How Has Regulation FD Affected the Operations of Financial Analysts?*

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Abstract

In this paper, we analyze how financial analysts generate information, make decisions about firm coverage, and try to maintain their forecasting accuracy after the passage of Regulation Fair Disclosure ("Reg FD"). Using the model developed by Barron, Kim, Lim, and Stevens 1998, we find that analysts are investing more effort in idiosyncratic information discovery. In order to do this, individual analysts appear to be reducing coverage for well-followed firms while increasing coverage of firms that were less followed prior to Reg FD. Analysts who had preferential links with firms that they covered, such as analysts from large brokerage houses, tend to have greater forecast accuracy in the pre-FD period. However, these analysts are unable to sustain their forecasting superiority in the post-FD period, which suggests that there has been a leveling of the information playing field among analysts. Overall, our results reflect a trend toward greater reliance on idiosyncratic information discovery on part of the financial analysts.

Keywords Analyst coverage; Forecast accuracy; Information precision; Regulation FD

JEL Descriptors G14, G18, M41

Quelle a été l'incidence de la réglementation en matière de communication équitable de l'information sur les activités des analystes financiers ?

Condensé

La réglementation en matière de communication équitable de l'information (« réglementation » dans la suite — *Reg FD* [*Regulation Fair Disclosure*]) exige que les sociétés entretiennent avec les investisseurs des communications telles que tous les investisseurs obtiennent

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l'information importante au même moment. L'objectif explicite de la Securities and Exchange Commission (SEC) dans l'adoption de cette réglementation était d'éliminer la pratique de communication sélective de l'information aux analystes et aux actionnaires institutionnels privilégiés. Cette réglementation, entrée en vigueur le 23 octobre 2000, représentait donc un changement susceptible de revêtir une grande importance dans le processus de communication de l'information entre les sociétés et les analystes financiers.

Une résistance considérable à cette réglementation a été observée chez les analystes financiers, qui invoquaient pour justifier leur position l'incidence que risquaient d'avoir ces changements dans la communication de l'information sur leur capacité d'exercer leurs activités avec efficacité. Ainsi, un groupe de courtage sectoriel de premier plan pour les analystes financiers a laissé entendre que le fait d'interdire la communication d'information privilégiée réduirait la qualité de l'information communiquée par les sociétés et mettrait en péril la capacité des analystes de comprendre la performance de ces sociétés. Cette argumentation est toutefois le fruit d'une vision statique du comportement des analystes. Une vision plus dynamique veut que les analystes réagissent à la réduction des flux d'information en accentuant la recherche d'information privilégiée. Selon ce scénario, les analystes intensifient leurs efforts de recherche visant le repérage et l'analyse d'information afin de compenser l'incidence de l'accès réduit aux gestionnaires. Il n'apparaît donc pas évident que la réglementation aura pour conséquence de détériorer sensiblement la capacité des analystes de comprendre la performance des sociétés.

De nombreux chercheurs ont analysé les conséquences de la réglementation en s'intéressant plus particulièrement à son incidence sur l'environnement d'information global des sociétés. Ces chercheurs s'entendent sur un fait : la réglementation a uniformisé les règles du jeu en matière d'information auxquelles doivent se plier les différentes catégories d'investisseurs, en assurant un accès égal à l'information que publient les sociétés. Cette constatation soulève toutefois une question : l'uniformisation de ces règles du jeu a-t-elle réduit l'information accessible après l'adoption de la réglementation ? Cette question est d'autant plus importante que tout au moins quelques analystes ont bénéficié d'un accès à davantage d'information, en vertu de leurs contrats avec les gestionnaires des sociétés. Des données indirectes, comme l'exactitude prévisionnelle moyenne des analystes, donnent à penser que la réglementation pourrait ne pas avoir eu d'incidence négative sur l'information accessible.

Les auteurs s'appuient sur cette constatation dans leur étude et examinent comment les analystes financiers parviennent à maintenir l'exactitude de leurs prévisions dans le nouvel environnement réglementaire au sein duquel ils doivent désormais exercer leurs activités. Ils s'intéressent particulièrement aux conséquences de la réglementation en ce qui a trait aux décisions conjointes prises par les analystes relativement à la nature de l'information sur laquelle ils s'appuient et aux sociétés dont il convient d'assurer le suivi, afin de maintenir cette efficacité prévisionnelle. Ces décisions conjointes ont des répercussions sur les activités des analystes financiers. Les auteurs se penchent sur trois questions précises qui s'y rattachent. Premièrement, y a-t-il eu un changement dans le poids relatif de l'information commune à tous les analystes (information commune) et de l'information propre à des analystes particuliers (information idiosyncratique), servant à la production de prévisions ? Deuxièmement, y a-t-il eu un changement dans le nombre de sociétés suivies par les analystes par suite du changement dans la pondération de l'information commune et de l'information idiosyncratique ?

Troisièmement, bien que les données antérieures montrent que la réglementation n'a pas d'incidence négative sur l'exactitude prévisionnelle moyenne, y a-t-il des différences entre les analystes quant à l'exactitude des prévisions des analystes privés de l'accès privilégié aux gestionnaires des sociétés, après l'adoption de la réglementation ?

À l'aide d'un modèle élaboré par Barron, Kim, Lim et Stevens (1998), les auteurs relèvent un changement non significatif dans la précision de l'information commune dans les prévisions des analystes entre les périodes antérieure et postérieure à l'adoption de la réglementation. Cette constatation corrobore les résultats des études précédentes et confirme le fait que les analystes n'enregistrent pas de détérioration sensible de la qualité de l'information commune qu'ils reçoivent des sociétés, après l'adoption de la réglementation. Les auteurs constatent toutefois que la précision de l'information idiosyncratique augmente dans la période postérieure à l'adoption de la réglementation, ce qui semble indiquer que les analystes investissent davantage d'efforts dans leurs activités de repérage d'information privilégiée pour améliorer la précision de leurs prévisions. Cette observation confirme les conclusions des études précédentes selon lesquelles les professionnels de l'investissement consacrent davantage d'efforts à l'analyse de l'information après l'adoption de la réglementation.

Si les analystes consacrent une quantité moyenne d'efforts par société plus grande pour repérer l'information idiosyncratique, l'on pourrait observer un déclin compensatoire dans le nombre de sociétés suivies par les analystes. En conséquence, les auteurs étudient les changements dans le suivi des sociétés réalisé par les analystes. Ils relèvent un déclin appréciable dans le nombre moyen de sociétés suivies par analyste, qui passe de 11,16 sociétés avant la réglementation à 10,79 sociétés après la réglementation. Fait intéressant, les analystes délaissent le suivi des sociétés auxquelles ils accordaient beaucoup d'attention avant l'adoption de la réglementation pour s'intéresser davantage aux sociétés qui retenaient moins leur attention auparavant. Cette observation vient étayer le fait que l'intérêt des analystes bifurque vers les sociétés auparavant moins suivies, de sorte que les efforts qu'ils consacrent au repérage et à l'analyse d'information idiosyncratique soient plus profitables, c'est-à-dire qu'ils leur permettent de se distinguer des autres analystes.

Dans leur dernier jeu de tests, les auteurs examinent les conséquences différentielles de la réglementation sur les activités des analystes en étudiant les différences entre analystes dans l'exactitude prévisionnelle, au cours de la période postérieure à l'adoption de la réglementation. Ils constatent que les analystes qui étaient susceptibles de bénéficier, avant l'adoption de la réglementation, de leur proximité avec les gestionnaires risquent davantage d'être affectés par cette réglementation. Donc, les analystes des grandes maisons de courtage qui, toutes proportions gardées, enregistraient des erreurs prévisionnelles moyennes plus faibles avant l'adoption de la réglementation, se montrent incapables de maintenir cette supériorité prévisionnelle après l'adoption de la réglementation. Toutefois, les analystes des grandes maisons de courtage classés au nombre des analystes « étoiles » par le magazine *Institutional Investor* continuent de démontrer une capacité prévisionnelle supérieure après l'adoption de la réglementation.

Dans l'ensemble, l'étude des auteurs fournit des indications quant à la façon dont les analystes modifient l'éventail des entreprises auxquelles ils s'intéressent et investissent dans le repérage d'information privilégiée en réaction aux changements que subit l'environnement dans lequel ils évoluent sur le plan de l'information. Les résultats donnent à penser qu'après l'adoption de la réglementation, les analystes accordent beaucoup plus d'importance au

repérage d'information idiosyncratique, ce qui a sans doute pour conséquence d'augmenter la charge de travail des analystes relativement à chaque société et de les amener à réduire l'éventail des sociétés auxquelles ils s'intéressent. Fait à noter, les analystes sont davantage susceptibles de renoncer au suivi de sociétés abondamment analysées pour s'intéresser à des sociétés faisant l'objet d'un moins grand intérêt, lorsqu'ils ont davantage la possibilité de faire montre de leurs efforts idiosyncratiques.

Enfin, les analystes qui présentaient les liens les plus faibles avec les gestionnaires des sociétés avant l'adoption de la réglementation voient leur performance relative s'améliorer, tandis que les analystes qui présentaient les liens les plus solides voient leur performance relative se détériorer. L'importance de l'appartenance à une grande maison de courtage paraît avoir diminué après l'adoption de la réglementation. Une fois compilés, les résultats obtenus par les auteurs indiquent que la réglementation a rétabli l'équilibre entre les analystes et entre les sociétés, relativement à leur capacité de susciter l'intérêt des analystes, après l'adoption de la réglementation. Les petites sociétés parviennent mieux à retenir l'attention des analystes dans l'environnement postérieur à la réglementation. Si les études précédentes visaient à démontrer que l'adoption de la réglementation avait bel et bien rétabli l'équilibre entre les différentes catégories d'investisseurs, la présente étude est la première à faire état des mêmes conséquences chez les analystes.

