However, this approach leads to potential staleness in the measure of sensitivity. It also introduces a potential endogeneity problem if earnings management embedded in prior earnings surprises affected the prior response to earnings news. For example, a weak price response in the prior period may have been the result of the firm's taking an earnings bath, which resulted in earnings surprises of little relevance to investors. Such cases will, at a minimum, introduce noise into a measure of price sensitivity and will, in crucial instances, significantly bias tests against finding support for predictions.

3. *Sample Selection Criteria, Description, and Variable Definition*

We use analyst stock recommendations and quarterly earnings forecasts provided by Zacks Investment Research. The recommendation data cover 1985 through early 1998. The recommendation database includes more than 400,000 recommendations with ratings between 1 and 5. A rating of 1 indicates a strong buy recommendation; 2, a buy; 3, a hold; 4, a sell; and 5, a strong sell (see Barber et al. [2001] for a more detailed description of the recommendation database). The Zacks earnings forecasts database contains more than 2 million individual quarterly forecasts for 1985 to 1998. Actual earnings are obtained from Compustat. All earnings and forecasts have been adjusted to ensure consistent results that take account of stock splits.

For each firm-quarter observation we construct the average recommendation and average earnings forecast of earnings on the last day of its fiscal quarter. To reduce potential effects of stale recommendations, the average recommendation for firm i on date $t(A_{it})$ is based on the last three individual recommendations issued before the end of its fiscal quarter; results are qualitatively similar when average recommendations are based on the full consensus. Using the average recommendation outstanding on the last day of a firm's fiscal quarter, we place each sample observation into one of three portfolios. The first portfolio consists of firms for which $1 \leq A_{it} \leq 2$ (denoted "Buy" stocks), the second portfolio includes firms for which $2 < A_{it} \leq 3$ ("Hold" stocks), and the third contains the least favorably recommended firms for which $A_{it} > 3$ ("Sell" stocks).

We calculate forecast errors as actual earnings per share, minus the average earnings forecast outstanding at the end of the fiscal quarter, all scaled by beginning-of-period stock price and multiplied by 100. To eliminate effects of stale forecasts on the accuracy of the forecast error, we calculate the average earnings forecast based on the last three forecasts issued before the end of the firm's fiscal quarter. The most recent forecast outstanding for a firm on the last day of the fiscal quarter and the full consensus forecast are used for sensitivity tests. The results are qualitatively similar for the full consensus forecast, the last three forecasts, and the most recent forecast outstanding at fiscal quarter end. Sample-selection procedures result in 23,282 average recommendations and forecast errors at fiscal quarter-end.

We use quarterly unexpected accruals to proxy for firms' earnings management. Unexpected accruals are the measure produced by the modified Jones Model (Dechow, Sloan, and Sweeney [1995]) applied to quarterly data (see the appendix for calculations). All the empirical results presented in section 4 are qualitatively unchanged when cross-sectional (see DeFond and Jambalvo [1994]) and instrumental variable approaches (e.g., Kang and Sivaramakrishnan [1995]) are used to estimate unexpected accruals. To facilitate comparison with our forecast error measure, we express unexpected accruals on per share and scaled by price and multiplied by 100. Note that Zacks, like other databases, removes special items, restructuring charges, and other one-time items from consensus earnings estimates that are used

in our robustness tests. Such practices may inadvertently eliminate actual cases of earnings management from reported earnings (see Abarbanell and Lehavy [2002]). For the purposes of sensitivity tests described later, we also calculate a measure of unexpected accruals that excludes these special items, and we use this adjusted measure in conjunction with Zacks's consensus forecast estimates and actual reported earnings (which also exclude such items). Because results using these variations are qualitatively similar to the results discussed in section 4, only results based on the Jones Model estimates of unexpected accruals are reported in this article.

Application of the modified Jones model resulted in 38,545 firm-quarter measures of quarterly unexpected accruals for all companies in the recommendation/forecast database. Combining the unexpected accrual measures with the end of fiscal quarter recommendations and forecast errors yields a sample of 22,173 firm-quarter observations for 1,656 distinct firms. Results concerning forecast error predictions are qualitatively similar when data requirements for estimating unexpected accruals are not imposed.

Summary statistics related to analyst recommendations are reported in Panel A of table 1. Recommendations are significantly skewed toward Buys (average 36%), with only 13% rated Sells. One intriguing pattern found in these data is that the number of buy recommendations has increased significantly over time, whereas the number of sell recommendations has decreased less significantly.

Panel B of table 1 reports mean (median) unexpected accruals per share (scaled by price) of -0.172% (0.021%). The 25th and 75th percentiles of quarterly unexpected accruals are -1.036% and 1.040% , indicating that approximate symmetry applies to large (but not extreme) negative and positive observations in the distribution. Forecast errors for our sample of firms with unexpected accruals are negative, with a mean (median) of -0.347 (-0.010). The mean (median) earnings per share for this sample is $\$0.29$ ($\$0.28$).

4. Empirical Results

4.1 THE ASSOCIATION BETWEEN RECOMMENDATIONS AND STOCK PRICE REACTIONS TO EARNINGS SURPRISES

Before presenting test results concerning the hypotheses offered in section 2, we provide evidence of stock recommendations' ability to proxy for stock price sensitivity to earnings news. To this end we compute the coefficients from regressions of earnings announcement-date returns on forecast errors of a relatively small magnitude for each recommendation portfolio.¹³

¹³ Announcement-date returns are the cumulative market-adjusted returns in the three-day window around and including the announcement date. A small number of influential observations identified using the studentized residual method are eliminated from each regression.

TABLE 1
Descriptive Statistics on the Variables

This table provides descriptive statistics on variables used in the analysis. Panel A reports the number of firms in each stock recommendation portfolio by year. The three portfolios are based on the average of the last three analyst recommendations issued before the last day of the firm's fiscal quarter. Portfolios Buy, Hold, and Sell include stocks with average recommendations of [1–2], (2–3], and greater than 3, respectively. Panel B reports statistics on unexpected accruals, analyst forecasts, and earnings per share (EPS). Forecast errors are defined as actual earnings (per Compustat) minus forecasted earnings (the average of the last three analyst forecasts of quarterly earnings issued before the last day of the fiscal quarter) divided by beginning of period stock price. Unexpected accruals are the measure produced by the modified Jones model (expressed as unexpected accruals per share scaled by price). EPS is earnings per share before extraordinary items.

Panel A: Descriptive statistics on analyst recommendations from the Zacks database, 1985–1998

Stock Recommendation Portfolio							
Year (1)	Buy		Hold		Sell		Total (8)
	N (2)	% of Total (3)	N (4)	% of Total (5)	N (6)	% of Total (7)	
1985	75	26	131	45	83	29	289
1986	277	32	443	52	133	16	853
1987	494	37	667	50	185	14	1,346
1988	495	35	713	50	208	15	1,416
1989	403	29	723	52	257	19	1,383
1990	466	33	775	54	189	13	1,430
1991	424	29	828	57	212	14	1,464
1992	576	32	1,006	56	211	12	1,793
1993	652	31	1,157	55	306	14	2,115
1994	881	43	986	48	181	9	2,048
1995	824	39	1,083	52	195	9	2,102
1996	844	39	1,117	52	183	9	2,144
1997	1,008	51	890	45	83	4	1,981
1998	989	55	785	43	35	2	1,809
All Years	8,408	38	11,304	51	2,461	11	22,173
Average All Years	601	36	807	51	176	13	1,584

Panel B: Descriptive statistics on unexpected accruals, analyst forecasts, and EPS

