THE EFFECT OF THE SEC'S REGULATION FAIR DISCLSOURE ON ANALYST FORECAST ATTRIBUTES AND RELATED MARKET REACTIONS

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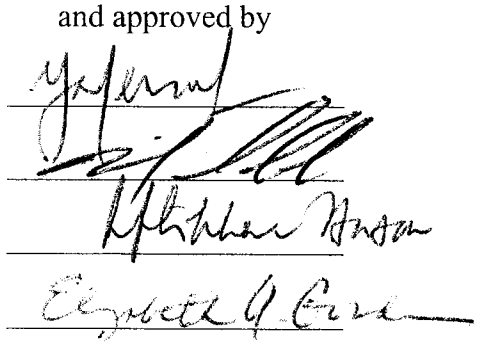

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This thesis is dedicated to

my parents, Yulu Yang and Jinling Yuan,

my daughter, Kathy Yan,

and my husband, Yan Yan

ABSTRACT OF THE THESIS

The Effect of the SEC's Regulation Fair Disclosure on Analyst Forecast Attributes and Related Market Reactions

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On October 23, 2000, the U.S. Securities and Exchange Commission (SEC) issued Regulation Fair Disclosure (hereafter Reg. FD), which prohibits selective disclosure of material nonpublic information to certain financial analysts, institutional investors and others prior to making it available to the general public. This study examines the effect of Reg. FD on analyst forecast performance and market reactions for both closed-call firms and open-call firms as compared to the non-conference-call firms in the pre-Reg. FD and the post-Reg. FD periods. It investigates whether Reg. FD influenced analyst earnings forecast errors and forecast dispersion for the previous closed-call firms in the post-Reg. FD period as compared to the previous open-call firms since some analysts lost their exclusive access to the management after the implementation of Reg. FD. More importantly, it investigates whether the price changes around earnings announcements for both previous closed-call firms and previous open-call firms were the same as intended by the SEC. Since previous studies found conference calls improve analyst forecast performance and increase the information gap between the analysts privy to the call and the remainder of investors before Reg. FD took effect (Bowen, Davis and Matsumoto

2002), this study further analyzes analyst forecast attributes and market reactions between the open-call firms and the closed-call firms after the release of Reg. FD.

The study provides evidence that analysts made more accurate forecasts for closed-call firms as compared to the non-conference-call firms in both pre- and post-Reg. FD periods. Moreover, analysts made more accurate forecast for open-call firms as compared to closed-call firms in the pre-Reg. FD period, whereas there is no significant difference between analyst forecast performance for the previous open-call and the previous closed-call firms in the post-Reg. FD period. Meanwhile, market reactions around earnings announcement dates in three different windows, (-1, +1), (-2, +4) and (-5, +10), are significantly different between the open-call firms and the closed-call firms prior to the release of Reg. FD, whereas these differences disappear after the implementation of Reg. FD. In addition, the first and second Reg. FD events are the most significant events during those six events leading to the passage of Reg. FD.

Overall, these findings imply that, to some extent, Reg. FD did "level the playing field" for financial analysts and investors, consistent with Reg. FD's success in eliminating selective disclosure.

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CHAPTER I

INTRODUCTION

1.1 Introduction

On October 23, 2000, the U.S. Securities and Exchange Commission (SEC) issued Regulation Fair Disclosure (hereafter Reg. FD) which prohibits selective disclosure of material nonpublic information to certain financial analysts, institutional investors and others prior to making it available to the general public. Information is considered material if it is important enough to persuade an investor to buy or sell a stock. Before the implementation of Reg. FD, most conference calls were accessible only to certain analysts and institutional investors. It has been argued that conference calls, because they were predominantly closed, may have contributed to the information gap between analysts privy to the call and most investors. The intent of Reg. FD is to prevent the selective disclosure of information to benefit only certain analysts and big investors. It has been controversial because of a number of issues that it raises.

First, Reg. FD may have had an adverse effect on certain analysts' forecast accuracy through denying them the sometimes-exclusive access to management that they enjoyed. Bowen, Davis and Matsumoto (2002) (hereafter BDM) find that conference calls increase analysts' ability to forecast earnings accurately, and to some extent, also decrease the dispersion of forecasts among analysts. Given the important role of financial analysts as intermediaries who provide professional investment to the capital markets, the decreased accuracy may have deleterious capital market consequences.

Secondly, the rationale underlying Reg. FD was that providing equal access to firm information would decrease the level of information asymmetry and permit stock prices

to be less dependent on private information. This logic implies that any loss of accuracy in earnings forecasts by analysts would be offset by the wider dissemination of information and hence, a more informed general investor population. One consequence of this is that the information asymmetry may be lessened, in which case the SEC would have fulfilled its ultimate objective in implementation Reg. FD.

Thirdly, it has been argued that Reg. FD may have forced firms to reduce the level of information and guidance that they may have provided originally in the closed conference calls. Management is usually concerned about providing too much information to competitors. In closed conference calls, some degree of confidentiality can be articulated by management. In open conference calls, no such confidentiality can be assured. Hence, the level of specialty guidance may have decreased in the post-Reg. FD period.

This study focuses on the impact of Reg. FD on analyst earnings forecast attributes and market reactions for both "closed-call" (CLC) and "open-call" (OPC) firms as compared to non-conference-call (NCC) firms. Following the Bushee, Matsumoto and Miller (2002) approach, firms on the Bestcalls.com list are considered to be "open-call" firms (i.e. calls that allow unlimited real time access), while the firms provided by First Call Corporation but not included on the Bestcalls.com list are considered to be "closed-call" firms (i.e. calls that restrict access to invited professionals) in the pre-Reg. FD period. According to BDM (2002, pp. 286, footnote 1), Bestcalls.com in March 1999 launched a website publicizing the dates and times of conference calls open to individual investors. However, some firms did not allow individuals access to their calls. Meanwhile, some firms began live broadcasts of their conference calls via the Internet (web casts). So it is reasonable to assume that after March 1999, all firms on the

Bestcalls.com list had open-calls. Therefore, I divided the samples into three groups, OPC, CLC and NCC (where no disclosures are made via conference calls) firms in the pre-Reg. FD period. More specifically, the firms listed by the Bestcalls.com after March 1999 are regarded as OPC firms, the firms listed by First Call Corporation but not included in the Bestcalls.com list are regarded as CLC firms, and the firms listed by CRSP but not included in both Bestcalls.com and First Call Corporation lists are regarded as NCC firms.

1.2 Research Questions

Four research questions are examined in this study. The first question examined is whether there was a change in the analyst forecast attributes for NCC firms as compared to conference-call (CC) (including both OPC and CLC) firms in both pre- and post-Reg. FD periods. The attributes of interest are forecast accuracy and forecast dispersion. Since previous studies found that conference calls improve analyst forecast performance and increase the information gap between the analysts privy to the call and the remainder of investors before Reg. FD took effect (BDM 2002), this study further analyzes analyst forecast attributes among NCC, CLC and OPC firms after the release of Reg. FD. If conference calls did provide additional information, there should be significantly different in analyst forecast attributes between NCC firms and CC firms in both pre- and post-Reg. FD periods regardless of the implementation of Reg. FD.

A second question examined is whether there was a change in the attributes of analyst earnings forecast for the previous-CLC as compared to the previous-OPC firms in the post-Reg. FD period. Since the implementation of Reg. FD may have enhanced

differential belief revisions among individual analysts after the previous-CLC firms had to assimilate their important information directly to investors rather than through the "preferred" financial analysts, there should be no significant difference in the forecast attributes for the previous-CLC and previous-OPC firms in the post-Reg. FD period.

The third question examined is intended to provide some guidance on the public policy implications of disclosure policies which aim to level the "playing field" for all investors. At issue is whether such disclosure policies could be counter-productive (if they reduce the effectiveness of analysts), or whether the reduced effectiveness of analysts may be partially or fully offset by quicker investor response to firm disclosures by widening the role of the general investor in interpreting firm disclosures. I will compare the daily cumulative abnormal returns around an earnings announcement date in three windows, (-1, +1), (-2, +4) and (-5, +10) for CLC, OPC and NCC firms over the entire four-year period, including two years before and two years after Reg. FD. In the pre-Reg. FD, there should be higher price reactions for CLC and NCC firms than OPC firms if more information gap exists among investors for both CLC and NCC firms.

The purpose of Reg. FD was to make information more widely disseminated, thus reducing the predictive advantage of analyst forecast performance. After Reg. FD took effect, therefore, market reactions for both previous-CLC and previous-OPC firms should be the same if the SEC's intent was realized. Meanwhile, the price changes around earnings announcement dates for both CLC and OPC firms should be less than the market reactions for NCC firms where no disclosures are made via conference calls in the post-Reg. FD period. However, whether firms disclose their information using other methods

than conference calls is unclear, so it is worthwhile to investigate the market reactions among three groups before and after Reg. FD took effect.

The final question investigates the point at which the difference in information asymmetry between OPC and CLC firms vanished (if it occurred) during the six significant events leading to the passage of Reg. FD. I will compare the cumulative abnormal returns around those six Reg. FD-event dates between CLC and OPC firms during day (-1, +1), (-2, +4), (-5, +10) and (-5, +15). If Reg. FD did "level the playing field" for all investors, then the tendency of market volatility should not be significantly different between previous-CLC and OPC firms around or after those Reg. FD events.

1.3 The Potential Contribution of the Study

This study contributes to both disclosure and financial analyst performance literature by examining the impact of Reg. FD on analyst forecast attributes and market responses to the implementation of Reg. FD for the CLC, OPC and NCC firms in both pre- and post-Reg. FD periods. In contrast, most prior research on the effect of Reg. FD only emphasized the impact on stock market volatility and their samples were not categorized into three groups, CLC, OPC and NCC firms (Heflin, Subramanyam and Zhang 2001; Eleswarapu, Thompson and Venkataraman 2001; Irani and Karamanou 2001; Shane, Soderstorm and Yoon 2001).

Several significant issues distinguish this study from the previous ones. First, this study investigates whether the forecast attributes of analyst of CLC firms have changed after the release of Reg. FD when compared to both OPC and NCC firms. It extends extant studies by comparing both forecast errors and forecast dispersion among CLC,

OPC and NCC firms. Secondly, it examines whether the variation in the responsiveness of stock prices to an earnings announcement date was systematically different among CLC, OPC and NCC firms in both pre- and post-Reg. FD periods. That is, the informativeness of earnings may have changed due to the release of Reg. FD. Thirdly, it examines the importance of closed-conference calls and open-conference calls as a mechanism for firms to balance their disclosure policy. Finally, it examines whether firms may have found effective alternative means of informing analysts and investors about the forthcoming quarterly earnings after adopting Reg. FD. The intent of Reg. FD is to provide some guidance on the public disclosure policies, which aim to level the "playing the field" for all financial analysts and investors. These findings are relevant to standard setters as well as to firms.

1.4 Organization of the Dissertation

The remainder of this study is organized as follows. Chapter II presents the institutional setting with respect to a summary of the prior practice of disclosure, the changes introduced by Reg. FD, previous studies on disclosure and analyst forecast performance, and sample selection. Chapter III describes the hypotheses, research methodology, main results, additional analyses and robustness tests regarding analyst forecast attributes. Chapter IV presents the hypotheses, research methodology, prime results, additional analyses and robustness tests regarding price changes before and after the implementation of Reg. FD. Chapter V presents the market reactions around those six important events during the passage of Reg. FD. Chapter VI presents the conclusions and provides directions for further research.

CHAPTER II

INSTITUTIONAL SETTING AND RELATED LITERATURE

2.1 Institutional Setting

Prior to the release of Reg. FD, closed-call firms were accustomed to disclosing material nonpublic information to certain analysts and institutional investors while not concurrently releasing the information to the general public. There is considerable anecdotal evidence indicating that managers penalize analysts based on the content of their forecasts by limiting or cutting off analysts' future contact with management (Berg 1990; Laderman etc. 1990; Scism 1993; Dirks and Gross 1974). In an article dated August 10, 2000, for instance, the *Wall Street Journal* estimated that 40% of firms were still limiting participation in conference calls "a practice that is not defensible" (Hassett 2000).

Since voluntary disclosures (e.g., conference calls) put individual investors at a larger informational disadvantage, it has long been of concern to the SEC that the effect of selective disclosure is similar to insider trading. The SEC insists that insider trading is detrimental to the security market since it results in unfair competition among investors. Hence, the SEC proposed a new disclosure policy to address the issue of selective disclosure of material nonpublic information in 1999. In response to almost 6,000 comment letters, the SEC made important changes to the proposed regulation. Ultimately, Regulation Fair Disclosure became effective from October 23, 2001. The new rule is expressed as following:

"Whenever a public company, or any person acting on its behalf, disclose material nonpublic information to certain enumerated persons, the company must simultaneously,

in the case of intentional disclosures, or promptly, in the case of unintentional disclosures, make public disclosure of that same information." (Selective Disclosure and Insider Trading, SEC, 17 CFR pts 243.100, August 2000)

Specifically, Reg. FD prohibits companies from exclusively disclosing material information to broker dealers, investment advisers and certain institutional investment managers, investment companies and hedge funds, and any holders of the company's securities. Public disclosure can be made by disseminating a press release through a widely circulated news or wire service or via announcement at a press conference, to which the public has been granted access either by personal attendance or by telephonic or other electronic transmission. It is obvious that the SEC sought to curtail analysts' private channels to companies that they had previously enjoyed.

To summarize, Reg. FD is the mechanism in which the SEC has chosen to alter the previous disclosure policy, and it requires both open-call and closed-call firms to disclose their important information through public rather than private channels. Specifically, both proponents and opponents of Reg. FD agree that Reg. FD would dramatically alter the nature of discussions that were once held with analysts and important investors in private meetings and during closed conference calls for closed-call firms.

The first empirical study since Reg. FD took effect shows that Reg. FD has improved the flow of information to investors and made earnings news less volatile. That study by Heflin, Subramanyam and Zhang (2001) analyzed stock-price volatility around 2000 fourth-quarter earnings announcement of nearly 1,600 companies. The study found smaller price swings when earnings were announced in the post-Reg. FD period. In addition, the study found that the number of voluntary earnings disclosures by managers

ahead of financial reports had nearly doubled. This suggests that there is less market volatility around earnings announcement dates and more frequent management disclosure in the post-Reg. FD period in comparison with the pre-Reg. FD period (Levinsohn 2001), and that Reg. FD did achieve at least some of its objectives even though the sample included both open-call and closed-call firms.

However, significantly different results are reported by a survey of the Securities Industry Association (SIA). In its survey, after one-year application of Reg. FD, survey participants indicated that Reg. FD resulted in a decline in both the quantity and quality of financial information provided by public companies. The survey reports that "ninety percent of the analysts interviewed believe that Reg. FD may be a significant contributor to market volatility" (Spellman, etc. 2001). Analysts find it harder to discuss even non-material information with companies after Reg. FD, and it is more difficult for them to do their jobs. As a result, it may actually hurt the investors it was meant to help. The finding supports the critics of Reg. FD who said that companies would disclose less information, analysts' earnings forecasts will be less precise, and stock prices will be more volatile.

In the studies above, both proponents and opponents of Reg. FD argue whether it affects the amount and quality of information flow and the accuracy of financial analysts, leading to differential effect on market volatility. Thus, the question of whether Reg. FD will result in a decline in the accuracy of analyst forecast and the market reactions is unresolved.

2.2 Disclosure and Analyst Performance Regimes

Economic theory suggests that expanded disclosures can reduce information asymmetry arising between the firm and its shareholders or among potential buyers and sellers of firm shares and benefit firms by correcting any firm misvaluation and increasing institutional interest and liquidity for firm's stock (e.g., Diamond and Verrecchia 1991; Baiman and Verrecchia 1996). For example, Diamond and Verrecchia (1991) find that credible commitments by managers to improve disclosure (i.e., increase the precision of public information about firm value) results in higher current stock prices due to reduced information asymmetry and increased liquidity. Frankel, Johnson and Skinner (1999) empirically examine conference calls as a voluntary disclosure medium, and provide evidence that firms holding conference calls tend to be relatively larger, more profitable, and more heavily followed by analysts; they also access the capital markets more often than other firms. Bowen, Davis and Matsumoto (2002) even provide evidence that regular use of earnings-related conference calls could present a selective disclosure problem if the public is not privy to these calls, even if conference calls tend to reduce both forecast errors and forecast dispersion.

However, there are also reasons to question the benefits of increased voluntary disclosure. Given the potential conflicts of interest between managers and outside owners, management disclosures may not be viewed as credible by investors. In addition, some managers argue that increased disclosure reduces shareholder value by revealing valuable information to competitors or by increasing legal costs for the firm (Gigler 1994; Newman and Sansing 1993; Francis, Philbrick, and Schipper 1994). It is therefore an open empirical issue whether increased disclosures lead to an increase in stock market relevance of analysts' forecasts.

Companies provide disclosure either through regulated financial reports or through voluntary communications, such as press releases, conference calls, management forecasts, etc. Do these two disclosure methods, mandated/regulated and voluntary information, have differential impact on the capital markets? Zhang (2001) theoretically examines the distinguished motives and economic consequences of both mandated disclosure and voluntary information. Generally speaking, mandated disclosure can be used to narrow the information gap between informed and uninformed investors and to lower the cost of capital, whereas voluntary information has the effect of widening this information gap and increasing the cost of capital. Since mandated and voluntary disclosures are driven by "different, even conflicting, economic forces", companies have the incentives to lower capital costs by balancing their disclosure policy.

On the other hand, in practice, voluntary disclosures are often used to supplement mandated disclosures, in particular, quarterly earnings releases. Nonpublic channels of disclosure such as conference calls were shown to reveal value-relevant information beyond what was contained in public accounting reports (BDM 2002). For example, conference calls are used to explain the implications of unusual or extraordinary items to analysts. Or firms are more likely to use conference calls when it is difficult for analysts to assess the reported financial statements based on historical numbers.

Since both regulated and unregulated information is necessary for all investors to make an investment decision, the following question is how to balance the disclosure level between mandated and voluntary information. In deciding the optimal disclosure level, public companies need to balance the benefit of reduced information asymmetry component of capital costs against the cost of increased disclosure. Bushee and Noe

(2001) find that increases in "transient" institutional investors (institutions that trade aggressively) are associated with increases in stock price volatility. By assuming that increases in stock prices volatility are costly, Core (2001) shows that partial disclosure is optimal, and that too much disclosure can be as costly as too little disclosure. In other words, Reg. FD may force companies to reconsider the extent to release voluntary disclosures, and that it may change the value relevance of both regulated and unregulated information.

Finally, what is the association between disclosure and financial analysts? Financial analysts prefer exclusively private communication with management instead of public information from companies. For instance, Tasker (1998) and Bushee etc. (2000) find that firms with greater analyst following and greater institutional ownership are less likely to have conference calls that provide open access to all investors. Core (2001) presents evidence consistent with the intuition that informed investors prefer less disclosure, and that analysts and institutions produce information that reduces information asymmetry and the need for conference calls. Due to the implementation of Reg. FD, financial analysts may have to shift their focus from private information to public disclosure. The effect of both types of disclosures, mandatory or voluntary, on the demand for analysts' service is ambiguous. Expanded public disclosure potentially enables financial analysts to create valuable new information, such as superior forecasts and buy/sell recommendations, thereby increasing the demand for their services. However, public voluntary disclosure also weakens analysts' ability to distribute managers' private information to investors, leading to a decline in the demand for their services. To summarize, Reg. FD may have changed the proportion of mandated versus

voluntary disclosure, analyst information environment, and hence the association between disclosure and analysts' performance.

2.3 Expected Effects of Reg. FD on Analysts Forecast Performance and Related Stock Market

Reg. FD may help the accuracy and precision of analysts' earnings forecasts, if Reg. FD could open a vast new source of information to analysts, or if analysts could substitute the information obtained directly from companies with the information gathered from customers, suppliers, competitors industry observers, and other sources, or if private communication between firms and analysts is not adequately curtailed. However, a decline in analysts' predictive advantage may be foreseen if analysts have lost the exclusive access to management due to the implementation of Reg. FD. Instead of disclosing information to the public rather than selectively, some executives may prefer not to disclose information outside of conference calls, or be more circumspect in one-on-one conversations with analysts seeking additional information. Reg. FD may thus hinder analysts' ability to piece together information from a variety of sources, and as a result, the quality of research that analysts produce is compromised. Even if the information flow is unchanged, the interpretation by investors may suffer without the guidance from financial analysts. That is, investors interpret relevant information by themselves without the guidance from analysts, and thus the individual differences in interpretation may be enhanced whereas this heterogeneous belief revision may be offset by the reduction of earnings surprise because of a more informed public.

On the other hand, it is likely that companies may significantly increase the quantity and quality of information dissemination through public disclosures to substitute for direct communication to analysts. The enactment of Reg. FD enables investors to access relevant information directly from SEC 8-K filings, conference calls, Internet, etc. Therefore, a wider dissemination will cause less variation in the market when earnings are announced. In addition, Reg. FD has provided companies plenty of other reasons for preannouncements. If companies have given out earnings projections and conditions change, investors now have the legal right to promptly know about the changes. To avoid both litigation problems and post-earnings-announcement drifts, companies should reveal material information to investors and financial analysts as quickly as possible.

