Earnings Predictability And Broker-Analysts' Earnings Forecast Bias

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ABSTRACT

Scholars have reasoned that analysts issue optimistic forecasts to improve their access to managers' private information when earnings are unpredictable. While this requires a managerial preference for analyst forecast optimism, the observed walk-down of analyst expectations to beatable forecasts is consistent with a managerial preference for pessimism in short-horizon forecasts. Using data from various sample periods, alternative model specifications, and various measures of earnings unpredictability, we find that pessimism, not optimism, in short-horizon forecasts is associated with increasingly unpredictable earnings. Our results suggest that firms can more effectively manage analysts' earnings expectations downward when earnings are relatively unpredictable.

Keywords: Earnings Predictability; Earnings Forecast Bias

INTRODUCTION

The management relations hypothesis (Francis & Philbrick 1993) suggests that analysts incorporate intentional optimism in their earnings forecasts in order to curry favor with managers and facilitate their access to managers' private information. Consistent with this hypothesis, Ackert and Athanassakos (1997); Das, Levine, and Sivaramakrishnan (1998); and Lim (2001) find a positive association between earnings forecast optimism and earnings unpredictability. We question the veracity of the management relations hypothesis and its assumption that managers prefer optimistic earnings forecasts. Research shows that managers prefer pessimistic forecasts to avoid the negative earnings surprises which inevitably follow optimistic earnings forecasts (Bartov, Givoly & Hayn 2002; Matsumoto, 2002; Richardson, Teoh & Wysocki 2004).

Due to the relative paucity of other information, analysts covering firms with more uncertain earnings are more susceptible to following managements' earnings guidance. Managers of such firms should be more able and likely to guide analyst forecasts downward to beatable targets, especially late in the period. Thus, in contrast with prior studies arguing for the management relations hypothesis, we contend that relatively greater forecast pessimism, rather than optimism, should be associated with more unpredictable earnings. We further anticipate that greater forecast pessimism for firms with more unpredictable earnings is even more likely in the current environment characterized by considerable management earnings guidance and regulatory limits on the selective dissemination of managers' private information among the analyst population. Previously the selective dissemination of managers' information provided a cornerstone of the management relations hypothesis. Current limits on this selective dissemination of information provide all the more reason to not expect a positive association between forecast optimism and earnings unpredictability.

Lim (2001), presents evidence of broker-analysts' short-horizon quarterly-earnings forecast optimism in association with unpredictable earnings for the period from 1984 to 1996. At this horizon managers are deemed to be particularly prone to preferring forecast pessimism in order to avoid negative earnings surprises at earnings announcements (Bartov et al. 2002, Brown 2001, Matsumoto 2002, Richardson et al. 2004). To revisit the association of earnings predictability with short-horizon earnings forecast bias, we initially follow Lim's (2001) regression model and measure of earnings unpredictability. Lim's measure of earnings unpredictability is strongly impacted by the firm-specific value relevance of earnings, which is not necessarily associated with uncertainty in the earnings value itself. We thus consider a potentially better proxy for earnings unpredictability, available from Value Line. Considering the evidence that forecast optimism/pessimism is associated with earnings levels (e.g., Eames &

Glover 2003), we also introduce controls for actual earnings and, as suggested by Gu (2004), forecasted earnings.

Using the regression specification and earnings unpredictability measure in Lim (2001), we obtain mixed results. We find a positive association between analyst forecast optimism and earnings unpredictability for the sample period from 1984 to 1996 (Lim's original sample period), but find an insignificant association between the two in more recent periods. When we control for actual earnings or forecasted earnings and/or employ a better measure of earnings predictability (i.e., the Value Line measure of unpredictability), however, we persistently find that more unpredictable earnings are associated with earnings forecast pessimism. Our evidence is particularly prevalent for sample periods including years after 1996, i.e., years subject to the Public Securities Litigation Reform Act of 1995 and then to Regulation FD after 2000.

Our study informs the debate on managerial preferences for analyst forecast optimism vs. pessimism and adds to our understanding of sources of analyst forecast bias. Our results are consistent with managers preferring forecast pessimism for short-horizon quarterly earnings forecasts, and inconsistent with the views that managers prefer forecast optimism and analysts intentionally increase their earnings forecast optimism at this horizon in response to increasingly unpredictable earnings. Our study also adds to the literature that examines the consequences of unpredictable earnings and contributes to the literature on expectations management. Prior studies (Bartov et al. 2002; Matsumoto 2002; Richardson et al. 2004) suggest that managers who voluntarily disseminate information regarding earnings expectations often deliberately attempt to affect analysts' earnings forecasts in order to meet or beat analysts' earnings targets. Cotter, Tuna, and Wysocki (2006) and Baik and Jiang (2006) argue that management earnings forecasts, an explicit form of management guidance, are used for expectations management. Our results are consistent with earnings predictability having an important role in expectations management, with firms being able to more effectively manage analysts' earnings expectations downward when earnings are relatively unpredictable.

Finally, our study adds to recent evidence that analysts piggyback their recommendations (Altınkılıç & Hansen 2009; Loh & Stulz 2011) and earnings forecasts (Altınkılıç, Balashov & Hansen 2013) on recent news and events. These studies suggest that analysts' reports do not provide new information. Kim and Song (2014) show that analysts piggyback their forecasts on earnings guidance issued late in the fiscal quarter. Our evidence of analysts' issuing pessimistic forecasts for firms with unpredictable earnings suggests that analysts rely more heavily on management guidance when earnings are unpredictable, which is consistent with the recently advanced piggybacking hypothesis.

RESEARCH AND ISSUES

Analysts' earnings forecast optimism has been variously ascribed to the over (under) reaction of analysts to prior earnings increases (decreases) (Easterwood & Nutt 1999), enhancement of brokerage firm investment banking relationships (Dugar & Nathan 1995; Lin & McNichols 1998), efforts to increase trading volume and commissions (Jackson 2005; Cowen, Groysberg & Healy 2006; Beyer & Guttman 2011), analysts' decisions to terminate coverage of poorly performing firms (McNichols & O'Brien 1997; Scherbina 2008), propinquity impacts or analysts falling in love with the stocks they follow (Clayman & Schwartz 1994), analysts' efforts to obtain greater forecast accuracy when the earnings distribution is skewed (Gu & Wu 2003), enhanced analyst career outcomes (Hong & Kubik 2003; Ke & Yu 2006), and analysts desire for greater access to managers' private information when earnings are less predictable (e.g., Ackert & Athanassakos 1997; Das et al. 1998; Lim 2001). The association between earnings predictability and earnings forecast optimism has also been argued to be a rational response to the analysts' information environment, where managers are a key source of nonpublic information and prefer optimistic earnings forecasts because these support higher capital market valuations and, hence, compensation levels. Increasingly unpredictable earnings are said to enhance the importance of analysts gaining individual access to managers' private information and consequently induce analysts to intentional forecast optimism in order to gain access to this private information. This argument is an extension of the, "management relations hypothesis," first proposed by Francis and Philbrick (1993), which asserts that analysts intentionally issue earnings forecasts that exceed their true expectations in order to counter the negative impact of an unfavorable recommendation, curry favor with managers, and consequently gain, or at least limit the loss of, access to managers' private information.