Variable	Mean	Median	Q1	Q3	Std. Dev.
Unexpected accruals (per share as a % of price)	−0.172	0.021	−1.036	1.040	4.497
Unexpected accruals (dollars per share)	−0.013	0.003	−0.213	0.223	0.842
EPS minus forecast (cents per share)	−5.343	−0.167	−5.333	−2.333	26.752
EPS (dollars per share)	0.293	0.278	0.128	0.475	0.431
Forecast error	−0.347	−0.010	−0.275	0.122	1.884

In untabulated results, we find that the coefficients from regressions of returns on forecast errors that fall in the intervals of ± 0.025 , ± 0.05 , ± 0.1 , and ± 0.2 are 31.8, 11.7, 14.8, and 9.3, respectively, for firms rated a Buy; 12.7, 8.0, 7.5, and 5.9, respectively, for firms rated a Hold; and 5.9, 5.0, 4.0, and 2.6, respectively, for firms rated a Sell. That is, response coefficients of firms rated

TABLE 2
Unexpected Accruals by Stock Recommendations

Panel A reports means, medians, p -values, interquartile range, and percentage positive unexpected accruals by stock recommendations. Panel B reports p -values from tests of differences in mean, median, and percentage positive unexpected accruals across stock recommendation portfolios. The p -values are one-sided when the sign of the relation is predicted by the hypothesis and two-sided otherwise. Unexpected accruals are the measure produced by the modified Jones model (expressed as unexpected accruals per share scaled by price).

Panel A: Unexpected accruals by stock recommendations					
Recommendations	Unexpected Accruals				
	Mean p -value (1)	Median p -value (2)	% Positive (3)	Interquartile Range (4)	N (5)
Buy	0.076 0.023	0.044 0.000	52%	−.745, .940	8,408
Hold	−0.109 0.004	0.022 0.056	51%	−1.067, 1.080	11,304
Sell	−1.308 0.000	−0.154 0.000	46%	−2.241, 1.270	2,461
					22,173

Panel B: The p-values from tests of differences in means, medians, and proportions across stock recommendations				
Test of:	p -values of difference in unexpected accruals		p -values of difference in proportion of positive unexpected accruals	
	Mean test (1)	Median test (2)	Difference (3)	p -value (4)
Sell > Buy	0.000	0.000	−6.5%	0.000
Sell > Hold	0.000	0.000	−5.0%	0.000
Buy $\geq$ Hold	0.000	0.067	1.5%	0.034

a Buy exceed those of firms rated a Hold in each interval, which, in turn, exceed those of firms rated a Sell.¹⁴ Note, also, that response coefficients for each group decline as the magnitude of the surprise increases, indicating decreasing gains to larger good news surprises and decreasing losses to larger negative surprises. The results of this test support the argument that stock price sensitivity to relatively small earnings surprises does, indeed, increase in the favorableness of stock recommendations.

4.2 EARNINGS MANAGEMENT AND SMALL POSITIVE FORECAST ERRORS

Panel A of table 2 reports results consistent with H1. The mean, median, and percentage of positive unexpected accruals increase in the

¹⁴ Buy firm response coefficients are statistically significantly different from zero at the .01 level in every interval, Hold firm response coefficients are reliably different from zero in all but the smallest interval, and Sell firm response coefficients are insignificantly different from zero in all but the largest interval. Differences in response coefficient across recommendation groups are significant in each interval.

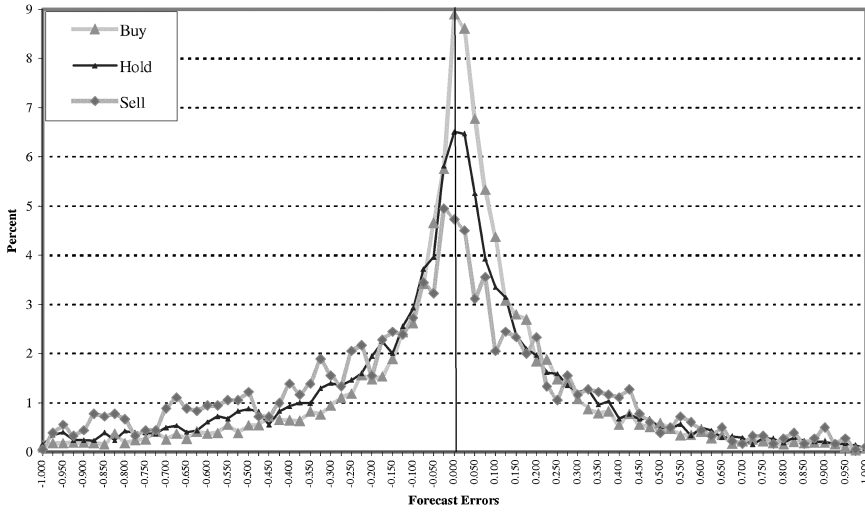


FIG. 2.—Percent of forecast error values in histogram intervals for observations within forecast error of -1 to $+1$, by stock recommendations.

favorableness of stock recommendation (columns 1–3). For example, the incidence of positive unexpected accruals is 52% for firms rated a Buy compared with 46% for firms rated a Sell. H1 refers to the likelihood of income-increasing earnings management, which can also affect the difference in mean unexpected accruals across the portfolios. We note that the mean decreases monotonically from 0.076 for firms rated a Buy, to -0.109 for those rated a Hold, to -1.308 for firms rated a Sell. Differences between individual stock recommendation groups are highly significant (see columns 1–4 in panel B of table 2). Additional evidence consistent with the arguments underlying H1 is provided next, along with evidence concerning H2.

The visual evidence in figure 2 speaks directly to the prediction in H2 that stock price sensitivity to earnings news, as measured by outstanding stock recommendation, affects firms' incentives to meet or slightly beat analysts' forecasts. The figure presents a histogram of forecast errors between the values -1 and $+1$. It is not surprising that the majority of these observations fall within a small region around a value of 0. It is clear from the figure that, consistent with H2, the incidence of zero forecast errors increases monotonically in the favorableness of stock recommendations (8.9%, 6.5%, and 4.7% for Buy, Hold, and Sell, respectively). Differences in percentages of zero forecast errors across groups are highly significant (unreported in tables).

It is also clear from figure 2 that, within the smallest symmetric regions around zero forecast errors, the incidence of positive errors increases in the favorableness of the stock recommendation. Statistical support for this conclusion is presented in table 3. Columns 3–6 present the ratio of positive to negative forecast errors based on reported earnings in symmetric

TABLE 3
Ratio of the Frequency of Positive to Negative Forecast Errors in Small Regions Centered on Zero, by Stock Recommendations

This table reports the ratio of the frequency of positive to negative forecast errors (FE) in small regions centered on zero-reported forecast errors by stock recommendations. Column (1) reports the region of reported forecast errors. Column (2) provides the number of observation in that region. Columns (3)–(6) report the ratios for forecast errors based on reported earnings. Columns (7)–(10) report the ratios for forecast errors based on pre-managed earnings. Reported forecast errors are defined as actual earnings (per Compustat) minus forecasted earnings (computed as the average of the last three analyst forecasts of quarterly earnings issued before the last day of the fiscal quarter) divided by beginning of period stock price. Pre-managed forecast errors equal pre-managed earnings (computed as reported earnings minus unexpected accruals) minus forecasted earnings scaled by price. Unexpected accruals are the measure produced by the modified Jones model (expressed as a per share scaled by price).

