Does Reg FD work? Evidence from Analysts' Earnings Forecasts on Sin Stocks

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Abstract

This paper provides the evidence on the impact of Regulation Fair Disclosure (RFD) on analysts' forecasts bias on sin stocks. I measure analyst forecast bias as the difference between the consensus earnings forecast and the actual earnings, scaled by the stock price. I find a positive association between the level of forecast optimism and sin firm membership, in the Post-RFD period, and no significant association in the Pre-RFD period. Regulation FD increases sin firms' optimistic forecast bias. These results imply that analysts tend to issue over-optimistic earnings forecasts on sin stocks in the Post-RFD period, but not in Pre-RFD period. Regulation FD may deteriorate information environment of sin firms.

Key Words: Regulation FD, Analysts Forecast Optimism, Sin Firms

1. Introduction

This paper examines the impact of Regulation Fair Disclosure the analysts' earnings forecasts on sin stocks. Investor typically rely on analysts for earnings forecasts. The analysts' main source of information about a firm is through mandatory disclosures and voluntary disclosures, either private or public. The Securities and Exchange Commission (SEC) approved the Regulation Fair Disclosure, commonly referred to as "Regulation FD or RFD" on August 10, 2000. On October 23, SEC implemented Regulation FD. Regulation FD prohibits firms from disclosing material information privately to analysts and sophisticated investors without simultaneously disclosing the same information to the public. Regulation FD significantly change toe roles of public disclosure and information environment. A considerable amount of research focus on the impact of RFD on analysts' earnings forecasts. There are ongoing debates as to whether Regulation FD deteriorate analysts' information environment. For example, Heflin, Subramanyam and Zhang (2003) find no evidence that analysts' forecast dispersion or analysts' forecast accuracy changed. Bailey et al. (2003) find that analysts' forecast dispersion significantly increased, indicating that Regulation FD might have impaired the market's ability to reach consensus. Francis et al. (2006), Gintschel and Markov(2004), Arawal et al. (2006) and Wang (2007) find the evidence that private information flows to analysts declined after Regulation FD. Some studies find that quantity and quality of voluntary public disclosures increase after Regulation FD (Brown et al. 2004 and Heflin et al.2011). Koss and Suk (2012) find Regulation FD is associated with a stronger analyst response to earnings announcements, management forecasts and conference calls.

Biases in analysts' earnings forecasts are widely documented in the accounting and finance area. The nature and causes of analysts' forecast bias has been the subject of research for at least three decades. Earlier research finds that in aggregate, analysts' forecasts are optimistically biased (e.g. Stickel (1991), Francis and Phibrick(1993)). Recent research indicates that managers do not uniformly prefer optimistic earnings forecasts. Abarbanell and Lehavy (2003) examine the properties of analysts' earnings forecasts and provide insights into the vast seemingly mixed results on analysts' forecast bias. Abarbanell and Lehavy (2003) document two distinct domains in the empirical distribution of analyst forecast errors that differentiate it from a typical bell-shaped normal distribution: the middle and negative tail asymmetries. The negative tail asymmetry is consistent with optimistic forecasts and the middle asymmetry is consistent with pessimistic forecasts.

I investigate the impact of Regulation FD on analyst bias on sin stocks. Zhang and Shin (2017) provide the evidence that analysts are more likely to provide optimistic earnings forecasts on sin stocks. Sin stocks are stocks in the following industries: alcoholic beverages, tobacco and gaming. I follow the method similar with Hong and Kacperczyk (2009) to identify sin stocks. First, I include all firms in SIC codes 2100-2199 as part of tobacco group and firms in the SIC codes 2080-2085 as firms in the alcohol group. Second, I use the NAICS classification to identify stocks in the gaming industry, i.e., stocks in the NAICS codes of 7132, 71312, 713210, 713290, 72112, and 721120. I include in the sample all firm-quarter observations spanning from 2000 to 2015 for which required data are available on Compustat. I measure analyst forecast bias as the difference between the consensus earnings forecast and the actual earnings, scaled by the stock price.