On the negative side, however, it may be argued that Reg. FD has worsened the information environment available to investors mainly due to three reasons. First, firms are prohibited from guiding analysts' forecasts, which form the basis for investors' earnings expectations. Next, it is argued that SEC 8-K filings and public announcements are insufficient substitutes for analysts' earnings forecasts, because this information must be released directly to the media, requiring reporters and editors to make inferences about the context and meaning without the benefit of analysts' experience and expertise (Heflin, Subramanyam, and Zhang, 2001). Finally, it is believed that companies will reveal less detailed information in public announcements than in private conversations with analysts, in part because they fear litigation arising from improperly interpreted public announcements, but also because managers fear that public disclosures of detailed information may benefit competitors. Therefore, the decreasing amount and quality of information available to the capital market are argued to result in the poorer market

expectations of firm performance and larger stock price shocks when earnings are announced.

In a word, the contention of Reg. FD impact on investor reaction to analysts' earnings forecast performance is essentially an empirical question.

2.4 Sample Selection

The initial list includes 1,365 open-call firms, 17,252 closed-call firms and 18,478 non-conference-call firms. The analyst forecast data used are obtained from I/B/E/S database, cumulative abnormal returns (CARs) from CRSP data sets, earnings announcement dates and other control variables from quarterly Compustat data sets. To ensure the meaningful computation of dispersion, the minimum number of analyst following is set to 4. All firms are required to have non-missing quarterly IBES forecast data during the period (October 1998 --- September 2002), daily CARs and quarterly Compustat data. Finally, only 1,691 firms (479 OPC firms, 1,134 CLC firms and 78 NCC firms) and 76,721 observations in the pre-Reg. FD period, and 1,518 firms (474 OPC firms, 948 CLC firms and 96 NCC firms) and 29,387 observations in the post-Reg. FD period survived. The final sample includes 25,894 OPC, 49,157 CLC, and 1,670 NCC observations in the pre-Reg. FD period, and 9,789 OPC, 16,717 CLC and 2,881 NCC observations in the post-Reg. FD period.

CHAPTER III

ANALYST FORECAST ATTRIBUTES

3.1 Hypothesis Development

3.1.1 The Level of Analyst Forecast Attributes

Extant studies have used forecast errors and forecast dispersion as proxies for analyst forecast attributes. Both forecast errors and forecast dispersion capture the extent to which private information differs across analysts, which also represent the level of actual past selective disclosure. For instance, Barron, Kim, Lim and Stevens (1998) present a model that expresses two properties of their forecasts, proxied by both dispersion in individual forecasts (D) and the squared error in the mean forecast (SE), as functions of the amount or "precision" of analysts' public and private information in forecasting firms' earnings. It is assumed that public information is common across all analysts and private information is idiosyncratic and uncorrelated across analysts. Sunder (2001) further found that "restricted-call" firms faced higher information asymmetry compared to "open-call" firms in the pre-Reg. FD period, while in the post-Reg. FD period, the differences in information asymmetry between two groups do not persist. More specifically, BDM even find that firms did provide additional information during conference calls, then conference calls increase the precision of public information, and hence improve analyst forecast performance. That is to say, both forecast errors and forecast dispersion may be higher for NCC firms as compared to both CLC and OPC firms in both pre-Reg. FD and post-Reg. FD periods because NCC firms do not disclose their information via conference calls. Furthermore, analysts would make more accurate forecasts (or less forecast errors and forecast dispersion) for OPC firms than for CLC

firms if open conference calls did provide much more information to all analysts than closed conference calls. Therefore, this study captures the variations in the properties of analyst performance for CLC, OPC and NCC firms in the pre- and the post-Reg. FD periods by the hypotheses described below. All the hypotheses are stated in the alternative form.

H_a 1.1: *Analysts' quarterly earnings forecast errors for closed-call firms are significantly greater than those for open-call firms in the pre-Reg. FD period (i.e.* $FE_{PRE}^{CLC} > FE_{PRE}^{OPC}$*).*

H_a 1.2: *Analysts' quarterly earnings forecast dispersion for closed-call firms is significantly greater than that for open-call firms in the pre-Reg. FD period (i.e.* $FD_{PRE}^{CLC} > FD_{PRE}^{OPC}$*).*

H_a 1.3: *Analysts' quarterly earnings forecast errors for non-conference-call firms are significantly greater than those for both closed-call firms and open-call firms in the pre-Reg. FD period (i.e.* $FE_{PRE}^{NCC} > (FE_{PRE}^{CLC}, FE_{PRE}^{OPC})$*).*

H_a 1.4: *Analysts' quarterly earnings forecast dispersion for non-conference-call firms is significantly greater than that for both closed-call firms and open-call firms in the pre-Reg. FD period (i.e.* $FD_{PRE}^{NCC} > (FD_{PRE}^{CLC}, FD_{PRE}^{OPC})$*).*

The implementation of Reg. FD will enhance the effect of public information, and meanwhile weaken the effect of private information on analysts' predictive advantages. If the SEC could achieve the final goal of Reg. FD, forecast attributes should not be significantly different for the previous-CLC firms as compared to the previous-OPC firms while forecast attributes of NCC firms should be greater than those of both

previous-CLC firms and previous-OPC firms in the post-Reg. FD period. Hypothesis 2.1 and 2.2 are stated in null form, while hypothesis 2.3 and 2.4 are stated in the alternative form as follows.

H_o 2.1: *Analysts' quarterly earnings forecast errors for closed-call firms are not significantly different from those for open-call firms in the post-Reg. FD period (i.e.* $FE_{POST}^{CLC} \approx FE_{POST}^{OPC}$*).*

H_o 2.2: *Analysts' quarterly earnings forecast dispersion for closed-call firms is not significantly different from that for open-call firms in the post-Reg. FD period (i.e.* $FD_{POST}^{CLC} \approx FD_{POST}^{OPC}$*).*

H_a 2.3: *Analysts' quarterly earnings forecast errors for non-conference-call firms are significantly greater than those for both closed-call firms and open-call firms in the post-Reg. FD period (i.e.* $FE_{POST}^{NCC} > (FE_{POST}^{CLC}, FE_{POST}^{OPC})$*).*

H_a 2.4: *Analysts' quarterly earnings forecast dispersion for non-conference-call firms is significantly greater than that for both closed-call firms and open-call firms in the post-Reg. FD period (i.e.* $FD_{POST}^{NCC} > (FD_{POST}^{CLC}, FD_{POST}^{OPC})$*).*

3.1.2 The Change in Analyst Forecast Attributes

The changes in both forecast errors and forecast dispersion capture the effect of Reg. FD on forecast attributes across NCC, CLC and OPC firms. Given analyst forecast attributes of CLC firms are significantly different from OPC firms in the pre-Reg. FD period, and then these differences may have disappeared between two groups after Reg. FD was enacted. That is to say, the change in both forecast errors and forecast dispersion

for CLC firms may be smaller than both changes for both NCC and OPC firms when the change in analyst forecast attributes is measured as the difference between the post-Reg. FD variables and pre-Reg. FD variables. All the hypotheses are stated in the alternative form.

H_a 3.1: *The change in analysts' quarterly earnings forecast errors for the previous closed-call firms should be significantly less than that for the previous open-call firms in the post-Reg. FD period (i.e.* $\Delta FE_{POST}^{CLC} < \Delta FE_{POST}^{OPC}$*).*

H_a 3.2: *The change in analysts' quarterly earnings forecast dispersion for the previous closed-call firms should be significantly less than that for the previous open-call firms in the post-Reg. FD period (i.e.* $\Delta FD_{POST}^{CLC} < \Delta FD_{POST}^{OPC}$*).*

H_a 3.3: *The change in analysts' quarterly earnings forecast errors for the previous closed-call firms should be significantly less than that for NCC firms in the post-Reg. FD period (i.e.* $\Delta FE_{POST}^{CLC} < \Delta FE_{POST}^{NCC}$*).*

H_a 3.4: *The change in analysts' quarterly earnings forecast dispersion for the previous closed-call firms should be significantly less than that for NCC firms in the post-Reg. FD period (i.e.* $\Delta FD_{POST}^{CLC} < \Delta FD_{POST}^{NCC}$*).*

3.2 Research Methodology

3.2.1 The Level of Analyst Forecast Attributes

Empirical accounting research frequently utilizes the properties of analyst forecasts, such as accuracy, dispersion, bias, etc. to construct proxies for variables of interest. For instance, forecast dispersion and errors in the mean forecast are used to proxy for the

uncertainty or the degree of consensus among analysts or market expectations (e.g. Ziebart 1990; Lang and Lundholm 1996; Barron and Stuerke 1998; Barron, Kim, Lim and Stevens 1998).

Prior research has found some determinants of the levels of forecast errors and forecast dispersion. Among these are firm size, industry effect, incentive structure faced by analysts, earnings predictability, earnings surprise, investment banking relationship, horizon (short-term versus long-term), analysts' ability and experience, forecast age, etc. (Das, Levine and Sivaramarkrishnan 1998; Lang and Lundholm 1996; Barron, Kim, Lim and Stevens 1998; Jaggi and Jain 1998; Brown 2001). The BDM model includes four control variables, size, earnings surprise, forecast age and the level of forecast error or forecast dispersion. Firm size, the level of forecast error or the level of forecast dispersion is a proxy for the richness of the firm's information environment. Analysts' ability to forecast current quarter's earnings depends on both earnings surprise in the prior quarter and any information disclosed during the conference call. The forecast age is also an important determinant of forecast accuracy.

First, I will compare the mean and the median of FE and FD among NCC, CLC and OPC firms. It is expected that the mean and the median of FE and FD for CLC and OPC firms will be smaller than those for NCC firms. Then, by using a method of multiple comparison tests, (the Scheffe test), it is expected that FE and FD are significantly different among NCC, CLC and OPC firms in the pre-Reg. FD and between NCC and CC (including OPC and CLC) in the post-Reg. FD periods. At the same time, it is expected that FE and FD are insignificantly different between OPC and CLC firms in the post-Reg. FD period. Next, I will compare the mean of FE and FD between NCC and CC

(conference-call) firms, and between CLC and OPC firms, respectively, by using a T-test. It is expected that FE and FD are significantly different between NCC and CC firms in both pre- and post-Reg. FD periods. Meanwhile, FE and FD are expected to be significant different between CLC and OPC firms in the pre-Reg. FD period while insignificantly different between CLC and OPC firms in the post-Reg. FD period.

Then, following the BDM models, I use the two regression models (1) and (2) below in the cross-sectional tests to test hypothesis 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, and 2.4.

$$FE_{it} / FD_{it} = \alpha_0 + \alpha_1 CLC_{it} + \alpha_2 OPC_{it} + \alpha_3 (HighTech * CLC) + \alpha_4 (HighTech * OPC) + \alpha_5 (HighTech * NCC) + \alpha_6 AGE_{i,t} + \alpha_7 ANA_{i,t} + \alpha_8 SURP_{i,t} + \alpha_9 SIZE_{it} + \varepsilon_{it}$$

(1)/(2)

where CLC is a dummy variable equal to 1 if the firm is a CLC firm and 0 if the firm is a NCC or OPC firm. OPC is another dummy variable equal to 1 if the firm is an OPC firm and 0 if the firm is a NCC or CLC firm. NCC is also another dummy variable equal to 1 if the firm is a NCC firm and 0 if the firm is a OPC or CLC firm.

HighTech is a dummy variable equal to 1 if the firm is a high-technology firm and 0 if the firm is not a high-technology firm.

FE_{it} = the absolute difference between actual earnings per share for quarter t less the mean forecast as provided by IBES summary file at the end of the quarter t deflated by the stock price at the beginning of quarter t.

FD_{it} = the standard deviation of all analyst forecasts made at the end of the quarter t from the "consensus" (mean) of analysts' forecasts deflated by the stock price at the beginning of quarter t. The consensus forecast used is the last one on the IBES Summary tape prior to earnings being reported.

AGE_{it} = the number of calendar days between the analyst's forecast date and the date of the actual earnings announcement at quarter t.

ANA_{it} = total number of analysts releasing an earnings forecast for the firm i at quarter t.

$SURP_{it} = \{EPS_t - EPS_{t-4}\}/P_{t-4}$, a proxy for the difficulty in forecasting earnings, where EPS_t is the primary earnings share (including extraordinary items) for quarter t and P_{t-4} is the ending price per share at quarter t-4.

$SIZE_{it}$ = the log of market value of equity at the beginning of quarter t.

A significant negative coefficient on α_1 or α_2 in Equations (1) or (2) is consistent with conference calls decreasing forecast errors (forecast dispersion) in both pre- and post - Reg. FD periods. It indicates that analysts make more accurate forecasts for both OPC and CLC firms than for NCC firms. Meanwhile, α_1 is expected to be greater than α_2 in the pre-Reg. FD period, while α_1 is not significant different from α_2 in the post-Reg. FD period if analyst forecast performance have improved due to the release of Reg. FD. On the other side, a significantly positive coefficient on HighTech is consistent with the belief that analysts make more forecast errors for high-technology firms due to a higher information asymmetry as compared to non-high-technology firms.

Also I will perform an F-test to examine whether α_1 is equal to α_2. It is expected that α_1 is significantly different from α_2 in the pre-Reg. FD period. On the other side, when the comparison is made between the previous-CLC and previous-OPC firms, an insignificant F-value is expected if there is no significant difference in FE or FD between previous-OPC and previous-CLC firms if the SEC has fulfilled its ultimate objective in the implementation of Reg. FD.

3.2.2 The Change in Analyst Forecast Attributes

To test hypothesis 3.1, 3.2, 3.3 and 3.4, the dependent variables for testing the attributes of analyst earnings forecast are the change in forecast errors and the change in forecast dispersion. Using changes rather than levels of forecast errors and dispersion is to mitigate the effect of cross-sectional differences in information environments. The general form of each dependent variable is:

$$\frac{\text{Post - Reg. FD event measure - Pre - Reg. FD event measure}}{\text{Stock price at Pre - Reg. FD event date}}$$

The pre-Reg. FD event measure component of the dependent variable is the quarterly forecast errors or quarterly forecast dispersion measured at quarter t before Reg. FD, and the post-Reg. FD event measure component of the dependent variable is the quarterly forecast errors or quarterly forecast dispersion measured at quarter t after Reg. FD.

$$\Delta FE = \frac{FE_{post,it} - FE_{pre,it}}{P_{pre,it}}$$

$$\Delta FD = \frac{FD_{post,it} - FD_{pre,it}}{P_{pre,it}}$$

First, to test hypothesis 3.1, 3.2, 3.3 and 3.4, I will compare the mean and median of ΔFE and ΔFD among NCC, CLC and OPC firms. It is expected that the mean and median of ΔFE and ΔFD for CLC firms are smaller as compared to either NCC or OPC firms if CLC firms did change their selective disclosure policy after the implementation of Reg. FD. Then, by using Scheffe's tests and T-tests, it is expected that the mean of ΔFE and ΔFD for CLC firms are significantly different from both variables for NCC and OPC firms. Finally, I will run the regression of ΔFE and ΔFD on those determinants in equation (3) and (4).

$$\Delta FE_{it} / \Delta FD_{it} = c_0 + c_1 CLC_{it} + c_2 OPC_{it} + c_3 (HighTech * CLC) + c_4 (HighTech * OPC) + c_5 (HighTech * NCC) + c_6 \Delta AGE_{it} + c_7 \Delta ANA_{it} + c_8 \Delta SURP_{it} + c_9 lagSIZE_{i,pre} + c_{10} lagFE_{i,pre} (lagFD_{i,pre}) + \delta_{it} \quad (3)/(4)$$

where CLC is a dummy variable equal to 1 if the firm is a CLC firm and 0 if the firm is a NCC or OPC firm. OPC is another dummy variable equal to 1 if the firm is an OPC firm and 0 if the firm is a NCC or CLC firm.

HighTech is a dummy variable equal to 1 if the firms is a high-technology firm and 0 if the firm is not a high-technology firm. A significantly positive coefficient on c_3, c_4 or c_5 is expected if analysts did make more forecast errors for high-technology firms as compared to non-high-technology firms.

ΔAGE_{it} = the difference in forecast age between the post- and the pre-Reg. FD period.

ΔANA_{it} = the difference in the number of followed analysts between the post- and the pre-Reg. FD period.

$\Delta SURP_{it}$ = the difference in earnings surprise between the post- and the pre-Reg. FD period.

$lagSIZE_{i,pe}$ = the log of market value of equity in the pre-Reg. FD period.

$lagFE_{i,pre}$, $lagFD_{i,pre}$ = the level of forecast error or forecast dispersion in the pre-Reg. FD period.

A significant negative coefficient on c_1 in equation (3) and (4) is expected if Reg. FD did improve analyst forecast performance for previous-CLC firms as compared to NCC firms. Also c_1 is expected to be smaller than c_2 if the change in FE or FD is smaller for previous-CLC firms than previous-OPC in the post-Reg. FD period. I'll also use an F-test to examine whether c_1 is equal to c_2, and it's expected that c_1 is significantly different from c_2.

3.3 Empirical Results

3.3.1 The Level of Analyst Forecast Attributes

3.3.1.1 Univariate Results

Table 1 presents some descriptive statistics on both pre- and post-Reg. FD period variables. Panel A reveals that both mean and median of analyst forecast errors (FE) and forecast dispersion (FD) for NCC firms are greater than those for CLC and OPC firms in both pre- and post-Reg. FD periods. Also the median of FE and both mean and median of FD for CLC firms are greater than those for OPC firms in the pre-Reg. FD period, whereas the mean of FE and the median of FD is the same between CLC and OPC firms in the post-Reg. FD period. Furthermore, the difference in the mean of FE between CLC and OPC firms declines from 0 (0.0057 - 0.0057) to -0.0009 (0.0089 - 0.0098) after Reg. FD. These preliminary results generally support hypotheses 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3 and 2.4. They are also consistent with the previous finding that conference calls did provide additional information to financial analysts and increase the information gap between the analysts privy to the call and the reminder of investors (BDM, 2002).

Panel B presents the significant difference in means of forecast errors (FE) and forecast dispersion (FD) using Scheffe's tests and t-tests in both pre- and post-Reg. FD periods. The first part of Panel B shows the comparisons in means, using multiple comparison scheffe's tests, are significantly different at the 0.05 level among the three groups, respectively, in both pre- and post-Reg. FD periods except for the comparison of the mean in FE and FD between OPC and NCC firms in the post-Reg. FD period. These results on the preliminary basis support hypotheses 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3 and 2.4.

On the other hand, the second part of Panel B presents the significant difference in means using t-tests of FE and FD between NCC and CC, and CLC and OPC groups in both pre- and post-Reg. FD periods. Since the test for the equity of variance showed unequal variance, the Satterthwaite unequal variance t-test was used. All the t values are significant for each comparison except for the comparison between CLC and OPC in the post-Reg. FD period. These preliminary results are generally consistent with hypotheses 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3 and 2.4.

Panel C and Panel D present the Pearson and Spearman correlation coefficients between the analyst forecast attributes and their determinants in both pre- and post-Reg. FD periods. All the correlation coefficients have signs consistent with those expected for the regression coefficients and all are significant except for the correlation coefficient between analyst forecast errors (FE) and the number of analysts following (ANA), forecast dispersion (FD) and ANA, FE and the forecast age (AGE), and FD and AGE. The correlation coefficients between the number of analysts following (ANA) and the firm size (SIZE) is the highest among all coefficients, which is consistent with the previous research results that large firms usually have a large group of analysts following regardless of the implementation of Reg. FD.