1. Introduction

Regulation Fair Disclosure ("Reg FD") requires that firms conduct investor communications in such a way that all investors get material information at the same time. In issuing Reg FD, the Securities and Exchange Commission's (SEC's) stated objective was to eliminate the practice of selective disclosure of information to preferred analysts and institutional shareholders. Thus Reg FD, which went into effect on October 23, 2000, represents a potentially significant change in the information communication process between firms and financial analysts.[1]

There was considerable resistance to Reg FD by financial analysts on the grounds that changes in information communication would affect their ability to operate effectively. For example, a prominent industry trade group for financial analysts suggested that prohibiting nonpublic communications would reduce the quality of information communicated by firms and hinder analysts' ability to understand firm performance.[2] However, such arguments take a static view of analyst behavior. A dynamic view is that analysts would respond to a reduction in information flows by increasing their private information search efforts. Under this scenario, analysts would increase research effort aimed at information discovery and analysis to offset the impact of reduced access to management. Hence, it is not obvious that analysts' ability to understand firm performance will materially worsen after the passage of Reg FD.

Many academic researchers have analyzed the effects of Reg FD by focusing on its impact on the overall information environment of firms. The consensus from these studies is that Reg FD has leveled the information playing field among different classes of investors by providing equal access to information from disclosing firms (see Brown, Hillegiest, and Lo 2004; Eleswarapu, Thompson, and Venkataraman 2004; and Sunder 2003). However, this raises the question whether leveling the

information playing field has reduced the information available in the post-FD period. This question is important since at least some analysts enjoyed superior information access by virtue of their contacts with firm managers. Indirect evidence, from the average forecast accuracy of analysts, suggests that Reg FD may not have adversely affected the information available (see Heflin, Subramanyam, and Zhang 2003).

Our paper builds on this latter finding and examines how financial analysts are able to maintain forecast accuracy in the changed information environment of the post-FD period. We focus on the consequences of Reg FD with respect to joint decisions made by analysts regarding which type of information to rely on and which firms to cover in order to maintain forecast accuracy. These joint decisions reflect on the operations of financial analysts. We examine three specific questions related to this. First, has there been a change in the weighting of information used in generating forecasts between information common to all analysts (common information) and information specific to individual analysts (idiosyncratic information)?[3] Second, has there been a change in the number of firms covered by analysts as a result of a change in the weighting of common and idiosyncratic information? Third, while prior evidence shows that there is no adverse impact on the mean forecast accuracy, are there cross-analyst differences in forecast accuracy resulting from the loss of preferential access to firm managers in the post-FD period?

Using a model developed by Barron, Kim, Lim, and Stevens 1998, we find an insignificant change in the precision of common information in analyst forecasts between the pre-FD period and the post-FD period. This supports the results reported by Heflin et al. 2003 and is consistent with analysts not facing a significant deterioration in the quality of common information received from firms after the passage of Reg FD. However, we find that the precision of idiosyncratic information has increased in the post-FD period, which suggests that analysts invest greater effort in private information discovery activities to improve the precision of their forecasts. This is consistent with Bailey, Li, Mao, and Zhong 2003, who document that investment professionals are spending more effort on information analysis after the passage of Reg FD.

If analysts are expending more effort per firm on idiosyncratic information discovery, there could be a compensating decline in the number of firms covered by individual analysts. Therefore, we investigate changes in the coverage of firms by analysts. We find a significant decline in the average number of firms covered per analyst, from 11.16 firms in the pre-FD period to 10.79 in the post-FD period. Interestingly, analysts are shifting coverage from firms that had extensive coverage in the pre-FD period to firms that had lesser following.[4] This is consistent with analysts shifting coverage to less-followed firms so that their efforts at idiosyncratic information discovery and analysis yield greater benefits — that is, their shift in coverage allows them to differentiate themselves from other analysts.

In our final set of tests, we examine the differential effects of Reg FD on analyst operations by examining cross-analyst differences in forecast accuracy in the post-FD period. We find that analysts who were likely to benefit in the pre-FD period from their proximity to management are more likely to be adversely affected in the

post-FD period. Thus, analysts from big brokerage houses, who had relatively lower mean forecast errors in the pre-FD period, are unable to maintain their forecasting superiority in the post-FD period. However, big brokerage firm analysts who are classified as "all-star" analysts by the *Institutional Investor* magazine continue to enjoy superior forecasting ability in the post-FD period.

Overall, our study provides insights into how analysts change coverage and invest in private information discovery in response to shifts in their information environment. The results suggest that in the post-FD environment, analysts are placing significantly more emphasis on idiosyncratic information discovery. This presumably increases the workload per firm for an analyst and leads to fewer firms being covered. Interestingly, analysts are more likely to drop well-covered firms and shift coverage to less-followed firms, where they have a greater opportunity to showcase their idiosyncratic efforts. Finally, analysts who had the weakest linkages to firm managers in the pre-FD period see a relative improvement in performance, while analysts with the strongest linkages see a relative worsening of performance. Our results imply that Reg FD has leveled the playing field among analysts and among firms in terms of their ability to attract analyst following.

The rest of the paper is organized as follows. We formalize our hypotheses in section 2. In section 3, we describe the data. In section 4, we present results examining the impact of Reg FD on the information environment of analysts. In section 5, we examine the impact of Reg FD on analyst coverage and accuracy for different classes of analysts. We conclude with a summary of our results in section 6.

2. Hypotheses

This paper primarily focuses on the inputs that go into the generation of analysts' forecasts and reports. Our analysis provides evidence with respect to three aspects of the operations of financial analysts. The first aspect pertains to the type of information used by analysts — specifically, the mix between common information obtained from or inferred from management communication and disclosure, and idiosyncratic information, obtained by analysts' own private data gathering and analysis. The second aspect pertains to analysts' decisions to start covering or stop covering certain firms in response to changes in their workload as a result of Reg FD. The third aspect pertains to the cross-analyst differences in the impact of Reg FD based on how well connected they were with the firms' management in the pre-FD period.

Precision of information

Barron et al. (1998) view the information environment that analysts operate in as being composed of two elements. The first component, common information, largely consists of information disclosed by firms to all analysts, as well as other common sources of information such as articles in the business press and macroeconomic information. Idiosyncratic information consists primarily of information that individual analysts generate through their own efforts at data gathering and analysis. Given that Reg FD affects the manner in which managers communicate with analysts, it presumably has an impact on the quality or precision of common

information. As analysts take steps to adjust to this new environment, the precision of idiosyncratic information can also be affected.

Precision of common information

The effect of Reg FD on the precision of common information is unclear. On the one hand, if firms reduce the amount of information that they used to provide to analysts as a whole, then the precision of common information will decline. This effect is especially important, as evidenced by a survey of analysts that shows that analysts regarded spoken word with management as the most important source of information when analyzing a company.[5] On the other hand, if firms respond by increasing disclosure in the public domain as a whole, the precision of common information will improve, because these disclosures are available to all analysts. We state this hypothesis in the null form as follows:

HYPOTHESIS 1a. *The precision of common information reflected in analyst forecasts will be unchanged between the pre-FD period and the post-FD period.*

An increase in the precision of public information would imply that the beneficial impact of increased public disclosures by firms dominates any detrimental effect of lower guidance to analysts as a whole. A decrease in the precision of public information would imply either that the detrimental effect of reduced interactions between firms and analysts dominates any increased disclosure, or that firms did not increase public disclosure in response to Reg FD.

Precision of idiosyncratic information

There are potentially two competing explanations for the effect of Reg FD on the precision of idiosyncratic information. On the one hand, in the pre-FD period certain analysts with privileged access to management could obtain nonpublic information, which was therefore idiosyncratic to these analysts. With Reg FD's abolition of privileged access, there should be a decrease in idiosyncratic information in the post-FD period, at least for some analysts. On the other hand, in the post-FD period, more information supplied by the firm is likely to be available to all analysts. In order to obtain a competitive edge over their peers, individual analysts would have to increase their investments in private information search and analysis. This could take the form of generating new information or conducting more intensive analyses of publicly available information. As a result, we would expect to see an increase in the level of idiosyncratic information in the post-FD period. We test the following hypothesis, stated in the null form as follows:

HYPOTHESIS 1b. *The precision of idiosyncratic information reflected in analyst forecasts will be unchanged between the pre-FD period and the post-FD period.*

Analyst coverage

If analysts expend greater effort on idiosyncratic information gathering and analysis, then one should see a higher workload for analysts per firm covered. To cope with the increased workload, analysts would either hire additional analysts or drop coverage of some firms to focus on fewer firms. There are costs and benefits that result from both options. The widespread reports about layoffs of analysts, in an environment where analyst activities have attracted increased regulatory scrutiny, suggest that additional hiring is not occurring. Hence, analysts may have to drop coverage of certain firms and focus on fewer firms with more in-depth analysis. We test the following hypothesis, presented in alternative form:

HYPOTHESIS 2. *The average number of firms covered by an analyst will be lower in the post-FD period than in the pre-FD period.*

Analyst forecasting ability

Our final hypothesis relates to the differential impact of Reg FD on analysts, based on their level of access to management in the pre-FD period. Prior research has shown that analysts who are well connected with firms possess superior forecasting ability (Dugar and Nathan 1995; Michaely and Womack 1999). Analysts working for large brokerage houses develop strong contacts with management in the hope of acquiring underwriting and investment banking business for their firms. Similarly, analysts belonging to underwriting firms that were responsible for the initial public offering or latest capital offering have an information advantage arising from their affiliations (Lin and McNichols 1997). In the post-FD setting, advantages due to linkages are likely to be less important because Reg FD prohibits private disclosure of information. Analysts who enjoyed the advantages of strong linkages are more likely to be adversely affected as they lose their source of competitive advantage. Hence, well-connected analysts are more likely to see a decline in performance, as reflected in their forecasting accuracy. We test the following hypothesis, presented in alternate form:

HYPOTHESIS 3. *Analysts with close links to management in the pre-FD period are more likely to see a decline in performance in the post-FD period than other analysts.*

3. Data

Sample selection

Our primary data source for this paper is the Institutional Brokers Estimate System (I/B/E/S). We use information from both the summary data base, which has information at the firm level, as well as the detail data base, which has information at the level of the individual analyst. To maximize the power of our tests, we focus on quarterly forecasts of earnings per share. We focus on the last available forecast of earnings per share available from I/B/E/S prior to the announcement of quarterly earnings to ensure that we analyze the forecast likely to be the most accurate, consistent with Shane and Brous 2001.