This paper provides evidence on the impact of Regulation Fair Disclosure (RFD) on analysts' forecasts bias on sin stocks. I measure analyst forecast bias as the difference between the consensus earnings forecast and the actual earnings, scaled by the stock price. I find a positive association between the level of forecast optimism and sin firm membership, in the Post-RFD period, and no significant association between the level of forecast optimism and sin firm membership in the Pre-RFD period. Regulation FD increases sin firms' forecast bias. These results imply that analysts tend to issue over-optimistic earnings forecasts on sin stocks in the Post-RFD period, but not in Pre-RFD period. This paper provides the evidence that Regulation FD doesn't efficiently improve the quality of analysts' forecasts on sin stocks, i.e. higher optimistic bias on sin stocks after Regulation FD. Regulation FD may deteriorate information environment of sin firms.

The rest of paper is organized as follows. Section 2 introduces the related research and develop the main hypotheses. Section 3 describes the sample and methodology. Section 4 presents empirical evidence, and Section 5 concludes the paper.

2. Literature Review and Hypothesis Development

In this section, I first discuss the literatures on Regulation Fair Disclosure, analysts' earnings forecasts and sin firms, and provide the motivation for the research question. Then, I develop my hypothesis.

Regulation Fair Disclosure and Analyst Forecasts

The Securities and Exchange Commission (SEC) approved the Regulation Fair Disclosure (Regulation FD) on August 10, 2000. On October 23, SEC implemented Regulation FD. Regulation FD prohibits firms from disclosing material information privately to analysts and institutional investors without simultaneously disclosing the same information to the public. Firms should provide material information to all investors on a fair basis: in case of unintentional disclosures to some investors or analysts, firms' managment are required to make a public disclosure within one day of the initial disclosure. Regulation FD significantly change the roles of public disclosures and firms' information environment.

A considerable amount of research focus on the impact of RFD on analysts' earnings forecasts. There are ongoing debates as to whether Regulation FD deteriorate analysts' information environment. For example, Heflin et al. (2003) find no evidence that analysts' forecast dispersion or analysts' forecast accuracy changed. Bailey et al. (2003) find that analysts' forecast dispersion significantly increased, indicating that Regulation FD might have impaired the market's ability to reach consensus. Francis et al, (2006), Gintschel and Markov(2004), Arawal et al. (2006) and Wang(2007) find the evidence that private information flows to analysts declined after Regulation FD. Some studies find that quantity and quality of voluntary public disclosures increase after Regulation FD (eg Brown et al. 2004, Heflin et al., 2012).

Sin Firms

Social norms are important in shaping economic behavior and market outcomes. Sustainable and Socially Responsible Investment (SRI) has continued to grow at a faster pace than conventional investment assets, and is now quite popular in financial markets. Since 2005, SRI assets have increased more than 34% while the broader universe of professionally managed assets has increased only 3% (Social Investment Forum, 2010). At the beginning of 2010, the nearly one out of every eight dollars under professional management in the United States - approximately 12% in total assets-was involved in some strategy of socially responsible investing (Social Investment Forum, 2010). In general, socially responsible investors favor corporate practices that promote environmental, consumer protection, and human rights and avoid businesses involved in alcohol, tobacco, gambling, weapons, or the military (Social Investment Forum, 2010).

Meanwhile, a large number of information intermediaries have emerged with the purpose of rating and ranking companies across several dimensions of environmental, social and corporate governance performance. Sin stocks (firms engaging in activities related to tobacco, gambling and alcohol) are most often negatively screened stocks by socially responsible investors and information intermediaries.

The neglect effect of sin stocks has been examined by previous literature. For instance, Hong and Kacperczyk (2009) document sin stocks earn abnormal returns after accounting for market beta, book to market, size and momentum. They attribute the abnormal returns to a neglect effect due to investors' social preference. Kim and Venkatachalam (2011) investigate financial reporting quality of sin stocks. They find that financial reporting of sin firms is superior along two dimensions: predictability of earnings for future cash flows and timely loss recognition. Zhang (2012) find a negative association between sin firm membership and the magnitude of performance matched discretionary accruals, implying that sin firms are less likely to manage their earnings. Zhang and Shin (2017) provide the evidence that analysts tend to issue more optimistic earnings forecasts on sin firms, compared with non-sin firms.