Table 1 Univariate Tests on Analysts Forecast Attributes and Other Variables (Hypotheses 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3 and 2.4)

Panel A: Descriptive Statistics[a]

Statistics		Before Reg FD			After Reg FD		
		CLC firms	OPC firms	NCC firms	CLC firms	OPC firms	NCC firms
FE	Mean	0.0057	0.0057	0.0112	0.0089	0.0098	0.0121
	Median	0.0010	0.0009	0.0013	0.0012	0.0012	0.0015
	Std. Deviation	0.0321	0.1011	0.1086	0.0859	0.1372	0.0600
FD	Mean	0.0018	0.0017	0.0035	0.0035	0.0040	0.0042
	Median	0.0006	0.0005	0.0007	0.0007	0.0007	0.0008
	Std. Deviation	0.0051	0.0193	0.0208	0.0211	0.0848	0.0191
AGE	Mean	57.6107	58.3899	58.2316	60.8104	61.9091	59.6318
	Median	54.0000	56.0000	56.0000	61.0000	63.0000	59.0000
	Std. Deviation	32.4404	32.5546	32.1975	32.2772	31.7771	32.3843
ANA	Mean	7.1849	8.7028	7.2265	8.1860	9.8234	8.3007
	Median	6.0000	6.0000	6.0000	6.0000	8.0000	7.0000
	Std. Deviation	4.2632	5.7859	3.8017	4.9254	6.2710	4.5330
SURP	Mean	-0.0005	0.0021	-0.0055	-0.0040	-0.0044	-0.0050
	Median	0.0005	0.0003	0.0000	-0.0006	-0.0017	-0.0010
	Std. Deviation	0.0426	0.0578	0.0547	0.0585	0.0490	0.0999
SIZE	Mean	7.0166	7.5112	6.9573	7.1664	7.4794	7.2288
	Median	6.8154	7.3070	6.9793	7.0060	7.2866	7.2876
	Std. Deviation	1.6169	1.7085	1.4330	1.5701	1.6436	1.4471

Panel B: Scheffe's Tests and Satterthwaite Unequal Variance T-tests for OPC[3], CLC[2] and NCC[1] firms

Tests	Group / Variables[a]	Before Reg. FD		After Reg. FD	
		FE	FD	FE	FD
Scheffe's Test - Difference in Means	NCC[1] – CLC[2]	0.0055*	0.0017*	0.003*	0.0007*
	NCC[1] – OPC[3]	0.0055*	0.0018*	0.0023*	0.0002*
	CLC[2] – OPC[3]	**0.0001***	**0.0002***	**- 0.0009**	**- 0.0005**
T-test among 3 groups: t value	NCC[1] - (CLC[2] + OPC[3])	2.46*	4.10***	1.98*	3.65***
	CLC[2] – OPC[3]	**4.58*****	**5.2*****	**-0.59**	**-1.06**

Panel C: Correlations between Forecast Attributes and Other Variables Before Reg. FD[bc]

Variables[a]	FE	FD	AGE	ANA	SURP	SIZE
FE	1	0.8681	-0.0099	-0.0369	-0.0809	-0.0768
FD	0.6113	1	-0.0016	-0.0487	-0.0306	-0.1024
AGE	-0.0602	-0.0256	1	0.2329	-0.0056	0.0276
ANA	-0.2320	-0.2045	0.3216	1	0.0114	0.5376
SURP	-0.1571	-0.1239	-0.0044	0.0093	1	0.0297
SIZE	-0.3438	-0.3790	0.0255	0.4822	0.0316	1

Panel D: Correlations between Forecast Attributes and Other Variables After Reg. FD[bc]

Variables[a]	FE	FD	AGE	ANA	SURP	SIZE
FE	1	0.5327	-0.0272	-0.0547	-0.3951	-0.1806
FD	0.5991	1	0.0022	-0.0687	-0.0754	-0.2209
AGE	-0.0798	-0.0304	1	0.2183	-0.0059	0.0222
ANA	-0.2247	-0.1962	0.2781	1	-0.0084	0.5260
SURP	-0.2743	-0.1865	0.0010	0.0133	1	0.0269
SIZE	-0.3555	-0.4058	0.0189	0.4916	0.0503	1

[a] Variables Definition: FE_{it} = absolute difference between actual earnings per share for quarter t less the mean forecast as provided by IBES summary file at the end of the quarter t deflated by the stock price at the beginning of quarter t. FD_{it} = standard deviation of all analyst forecasts made at the end of the quarter t from the "consensus" (mean) of analysts' forecasts deflated by the stock price at the beginning of quarter t. $AGE_{i,t}$ = the number of calendar days between the analyst's forecast date and the date of the actual earnings announcement at quarter t. $ANA_{i,t}$ = the total number of analysts releasing an earnings forecast for the firm i at quarter t. $SURP_{it} = \{EPS_t - EPS_{t-4}\}/P_{t-4}$, where EPS_t is the primary earnings share (including extraordinary items) for quarter t and P_{t-4} is the ending price per share at quarter t-4. $SIZE_{it}$ = the log of market value of equity at the beginning of quarter t.

[b] All correlations are significant at the 0.001 level or better except for the correlation between SURP and ANA which is not significant at conventional levels.

[c] Above of the table is the Pearson correlation coefficients and the below is the Spearman correlation coefficients.

[1] NCC - non-conference call firms; [2] CLC – closed-call firms; [3] OPC – open-call firms.

& = Statistically significant at a probability of less than 0.10; * = Statistically significant at a probability of less than 0.05; ** = Statistically significant at a probability of less than 0.01; *** = Statistically significant at a probability of less than 0.001.

3.3.1.2 Regression Results

Table 2 presents the results of regressing analyst forecast errors and forecast dispersion in the pre- and post-Reg. FD period by using Equations (1) and (2). As expected, the coefficients of two dummy variables, CLC and OPC, are significantly negative. Moreover, the coefficients of CLC are greater than the coefficients of OPC for both regressions of FE and FD in both pre- and post-Reg. FD periods. The intercept of the regression of FE in the pre-Reg. FD period is 0.0212 for NCC firms, 0.0198 (0.0212 - 0.0014) for CLC firms, and 0.0194 (0.0212 - 0.0018) for OPC firms, which is consistent with hypotheses 1.1 and 1.3. The intercept of the regression of FD in the pre-Reg. FD period is 0.0068 for NCC firms, 0.0062 (0.0068 - 0.0006) for CLC firms, and 0.0061 (0.0068 - 0.0007) for OPC firms, which is consistent with hypotheses 1.2 and 1.4. The results indicate that conference calls did provide additional information, and resulted in more accurate forecasts for both OPC and CLC firms than for NCC firms prior to the implementation of Reg. FD. As expected, forecast age (AGE), the number of forecasts (ANA) and high-tech firms (HighTech) are positively associated with forecast errors and forecast dispersion, while earnings surprise (SURP) and firm size (SIZE) are negatively associated with forecast errors and forecast dispersion.

On the other hand, in the post-Reg. FD period, the intercept of the regression of FE is 0.0559 for NCC firms, 0.0521 (0.0559 - 0.0038) for CLC firms, and 0.0513 (0.0559 - 0.0046) for OPC firms, which is consistent with hypothesis 2.3. The intercept of the regression of FD in the post-Reg. FD period is 0.0157 for NCC firms, 0.0144 (0.0157 - 0.0013) for CLC firms, and 0.0139 (0.0157 - 0.0018) for OPC firms, which is consistent

with hypothesis 2.4. The results show analysts still made forecast errors and had more dispersion for the previous-OPC and previous-CLC firms as compared to NCC firms after the release of Reg. FD.

Meanwhile, between CLC and OPC firms, I perform an F-test to examine whether α_1 is equal to α_2 in both regressions of FE and FD. In the pre-Reg. FD period, the F-value for FE (FD) is 15.82 (19.7), and the p-value is significant at the 0.001 level, which clearly reject the null hypotheses that α_1 is equal to α_2. However, in the post-Reg. FD period, the F-value for FE (FD) is 0.46 (2.51), and the p-value is not significant at the 0.001 level, which cannot reject the null hypotheses that α_1 is equal to α_2. These results support hypotheses 1.1, 1.2, 2.1 and 2.2. It provides evidence that differences in analyst forecast performance between the previous-CLC and previous-OPC firms do not persist after Reg. FD went into effect. It means that firms found effective methods of informing analysts about forthcoming quarterly earnings after the implementation of Reg. FD. These results are consistent with Shane, Soderstrom and Yoon (2001) findings. They provide evidence that analysts gather relatively more uncertainty-relieving information between earnings announcements and by the end of the quarter, their forecasts are as accurate as they were in the prior year. That is to say, the previous-CLC firms may have changed their selective disclosure policy, and Reg. FD may have contributed to the leveling of such information asymmetry.

Overall, both univariate results and regression results suggest no significant difference in forecast errors and forecast dispersion between the previous-CLC and the previous-OPC firms in the post-Reg. FD period while both variables remain greater for NCC firms as compared to both CLC and OPC firms regardless of the release of Reg. FD. Therefore,

Reg. FD did eliminate the selective disclosure among financial analysts for CLC firms as it intended.

Table 2 Regression of Analyst Forecast Errors and Dispersion on both Pre- and Post-Reg. FD Variables (Hypotheses 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3 and 2.4)

Regression of FE & FD		*Among NCC, CLC & OPC firms*			
		Before Reg. FD (PRE)		*After Reg. FD (POST)*	
		FE	FD	FE	FD
Variables[a]	Expected Sign	*Coefficient* *t-value*	*Coefficient* *t-value*	*Coefficient* *t-value*	*Coefficient* *t-value*
Intercept		0.0212	0.0068	0.0559	0.0157
		37.49***	29.15****	21.48***	24.7***
CLC	-	**-0.0014**	**-0.0006**	**-0.0038**	**-0.0013**
		-2.91**	**-3.26****	**-2.27***	**-3.25****
OPC	-	**-0.0018**	**-0.0007**	**-0.0046**	**-0.0018**
		-4.17***	**-4.52*****	**-2.5***	**-3.95*****
HighTech*CLC	+	-0.0004	-0.0003	0.0043	0.0020
		-1.67[&]	-2.48*	2.68**	5.19***
HighTech*OPC	+	0.0015	0.0001	0.0082	0.0010
		5.83***	0.28	5***	2.62**
HighTech*NCC	+	0.0009	-0.0003	0.0097	0.0041
		0.82	-0.75	3.23**	5.63***
AGE	+	0.0000	0.0000	-0.0001	0.0001
		-6.26***	0.93	-4.23***	-0.55
ANA	+	0.0001	0.0000	0.0004	0.0001
		3.87***	3.08**	4.32***	5.13***
SURP	-	-0.0848	-0.0079	-0.3296	-0.0133
		-55.53***	-12.48***	-48.37***	-8.02***
SIZE	-	-0.0020	-0.0006	-0.0060	-0.0017
		-46.14***	-35.66***	-20.05***	-23.58***
Adjusted R-square		0.1448	0.0491	0.1909	0.0644
F-statistic		683.16***	209.21***	328.94***	96.7***
F-test ($\alpha_1 = \alpha_2$)		**15.82*****	**19.7*****	**0.46**	**2.51**

[a] Variables Definition: CLC is a dummy variable equal to 1 if the firm is a CLC firm and 0 if the firm is a NCC or OPC firm. OPC is a dummy variable equal to 1 if the firm is a OPC firm and 0 if the firm is a NCC or CLC firm. HighTech is a dummy variable equal to 1 if the firm is a high-technology firm and 0 if the firm is not a high-technology firm. FE_{it} = absolute difference between actual earnings per share for quarter t less the mean forecast at the end of the quarter t deflated by the stock price at the beginning of quarter t. FD_{it} = standard deviation of all analyst forecasts made at the end of the quarter t from the "consensus" (mean) of analysts' forecasts deflated by the stock price at the beginning of quarter t. $AGE_{i,t}$ = the number of calendar days between the analyst's last forecast date and the date of the actual earnings announcement at quarter t. $ANA_{i,t}$ =the total number of analysts releasing an earnings forecast for the firm i at quarter t. $SURP_{it} = \{EPS_t - EPS_{t-4}\}/P_{t-4}$, where EPS_t is the primary earnings share (including extraordinary items) for quarter t and P_{t-4} is the ending price per share at quarter t-4. $SIZE_{it}$ = the log of market value of equity at the beginning of quarter t.

& = Statistically significant at a probability of less than 0.10; * = Statistically significant at a probability of less than 0.05; ** = Statistically significant at a probability of less than 0.01; *** = Statistically significant at a probability of less than 0.001.

3.3.2 The Change in Analyst Forecast Attributes

3.3.2.1 Univariate Results

Table 3 presents some descriptive statistics on the change in analyst forecast errors (ΔFE) and forecast dispersion (ΔFD). From Panel A, the means of ΔFE and ΔFD for CLC firms are smaller than those for NCC firms. Meanwhile, the median of ΔFE for CLC firms is smaller than that for OPC firms as expected, while the median of ΔFD for CLC firms is equal to that for OPC firms.

Panel B presents the significant difference in means of the change in forecast errors and forecast dispersion using both Scheffe's tests and the pairwise t-tests. The results from Scheffe's tests show the comparisons in means are not significantly different at the 0.05 level among three groups except for two groups, ΔFE between NCC and OPC firms, and ΔFD between NCC and CLC firms. At the same time, the results from the t-tests show that there is an insignificant difference in mean levels of ΔFE or ΔFD for the comparison between NCC and CC (including CLC and OPC firms) firms and the comparison between CLC and OPC firms. Taken together, these preliminary results are inconsistent with hypotheses 3.1, 3.2, 3.3 and 3.4 in general.

On the other side, Panel C presents the Pearson and Spearman correlation coefficients between the change in analyst forecast attributes and their determinants. All the correlation coefficients have signs consistent with those expected for the regression coefficients and all are significant except for the correlation coefficient between the change in analyst forecast attributes and the firm size in the pre-Reg. FD period (*lagSIZE*).

Table 3 Univariate Tests on the Change in Analysts Forecast Attributes (Hypotheses 3.1, 3.2, 3.3 and 3.4)

Panel A: Descriptive Statistics[a]

Statistics		CLC firms	OPC firms	NCC firms
ΔFE	Mean	0.0037	0.0021	0.0099
	Median	0.0002	0.0005	0.0000
	Std. Deviation	0.0396	0.0329	0.1018
ΔFD	Mean	0.0004	0.0001	0.0016
	Median	0.0001	0.0001	0.0000
	Std. Deviation	0.0053	0.0038	0.0108
ΔAGE	Mean	-12.3342	-8.9383	-19.0292
	Median	-2.0000	-2.0000	-8.0000
	Std. Deviation	10.5583	17.4584	20.1859
ΔANA	Mean	-0.0222	0.2938	0.6833
	Median	0.0000	0.0000	0.0000
	Std. Deviation	2.4741	2.9668	4.7761
ΔSURP	Mean	-0.0068	-0.0079	-0.0024
	Median	-0.0023	-0.0023	-0.0008
	Std. Deviation	0.0665	0.0749	0.1175
lagSIZE	Mean	7.3775	7.8781	7.0220
	Median	7.1963	7.6906	7.0888
	Std. Deviation	1.6160	1.7645	1.4956
lagFE	Mean	0.0079	0.0071	0.0165
	Median	0.0017	0.0015	0.0024
	Std. Deviation	0.0263	0.0281	0.0629
lagFD	Mean	0.0017	0.0015	0.0029
	Median	0.0007	0.0006	0.0009
	Std. Deviation	0.0041	0.0041	0.0079

Panel B: Test of Difference in Means of ΔFE and ΔFD - Scheffe's Tests and Satterthwaite Unequal Variance T-tests

Tests[a]	Group / Variables[a]	□ΔFE[a]	□ΔFD[b]
1. Scheffe's Tests - Difference between Means	NCC[1] – CLC[2]	0.062	0.0012*
	NCC[1] – OPC[3]	0.0078*	0.0015
	CLC[2] - OPC[3]	**0.016**	**0.0003**
2. T tests – t value	NCC[1] - (CLC[2] + OPC[3])	1.02	1.84[&]
	CLC[2] – OPC[3]	**-1.14**	**-1.94[&]**

Panel C: Correlations[ab]

	ΔFE	ΔFD	ΔAGE	ΔANA	ΔSURP	lagSIZE	lagFE	lagFD
ΔFE	1	0.7501	0.0976	0.0236	-0.3360	0.0304	-0.4203	-0.2810
ΔFD	0.3320	1	-0.0034	0.0233	-0.1923	0.0425	-0.3755	-0.4618
ΔAGE	0.1798	0.0663	1	-0.0701	-0.0143	-0.0172	-0.0743	-0.0213
ΔANA	0.0071	0.0013	-0.0686	1	-0.0292	0.0478	-0.0585	-0.0461
ΔSURP	-0.3382	-0.1811	-0.0481	-0.0156	1	-0.0038	0.1071	0.0228
lagSIZE	0.0910	0.0864	-0.0351	0.0705	-0.0165	1	-0.2316	-0.2531
lagFE	-0.3314	-0.0283	-0.1156	-0.0660	0.0405	-0.3725	1	0.8201
lagFD	-0.1148	-0.3248	-0.0696	-0.0807	0.0173	-0.3897	0.5779	1

[a] Variable Definition: CLC is a dummy variable equal to 1 if the firm is a CLC firm and 0 if the firm is a NCC or OPC firm. ΔFE_t=the difference between forecast errors in the post- and the pre-Reg. FD period deflated by the price at the beginning of the pre-Reg. FD period. ΔFD_t= the difference between forecast dispersion in the post- and the pre-Reg. FD period deflated by the price at the beginning of the pre-Reg. FD period. ΔAGE_t = the difference in forecast age between the post- and pre-Reg. FD period. ΔANA_t = the difference in the number of followed analysts between the post- and pre-Reg. FD period. $\Delta SURP_t$ = the difference in earnings surprise between the post- and pre-Reg. FD period. lagSIZE = the log of market value of equity in the pre-Reg. FD period. lagFE, lagFD = the level of forecast error or forecast dispersion in the pre-Reg. FD period.

[b] Above the table is the Pearson correlation coefficients and the below is the Spearman correlation coefficients. All correlations are significant at the 0.001 level or better except for the correlation between ΔSURP and ΔANA which is not significant at conventional levels.

[1] NCC - non-conference call firms; [2] CLC – closed-call firms; [3] OPC – open-call firms.

& = Statistically significant at a probability of less than 0.10; * = Statistically significant at a probability of less than 0.05; ** = Statistically significant at a probability of less than 0.01; *** = Statistically significant at a probability of less than 0.001.

3.3.2.2 Regression Results

Table 4 presents the regression of the change in analyst quarterly forecast errors (ΔFE) and forecast dispersion (ΔFD) based on Equations (3) and (4). The sign of coefficients on the dummy variable, CLC, for the regression of ΔFE (or ΔFD) is significantly negative, which support hypotheses 3.3 and 3.4. These results indicate that analyst forecast errors and forecast dispersion have declined for the previous-CLC more than for NCC firms. However, the coefficients on the dummy variable, CLC, are greater than the coefficients on the dummy variable, OPC, for both regressions of ΔFE and ΔFD, which are inconsistent with hypotheses 3.1 and 3.2. The sign of the coefficient for the control variables is as expected.

Meanwhile, between CLC and OPC firms, I perform an F-test to examine whether c_1 is equal to c_2. The F-value for both regressions of ΔFE and ΔFD is 1.73 (5.42), and all p-value is not significant at the 0.001 level, which cannot reject the null hypotheses that c_1 is equal to c_2. It does not support hypotheses 3.1 and 3.2. That insignificance of the results may be due to the computation of ΔFE and ΔFD using the date of October 23, 2000 as the boundary between the PRE and POST period. Chi Mac (2003) found that firms have already changed their voluntary disclosure policy in the pre-enactment period (December 20, 1999- October 22, 2000), before Reg. FD became effective on October 23, 2000. Also from the results of Chapter V, it indicates that market behavior has already changed around the first (March 16, 1999) event and the second (November 16, 1999) event (see Figure 5 and Figure 6). It is possible that some firms may have gradually changed their voluntary disclosure policy prior to the release of Reg. FD

because they anticipated the passage of Reg. FD or tried to convince the SEC that regulation was unnecessary.

In conclusion, both univariate results and regression results suggest the change in FE and FD for CLC firms is smaller than those for NCC firms after the implementation of Reg. FD, which is consistent with hypotheses 3.3 and 3.4. However, both results show a greater change in FE and FD for CLC firms as compared to OPC firms in the post-Reg. FD period, which is not consistent with the hypotheses 3.1 and 3.2.

Table 4 Regression of the Change in Analyst Forecast Attributes (Hypotheses 3.1, 3.2, 3.3 and 3.4)

		Among OPC[3], CLC[2] and NCC[1] firms			
		□FE		**□FD**	
Variables[a]	**Expected Sign**	***Coefficient***	***t-value***	***Coefficient***	***t-value***
Intercept		0.0315	7.91***	0.0049	9.84***
CLC	-	**-0.0130**	**-4.81*** **	**-0.0018**	**-5.37*** **
OPC	-	**-0.0150**	**-5.31*** **	**-0.0022**	**-6.39*** **
HighTech*CLC	+	-0.0001	-0.05	0.0004	1.44
HighTech*OPC	+	0.0050	2.1*	0.0005	1.66[&]
HighTech*NCC	+	0.0000	-0.01	-0.0006	-0.94
ΔAGE	+	0.0000	4.83***	0.0000	-0.28
ΔANA	+	-0.0001	-0.26	0.0000	-0.28
ΔSURP	-	-0.1802	-19.43***	-0.0137	-12.11***
lagSIZE	-	-0.0015	-3.59***	-0.0002	-4.53***
lagFE	-	-0.5887	-25.77***		
lagFD	-			-0.5944	-30.75***
Adjusted R-square		0.4344	0.2755		0.2611
F-statistic		247.59***	153.55***		142.8***
F-test (c_1=c_2)		**1.73**		**5.42***	

[a] Variable Definition: CLC is a dummy variable equal to 1 if the firm is a CLC firm and 0 if the firm is a NCC or OPC firm. OPC is a dummy variable equal to 1 if the firm is a OPC firm and 0 if the firm is a NCC or CLC firm. HighTech is a dummy variable equal to 1 if the firm is a high-technology firm and 0 if the firm is not a high-technology firm. ΔFE_t=the difference between forecast errors in the post- and the pre-Reg. FD period deflated by the price at the beginning of the pre-Reg. FD period. ΔFD_t= the difference between forecast dispersion in the post- and the pre-Reg. FD period deflated by the price at the beginning of the pre-Reg. FD period. ΔAGE_t = the difference in forecast age between the post- and pre-Reg. FD period. ΔANA_t = the difference in the number of followed analysts between the post- and pre-Reg. FD period. $\Delta SURP_t$ = the difference in earnings surprise between the post- and pre-Reg. FD period. lagSIZE = the log of market value of equity in the pre-Reg. FD period. lagFE, lagFD = the level of forecast error or forecast dispersion in the pre-Reg. FD period.