Prior research considering the association between earnings predictability and earnings forecast optimism has approached this issue in varying manners. Ackert and Athanassakos (1997) consider I/B/E/S analysts' consensus annual earnings forecast optimism by month over the 19 months preceding the fiscal year end and measure earnings uncertainty as the standard deviation of the individual analysts' earnings forecasts as of June of the year before the earnings forecast. They find a positive association between earnings uncertainty and analysts' forecast optimism at all their monthly incremented forecast horizons out to 19 months. Das, et al. (1998) measure Value Line analysts' annual earnings forecast optimism as the average bias over a five-year period and find greater annual forecast optimism when earnings are less predictable, as determined by both their time series model derived measure of earnings predictability and the Value Line earnings predictability measure. Eames and Glover (2003) introduce controls for the level of earnings and find no significant association between Value Line first quarter reported forecasts of annual earnings and Value Line's earnings predictability measure. Lim (2001) considers broker-analyst quarterly earnings forecasts. Unlike the previous studies, Lim (2001) focuses on short-horizon forecasts by constructing a consensus earnings forecast based on the median of analysts' latest forecasts issued no more than 90 days prior to quarter end and uses a returns based model to measure earnings predictability. He finds that more unpredictable earnings are associated with more optimistic analyst earnings forecasts.

Research suggests, however, that issuing intentionally optimistic earnings forecasts is *not* always an effective means for pleasing managers. Ke and Yu (2006) and Richardson et al. (2004) suggest that managers prefer initial forecast optimism followed by pessimistic forecasts immediately before the earnings announcements. Pessimistic forecasts and subsequently meeting or beating analysts' earnings expectations have been linked with positive market responses (Bartov et al. 2002; Kinney, Burgstahler & Martin 2002; Kasznick & McNichols 2002; Lopez & Rees 2002; Skinner & Sloan 2002). Matsumoto (2002) argues that managers prefer pessimistic forecasts to avoid adverse market reactions to negative earnings surprises and provides evidence that firms guide analyst forecasts downward to avoid missing expectations. We argue that with more unpredictable earnings analysts will not necessarily increase their forecast optimism and they will be more susceptible to following management guidance of earnings due to the relative paucity of other information.[1] Consequently, managers will be more able and likely to guide analysts' forecasts downward to greater pessimism. Thus, in contrast with the arguments relating low earnings predictability and analyst forecast optimism, we anticipate that unpredictable earnings will contribute to greater relative forecast pessimism for short-horizon forecasts.[2]

The preceding studies investigating analyst forecast errors and earnings predictability reflect sample periods ending no later than 1996. The Private Securities Litigation Reform Act of 1995 and Regulation FD have substantially changed the analysts' information environment from most or all of the years covered in these earlier studies. On December 22, 1995, with an immediate effective date, the U.S. Congress passed the Private Securities Litigation Reform Act of 1995 in order to establish certain safeguards for executives issuing performance forecasts. The law made it easier and safer for companies and executives to provide forward-looking guidance to the markets. In response, the number of firms providing earnings guidance has risen dramatically (Kim & Park 2012). Since October of 2000, Regulation FD has prohibited managers from selectively distributing their private information among market participants. Previously, this analyst specific distribution was argued to be the motivating link between earnings unpredictability and earnings forecast optimism. While recent studies (e.g., Soltes, 2014; Green, Jame, Markov & Subasi 2014) suggest that analysts' private access to managements' information has continued after Regulation FD, Regulation FD has certainly made such access more difficult and costly, and thus less likely to contribute to a positive association between earnings forecast optimism and earnings unpredictability, as previously observed by Ackert and Athanassakos (1997), Das et al. (1998) and Lim (2001). With these substantial changes in the analysts' information environment and evidence that firms prefer short-horizon forecast pessimism, the

[1] Ciconte, Kirk, and Tucker (2013) find that managers' true expectations are close to the upper bound of their range forecasts, while analysts tend to focus on the midpoint, and note that this contributes to analyst pessimism. Tang, Zarowin, and Zhang (2015) find that analysts place significantly more (less) weight on the lower (upper) bound of forecast ranges. Due to the potential for strategic behavior in these range forecasts and Du, Budescu, Shelly, Omer (2011) finding that the range width is not a good proxy for earnings uncertainty, we focus on alternative measures of earnings predictability in our analyses.

[2] Ke and Yu (2006) find that the shift from early forecast optimism to late forecast pessimism is associated with more accurate forecasts and this relation is more pronounced for harder-to-forecast earnings. It is unclear from the results in Ke and Yu (2006), however, whether optimism even in forecasts late in the fiscal period may lead to more accurate forecasts. In addition, the Ke and Yu (2006) results are largely driven by forecasts of annual earnings.

previously observed association between unpredictable earnings and analysts' earnings forecast optimism warrants another look. We focus on short-horizon quarterly earnings forecasts and consider the association between earnings predictability and broker-analyst quarterly earnings forecast bias in periods prior and subsequent to the Private Securities Litigation Reform Act of 1995 and Regulation FD.

With the perceived managerial preference for analyst forecast pessimism noted above, in an information environment characterized by management earnings forecasts and the guidance they entail, we argue that analysts are more susceptible to following this guidance when earnings are less predictable. Consequently, we anticipate a positive association between broker-analysts' short-horizon earnings forecast pessimism and earnings unpredictability and that this association could be more pronounced after the Private Securities Litigation Reform Act of 1995 and Regulation FD.

RESEARCH METHODS

Empirical Model and Measurements

Focusing on broker-analysts' short-horizon quarterly earnings forecasts as per Lim (2001), we begin by employing his measure of earnings predictability and regression model. Omitting firm and quarter subscripts for brevity, we have[3]:

$$\text{BIAS} = \beta 0 + \beta 1\text{SIZE} + \beta 2\text{EARNINGS PREDICT} + \beta 3\text{PREBIAS} + \beta 4\text{ALPHA}\ \beta 5\text{DQ4} + \varepsilon \quad (1)$$

In the remainder of this section we define the variables and describe their measurement. The Appendix summarizes definitions of the variables.

Forecast bias (BIAS) is the consensus forecast less I/B/E/S reported earnings per share, scaled by stock price. We construct our consensus forecast measure as the median across all analysts of their latest earnings forecasts issued no more than 90 days prior to quarter end. Because we obtain data from a broad range of firms, we scale the forecast bias by the share price 12 months prior to the start of the quarter.

We measure firm size (SIZE) as the natural logarithm of the market capitalization 12 months prior to the beginning of the quarter, where the market capitalization (i.e. share price x shares outstanding) is from the Center for Research in Security Prices (CRSP). Firm size proxies for the amount of public and private information available on a firm (Atiase 1987), which implies smaller forecast errors and greater earnings predictability for larger firms.

