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HAS REGULATION G IMPROVED THE INFORMATION
QUALITY OF NON-GAAP EARNINGS DISCLOSURES?

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HAN SANG YI

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HAS REGULATION G IMPROVED THE INFORMATION QUALITY OF
NON-GAAP EARNINGS DISCLOSURES?

By

Han Sang Yi

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ABSTRACT

HAS REGULATION G IMPROVED THE INFORMATION QUALITY OF NON-GAAP EARNINGS DISCLOSURES?

By

Han Sang Yi

I examine whether the documented decreased frequency of non-GAAP earnings disclosures post-Regulation G (e.g., Heflin and Hsu 2005, Marques 2005, National Investors Relations Institute 2003) is evidence that the Sarbanes-Oxley Act of 2002 has achieved one of its key disclosure objectives relating to non-GAAP earnings disclosures. The intent of Congress and the SEC in issuing Regulation G was to improve the transparency of non-GAAP earnings, facilitating management's ability to communicate the economic prospects of the firm and diminishing the prospect that management could issue non-GAAP earnings to opportunistically mislead investors about firm performance. Based on 10,896 sample firm-quarters from 2001 to mid 2004, I find that managers of sample firms that have communication motives, proxied by low historical returns-earnings relations, are more likely to disclose non-GAAP earnings in the post-Reg G period than in the pre-Reg G period. In contrast, I find that managers of sample firms that have opportunistic motives, proxied by the firms' GAAP earnings falling short of various earnings' benchmarks, are less likely to do so in the post-Reg G period than in the pre-Reg G period. I also provide evidence that the incremental information content of sample firms' non-GAAP earnings surprises over GAAP earnings surprises is statistically significant only in the post Reg G period, suggesting that investors' improved perception of the transparency of non-GAAP earnings also is consistent with a decrease in misleading non-GAAP earnings post-Reg G. Overall, the findings of this paper appear

consistent with Congress' and the SEC's intervention in pro-forma reporting practices resulting in improvements in the quality of information provided in non-GAAP earnings disclosures.

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CHAPTER 1: INTRODUCTION

In response to the highly publicized alleged misuse of pro-forma earnings disclosures, the U.S. Congress ordered the Securities and Exchange Commission (SEC) to issue new rules governing the presentation of non-GAAP financial metrics to improve the quality and transparency of financial accounting information (Section 401(b) of the Sarbanes-Oxley Act of 2002). The SEC released Regulation G (SEC 2003a, hereafter “Reg G”) in January 2003, requiring firms that disclose non-GAAP earnings in preliminary earnings announcements to clearly reconcile non-GAAP earnings to GAAP earnings with equal emphasis on both numbers.¹ Recent studies by Heflin and Hsu (2005) and Marques (2005) and a survey by the National Investor Relations Institute (2003) document a significant decline in non-GAAP earnings disclosures after the SEC intervention. This paper examines whether the decreased frequency of non-GAAP earnings disclosures post-Reg G reflects intended or unintended consequences of Reg G (and the Sarbanes-Oxley Act of 2002).

Business journalists, citing conflicting anecdotes, continue to make divergent claims as to whether or not Reg G has effectively eliminated disclosures of misleading non-GAAP earnings in preliminary earnings announcements. Some view Reg G to be a lax enforcement mechanism, arguing that firms can still characterize routine expenses as special charges to justify reversing these items in arriving at non-GAAP earnings; misleading investors’ perceptions about firm performance (e.g., Byrnes and Henry 2001, Henry 2002, Stuart 2004, Taub 2003). Alternatively, others believe that Reg G helps

¹ Following Regulation G, I often use the term “non-GAAP earnings” to capture the concept of management-defined earnings, which prior literature often refers to as pro-forma earnings. Throughout this paper, I use pro-forma earnings and non-GAAP earnings interchangeably.

investors unravel the firm's strategic motives underlying the disclosure of non-GAAP earnings, discouraging firms with opportunistic disclosure motives from misleading investors and increasing the frequency with which firms disclose non-GAAP earnings post-Reg G to help inform investors about the economic prospects of the firm (e.g., Henry 2003; Thompson 2003).