[1] NCC - non-conference call firms; [2] CLC – closed-call firms; [3] OPC – open-call firms.

& = Statistically significant at a probability of less than 0.10; * = Statistically significant at a probability of less than 0.05; ** = Statistically significant at a probability of less than 0.01; *** = Statistically significant at a probability of less than 0.001.

3.4 Additional Analyses and Robustness Tests

3.4.1 Two-Stage Regression of Forecast Errors and Forecast Dispersion

Several studies argued that forecast errors are another factor affecting forecast dispersion, so I use a two-stage regression allowing FE as a function of FD. Qualitatively, the regression results of FE and FD are consistent with the previous results without adding FE in the regression of FD.

3.4.2. Robustness Tests

In order to check the robustness of results, first I picked the remaining samples, which are available during both pre- and post-Reg. FD periods and then I run the regression with those remaining samples. The results are qualitatively consistent with the previous results.

Regarding the influence of outliers on the results, I applied four diagnostic tests, (1) the diagonal of the projection matrix (Hat Matrix), (2) the studentized residual (RSYUDENT), (3) the change in the determinants of the covariance matrix of the estimates (CovRatio), and (4) the change in the predicted value (DFFITS). The filters were applied by setting observations exceeding the cutoffs recommended by Belsley, Kuh and Welsch (1980) to missing values. Qualitatively, the results were the same regardless of whether the outliers were eliminated or not.

CHAPTER VI

MARKET REACTIONS TO REGULATION FAIR DISCLOSURE

4.1 Hypotheses Development

The purpose of Reg. FD is to reduce the information asymmetry for previous-CLC firms, and thereby level the playing field for all investors. Extant studies have demonstrated the association between the disclosure and market reactions. For example, Clement and Tse (2003) found that only some of the analyst forecast determinants that are associated with forecast accuracy are also associated with return responses to forecast revisions, such as earlier released forecasts, large broker size and high-innovation forecasts. Lang and Lundholm (1993) also provide evidence that firms with more informative disclosure policies have a larger analyst following, more accurate analyst forecasts, less dispersion among individual analyst forecasts and less volatility in forecast revisions.

Moreover, Choi and Salamon (1995) link the firms' external reporting system to price changes around earnings announcements. "For a given amount of unexpected earnings, the larger unexpected the firm-specific outcome uncertainty, the larger the magnitude of the firm's unexpected price change." Choi and Salamon's model predicts that the change in stock prices around an earnings announcement date is a function of the prior uncertainty and the noise in the information signal. That is to say, if investors could anticipate better this information prior to an earnings announcement, the price movement will be highly associated with earnings news. Therefore, the cumulative abnormal returns around an earnings announcement date in a narrow window reveal the information gap between the market anticipation and upcoming earnings announcements. If there exists

more informative asymmetry for both NCC and CLC firms than for OPC firms, there would be higher price changes around an earnings announcement date for both NCC and CLC firms than for OPC firms in the pre-Reg. FD period. Hypothesis 4.1 and 4.2 are stated in the alternative form.

H_a 4.1: *The price reactions to earnings announcements for the closed-call firms are higher than those for the open-call firms in the pre-Reg. FD period (i.e.* $CAR_{PRE}^{CLC} > CAR_{PRE}^{OPC}$*).*

H_a 4.2: *The price reactions to earnings announcements for the non-conference-call firms are higher than those for both closed-call and open-call firms in the pre-Reg. FD period (i.e.* $CAR_{POST}^{NCC} > (CAR_{POST}^{CLC}, CAR_{POST}^{OPC})$*).*

Much criticism of Reg. FD is focused on an alleged increase in market volatility, despite the wider dissemination of relevant information to the public. If analysts no longer have access to private information from the previous-CLC firms, analyst forecasts may have lost some degree of precision, and hence investors' reliance on analyst guidance may have decreased after the release of Reg. FD. Because the previous-CLC firms have gradually changed their disclosure policy to comply with Reg. FD, the difference in price reactions to earnings announcements between the previous-CLC firms and the previous-OPC firms would disappear after Reg. FD went into effect. Meanwhile, both price reactions would be less than the price reactions to the NCC firms where no disclosures are made via conference calls, because higher information asymmetry is expected for NCC firms as compared to both previous-CLC and previous-OPC firms.

That also means that firms which in response to Reg. FD cut back on conference calls will be penalized by having stronger reactions to earnings announcements. Hypothesis 5.1 is stated in null form, while hypothesis 5.2 is stated in the alternative form as follows.

H_0 5.1: *The price reactions to earnings announcements for the previous closed-call firms are not significantly different from those for the previous open-call firms in the post-Reg. FD period (i.e.* $CAR_{POST}^{CLC} \approx CAR_{POST}^{OPC}$*).*

H_a 5.2: *The price reactions to earnings announcements for the non-conference-call firms are higher than those for both previous closed-call firms and previous open-call firms in the post-Reg. FD period (i.e.* $CAR_{POST}^{NCC} > (CAR_{POST}^{CLC}, CAR_{POST}^{OPC})$*).*

4.2 Research Methodology

Recent studies suggest some factors affecting price changes are firm size, risk factor, the level of forecast dispersion, a greater propensity to disclose information to big shareholders, forecast revisions and firms' growth opportunity, etc. For instance, Gleason and Lee (2003) identify several factors, such as high-innovation revisions, the analyst's ability and reputation, and the number of analysts followed, that help to explain cross-sectional variations in the post-revision price drift associated with analyst forecast revisions. Irani and Karamanou (2001) provide evidence that firms with a history of past selective disclosure, proxied by forecast dispersion and the number of followed analysts, exhibit greater abnormal returns. Fried and Givoly (1982) also evaluate the quality of analysts' forecasts as surrogates for the market participation of earnings, and found that forecast errors are more closely associated with stock price changes. Hence, I use FE as a

proxy for unexpected earnings in the regression of price reactions to earnings announcements. Thus, whether the firm disclosure method (via conference calls or not) affects the price reaction around earnings announcement dates is examined after controlling for firm size, industry effect, the number of analyst followed, forecast errors and forecast dispersion in the following equation. Since this relationship is sensitive to both risk factor and firm size, the dependent variables is expressed into two CARs, CARs based on beta and CARs based on size, in a window (-1, +1).

$$CAR_{it} = \beta_0 + \beta_1 CLC_{it} + \beta_2 OPC_{it} + \beta_3 (HighTech * CLC) + \beta_4 (HighTech * OPC) + \beta_5 (HighTech * NCC) + \beta_6 AGE_{i,t} + \beta_7 ANA_{i,t} + \beta_8 FE_{i,t} + \beta_9 SIZE_{it} + \beta_{10} FD_{i,t} + \varepsilon_{it} \quad (5)$$

where CLC is a dummy variable equal to 1 if the firm is a CLC firm and 0 if the firm is a NCC or OPC firm. OPC is another dummy variable equal to 1 if the firm is an OPC firm and 0 if the firm is a NCC or CLC firm. NCC is also another dummy variable equal to 1 if the firm is a NCC firm and 0 if the firm is a OPC or CLC firm.

CAR_{it} = daily cumulative abnormal returns based on beta or size for firm i in three windows, (-1, +1), (-2, +4) and (-5, +10) around earnings announcements.

HighTech = a dummy variable equal to 1 if the firm is a high-technology firm and 0 if the firm is not a high-technology firm.

AGE_{it} = the number of calendar days between the analyst's forecast date and the date of the actual earnings announcement at quarter t.

ANA_{it} = total number of analysts releasing an earnings forecast for the firm i at quarter t.

FE_{it} = the absolute difference between actual earnings per share for quarter t less the mean forecast as provided by IBES summary file at the end of the quarter t deflated by the stock price at the beginning of quarter t.

$SIZE_{it}$ = the log of market value of equity at the beginning of quarter t.

FD_{it} = the standard deviation of all analyst forecasts made at the end of the quarter t from the "consensus" (mean) of analysts' forecasts deflated by the stock price at the beginning of quarter t.

The cumulative abnormal returns (CARs) are obtained from CRSP using Eventus, the event-study software, over the Pre-earnings announcements period (255 days) in order to provide estimated parameters for the prediction of residuals during the event dates. Abnormal returns are predicted errors from the market model. Therefore, CARs measure the information gap that the quarter earnings news is not reflected in stock price. A significant negative coefficient on β_1 or β_2 in Equation (5) is expected if there were more market reactions for NCC firms as compared to both OPC and CLC firms in both pre- and post -Reg. FD periods when NCC firms face higher information asymmetry. Meanwhile, β_1 is expected to be significantly different than β_2 if there were greater market reactions for CLC firms as compared to OPC firms in the pre-Reg. FD period, but not significantly different between previous-CLC firms and previous-OPC firms in the post-Reg. FD period if Reg. FD did reduce the information gap for previous-CLC firms. On the other side, a significantly positive coefficient on HighTech interactive dummy variable is consistent with the issue that price reactions are greater for high-technology firms if they face more information asymmetry than non-high-technology firms.

Also I will perform an F-test to examine whether β_1 is equal to β_2. It is expected that β_1 is significantly different from β_2 in the pre-Reg. FD period. On the other hand, when the comparison is made between the previous-CLC and previous-OPC firms, an insignificant F-value is expected if there is no significant difference in cumulative

abnormal returns between previous-OPC and previous-CLC firms in the post- Reg. FD period.

4.3 Empirical Results

4.3.1 Univariate Results

Table 5 presents statistical tests of difference in the mean of the cumulative abnormal returns based on size ($CAR1^{SIZE}$, $CAR2^{SIZE}$ and $CAR3^{SIZE}$) and beta ($CAR1^{BETA}$, $CAR2^{BETA}$ and $CAR3^{BETA}$) in three windows, (-1, +1), (-2, +4), (-5, +10), by using t-tests. Since the test for the equity of variance showed unequal variance, the Satterthwaite unequal variance t-test was used. The mean of CARs is significantly different for all comparisons between CLC and OPC firms in the pre-Reg. FD period, and hence, these preliminary results generally support hypothesis 4.1. In the post-Reg. FD period, however, between CLC and OPC firms, the comparisons in means of CARs based on size and beta are insignificant as expected, but not in the means of $CAR2^{BETA}$ and $CAR3^{BETA}$. These results are partially consistent with hypothesis 5.1 in general.

At the same time, the comparisons in means are significantly different between NCC and CC (including CLC and OPC) firms in the pre-Reg. FD period except for CARs in a window (-1, +1) ($CAR1^{SIZE}$ and $CAR1^{BETA}$), while in the post-Reg. FD period, the comparisons in means remain significant for CARs based on size, but not for CARs based on beta. Thus, these mixed results partially support hypotheses 4.2 and 5.2. In addition, Figure 1 to Figure 4 plot the trend of mean cumulative abnormal returns ($CAR1^{SIZE}$ and $CAR1^{BETA}$) around earnings announcement dates during days –1 through +1 (-1, +1) among OPC, CLC and NCC firms in both pre- and post-Reg. FD periods.

Table 5 Mean Cumulative Abnormal Returns Around Earnings-Announcement Dates in three windows, (-1, +1), (-2, +4) and (-5, +10) (Hypotheses 4.1, 4.2, 5.1 and 5.2)

	Variables[a]	Windows	Mean CAR			T-tests			
						(CLC[2]+OPC[3])-NCC[1]		OPC[3] – CLC[2]	
			CLC	OPC	NCC	Difference in Means	t value	Difference in Means	t value
Before Reg. FD	$CAR1^{SIZE}$	*(-1, +1)*	0.0006	0.0044	-0.002	0.0039	**1.33**	0.0039	**4.68*****
	$CAR2^{SIZE}$	*(-2, +4)*	-0.001	0.0041	-0.014	0.0148	**4.06*****	0.0055	**5.5*****
	$CAR3^{SIZE}$	*(-5, +10)*	-0.003	0.0106	-0.018	0.0192	**4.13*****	0.0136	**10.51*****
	$CAR1^{BETA}$	*(-1, +1)*	0.0001	0.0045	-0.0001	0.0017	**0.56**	0.0044	**5.09*****
	$CAR2^{BETA}$	*(-2, +4)*	-0.002	0.002	-0.02	0.0187	**5.06*****	0.0044	**4.26*****
	$CAR3^{BETA}$	*(-5, +10)*	-0.004	0.0048	-0.028	0.0271	**5.71*****	0.009	**6.59*****
After Reg. FD	$CAR1^{SIZE}$	*(-1, +1)*	0.002	0.0002	-0.004	0.0052	**2.18***	-0.002	**-1.26**
	$CAR2^{SIZE}$	*(-2, +4)*	0.0024	0.0032	-0.005	0.008	**2.75****	0.0008	**0.42**
	$CAR3^{SIZE}$	*(-5, +10)*	0.0059	0.0078	-0.011	0.0177	**4.81*****	0.0019	**0.81**
	$CAR1^{BETA}$	*(-1, +1)*	-0.004	-0.004	-0.008	0.0036	**1.47**	0.0001	**0.38**
	$CAR2^{BETA}$	*(-2, +4)*	-0.016	-0.012	-0.014	0	**-0.2**	0.004	**2.13***
	$CAR3^{BETA}$	*(-5, +10)*	-0.035	-0.03	-0.03	-0.003	**-0.75**	0.005	**1.87***

[a] Variables Definition: $CAR1^{SIZE}$, $CAR2^{SIZE}$, $CAR3^{SIZE}$ = daily cumulative abnormal returns based on size around earnings announcement dates in three windows, (-1, +1), (-2, +4) and (-5, +10). $CAR1^{BETA}$, $CAR2^{BETA}$, $CAR3^{BETA}$ = daily cumulative abnormal returns based on beta around earnings announcement dates in three windows, (-1, +1), (-2, +4) and (-5, +10).

[1] NCC - non-conference call firms; [2] CLC – closed-call firms; [3] OPC – open-call firms.

& = Statistically significant at a probability of less than 0.10; * = Statistically significant at a probability of less than 0.05; ** = Statistically significant at a probability of less than 0.01; *** = Statistically significant at a probability of less than 0.001.

Figure 1: Mean Cumulative Abnormal Returns ($CAR1^{SIZE}$) around Earnings-Announcement Dates (-1, +1) Before Reg. FD

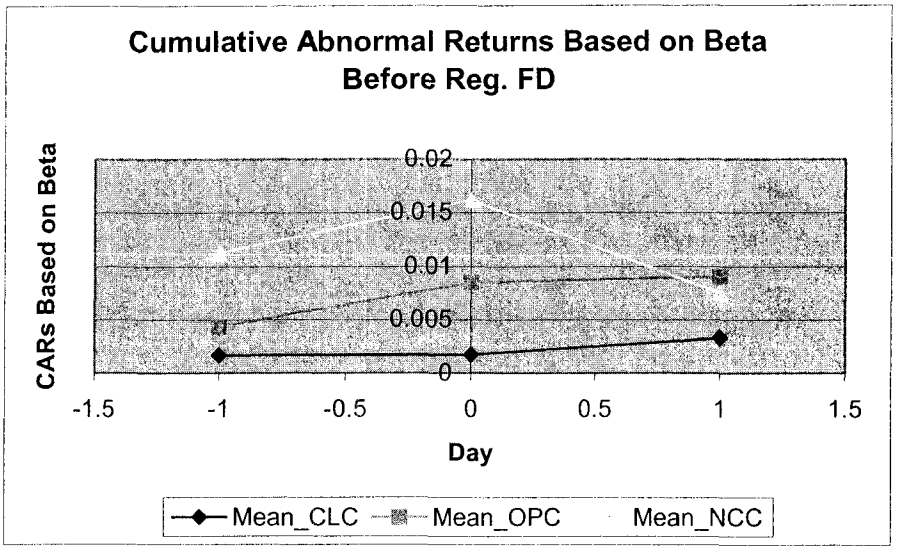

Figure 2: Mean Cumulative Abnormal Returns ($CAR1^{BETA}$) around Earnings-Announcement Dates (-1, +1) Before Reg. FD

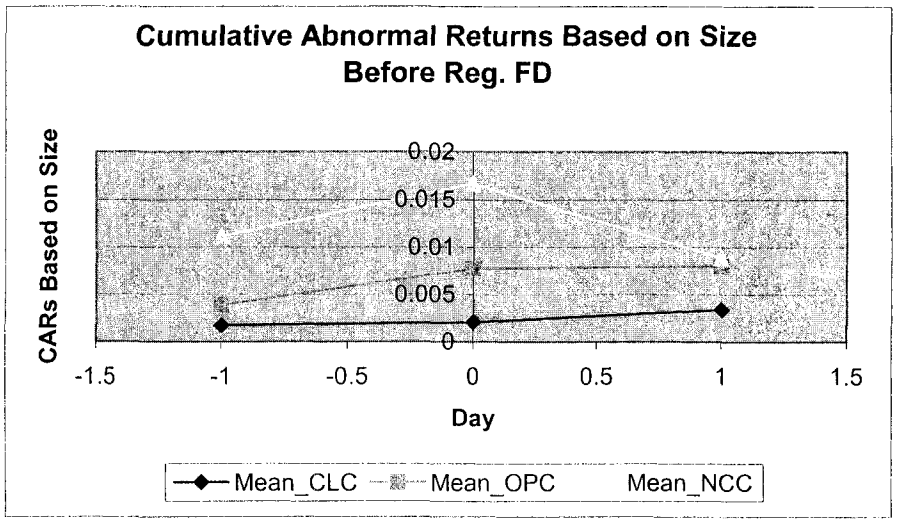

Figure 3: Mean Cumulative Abnormal Returns ($CAR1^{SIZE}$) around Earnings-Announcement Dates (-1, +1) After Reg. FD

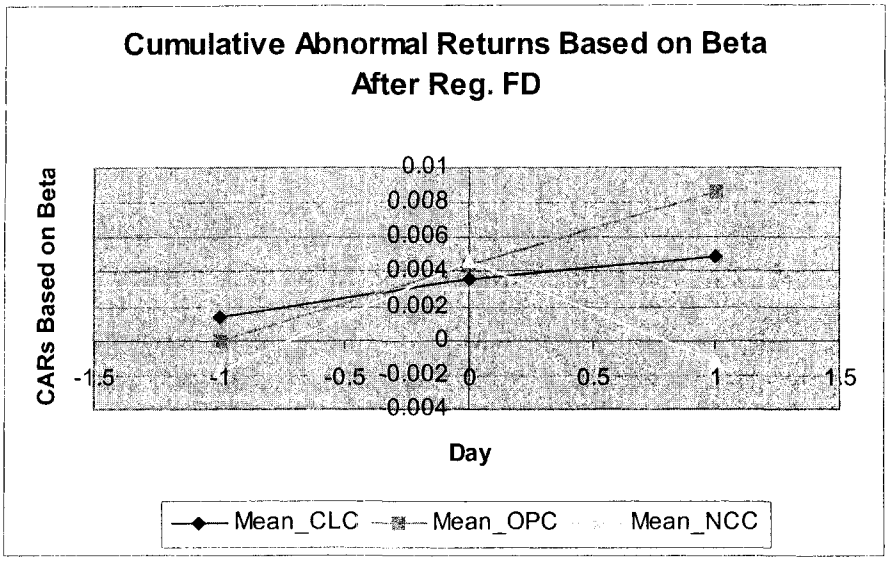

Figure 4: Mean Cumulative Abnormal Returns ($CAR1^{BETA}$) around Earnings-Announcement Dates (-1, +1) After Reg. FD

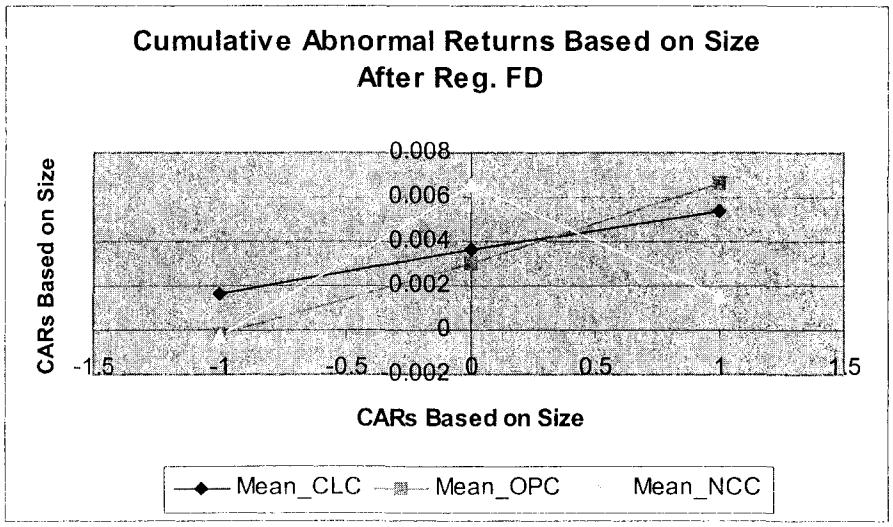

Table 6 Correlations between Daily Cumulative Abnormal Returns and both Pre- and Post-Reg. FD Variables (Hypotheses 4.1, 4.2, 5.1 and 5.2)

Panel A: Correlations between Cumulative Abnormal Returns and Other Variables Before Reg. FD[bc]

Variables[a]	$CAR1^{SIZE}$	$CAR1^{BETA}$	AGE	ANA	FE	SIZE	FD
$CAR1^{SIZE}$	1	0.9770	0.0001	0.0136	-0.0512	0.0013	-0.0156
$CAR1^{BETA}$	0.9647	1	-0.0026	0.0088	-0.0553	0.0009	-0.0148
AGE	-0.0018	-0.0056	1	-0.1336	0.1084	0.0717	0.0291
ANA	0.0094	0.0039	-0.1397	1	-0.1108	0.4941	-0.1359
FE	-0.0286	-0.0289	0.1483	-0.2128	1	-0.2745	0.6098
SIZE	0.0154	0.0192	0.0703	0.4801	-0.3760	1	-0.3292
FD	-0.0657	-0.0622	0.0441	-0.2039	0.6220	-0.4244	1

Panel B: Correlations between Cumulative Abnormal Returns and Other Variables After Reg. FD[bc]

Variables[a]	$CAR1^{SIZE}$	$CAR1^{BETA}$	AGE	ANA	FE	SIZE	FD
$CAR1^{SIZE}$	1	0.9786	-0.0049	-0.0337	-0.0547	-0.0289	-0.0410
$CAR1^{BETA}$	0.9650	1	0.0005	-0.0343	-0.0498	-0.0463	-0.0386
AGE	-0.0064	0.0014	1	-0.1295	0.1190	0.0553	0.0275
ANA	-0.0232	-0.0258	-0.1467	1	-0.0865	0.4702	-0.1219
FE	0.0260	0.0247	0.1925	-0.1699	1	-0.2294	0.6870
SIZE	-0.0424	-0.0585	0.0553	0.4721	-0.3228	1	-0.3017
FD	0.0082	0.0156	0.0331	-0.1849	0.6068	-0.4035	1

[a] Variables Definition: $AGE_{i,t}$ = the number of calendar days between the analyst's last forecast date and the date of the actual earnings announcement at quarter t. $ANA_{i,t}$ = the total number of analysts releasing an earnings forecast for the firm i at quarter t. FE_{it} = absolute difference between actual earnings per share for quarter t less the mean forecast at the end of the quarter t deflated by the stock price at the beginning of quarter t. $SIZE_{it}$ = the log of market value of equity at the beginning of quarter t. FD_{it} = standard deviation of all analyst forecasts made at the end of the quarter t from the "consensus" (mean) of analysts' forecasts deflated by the stock price at the beginning of quarter t. $CAR1^{SIZE}$=daily cumulative abnormal returns around earnings announcement dates (-1, +1) based on size. $CAR1^{BETA}$= daily cumulative abnormal returns around earnings announcement dates (-1, +1) based on beta.