We initially employ Lim's (2001) proxy (SIGMA) for earnings predictability. SIGMA equals, "the standard deviation of the residuals from a market model regression of weekly returns on weekly value-weighted market returns, over the year ending at the beginning of the quarter." (Lim 2001) Thus greater SIGMA values are deemed to be reflective of less predictable earnings. However, SIGMA also reflects idiosyncratic returns variability which may be only weakly linked to earnings uncertainty. It appears that this measure of uncertainty is strongly impacted by the firm-specific value relevance of earnings, which might not be associated with the uncertainty inherent in the earnings value itself. Thus we also consider Value Line's ValuGauge Relative Position, a proprietary measure of earnings predictability, as an alternative measure of earnings predictability. Value Line determines this value based on the standard deviation of the percentage change in quarterly earnings from one year to the next, over the preceding eight years, with the most recent years weighted more heavily than earlier years. Value Line makes special proprietary adjustments for comparisons around zero earnings and when the sign of earnings changes (Value Line 2000, Value Line 2001). Value Line ranks the computed measures, from one to nearly 1,600, where the least stable earnings stream receives a value near 1,600 and the most stable earnings stream receives a value of one. This ranking, termed the ValuGauge Relative Position, is available in the Value Line estimates file. Because of the

[3] In ancillary regressions, Lim (2001) also includes control variables for the level of analyst coverage and book to price. Although not tabulated in this paper, when we include these variables in our model there is no material impact on our reported results. To address the issue of serial correlation in the errors, Lim (2001) computes coefficient estimates as the average of annually computed coefficient estimates. We base our significance testing on two-way clustering of standard errors by firm and quarter (Petersen 2009) but draw the same conclusions when we follow Lim's procedure.

relatively large magnitude of this measure, we employ VLPRED, equal to the ValuGauge Relative Position divided by 1000, to make the magnitude of the coefficient estimates comparable to those for the other variables.[4] Das et al. (1998) show that this Value Line measure of earnings predictability has greater explanatory power than the alternative earnings predictability measures they derive from earnings time-series models. Luttman and Silhan (1995) show that this Value Line earnings predictability measure is inversely related to subsequent absolute Value Line forecast accuracy, confirming the efficacy of this measure of earnings predictability.

Hong, Lim, and Stein (2000) find that stock price momentum effects are stronger and more persistent for poor performers, indicating that bad news diffuses more slowly than good news. Lim (2001) anticipates, "greater earnings uncertainty when companies are sitting on bad news, as managers tend to be less forthcoming," and suggests that, "after past earnings disappointments or stock price declines analysts would want to report more positively biased forecasts and appear to not fully revise their earnings forecasts downward." We control for forecast bias in the previous period (PREBIAS) and measure it as the one-quarter lag of BIAS.

ALPHA is the intercept from a market model regression of weekly stock returns on weekly value-weighted market returns, over the year ending at the beginning of the quarter. Bad news is associated with a negative ALPHA. Lim (2001) asserts that analysts will want to report more positively biased forecasts in instances of stock price declines (negative ALPHA), and they will not fully revise their earnings estimates downward. Lim (2001) anticipates and subsequently obtains a negative coefficient estimate for ALPHA.

DQ4 is a dummy variable indicating the fourth fiscal quarter. Forecast bias could systematically differ in the fourth quarter if incentives to achieve annual earnings targets differ from incentives to achieve quarterly targets.[5]

Prior studies show that forecast bias varies with the level of earnings (e.g., Butler & Saraoglu 1999, Brown 2001). Eames and Glover (2003) find that earnings are least predictable when earnings are extreme. Thus, the level of earnings can be an important correlated variable that contributes to the association between forecast bias and earnings unpredictability (Eames, Glover & Kennedy 2002; Eames & Glover 2003). We estimate the association between forecast bias and earnings predictability both with and without including earnings level as an additional control variable. In an alternative specification, we control for the consensus forecast in place of actual earnings. Gu (2004) argues that a study of forecast efficiency with forecast errors as the dependent variable should not control for ex-post actual earnings and suggests the use of forecasts in place of actual earnings as the forecast is an ex-ante variable.[6]

Data and Sample Selection

We obtain broker-analyst earnings per share (EPS) forecasts from the Institutional Brokers' Estimate System (I/B/E/S) detail tape. We initially focus on I/B/E/S reported individual analyst forecasts of quarterly earnings for fiscal periods from the first quarter of 1984 to the fourth quarter of 1996 (the sample period examined in Lim (2001)), but then extend our sample through 2007 and break the post 1996 portion of our sample into pre and post Regulation FD subperiods. We calculate forecast bias by comparing forecast and actual earnings per share values from I/B/E/S.[7] To avoid biases associated with the use of adjusted I/B/E/S data (e.g., Payne & Thomas 2003), we

[4] We recognize that earnings time series models are commonly considered for assessing earnings predictability (e.g. Dichev and Tang 2009). These models are conceptually problematic, however, in assessing analysts' ability to predict earnings, because the models incorporate a more limited set of information than is available to analysts.

[5] As an extension of the Lim (2001) model, we also consider whether the association of earnings forecast bias and earnings predictability is systematically different for fourth quarter forecasts, by inclusion of the interaction term EARNINGS PREDICT * DQ4. We invariably find the coefficient estimate for this term to be non-significant and thus do not include these coefficient estimates in our tabulated results.

[6] Given institutional differences between Value Line and broker analysts and differing implications for long- and short-horizon forecasts, our study differs from Eames and Glover (2003) who examine the relation between long-horizon forecast bias and earnings unpredictability using annual Value Line earnings forecasts while controlling for earnings level.

[7] I/B/E/S reported forecasts include or exclude nonrecurring earnings items in a manner consistent with the treatment by the majority of analysts following a firm. I/B/E/S reports actual earnings values in a manner consistent with that for forecasts. Analysts typically exclude nonrecurring items from their forecasts so reported forecasts and earnings commonly exclude these items. While COMPUSTAT reports special items and earnings values that exclude extraordinary items, there is no certainty that COMPUSTAT and analysts' identifications of such nonrecurring items are equivalent. Thus, by using IBES forecasts and actuals we minimize measurement error in our forecasted earnings measurement.

employ unadjusted I/B/E/S actual and forecast EPS values. To limit the effect of outliers, we follow Lim and exclude the top and bottom 2.5% most extreme forecast bias observations, as well as observations with a stock price less than 5 dollars, and the top and bottom 1% most extreme values of Lim's earnings predictability measure (SIGMA) and stock price performance measure (ALPHA).[8] Our final sample consists of 182,367 firm-quarter observations through 2007. Table 1 presents sample observations by year. Sample sizes for individual years range from a low of 1,709 observations in 1984 to a high of 10,899 observations in 2006.

Table 1. Sample distribution by calendar year of the fiscal period end

Year	Frequency	Percent
1984	1,709	0.94
1985	2,667	1.46
1986	3,269	1.79
1987	3,375	1.85
1988	4,053	2.22
1989	4,698	2.58
1990	5,380	2.95
1991	5,926	3.25
1992	5,984	3.28
1993	6,854	3.76
1994	8,847	4.85
1995	9,679	5.31
1996	10,014	5.49
1997	10,830	5.94
1998	11,300	6.20
1999	10,580	5.80
2000	7,924	4.35
2001	8,744	4.79
2002	9,289	5.09
2003	9,474	5.20
2004	9,465	5.19
2005	10,694	5.86
2006	10,899	5.98
2007	10,713	5.87
Total	182,367	100.00

The sample consists of 182,367 firm-quarter observations from the first quarter of 1984 to the fourth quarter of 2007. To limit the effect of outliers, we follow LIM and exclude the top and bottom 2.5% most extreme forecast bias observations, as well as observations with a stock price less than 5 dollars, and the top and bottom 1% most extreme values of SIGMA and ALPHA.