To avoid confounding effects related to the adjustments faced by both firms and analysts immediately around the passage of Reg FD, we exclude the final quarter of 2000 from the analysis. We compare one year of pre-FD data (October 1999 to September 2000) with one year of post-FD data (January 2001 to December 2001). We ensure that each firm has four pre-FD forecasts and four post-FD forecasts. This matched-sample design ensures that the effect of seasonality and firm-specific characteristics are mitigated. Relative to the passage of Reg FD, we define quarters based on the end of fiscal quarter as follows: Q_{-4} (October–December 1999), Q_{-3} (January–March 2000), Q_{-2} (April–June 2000), Q_{-1} (July–September 2000), Q_1 (January–March 2001), Q_2 (April–June 2001), Q_3 (July–September 2001), and Q_4 (October–December 2001). We delete the transitional quarter Q_0 (October–December 2000).[6]

Table 1, panel A presents a summary of the sample selection process. We restrict ourselves to firms on the I/B/E/S with at least two analysts following them, to ensure that we can meaningfully calculate the dispersion in forecasts. Earnings realizations are obtained from I/B/E/S to ensure consistency with the forecasts. We also impose a condition that each firm should appear in all four quarters both before (Q_{-4} to Q_{-1}) and after (Q_1 to Q_4) the passage of Reg FD. Our final sample includes 5,764 pre-FD forecasts and 5,764 post-FD forecasts, corresponding to 1,441 distinct firms.

Table 1, panel B presents the summary statistics of the firms in our study. For comparison, we also present the statistics for the population of COMPUSTAT firms. Our sample firms are larger in terms of sales, assets, book value, and market capitalization and have lower book-to-market ratios than the population. This is a reflection of our requirement that firms have at least two analysts following them at all times and is consistent with analysts preferring to follow large, profitable firms that are highly valued (Bhushan 1989). Furthermore, there is a significant difference between the mean and median values of total assets, sales, net income, and shareholder equity. For example, the mean total assets are $9.8 billion, whereas the median is only $1.2 billion. The size disparity indicates the presence of some large firms that increase the mean values dramatically.

Descriptive statistics: Characteristics of analysts' forecasts

We focus on three characteristics of analysts forecasts — forecast error, absolute forecast error, and forecast dispersion. For the forecast errors, we present both scaled and unscaled numbers. Forecast errors are scaled by the price (obtained from I/B/E/S) as of the end of November 2000.[7] Table 2 compares the characteristics of analysts' forecasts before and after Reg FD for the matched sample of pre-FD and post-FD forecasts. Panel A compares the entire pre-FD period to the post-FD period, while panel B compares the quarters immediately before and after the passage of Reg FD.

Both scaled and unscaled forecast errors have become more negative after the passage of Reg FD in means and medians. This indicates a higher incidence of negative earnings surprises and likely reflects the worsening state of the U.S. economy after October 2000. Similarly, both scaled and unscaled absolute forecast

errors increase significantly after the passage of Reg FD, consistent with Heflin et al. 2003, who also find deterioration in mean forecast error. However, echoing their results, we do not find any significant difference when we look at median absolute forecast errors.[8] Finally, we analyze forecast dispersion, measured as the standard deviation of analysts' forecasts at a given point in time. Forecast dispersion has increased significantly for both scaled and unscaled variables, which indicates that analysts tend to have more divergent views in the post-FD period. In the section to follow, we use the Barron et al. 1998 model to infer the precision of public and private information from forecast error and dispersion.

TABLE 1
Sample selection and descriptive statistics

Panel A: Sample selection

Criterion	Number of firm-quarters	Number of firms
I/B/E/S data available in pre-FD period with at least 2 analysts reporting forecasts*	9,524	2,624
I/B/E/S data available in post-FD period with at least 2 analysts reporting forecasts*	8,461	2,433
Data available for all four quarters in both pre-FD and post-FD periods	5,764 each (pre and post)	1,441

Panel B: Descriptive statistics for sample firms† ($ millions of U.S. dollars)

	Sample mean	COMPUSTAT mean	Sample median	COMPUSTAT median
Total assets	9,802	4,639	1,227	175
Sales	4,151	1,718	915	86
Net income	261	85	50	1
Net income/assets	1.54%	−12.7%	4.29%	0.7%
Sales growth	41.1%	36.8%	17.0%	12.9%
Book value of equity	1,850	825	441	53
Market value of equity	7,985	2,400	1,267	79
Book-to-market ratio	0.560	0.855	0.396	0.580

Notes:

All variables are computed using the COMPUSTAT data base for the fiscal year 2000. Total assets are computed using data #6, sales using data #12, net income using data #18, and book value of equity using data #60. For market value of equity we use data #25 for shares outstanding and data #24 for stock price.

* The quarter corresponding to Reg FD (the fourth quarter of 2000) is deleted. Four quarters prior to that are in the pre-FD period, while four quarters subsequent to that are in the post-FD period.

† Data are drawn from fiscal year 2000 financial statements and are available for 1,392 of the 1,441 firms.

TABLE 2
Descriptive statistics for the characteristics of analyst forecasts

Panel A: Comparison of entire pre-FD and post-FD periods

	Means			Medians		
	Pre-FD	Post-FD	*t*-statistic for difference	Pre-FD	Post-FD	*z*-statistic for difference
Scaled forecast error	0.0004	−0.0005	−6.80*	0.0004	0.0001	−12.24*
Unscaled forecast error	0.0171	−0.0039	−11.90*	0.0100	0.0050	−14.36*
Scaled absolute forecast error	0.0024	0.0030	4.90*	0.0008	0.0008	−0.73
Unscaled absolute forecast error	0.0441	0.0531	5.86*	0.0200	0.0200	−0.19
Scaled forecast dispersion	0.0013	0.0017	5.89*	0.0006	0.0007	9.08*
Unscaled forecast dispersion	0.0289	0.0381	3.96*	0.0100	0.0200	11.44*

Panel B: Comparison immediately around the passage of Reg FD

	Means			Medians		
	Q_{-1}	Q_{+1}	*t*-statistic for difference	Q_{-1}	Q_{+1}	*z*-statistic for difference
Scaled forecast error	0.0002	0.0008	2.18†	0.0004	0.0002	−4.74*
Unscaled forecast error	0.0145	−0.0037	−4.96*	0.0100	0.0100	−5.35*
Scaled absolute forecast error	0.0024	0.0033	3.60*	0.0008	0.0008	0.00
Unscaled absolute forecast error	0.0450	0.0545	3.00*	0.0200	0.0200	−0.28
Scaled forecast dispersion	0.0013	0.0016	2.68*	0.0006	0.0006	2.76*
Unscaled forecast dispersion	0.0300	0.0345	1.00	0.0100	0.0100	3.25*

(The table is continued on the next page.)

TABLE 2 (Continued)

Notes:

For computing forecast error, we use the latest available forecast of one-quarter-ahead quarterly earnings per share (EPS) from the I/B/E/S summary file, prior to the end of the fiscal period. There were 5,764 firm quarters with information for all four quarters of both the pre-FD period (October 1999 to September 2000) and the post-FD period (January 2001 to December 2001). For scaled variables, the price as of the end of November 2000 is used as the scaling variable. *t*-statistics are calculated using a pooled difference of means test. *z*-statistics are for a Wilcoxon signed rank test. Panel B compares the values for the 1,441 firms in the quarters just before and just after the passage of Reg FD.

* Significant at the 1 percent level (two-tailed).

† Significant at the 5 percent level (two-tailed).

4. Impact of Reg FD on analysts' information environment

The Barron et al. 1998 model

We use the Barron et al. 1998 model to infer the information environment faced by analysts.[9] The model uses the information in the forecast dispersion and error to shed light on analysts' underlying information sources. The information sources are aggregated into common information, which refers to the information potentially available to all analysts, and idiosyncratic information, which refers to information specific to an individual analyst. Common information arises from information available in the public domain with respect to the firm, industry, and the macroeconomy. Idiosyncratic information refers to insights developed by analysts through their individual efforts at data gathering, research, and analysis. The forecast dispersion and error relate in different ways to common and idiosyncratic components of individual analysts' forecasts. While forecast dispersion reflects error from the idiosyncratic information, error in the mean forecast primarily reflects error in the common information. Thus, the Barron et al. 1998 model provides a linkage between properties of analysts' information and the observable characteristics of their forecasts.

The model introduces two terms, the precision of common information (h) and precision of idiosyncratic information (s), measured as follows:

$$h = \frac{SE - D/N}{[(1 - 1/N)D + SE]^2}$$

$$s = \frac{D}{[(1 - 1/N)D + SE]^2}$$

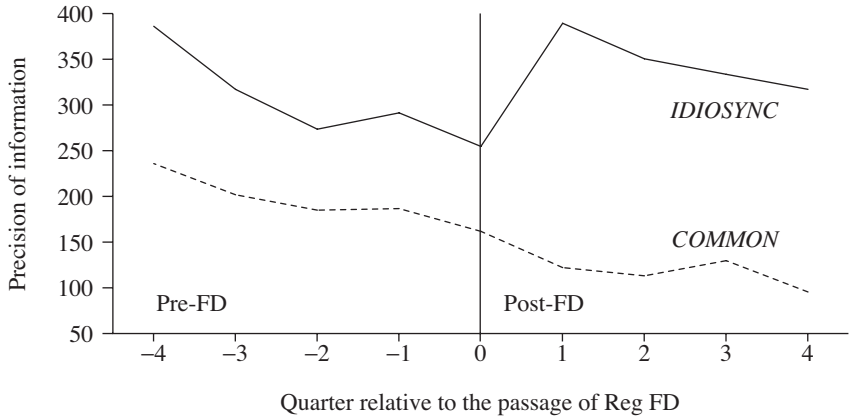
where SE is the squared error of the consensus mean forecast (measured as $(EPS_{actual} - EPS_{consensus})^2$); D is the dispersion among the forecasts (measured

as $STDEV^2$, where *STDEV* is the standard deviation of estimates from I/B/E/S); and *N* is the number of analysts making forecasts.