Hypotheses development

It has been well documented that analysts' earnings forecasts exhibit overoptimism (e.g., Abarbanell and Bernard (1992), Easterwood and Nutt (1999)). Two explanations have emerged as to why analysts issue more optimistic forecasts. The first explanation follows the strategic bias model (Francis and Philbrick (1993); Das, Levine, and Sivaramakrishnan (1998); Lim (2001); Mest and Plummer (2003)), in which analysts have an incentive to issue favorable earnings estimates to maintain their relationship with management. Sustaining a good relationship with corporate executives is critical for analysts competing to obtain access to certain information withheld by management. In response to high earnings uncertainty, the strategic bias view suggests that analysts' earnings estimates would be upward biased. The second explanation follows the selection bias model (McNichols and O'Brien (1997); Hayes and Levine (2000); Diether, Malloy, and Scherbina (2002)), which argues that because analysts are attracted to make forecasts when a firm's earnings reach above a certain threshold (self-censoring), forecast estimates tend to be optimistic. Furthermore, Diether et al. (2002) show that the forecast optimism resulting from self-censoring is stronger when earnings uncertainty is higher.

Sin stocks (firms engaging in activities related to tobacco, gambling and alcohol) are most often negatively screened stocks by socially responsible investors and information intermediaries due to social norms. Hong and Kacperczyk (2009) document that sin firms have lower institutional ownership and analyst coverage, consistent with the notion that such stocks are eschewed by an important group of capital market participants. Hong and Kacperczyk (2009) and Kim and Venkatachalam (2011) document that these sin firms behave like value stocks and outperform the market after controlling for factors that determine expected returns. Collectively, their evidence suggests that sin stocks are both neglected and undervalued.

Moreover, previous literatures (Francis and Philbrick (1993); Das, Levine, and Sivaramakrishnan (1998); Lim (2001); Mest and Plummer (2003)) document that analysts have an incentive to issue favorable earnings estimates to maintain their relationship with management. Sin firms, which have lower institutional ownership, have an incentive to provide more private information to analysts. The analysts would be relatively optimistic about the future profitability of sin firms. Zhang and Shin (2017) provide the evidence that analysts tend to issue more optimistic earnings forecasts on sin firms, compared with non-sin firms. They argue that analysts have an incentive to issue favorable earnings estimates to maintain their relationship with management. Sin firms, which have lower institutional ownership, have an incentive to provide more private information to analysts. The analysts would be relatively optimistic about the future profitability of sin firms. Regulation FD is to prohibits firms from private-only disclosure to analysts. If Regulation FD is effective, by removing analysts' access to private information, Regulation FD may reduce the analysts' incentive to provide optimistic forecasts.

On the other hand, some empirical evidence suggests that Regulation FD had a negative influence on the quality of analyst forecasts, resulting in less accurate analyst forecasts and great forecast dispersion, (Agrawal et al. 2006; Mohanram and Sunder 2006). Those studies suggest that Regulation FD has a negative impact on information environment. Analyst tent to issue more optimistic earnings as the earnings are more difficult to predict (Heflin et al. 2012). Gintschel and Markov (2004) find Regulation FD reduced information content of analyst forecasts and concludes that information flows to analysts declined after the implementation of Regulation FD, due to analysts' loss of private communication channels with firm management.

If Regulation FD impair information environment and firm management tend to provide less information to public after Regulation FD, analysts tend to issue more optimistic earnings on sin firms as earnings are more difficult to predict.

Thus, it is an empirical question on whether analysts are relatively more optimistic in Pre-RFD period or Post-RFD period. The following hypotheses summarize my expectations:

> H1a. Analysts optimistic bias on sin stocks decrease after Regulation FD.
> H1b. Analysts optimistic bias on sin stocks increase after Regulation FD.

3. Data and Research Design

3.1 Sample selection

The first objective in the sample selection process is to identify a set of sin stocks. Sin stocks are stocks of firms in the following industries: alcoholic beverages, tobacco and gaming. I follow the method similar with Hong and Kacperczyk (2009) and Zhang and Shin (2017) to identify sin stocks. First, I include all firms in SIC codes 2100-2199 as firms in tobacco group and firms in the SIC codes 2080-2085 as firms in the alcohol group. Second, I use the NAICS classification to identify stocks in the gaming industry, i.e., stocks in the NAICS codes of 7132, 71312, 713210, 713290, 72112, and 721120. I obtain all financial statements information from the Compustat database. I include in the sample all firm-quarter observations spanning from 1990 to 2015 for which required data are available on Compustat.