RESULTS

Summary Statistics

Table 2 Panel A presents descriptive statistics of our variables for the 1984-1996 and 1984-2007 sample periods. A review of these statistics suggests reasonable consistency between the two sample periods. Panels B and C of this table present Pearson correlations and significance levels for the 1984-1996 and 1984-2007 sample periods, respectively. Consistent with LIM, for both sample periods, we find a positive and significant association between BIAS and SIGMA, consistent with a positive association between earnings forecast optimism and unpredictable earnings. We find that earnings are significantly negatively associated with both SIGMA and BIAS. In addition, when we divide the sample at the median level of earnings, untabulated results show a significantly negative (positive) association between BIAS and SIGMA in firms with earnings above (below) the sample median. These

[8] See Appendix for variable definitions.

results suggest that earnings level is likely to be an important correlated omitted variable in examining the relation between forecast bias and earnings predictability.

Table 2. Descriptive statistics and correlations

Panel A: Descriptive statistics

Variable	N	Mean	Median	Std Dev	25th Pctl	75th Pctl
1984-1996						
BIAS	73,815	0.0010	0	0.0063	-0.0016	0.0021
SIZE	73,815	5.9403	5.7808	1.5803	4.7524	7.0066
SIGMA	73,815	0.0454	0.0414	0.0191	0.0306	0.0566
PREBIAS	73,815	0.0008	0	0.0062	-0.0017	0.0021
ALPHA	73,815	0.0006	0.0008	0.0060	-0.0028	0.0042
DQ4	73,815	0.2627	0	0.4401	0	1
Earnings	73,815	0.0175	0.0176	0.0177	0.0098	0.0263
Forecast	73,815	0.0185	0.0181	0.0161	0.0111	0.0263
1984-2007						
BIAS	182,367	0.0001	-0.0003	0.0046	-0.0016	0.0009
SIZE	182,367	6.3474	6.2052	1.6510	5.1482	7.3811
SIGMA	182,367	0.0506	0.0447	0.0247	0.0320	0.0633
PREBIAS	182,367	0.0000	-0.0003	0.0045	-0.0017	0.0009
ALPHA	182,367	0.0008	0.0009	0.0070	-0.0031	0.0048
DQ4	182,367	0.2532	0	0.4348	0	1
Earnings	182,367	0.0146	0.0152	0.0178	0.0075	0.0231
Forecast	182,367	0.0147	0.0152	0.0169	0.0079	0.0227

The total observations for the 1984-1996 period does not agree to the 72,455 observations for this period in Table 1. This discrepancy results from trimming observations in each sample period based only on observations in the period. All variables are defined in the appendix.

Panel B: Pearson correlations for the 1984-1996 sample period

	BIAS	SIZE	SIGMA	PREBIAS	ALPHA	DQ4	Earnings	Forecast
BIAS	1							
SIZE	-0.0969	1						
	(<.0001)							
SIGMA	0.0805	-0.4839	1					
	(<.0001)	(<.0001)						
PREBIAS	0.2594	-0.0854	0.0800	1				
	(<.0001)	(<.0001)	(<.0001)					
ALPHA	-0.1187	-0.0900	-0.1022	-0.1692	1			
	(<.0001)	(<.0001)	(<.0001)	(<.0001)				
DQ4	0.0223	-0.0048	0.0033	0.0037	0.0001	1		
	(<.0001)	(0.1897)	(0.3655)	(0.3122)	(0.9721)			
Earnings	-0.4135	0.0564	-0.2924	-0.2265	0.3478	0.0147	1	
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)		
Forecast	-0.0648	0.0242	-0.2891	-0.1474	0.3351	0.0248	0.9354	1
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	

P values are presented in parentheses. All variables are defined in the appendix.

(Table 2 continued on next page)

(Table 2 continued)

Panel C: Pearson correlations for the 1984-2007 sample period

	BIAS	SIZE	SIGMA	PREBIAS	ALPHA	DQ4	Earnings	Forecast
BIAS	1							
SIZE	-0.0805	1						
	(<.0001)							
SIGMA	0.0241	-0.3182	1					
	(<.0001)	(<.0001)						
PREBIAS	0.2353	-0.0684	0.0199	1				
	(<.0001)	(<.0001)	(<.0001)					
ALPHA	-0.1105	-0.0744	-0.0643	-0.1516	1			
	(<.0001)	(<.0001)	(<.0001)	(<.0001)				
DQ4	0.0187	-0.0023	-0.0083	0.0069	0.0049	1		
	(<.0001)	(0.3343)	(0.0004)	(0.0031)	(0.0380)			
Earnings	-0.3180	0.0230	-0.3319	-0.1834	0.3125	0.0260	1	
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)		
Forecast	-0.0643	0.0024	-0.3429	-0.1294	0.2991	0.0324	0.9666	1
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	

P values are presented in parentheses. All variables are defined in the appendix.

Regression Results

Table 3 presents our regression results for a number of sample periods.[9] Because the residuals can be correlated over firms and time, for all regressions we report test statistics and significance levels based on standard errors adjusted by two-dimensional clustering at the firm and quarter levels (Petersen 2009). For the sample period used by Lim, 1984-1996, our coefficient estimate for SIGMA is positive and significant ($p = 0.037$), indicating greater analyst forecast optimism in association with increasingly unpredictable earnings, which is consistent with Lim's findings. For the period 1984-2007 the coefficient on SIGMA is negative and only modestly significant ($p = 0.072$), suggesting increasing forecast pessimism with increasingly unpredictable earnings.[10] Thus when the sample period is extended to incorporate periods subject to the Private Securities Litigation Reform Act of 1995 and Regulation FD, contrary to the prior results, we obtain a positive association between earnings unpredictability and short-horizon analyst forecast pessimism. To consider the impact of the Private Securities Litigation Reform Act of 1995 we estimate equation (1) for the periods 1996-2000 and 1997-2000. Finding substantially identical results for these periods, we report only the latter in Table 3. Here we find a non-significant coefficient estimate for SIGMA. Thus, in the short period subsequent to the Private Securities Litigation Reform Act of 1995 and prior to the adoption of Regulation FD the previously identified positive association between earnings forecast optimism and earnings unpredictability no longer holds.

Coefficient estimates for the remaining independent variables for the three sample periods are consistent with those presented in Lim. Interestingly for the sample periods 1984-1996 and 1984-2007, when we include the interaction term SIGMA * DQ4 in the regression model, we find the coefficient estimates for SIGMA and SIGMA * DQ4 are consistently non-significant.[11]

[9] We also considered the sample periods 1984-1995, 1996-2000, and 1996-2007. For each of these periods the results are substantially consistent with those for the sample periods presented in our tables.

[10] Estimating equation 1 for the pre Regulation FD period 1984-2000 (not tabulated) we obtain results substantially equivalent to those for the 1984-2007 period.

[11] We note this same lack of significance in the other sample periods we consider but for which we have not tabulated the results.