Range of <i>reported</i> forecast errors (FE)	N (2)	Ratio of positive to negative forecast errors based on <i>reported</i> earnings				Ratio of positive to negative forecast errors based on <i>pre-managed</i> earnings			
		Overall		Hold		Overall		Hold	
		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$-0.2 \leq \text{FE} \leq 0.2$	11,776	1.25 ^{&}	1.45 ^{*#}	1.14 ⁺	0.98	0.90 ^{&}	0.88	0.90	0.95
$-0.1 \leq \text{FE} \leq 0.1$	8,043	1.26 ^{&}	1.46 ^{*#}	1.14 ⁺	0.94	0.88 ^{&}	0.87	0.89	0.90
$-0.05 \leq \text{FE} \leq 0.05$	4,892	1.24 ^{&}	1.36 ^{*#}	1.17	0.96	0.86 ^{&}	0.86	0.86	0.85
$-0.025 \leq \text{FE} \leq 0.025$	2,754	1.17 ^{&}	1.25 ^{*#}	1.10	1.03	0.88 ^{&}	0.86	0.91	0.80

[&]A test of the difference in the frequency of positive to negative forecast errors is statistically significant at or below a 1% level.
^{*}A test of a difference between the ratio of positive to negative forecast errors for Buy versus Hold is significant at or below a 1% level.
[#]A test of a difference between the ratio of positive to negative forecast errors for Buy versus Sell is significant at or below a 1% level.
⁺A test of a difference between the ratio of positive to negative forecast errors for Hold versus Sell is significant at or below a 2% level.

regions of ± 0.2 , ± 0.1 , ± 0.05 , and ± 0.025 for the whole sample and by stock recommendation portfolio. Consistent with H2, the ratio increases in the favorableness of stock recommendations within each region. The ratio for firms rated a Buy is reliably greater than that for firms rated a Hold or a Sell in all cases, whereas the ratio for firms rated a Hold is reliably greater than that for firm rated a Sell in the two largest intervals. The difference in the ratios across firms rated a Buy, Hold, or Sell is greatest in the region between ± 0.1 , where they take on values of 1.46, 1.14, and 0.94, respectively.¹⁵

Columns 7–10 of table 3 present the results of recomputing the ratio of positive to negative errors pertaining to observations in columns 3–6 after subtracting an estimate of unexpected accruals from reported earnings, that is, after all forecast errors are placed on a pre-managed earnings basis. The findings in columns 7–10 support a role for equity-market-motivated earnings management in explaining evidence of a tendency for firms to meet or beat forecasts. Specifically, in contrast to the patterns documented in columns 3–6, the pattern of increasing frequency of positive forecast errors in the favorableness of the recommendation is not observed. These results support the arguments underlying H1 and H2 that differences in earnings management motivated by firms' stock price sensitivity to earnings news plays a role in the increasing incidence of small positive errors in reported earnings as the favorableness of the stock recommendation increases.¹⁶

4.3 EARNINGS MANAGEMENT AND EXTREME, NEGATIVE FORECAST ERRORS

We begin the tests of H3a and H3b with an evaluation of the shapes of the cross-sectional distributions of unexpected accruals and forecast errors. The descriptive evidence in panel B of table 1 indicates that the median unexpected accrual is 0.021 and the mean is -0.172 , suggesting some form of skewness in the unconditional unexpected accrual distributions. As seen

¹⁵ Mean earnings of firms rated Buy, Hold, or Sell in the narrowest interval of forecast errors around zero are \$.35, \$.38, and \$.40, suggesting that firms rated a Buy do not have systematically smaller earnings that could translate into disproportionately smaller forecast errors than other firms. Also, in untabulated results, we confirm that the ratio falls monotonically for all recommendation groups when the symmetric interval centered on zero is expanded beyond ± 0.1 . It would appear that the amount by which earnings are managed to beat forecasts is limited, consistent with the value of accounting reserves and the decreasing benefit of progressively larger good news surprises described earlier.

¹⁶ One concern with the test summarized in table 3 is that the level of error in measuring unexpected accruals exceeds the level of randomness in analysts' forecasts. This raises the possibility that the results in columns 7–10 of the table reflect the effect of adjusting reported earnings numbers with very noisy estimates of unexpected accruals, which could drive the ratio of positive to negative errors on a pre-managed basis toward a value of 1. To test the sensitivity of our results to this concern, we restricted the sample to those observations for which the absolute value of unexpected accruals falls within the absolute range of the small forecast error values. This represents approximately 20% of the observations in each interval examined. Results are qualitatively similar to those reported, suggesting that the reduction in the ratio of positive to negative forecast errors on a pre-managed earnings basis is not simply the result of adding large *misestimates* of unexpected accruals to reported earnings.

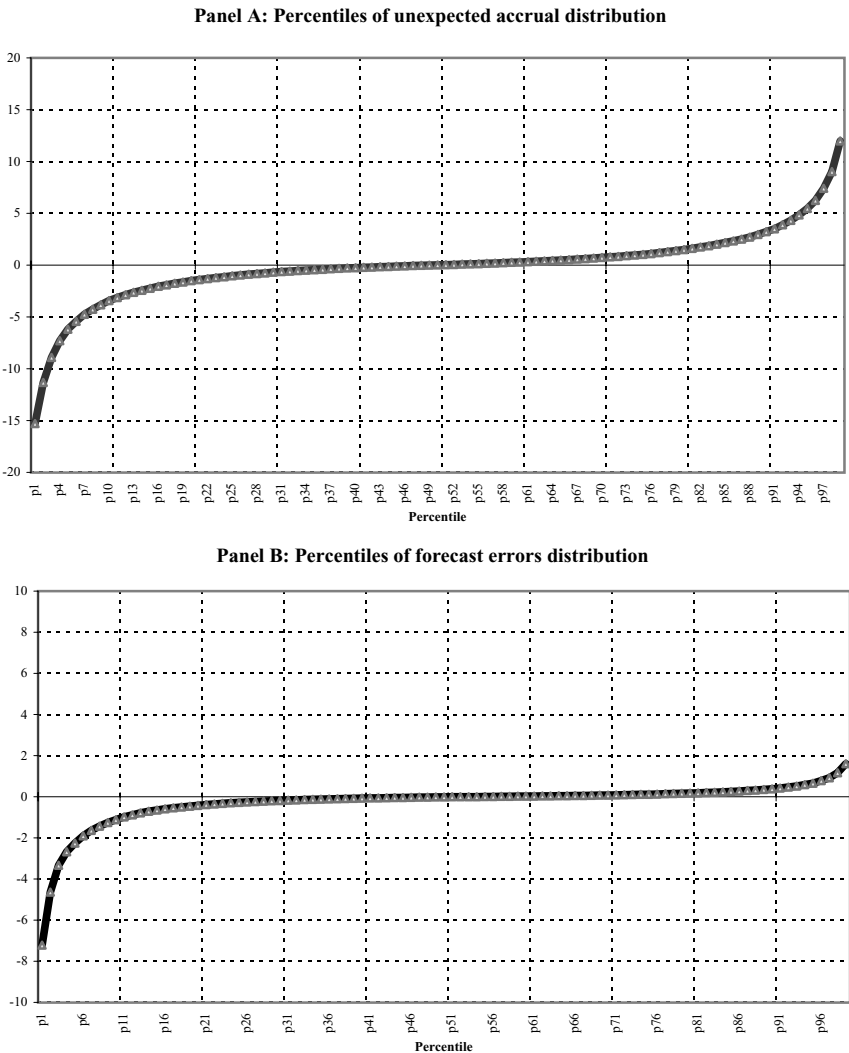


FIG. 3.—Percentiles of the unexpected accrual (panel A) and forecast error (panel B) distributions ($N = 22,173$).

in panel A of figure 3, which plots the 1st through the 99th percentiles of the distribution of quarterly unexpected accruals, this skewness takes the form of a longer and slightly fatter right versus left tail. Given that the evidence reported earlier in table 2, which indicates that the 25th and 75th percentiles of this distribution are similar in magnitude, significant skewness is attributable to the precipitous increase in the magnitude of unexpected accruals in the most extreme, negative tail.