Table 1 provides a year by year look at my data set of sin stocks beginning in 1990 and ending at 2015. There is a total of 622 sin companies, comprised of 67 distinct tobacco companies, 171 distinct alcohol companies and 384 distinct gaming companies. The sample is less than Hong and Kacperczyk (2009)'s sample since they use Compustat segment data to include firms that have segments operating in any these SIC or NAICS groups. I only include the firms whose main businesses are engaging in alcoholic beverages, tobacco and gaming. The number of sin stocks increased in earlier 1990's and relatively consistent in 2010's.

3.2 Main Variables

I measure bias (BIAS) consistent with prior research (Duru and Reeb (2002); Lang, Lins and Miller (2003); Herrmann, Hope and Thomas (2008) and Zhang and Shin (2017)). The variable BIAS is the difference between the latest consensus earnings forecast and the actual earnings, scaled by the stock price.

$$BIAS_t \text{ (OPTIMISM)} = \frac{FORECAST_t - ACTUAL_t}{PRICE_{t-1}}$$

$$(1)$$

where $FORECAST_t$ is the latest consensus earnings forecast of the period t. $ACTUAL_t$ is the actual earnings per share before extraordinary items of the period t. $Price_{t-1}$ is the stock price at the time of t-1. A positive (negative) BIAS indicates analyst optimism (pessimism). Forecast optimism increases as BIAS becomes larger, while forecast optimism decreases as BIAS becomes smaller.

3.3 Empirical Models

Consistent with Zhang, Lin and Shin (2000), and Zhang and Shin (2017), I estimate the following regression to test the association between analyst optimism and whether the firm is sin firm or not. I estimate the regulation model using two sub samples: Pre-Regulation FD sample and Post-Regulation FD sample. The Pre-RFD sample spans the period of 1990-2000, and the Post-RFD sample spans the period of 2001-2015.

$$BAIS_{j,q} = \alpha_0 + \beta_0 SINFIRM_{j,q} + \beta_1 ANALYSTS_{j,q-1} + \beta_2 DISPERSION_{j,q-1} + \beta_3 LNSIZE_{j,q-1} + \beta_4 RETQ1_{j,q-1} + \beta_5 UE_{j,q-1} + \beta_6 LOSS_{j,q} + \varepsilon_{j,q}.$$

$$(2)$$

BAIS is the difference between the consensus earnings forecast and the actual earnings, scaled by the stock price. SINFIRM equals one if the firm engages in activities related to tobacco, gambling and alcohol. I include several additional variables in the model to control for various factors that may confound the relationship between forecast bias and sin firm membership.

I control for the number of analysts (ANALYST) since Lys and Soo (1995) suggest that the number of analyst proxies for the intensity of competition in the market.

Greater analyst following indicates greater ex ante incentives for analysts to make accurate forecasts and a better ex post information environment of the followed company. ANALYST is the number of analysts following. We also control for analyst disagreement (DISPERSION). DISPERSION is measured as standard deviation earnings forecast scaled by the stock.

I further control for firm size (LNSIZE), as a proxy for a firm's general information environment (Atiase, 1985). In addition, various other factors potentially related to firm size (Hope, 2003). Firm size (LNSIZE) is measured as the natural log of book value of total assets at the beginning of the fiscal quarter. I also control for stock return over the previous quarter (RETQ1). RETQ1 is measured as the buy-and-hold raw return cumulated over the previous quarter.

Hayn (1995) argues that the valuation of loss firms may be different from that of profit ones because investors are more likely to exercise their liquidation option. Because the informativeness of earnings for future cash flows is weaker among loss than among profit firms analysts will have greater difficulty in forecasting the earnings of those firms. I include an indicator variable, LOSS, to control for this effect. LOSS equals one if the firm reports negative earnings in the quarter and zero otherwise. I also control for price deflated earning change (UE). UE is measured as the difference in earnings per share before extraordinary items between fiscal quarter t to quarter t-1, scaled by the stock price at the beginning of quarter t.