Table 3. Regression of forecast bias on earnings predictability for alternative sample periods

Variables	1984-1996	1984-2007	1997-2000	2001-2007
SIZE	-0.0003***	-0.0002***	-0.0001***	-0.0001***
	(-10.47)	(-12.51)	(-8.23)	(-3.65)
SIGMA	0.0052**	-0.0017*	0.0000	-0.0006
	(2.08)	(-1.80)	(0.01)	(-0.62)
PREBIAS	0.2397***	0.2221***	0.2248***	0.1706***
	(19.36)	(30.68)	(17.68)	(19.72)
ALPHA	-0.0875***	-0.0550***	-0.0366***	-0.0382***
	(-12.06)	(-16.75)	(-12.44)	(-11.03)
DQ4	0.0003	0.0002*	0.0001	0.0001
	(1.40)	(1.83)	(1.38)	(1.47)
Constant	0.0023***	0.0015***	0.0003**	0.0002
	(6.84)	(8.85)	(2.44)	(0.94)
Observations	73,815	182,367	40,045	68,355
Adj. R-squared	0.0806	0.0665	0.0611	0.0378

*, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 3 reports results from the regression model of BIAS = β_0 + β_1 SIZE + β_2 SIGMA + β_3 PREBIAS + β_4 ALPHA + β_5 DQ4 + ε for alternative sample periods. All variables are defined in the appendix. t-statistics are reported in parentheses. All statistics are based on standard errors adjusted for two-way clustering at the firm and year levels. The number of observations in columns (1), (3), and (4) in total is 182,215, which is smaller than 182,367 in column (2). This discrepancy results from trimming observations in each sample period based only on observations in the period.

Regulation FD requires that publicly traded companies disclose material information to all analysts and investors at the same time. It thus prohibits managers' from selectively disclosing information to specific analysts and investors. If analysts previously engaged in issuing optimistic forecasts to gain exclusive access to managers' private information, any positive association between forecast optimism and earnings unpredictability should be stronger before and much weaker after October 2000. Table 3 presents coefficient estimates for the 2001-2007 period. Here we observe a non-significant SIGMA coefficient estimate for the 2001-2007 sample period and no significant difference between the estimates for the 1997-2000 and 2001-2007 periods. Thus, Regulation FD does not appear to have had a significant impact on the association between earnings predictability and broker analysts' earnings forecast bias.

In summary, employing Lim's (2001) measure of earnings predictability, only for the period 1984-1996 do we find a positive association between earnings unpredictability and analysts' earnings forecast optimism. For the sample period 1984-2007 we obtain a modestly significant positive association between analyst forecast pessimism and earnings unpredictability. For sample periods limited to years subject to the Private Securities Litigation Reform Act of 1995 and both this act and Regulation FD (1997-2000 and 2001-2007, respectively) we are unable to detect a significant association between earnings predictability and analysts' earnings forecast bias.

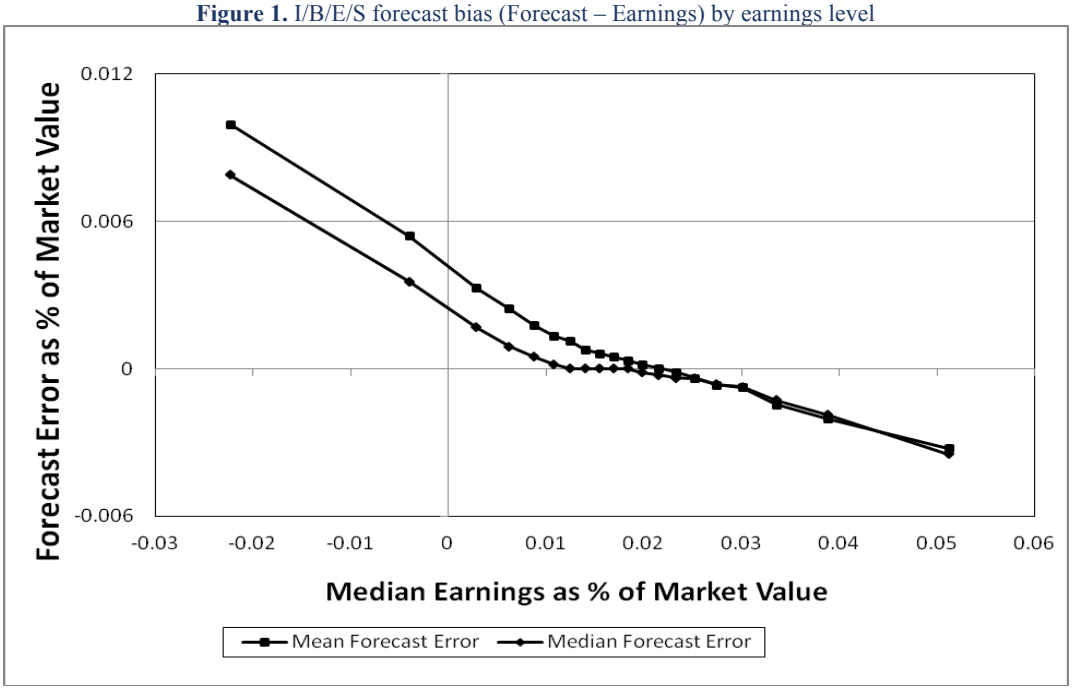
Controlling for Earnings and Consensus Forecast Levels

Forecast bias (BIAS) reflects the difference between an analyst's forecast and actual earnings. Forecast bias can therefore stem from analysts' intentional or cognitive biases, earnings management, and non-forecastable shocks to earnings. Eames et al. (2002) and Eames and Glover (2003) argue that the level of reported earnings is an important omitted correlated variable in earlier studies that examine analyst forecast behavior. Eames et al. (2002) and Eames and Glover (2003) find increasing forecast optimism (pessimism) as the level of firm earnings declines below (increases above) the average earnings. Eames and Glover (2003) also show that earnings predictability decreases for extreme earnings.

In Figures 1 and 2, we replicate figures in Eames and Glover (2003) to illustrate the relationships (1) between forecast bias and earnings level and (2) between earnings predictability and earnings level. Here, for brevity, we

plot the relationships for the sample of 73,815 observations for the period 1984-1996, and note that we obtain essentially identical results for the 1984-2007 sample period. For these figures, we sort firm-quarter observations into 20 portfolios based on quarterly earnings level, with 3,691 observations in all portfolios except the highest earnings portfolio for which we have 3,686 observations, and in Figure 1 plot portfolio mean and median scaled quarterly earnings forecast bias on the portfolio median of market value scaled quarterly earnings. Figure 1 shows that I/B/E/S analysts' forecasts exhibit increasing optimism for negative earnings and increasing pessimism for positive earnings.[12]