Skewness is also evident in the unconditional forecast error distribution, as the median forecast error reported in table 1 is -0.010 and the mean error is -0.347 . This is confirmed in panel B of figure 3 that plots forecast errors of

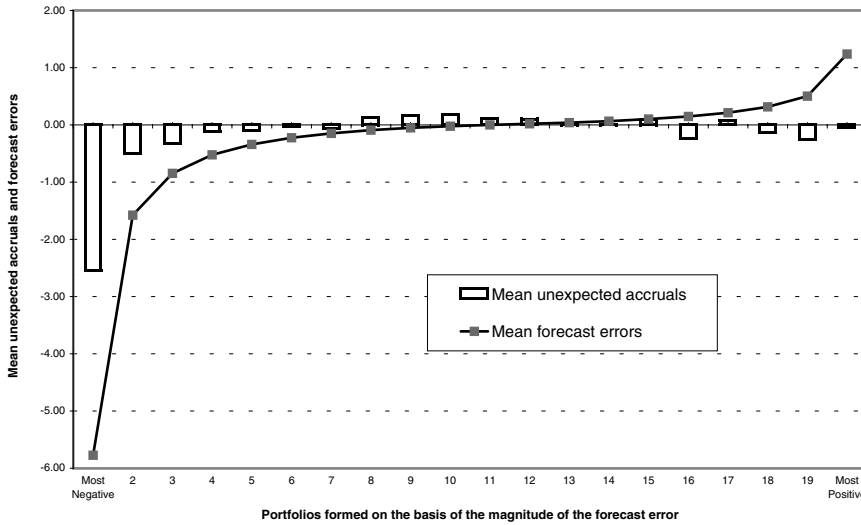


FIG. 4.—Mean unexpected accruals and forecast errors within portfolios formed on the basis of magnitude of the forecast error.

the 1st (most negative) through the 99th (most positive) percentiles of the distribution forecast errors. As in the case of unexpected accruals, a long, fat negative tail characterizes the cross-sectional distribution of forecast errors.

Figure 4 combines information underlying panels A and B of figure 3 to provide evidence relevant to H3a. The figure plots the mean unexpected accrual and mean forecast errors within the 1st (most negative) through the 20th (most positive) forecast error portfolio. Note that the shape of the distribution of unexpected accruals conditional on forecast errors is much more skewed toward the extreme negative tail than is the unconditional distribution. Consistent with the prediction in H3a, it can be seen that extreme, negative forecast errors go hand in hand with extreme, negative unexpected accruals. The conclusion is supported statistically by an analysis of correlations between forecast errors and unexpected accruals in each portfolio. The overall correlation between mean forecast error and mean unexpected accruals is 0.93. When observations in the most extreme negative forecast error portfolio are removed, the overall correlation among the remaining observations drops significantly to 0.47. Successive removal of observations in any of the other 19 forecast error portfolios leads to insignificant changes in the overall correlation between forecast errors and unexpected accruals for the remaining observations. This evidence supports the correspondence between extreme, negative unexpected accruals and extreme, negative forecast errors.

Table 4 reports summary statistics relevant to assessing the descriptiveness of the prediction in H3b that the frequency and magnitude of extreme forecast errors and unexpected accruals decrease simultaneously in the favorableness of stock recommendation. As in the case of the unconditional

TABLE 4
Forecast Errors by Stock Recommendations

Panel A reports means, medians, *p*-values, percentage positive, and interquartile range of forecast errors by stock recommendations. Panel B reports *p*-values from tests of differences in mean, median, and percentage positive forecast errors across stock recommendation portfolios. The *p*-values are one-sided when the sign of the relation is predicted by the hypothesis and two-sided otherwise. Forecast errors are defined as actual earnings (per Compustat) minus forecasted quarterly earnings (the average of the last three analyst forecasts of quarterly earnings issued before the last day of the fiscal quarter) divided by beginning of period stock price.

Panel A: Forecast errors by stock recommendations					
Recommendations	Forecast Errors				
	Mean <i>p</i> -value (1)	Median <i>p</i> -value (2)	% Positive (3)	Interquartile Range (4)	<i>N</i> (5)
Buy	−0.144 0.000	0.007 0.000	55%	−.153, .118	8,408
Hold	−0.307 0.000	−0.019 0.000	47%	−.302, .124	11,304
Sell	−1.227 0.000	−0.123 0.000	38%	−.825, .123	2,461
					22,173
Panel B: The <i>p</i>-values from tests of differences in means, medians, and proportions across stock recommendations					
Test of:	<i>p</i> -values of difference in forecast error		<i>p</i> -values of difference in proportion of positive forecast errors		
	Mean test (1)	Median test (2)	Difference (3)	<i>p</i> -value (4)	
Sell > Buy	0.000	0.000	−16.4%	0.000	
Sell > Hold	0.000	0.000	−9.0%	0.000	
Buy ≥ Hold	0.000	0.000	7.3%	0.000	

distribution of unexpected accruals, means are much larger than medians in the conditional distributions, suggesting larger negative tails in every recommendation group. The mean (median) forecast error decreases monotonically in stock recommendations from a value of −0.144 (0.007) for firms rated a Buy, to −0.307 (−.019) for those rated a Hold, to −1.227 (−0.123) for those rated a Sell. Differences between individual stock recommendation groups are highly significant (see columns 1–4 in panel B of table 4).¹⁷ This

¹⁷ The mean forecast error in each recommendation partition is significantly negative, consistent with prior evidence construed as an apparent tendency toward optimism in analysts' forecasts. It can be seen in table 4, however, that firms rated a Buy have a small positive median forecast error and that the percentage of negative errors is only 45%. Even among firms rated a Hold, the incidence of negative errors is only slightly greater (53%) than would occur by chance. Only in the case of the relatively small set of firms rated a Sell is the incidence of negative forecasts errors unusually high (62%). Thus, the presence of a relatively small number of extremely negative forecasts errors concentrated among firms rated a Sell accounts for a good deal of apparent optimism in the unconditional distribution of forecast errors (see also Abarbanell and Lehavy [forthcoming]).

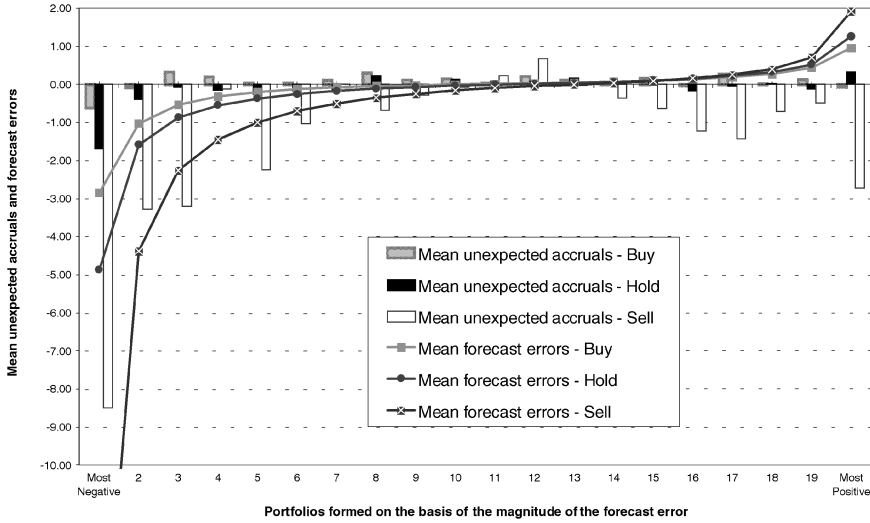


FIG. 5.—Mean unexpected accruals and forecast errors within portfolios formed on the basis of magnitude of the forecast error, by stock recommendation.