I also augment Zhang, Lin and Shin's (2000) and Zhang and Shin (2017) model by including the Regulation FD dummy variable and interaction between Regulation FD variable and sin firm membership variable to test the effect of FD on the association between analyst optimism and sin firm memebership.

$$BAIS_{j,q} = \alpha_0 + \beta_0 \, SINFIRM_{j,q} + \beta_1 RFD + \beta_2 RFD\_SINFIRM_{j,q} + \beta_3 ANALYSTS_{j,q-1} + \beta_4 DISPERSION_{j,q-1}$$
$$+\beta_5 LNSIZE_{j,q-1} + \beta_6 RETQ1_{j,q-1} + \beta_7 UE_{j,q-1} + \beta_8 \, LOSS_{j,q} + \varepsilon_{j,q.} \qquad (3)$$

SINFIRM equals one if the firm engages in activities related to tobacco, gambling and alcohol. RFD equals one if analyst forecast occurs after December 31, 2000. RFD_SINFIRM is interactions between RFD and SINFIRM. I include the same control variables in the equation (2) to control for various factors that may confound the relationship between forecast optimism and sin firm membership.

4. Results

To assess the effect of FD on earnings forecast optimism on sin firms, I split the sample period into Pre-RFD and post-RFD periods. Table 2, Panel A provides descriptive statistics of the variables used in the empirical analysis for both sin firms and all other firms in the Pre-RFD period. In Pre-RFD period, Bias is not significant different between sin firms and all other firms (t=1.28 and Z=-1.23). The number of analysts following is significantly different between sin firms and all other firms (mean of 6.828 for sin firms vs. 5.269 for all other firms, median of 5.000 for sin firms vs. 4.000 for all other firms). Many of the control variables are significantly different between sin and non-sin firms. Thus it is important to control these variables to draw proper conclusions about relation between analyst optimism and whether a firm is a sin firm or not in the Pre-RFD period.

Table 2, Panel B provides descriptive statistics of the variables used in the empirical analysis for both sin firms and all other firms, in the Post-RFD period. Sin stocks are larger and are characterized by higher return (mean of 0.034 for sin firms vs. 0.027 for all other firms, median of 0.024 for sin firms vs. 0.016 for all other firms), consistent with the conjecture that sin stocks are perhaps value stocks. The number of analyst following is significantly different between sin firms and all other firms (mean of 9.526 for sin firms vs. 8.164 for all other firms, median of 9.000 for sin firms vs. 6.000 for all other firms). In Post-RFD period, Bias is larger for sin firms (mean of 0.184 for sin firms vs. 0.128 for all other firms, with t-value is -1.33; median of 0.000 for sin firms vs. -0.025 for all other firms, with z-value is -4.54). Similarly, many of the control variables are significantly different between sin and non-sin firms. Thus it is important to control these variables to draw proper conclusions about relation between analyst optimism and whether a firm is a sin firm or not in the Post-RFD period.

Panel A of Table 3 presents the regression estimates of Equation (2) for the sample in Pre-RFD period. The coefficient on SINFIRM is insignificant in the BIAS model (0.002, t=0.04). The coefficients on the control variables, whenever significant, are consistent with the signs predicted by previous studies. Overall, the results suggest that there is no association between analyst optimism and whether this firm is a sin firm in the Pre-RFD period. Panel B of Table 3 presents the regression estimates of Equation (2) for the sample in Post-RFD period. The coefficient on SINFIRM is positive and significant in the BIAS model (0.158, t=3.91).

The coefficients on the control variables, whenever significant, are consistent with the signs predicted by previous studies. Overall, the results suggest that there is a positive association between analyst optimism and whether this firm is a sin firm in the Post-RFD period, but no significant association in the Pre-RFD period.

Table 4 presents the regression estimates of Equation (3). The coefficient on SINFIRM is not significant and the coefficient on interaction variable RFD_SINFRIM is positive and significant at 1% level (0.187 t=2.85).The coefficients on the control variables, whenever significant, are consistent with the signs predicted by previous studies. Overall, the results suggest that in the Pre-RFD period, there is no association between analyst optimism and sin firm membership. Analysts issue more optimistic earnings forecasts after Regulation FD period. The evidence suggests that Regulation FD impair the properties of analysts' forecasts on sin stocks, i.e. higher optimistic bias after Regulation FD period.