Extant academic evidence examining the disclosure of non-GAAP earnings prior to Reg G also provides mixed evidence about the transparency of non-GAAP earnings disclosures. One line of literature shows that non-GAAP earnings function as a substitute for less relevant GAAP earnings, and thus have incremental information content over GAAP earnings and better map into future performance (e.g., Bhattacharya et al. 2003; Bradshaw and Sloan 2002; Brown and Sivakumar 2003; Doyle et al. 2003; Vincent 1999). Another line of literature documents that managers may disclose non-GAAP earnings opportunistically, altering investors' perceptions about the firm's ability to meet or beat various earnings benchmarks (e.g., Bowen et al. 2005; Doyle et al. 2004; Elliott 2006; Frederickson and Miller 2004; Hirshleifer and Teoh 2003; Lougee and Marquardt 2004; Schrand and Walther 2000).

Thus, the decreased disclosure frequency of non-GAAP earnings after Reg G reported in Heflin and Hsu (2005), Marques (2005) and NIRI (2003) could be attributed either to the success or failure of the efforts of Congress and the SEC. If Reg G resulted in fewer firms disclosing non-GAAP earnings to mislead investors, then Reg G has achieved its objective. Alternatively, if Reg G resulted in fewer firms reporting non-GAAP earnings to better inform investors, then Reg G has had unintended consequences. The current paper attempts to distinguish between these two alternative consequences by

investigating the post-Reg G changes in: (1) managers' underlying strategic motives for disclosing non-GAAP earnings (i.e., to better communicate with investors when GAAP earnings are less relevant or to opportunistically mislead investors), and (2) investors' perceptions of the relevance of non-GAAP earnings (i.e., by measuring the changes in the incremental information content of non-GAAP earnings over GAAP earnings).

I examine 10,896 press releases of 792 randomly selected firms from the intersection of CRSP and COMPUSTAT spanning from 2001 to mid 2004, and identify 3,228 non-GAAP earnings disclosures. Descriptive statistics suggest that sample firms are less likely to emphasize non-GAAP earnings over GAAP earnings in the post-Reg G period. Similarly, sample firms are more likely to provide detailed reconciliation information of non-GAAP earnings to GAAP earnings in the post-Reg G period. These results suggest that reporting firms have complied with Reg G's requirements.

Based on prior research, I assume managers have two conflicting motives for disclosing non-GAAP earnings (communication and opportunism). I examine changes in the association between disclosure of non-GAAP earnings and these disclosure motives over the pre- and post-Reg G periods. I assume that firms have communication motives to disclose non-GAAP earnings when GAAP earnings have low relevance, as proxied by a low GAAP earnings-security return relationship (Bradshaw and Sloan 2002, Lougee and Marquardt 2004). I assume that firms have opportunistic motives for disclosing non-GAAP earnings when GAAP earnings fall short of various earnings benchmarks (i.e., GAAP losses, negative seasonally differenced GAAP earnings, or GAAP earnings falling short of consensus earnings forecasts).

I find that managers of sample firms are more likely to disclose non-GAAP earnings in the post-Reg G period than in the pre-Reg G period when they have a lower historical GAAP earnings-security return relationship (i.e., high communication motives). In contrast, I find that managers of sample firms are less likely to disclose non-GAAP earnings in the post-Reg G period than in the pre-Reg G period when they have losses or negative GAAP earnings changes (opportunistic motives). These results imply that the decreased disclosure of non-GAAP earnings post Reg G is more pronounced for firms with opportunistic motives than for firms with communication motives.