evidence is consistent with the arguments in section 2 that firms whose stock prices are more sensitive to earnings news are less likely than other firms to create reserves that lead to negative forecast errors. Similarly, comparisons of mean relative to median forecast errors across recommendation groups indicate that, consistent with H3b, there is a higher likelihood of extreme, negative forecast errors as the favorableness of the stock recommendation declines.¹⁸

Evidence that simultaneously links the incidence of extreme, negative observations of both unexpected accruals and forecast errors to the favorableness of stock recommendations is presented in figure 5. The figure plots the mean unexpected accrual and mean forecast errors within the 1st (most negative) through the 20th (most positive) forecast error portfolios for firms rated a Sell, Hold, and Buy. In every recommendation group the most extreme, negative forecast errors go hand in hand with the most extreme, negative unexpected accruals, and the magnitude of forecast errors and unexpected accruals in the extreme, negative portfolios decreases in the

¹⁸ The fact that a small percentage of firms rated a Buy have extremely negative forecast errors is consistent with the analysis in figure 1, which allows for the possibility that some firms with high *ex ante* price sensitivity will take an earnings surprise if their pre-managed earnings fall short of *all* relevant targets by more than available reserves. It may also reflect imperfection in the ability of stock recommendation to sort firms into high- and low-sensitivity categories. For example, high-flying Internet stocks in the late 1990s were often rated a Buy by analysts though their stock prices appeared to be insensitive to current earnings news. Analysis of prior returns and earnings changes in Abarbanell and Lehavy [forthcoming] and price-to-earnings ratios in Conrad, Cornell, and Landsman [2002] suggests that firms' incentives to manage earnings to beat forecasts are unlikely to be perfectly monotonic in any single empirical proxy for stock price sensitivity to earnings news.

favorableness of stock recommendation. The result is particularly notable for firms rated a Buy whose unconditional distribution of unexpected accruals is nearly symmetric (unreported in tables). This symmetry disappears when conditioned on forecast errors, because mean accruals in the most negative forecast errors portfolio are negative and are twice as large in magnitude as the next largest forecast error portfolio mean.¹⁹

Analysis of correlations between forecast errors and unexpected accruals by stock recommendations provides further support for the prediction in H3b. The correlations are equal to 0.66, 0.94, and 0.87 for firms rated a Buy, Hold, and Sell, respectively. When observations in the most extreme, negative forecast error portfolios conditional on recommendation are removed, the correlations between forecast errors and unexpected accruals for the remaining observations drop to -0.12, 0.67, and 0.43 for firms rated a Buy, Hold, and Sell, respectively. Removal of observations in the most extreme, positive forecast error portfolios conditional on stock recommendation actually produces a small but significant increase in the correlation between forecast errors and unexpected accruals for the remaining observations among firms rated a Buy and a Sell (to 0.78 and 0.93, respectively) and no change among firms rated a Hold. Separately, removing observations in any of the other 18 forecast error portfolios and recalculating correlations produces no significant differences in the correlation between forecast errors and unexpected accruals among the remaining observations.

Finally, as indicated earlier, our results are qualitatively similar when forecast errors are based on consensus forecasts and actual earnings as reported by Zacks, which omit one-time items and write-offs; (e.g., Abarbanell and Lehavy [2002]). Furthermore, when we adjust our measure of unexpected accruals for such items (see Hribar and Collins [2002] for details of the procedure), results concerning asymmetry in the tail of forecast error distributions are attenuated but qualitatively similar. These findings are consistent with the idea that firms throw in both extreme one-time items *and* recurring items when they take earnings baths and when they store large cookie jar reserves (see Rees, Gill, and Gore [1996] for a similar interpretation).²⁰

¹⁹ Figure 5 also suggests that, apart from the most extreme negative forecast errors portfolios, there is little correspondence between the sign and magnitude of forecast errors and unexpected accruals in the remaining portfolios for firms rated a Buy. In particular, there is no evidence that the most positive errors pertaining to these firms resulted from extreme income-increasing unexpected accruals. Moreover, the most positive forecast errors of firms rated a Sell are actually accompanied by negative unexpected accruals. This is inconsistent with the notion that firms rated a Sell systematically engage in extreme income-increasing accruals to create large positive earnings surprises. In fact, unreported results indicate that the extreme positive unexpected accruals associated with firms rated a Sell observed in figure 3, panel B, are actually associated with negative forecast errors.

²⁰ Results related to H3a and H3b continue to hold when special items are used as a measure of discretion. Like unexpected accruals, special items distributions have longer, fatter negative than positive tails. Observations in this tail are also associated with extremely negative forecast errors, consistent with the intuition that firms with stock prices that are insensitive to current

The empirical evidence presented in this section supports the predictions developed in section 2. Specifically, it indicates that analysts are either unable or unmotivated to forecast firms' earnings management to beat targets and create reserves, leading to predictable associations between unexpected accruals and forecast errors. Furthermore, the evidence suggests that the incentive to manage earnings to meet or beat forecasts increases in the favorableness of stock recommendation, whereas the incentive to take extreme, income-decreasing accruals decreases in the favorableness of stock recommendation.

One distinguishing and particularly valuable feature of our analysis is that it provides a *single* explanation for the *joint* existence of several empirical findings related to both conditional and unconditional distributions of unexpected accruals and forecast errors. Nevertheless, competing explanations uncontrolled for in our analysis may explain some individual results, and combinations of competing explanations may explain other results. We discuss these explanations in the next section.

5. *Competing Explanations for the Empirical Results*

5.1 MISCLASSIFICATION OF NONDISCRETIONARY ACCRUALS AS DISCRETIONARY

The possibility exists that nondiscretionary accruals were systematically misclassified as discretionary in cases of extreme firm performance. That is, these accruals may be "unexpected" as calculated by the Jones Model (and may even be unexpected by the analysts themselves) but are not "discretionary." This is consistent with the fact that firms rated a Sell are characterized by larger and more frequent cases of extreme, negative unexpected accruals.²¹ Similarly, it is possible that misclassification contributes to the finding that mean, median, and percentage positive accruals increase in stock recommendations for the entire distribution of unexpected accruals. Our findings in support of H1 are consistent with the evidence in

earnings news will not hesitate to use discretion with respect to the timing and magnitude of highly visible income-decreasing special items (i.e., they will "throw in the kitchen sink" when performance is so bad that no relevant earnings targets can be met). In contrast, well over 90% of firms in each of the small forecast error intervals examined in table 3 take no special items, suggesting that the use of special items is not a preferred method of inflating earnings to beat forecasts.

²¹ The Jones Model has been the subject of a good deal of criticism in recent years as a result of claims that it tends to misclassify nondiscretionary accruals as discretionary, especially in cases of extreme performance. Much of the evidence against this model relies on an assumption that firms do not manage earnings and randomly end up in the extreme performance tails. Healy [1996] reiterates the cautionary statements in Dechow, Sloan, and Sweeney [1995] and Guay, Kothari, and Watts [1996] that one cannot infer the validity of this model if this assumption is violated. Abarbanell [1999] describes how, if this assumption does not hold and extreme instances of earnings management are present in the data, evidence of "misclassification" may actually be a reflection of the model's effectiveness. Thomas and Zhang [2000], though critical of unexpected accrual models, make a similar point.