Figure 1. I/B/E/S forecast bias (Forecast – Earnings) by earnings level



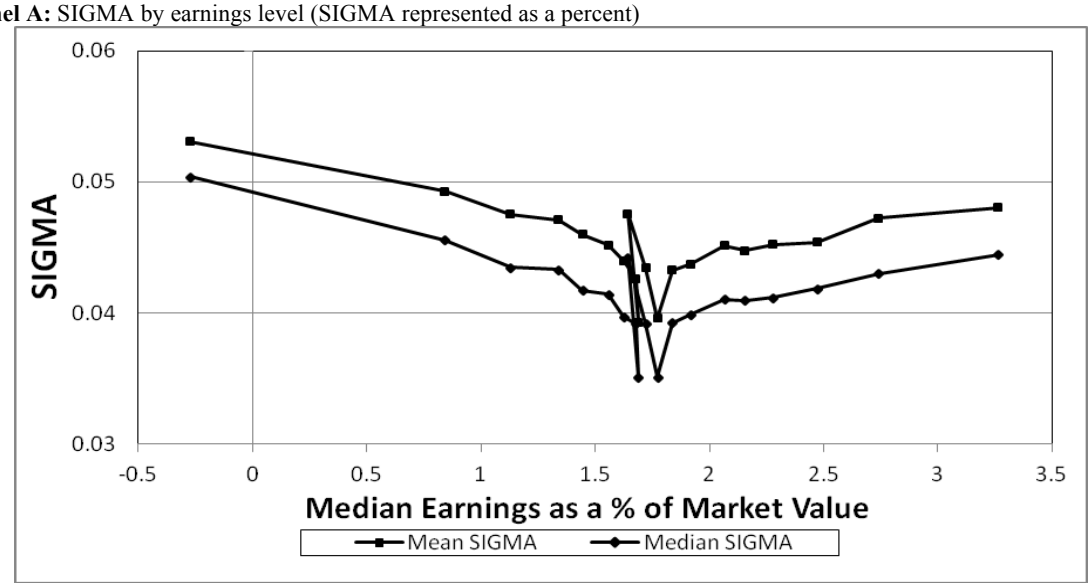
Mean and median I/B/E/S forecast bias (forecasted quarterly earnings minus actual quarterly earnings) by earnings level for 20 groups based on the rank of realized quarterly earnings values. The highest earnings group has 3,686 observations and all others have 3,691 observations. We scale earnings and forecast bias by the market value of equity 12 months prior to the start of the quarter.

In Panel A of Figure 2, we employ the same portfolios as in Figure 1 and plot portfolio mean and median SIGMA on portfolio median scaled earnings. We find that extreme earnings observations are associated with low earnings predictability. To consider the Value Line measure of earnings predictability, in Panel B of Figure 2 we plot mean and median VLPRED on portfolio median scaled earnings for the previously identified portfolios. This figure also indicates that extreme earnings are the least predictable. The nonlinear relationship between earnings predictability and the level of earnings is more pronounced for VLPRED than for SIGMA.[13]

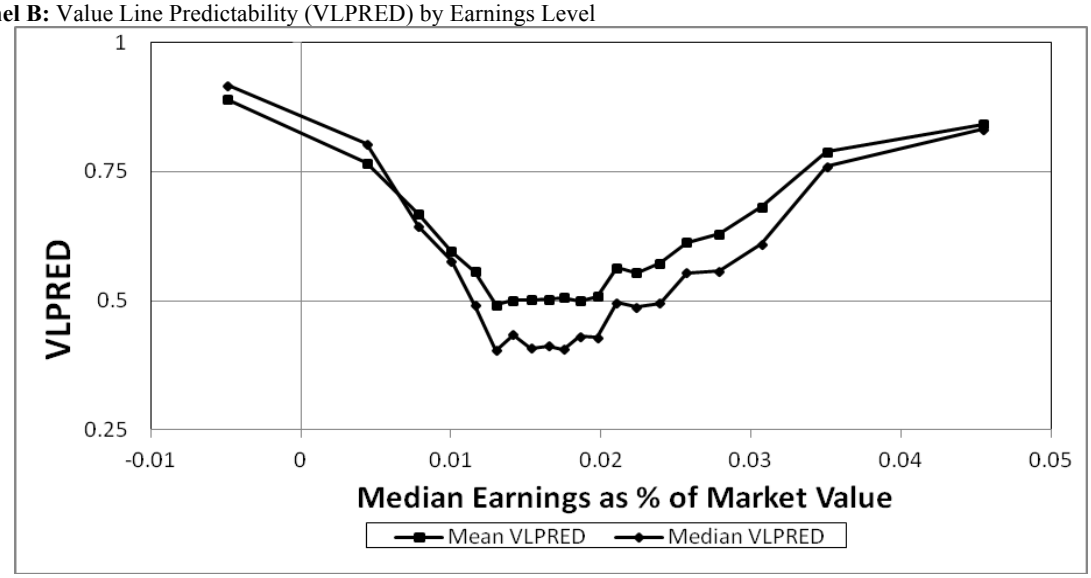
[12] The observed association is similar to that presented by Eames et al. (2002) and Eames and Glover (2003) for Zacks broker-analyst annual data and Value Line analyst annual data, respectively.
[13] Eames and Glover (2003) report a similar association between VLPRED and Value Line reported annual earnings.

Figure 2. Earnings predictability by earnings level

Panel A: SIGMA by earnings level (SIGMA represented as a percent)



Panel B: Value Line Predictability (VLPRED) by Earnings Level



Mean and median earnings predictability (with smaller values indicating greater predictability) by actual earnings for 20 portfolios based on ranks of realized quarterly earnings value. SIGMA is defined as the standard deviation of the residuals from a market model regression of weekly stock returns on weekly value-weighted market returns, over the year ending at the beginning of the quarter. For Sigma(VLPRED) the highest earnings group has 3,686 (829) observations and all others have 3,691(844) observations. We scale forecast values by market value of equity 12 months prior to the start of the quarter.

Figure 1 displays a strong association between analyst forecast bias and the level of earnings, while Figure 2 exhibits a nonlinear association between earnings level and earnings predictability. Collectively these associations suggest that earnings level is a potentially important control variable in assessing the association between forecast bias and earnings predictability. Therefore, we control for earnings level by (1) adding earnings level to equation 1 as a

control variable, and by (2) the separate application of equation 1 to subsamples identified by earnings above and below the median level of earnings.

Panel A of Table 4 presents coefficient estimates for the model including earnings level as an additional control variable. For all the time periods tested, the coefficient estimates for the level of earnings are negative and highly significant. The coefficient estimates for ALPHA are mixed in sign and of variable significance. More importantly, the coefficient estimates for SIGMA are consistently negative and highly significant. Thus, when we control for the level of earnings, we find relatively more forecast pessimism in association with less predictable earnings.[14]

Table 4. Regression of forecast bias on earnings predictability with earnings level or consensus forecast control for alternative sample periods

Panel A: Control for earnings level

Variables	1984-1996	1984-2007	1997-2000	2001-2007
SIZE	-0.0004***	-0.0003***	-0.0001***	-0.0001***
	(-14.25)	(-14.74)	(-12.42)	(-5.46)
SIGMA	-0.0328***	-0.0218***	-0.0121***	-0.0134***
	(-9.97)	(-14.83)	(-11.01)	(-9.47)
PREBIAS	0.1728***	0.1751***	0.1758***	0.1328***
	(14.59)	(24.99)	(13.15)	(15.22)
ALPHA	0.0348***	0.0012	-0.0134***	0.0098***
	(4.16)	(0.34)	(13.15)	(2.77)
DQ4	0.0004	0.0003**	0.0002**	0.0002**
	(1.49)	(2.01)	(2.05)	(2.30)
Earnings	-0.1453***	-0.0834***	-0.0557***	-0.0599***
	(-24.85)	(-27.31)	(-16.98)	(-15.96)
Constant	0.0072***	0.0041***	0.0003**	0.0014***
	(16.40)	(16.14)	(2.44)	(9.27)
Observations	73,815	182,367	40,045	68,355
Adj. R-squared	0.2126	0.1489	0.1249	0.1060