The precision of common information, *h*, measures the extent to which analysts rely on common or public information in generating their forecasts. Conversely, the precision of idiosyncratic information, *s*, measures the extent to which analysts rely on private or idiosyncratic information. If the dispersion among analysts is low, then it is more likely that analysts are relying on a common source of information (high *h*, low *s*), while if the dispersion is high, then it is more likely that analysts are relying on idiosyncratic sources of information (high *s*, low *h*). Furthermore, we define $(h + s)$ as the precision of total information (see Venkataraman 2001). We refer to *h*, *s*, and $(h + s)$ as *COMMON*, *IDIOSYNC*, and *TOT*, respectively.[10]

Figure 1 plots the mean precision of common and idiosyncratic information in each quarter in the pre-FD and post-FD periods. As is apparent from the graph, there is a monotonic decline in the precision of common information even before the quarter in which Reg FD was made effective. However, after the passage of Reg FD, there is a corresponding increase in the precision of idiosyncratic information, which seems to compensate for the decrease in precision of common information.

Figure 1 Mean information precision around Reg FD



Notes:

The precision of the information underlying analyst forecasts is inferred from the squared error of consensus forecast (*SE*), forecast dispersion (*D*), and number of analysts making forecasts (*N*) using the Barron et al. 1998 framework. The two metrics for the precision of common and idiosyncratic information are

$$COMMON = \frac{SE - D/N}{[(1 - 1/N)D + SE]^2}$$

and

$$IDIOSYNC = \frac{D}{[(1 - 1/N)D + SE]^2}.$$

Control variables for information environment

A difficulty with assessing the impact of Reg FD is that the regulation was implemented around the same time as a downturn in the stock market. Since the post-FD observations (January–December 2001) are likely to be from after the stock-market decline, while the pre-FD observations (October–September 2000) are from the height of the stock-market boom, some of the observed pattern is likely to result from the unexpected downturn in stock prices. The information environment that analysts operate in is likely to be affected by this downturn. For example, firms may increasingly have to deal with how to disclose bad news, as opposed to good news in the prior period. This may affect their disclosure practices and their relationship with analysts.

We attempt to control for this macroeconomic effect using an approach motivated by Heflin et al. 2003, who define the variable *GDPSHOCK*, which equals the absolute value of quarterly change in the seasonal growth rate in gross domestic product. Heflin et al. show that *GDPSHOCK* accounts for a substantial portion of the decline in analyst forecast accuracy, and after we control for this, the impact of Reg FD on forecast accuracy is insignificant. In our tests, *GDPSHOCK* should control for changes in the information environment caused by the macroeconomic shock unrelated to the passage of Reg FD.

The macroeconomic shock also meant that firms were more likely to report losses or surprise analysts negatively. Skinner (1994) demonstrates that firms with bad news are likely to make more disclosures to avoid potential litigation, which clearly has an impact on the information environment of analysts. However, Ertimur (2004) finds that loss firms are associated with greater information asymmetry. We control for these two factors through two indicator variables, *LOSS* and *MISS*. We define *LOSS* to equal 1 if a firm reports a loss in a given quarter and 0 otherwise, and *MISS* to equal 1 if a firm fails to meet the consensus forecast in a given quarter and 0 otherwise.

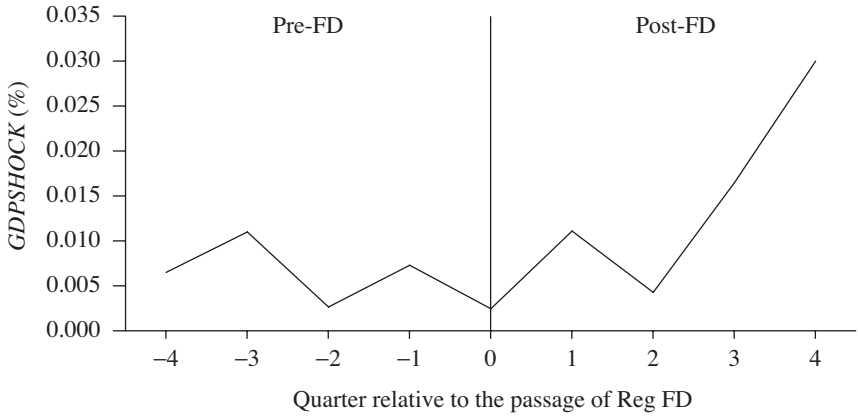
Figure 2, panel A graphs *GDPSHOCK* while panel B maps the proportion of firms with losses (*LOSS*) and firms with negative surprises (*MISS*) around the passage of Reg FD. All these variables increase around the passage of Reg FD in conjunction with *GDPSHOCK*, indicating an increase in losses corresponding to the unexpected downturn, which caught analysts by surprise. In our multivariate tests, in addition to *GDPSHOCK*, *LOSS*, and *MISS*, we further control for firm-specific characteristics by using lagged information precision variables as controls.[11]

Table 3 presents descriptive statistics and a correlation matrix for the measures of information precision (*COMMON*, *IDIOSYNC*, *TOT*), the control variables (*GDPSHOCK*, *LOSS*, and *MISS*), and the dummy variable *POSTFD*, which is set to 1 for all post-FD observations and 0 for the pre-FD observations. Panel A presents the descriptive statistics. For all three information precision measures (*COMMON*, *IDIOSYNC*, and *TOT*), means are much greater than medians, indicating that the measures are right-skewed. Furthermore, *COMMON* can occasionally take on negative values. Consistent with prior papers using the Barron et al. 1998 model empirically (Barron et al. 2002), we leave the negative numbers unchanged, though

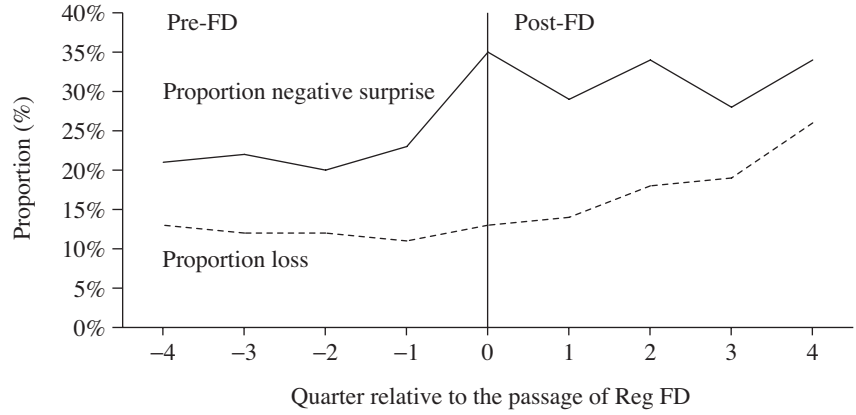
our results are unchanged if we set these to zero. Over 15 percent of observations correspond to periods with losses, while over 26 percent correspond to quarters where analysts are negatively surprised. The *POSTFD* dummy has a mean of 0.5, owing to our matched-sample design.

Figure 2 Economy and firm-level information environment around Reg FD

Panel A: *GDPSHOCK* around Reg FD*



Panel B: Proportion of losses and negative earnings surprises around Reg FD†



Notes:

* *GDPSHOCK* is measured as the absolute value of quarterly change in the seasonal growth rate in gross domestic product (GDP).

† Firms are considered loss firms if their realized EPS is negative, and considered negative surprise firms if their realized EPS is below the last consensus EPS before earnings announcement.

TABLE 3
Correlations between information precision measures and control variables

Panel A: Descriptive statistics

	Mean	Median	s.d.	Minimum	Maximum
COMMON	158.7	20.3	553.4	−968.0	4,049.6
IDIOSYNC	332.1	17.9	874.7	0.0	5,750.7
TOT	490.7	101.6	971.2	0.0	9,800.3
GDPSHOCK	0.011	0.009	0.008	0.003	0.030
LOSS	0.156	0	0.363	0	1
MISS	0.263	0	0.440	0	1
POSTFD	0.5	0.5	0.5	0	1

Panel B: Correlations

	COMMON	*IDIOSYNC*	*TOT*	*GDPSHOCK*	*LOSS*	*MISS*	*POSTFD*
COMMON		−0.132	0.451	−0.047	−0.102	−0.009	−0.079
IDIOSYNC	−0.104		0.825	0.000	−0.125	−0.127	0.018
TOT	0.381	0.664		−0.027	−0.171	−0.119	−0.029
GDPSHOCK	−0.057	0.043	−0.025		0.105	0.066	0.524
LOSS	−0.211	−0.181	−0.348	0.076		0.169	0.100
MISS	−0.047	−0.110	−0.213	0.056	0.169		0.113
POSTFD	−0.108	0.060	−0.055	0.546	0.100	0.113	

(The table is continued on the next page.)

TABLE 3 (Continued)

Notes:

This table presents the correlations between the dependent variables used in the multivariate tests to follow and the independent variables. In panel B, figures above the diagonal are Pearson correlations and figures below the diagonal are Spearman rank correlations. There were 11,528 observation (8 per firm × 1,441 firms). Owing to the large sample size, all correlations are statistically significant. *COMMON* refers to the precision of common information (h) from the Barron et al. 1998 framework. *IDIOSYNC* is the precision of idiosyncratic information (s) from the Barron et al. 1998 framework. *TOT* is the sum of *COMMON* and *IDIOSYNC*. *GDPSHOCK* is the absolute value of quarterly change in seasonal growth rate in gross domestic product. *LOSS* is a dummy variable equal to 1 if a firm posts a loss in a given quarter, and *MISS* is a dummy variable equal to 1 if a firm fails to meet consensus expectations for a given quarter. *POSTFD* is a dummy variable equal to 1 for a forecast date between January 2001 and December 2001.

Panel B of Table 3 presents the correlation matrix between the information environment variables and the control variables. By construction, the precision of total information (*TOT*) is strongly related to both the precision of common information (*COMMON*) and the precision of idiosyncratic information (*IDIOSYNC*). The dummy variable *POSTFD* is strongly positively correlated with the GDP shock measure (*GDPSHOCK*), which would be expected given that the macroeconomic shocks that occurred immediately after the passage of Reg FD. Furthermore, all three information precision measures have a negative correlation with the dummy variable for loss firms (*LOSS*), which indicates the lower precision of information in the presence of losses. Finally, note that the two information precision measures are negatively correlated with each other, consistent with analysts potentially compensating for lower precision of common information by trying to improve the precision of their idiosyncratic information.