McNichols [2000], who reports a positive association between expected growth (which is positively associated with stock recommendations) and both the sign and the magnitude of unexpected accruals. Although McNichols performs no formal tests of misclassification, she interprets this association as evidence of increasing misclassification of nondiscretionary accruals as expected growth increases.

5.2 DIFFERENTIAL TIMELINESS AND CARE IN FORECASTING

An explanation for the observed relation between forecast errors and stock recommendations is that analysts are more timely or more careful with their forecasts of earnings of firms that they rate more favorably. This could explain why the most extreme positive and negative forecast errors are associated with firms rated a Sell (see figure 5). If one combines this argument with the possibility that misclassification of nondiscretionary accruals as discretionary is associated with extreme prior performance, this could explain the correspondence between extreme, negative unexpected accruals and extreme, negative forecast errors for firms rated a Sell (seen in figure 5).²²

The mean (median) number of days since the last earnings revision before the quarter-end is 10(2), 10(2), and 12(3) for Sell, Hold, and Buy recommendation stocks, respectively. These statistics suggest that earnings forecasts for firms rated a Sell are no less timely than those for firms rated a Buy. Similar findings apply to the last earnings forecast issued before the quarter-end (unreported in tables). In addition, we find that the mean (median) number of days since the last recommendation revision is 29(25), 28(24), and 29(26) for Sell, Hold, and Buy recommendation stocks, respectively, suggesting that Sell recommendations are not more stale than Buy recommendations. This evidence provides no obvious indication of possible differences in the timeliness of earnings forecast revisions across the recommendation portfolio, but it is not conclusive.

5.3 ANALYSTS' INTENTIONAL OMISSION OF NONRECURRING ITEMS FROM THEIR FORECASTS

As indicated earlier, our results are qualitatively similar when forecast errors are based on consensus forecasts and actual earnings as reported by Zacks and when one-time items are eliminated from estimated unexpected accruals. Nevertheless, it is possible that forecasts and adjusted unexpected accruals used in our tests are not completely free of these items. In these cases, if analysts had not intended to forecast these items, whether or not firms' recognition of them was discretionary, they could contribute to our finding of a correspondence between extreme, negative forecast errors and

²² It is also possible that Sell firms generate the largest positive and negative forecast errors because they have more variable and, therefore, less predictable earnings. However, we find that the standard deviation of the prior year's earnings changes (a measure of earnings predictability) for firms rated Sells, Holds, and Buys are 0.12, 0.21, and 0.16, respectively, inconsistent with Sell firms' having systematically more variable earnings.

extreme, unexpected accruals predicted in H3a. Furthermore, if our inability to control for these cases is systematically related to the level of recommendation, this could contribute to the finding of an increase in the size of the tail asymmetry in both forecast errors and unexpected accrual distributions, as the favorableness of stock recommendation declines as predicted in H3b.

6. *Reinterpreting Prior Evidence*

6.1 EXPLAINING UNANTICIPATED EVIDENCE FROM THE LITERATURE ON CONTRACTING INCENTIVES

A potential contributing factor in the failure to detect earnings management where it was expected in prior studies is a focus on contracting settings that are uncommon and complex (e.g., financial distress or threat of regulatory intervention). In these settings, it is possible to identify a number of countervailing incentives that managers face—a condition that limits the likelihood that the researcher will detect evidence supporting specific incentives. In addition, the failure to account for firms' reluctance (inclination) to engage in income-decreasing (income-increasing) earnings management when their stock price is highly sensitive to earnings news may further complicate researchers' ability to identify specific types of earnings management behavior that were predicted without regard for this potential sensitivity. In this section, we consider the possible effect of failure to control for equity market incentives on results reported in the literature.

Healy [1985] predicts that managers of firms whose pre-managed earnings cannot be inflated to a level above the minimum necessary to earn bonuses will engage in earnings baths to create slack. However, Holthausen, Larcker, and Sloan [1995], Gaver, Gaver, and Austin [1995], and Guidry, Leone, and Rock [1999] find weak or no evidence that managers take extreme, income-decreasing unexpected accruals when earnings are below the minimum required to earn bonuses. One explanation for why firms do not engage in predicted earnings baths in this setting is that they face incentives related to the equity market that outweigh those involving earnings-based compensation. For example, if compensation is based on both stock and earnings performance, managers may be reluctant to take an earnings bath when they cannot meet the minimum for bonuses because of the threat of bad news earnings surprises that is accompanied by a decline in stock price. This argument suggests that earnings baths may be more likely for firms below the minimum for bonuses when there is little or no stock-based remuneration in the compensation scheme or when other equity market considerations are not binding.

Concerns about adverse equity market reactions to earnings news may also explain the failure to find evidence that firms that violate their debt covenants engage in earnings baths. In fact, DeFond and Jiambalvo [1994] find that when firms violate their debt covenants, they take, on average, *positive* abnormal accruals. Once again, the threat of negative price reactions to bad news earnings surprises may outweigh incentives to take earnings baths even after debt covenants have been violated. This argument suggests

that firms rated Holds and Buys (i.e., firms whose stock price is more sensitive to earnings news) that are in violation of their debt covenants will be less likely to engage in earnings baths than firms rated Sells that are also in violation of such covenants.

The preceding discussion suggests that the failure to control for firms' incentives to manage earnings to meet market expectations may contribute to researchers' inability to find evidence of earnings baths predicted by contracting theories. Given that sample-selection criteria employed in these studies typically lead to inclusion of firms with public equity, the impact of ignoring market earnings expectations is not likely to be trivial.

As an example of the selection-bias problem, consider the findings of DeAngelo, DeAngelo, and Skinner [1994], who examine a sample of firms with persistent losses that cut their dividends. The authors point out: "For troubled firms, i.e., those with persistent earnings problems, extant theories predict managers' accounting choices will be systematically income-increasing" (p. 114). In contrast to their expectation, DeAngelo, DeAngelo, and Skinner find evidence opposite to what would be predicted under contracting theories, that is, firms with poor prior performance that cut their dividends tend to take income-decreasing accruals. They also find no notable differences in negative accruals across firms with and without binding debt covenants, suggesting the irrelevance of contracting incentives in this setting. These seemingly anomalous negative unexpected accruals are readily reconciled in our framework if dividend cuts proxy for low sensitivity of stock price to current earnings news and, hence, constitute an incentive for these firms to take income-decreasing actions to store reserves or payback earnings from previous periods. If so, the earnings management hypothesis suggests that analysts' forecast errors following the dividend cut by firms analyzed by DeAngelo, DeAngelo, and Skinner will be more often negative *ex post* than those of a suitable control group.

6.2 ANALYSTS' INCENTIVES TO INTENTIONALLY BIAS THEIR FORECASTS CONDITIONAL ON THEIR RECOMMENDATIONS

The mean and median forecast errors reported in table 4 are consistent with the findings of Francis and Philbrick [1993] and Finger and Landsman [1998]. Francis and Philbrick argue that when analysts issue negative stock recommendations, they simultaneously inflate their earnings forecasts to placate management.²³ Reclassifying Value Line timeliness

²³ See Lim [2001] for a similar argument. More generally, evidence of mean optimism inferred from analysts' forecast errors has been attributed in previous studies to asymmetric loss functions faced by analysts, cognitive biases that cause them to deliberately inflate their earnings forecasts, as well as to various forms of selection biases in samples (e.g., McNichols and O'Brien [1997], Kim and Lustgarten [1998], Affleck-Graves, Davis, and Mendenhall [1990]). The findings of Keane and Runkle [1998] and Abarbanell and Lehavy [forthcoming] indicate that mean optimism in the cross-section is the result not of a pervasive tendency for forecasts to be negative but rather of the presence of a relatively small number of extremely negative forecasts.

rankings in a manner similar to our Buy, Sell, and Hold recommendation partitions, they show that stocks with low timeliness rankings have, on average, bad news earnings surprises, whereas those with high timeliness rankings display no evidence of bias. Their evidence appears to be consistent with the hypothesis that analysts deliberately slant their forecasts to curry favor from management. Our results suggest a competing explanation for the reported relation between *ex post* negative earnings forecast errors and stock recommendations. Rather than analysts intentionally biasing their forecasts relative to their own recommendations, it is possible that managers manipulate pre-managed earnings as a function of the economic factors reflected in outstanding recommendations in a manner that is not fully anticipated in analysts' forecasts.