5. Conclusions

This paper provides the evidence on the impact of Regulation FD on analysts' forecast bias on sin stocks. I measure analyst forecast bias as the difference between the consensus earnings forecast and the actual earnings, scaled by the stock price. I find a positive association between the level of forecast optimism and sin firm membership in the Post-RFD period, and no significant association in Pre-RFD period. Regulation FD increase sin firms' optimistic forecast bias. Overall, these results imply that analysts tend to issue over-optimistic forecasts on sin firms in the Post-RFD period, but not in Pre-RFD period. This paper contributes the literature by exploring the impact of RFD on the properties of analyst forecast, by using sample of firms with poor corporate social responsibility, i.e., sin firms. Moreover, this paper contributes analysts' bias literature by showing the significant difference of forecast bias between sin firms and non-sin firms, in the Post-RFD period, but no significant difference in the Post-RFD period. This paper provides the evidence that Regulation FD doesn't efficiently improve the quality of analysts' forecasts on sin stocks, i.e. higher optimistic bias on sin stocks after Regulation FD. Regulation FD may deteriorate information environment of sin firms.

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TABLE 1
Number of Sin Firms by Year

Year	All	Tobacco	Alcohol	Gaming
1990	9	1	4	4
1991	10	1	4	5
1992	10	1	4	5
1993	18	1	6	11
1994	24	1	6	17
1995	26	1	5	20
1996	29	1	8	20
1997	30	3	9	18
1998	32	4	9	19
1999	26	3	8	15
2000	21	1	8	12
2001	22	1	7	14
2002	22	1	6	15
2003	23	2	5	16
2004	27	3	6	18
2005	29	3	6	20
2006	29	3	7	19
2007	28	3	7	18
2008	30	5	7	18
2009	25	4	5	16
2010	26	4	6	16
2011	25	4	7	14
2012	26	4	8	14
2013	25	4	7	14
2014	27	4	9	14
2015	23	4	7	12
Total	622	67	171	384

Note: This table reports year by year the number of sin stocks that fall into three sub-groups of tobacco, alcohol and gaming. The data span the period of 1990-2015.

Table 2
Descriptive Statistics
Panel A: Pre-RFD; 1990-2000

	Mean			Median		
	Sin firms (1)	All other firms (2)	Difference t-stat (2-1)	Sin firms (1)	All other firms (2)	Difference Z-stat (2-1)
BIAS (%)	0.211	0.278	1.28	0.000	0.000	-1.23
ANALYSTS	6.828	5.269	-9.84***	5.000	4.000	-9.62***
DISPERSION	0.182	0.180	-0.09	0.077	0.063	-3.38***
LNSIZE	6.643	6.312	-5.45***	6.255	6.201	-4.08***
RETQ1	0.006	0.017	1.01	-0.004	0.007	1.03
UE	0.000	-0.000	-0.43	0.000	0.000	0.04
LOSS	0.081	0.138	4.56***	0.000	0.000	4.56***
# of OBS	754	68,392		754	68,392	

Panel B: Post-RFD; 2001-2015

	Mean			Median		
	Sin firms (1)	All other firms (2)	Difference t-stat (2-1)	Sin firms (1)	All other firms (2)	Difference Z-stat (2-1)
BIAS (%)	0.184	0.128	-1.33	0.000	-0.025	-4.54***
ANALYSTS	9.526	8.164	-8.13***	9.000	6.000	-11.27***
DISPERSION	0.200	0.269	4.99***	0.081	0.104	7.03***
LNSIZE	7.843	7.041	-17.69***	8.033	6.920	-14.64***
RETQ1	0.034	0.027	-0.59	0.024	0.016	-1.78*
UE	0.001	0.002	0.22	0.000	0.000	1.57
LOSS	0.113	0.183	6.83***	0.000	0.000	6.83***
# of OBS	1,427	146,941		1,427	146,941	

Notes: BIAS is the difference between the consensus earnings forecast and the actual earnings, scaled by the stock price. ANALYSTS is the number of analysts following. DISPERSION is standard deviation earnings forecast scaled by the stock. LNSIZE is measured as the natural log of market value of the firm at the beginning of the fiscal quarter. UE is the difference in earnings per share before extraordinary items between fiscal quarter t and quarter t – 1, scaled by the stock price at the ending of quarter t – 1. RETQ1 is the buy-and-hold raw return cumulated over the previous quarter. LOSS equal to 1 for observations with negative earning, zero otherwise.