Results: Comparison of pre-FD and post-FD information environments

In Table 4, panel A, we compare the means and medians of the precision measures before and after the passage of Reg FD. The results indicate that while the precision of common information (*COMMON*) has declined after the passage of Reg FD, the precision of idiosyncratic information (*IDIOSYNC*) has increased. The precision of common information may have declined either because of reduced disclosure from firms or because of less information guidance from managers to analysts. However, the increase in the precision of idiosyncratic information indicates that analysts compensate for the reduced precision of common information through idiosyncratic information gathering, research, and analysis. The precision of total information (*TOT*) has declined, which indicates that, at the univariate level, the decline in the precision of common information is steeper than the increase in the precision of idiosyncratic information. This may be related to macroeconomic effects, for which we control in our multivariate tests.

TABLE 4
Precision of analyst forecasts before and after Reg FD

Panel A: Comparison of precision (entire pre-FD and post-FD periods)

	n	Pre-FD mean	Post-FD mean	*t*-statistic for difference	Pre-FD median	Post-FD median	*z*-statistic for difference
COMMON	5,518	202.2	115.1	−8.33*	31.2	13.3	−11.41*
IDIOSYNC	5,518	316.7	347.4	2.85*	14.3	21.5	6.32*
TOT	5,518	518.9	462.4	−3.07*	117.3	88.0	−5.87*

Panel B: Comparison of precision (immediately around the passage of Reg FD)

	n	Q_{-1} mean	Q_{+1} mean	*t*-statistic for difference	Q_{-1} median	Q_{+1} median	*z*-statistic for difference
COMMON	1,380	186.5	122.1	−3.19*	30.4	16.0	−4.05*
IDIOSYNC	1,380	291.2	389.3	2.91*	16.5	21.3	2.61*
TOT	1,380	477.7	511.5	0.93	109.1	96.3	−1.18

Panel C: Comparison of within-quarter change in precision (entire pre-FD and post-FD periods)

	n	Pre-FD mean	Post-FD mean	*t*-statistic for difference	Pre-FD median	Post-FD median	*z*-statistic for difference
ΔCOMMON	5,428	43.2	32.0	−1.59	1.42	0.62	0.85
ΔIDIOSYNC	5,428	47.3	81.3	3.37*	0.21	1.43	5.13*
ΔTOT	5,428	90.6	113.2	2.26†	5.42	8.79	3.17†

(The table is continued on the next page.)

TABLE 4 (Continued)

Panel D: Regression for precision of analyst forecasts

	COMMON	*COMMON*	*IDIOSYNC*	*IDIOSYNC*	*TOT*	*TOT*
Intercept	134.59†	147.64*	165.49*	259.49*	209.31*	312.26*
	(6.30)	(10.23)	(5.14)	(11.28)	(6.00)	(12.59)
POSTFD	−29.12	−34.16	142.38*	151.53*	136.89*	140.65*
	(−0.99)	(−1.33)	(3.03)	(3.49)	(2.79)	(3.16)
lag(*PREC*)	0.150*	0.148*	0.30*	0.290*	0.37*	0.354*
	(9.07)	(8.80)	(13.73)	(13.49)	(20.82)	(20.00)
GDPSHOCK	73.05		234.62		296.82	
	(0.10)		(0.16)		(0.20)	
LOSS		−104.27*		−197.62*		−251.30*
		(−12.06)		(−13.97)		(−15.21)
MISS		20.64‡		−242.43*		−214.28*
		(1.76)		(−16.36)		(−11.66)
TREND	−8.50	−5.50	−19.20‡	−11.29	−24.23†	−15.04‡
	(1.20)	(−1.09)	(−1.76)	(−1.31)	(−2.11)	(−1.72)
Adjusted R^2	4.82%	5.30%	8.54%	11.01%	16.25%	18.34%
n	9,976	9,976	9,976	9,976	9,976	9,976

(The table is continued on the next page.)

TABLE 4 (Continued)

Panel E: Regression for within-quarter change in precision of analyst forecasts

	ΔCOMMON	*ΔCOMMON*	*ΔIDIOSYNC*	*ΔIDIOSYNC*	*ΔTOT*	*ΔTOT*
Intercept	44.73*	32.68*	42.99†	64.39*	83.9*	92.82*
	(3.02)	(3.25)	(2.09)	(4.32)	(4.18)	(6.26)
POSTFD	−1.09	5.63	43.26†	44.28†	43.13‡	50.84‡
	(0.05)	(0.30)	(1.97)	(2.07)	(1.84)	(1.93)
lag(*PREC*)	0.03	0.03	−0.01	−0.01	0.05*	0.04†
	(1.32)	(1.30)	(−0.10)	(−0.20)	(2.73)	(2.51)
GDPSHOCK	−722.72		15.17		−721.46	
	(−1.16)		(0.02)		(−0.79)	
LOSS		−20.87†		−70.95*		−89.19*
		(−3.07)		(−6.70)		(−8.64)
MISS		15.57†		−43.13*		−26.69†
		(1.97)		(−4.39)		(−2.37)
TREND	−0.63	−3.32	−1.24	1.10	−1.72	−2.22
	(−0.14)	(−0.90)	(−0.17)	(0.20)	(−0.26)	(−0.40)
Adjusted R^2	0.70%	1.01%	0.83%	1.24%	1.02%	1.83%
n	9,760	9,760	9,760	9,760	9,760	9,760

(The table is continued on the next page.)

TABLE 4 (Continued)

Notes:

The precision of the information underlying analyst forecasts is inferred using the Barron et al. 1998 framework. The two metrics for the precision of common and idiosyncratic information underlying analyst forecasts are

$$COMMON = \frac{SE - D/N}{[(1 - 1/N)D + SE]^2}$$

and

$$IDIOSYNC = \frac{D}{[(1 - 1/N)D + SE]^2},$$

where *SE* is the squared error of the consensus forecast, *D* is the dispersion in analysts' forecasts, and *N* is number of analysts making forecasts. *COMMON* is the precision of public or common information and *IDIOSYNC* is the precision of analysts' private or idiosyncratic information. In addition, we define *TOT* = *COMMON* + *IDIOSYNC* as the precision of all information. The analysis is conducted for firms with four quarters of information in both the pre-FD period (October 1999 to September 2000) and the post-FD period (January 2001 to December 2001), for which the precision measures can be computed and matched across the pre-FD and post-FD periods (5,518 out of 5,764). *COMMON* can occasionally take on negative values, especially when the consensus is exactly equal to the realized earnings (*SE* = 0) and there is nonzero dispersion among analysts. In these cases, the negative values are left as they are. The results are unchanged if negative values are either deleted or set to zero. *COMMON* and *IDIOSYNC* are measured using the latest available forecast information for a given quarter. *ΔCOMMON* (*ΔIDIOSYNC*) is the difference between *COMMON* (*IDIOSYNC*) measured using the latest available forecast and measured using the earliest available forecast, and represents the change in precision in a given quarter. *POSTFD* is a dummy variable equal to 1 for a forecast date between January and December 2001 (Reg FD effective). lag(*PREC*) is the lagged value of the precision measure (or change in the precision measure) from the prior quarter for a given firm. *GDPSHOCK* is the absolute value of the quarterly change in the seasonal growth rate in gross domestic product. *LOSS* is a dummy variable equal to 1 if a firm posts a loss in a given quarter. *MISS* is a dummy variable equal to 1 if a firm fails to meet consensus expectations for a given quarter. *TREND* is a variable that takes a value from −4 to +4 based on the quarter relative to the passage of Reg FD, and is used to detrend the pattern around Reg FD. For panels A, B, and C, *t*-statistics are calculated using a pooled difference of means test. *z*-statistics are for a Wilcoxon signed rank test. For panels D and E, *t*-statistics are in parentheses and are adjusted for heteroscedasticity as in White 1980. There were 9,976 firm-years corresponding to 1,247 firms for which all the independent variables had valid data for both the four pre-FD and post-FD observations.

* Significant at the 1 percent level (two-tailed).

† Significant at the 5 percent level (two-tailed).

‡ Significant at the 10 percent level (two-tailed).

Panel B of Table 4 compares the quarter immediately preceding the passage of Reg FD with the quarter immediately following it. As above, the precision of common information declines around Reg FD while the precision of idiosyncratic information increases. However, the change in the precision of total information is insignificant.

To further analyze these results, we focus on the change in precision of information within a quarter. Information becomes more precise over time as uncertainties are resolved through disclosure, guidance from management, analysts' information gathering and research, and the unraveling of events. The change in the precision of common information (*COMMON*) is likely to be related to common sources of information across all analysts, with the primary source being disclosure from management. The change in the precision of idiosyncratic information (*IDIOSYNC*) represents the effect of the information gathering and research of analysts. The change in the precision of total information (*TOT*) is the net effect of *COMMON* and *IDIOSYNC*. We measure the precision metrics at two points in time — the beginning and the end of each quarter.

Figure 3 compares the trends in the mean within-quarter change in the precision of common information (*COMMON*) and idiosyncratic information (*IDIOSYNC*). While *COMMON* appears relatively flat, *IDIOSYNC* shows an increasing trend after the passage of Reg FD. Panel C of Table 4 presents the means and medians for the within-quarter change in the three precision measures for the pre-FD and the post-FD samples. The mean *COMMON* declines from 43.2 in the pre-FD period to 32.0 in the post-FD period, an insignificant decline. However, the mean *IDIOSYNC* increases substantially, from 47.3 in the pre-FD period to 81.3 in the post-FD period. Similar trends are seen in medians as well. The mean and median values of the change in total precision (*TOT*) are insignificantly different after the passage of Reg FD, consistent with analysts' additional efforts in information gathering and analysis over the course of a quarter having compensated for the decline in the precision of common information.