[b] All correlations are significant at the 0.001 level or better except for the correlation between AGE and $CAR1^{SIZE}$, AGE and $CAR1^{BETA}$, ANA and $CAR1^{SIZE}$, ANA and $CAR1^{BETA}$, which are not significant at conventional levels.

[c] Above of the table is the Pearson correlation coefficients and the below is the Spearman correlation coefficients.

Table 6 presents the Pearson and Spearman correlation coefficients between cumulative abnormal returns ($CAR1^{SIZE}$ and $CAR1^{BETA}$) and their determinants in both pre- and post-Reg. FD periods. All the correlation coefficients have signs consistent with those expected for the regression coefficients and all are significant except for the correlations between the cumulative abnormal returns and forecast age (AGE), and cumulative abnormal returns and the number of analysts followed (ANA). Other CARs are not presented in this table because they have the similar correlation coefficients with these determinants as $CAR1^{SIZE}$ and $CAR1^{BETA}$ do.

4.3.2 Regression Results

Table 7 presents the regression of cumulative abnormal returns based on size (Panel A) and beta (Panel B) around earnings announcement dates in three windows (-1, +1), (-2, +4) and (-5, +10) using Equation (5). Panel A (CARs based on size, $CAR1^{SIZE}$, $CAR2^{SIZE}$ and $CAR3^{SIZE}$) shows that the sign of coefficients on two dummy variables, CLC or OPC, is not significant in the regression of $CAR1^{SIZE}$, but significantly positive in the regression of $CAR3^{SIZE}$ in the pre-Reg. FD period. These results are not consistent with hypotheses 4.1 and 4.2. On the other hand, in the post-Reg. FD period, the sign of coefficients on two dummy variables, CLC or OPC, is significantly negative in the regression of $CAR1^{SIZE}$, but insignificant in the regression of $CAR2^{SIZE}$ and $CAR3^{SIZE}$. These mixed results are partially consistent with hypothesis 5.2.

Panel B (CARs based on beta, $CAR1^{BETA}$, $CAR2^{BETA}$ and $CAR3^{BETA}$) shows that the sign of coefficients on two dummy variables, CLC or OPC, is not significant in the

regression of $CAR1^{BETA}$, but significantly positive in the regressions of $CAR2^{BETA}$ and $CAR3^{BETA}$ in the pre-Reg. FD period. These results are not consistent with hypotheses 4.1 and 4.2. In the post-Reg. FD period, however, the sign of coefficients on two dummy variables, CLC or OPC, is significantly negative for the regressions of $CAR1^{BETA}$, $CAR2^{BETA}$ and $CAR3^{BETA}$. These results support hypothesis 5.2. It reveals a smaller change in the price reactions for both previous-CLC and previous-OPC firms as compared to NCC firms in the post-Reg. FD period. The sign of the coefficient for the control variables, such as the forecast age (AGE), forecast errors (FE), firm size (SIZE) and forecast dispersion (FD), is as expected.

On the other hand, between CLC and OPC firms, I also perform an F-test to examine whether β_1 is equal to β_2 in each regression of CARs in both Panel A and Panel B. In the pre-Reg. FD period, as anticipated, the p-value is significant at the 0.001 level in both Panel A and Panel B, which can reject the null hypotheses that β_1 is equal to β_2. It implies that market reactions to earnings announcements are significantly different between OPC and CLC firms in the pre-Reg. FD period, consistent with hypothesis 4.1. In the post-Reg. FD period, however, the F-test results show that all p-value is not significant at the 0.001 level in both Panel A and Panel B, which cannot reject the null hypotheses that β_1 is equal to β_2. It indicates that price changes are not significantly different between previous-CLC and previous-OPC firms after the release of Reg. FD. Therefore, it supports hypothesis 5.1.

The insignificance of the results of two dummy variables, CLC and OPC, in the pre-Reg. FD period may be due to using the date of October 23, 2000 as the boundary between the PRE and POST period, similar to the explanation for the insignificant results

of an F-test in the regressions of ΔFE and ΔFD in Table 4. Chi Mac (2003) found that firms have already changed their voluntary disclosure policy in the pre-enactment period (December 20, 1999- October 22, 2000). Also the results of Chapter V suggest that market behavior had already changed around the first event date (March 16, 1999) and the second event date (November 16, 1999) (See Figure 5 and Figure 6). It is possible that some firms may have gradually changed their voluntary disclosure policy prior to the release of Reg. FD because they anticipated the passage of Reg. FD or tried to convince the SEC that regulation was unnecessary.

Taken together, as anticipated, there is a significant difference in price reactions around earnings announcement dates between CLC and OPC firms before Reg. FD went into effect, but an insignificant difference in price reactions between CLC and OPC firms after the release of Reg. FD. It implies that Reg. FD may have caused the previous-CLC firms to change their disclosure policy, partly because the previous-CLC firms have to assimilate information directly to all investors rather than through financial analysts, or partly because the previous-CLC firms fear the litigation arising from improper investors' individual interpretation without the guidance from financial analysts. Therefore, to some extent Reg. FD did "level the playing field" for financial analysts and investors, consistent with Reg. FD's success in eliminating selective disclosure.

Table 7 Regression of Daily Cumulative Abnormal Returns on both Pre- and Post-Reg. FD Variables (Hypotheses 4.1, 4.2, 5.1 and 5.2)

Panel A: CARs based on Size in three windows (-1, +1), (-2, +4) and (-5, +10)

Regression of CAR^{SIZE}		*Among NCC, CLC & OPC firms*					
		Before Reg. FD (PRE)			*After Reg. FD (POST)*		
		$CAR1^{SIZE}$ (-1, +1)	$CAR2^{SIZE}$ (-2, +4)	$CAR3^{SIZE}$ (-5, +10)	$CAR1^{SIZE}$ (-1, +1)	$CAR2^{SIZE}$ (-2, +4)	$CAR3^{SIZE}$ (-5, +10)
Variables[a]	Expected Sign	*Coefficient* *t-value*	*Coefficient* *t-value*	*Coefficient* *t-value*	*Coefficient* *t-value*	*Coefficient* *t-value*	*Coefficient* *t-value*
Intercept		0.0116	0.0061	0.006	0.0228	0.0242	0.0552
		3.28***	1.42	1.14	5.58***	4.84***	8.26***
CLC	-	**-0.0023**	**0.007**	**0.0154**	**-0.0048**	**-0.0059**	**-0.0008**
		-0.74	**1.89&**	**2.75****	**-1.84&**	**-1.87&**	**-0.18**
OPC	-	**0.0020**	**0.0121**	**0.0301**	**-0.0055**	**-0.0024**	**0.0055**
		0.64	**3.23*****	**5.41*****	**-1.98***	**-0.69**	**1.21**
HighTech*CLC	+	0.0011	-0.0080	0.0010	-0.0119	-0.0269	-0.0584
		0.72	-4.2***	0.39	-4.9***	-9.06***	-14.74***
HighTech*OPC	+	0.0006	0.0004	0.0026	-0.0028	-0.0166	-0.0347
		0.37	0.22	1.1	-1.16	-5.62***	-8.79***
HighTech*NCC	+	-0.0001	-0.0053	-0.0202	-0.0446	-0.0656	-0.0958
		-1.86&	-0.69	-0.05*	-9.61***	-11.58***	-12.65***
AGE	+	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
		0.53	1.45	1.12	0.12	0.18	2.95**
ANA	+	0.0001	-0.0001	0.0008	-0.0006	-0.0001	0.0007
		2.77**	-1.16	5.11***	-3.63**	-0.5	2.66**
FE	-	-0.5263	-0.6269	-0.6018	-0.3203	-0.3670	-0.3613
		-21.69***	-21.16***	-15.56***	-11.35***	-10.64***	-7.84***
SIZE	-	-0.0012	-0.0015	-0.0037	-0.0013	-0.0016	-0.0067
		-4.2***	-4.3***	-8.31***	-2.82*	-2.79**	-8.63***
FD	+	1.1573	1.5899	1.9414	1.5405	2.1086	0.7455
		7.03***	7.91***	7.39***	7.19***	8.05***	2.13*
Adjusted R-square		0.0078	0.008	0.0062	0.007	0.0126	0.0204
F-statistic		61***	60.85***	47.14***	53.24***	37.82***	61.28***
F-test ($\beta_1 = \beta_2$)		**16.55*****	**20.69*****	**80.1*****	**0.19**	**3.2&**	**5.52***

Panel B: CARs based on Beta in three windows (-1, +1), (-2, +4) and (-5, +10)

Regression of CAR^{BETA}		*Among NCC, CLC & OPC firms*					
		Before Reg. FD (PRE)			*After Reg. FD (POST)*		
		$CAR1^{BETA}$ (-1, +1)	$CAR2^{BETA}$ (-2, +4)	$CAR3^{BETA}$ (-5, +10)	$CAR1^{BETA}$ (-1, +1)	$CAR2^{BETA}$ (-2, +4)	$CAR3^{BETA}$ (-5, +10)
Variables[a]	**Expected Sign**	*Coefficient t-value*	*Coefficient t-value*	*Coefficient t-value*	*Coefficient t-value*	*Coefficient t-value*	*Coefficient t-value*
Intercept		0.0179	0.0147	0.0349	0.0150	0.0134	0.0335
		4.93***	3.33***	5.96***	3.49***	2.54*	4.5***
CLC	-	**-0.002**	**0.0153**	**0.0293**	**-0.0078**	**-0.0162**	**-0.0261**
		-0.64	**4*** **	**5.79*** **	**-2.85****	**-4.82*** **	**-5.5*** **
OPC	-	**0.0024**	**0.02**	**0.0414**	**-0.0075**	**-0.01**	**-0.0188**
		0.75	**5.12*** **	**8.01*** **	**-2.54***	**-2.79****	**-3.7*** **
HighTech*CLC	+	-0.0011	-0.0132	-0.0121	-0.0105	-0.0314	-0.0700
		-0.7	-6.76***	-4.67***	-4.12***	-10.07***	-15.87***
HighTech*OPC	+	0.0006	-0.0006	-0.0039	0.0014	-0.0154	-0.0313
		0.4	-0.34	-1.56	0.53	-4.96***	-7.12***
HighTech*NCC	+	-0.0037	-0.0106	0.0102	-0.0445	-0.0668	-0.1098
		-0.57	-1.34	0.97	-9.14***	-11.2	-13.01***
AGE	+	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
		0.11	0.26	0.67	0.37	1.8	0.23
ANA	+	0.0002	0.0001	0.0012	-0.0007	-0.0007	-0.0007
		2.46*	1.18	7.57***	-4.47***	-3.77***	-2.51*
FE	-	-0.5051	-0.6089	-0.5874	-0.3195	-0.3547	-0.3365
		-20.22***	-20.02***	-14.57***	-10.78***	-9.77***	-6.55***
SIZE	-	-0.0022	-0.0042	-0.0106	-0.0004	0.0001	-0.0032
		-7.67***	-12.05***	-23***	-0.85	0.12	-3.66***
FD	+	1.1627	1.5833	2.1320	1.3013	1.7590	0.2515
		6.86***	7.67***	7.79***	5.78***	6.38***	0.64
Adjusted R-square		0.007	0.0089	0.0114	0.0085	0.0129	0.0201
F-statistic		53.24***	67.93***	87.76***	25.87***	38.98***	60.33***
F-test ($\beta_1 = \beta_2$)		**20.65*** **	**15.52*** **	**58.85*** **	**0.04**	**8.3****	**5.84***

[a] Variables Definition: CLC is a dummy variable equal to 1 if the firm is a CLC firm and 0 if the firm is a NCC or OPC firm. OPC is a dummy variable equal to 1 if the firm is a OPC firm and 0 if the firm is a NCC or CLC firm. HighTech is a dummy variable equal to 1 if the firm is a high-technology firm and 0 if the firm is not a high-technology firm. $AGE_{i,t}$ = the number of calendar days between the analyst's last forecast date and the date of the actual earnings announcement at quarter t. $ANA_{i,t}$ = the total number of analysts releasing an earnings forecast for the firm i at quarter t. FE_{it} = absolute difference between actual earnings per share for quarter t less the mean forecast at the end of the quarter t deflated by the stock price at the beginning of quarter t. $SIZE_{it}$ = the log of market value of equity at the beginning of quarter t. FD_{it} = standard deviation of all analyst forecasts made at the end of the quarter t from the "consensus" (mean) of analysts' forecasts deflated by the stock price at the beginning of quarter t. $CAR1^{SIZE}$, $CAR2^{SIZE}$, $CAR3^{SIZE}$ = cumulative abnormal returns around earnings announcements based on size in 3 windows, (-1, +1), (-2, +4) and (-5, +10). $CAR1^{BETA}$, $CAR2^{BETA}$, $CAR3^{BETA}$=cumulative abnormal returns around earnings announcements based on beta in 3 windows (-1, +1), (-2, +4) and (-5, +10).

& = Statistically significant at a probability of less than 0.10; * = Statistically significant at a probability of less than 0.05; ** = Statistically significant at a probability of less than 0.01; *** = Statistically significant at a probability of less than 0.001.

[1] NCC - non-conference call firms; [2] CLC – closed-call firms; [3] OPC – open-call firms.

4.4 Additional Analyses and Robustness Tests

4.4.1 Decimalization

The NYSE and AMEX were fully decimalized on January 19, 2001, and the NASDAQ on April 9, 2001. Ronen and Weaver (2001) suggest that reduced tick size is associated with reduced return volatility when AMEX adopted 1/16 ticks in May 1997. Bailey, Li, Mao and Zhong (2003) also attribute the decrease in return volatility in the post-Reg. FD period to decimalization instead of Reg. FD itself. Therefore, to test whether decimalization impacts the increase in return volatility, I add one dummy variable, DEC, into the regression of cumulative abnormal returns. DEC equals to 1 if the fiscal end period is at or after December 2000 and 0 if the fiscal end period is before December 2000. Since decimalization only affects the results in the post-Reg. FD period, the sample used in this section is limited to the post-Reg. FD period observation.

$$CAR_{it} = \beta_0 + \beta_1 CLC_{it} + \beta_2 OPC_{it} + \beta_3 (DEC * CLC) + \beta_4 (DEC * OPC) + \beta_5 (DEC * NCC) + \beta_6 (HighTech * CLC) + \beta_7 (HighTech * OPC) + \beta_8 (HighTech * NCC) + \beta_9 AGE_{i,t} + \beta_{10} ANA_{i,t} + \beta_{11} FE_{i,t} + \beta_{12} SIZE_{it} + \beta_{13} FD_{i,t} + \varepsilon_{it} \quad (6)$$

Table 8 presents the results of whether decimalization affects the results of regression of cumulative abnormal returns based on beta ($CAR1^{BETA}$ and $CAR2^{BETA}$) in two windows (-1, +1) and (-2, +4) based on Equation (6). In both regressions of $CAR1^{BETA}$ and $CAR2^{BETA}$, the sign of the coefficient, DEC*CLC, is significantly negative, but the sign of other two DEC interactive dummy variables, DEC*OPC and DEC*NCC, are significantly positive. Therefore, the change in price reactions for three group firms could be attributed to decimalization. In another word, decimalization influences the change in return volatility for three group firms in the post-Reg. FD period. In addition, the results

in other regressions of $CAR1^{SIZE}$, $CAR2^{SIZE}$, $CAR3^{SIZE}$ and $CAR3^{BETA}$ are consistent with these results.

Table 8 Regression of Cumulative Abnormal Returns on Decimalization and other variables

Variables[a]	*Among NCC, CLC & OPC firms*				
	Expected Sign	$CAR1^{BETA}$		$CAR2^{BETA}$	
		Coefficient	*t-value*	*Coefficient*	*t-value*
Intercept		-0.0227	-1.42	-0.0442	-2.25*
CLC	-	0.0384	2.37*	0.0603	3.04**
OPC	-	0.0189	1.14	0.0240	1.18
*DEC*CLC*	-	**-0.0094**	**-2.33***	**-0.0210**	**-4.24****
*DEC*OPC*	-	**0.0116**	**2.18***	**0.0240**	**3.68****
*DEC*NCC*	-	**0.0383**	**2.41***	**0.0582**	**2.99****
*HighTech*CLC*	+	-0.0103	-4.05***	-0.0310	-9.95***
*HighTech*OPC*	+	0.0012	0.47	-0.0157	-5.06***
*HighTech*NCC*	+	-0.0455	-9.32***	-0.0683	-11.43***
AGE	+	0.0000	-0.4	0.0000	-1.85
ANA	+	-0.0007	-4.54***	-0.0008	-3.9***
FE	-	-0.3199	-10.8***	-0.3558	-9.81***
SIZE	-	-0.0004	-0.72	0.0002	0.36
FD	+	1.3106	5.82***	1.7825	6.47***
Adjusted R-square		0.009		0.0142	
F-Statistic		21.14***		33.13***	

[a] Variables Definition: *CLC* is a dummy variable equal to 1 if the firm is a CLC firm and 0 if the firm is a NCC or OPC firm. *OPC* is a dummy variable equal to 1 if the firm is a OPC firm and 0 if the firm is a NCC or CLC firm. *DEC* is a dummy variable equal to 1 if the fiscal end period is at or after December 2000 and 0 if the fiscal end period is before December 2000. *HighTech* is a dummy variable equal to 1 if the firm is a high-technology firm and 0 if the firm is not a high-technology firm. $AGE_{i,t}$ = the number of calendar days between the analyst's last forecast date and the date of the actual earnings announcement at quarter t. $ANA_{i,t}$ = the total number of analysts releasing an earnings forecast for the firm i at quarter t. FE_{it} = absolute difference between actual earnings per share for quarter t less the mean forecast at the end of the quarter t deflated by the stock price at the beginning of quarter t. $SIZE_{it}$ = the log of market value of equity at the beginning of quarter t. FD_{it} = standard deviation of all analyst forecasts made at the end of the quarter t from the "consensus" (mean) of analysts' forecasts deflated by the stock price at the beginning of quarter t. $CAR1^{BETA}$, $CAR2^{BETA}$ = daily cumulative abnormal returns around earnings announcements based on beta in windows (-1, +1) and (-2, +4).
& = Statistically significant at a probability of less than 0.10; * = Statistically significant at a probability of less than 0.05; ** = Statistically significant at a probability of less than 0.01; *** = Statistically significant at a probability of less than 0.001.