Table 3
Panel A: Sin Firms and Analyst Forecast Bias, Before Regulation FD

	Dependent Var. =BIAS, 1990-2000	
	Coeff.	t-stat.
Intercept	0.521	23.53
SINFIRM	0.002	0.04
ANALYSTS	0.019	12.89
DISPERSION	0.488	36.17
LNSIZE	-0.097	-24.71
RETQ1	-0.496	-29.05
UE	-2.486	-54.27
LOSS	1.335	88.32
Adjusted R^2 (%)	23.71	
No. of Observations	69,146	

Panel B: Sin Firms and Analyst Forecast Bias, After Regulation FD

	Dependent Var. =BIAS, 2001-2015	
	Coeff.	t-stat.
Intercept	-0.137	-6.63
SINFIRM	0.158	3.91
ANALYSTS	0.002	2.58
DISPERSION	0.225	26.18
LNSIZE	-0.004	-1.13
RETQ1	-0.178	-19.6
UE	-0.168	-24.2
LOSS	1.191	103.79
Adjusted R^2 (%)	10.88	
No. of Observations	148,368	

Notes:
1. Model: $BAIS_{j,q} = \alpha_0 + \beta_0 SINFIRM_{j,q} + \beta_1 ANALYSTS_{j,q-1} + \beta_2 DISPERSION_{j,q-1} + \beta_3 LNSIZE_{j,q-1} + \beta_4 RETQ1_{j,q-1} + \beta_5 UE_{j,q-1} + \beta_6 LOSS_{j,q} + \varepsilon_{j,q}.$
2. ***, **, and * indicate that the estimated coefficients are statistically significant at the 1%, 5%, and 10% level, respectively.

3. SINFIRM equals one if the firm engages in activities related to tobacco, gambling and alcohol. BIAS is the difference between the consensus earnings forecast and the actual earnings, scaled by the stock price. ANALYSTS is the number of analysts following. DISPERSION is standard deviation earnings forecast scaled by the stock. LNSIZE is measured as the natural log of market value of the firm at the beginning of the fiscal quarter. UE is the difference in earnings per share before extraordinary items between fiscal quarter t and quarter $t - 1$, scaled by the stock price at the ending of quarter $t - 1$. RETQ1 is the buy-and-hold raw return cumulated over the previous quarter. LOSS equal to 1 for observations with negative earning, zero otherwise.

Table 4: Sin Firms and Analyst Forecast Bias, Full Sample

	Dependent Var. =BIAS	
	Coeff.	t-stat.
Intercept	0.255	16.51***
SINFIRM	-0.002	-0.05
RFD	-0.22	-31.57***
RFD_SINFIRM	0.187	2.85***
ANALYSTS	0.008	10.61***
DISPERSION	0.268	36.99***
LNSIZE	-0.037	-14.73***
RETQ1	-0.249	-31.36***
UE	-0.211	-31.98***
LOSS	1.243	134.22***
Adjusted R^2 (%)	13.23	
No. of Observations	217,514	

Notes:

1. Model: $\text{BAIS}_{j,q} = \alpha_0 + \beta_0 \text{SINFIRM}_{j,q} + \beta_1 \text{RFD}_{j,q} + \beta_1 \text{RFD\_SINFIRM}_{j,q} + \beta_1 \text{ANALYSTS}_{j,q-1} \beta_1 \text{ANALYSTS}_{j,q-1} + \beta_2 \text{DISPERSION}_{j,q-1} + \beta_3 \text{LNSIZE}_{j,q-1} + \beta_4 \text{RETQ1}_{j,q-1} + \beta_5 \text{UE}_{j,q-1} + \beta_6 \text{LOSS}_{j,q} + \varepsilon_{j,q.}$

2. ***, **, and * indicate that the estimated coefficients are statistically significant at the 1%, 5%, and 10% level, respectively.

3. SINFIRM equals one if the firm engages in activities related to tobacco, gambling and alcohol. BIAS is the difference between the consensus earnings forecast and the actual earnings, scaled by the stock price. ANALYSTS is the number of analysts following. DISPERSION is standard deviation earnings forecast scaled by the stock. LNSIZE is measured as the natural log of market value of the firm at the beginning of the fiscal quarter. UE is the difference in earnings per share before extraordinary items between fiscal quarter t and quarter $t - 1$, scaled by the stock price at the ending of quarter $t - 1$. RETQ1 is the buy-and-hold raw return cumulated over the previous quarter. LOSS equal to 1 for observations with negative earning, zero otherwise.