To confirm our univariate results, we run regressions with the precision measures as dependent variables. We include either *GDPSHOCK* or *LOSS* and *MISS* as control variables for macroeconomic effects along with lagged precision. In addition, we also include a trend variable (*TREND*) that is intended to capture the effects of trends in these variables, which may have started before the passage of Reg FD. *TREND* takes on a value in the range −4 to +4 based on the quarter relative to the passage of Reg FD. The results are presented in panel D of Table 4.

In the regressions for the precision of common information (*COMMON*), the dummy variable *POSTFD* has a negative coefficient that is not significant. Hence, while univariate results suggest a decline in the precision of common information, this does not hold after we control for macroeconomic effects. These results are also broadly consistent with those of Heflin et al. 2003, who document a univariate decline in forecast accuracy that becomes insignificant after they control for macroeconomic effects.

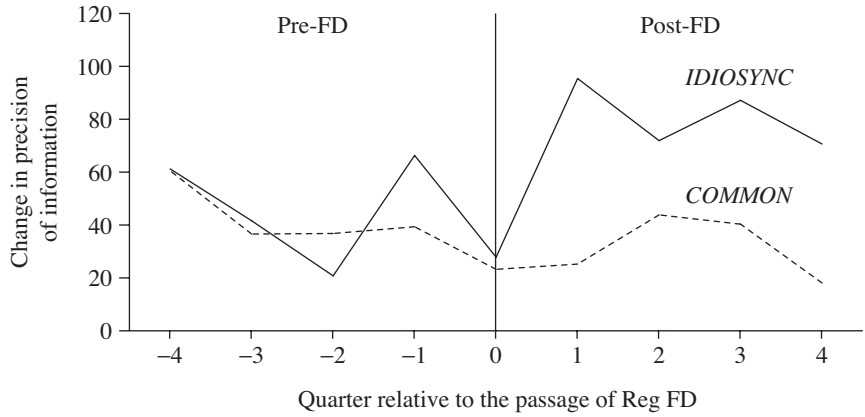
In the regressions for the precision of idiosyncratic information (*IDIOSYNC*), *POSTFD* has a significant positive coefficient, indicating that there is an increase

in the precision of analysts' idiosyncratic information. This is consistent with the univariate results that the precision of idiosyncratic information increases after the passage of Reg FD.

In the regressions for the precision of total information (*TOT*), *POSTFD* continues to have a positive coefficient. Thus, the net effect of Reg FD on the precision of total information appears to be positive as the increase in the precision of private information outweighs the decline in the precision of common information.

Among the control variables, the dummy for loss firms (*LOSS*) has a significant negative coefficient in all regressions. Recall from panel B of Figure 2 that the proportion of loss firms increases in the post-FD period, presumably because of the economic downturn. This potentially contributes to the lower precision of information. Interestingly, the dummy for firms missing forecasts (*MISS*) has a marginally significant positive coefficient in the regression for *COMMON*, consistent with Skinner's 1994 finding that firms with bad news are more likely to increase disclosure. However, *MISS* has a significant negative coefficient in the regressions for

Figure 3 Mean within-quarter change in precision around Reg FD



Notes:

The precision of the information underlying analyst forecasts is inferred from the squared error of consensus forecast (*SE*), forecast dispersion (*D*), and number of analysts making forecasts (*N*) using the Barron et al. 1998 framework. The two metrics for the precision of common and idiosyncratic information are

$$COMMON = \frac{SE - D/N}{[(1 - 1/N)D + SE]^2}$$

and

$$IDIOSYNC = \frac{D}{[(1 - 1/N)D + SE]^2}.$$

We measure both precision metrics at two points in time, the beginning and the end of each quarter, to compute the within-quarter change in information precision.

IDIOSYNC, indicating that analysts' idiosyncratic efforts are less successful when firms miss forecasts. When we use the GDP shock proxy (*GDPSHOCK*) instead of *LOSS* and *MISS*, it is generally insignificant. The trend variable (*TREND*) is weakly negative in most specifications.

Panel E of Table 4 presents the regressions of the within-quarter changes in the precision measures, with broadly similar results. The *POSTFD* dummy variable has an insignificant coefficient in the regression for the change in the precision of common information (*COMMON*), but has a significant positive coefficient in the regressions for the change in the precision of private and total information (*IDIOSYNC* and *TOT*, respectively). This is consistent with analysts expending greater effort within a quarter to improve the precision of their idiosyncratic information, contributing to the overall precision of information.

Considering the regressions in totality, it appears that a marginal decline in the precision of common information is more than offset by a significant increase in the precision of idiosyncratic information after the passage of Reg FD. This is consistent with Reg FD having strengthened analysts' incentives to invest more effort in improving the precision of their idiosyncratic information, leading to a net increase in the precision of total information. However, one consequence of the greater idiosyncratic investments by analysts is their increased workload. We examine this issue in the following section.

5. Impact of Reg FD on analysts' coverage decisions and forecast accuracy

Our results thus far indicate that analysts expend greater efforts to improve the precision of their idiosyncratic information after the passage of Reg FD. In this section, we examine the consequences of these greater idiosyncratic investments. We first examine whether analysts are covering fewer firms in response to the increased workload (Hypothesis 2), and investigate where the changes in coverage are specifically taking place. We then study whether analysts with the closest links to management, who potentially lost a significant portion of their competitive advantage after the passage of Reg FD, face a relative decline in their forecasting accuracy (Hypothesis 3).

Impact on analyst coverage

In order to test our hypothesis that the increased workload for analysts will reduce the average number of firms covered per analyst (Hypothesis 2), we compare the coverage of firms in the pre-FD period with that in the post-FD period. We look at the entire I/B/E/S detail data base for these tests to ensure that we are not omitting firms with coverage of less than two analysts. Thus, we capture all firms that are part of an individual analysts' workload. Panel A of Table 5 provides descriptive statistics on the number of analysts whose forecasts are available on the I/B/E/S detail data base. There were 3,622 analysts who made at least one forecast in the pre-FD period (October 1999 to September 2000), while there were 3,720 analysts who made at least one forecast in the post-FD period (January 2001 to December 2001). Although these numbers appear to indicate a rather stable number of analysts, closer examination reveals considerable turnover. There were 1,079 analysts

whose forecasts appeared for the first time on the I/B/E/S data base after Reg FD went into effect, while 981 analysts who made forecasts in the pre-FD period failed to provide forecasts after the passage of Reg FD. To ensure that our results are not driven by analyst turnover, we focus on the 2,641 analysts who appeared on the I/B/E/S data base in both the pre-FD and post-FD periods.[12]

Panel B of Table 5 compares the mean number of firms covered by the analysts before and after the passage of Reg FD. An analyst is said to cover a given firm in a given time period if he or she makes at least one forecast for that firm in the corresponding time period. For the entire sample of analysts, the number of firms covered declines from an average of 11.2 to an average of 10.8, a mean decline of 0.4 firms per analysts, which is marginally significant. This supports our hypothesis (Hypothesis 2) that the increased workload will lead to a reduction in the number of firms covered.

While our results are consistent with an average increase in workload, there are likely to be differences across analysts based on their level of access to management in the pre-FD period. Specifically, analysts working for large brokerage houses may have had preferential access to management in the pre-FD period because of their potential investment banking and underwriting relationships. Such analysts are likely to be the most adversely affected in the post-FD setting and thus face the greatest incremental workload, leading to greater declines in coverage. To investigate this issue further, we compare the change in coverage between analysts working for big brokerage houses and other analysts. A big brokerage firm is defined as one that was ranked in the top 10 in *Institutional Investor* magazine's league tables of investment banking activity in 1999.[13] Consistent with this, big brokerage analysts significantly reduced their mean coverage from 11.8 to 11.1, while other analysts had an insignificant reduction from 10.9 to 10.7. Interestingly, not all big brokerage analysts see a significant decline in coverage. As panel C of Table 5 indicates, analysts who received an "all-star" commendation from *Institutional Investor* magazine in 1999 have essentially unchanged coverage levels (15.2), while non-all-star analysts see a much greater decline in coverage, dropping almost one firm at the mean level (10.1 versus 9.2). Thus, while average big brokerage analysts drop one firm in response to the increased workload after the passage of Reg FD, superior analysts are unaffected.

The reduction in coverage of firms by analysts may be an unintended negative consequence of Reg FD, especially if the firms losing coverage have low coverage and poor information environments. To see where the decline in coverage is taking place, we analyze the nature of the firms covered by analysts before and after the passage of Reg FD. We focus on firms that had some analyst following in the pre-FD period and did not delist. Panel A of Table 6 analyzes analyst following for these 5,467 firms. For the entire sample, the mean number of analysts decreases significantly, from 7.67 to 7.26. We next partition our sample into three groups based on pre-FD following. Firms with the least following see the greatest increase in analyst following, from a pre-FD mean of 1.85 to a post-FD mean of 2.07, with following increasing for 32 percent of these firms and declining for only 17 percent. In contrast, firms with the greatest pre-FD following see the sharpest decline in

TABLE 5
Impact of Reg FD on analysts' coverage decisions (analyst level)

Panel A: Analyst following initiation and termination

	Number of analysts
Analysts following at least 1 firm pre-FD	3,622
Analysts following at least 1 firm post-FD	3,720
Analysts appearing on I/B/E/S for the first time after Reg FD	1,079
Analysts no longer on I/B/E/S after Reg FD	981
Analysts on I/B/E/S before and after Reg FD	2,641

Panel B: Mean firms covered per analyst ($n = 2{,}641$, analysts that covered firms both pre-FD and post-FD)

	Entire sample (2,641 analysts)	Big brokerage analysts (770 analysts)	Non–big brokerage analysts (1,871 analysts)
Pre-FD coverage	11.16	11.76	10.93
Post-FD coverage	10.79	11.11	10.66
Change in coverage	−0.37	−0.65	−0.27
t-statistic (post-FD − pre-FD)	−1.87*	−1.82*	−1.12

Panel C: All-star big brokerage analysts versus non-all-star big brokerage analysts

	All big brokerage analysts (770 analysts)	All-star big brokerage analysts (249 analysts)	Non-all-star big brokerage analysts (521 analysts)
Pre-FD coverage	11.76	15.21	10.11
Post-FD coverage	11.11	15.19	9.16
Change in coverage	−0.65	−0.02	−0.95
t-statistic (post-FD − pre-FD)	−1.82*	−0.04	−2.40†

Notes:

An entire year of quarterly forecasts is used to determine whether a firm was covered by an analyst because sometimes analysts may skip making forecasts for a given quarter. Analyst coverage is then determined for the pre-FD period (November 1999 to October 2000) and the post-FD period (November 2000 to October 2001). In panel B, the entire sample of 3,842 firms that were followed both before and after the passage of Reg FD is analyzed. The firms are partitioned into three groups based on pre-FD following. Not all groups are of the same size because following is a discrete number.