4.4.2 Analyst Information Advantage

In the Heflin, Subrahmanyman and Zhang (2001) paper, the analyst information advantage (AIA) is measured as the difference between the absolute consensus forecast error (FE) and the corresponding absolute time-series forecast error (SURP). The analyst information advantage indicates that analysts can collect more useful information beyond that contained in the earnings' history. That may explain the "value added" by financial analysts. Therefore, I add one variable, AIA, into Equation (7).

$$CAR_{it} = \beta_0 + \beta_1 CLC_{it} + \beta_2 OPC_{it} + \beta_3 (POST * CLC) + \beta_4 (POST * OPC) + \beta_5 (POST * NCC) + \beta_6 (HighTech * CLC) + \beta_7 (HighTech * OPC) + \beta_8 (HighTech * NCC) + \beta_9 AIA_{i,t} + \beta_{10} AGE_{i,t} + \beta_{11} ANA_{i,t} + \beta_{12} SIZE_{it} + \beta_{13} FD_{i,t} + \varepsilon_{it} \quad (7)$$

Table 9 presents the results. From Panel A, the mean and median of AIA for NCC firms are greater than those for CC (both CLC and OPC) firms in both pre- and post-Reg. FD periods, which means more selective disclosure among analysts for NCC firms as compared to CC firms. The mean of AIA for CLC firms is greater than those for OPC firms during both pre- and post-Reg. FD periods even though the median of AIA for CLC firms is smaller than those for OPC firms during both periods. Overall, the univariate results suggest more selective disclosure for NCC firms as compared to CC firms regardless of the release of Reg. FD.

Panel B and Panel C present the significant difference in means of AIA using the pairwise t-test among or within three-group firms. Because the test for equality of variance showed unequal variance, the Satterthwaite unequal variance t-test was used. From Panel B, all the t values are significantly different at the 0.001 level for each comparison except for the comparison between CLC and OPC firms in the post-Reg. FD

period. That indicates there is no significant difference in analyst information advantage between OPC and CLC firms after the release of Reg. FD, and thus Reg. FD did prevent the selective disclosure among all financial analysts as expected. Panel C shows that Reg. FD did affect the information environment for both CLC and OPC firms, but not for NCC firms. It could be explained that the change in the disclosure policy of previous-CLC firms may also influence the disclosure policy of OPC firms. Those results are consistent with the Heflin etc. (2001) findings, which no deterioration in the analysts' information advantage in the post-Reg. FD period, although this study classifies samples into three groups.

Panel D presents the regression of CARs based on beta in three windows, (-1, +1), (-2, +4) and (-5, +10) based on Equation (12). The coefficient of AIA is significantly negative as anticipated. It means that analyst information advantage is negatively associated with return volatility. Also the coefficients of both interactive dummy variables, POST*CLC and POST*OPC, are significantly negative, which indicates that Reg. FD does result in a decline in return volatility for both CLC and OPC firms. The sign of the coefficients for other control variables is as expected.

Table 9 Analysis of Analyst Information Advantage (AIA)

Panel A: Descriptive Statistics

Statistics		Before Reg FD			After Reg FD		
		CLC firms	OPC firms	NCC firms	CLC firms	OPC firms	NCC firms
AIA	Mean	0.0092	0.0055	0.0220	0.0177	0.0171	0.0345
	Median	0.0014	0.0013	0.0026	0.0035	0.0049	0.0065
	Std. Deviation	0.0574	0.0533	0.0832	0.0784	0.0615	0.1531

Panel B: Pairwise Comparison of Means - Satterthwaite Unequal Variance T-test Among 3 Groups

Variable=AIA[a]	Group	Before FD	After FD
T value	NCC[1] - (CLC[2] + OPC[3])	-2.67**	-2.13*
	CLC[2] – OPC[3]	-3.42***	**-0.25**

Panel C: Pairwise Comparison of Means - Satterthwaite Unequal Variance T-test Within 3 Groups

Variable= AIA[a]	Group	NCC[1]	CLC[2]	OPC[3]
T value	Before Reg. FD --- After Reg. FD	-1.32	-4.98***	-5.99***

Panel D: Regression of Daily Cumulative Abnormal Returns on Analyst Information Advantage and Other Variables

Variables[a]	*Among NCC, CLC & OPC firms*						
		$CAR1^{BETA}$		$CAR2^{BETA}$		$CAR3^{BETA}$	
	Expected Sign	*Coefficient*	*t-value*	*Coefficient*	*t-value*	*Coefficient*	*t-value*
Intercept		0.0211	6.35***	0.0157	3.87***	0.0447	8.12***
CLC	-	**-0.0076**	**-2.57***	**0.0076**	**2.11***	**0.0119**	**2.44***
OPC	-	**-0.0033**	**-1.11**	**0.0127**	**3.46*****	**0.0238**	**4.79*****
POST*CLC	-	**-0.0028**	**-2.8****	**-0.0106**	**-8.66*****	**-0.0270**	**-16.23*****
POST*OPC	-	**-0.0062**	**-4.65*****	**-0.0109**	**-6.73*****	**-0.0316**	**-14.38*****
POST*NCC	-	**-0.0051**	**-1.46**	**0.0101**	**2.39***	**0.0049**	**0.85**
HighTech*CLC	+	-0.0036	-2.65**	-0.0184	-11.15***	-0.0301	-13.43***
HighTech*OPC	+	0.0007	0.5	-0.0053	-3.28***	-0.0124	-5.66***
HighTech*NCC	+	-0.0316	-8.31***	-0.0487	-10.48***	-0.0727	-11.54***
AIA	-	**-0.1815**	**-25.69*****	**-0.2134**	**-24.76*****	**-0.2145**	**-18.35*****
AGE	+	0.0000	-1.69[&]	0.0000	-2.57*	0.0000	-0.36
ANA	+	-0.0001	-0.66	-0.0001	-1.21	0.0006	4.64***
SIZE	-	-0.0015	-5.99***	-0.0028	-9.21***	-0.0084	-20.59***
FD	+	0.2926	2.69**	0.5239	3.94***	0.1859	1.03
Adjusted R-square		0.0088		0.0121		0.0175	
F-Statistic		71.48***		98.38***		42.86***	

[a] Variables Definition: *AIA*= the difference between the absolute consensus forecast error (FE) and the corresponding absolute time-series forecast error ($SURP_{it}$). *FE* is the absolute difference between actual earnings per share for quarter t minus the mean forecast for quarter t deflated by the stock price at the beginning of quarter t. $SURP_{it} = \{EPS_t - EPS_{t-4}\}/P_{t-4}$, where EPS_t is the primary earnings share (including extraordinary items) for quarter t and P_{t-4} is the ending price per share at quarter t-4. *CLC* is a dummy variable equal to 1 if the firm is a CLC firm and 0 if the firm is a NCC or OPC firm. *OPC* is a dummy variable equal to 1 if the firm is a OPC firm and 0 if the firm is a NCC or CLC firm. *POST* is a dummy variable equal to 1 if the period is before Oct. 2000 and 0 if the period is after Oct. 2000. *HighTech* is a dummy variable equal to 1 if the firm is a high-technology firm and 0 if the firm is not a high-technology firm. $AGE_{i,t}$ = the number of calendar days between the analyst's last forecast date and the date of the actual earnings announcement at quarter t. $ANA_{i,t}$ = the total number of analysts releasing an earnings forecast for the firm i at quarter t. $SIZE_{it}$ = the log of market value of equity at the beginning of quarter t. FD_{it} = standard deviation of all analyst forecasts made at the end of the quarter t from the "consensus" (mean) of analysts' forecasts deflated by the stock price at the beginning of quarter t. $CAR1^{BETA}$, $CAR2^{BETA}$, $CAR3^{BETA}$= daily cumulative abnormal returns around earnings announcements based on beta in windows (-1, +1), (-2, +4) and (-5, +10).

[1] NCC - non-conference call firms; [2] CLC – closed-call firms; [3] OPC – open-call firms.

& = Statistically significant at a probability of less than 0.10; * = Statistically significant at a probability of less than 0.05; ** = Statistically significant at a probability of less than 0.01; *** = Statistically significant at a probability of less than 0.001.

4.4.3 Additional Analyses of Analyst Forecast Behavior

This section examines whether the frequency of earnings forecasts by the analyst following all three types of firms was affected by the issuance of Reg. FD. Since the number of analysts followed (ANA) is another important variable measuring the degree of past selective disclosure (Tasker 1998, Bushee etc. 2000, Irani and Karamanou, 2001), ANA is examined after controlling for related variables. If Reg. FD does not reduce the information flow as critics suggest, the previous-CLC firms will disclose the same amount of information as they did prior to the release of Reg. FD, and thus, the coefficient on the interactive dummy variable, POST*CLC, is expected to be insignificant in the following equation.

$$ANA_{it} = d_0 + d_1 CLC_{it} + d_2 OPC + d_3 (POST * CLC) + d_4 (POST * OPC) + d_5 (POST * NCC) + d_6 (HighTech * CLC) + d_7 (HighTech * OPC) + d_8 (HighTech * NCC) + d_9 SIZE_{it} (orSIZE_{it} * (IND1 - IND4)) + \varphi_{it} \quad (8)$$

Besides other variables used as before, I also add four new dummy variables, IND1, IND2, IND3 and IND4. IND1 is equal to 1 if the firm is in a banking, finance or insurance industry and 0 otherwise. IND2 is equal to 1 if the firm is in a hotel industry and 0 otherwise. IND3 is equal to 1 if the firm is in a telephone and communication industry and 0 otherwise. IND4 is equal to 1 if the firm is in a food industry and 0 otherwise.

Table 10 presents the results of regressing the total number of analyst forecast (ANA) based on equation (8) by using firm size or four interactive dummy variables, respectively. The coefficient of the dummy variable, OPC, is significantly positive while the coefficient of another dummy variable, CLC, is insignificant from the two

regressions. It is consistent with the previous findings, the more disclosure the more analysts followed. Meanwhile, the coefficients on the dummy variables, POST*CLC, are insignificant or significantly positive. It means that Reg. FD did not reduce the number of analysts following the CLC firms in the post-Reg. FD period. On the contrary, there may be more analysts following CLC firms after the release of Reg. FD.

Table 10 Regression of Total Number of Analysts Followed (ANA)

Variables[a]	Expected Sign	ANA		ANA	
		Coefficient	*t-value*	*Coefficient*	*t-value*
Intercept		-0.3008	-1.38	7.1075	65.14***
CLC	+	**0.0229**	**0.12**	**-0.1016**	**-0.9**
OPC	+	**0.4633**	**2.27***	**0.8953**	**7.57*****
POST*CLC	Insig. / +	**-0.0145**	**-0.21**	**0.9824**	**21.05*****
POST*OPC	Insig. / +	**0.0574**	**0.59**	**1.0128**	**15.48*****
POST*NCC	Insig. / +	**0.3957**	**1.62**	**1.0491**	**6.94*****
HighTech*CLC	+	0.8655	9.01***	0.6168	9.06***
HighTech*OPC	+	1.5817	16.26***	2.3821	33.02***
HighTech*NCC	+	0.8527	3.02**	0.2725	1.47
SIZE	+	**0.8614**	**61.45*****		
SIZE*IND1	+			**0.0868**	**9.96*****
SIZE*IND2	+			**0.2228**	**6.28*****
SIZE*IND3	+			**0.0186**	**1.38**
SIZE*IND4	+			**0.1847**	**11.89*****
Adjusted R-square		0.228		0.0475	
F-Statistic		536.05***		317.22***	
F - test		47.17***		324.28***	

[a] Variables Definition: CLC is a dummy variable equal to 1 if the firm is a CLC firm and 0 if the firm is a NCC or OPC firm. OPC is a dummy variable equal to 1 if the firm is a OPC firm and 0 if the firm is a NCC or CLC firm. *POST* is a dummy variable equal to 1 if the period is before Oct. 2000 and 0 if the period is after Oct. 2000. HighTech is a dummy variable equal to 1 if the firm is a high-technology firm and 0 if the firm is not a high-technology firm. POST is a dummy variable equal to 1 if it is in the post-Reg. FD period and 0 if it is in the pre-Reg. FD period. $SIZE_{it}$ = the log of market value of equity at the beginning of quarter t. IND1 is a dummy variable equal to 1 if the firm is in a banking, finance or insurance industry and 0 otherwise. IND2 is a dummy variable equal to 1 if the firm is in a hotel industry and 0 otherwise. IND3 is a dummy variable equal to 1 if the firm is in a telephone communication industry and 0 otherwise. IND4 is a dummy variable equal to 1 if the firm is in a food industry and 0 otherwise.
& = Statistically significant at a probability of less than 0.10; * = Statistically significant at a probability of less than 0.05; ** = Statistically significant at a probability of less than 0.01; *** = Statistically significant at a probability of less than 0.001.

4.4.4 Robustness Tests

In order to check the robustness of results, I use the samples retained in the same CLC, OPC and NCC classification in both pre- and post-Reg. FD periods. This list includes 1,272 (813 CLC, 399 OPC and 60 NCC) firms. Then I run both t-tests and the regression with those remaining samples.

Table 11 presents the results. Panel A presents statistical tests of difference in the mean of CARs based on size and beta in three short-term windows for those remaining samples. The mean of CARs is significantly different for all comparisons between OPC and CLC firms in the pre-Reg. FD period except for $CAR1^{SIZE}$ and $CAR2^{BETA}$, and therefore, these preliminary results partially support hypothesis 4.1. In the post-Reg. FD period, however, between OPC and CLC firms, the comparisons in means of CARs are insignificant as expected except for $CAR2^{BETA}$ and $CAR3^{BETA}$. Hence, these results are consistent with hypothesis 5.1 in general.

At the same time, the comparisons in means are significantly different between NCC and CC (including CLC and OPC) firms except for $CAR1^{BETA}$ in both pre- and post-Reg. FD period and $CAR1^{SIZE}$ and $CAR2^{SIZE}$ in the post-Reg. FD period. Thus, these mixed results partially support hypotheses 4.2 and 5.2.

Panel B presents the regression of CARs based on size ($CAR1^{SIZE}$, $CAR2^{SIZE}$ and $CAR3^{SIZE}$) around earnings announcement dates in three windows for those remaining samples using Equation (5). It shows that the sign of coefficients on two dummy variables, CLC or OPC, is not significant in the regression of $CAR1^{SIZE}$, but significantly positive in the regression of $CAR3^{SIZE}$ in the pre-Reg. FD period. These results are not

consistent with hypotheses 4.1 and 4.2. In the post-Reg. FD period, the sign of coefficients on two dummy variables, CLC or OPC, is insignificant in the regression of $CAR1^{SIZE}$, $CAR2^{SIZE}$ and $CAR3^{SIZE}$. These mixed results are not consistent with hypothesis 5.2.

On the other hand, between CLC and OPC firms, I also perform an F-test to examine whether β_1 is equal to β_2 in each regression of CARs. In the pre-Reg. FD period, as anticipated, the p-value is significant at the 0.001 level, which can reject the null hypotheses that β_1 is equal to β_2. It implies that market reactions to earnings announcements are significantly different between OPC and CLC firms in the pre-Reg. FD period, consistent with hypothesis 4.1. In the post-Reg. FD period, however, the F-test results show that all p-value is not significant at the 0.001 level, which cannot reject the null hypotheses that β_1 is equal to β_2. It indicates that price changes are not significantly different between previous-CLC and previous-OPC firms after the release of Reg. FD. Therefore, it supports hypothesis 5.1. Qualitatively, the results were the same as the previous results.

Overall, conference calls provide additional information to financial analysts, and the previous-CLC firms have found an effective method of assimilating their information in place of selective disclosure to financial analysts after the implementation of Reg. FD. Moreover, Reg. FD does not impair the ability of financial analysts to reach consensus. To some extent Reg. FD did achieve its ultimate objective, "leveling the playing field" for all financial analysts and investors.

Table 11 Mean Cumulative Abnormal Returns Around Earnings-Announcement Dates for the Samples with the Same CC and NCC Classification in Both Pre- and Post-Reg. FD Periods in three windows, (-1, +1), (-2, +4) and (-5, +10)

Panel A: T tests for the Samples with the Same CC and NCC Classification in Both Pre- and Post-Reg. FD Periods

	Variables[a]	Windows	Mean CAR			T-tests			
						(CLC[2]+OPC[3])-NCC[1]		OPC[3] – CLC[2]	
			CLC	OPC	NCC	Difference in Means	t value	Difference in Means	t value
Before Reg. FD	$CAR1^{SIZE}$	*(-1, +1)*	0.0045	0.0059	-0.002	0.007	**2.29***	0.0013	**1.57**
	$CAR2^{SIZE}$	*(-2, +4)*	0.0033	0.0053	-0.012	0.016	**4.13*****	0.0021	**2***
	$CAR3^{SIZE}$	*(-5, +10)*	0.0031	0.0121	-0.011	0.018	**3.77*****	0.0089	**6.74*****
	$CAR1^{BETA}$	*(-1, +1)*	0.0034	0.0056	-0.0001	0.005	**1.46**	0.0022	**2.49***
	$CAR2^{BETA}$	*(-2, +4)*	0.0009	0.0025	-0.018	0.02	**5.07*****	0.0016	**1.51**
	$CAR3^{BETA}$	*(-5, +10)*	-0.0001	0.0048	-0.024	0.026	**5.05*****	0.005	**3.64*****
After Reg. FD	$CAR1^{SIZE}$	*(-1, +1)*	0.0043	0.0025	0.0013	0.002	**0.86**	-0.002	**-1.22**
	$CAR2^{SIZE}$	*(-2, +4)*	0.0074	0.0091	0.0022	0.006	**1.68**[&]	0.0017	**0.98**
	$CAR3^{SIZE}$	*(-5, +10)*	0.0161	0.0187	0.0071	0.01	**2.36***	0.0026	**1.21**
	$CAR1^{BETA}$	*(-1, +1)*	-0.002	-0.001	-0.003	0.001	**0.44**	0.0008	**0.51**
	$CAR2^{BETA}$	*(-2, +4)*	-0.01	-0.006	-0.006	-0.0024	**-2.17***	0.0043	**2.33***
	$CAR3^{BETA}$	*(-5, +10)*	-0.023	-0.017	-0.01	-0.0109	**-2.32***	0.0065	**2.54***

Panel B: Regression of CARs based on Size for the Samples with the Same CC and NCC Classification in Both Pre- and Post-Reg. FD Periods

Regression of CAR^{SIZE}		*Among NCC, CLC & OPC firms*					
		Before Reg. FD (PRE)			*After Reg. FD (POST)*		
		$CAR1^{SIZE}$ (-1, +1)	$CAR2^{SIZE}$ (-2, +4)	$CAR3^{SIZE}$ (-5, +10)	$CAR1^{SIZE}$ (-1, +1)	$CAR2^{SIZE}$ (-2, +4)	$CAR3^{SIZE}$ (-5, +10)
Variables[a]	**Expected Sign**	*Coefficient* *t-value*	*Coefficient* *t-value*	*Coefficient* *t-value*	*Coefficient* *t-value*	*Coefficient* *t-value*	*Coefficient* *t-value*
Intercept		0.0237	0.0190	0.0332	0.0203	0.0350	0.0740
		4.61***	3**	4.04***	3.04**	4.24***	6.86***
CLC	-	**-0.0032**	**0.0121**	**0.0147**	**-0.0018**	**0.0016**	**-0.0079**
		- 0.3	**1.26**	**2.11***	**-0.43**	**0.31**	**-1.18**
OPC	-	**0.0045**	**0.0137**	**0.0245**	**-0.0003**	**0.0040**	**-0.0129**
		1.01	**2.5***	**3.45*****	**-0.07**	**0.73**	**-1.82**[&]
HighTech*CLC	+	0.0042	-0.0075	0.0056	-0.0007	-0.0107	-0.0276
		1.75[&]	-2.5*	1.45	-0.18	-2.1*	-4.14***
HighTech*OPC	+	0.0037	0.0052	0.0075	-0.0016	-0.0031	-0.0127
		1.66[&]	1.91[&]	2.14*	-0.41	-0.65	-2.05*
HighTech*NCC	+	-0.0052	-0.0088	0.0138	-0.0136	-0.0431	-0.0519
		-0.54	-0.74	0.9	-1.57	-4.02***	-3.71***
AGE	+	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
		-0.62	-0.41	-1.27	-0.59	-1.15	-0.95
ANA	+	0.0002	0.0001	0.0007	-0.0005	-0.0003	-0.0001
		1.66[&]	0.71	3.4***	-2.21*	-1.2	-0.41
FE	-	-0.2988	-0.3637	-0.3529	-0.3969	-0.5180	-0.4980
		-5.38***	-5.31***	-3.96***	-6.77***	-7.14***	-5.25***
SIZE	-	-0.0030	-0.0035	-0.0063	-0.0014	-0.0028	-0.0075
		-7.35***	-6.98***	-9.72***	-1.88[&]	-3.07**	-6.3***
FD	+	0.5276	1.0911	1.0788	0.8133	1.6085	0.3401
		1.82[&]	3.06**	2.32*	2.15*	3.44***	0.56
Adjusted R-square		0.0026	0.0031	0.0045	0.0056	0.0078	0.0111
F-statistic		9.19***	10.75***	15.32***	7.06***	9.52***	13.11***
F-test ($\beta_1 = \beta_2$)		**19.5***	**16.47***	**21.81***	**0.39**	**0.66**	**1.72**

[a] Variables Definition: CLC is a dummy variable equal to 1 if the firm is a CLC firm and 0 if the firm is a NCC or OPC firm. OPC is a dummy variable equal to 1 if the firm is a OPC firm and 0 if the firm is a NCC or CLC firm. HighTech is a dummy variable equal to 1 if the firm is a high-technology firm and 0 if the firm is not a high-technology firm. $AGE_{i,t}$ = the number of calendar days between the analyst's last forecast date and the date of the actual earnings announcement at quarter t. $ANA_{i,t}$ = the total number of analysts releasing an earnings forecast for the firm i at quarter t. FE_{it} = absolute difference between actual earnings per share for quarter t less the mean forecast at the end of the quarter t deflated by the stock price at the beginning of quarter t. $SIZE_{it}$ = the log of market value of equity at the beginning of quarter t. FD_{it} = standard deviation of all analyst forecasts made at the end of the quarter t from the "consensus" (mean) of analysts' forecasts deflated by the stock price at the beginning of quarter t. $CAR1^{SIZE}$, $CAR2^{SIZE}$, $CAR3^{SIZE}$ = cumulative abnormal returns around earnings announcements based on size in 3 windows, (-1, +1), (-2, +4) and (-5, +10).