Panel B: Control for consensus forecast

Variables	1984-1996	1984-2007	1997-2000	2001-2007
SIZE	-0.0003***	-0.0002***	-0.0001***	-0.0001**
	(-7.66)	(-8.11)	(-11.83)	(-2.25)
SIGMA	0.0057**	-0.0029**	-0.0023**	-0.0027*
	(2.36)	(-2.21)	(-2.27)	(-1.81)
PREBIAS	0.2401***	0.2204***	0.2178***	0.1660***
	(19.82)	(25.46)	(40.29)	(27.84)
ALPHA	-0.0891***	-0.052***	-0.0325***	-0.0306***
	(-7.03)	(-9.45)	(-29.33)	(-5.29)
DQ4	0.0003***	0.0002***	0.0002	0.0001*
	(4.43)	(3.21)	(1.63)	(1.77)
Forcast	0.0020	-0.0050*	-0.0108***	-0.0100***
	(0.43)	(-1.94)	(-10.91)	(-3.57)
Constant	0.0022***	0.0017***	0.0006***	0.0004
	(5.25)	(7.14)	(4.35)	(1.43)
Observations	73,815	182,367	40,045	68,355
Adj. R-squared	0.0806	0.0668	0.0633	0.0396

*, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 4 reports results from the regression of forecast bias on earnings unpredictability and control variables. In Panel A, we add earnings level as a control variable and in Panel B, we add consensus forecast as a control variable. All variables are defined in the appendix. t-statistics are reported in parentheses. All statistics are based on standard

[14] Again, we find results for the pre Regulation FD period 1984-2000 to be substantially similar to those for the period 1984-2007.

errors adjusted for two-way clustering at the firm and quarter levels. In both Panels A and B, the number of observations in columns (1), (3), and (4) in total is 18,215 which is smaller than 182,367 in column (2). This discrepancy results from trimming observations in each sample period based only on observations in the period.

Gu (2004) argues that realized earnings is the variable being forecasted and therefore not an appropriate control variable when examining the relationship between forecast bias and earnings unpredictability. To address this concern, as Gu suggests, in separate analyses we control for the consensus forecast, which unlike the level of reported earnings is an ex-ante variable, and present the results in Panel B of Table 4. We find a significantly negative coefficient estimate for the consensus forecast, for all periods except 1984-1996 where we have a non-significant coefficient estimate. We continue to find highly significant negative coefficient estimates for SIGMA in all sample periods except 1984-1996. We also find a substantial diminution in the R squared values relative to those for the regressions in Panel A of Table 4, suggesting that earnings level may be the superior control variable in comparison with forecast level.

As another means of controlling for the level of earnings, we consider the sample periods 1984-1996 and 1984-2007 and separately estimate regression coefficients for equation 1 for earnings levels above and below median earnings. Table 5 presents these results. Our results for the other sample periods are similar but not tabulated to conserve space. For all sample periods and for earnings both above and below the median, we obtain highly significant and negative coefficient estimates for SIGMA.[15] For the 1984-1996 sample period, the coefficient estimates for SIZE and PREBIAS are consistent with those for the undivided sample. Also for this period, we find the coefficient estimate for ALPHA is no longer significant for earnings levels above the median, while the coefficient estimate for DQ4 is significantly positive only for earnings levels below the median. For the 1984-2007 sample period, the coefficient estimate for DQ4 with earnings above the median is no longer significant. In summary, whether we add earnings level or the consensus forecast as independent variables or segregate our samples to earnings above and below the median, we most commonly find evidence of greater relative forecast pessimism in short-horizon forecasts in association with less predictable earnings for all our sample periods.

Table 5. Regression of forecast bias on earnings predictability for the subsample of observations with earnings levels above or below the sample median

Variables	1984-1996		1984-2007	
	Above Median earnings	**Below Median Earnings**	**Above Median earnings**	**Below Median Earnings**
SIZE	-0.0001**	-0.0008***	-0.0001***	-0.0005***
	(-2.15)	(-14.77)	(-4.20)	(-17.83)
SIGMA	-0.0176***	-0.0217***	-0.0162***	-0.0159***
	(-6.95)	(-4.72)	(-12.44)	(-10.20)
PREBIAS	0.0186***	0.2246***	0.1688***	0.2092***
	(10.68)	(17.78)	(18.96)	(25.84)
ALPHA	0.0141	-0.0174*	-0.0067**	-0.106***
	(0.08)	(-1.73)	(-1.97)	(-2.93)
DQ4	-0.0000	0.0010***	-0.0000	0.0006***
	(-0.34)	(2.59)	(0.03)	(3.25)
Constant	0.0003	0.0076***	0.0003*	0.0050***
	(1.09)	(12.46)	(1.85)	(16.46)
Observations	36,925	36,890	91,187	91,180
Adj. R-squared	0.0445	0.0792	0.0414	0.0764

*, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 5 reports results from the regression of forecast bias on earnings unpredictability and control variables for the subsamples of observations with earnings levels above or below the sample median. All variables are defined in the appendix. t-statistics are reported in parentheses. All statistics are based on standard errors adjusted for two-way clustering at the firm and quarter levels.

[15] Note that without controlling for other determinants of forecast bias, we find a positive bivariate correlation between forecast bias and SIGMA for earnings below the median.

Alternative Measure of Earnings Unpredictability

For consistency, in comparisons with Lim's results, our analyses thus far have focused on SIGMA as the measure of earnings predictability. The main finding here is that the earlier research findings of greater forecast optimism in association with less predictable earnings is not robust to alternative sample periods and model specifications, and the more likely association is one of analyst forecast pessimism with unpredictable earnings.

Our earlier discussion suggests that VLPRED, equal to Value Line's ValuGauge Relative Position rank divided by 1000, may be a superior earnings predictability measure to SIGMA. Restricting our 1984-1996 dataset to observations for which VLPRED is available, we obtain a sample of 16,865 firm-quarter observations. Similarly, for the 1984-2007 period we have a sample of 62,735 firm-quarter observations. In Table 6, we present estimation results for equation 1 and these sample periods, substituting VLPRED for SIGMA, with and without earnings and the consensus forecast as control variables. Untabulated results for other sample periods are similar to those reported in Table 6. For both sample periods and whether or not we include the earnings level or the consensus forecast as a control variable, the coefficient estimates for VLPRED are negative and highly significant, while the other coefficient estimates are consistent with those obtained earlier from employing SIGMA as the earnings predictability variable.[16]

Table 6. Regression of forecast bias on the Value Line measure of earnings predictability

Variables	1984-1996			1984-2007		
SIZE	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***
	(-3.30)	(-3.28)	(-3.78)	(-4.64)	(-6.46)	(-4.27)
VLPRED	-0.0003***	-0.0002***	-0.0003***	-0.0005***	-0.0006***	-0.0005***
	(-3.02)	(-2.66)	(-2.64)	(-14.22)	(-16.00)	(-14.38)
PREBIAS	0.2153***	0.1700***	0.2145***	0.1926***	0.1558***	0.1881***
	(11.13)	(9.36)	(11.27)	(19.15)	(16.57)	(19.35)
ALPHA	-0.0730***	-0.0054	-0.0711***	-0.0362***	-0.0031***	-0.0310***
	(-9.67)	(-0.67)	(-8.15)	(-12.00)	(-0.89)	(-7.09)
DQ4	0.0000	0.0001	0.0000	0.0000	0.0001**	0.0000
	(0.02)	(0.32)	(0.08)	(0.05)	(0.75)	(0.24)
Earnings		-0.0843***			-0.0516***	
		(-14.67)			(-20.89)	
Forcast			-0.0026			-0.0086***
			(-0.50)			(-4.90)
Constant	0.0009***	0.0024***	0.0009***	0.0004***	0.0014***	0.0006***
	(3.98)	(9.58)	(4.33)	(3.92)	(11.50)	(4.91)
Observations	16,865	16,865	16,865	62,735	62,375	62,375
Adj. R-squared	0.0687	0.1494	0.0687	0.0545	0.1123	0.0560

*, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 6 reports results from the regression of forecast bias on the Value Line measure of earnings unpredictability and control variables, with and without earnings level or consensus forecast as an additional control variable. All variables are defined in the appendix. t-statistics are reported in parentheses. All statistics are based on standard errors adjusted for two-way clustering at the firm and quarter levels.