* Significant at the 10 percent level (two-tailed).

† Significant at the 5 percent level (two-tailed).

TABLE 6
Impact of Reg FD on analyst following (firm level)

Panel A: Mean analyst following per firm ($n = 5{,}467$, firms with following in the pre-FD period that did not delist in the post-FD period)

	Entire sample	Least followed (2,107 firms)	Moderately followed (1,427 firms)	Most followed (19,33 firms)	Difference (most – least)	*t*-statistic
Pre-FD following	7.67	1.85	5.35	15.72	13.86	78.41*
Post-FD following	7.26	2.07	5.17	14.46	12.39	58.82*
Change in following	−0.41	0.22	−0.18	−1.26	−1.47	−11.06*
t-statistic (post-FD − pre-FD)	−7.41*	4.49*	−1.82†	−10.12*		
Percentage with increased following	32.4%	32.3%	33.0%	32.0%	−0.3%	−0.24
Percentage with decreased following	39.8%	17.6%	49.4%	57.0%	39.4%	28.17*

Panel B: Regression for change in analyst following ($n = 3{,}544$)

$$\Delta FOLLOW = \alpha_1 + \beta_1 \Delta BETA + \beta_2 \Delta STD + \beta_3 \Delta INS + \beta_4 \Delta INST + \beta_5 \Delta NUMINST + \beta_6 \Delta ROA + \beta_7 \Delta SIZE + \beta_8 HITECH + \beta_9 RET00 + \beta_{10} RET01 + \beta_{10} LEAST + \beta_{10} MOST$$

Intercept	*ΔBETA*	*ΔSTD*	*ΔINS*	*ΔINST*	*ΔNUMINST*	*ΔROA*	*ΔSIZE*	*HITECH*	*RET00*	*RET01*	*LEAST*	*MOST*	Adj. R^2
−1.21*	0.50*	−39.24*	2.16	3.43*	0.03*	0.33†	0.75*	1.29*	0.45*	−0.02	1.16*	21.26%	
(−10.12)	(4.16)	(−5.66)	(1.22)	(3.98)	(8.09)	(1.67)	(8.21)	(8.88)	(9.40)	(−0.40)	(8.74)		
−0.35*	0.49*	−38.20*	2.25	2.96*	0.03*	0.24	0.76*	1.29*	0.43*	−0.02		−1.30*	21.93%
(−3.00)	(4.09)	(−5.54)	(1.27)	(3.44)	(9.17)	(1.20)	(8.39)	(8.93)	(9.12)	(−0.35)		(−10.35)	
−0.68*	0.54*	−39.96*	2.43	3.11*	0.04*	0.26	0.74*	1.29*	0.43*	−0.04	0.62*	−0.99*	22.27%
(−4.81)	(4.46)	(−5.8)	(1.37)	(3.62)	(9.56)	(1.30)	(8.13)	(8.95)	(9.11)	(−0.62)	(4.07)	(−6.83)	

(The table is continued on the next page.)

TABLE 6 (Continued)

Notes:

An entire year of quarterly forecasts is used to determine whether a firm was covered by an analyst. Analyst following is determined for the pre-FD period (November 1999 to October 2000) and the post-FD period (November 2000 to October 2001). Firms that had some analyst following in the pre-FD period and did not delist during the post-FD period analyzed are studied. There were 5,467 such firms, which are divided into three groups based on pre-FD following. The groups are of unequal size because following is a discrete number. In panel B, change in following is regressed on changes of the following variables: *BETA* (using one-year daily returns), *STD* (one-year return volatility using daily returns), *INS* (percentage of insider ownership), *INST* (percentage of institutional ownership), *NUMINST* (number of institutional owners), *ROA* (net income before extraordinary items scaled by lagged assets), and *SIZE* (log of market capitalization). These variables are measured at or around June 2000 for the pre-FD period and at or around June 2001 for the post-FD period. *HITECH* is a dummy variable for high-tech firms using the same definition as in Francis and Schipper 1999. *RET00* and *RET01* are raw annual stock returns in 2000 and 2001. Complete data are available for 3,544 firms. *LEAST* and *MOST* are dummy variables that equal 1 if a firm belongs to the least- or most-followed groups, respectively, in the pre-FD period.

* Significant at the 1 percent level (two-tailed).

† Significant at the 10 percent level (two-tailed).

analyst following, with the mean declining from 15.72 to 14.46, with following declining for 57 percent of these firms. The difference in the changes across these two groups is highly significant.[14]

Prior research by Bhushan 1989 indicates that analysts' coverage decisions are influenced positively by factors such as systematic risk (β), institutional ownership, profitability, and size, and influenced negatively by unsystematic risk and insider ownership. To control for the changes in the underlying factors, we regress the change in analyst following on the changes in the underlying factors and two dummy variables, *LEAST* and *MOST*, which denote whether a firm was among the least or most followed in the pre-FD period, respectively.[15] The results are presented in Table 6, panel B. *LEAST* has a highly significant positive coefficient, while *MOST* has a highly significant negative coefficient. Thus, the least-followed firms gain analyst following at the expense of the most-followed firms.[16] Why has the cost–benefit trade-off shifted toward less-followed firms? We identify two reasons for this shift. First, analysts on the margin may prefer to develop their intellectual capital on firms where they can distinguish themselves instead of herding around extensively followed firms. Second, Reg FD has potentially raised the cost of following larger, well-followed firms, which presumably provided more private guidance in the pre-FD period, while recent crackdowns on linkages between sell-side research and investment banking or brokerage business have reduced the benefits from covering such firms.

Impact on forecasting accuracy

Our final hypothesis (Hypothesis 3) states that analysts closely linked to management are more likely to see a decline in forecast accuracy in the post-FD period. One concern that potentially clouds any analysis of change in forecast accuracy is the mean reversion in performance (see Sinha, Brown, and Das 1997). Analysts who perform exceptionally in a given period may have done so partially because of luck and their performance is likely to revert to the mean in the following period, with the converse holding for analysts with poor performance. Hence, one may mechanically observe a negative correlation between prior accuracy and change in accuracy for a given analyst. We mitigate this problem in our analysis by grouping forecasts both in cross-section (for example, big brokerage analysts versus the rest) and in time series (mean of all available pre-FD forecasts versus all available post-FD forecasts). Although mean reversion may apply for a given forecast by a given analyst, grouping likely includes forecasts that display both positive and negative mean reversion.

In panel A of Table 7, we compare the performance of big brokerage analysts and other analysts. There were 1,834 firms that had at least one big brokerage analyst (as defined above, in the discussion of the impact on analyst coverage) and one non–big brokerage analyst. We compute the mean and median absolute forecast error across all forecasts made by each of these two groups of analysts before and after the passage of Reg FD. Big brokerage analysts see a significant deterioration in forecast accuracy, with mean absolute forecast error increasing from 0.310 percent in the pre-FD period to 0.352 percent in the post-FD period. For other analysts, the deterioration in mean absolute forecast error is insignificant, increasing from 0.347 percent in the pre-FD period to 0.367 percent in the post-FD period. The difference between these groups decreases in absolute magnitude from a significant 0.037 percent in the pre-FD period to an insignificant 0.015 percent in the post-FD period. Hence, after the passage of Reg FD, big brokerage analysts are unable to maintain their superiority, which is consistent with their linkages meaning less in an environment where preferential access is potentially curtailed.[17]

In panel B of Table 7, we further parse our sample of big brokerage analysts into all-star analysts and non-all-star analysts. There were 1,467 firms that had at least one all-star big brokerage analyst (as defined above) and one non-all-star big brokerage analyst following them. All-star analysts see an insignificant deterioration of performance (mean absolute forecast error changes from 0.366 percent in the pre-FD period to 0.407 percent in the post-FD period), while non-all-star analysts see a significant worsening in accuracy (0.405 percent to 0.466 percent). This implies that after the passage of Reg FD, all-star analysts are able to continue to distinguish themselves from other analysts. This is consistent with all-star analysts having a greater ability to carry out idiosyncratic research and cope with the potential reduction of common information. Hence, it appears that while Reg FD has had a detrimental effect on the population of big brokerage analysts, it has not adversely affected the all-star analysts among them. This mirrors the earlier results that all-star analysts did not reduce coverage of firms after Reg FD.

TABLE 7
Impact of Reg FD on different classes of analysts

Panel A: Big brokerage analysts versus other analysts (1,834 firms that had at least one big brokerage analyst and one non–big brokerage analyst in both pre-FD and post FD periods)

	Mean scaled absolute forecast error			Median scaled absolute forecast error		
	Pre-FD	Post-FD	Difference (*t*-statistic)	Pre-FD	Post-FD	Difference (*z*-statistic)
Big brokerage analysts	0.310%	0.352%	0.042% (2.11*)	0.127%	0.136%	0.009% (1.73†)
Non–big brokerage analysts	0.347%	0.367%	0.020% (1.03)	0.137%	0.140%	0.003% (0.83)
Difference (*t*-statistic/*z*-statistic)	−0.037% (−1.82†)	−0.015% (–0.68)		−0.010% (−1.87†)	−0.004% (−1.04)	

Panel B: All-star big brokerage analysts versus non-all-star big brokerage analysts (1,467 firms that had at least one all-star big brokerage analyst and one non-all-star big brokerage analyst in both pre-FD and post FD periods)

	Mean scaled absolute forecast error			Median scaled absolute forecast error		
	Pre-FD	Post-FD	Difference (*t*-statistic)	Pre-FD	Post-FD	Difference (*z*-statistic)
All-star big brokerage analysts	0.366%	0.407%	0.041% (1.31)	0.123%	0.131%	0.008% (0.94)
Non-all-star big brokerage analysts	0.405%	0.466%	0.061% (1.93†)	0.138%	0.150%	0.012% (1.23)
Difference (*t*-statistic/*z*-statistic)	−0.039% (−1.34)	−0.059% (−1.80†)		−0.015% (−1.80†)	−0.019% (−2.04*)	

(The table is continued on the next page.)