6.3 RELATION TO THE EARNINGS EXPECTATIONS MANAGEMENT HYPOTHESIS

The evidence in column 3 of table 3 is consistent with the findings of Burgstahler and Eames [2000], Matsumoto [1999], and Brown [2001]. These studies examine *ex post* forecast errors and find an unexpectedly low frequency of small, negative forecast errors. One benefit of taking into consideration the stock price sensitivity to earnings news evident in both figure 2 and table 3 is that conditioning on outstanding stock recommendations leads to an, albeit imperfect, *ex ante* delineation of which firms in the cross-section are more likely to meet or slightly beat expectations (see columns 4–6 of table 3).

The studies cited above attribute their results all or in part to firms' management of analysts' earnings expectations. If this is the case, it is not surprising that the incentive to manage analysts' expectations to beat forecasts is also increasing in stock recommendations. However, our hypotheses are distinguished from the expectation management hypothesis by the prediction that firms beat forecasts by managing *earnings*, not merely analysts' *expectations*. This represents a competing or contributing explanation for the previously documented asymmetry in the incidence of positive and negative errors near the middle of forecast error distributions. Evidence of no significant differences between the incidence of small positive and small negative forecast errors when these errors are based on pre-managed earnings (table 3, columns 4–7) suggests the possibility that expectation management is an incomplete explanation for the observed asymmetry.

7. Summary and Conclusions

In this article we present evidence that a firm's stock price sensitivity to earnings news, as measured by outstanding stock recommendation, affects its incentives to manage earnings and, in turn, affects analysts' *ex post* forecast errors. In particular, we find a tendency for firms rated a Sell (Buy) to engage more (less) frequently in extreme, income-decreasing earnings

management, indicating that they have relatively stronger (weaker) incentives both to take earnings baths and to increase accounting reserves than other firms. In contrast, firms rated a Buy (Sell) are more (less) likely to engage in earnings management that leaves reported earnings equal to or slightly higher than analysts' forecasts.

Our results suggest the need to revisit interpretations of previous empirical findings from a perspective that considers equity-market-based incentives to manage earnings. Specifically, our work raises questions about conclusions drawn from summary statistics of distributions of forecast errors concerning whether analysts deliberately bias forecasts or underreact to available information. It also raises the possibility that failure to detect the incidence of earnings baths in circumstances predicted by contracting-based theories may be, in part, attributable to a failure to control for incentives related to equity markets.

APPENDIX: CALCULATION OF UNEXPECTED ACCRUALS

Our proxy for firms' earnings management, quarterly unexpected accruals, is calculated using the modified Jones [1991] model (Dechow, Sloan, and Sweeney [1995]); see also Weiss [1999] and Han and Wang [1998] for recent applications of the Jones model to estimate quarterly unexpected accruals. All required data (as well as earnings realizations) are taken from the 1998 Compustat Industrial, Full Coverage, and Research files.

According to this model, unexpected accruals (scaled by lagged total assets) equal the difference between the predicted value of the scaled non-discretionary accruals ($NDAP$) and scaled total accruals (TA). Total accruals are defined as:

$$TA_t = (\Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - DEP_t) / A_{t-1}$$

where:

- ΔCA_t = change in current assets between current and prior quarters
- ΔCL_t = change in current liabilities between current and prior quarters
- $\Delta Cash_t$ = change in cash and cash equivalents between current and prior quarters,
- ΔSTD_t = change in debt included in current liabilities between current and prior quarters
- DEP_t = current-quarter depreciation and amortization expense
- A_t = total assets

The predicted value of nondiscretionary accruals is calculated as:

$$NDAP_t = \alpha_1(1/A_{t-1}) + \alpha_2(\Delta REV_t - \Delta REC_t) + \alpha_3 PPE_t$$

where:

ΔREV_t = change in revenues between current and prior quarters scaled by prior-quarter total assets

ΔREC_t = change in net receivables between current and prior quarters scaled by prior-quarter total assets

PPE_t = gross property plant and equipment scaled by prior-quarter total assets

We estimate the firm-specific parameters, α_1 , α_2 , and α_3 , from the following regression, using firms that have at least 10 quarters of data:

$$TA_{t-1} = a_1(1/A_{t-2}) + a_2\Delta REV_{t-1} + a_3PPE_{t-1} + \varepsilon_{t-1}$$

The modified Jones model resulted in 38,545 firm-quarter measures of quarterly unexpected accruals for all firms in the Zacks recommendations and forecasts database.

REFERENCES

- ABARBANELL, J. "Do Analysts' Earnings Forecasts Incorporate Information in Prior Stock Price Changes?" *Journal of Accounting & Economics* 14 (1991): 147-65.
- ABARBANELL, J. "A Framework for Analyzing Earnings Management: Implications for Stock Prices, Earnings and Analysts' Forecasts Errors" Working paper, University of North Carolina, 1999.
- ABARBANELL, J., AND R. LEHAVY. "Biased Forecast or Biased Earnings: The Role of Earnings Management in Explaining Apparent Optimism and Inefficiency in Analysts' Forecast Errors." *Journal of Accounting and Economics*: Forthcoming.
- ABARBANELL, J., AND R. LEHAVY. "Differences in Commercial Database Reported Earnings: Implications for Empirical Research." Working paper, University of North Carolina and University of California-Berkeley, 2002.
- AFFLECK-GRAVES, J.; L. DAVIS; AND R. MENDENHALL. "Forecasts of Earnings Per Share: Possible Sources of Analysts' Superiority and Bias." *Contemporary Accounting Research* 7 (1990): 501-17.
- BABER, W., AND S. KANG. "Stock Price Reactions to On-Target Earnings Announcements Implications for Earnings Management." Working paper, George Washington University, 2001.
- BARBER, B.; R. LEHAVY; M. McNICHOLS; AND B. TRUEMAN. "Can Investors Profit from the Prophets? Security Analyst Recommendations and Stock Returns." *Journal of Finance* 56 (2001): 531-63.
- BROWN, L. "A Temporal Analysis of Earnings Surprises: Profits versus Losses." *Journal of Accounting Research* 39 (2001): 221-41.
- BURGSTALLER, D., AND M. EAMES. "Management of Earnings and Analyst Forecasts." Working paper, Washington University, 2000.
- CONRAD, J.; B. CORNELL; AND W. LANDSMAN. "When Is Bad News Really Bad News?" *Journal of Finance* 57 (December 2002): 2507-32.
- DANIEL, K.; D. HIRSHLEIFER; AND A. SUBRAMANYAM. "Investor Psychology and Security Market Under- and Overreaction." *Journal of Finance* 53 (1998): 1839-85.
- DEANGELO, H.; L. DEANGELO; AND D. SKINNER. "Accounting Choice in Troubled Companies." *Journal of Accounting and Economics* 17 (1994): 113-43.
- DECHOW, P.; J. SABINO; AND R. SLOAN. "Implications of Non-Discretionary Accruals for Earnings Management and Market-Based Research." Working paper, University of Michigan, 1997.
- DECHOW, P., AND D. SKINNER. "Earnings Management: Reconciling the Views of Accounting Academics, Practitioners, and Regulators." *Accounting Horizons* (2000): 235-50.