& = Statistically significant at a probability of less than 0.10; * = Statistically significant at a probability of less than 0.05; ** = Statistically significant at a probability of less than 0.01; *** = Statistically significant at a probability of less than 0.001.

[1] NCC - non-conference call firms; [2] CLC – closed-call firms; [3] OPC – open-call firms.

CHAPTER V

MARKET REACTIONS AROUND SIX REGULATON FD EVENTS

5.1 Six Regulation Fair Disclosure Events

In this chapter, I will examine the daily cumulative abnormal returns (CARs) of both CLC and OPC firms around six significant Reg. FD events based on Irani and Karamanou (2001) paper. That is, I will investigate the point at which the difference in the information asymmetry between OPC and CLC firms vanished (if it occurred) during the six events leading to the passage of Reg. FD. The first event is the initial article in Wall Street Journal (*WSJ*) reflecting the SEC's first intention of limiting selective disclosure. The second event is another *WSJ* article, which clearly identified the SEC proposal of Reg. FD. The third event represents the SEC's seeking public comments on the proposed rule. The fourth event is an article in *The New York Times* which identified some changes in the final rule as compared to the initial proposal (McGeehan 2000). The fifth event reflects the date the final rule was adopted. The final event is the date the SEC started to implement Reg. FD.

Event	Date	
1	3/16/99	Announcements of SEC's intentions to limit the practice of selective disclosure
2	11/16/99	*WSJ* article describing some of the provisions in the SEC proposal not yet available to the public
3	12/15/99	The SEC voted to solicit public comment on the proposed rule.
4	8/4/00	N.Y.Times article describing some final rule changes from the

		initial proposal before the final rule is made available to the public.
5	8/10/00	SEC adoption
6	10/23/00	Enactment of Regulation Fair Disclosure

5.2 Theoretical Development

Choi and Salamon (1995) link the firms' external reporting system to price changes around earnings announcements, and provides a theoretical explanation of the change in prices around changes in accounting methods. Choi and Salamon interpret the information structure of the markets for firm k as a function of the prior uncertainty and the noise in the information signal in the following model.

$\tilde{y}_k = \tilde{x}_k + \delta_k + \tilde{\varepsilon}_k$ (6)

where $\tilde{y}_k$ denotes firms k's possible signals or messages, $\tilde{x}_k$ represents firm k's outcome to be realized in the next accounting period and δ_k is a known constant, system bias. $\tilde{\varepsilon}_k$ is independent of $\tilde{x}_k$ and has a normal distribution $E(\tilde{\varepsilon}_k) = 0$ and $Var(\tilde{\varepsilon}_k) = \Phi_k^2$. "Hence, $\tilde{\varepsilon}_k$ represents a separately unobservable noise component of $\tilde{y}_k$ and Φ_k^2 is investors' assessments of the variance of this noise. The presence of the known bias term δ_k in (6) will potentially permit but not require investors to make an adjustment to the level of that signal (Feltham, 1972, p.123)."

$Var(\tilde{y}_k) = \sigma_k^2 + \Phi^2 k$ (7)

Therefore, for a fixed $\sigma^2 k$, an increase in $var(\tilde{y}_k)$ will lead to an increase in Φ_k^2. In another words, a change in the market perception of the variance of the firm's reporting

system can lead to contemporaneous price changes. By prohibiting selective disclosure, the SEC tried to use Reg. FD to force CLC firms to alter their voluntary disclosure practices. If previous CLC firms had to disclose their material information directly to the public instead of through financial analysts, a decrease in information asymmetry among all market participants would result in a decline in the variance of their reporting system. From this perspective, those Reg. FD events may be regarded as external shocks that trigger a downward shift in the market's perception of Φ_k^2 for previous CLC firms if Reg. FD did achieve its ultimate objective. In another word, the difference in the market reactions between OPC and CLC firms may vanish (if it occurred) around those Reg. FD events during the passage of Reg. FD. That is to say, the price reactions around those six Reg. FD event dates are expected to decline for the CLC firms, and therefore, the difference in the tendency of cumulative abnormal returns between OPC and CLC firms may not persist after the release of Reg. FD. This prediction is consistent with the prior empirical findings by Lev (1979) that the announcement of SFAS No. 19 was associated with a stock price decline for "full cost" (FC) firms.

5.3 Test Results

I will compare the different market reactions to six significant Reg. FD events between CLC and OPC firms during four windows, (-1, +1), (-2, +4), (-5, +10), (-5, +15), using the cumulative abnormal returns (CARs). The cumulative abnormal returns are obtained from CRSP using Eventus, the event-study software, over the Pre-Reg. FD period (255 days) in order to provide estimated parameters for the prediction of residuals during the event dates.

$$R_{it} = \alpha_{it} + \beta_{it} R_{mt} + e_{it} \qquad (8)$$

where: R_{it} is the daily return of the common stock of firm i, R_{mt} is the daily return of an equal-weighted market index from CRSP on day t, e_i is a residual reflecting that portion of security i's return which varies independently of the market return, R_{mt}.

After computing the alpha, beta, mean return and residual return deviation for each firm, Eventus provides the mean cumulative abnormal return, the difference between the predicted with actual returns, for the windows, (-30, +30) around those Reg. FD-event dates.

$$u_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt}) \qquad (9)$$

where u_{it} = an abnormal (residual, or unexpected) return, the difference between an actual return and a predicted return.

Figure 5 to Figure 10 present the trend of daily cumulative abnormal returns (CARs) for both OPC and CLC firms around six Reg. FD-event dates. Meanwhile, Table 12 and Table 13 present the CARs behavior between CLC and OPC firms during days –30 through +30 (-30, +30). Table 14 compares the significant difference in means of CARs based on size in four windows, (-1, +1), (-2, +4), (-5, +10), (-5, +15), around six Reg. FD-event dates using the t-test respectively. Since the test for the equality of variance showed unequal variance, only Satterthwaite unequal variance t value was presented at Table 14.

Both Figure 5 and Figure 6 show the CARs for OPC firms are greater than CARs for CLC firms around the first and second Reg. FD-event dates. It shows that market participants are affected by firms' different disclosure policies because open calls are accessible to the general public and closed calls are limited to certain analysts. Those

results are consistent with the Bushee, Matsumoto, and Miller's (2001) findings where open calls are associated with higher price volatility than closed calls while both calls appear to convey new information to the market on average. After the SEC voted to solicit public comments on the proposed rule (the 3rd event) on December 15, 1999, and some rule changes from the initial proposal was revealed on N.Y. Times (the 4th event), however, the market behavior of those two groups become not significantly different. Market reactions around the fifth and sixth Reg. FD-event dates show the same tendency as those around the fourth Reg. FD-event date.

On the other hand, Table 14 shows that the difference in mean levels of CARs is significant for the comparison between OPC and CLC firms in four windows only around the first event, but not significant around the following five events. More specifically, from the second event to the sixth event, there is no significant difference in CARs between OPC firms and CLC firms in four windows except for only one comparison in the 5th event from day –1 to day +1. It suggests that the market participants had realized that Reg. FD would be enacted eventually, and the previous-CLC firms had to disclose their information directly to the public without the interpretation of financial analysts after the first Reg. FD event. Furthermore, the difference in price changes between OPC and CLC firms was altered between the first and the second Reg. FD event date.

Thus, the first event and the second event are the most important dates among those six dates leading to the passage of Reg. FD. Those results are also consistent with the regression results from Chapter 4, which there is no significant difference in price reactions between CLC and OPC firms in the post-Reg. FD period.

At the same time, by comparing those CARs within the CLC group in a narrow window, (-1, +1), there is a negative trend around the first two event dates, whereas there is a positive trend around the following three event dates in Table 13. These results suggest that Reg. FD did affect the disclosure policy of those previous-CLC firms, and those firms had to find alternative methods of disclosing their information to the market. In contrast, the tendency of price reactions for OPC firms is positive around the first Reg. FD event date, and then changes around the following event dates. These results suggest that OPC firms also tried to adjust their disclosure policy partly because of the change in the disclosure methods of those previous-CLC firms.

Figure 5: Cumulative Abnormal Returns (CARs) Around the First Reg. FD Event Date (3/16/1999)

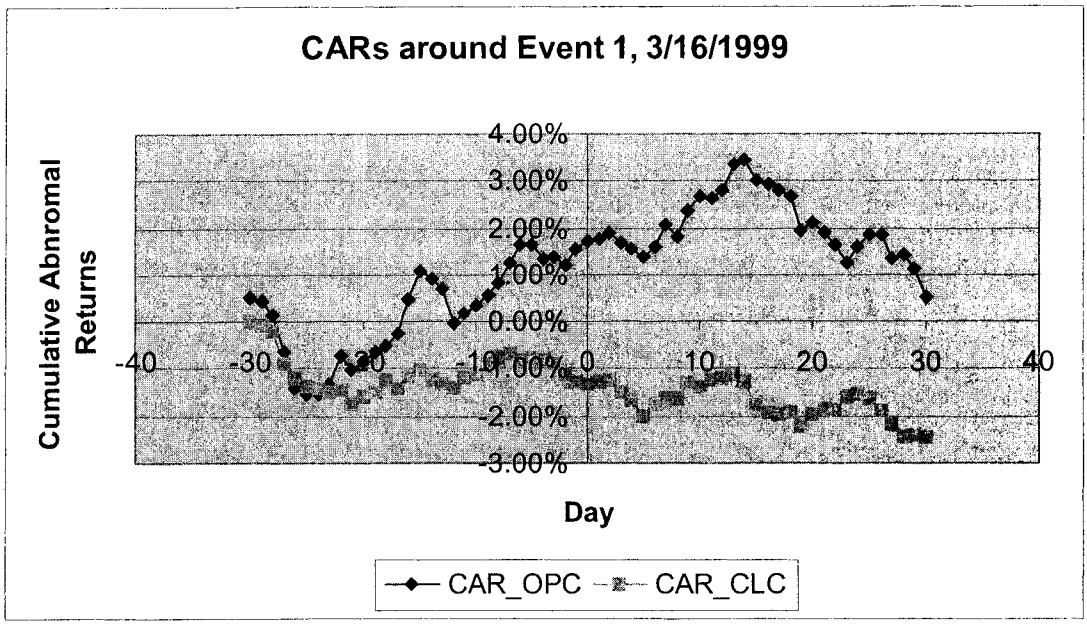

Figure 6: Cumulative Abnormal Returns (CARs) Around the Second Reg. FD Event Date (11/16/1999)

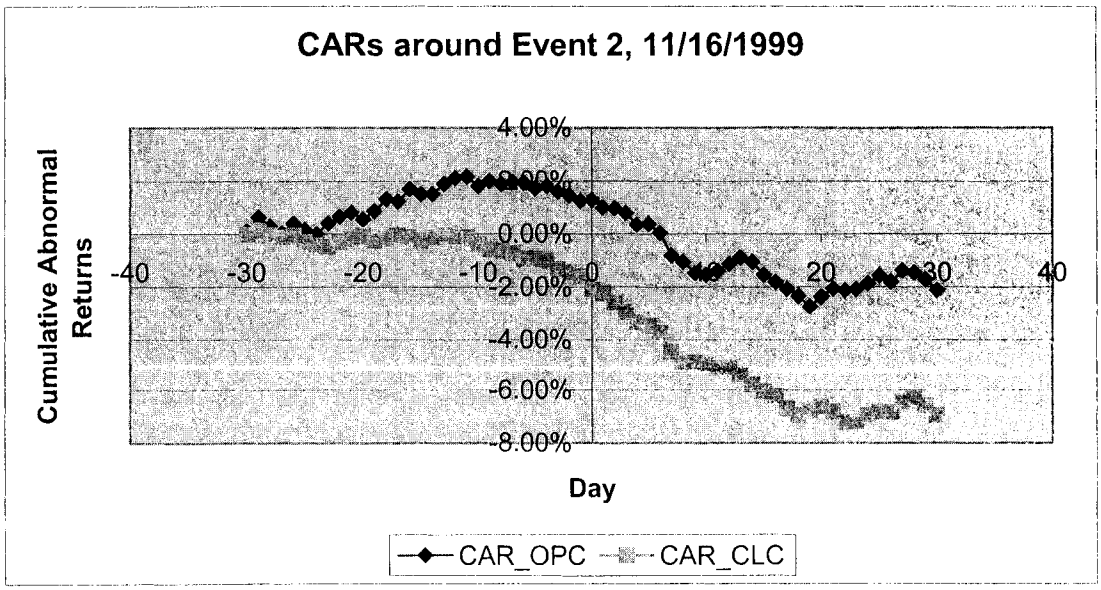

Figure 7: Cumulative Abnormal Returns (CARs) Around the Third Reg. FD Event Date (12/15/1999)

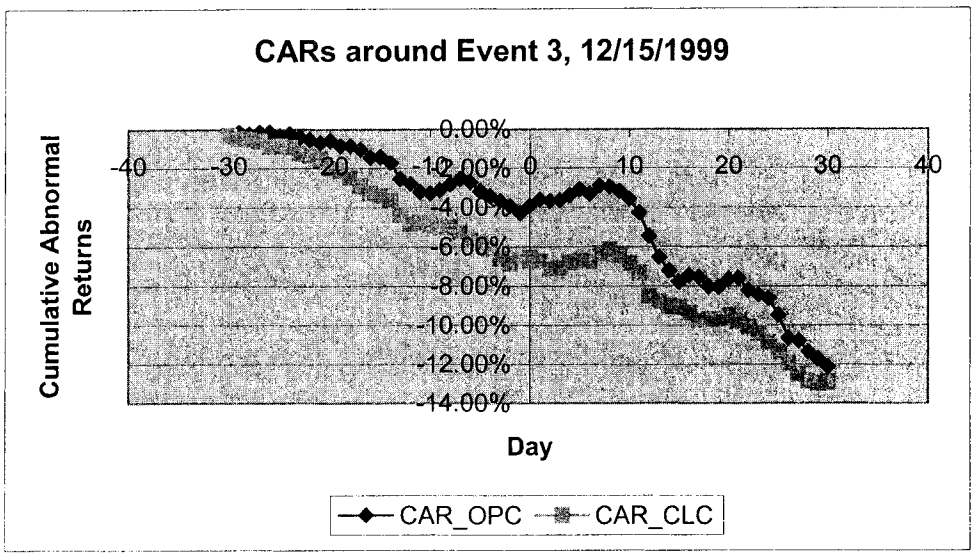

Figure 8: Cumulative Abnormal Returns (CARs) Around the Fourth Reg. FD Event Date (8/4/2000)

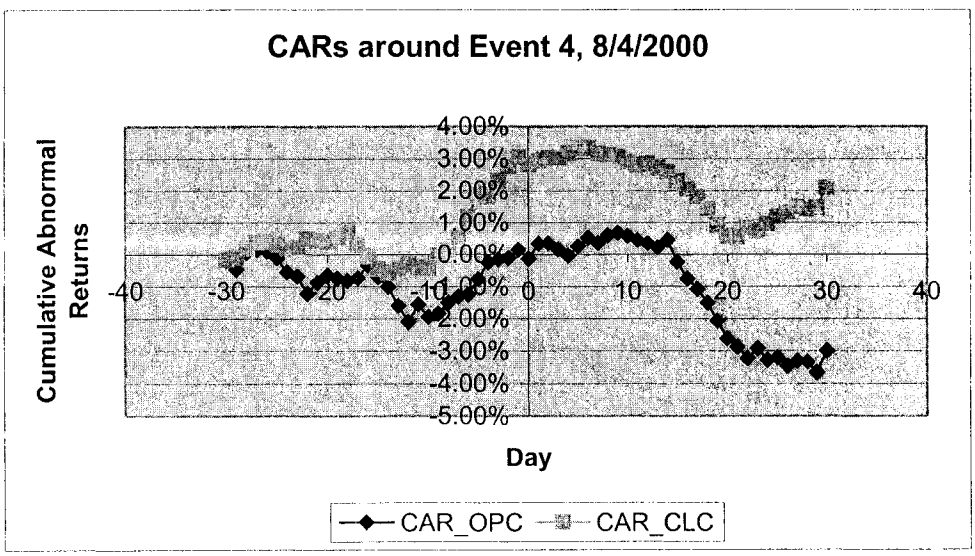

Figure 9: Cumulative Abnormal Returns (CARs) Around the Fifth Reg. FD Event Date (8/10/2000)

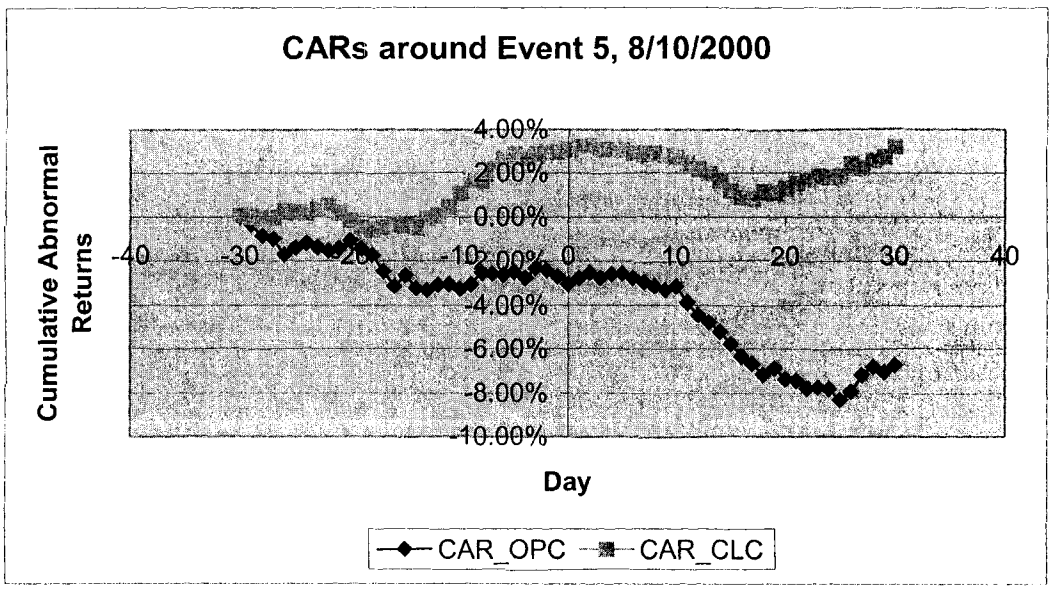

Figure 10: Cumulative Abnormal Returns (CARs) Around the Sixth Reg. FD Event Date (10/23/2000)

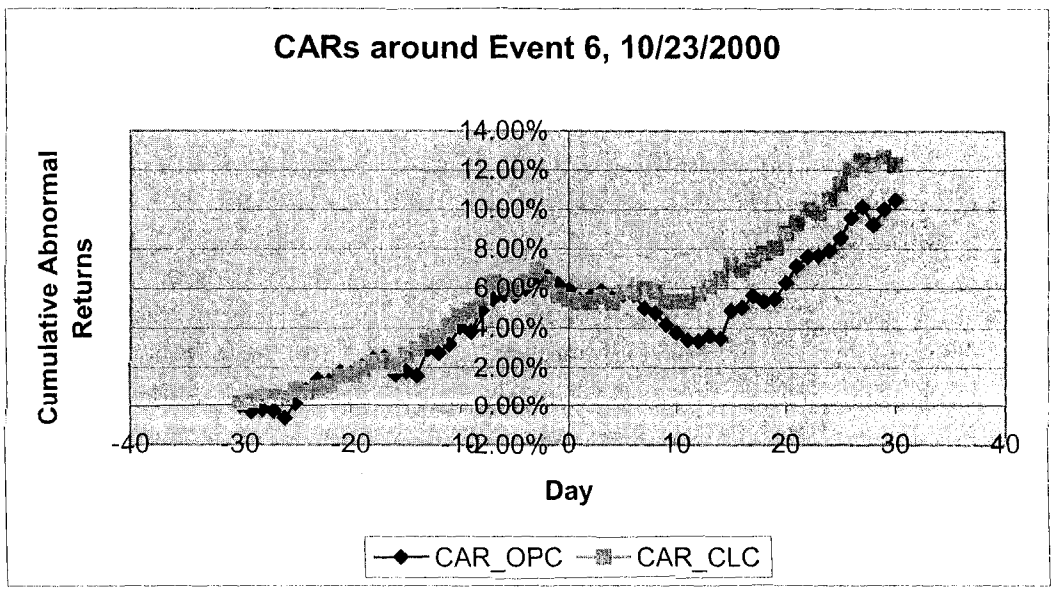

Table 12: Cumulative Abnormal Returns of OPC and CLC firms around the 1st, 2nd and 3rd Reg. FD – Event Dates