TABLE 7 (Continued)

Notes:

We use the latest available forecast of one-quarter-ahead quarterly EPS from the I/B/E/S detail file, prior to the end of the fiscal period. The means and medians are computed within each group first (that is, big brokerage analysts versus non–big brokerage analysts) at the firm level and then compared across firms. To ensure a matched sample, we require that firms have at least one analyst of each type being compared for all periods for which forecast data are available, and that firms have at least one forecast in both the pre-FD and the post-FD period. Pre-FD (October 1999 to September 2000) and post-FD (Jan 2001 to Dec 2001) means and medians are computed from all firm-level observations for each group in the pre-FD and post-FD periods. Scaled absolute forecast error is defined as the absolute difference between EPS forecast and actual forecast scaled by price at the end of November 2000. *t*-statistics are calculated using a pooled difference of means test. *z*-statistics are for Wilcoxon signed rank test for medians.

* Significant at the 5 percent level (two-tailed).

† Significant at the 10 percent level (two-tailed).

6. Conclusion

Reg FD prohibits nonpublic communications between firm managers and investors. Consequently, the regulation represents a significant change in the information communication process between firms and financial analysts. This change potentially affects the ways in which analysts operate, specifically with respect to their investment in information discovery activities that give them a competitive edge over their peers. Prior research has shown that analysts have not seen a worsening in their performance (measured as the forecast accuracy) after the passage of Reg FD. In this paper, we document how analysts have altered their operations to maintain their forecasting accuracy in the altered information environment of the post-FD period.

We examine three specific issues. First, has there been a change in the weighting of information used in generating forecasts between information common to all analysts (common information) and information specific to individual analysts (idiosyncratic information)? Second, has there been a change in the number of firms covered by analysts concurrently with a change in the weighting of common and idiosyncratic information? Third, while prior evidence shows no adverse impact on the mean forecast accuracy in the post-FD period, are there cross-analyst differences in forecast accuracy resulting from the loss of preferential access to firm managers in the post-FD period?

Using the Barron et al. 1998 model, we find that the precision of common information in the post-FD period has remained unchanged, while the precision of idiosyncratic information has significantly increased. This is consistent with analysts significantly increasing their investment in idiosyncratic information discovery and

analysis in the post-FD period. To invest greater effort in idiosyncratic information, analysts reduce the number of firms that they cover. Interestingly, we find that most of the loss of coverage occurs in firms that already have extensive coverage. After the passage of Reg FD, analysts focus more on firms that had relatively lower following, where they can potentially differentiate themselves more successfully. As a further consequence of the prohibition on the use of nonpublic channels of information, analysts from large brokerage houses who were in a position to exploit their close links to management in the pre-FD period are less likely to have higher forecast accuracy in the post-FD period.

Our study adds to the growing body of literature that shows that Reg FD has helped level the playing field between different capital participants. Prior papers have focused on showing that Reg FD had indeed leveled the playing field between different classes of investors, by reducing the informational disadvantage that small investors possessed with respect to larger, well-connected investors. Our results indicate that Reg FD has also leveled the playing field among analysts, as the importance of belonging to a big brokerage house has diminished after the passage of Reg FD. Furthermore, Reg FD has leveled the playing field among firms, as smaller firms are more successful in attracting analyst following in the post-FD environment.

Endnotes

1. Reg FD exempts firms' attorneys, investment bankers, accountants, and credit analysts (see 17 CFR 243.100(b)(2)).
2. The Securities Industry Association's (SIA's) comment letter to the SEC (SIA 2000) states: "We believe that these communications help get information into the marketplace, whereas the proposal will discourage issuers from exchanging ideas or information with analysts, as well as deter analysts from vigorously competing to glean useful information for their clients and the markets." The SIA also conducted a survey by interviewing 30 analysts (SIA 2001). Of the analysts interviewed by the SIA, 47 percent felt that companies engaged in less communication during the post-FD period, and 72 percent felt that information communicated by issuers to the public was of lower quality in the post-FD period.
3. Common information largely consists of information disclosed by firms to all analysts, as well as other common sources of information such as articles in the business press. Idiosyncratic information consists primarily of information that individual analysts generate through their own efforts at data gathering and analysis.
4. The mean number of analysts covering the most followed firms decreased significantly (15.72 pre-FD versus 14.46 post-FD), while the mean number of analysts covering the least followed firms increased significantly (1.85 pre-FD versus 2.07 post-FD).
5. The survey conducted by the Association for Investment Management and Research (AIMR) in the beginning of 2000 showed that analysts considered spoken word with management as the most important information source ahead of annual reports, conference calls, and in-house analysis of information.
6. While we ensure that there are four pre-FD and four post-FD quarters, we do not explicitly match quarter with quarter. Rather, we compare the October 1999–

September 2000 period in aggregate with the January 2001–December 2001 period. In terms of calendar-quarter comparison, the pre-FD and post-FD quarters corresponding to the first (January–March), second (April–June), and third (July–September) are one year apart, while the final quarters (October–December) are two years apart. Results are unchanged if we focus only on the first three quarters (that is, compare January–September 2000 with January–September 2001), which ensures that we are comparing like quarters.

7. Typically, the beginning-of-period price is chosen as the scaling parameter for analyst forecast error. This poses a problem in the current setting because Reg FD was introduced in the midst of declining stock prices. This implies that stock prices in general are likely to be much lower in the post-FD period than in the pre-FD period, which will mechanically lead to greater absolute values for all scaled variables. To avoid this result, we scale all variables by the price (obtained from I/B/E/S) as of the end of November 2000 to represent price at the mid-point of the quarter in which Reg FD went into effect.
8. Unlike Heflin et al. 2003, we focus primarily on analyst inputs and not on analyst outputs (that is, forecast error and dispersion). Hence, we restrict our analysis of forecast error and dispersion to descriptive statistics. If we execute multivariate analyses similar to Heflin et al., we corroborate their main finding that Reg FD does not seem to have had a negative effect on analyst forecasting accuracy after controlling for macroeconomic effects.
9. Zitzewitz (2002) develops an alternative model of common and idiosyncratic information contained in analyst forecasts. This model assumes that days where only one analyst revises a forecast are likely to be correlated with analyst-specific information, while days when many analysts revise their forecasts simultaneously are likely to be correlated to common information. In contrast, the Barron et al. 1998 model assumes that analysts forecast simultaneously and therefore the model infers private information from forecast dispersion. While the Barron et al. model's assumption of simultaneous forecasts is not descriptive, the Zitzewitz model is itself subject to the limitation that it does not allow for the differential information-processing ability of analysts, which affects the timing of forecast revisions. We choose to rely on the Barron et al. model because it has been used extensively in recent papers that have studied changes in disclosure quality (Byard and Shaw 2003) and public releases of information (Barron, Byard, and Kim 2002).
10. Our results are essentially unchanged if we redefine total information as the scaled product of common and total information (that is, $(h \times s)/(h + s)$). A multiplicative specification may be more appropriate given that h and s are precision measures. However, we use the additive specification, consistent with Venkataraman 2001.
11. As an alternative approach, we can explicitly incorporate factors that may affect forecasting accuracy, such as earnings volatility, profitability, firm size, sales growth, and intangible asset intensity. However, our approach implicitly controls for history and isolates the effect of Reg FD. Results are unchanged if we use the alternative approach.
12. Almost identical results are obtained if we do not delete the observations corresponding to analysts who covered firms in the pre-FD period but not in the post-FD period, or analysts who started covering any firm only in the post-FD period.

13. The top 10 firms were Credit Suisse First Boston, Goldman Sachs, JP Morgan, Salomon Smith Barney, Morgan Stanley Dean Witter, Merrill Lynch, Lehman Brothers, Deutsche Bank, UBS Warburg, and Bear Stearns.
14. It is possible to argue that these results could reflect a mean reversion of analyst coverage. To check for this, we conduct an out-of-sample test by comparing the analyst coverage of 1998 with that of 1997. We find that analyst following is very sticky, suggesting that our documented results are not due to mean reversion in coverage. Furthermore, results are similar if the firms are partitioned on the basis of measures of size instead of analyst following: larger firms see drops in analyst coverage, whereas smaller firms see increases in analyst coverage.
15. We measure the change in these factors by estimating them at or around June 2000 and June 2001 for the pre-FD period and the post-FD period, respectively. We measure the following control variables: *BETA* for systematic risk and return volatility for unsystematic risk using one-year daily returns, percentage of insider ownership, percentage of institutional ownership, number of institutional investors, return on assets as a measure of profitability, and log of market capitalization as a measure of size. We include a dummy variable, *HITECH*, for firms belonging to high-technology industries because there was a steep decline in investor interest in technology firms after the market crash in 2000, following a year of great interest in these firms. We also include the raw annual stock returns for the year ending June 2000 and June 2001 (*RET00* and *RET01*) to control for analysts potentially picking up and then dropping off coverage of firms during the boom and bust periods of 1999–2001.
16. Most control variables are significant in the direction hypothesized by Bhushan 1989. Interestingly, *HITECH* and *RET00* have significant positive coefficients, while *RET01* is insignificant, indicating an inherent stickiness in analyst following — that is, analysts who incur high fixed costs to cover firms are unlikely to drop coverage easily.
17. To ensure that the results we report are not the results of mean reversion in forecast accuracy, we compare the pre-FD period analyzed in this paper with the year prior to that. We find that the big brokerage groups display significantly lower forecast errors in both periods. Hence, this makes it more likely that the convergence between the groups in pre-FD and post-FD forecast accuracy is unlikely to be caused by mean reversion in forecast accuracy.

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