- DECHOW, P.; R. SLOAN; AND A. SWEENEY. "Detecting Earnings Management." *Accounting Review* 70 (1995): 193–225.
- DEFOND, M., AND J. JIAMBALVO. "Debt Covenant Violation and Manipulation of Accruals." *Journal of Accounting & Economics* 17 (1994): 145–76.
- DEGEORGE, F.; J. PATEL; AND R. ZECKHAUSER. "Earnings Management to Exceed Thresholds." *Journal of Business* 72 (1999) 1–33.
- DHALIWAL, D.; K. LEE; AND N. FARGHER. "The Association Between Unexpected Earnings and Abnormal Security Returns in the Presence of Financial Leverage." *Contemporary Accounting Research* (1991): 20–41.
- DHALIWAL, D., AND S. REYNOLDS. "The Effect of the Default Risk of Debt on the Earnings Response Coefficient." *The Accounting Review* (1994): 412–19.
- DYE, R. "Earnings Management in an Overlapping Generations Model." *Journal of Accounting Research* 26 (1988): 195–235.
- FINGER, C., AND W. LANDSMAN. "What Do Analysts' Stock Recommendations Really Mean?" Working paper, University of North Carolina, 1998.
- FISCHER, P., AND R. VERRECCHIA. "Reporting Bias." Working paper, University of Pennsylvania, 2000.
- FRANCIS, J., AND D. PHILBRICK. "Analysts' Decisions as Products of a Multi-Task Environment." *Journal of Accounting Research* 31 (1993): 216–30.
- GAVER, J.; K. GAVER; AND J. AUSTIN. "Additional Evidence on Bonus Plans and Income Management." *Journal of Accounting & Economics* 19 (1995): 3–28.
- GUAY, W.; S. P. KOTHARI; AND R. WATTS. "A Market-Based Evaluation of Discretionary Accruals Models." *Journal of Accounting Research* (Supplement 1996): 86–105.
- GUIDRY, F.; A. LEONE; AND S. ROCK. "Earnings-Based Bonus Plans and Earnings Management by Business-Unit Managers." *Journal of Accounting & Economics* 26 (1999): 113–42.
- HAGIN, R. "The Torpedo Effect: The Subtle Risk of High Expected Growth." Working paper, 1991.
- HAN, J., AND S. WANG. "Political Costs and Earnings Management of Oil Companies During the 1990 Persian Gulf Crisis." *The Accounting Review* 73 (1998): 103–18.
- HANNA, D. "Analysts' Earnings Forecasts and the Recognition of Special Items." Working paper, University of Chicago, 1999.
- HEALY, P. "The Effect of Bonus Schemes on Accounting Choices." *Journal of Accounting & Economics* 7 (1985): 85–107.
- HEALY, P. "Discussion of a Market-Based Evaluation of Discretionary Accruals Models." *Journal of Accounting Research* (Supplement 1996): 107–15.
- HEALY, P., AND J. WAHLEN. "A Review of the Earnings Management Literature and Its Implications for Standard Setting." *Accounting Horizons* 13 (1999): 365–83.
- HOLTHAUSEN, R.; D. LARCKER; AND R. SLOAN. "Annual Bonus Schemes and the Manipulation of Earnings." *Journal of Accounting & Economics* 19 (1995): 29–74.
- HRIBAR, P., AND D. COLLINS. "Errors in Estimating Accruals: Implications for Empirical Research." *Journal of Accounting Research* 40 (2002): 105–34.
- HWANG, L., AND S. RYAN. "The Varied Nature and Pricing Implications of Discretionary Behavior: Big Baths, Loss Avoidance, and Sugarbawling." Working paper, New York University, 2000.
- JEGADEESH, N.; J. KIM; S. KRISCHE; AND C. LEE. "Analyzing the analysts: When do recommendations add value?" working paper, Cornell University, 2002.
- JONES, J. "Earnings Management During Import Relief Investigations." *Journal of Accounting Research* 29 (1991): 193–228.
- KANG, S. H., AND K. SIVARAMAKRISHNAN. "Issues in Testing Earnings Management and an Instrumental Variable Approach." *Journal of Accounting Research* (1995): 353–68.
- KEANE, M., AND D. RUNKLE. "Are Financial Analysts' Forecasts of Corporate Profits Rational?" *Journal of Political Economy* 106 (1998): 768–805.
- KIM, C., AND S. LUSTGARTEN. "Broker-Analysts' Trade-Boosting Incentive and Their Earnings Forecast Bias." Working paper, Queens College of CUNY, 1998.
- KIRSCHENHEITER, M., AND N. MELUMAD. "Can 'Big Bath' and Earnings Smoothing Coexist as Equilibrium Financial Reporting Strategies?" *Journal of Accounting Research* 40 (2002): 761–96.

- LEVITT, A. "The Numbers Game." Remarks at NYU Center for Law and Business, 1998.
- LIM, T. "Rationality and Analysts' Forecast Bias." *Journal of Finance* 56 (2000): 369–85.
- MATSUMOTO, D. "Management's Incentives to Influence Analysts' Forecasts." Working paper, University of Washington, 1999.
- McNICHOLS, M. "Research Design Issues in Earnings Management Studies." *Journal of Accounting and Public Policy* 19 (2000): 313–45.
- McNICHOLS, M., AND P. O'BRIEN. "Self-Selection and Analyst Coverage." *Journal of Accounting Research* 35 (1997): 167–208.
- REES, L.; S. GILL; AND R. GORE. "An Investigation of Asset Write-Downs and Concurrent Abnormal Accruals." *Journal of Accounting Research* (Supplement 1996): 157–69.
- SKINNER D., AND SLOAN, R. "Earnings Surprises, Growth Expectations, and Stock Returns or Don't Let an Earnings Torpedo Sink Your Portfolio." *Review of Accounting Studies* 7 (June 2002): 289–312(24).
- STICKEL, S. "The Anatomy of the Performance of Buy and Sell Recommendations." *Financial Analysts Journal* 51 (1995): 25–39.
- STICKEL, S. "The Financial Characteristics of Wall Street Darlings and Dogs." Working paper, La Salle University, 2001.
- SUBRAMANYAM, K. "The Pricing of Discretionary Accruals." *Journal of Accounting & Economics* 22 (1996): 250–81.
- SUBRAMANYAM, K. R., AND J. WILD. "Going-Concern Status, Earnings Persistence, and Informativeness of Earnings." *Contemporary Accounting Research* 13 (1996): 251–74.
- TEOH, S., AND T. J. WONG. "Analysts' Credulity about Reported Earnings and Overoptimism in New Equity Issues." Working paper, University of Iowa, 1997.
- THOMAS, J., AND X. J. ZHANG. "Identifying Unexpected Accruals: A Comparison of Current Approaches." *Journal of Accounting and Public Policy* 19 (2000): 347–76.
- VERONESI, P. "Stock Market Overreaction to Bad News in Good Times: A Rational Expectations Equilibrium Model." *Review of Financial Studies* 12 (1999): 975–1007.
- VERRECCHIA, R. "Managerial Discretion in the Choice Among Financial Reporting Alternatives." *Journal of Accounting & Economics* 8 (1986): 175–95.
- WEISS, I. "Earnings Management in Response to a Transitory Earnings Shock." Working paper, University of Chicago, 1999.
- WOMACK, K. "Do Brokerage Analysts' Recommendations Have Investment Value?" *Journal of Finance* 51 (1996): 137–67.