Controlling for earnings level by dividing our samples at the median earnings level, Table 7 presents coefficient estimates for equation 1 with VLPRED as the earnings predictability measure. Here we find that for the 1984-1996 period and earnings below the median level the coefficient estimate for VLPRED is positive but only modestly significant ($p = 0.072$). For all our other analyses the coefficient estimates for VLPRED are negative and highly

[16] To consider whether our results are impacted by the reduced sample size driven by the availability of the VLPRED measure, we re-estimate the coefficients for these samples with SIGMA rather than VLPRED as our measure of earnings predictability. In untabulated results, we find that in all cases the coefficient estimates for SIGMA are negative and significant, though less significant than the coefficient estimates for VLPRED.

significant.[17] Overall, the results suggest that analysts' relative forecast pessimism, not optimism, is associated with increasingly unpredictable earnings.

Table 7. Regression of forecast bias on the Value Line measure of earnings predictability for the subsample of observations with earnings levels above or below the sample median

Variables	1984-1996		1984-2007	
	Above Median earnings	Below Median Earnings	Above Median earnings	Below Median Earnings
SIZE	0.0000	-0.0002***	0.0000	-0.0002***
	(0.98)	(-5.02)	(0.89)	(-11.58)
VLPRED	-0.0007***	0.0002*	-0.0008***	-0.0003***
	(-5.08)	(1.80)	(-17.15)	(-6.83)
PREBIAS	0.1306***	0.2279***	0.1605***	0.1720***
	(6.83)	(8.55)	(15.21)	(13.78)
ALPHA	-0.0237**	-0.0198*	-0.0108***	-0.0089***
	(-2.08)	(-1.90)	(-2.68)	(-2.53)
DQ4	-0.0000	0.0002	-0.0001	0.0002***
	(-0.35)	(1.04)	(-0.23)	(1.68)
Constant	-0.0005**	0.0021***	-0.0004***	0.0016***
	(-1.85)	(6.17)	(-3.39)	(11.34)
Observations	8,433	8,432	31,368	31,367
Adj. R-squared	0.0339	0.0722	0.0513	0.0441

*, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 7 reports results from the regression of forecast bias on the Value Line measure of earnings unpredictability and control variables for the subsample of observations with earnings levels above or below the sample median. All variables are defined in the appendix. t-statistics are reported in parentheses. All statistics are based on standard errors adjusted for two-way clustering at the firm and quarter levels.

CONCLUSIONS

The management relations hypothesis suggests that analysts issue optimistic earnings forecasts to curry favor with managers and thus gain access to their private information. A number of studies have extended this hypothesis to argue that analysts issue increasingly optimistic earnings forecasts in association with increasingly unpredictable earnings. They argue that increased forecast optimism facilitates greater access to managers' private information, which is particularly useful in an environment of earnings uncertainty. Ackert and Athanassakos (1997) and Das et al. (1998) consider the association between earnings predictability and analysts' annual earnings forecast optimism. Lim (2001) considers this association for short-horizon broker-analysts quarterly earnings forecasts. These studies find greater analyst forecast optimism in association with increasingly unpredictable earnings.

While the management relations hypothesis requires a managerial preference for analyst forecast optimism, the observed walk-down of analyst expectations to beatable forecasts (Richardson et al. 2004; Matsumoto 2002) is consistent with a managerial preference for pessimism in short-horizon forecasts. If markets anchor on analysts' forecasts, then both investors and managers may be particularly perturbed by the negative earnings surprises stemming from analyst forecast optimism.

While we have continually questioned the previously reported positive association between analyst forecast optimism and earnings unpredictability, changes in the analyst forecast environment since 1995 provide all the more reason to question this association. The Private Securities Litigation Reform Act of 1995 and Regulation FD in October of 2000 encouraged more management earnings forecasts and prohibited the selective dissemination of managers' private information to the market, respectively. The former provided an additional avenue for the

[17] Again considering whether the availability of VLPRED measures impacts our results, in untabulated results we insert SIGMA as our earnings predictability measure and estimate equation 1 for the same samples employed in Table 7. All the resulting coefficient estimates for SIGMA are negative and highly significant.

corporate influencing of analyst forecasts, while the later attenuated any potential analyst benefit to be gained by analyst forecast optimism as previously argued in prior studies suggesting greater forecast optimism in association with unpredictable earnings.

In association with these changes in the forecasting environment and a managerial preference for analyst forecast pessimism, we continue to argue for a positive association between earnings unpredictability and analyst forecast pessimism. We expect this to be especially manifested for short-horizon forecasts (i.e., the last forecasts analysts issue before quarterly earnings announcements).

Focusing on broker-analyst short-horizon quarterly earnings forecasts, we examine the relation between analyst forecast bias and earnings unpredictability. We consider alternative sample periods, Value Line's measure of earnings predictability, and controls for the levels of earnings and forecasts. We find that the association between forecast error and earnings predictability is one of increasing forecast pessimism in association with increasingly unpredictable earnings. Our results are consistent with the expectations management documented in prior studies (e.g., Bartov et al., 2002; Matsumoto, 2002; Richardson et al. 2004) and suggest that firms are able to effectively manage analysts' earnings expectations downward when earnings are relatively unpredictable, which results in more pessimistic late-in-the-period analyst forecasts for firms with less predictable earnings.

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APPENDIX

Variable definitions

Variable Name	Definition
BIAS	(median of the last analyst forecasts issued no more than 90 days before the earnings announcement – actual earnings)/ stock price 12 months prior to the beginning of the quarter
SIZE	Natural logarithm of the market capitalization 12 months prior to the beginning of the quarter where market capitalization is from CRSP (price * shares outstanding)
SIGMA	Standard deviation of the residuals from a market model regression of weekly returns on weekly value-weighted market returns, over the year ending at the beginning of the quarter
PREBIAS	One quarter lag of BIAS
ALPHA	The intercept from a market model regression of weekly returns on weekly value-weighted market returns, over the year ending at the beginning of the quarter
DQ4	Indicator variable that equals one if the forecasts apply to the 4^{th} quarter, and zero otherwise
Earnings	Earnings level as a percent of market value. Actual earnings scaled by market value of common equity 12 months prior to the beginning of the quarter
Forecast	Forecast level as a percent of market value. Median of last analyst forecasts issued no more than 90 days before the earnings announcement scaled by market value of common equity 12 months prior to the beginning of the quarter
VLPRED	ValuGauge Relative Position from Value Line divided by 1000