To examine whether changes in investors' perception of the transparency of non-GAAP earnings also are consistent with a decrease in misleading non-GAAP earnings disclosures post Reg G, I regress three-day size adjusted cumulative stock returns on both seasonally differenced GAAP earnings and non-GAAP earnings surprises in the pre- and post-Reg G periods. In contrast to the results from prior studies that report incremental information content of non-GAAP earnings over GAAP earnings in the years preceding my sample period, I do not find the incremental information content of non-GAAP earnings over GAAP earnings in the pre-Reg G period (2001:01-2003:03). However, I find that non-GAAP earnings are incrementally informative over GAAP earnings in the post-Reg G period (2003:04-2004:08). This implies that investors, on average, perceive non-GAAP earnings as more transparent in the post-Reg G period than in the pre-Reg G period. Overall, the findings of this paper appear consistent with Congress' and the SEC's interventions in pro-forma reporting practices resulting in improvements in the quality of non-GAAP earnings disclosures.

This dissertation makes the following contributions to the literature. First, this study provides timely and interesting evidence that addresses the Dechow and Schrand (2004; 116) and Stuart (2004) calls for research on the effects of Reg G (and the Sarbanes-Oxley Act of 2002) on firms' (mis)use of pro-forma earnings disclosures. The current study examines both temporal changes in managers' disclosure motives and temporal changes in investors' perceptions of the transparency of non-GAAP earnings to draw inferences about the consequences of Reg G on non-GAAP earnings disclosures. Thus, this dissertation differs from Heflin and Hsu (2005), Marques (2005) and Zheng and Zhang (2005) in that it focuses on (1) *why*, as opposed to whether or not, firms discontinue presenting non-GAAP earnings disclosure following Reg G (i.e., by examining temporal changes in non-GAAP earnings disclosure motives) and (2) whether the capital market's reaction to non-GAAP earnings adjustment is consistent with the observed change in disclosure motives post Reg G.

Second, this dissertation adds to the debate on the transparency of pro-forma earnings (e.g., Bradshaw 2003) by providing evidence that pro-forma earnings were used as a means to obfuscate investors' perception about firm performance in the pre-Reg G period. The dual findings of this study that managers report non-GAAP earnings in a more transparent way in the post-Reg G period and that the market values this improvements of non-GAAP earnings transparency in the post-Reg G period suggest that many firms disclosed non-GAAP earnings opportunistically in the less regulated environment. In addition, investors perceived such disclosures as potentially opportunistic, biasing downward the pricing of non-GAAP earnings in the pre-Reg G period.

The remainder of the dissertation continues as follows. Chapter 2 provides the background. Chapter 3 reviews relevant literature relating to non-GAAP earnings and Chapter 4 develops the research hypotheses. Chapter 5 describes the research design. Chapter 6 outlines my sample selection approach and provides descriptive statistics. Chapter 7 presents the results of my analyses. Finally, Chapter 8 summarizes and concludes.

CHAPTER 2: BACKGROUND AND REGULATION G

2.1. Pro-forma Earnings Debate

Although the SEC adopted the term “non-GAAP financial measures” in Reg G, what triggered the legislative action was the proliferation in the late 1990’s of so-called “pro-forma earnings” disclosures by U.S. corporations.² Throughout time, pro-forma earnings was the term used to describe hypothetical financial results reported by firms for comparison purposes under financial reporting requirements (e.g., M&A, accounting changes etc.). However, since the mid 90’s, firms in the technology sector started using the term to describe earnings that eliminate the effect of non-cash, non-recurring charges from core operating activities (Thurm and Weil 2001). The practice has become widespread in other industries and the list of excluded items has broadened over time. Today, pro-forma earnings has become the general term describing a firm’s voluntary disclosure of modified earnings measures that deviate from GAAP earnings (Bradshaw 2003), an important communication vehicle for management (e.g., Bowen et al. 2005, Graham et al. 2004).