	Event 1[a]		Event 2[b]		Event 3[c]	
DAY	CAR_OPC	CAR_CLC	CAR_OPC	CAR_CLC	CAR_OPC	CAR_CLC
-30	0.51%	0.00%	0.12%	-0.01%	-0.32%	-0.29%
-29	0.42%	-0.09%	0.63%	0.14%	-0.13%	-0.46%
-28	0.15%	-0.20%	0.29%	-0.03%	-0.23%	-0.51%
-27	-0.65%	-0.89%	0.03%	-0.11%	-0.14%	-0.59%
-26	-1.40%	-1.20%	0.40%	-0.04%	-0.13%	-0.87%
-25	-1.53%	-1.35%	0.17%	-0.30%	-0.33%	-0.84%
-24	-1.55%	-1.39%	0.01%	-0.42%	-0.21%	-0.91%
-23	-1.34%	-1.50%	0.41%	-0.47%	-0.40%	-1.22%
-22	-0.73%	-1.47%	0.65%	-0.31%	-0.53%	-1.35%
-21	-1.04%	-1.76%	0.80%	-0.18%	-0.67%	-1.51%
-20	-0.87%	-1.57%	0.56%	-0.08%	-0.58%	-1.99%
-19	-0.63%	-1.51%	0.86%	-0.28%	-0.84%	-2.09%
-18	-0.51%	-1.26%	1.32%	-0.16%	-0.84%	-2.50%
-17	-0.24%	-1.39%	1.23%	-0.05%	-1.01%	-2.87%
-16	0.47%	-1.14%	1.70%	-0.09%	-1.43%	-3.27%
-15	1.09%	-1.04%	1.50%	-0.25%	-1.40%	-3.40%
-14	0.89%	-1.24%	1.51%	-0.14%	-1.72%	-3.65%
-13	0.69%	-1.34%	1.88%	-0.02%	-2.55%	-4.40%
-12	-0.05%	-1.39%	2.10%	-0.09%	-2.78%	-4.85%
-11	0.18%	-1.20%	2.15%	-0.10%	-3.21%	-4.78%
-10	0.36%	-1.10%	1.81%	-0.40%	-3.28%	-4.89%
-9	0.58%	-0.91%	1.99%	-0.57%	-3.11%	-5.00%
-8	0.83%	-0.77%	1.88%	-0.64%	-2.81%	-5.00%
-7	1.26%	-0.70%	1.96%	-0.72%	-2.55%	-5.28%
-6	1.63%	-0.79%	1.93%	-0.95%	-2.71%	-5.68%
-5	1.64%	-0.78%	1.71%	-0.93%	-3.18%	-5.95%
-4	1.33%	-0.82%	1.81%	-1.01%	-3.43%	-6.11%
-3	1.38%	-0.91%	1.60%	-1.32%	-3.67%	-6.61%
-2	1.19%	-1.09%	1.45%	-1.44%	-3.92%	-6.86%
-1	1.56%	-1.27%	1.24%	-1.60%	-4.30%	-6.70%
0	1.71%	-1.32%	1.30%	-2.09%	-3.91%	-6.54%
1	1.78%	-1.29%	1.00%	-2.22%	-3.61%	-6.72%
2	1.90%	-1.23%	0.98%	-2.60%	-3.67%	-7.11%
3	1.66%	-1.50%	0.79%	-2.95%	-3.63%	-7.08%
4	1.56%	-1.66%	0.35%	-3.34%	-3.38%	-6.78%
5	1.40%	-2.03%	0.38%	-3.48%	-3.07%	-6.67%
6	1.59%	-1.76%	0.04%	-3.72%	-3.31%	-6.72%
7	2.07%	-1.62%	-0.81%	-4.47%	-2.88%	-6.33%
8	1.83%	-1.64%	-1.04%	-4.92%	-2.94%	-6.14%
9	2.37%	-1.28%	-1.47%	-4.86%	-3.18%	-6.46%
10	2.66%	-1.37%	-1.54%	-4.98%	-3.57%	-6.83%
11	2.63%	-1.23%	-1.40%	-5.10%	-4.28%	-7.36%
12	2.80%	-1.19%	-1.13%	-5.10%	-5.46%	-8.52%
13	3.36%	-1.13%	-0.88%	-5.39%	-6.53%	-8.79%
14	3.43%	-1.30%	-1.05%	-5.79%	-7.22%	-9.03%

15	3.02%	-1.75%	-1.55%	-6.05%	-7.79%	-9.07%
16	2.94%	-1.91%	-1.81%	-6.22%	-7.45%	-9.36%
17	2.80%	-1.97%	-2.08%	-6.71%	-7.56%	-9.75%
18	2.67%	-1.94%	-2.35%	-6.95%	-8.01%	-9.69%
19	1.93%	-2.22%	-2.75%	-6.80%	-8.03%	-9.65%
20	2.13%	-1.97%	-2.37%	-6.64%	-7.65%	-9.49%
21	1.88%	-1.84%	-2.06%	-6.82%	-7.59%	-9.78%
22	1.63%	-1.89%	-2.12%	-7.21%	-8.22%	-10.06%
23	1.27%	-1.59%	-2.09%	-7.18%	-8.45%	-10.42%
24	1.61%	-1.54%	-1.86%	-6.95%	-8.63%	-10.88%
25	1.84%	-1.63%	-1.57%	-6.82%	-9.47%	-11.36%
26	1.87%	-1.88%	-1.82%	-6.85%	-10.68%	-11.95%
27	1.34%	-2.20%	-1.39%	-6.48%	-10.79%	-12.52%
28	1.44%	-2.45%	-1.46%	-6.28%	-11.36%	-12.86%
29	1.12%	-2.40%	-1.72%	-6.59%	-11.73%	-13.00%
30	0.52%	-2.43%	-2.12%	-6.96%	-12.14%	-12.91%

[a] Event 1 – the initial article in Wall Street Journal reflecting the SEC's first intention of limiting selective disclosure on March 16, 1999.
[b] Event 2 - another *WSJ* article, which clearly identified the SEC proposal of Reg. FD on November 16, 1999.
[c] Event 3 – the date of the SEC's seeking public comments on the proposed rule on December 15, 1999.
CARs =mean cumulative abnormal returns around earnings announcements based on size.

Table 13: Cumulative Abnormal Returns of OPC and CLC firms around the 4th, 5th and 6th Reg. FD – Event Dates

	Event 4[a]		*Event 5[b]*		*Event 6[c]*	
DAY	*CAR_OPC*	*CAR_CLC*	*CAR_OPC*	*CAR_CLC*	*CAR_OPC*	*CAR_CLC*
-30	-0.19%	-0.15%	-0.01%	0.07%	0.05%	0.21%
-29	-0.46%	-0.08%	-0.34%	-0.01%	-0.26%	0.29%
-28	0.06%	0.20%	-0.87%	-0.11%	-0.16%	0.49%
-27	0.14%	0.38%	-1.00%	-0.04%	-0.25%	0.49%
-26	0.10%	0.40%	-1.70%	0.23%	-0.62%	0.45%
-25	-0.11%	0.31%	-1.40%	0.20%	0.11%	0.88%
-24	-0.56%	0.20%	-1.19%	0.17%	0.89%	0.72%
-23	-0.69%	0.22%	-1.37%	0.33%	1.41%	1.00%
-22	-1.22%	0.50%	-1.54%	0.51%	1.33%	1.09%
-21	-0.88%	0.44%	-1.43%	0.17%	1.79%	1.55%
-20	-0.65%	0.38%	-1.07%	-0.16%	1.70%	1.61%
-19	-0.75%	0.52%	-1.44%	-0.49%	2.08%	1.95%
-18	-0.82%	0.69%	-1.74%	-0.60%	2.46%	2.27%
-17	-0.74%	0.30%	-2.47%	-0.47%	2.54%	2.34%
-16	-0.34%	-0.06%	-3.16%	-0.36%	1.69%	2.15%
-15	-0.71%	-0.43%	-2.65%	-0.41%	1.83%	2.65%
-14	-1.00%	-0.57%	-3.24%	-0.48%	1.61%	2.95%
-13	-1.59%	-0.43%	-3.34%	-0.10%	2.93%	3.35%
-12	-2.10%	-0.30%	-3.10%	0.05%	2.74%	3.56%
-11	-1.55%	-0.39%	-3.06%	0.43%	3.17%	4.13%
-10	-1.94%	-0.43%	-3.27%	1.04%	4.03%	4.59%
-9	-1.85%	-0.01%	-3.07%	1.65%	3.79%	4.87%
-8	-1.49%	0.14%	-2.54%	1.64%	4.86%	5.49%
-7	-1.31%	0.53%	-2.58%	2.15%	5.44%	6.29%
-6	-1.25%	1.19%	-2.63%	2.60%	5.68%	6.03%
-5	-0.78%	1.87%	-2.49%	2.86%	5.63%	5.84%
-4	-0.25%	1.81%	-2.77%	2.67%	5.98%	6.35%
-3	-0.15%	2.33%	-2.33%	2.84%	6.63%	6.93%
-2	-0.11%	2.78%	-2.41%	2.92%	6.60%	6.32%
-1	0.15%	3.05%	-2.69%	2.93%	6.22%	5.65%
0	-0.13%	2.82%	-3.03%	3.05%	5.96%	5.42%
1	0.33%	2.96%	-2.76%	3.27%	5.40%	5.28%
2	0.35%	3.03%	-2.52%	3.26%	5.63%	5.30%
3	0.16%	3.04%	-2.76%	3.08%	5.87%	5.58%
4	-0.04%	3.17%	-2.60%	3.08%	5.51%	5.27%
5	0.25%	3.35%	-2.58%	3.05%	5.67%	5.84%
6	0.51%	3.32%	-2.75%	2.90%	5.68%	5.81%
7	0.36%	3.16%	-2.96%	2.83%	4.97%	5.96%
8	0.59%	3.12%	-3.14%	2.88%	4.76%	5.84%
9	0.66%	3.07%	-3.34%	2.78%	4.17%	5.32%
10	0.57%	2.90%	-3.15%	2.68%	3.75%	5.32%
11	0.44%	2.81%	-3.86%	2.43%	3.38%	5.32%
12	0.34%	2.85%	-4.42%	2.18%	3.33%	5.72%
13	0.21%	2.72%	-4.77%	1.98%	3.55%	6.09%
14	0.44%	2.59%	-5.22%	1.65%	3.45%	6.53%

15	-0.24%	2.31%	-5.77%	1.18%	4.86%	7.21%
16	-0.76%	2.04%	-6.33%	0.86%	5.02%	6.92%
17	-1.08%	1.80%	-6.67%	0.81%	5.63%	7.42%
18	-1.50%	1.44%	-7.16%	1.11%	5.32%	7.79%
19	-2.07%	0.92%	-6.87%	1.07%	5.45%	8.03%
20	-2.62%	0.57%	-7.39%	1.29%	6.28%	8.78%
21	-2.87%	0.52%	-7.44%	1.52%	7.12%	9.29%
22	-3.24%	0.82%	-7.81%	1.64%	7.63%	9.98%
23	-2.92%	0.73%	-7.75%	1.84%	7.65%	9.84%
24	-3.29%	0.96%	-7.81%	1.78%	7.90%	10.56%
25	-3.21%	1.19%	-8.31%	1.82%	8.54%	11.32%
26	-3.47%	1.31%	-7.94%	2.40%	9.56%	12.05%
27	-3.32%	1.50%	-7.18%	2.21%	10.11%	12.51%
28	-3.34%	1.41%	-6.79%	2.55%	9.22%	12.30%
29	-3.67%	1.46%	-7.05%	2.71%	9.98%	12.67%
30	-3.00%	2.11%	-6.72%	3.20%	10.44%	12.26%

[a] Event 4 - an article in *The New York Times* which identifying some changes in the final rule as compared to the initial proposal on August 4, 2000.
[b] Event 5 - the final rule was adopted on August 10, 2000.
[c] Event 6 – the date that the SEC starts to implement Reg. FD on October 23, 2000.
CARs =mean cumulative abnormal returns around earnings announcements based on size.

Table 14 T-tests for Daily Cumulative Abnormal Returns between CLC and OPC firms around Six Reg. FD-event dates in four windows

Six Reg. FD Events		Window (-1, +1)		Window (-2, +4)		Window (-5, +10)		Window (-5, +15)	
CARs[a] / t-stat.		*CLC[1]*	*OPC[2]*	*CLC[1]*	*OPC[2]*	*CLC[1]*	*OPC[2]*	*CLC[1]*	*OPC[2]*
Event 1	*Mean*	-0.002	0.0058	-0.008	0.0017	-0.006	0.0103	-0.01	0.0138
	T value	**2.9****		**2.16***		**2.46***		**2.77****	
Event 2	*Mean*	-0.008	-0.004	-0.02	-0.012	-0.04	-0.035	-0.051	-0.035
	T value	0.98		1.56		0.7		1.58	
Event 3	*Mean*	0.0015	0.003	-0.002	0.0027	-0.011	-0.009	-0.034	-0.051
	T value	0.5		0.86		0.37		-1.92	
Event 4	*Mean*	0.0018	0.0044	0.0083	0.0011	0.017	0.0183	0.0113	0.0102
	T value	0.47		-1.59		0.17		-0.11	
Event 5	*Mean*	0.0035	-0.004	0.0024	-0.003	0.0009	-0.005	-0.014	-0.031
	T value	**-2.16***		-0.86		-0.55		-1.29	
Event 6	*Mean*	-0.01	-0.012	-0.017	-0.011	-0.012	-0.007	0.0116	-0.008
	T value	-0.28		0.52		-0.76		-1.64	

[a] *CARs* =cumulative abnormal returns around earnings announcement dates based on size in four windows (-1, +1), (-2, +4), (-5, +10), and (-5, +15).
[1] CLC – closed-call firms; [2] OPC – open-call firms.
* = Statistically significant at a probability of less than 0.05; ** = Statistically significant at a probability of less than 0.01; *** = Statistically significant at a probability of less than 0.001.

Table 15 T-tests for the Samples with the Same CLC and OPC Classification in Both Pre- and Post-Reg. FD Periods between CLC and OPC firms around Six Reg. FD-event dates in four windows

Six Reg. FD Events		Window (-1, +1)		Window (-2, +4)		Window (-5, +10)		Window (-5, +15)	
CARs[a] / t-stat.		*CLC[1]*	*OPC[2]*	*CLC[1]*	*OPC[2]*	*CLC[1]*	*OPC[2]*	*CLC[1]*	*OPC[2]*
Event 1	*Mean*	0.0006	0.0099	-0.008	0.0019	-0.004	0.0127	-0.008	0.0244
	T value	**2.62****		**2.66****		**1.98***		**2.9****	
Event 2	*Mean*	-0.01	-0.0011	-0.027	-0.022	-0.059	-0.068	-0.072	-0.069
	T value	0.22		-0.8		1.01		0.3	
Event 3	*Mean*	0.0015	0.005	-0.003	0.0054	-0.017	-0.022	-0.058	-0.087
	T value	0.85		1.31		-0.5		**-2.75****	
Event 4	*Mean*	0.005	0.0076	0.0107	0.0003	0.0291	0.0143	0.0238	0.0059
	T value	0.58		-1.67		-1.54		-1.57	
Event 5	*Mean*	0.0039	-0.002	0.0031	-0.005	0.0061	-0.001	-0.014	-0.029
	T value	-1.66		-1.37		-0.82		-1.37	
Event 6	*Mean*	-0.016	-0.012	-0.016	-0.002	0.0072	-0.002	0.0321	0.0147
	T value	0.96		1.61		-0.78		-1.33	

[a] *CARs* =cumulative abnormal returns around earnings announcement dates based on size in four windows (-1, +1), (-2, +4), (-5, +10), and (-5, +15).
[1] CLC – closed-call firms; [2] OPC – open-call firms.
* = Statistically significant at a probability of less than 0.05; ** = Statistically significant at a probability of less than 0.01; *** = Statistically significant at a probability of less than 0.001.

5.4 Robustness Tests

In order to check the robustness of results, I run the t-test for the remaining samples with the same CLC and OPC classification, which are available in both pre- and post-Reg. FD periods. This list includes 813 CLC and 399 OPC firms. Table 15 compares the significant difference in means of CARs based on size in four windows, (-1, +1), (-2, +4), (-5, +10), (-5, +15), around six Reg. FD-event dates using the t-test respectively. Since the test for the equality of variance showed unequal variance, only Satterthwaite unequal variance t value was presented at Table 15.

Table 15 shows that the difference in mean levels of CARs is significant for the comparison between OPC and CLC firms in four windows only around the first event, but not significant around the following five events. More specifically, from the second event to the sixth event, there is no significant difference in CARs between OPC firms and CLC firms in four windows except for only one comparison in the 3rd event from day –5 to day +15. It suggests that the difference in price changes between OPC and CLC firms was altered after the first Reg. FD event date, and therefore, the first event and the second event are the most important dates among those six dates leading to the passage of Reg. FD.

To summarize, the price changes between OPC and CLC firms are not significantly different after the second Reg. FD event, and therefore, the first and the second event are the most significant events among these six Reg. FD events.

CAHPTER VI

SUMMARY AND CONCLUSIONS

6.1 Summary and Conclusions

This study examines the effect of Reg. FD on analyst forecast performance and market reactions for both CLC and OPC firms as compared to NCC firms in both pre- and post-Reg. FD periods. The first analysis investigates whether Reg. FD influenced earnings forecast errors and forecast dispersion for the previous-CLC firms in the post-Reg. FD period as compared to the previous-OPC firms since some analysts lost their exclusive access to the management after the implementation of Reg. FD. The results provide evidence that analysts made more accurate forecast for OPC firms as compared to CLC firms in the pre-Reg. FD periods, whereas there is no significant difference between analyst forecast performance for the previous-OPC and the previous-CLC firms in the post-Reg. FD period.

The second analysis investigates the difference in analyst performance between NCC firms and CC (including both OPC and CLC) firms in both pre- and post-Reg. FD periods. The results show that both earnings forecast errors and forecast dispersion are smaller for CC firms as compared to NCC firms in both pre- and post-Reg. FD periods. These conference calls did provide additional information to financial analysts, which is consistent with BDM (2002) results, and improve analyst forecast performance regardless of the implementation of Reg. FD.

The third analysis investigates the cumulative abnormal returns around earnings announcement dates among three groups in three windows, (-1, +1), (-2, +4) and (-5, +10). As anticipated, the test results provide evidence that there is a significant difference

in price reactions between CLC and OPC firms in the pre-Reg. FD period, but an insignificant difference between previous-CLC firms and previous-OPC firms after Reg. FD took effect. That indicates that Reg. FD may have forced the previous-CLC firms to change their selective disclosure policy, and to assimilate information to both financial analysts and the general public at the same time.

The final analysis compares the cumulative abnormal returns between CLC and OPC firms around those six Reg. FD-event dates over four windows, (-1, +1), (-2, +4), (-5, +10) and (-5, +15). It indicates that difference in market reactions between two groups is insignificant after the second Reg. FD event, and the first and the second event are the most significant events among those six events leading to the passage of Reg. FD.

In conclusion, these findings suggest that, to some extent, Reg. FD did "level the playing field" for all financial analysts and investors, consistent with Reg. FD's success in eliminating selective disclosure.

6.2 Further Research

This study examines the impact of Reg. FD on analyst forecast performance and related market reactions to earnings announcements among CLC, OPC and NCC firms, and suggests that Reg. FD did improve the information environment for all market participants. The further research may compare the different effect of Reg. FD on the information asymmetry, such as bid-ask spread, trading volume etc. among three-group firms in both pre- and post-Reg. FD periods.

On the other hand, since this study suggests that the previous-CLC firms have already changed their disclosure policy prior to the implementation of Reg. FD, the pre-Reg. FD

period may be defined as the period before the first Reg. FD event to avoid the potential effect of Reg. FD during the six Reg. FD events, while the post-Reg. FD period may be defined as the period after the final event to make sure that CLC firms did change their disclosure policy.

In addition, Clement and Tse (2003) found that there is a trade-off between accuracy and timeliness since the prior forecasts are more useful to investors. That is, investors respond more strongly to the earlier forecasts than to the later forecasts although the later forecasts are more accurate than the earlier forecasts. The further research may utilize a two-stage regression of a forecast accuracy model and a valuation (returns) model to examine the impact of Reg. FD on analyst forecast attributes and related market reactions.

Finally, Chi Mac (2003) suggests that Reg. FD affects negative information releases more than positive ones, and therefore, the further research may analyze the different effect of Reg. FD on negative or positive investors' responses, respectively, among three-group firms in both pre- and post-Reg. FD periods.

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