Advocates of pro-forma earnings reporting argue that pro-forma earnings reveal management’s view about core operating results, and thus help investors by reducing information asymmetry between management and investors. Consistent with this notion, anecdotal evidence suggests that not only do financial analysts often find pro-forma

² Some countries explicitly allow firms to present alternative EPS metrics in income statements. Among them is the U.K. where firms are allowed to present adjusted EPS on the face of their income statements under Financial Reporting Standard No.3. Choi, Lin, and Young (2005) report that U.K. firms’ adjusted EPS is more informative about current and future performance than GAAP EPS.

earnings useful for equity valuation, but many oppose the exclusion of pro-forma earnings from press releases (Taub 2001).³

However, as a result of a spate of financial frauds at the end of the tech bubble, the financial press started touting the potential problematic use of pro-forma earnings, igniting a debate about the transparency of non-GAAP earnings (e.g., Byrnes and Henry 2001; Henry 2002; Teach and Reason 2002; Weil 2001). Critics often indicate three risks relating to pro-forma earnings reporting that may misinform investors: (1) insufficient information being provided in press releases to reconcile GAAP and non-GAAP earnings (e.g., Wallace 2002), (2) differential presentation in press releases focusing greater attention on non-GAAP earnings (e.g., Bowen et al. 2005), and (3) strategic and inconsistent selection of items reversed in determining non-GAAP earnings creating the ability to upward bias non-GAAP earnings by desired amounts (e.g., Weil 2001). Anecdotal evidence further suggests that some managers explicitly recognized that they presented pro-forma earnings to simply “put the best spin on the results” (Goff 2001).⁴

2.2. Regulatory Development and Regulation G (See Figure 1 for the timeline)

Prior to Reg G, both private-sector organizations and the SEC alerted firms to the three risks mentioned above associated with disclosing misleading pro-forma earnings (hereafter referred to as “non-GAAP earnings”). Relating to the first risk identified above (i.e., unclear reconciliation of GAAP and non-GAAP earnings), two influential private-

³ A survey conducted by a New York based research firm, Broadgate Consultants Inc., found that 67% of 223 portfolio manager respondents (buy side analysts) opposed exclusion of pro-forma earnings from press releases although they wanted some consistency in pro-forma reporting (Taub 2001).

⁴ The CFO magazine and KPMG joint survey of 196 financial executives at an FEI conference reveals the conflicting motives concerning the presentation of pro-forma earnings, viz. (1) to convey true performance (45%), (2) to meet the demands of analysts (27%), and (3) to help ‘put the best spin on the results’ (25%).

sector organizations (Financial Executives International and the National Investor Relations Institute, hereafter ‘FEI’ and ‘NIRI’ respectively) jointly proposed industry guidelines for reporting pro-forma earnings. These guidelines advised firms to make clear reconciliations between GAAP earnings and non-GAAP earnings and to explicitly present GAAP earnings in earnings announcements (NIRI 2001). The SEC supported the guidelines suggested by FEI and NIRI, and it reminded firms of the importance of antifraud provisions and materiality in the pro-forma earnings context (the SEC’s cautionary advice, see SEC 2001).⁵ Relating to the second risk mentioned above (i.e. emphasis on positively spun pro-forma earnings over GAAP earnings), NIRI issued further guidelines encouraging firms to present GAAP earnings with equal emphasis in earnings releases (NIRI 2002). However, with respect to the third risk (i.e. inconsistency in adjustment items), there was no attempt to issue any guidelines prior to Reg G, because the choice to either include or exclude items, in itself, reflects the management’s view about the item’s relevance to core operating activities.

The Sarbanes-Oxley Act of 2002 was signed into law by President Bush on July 30, 2002. The SEC’s implementation of Section 401(b) of the Act (“Conditions for Using non-GAAP Financial Measures,” hereafter “the Rules”, January 22, 2003, see SEC 2003a), followed a two-step approach to deal with the three risks identified by critics of pro-forma earnings (see SEC 2003b).

⁵ The SEC’s first administrative action, against Trump Hotel and Casino, was related to the first issue (SEC 2002) and was the first SEC administrative action against the opportunistic presentation of non-GAAP earnings (January 16, 2002). In its earnings announcement, the company reported a profit of \$14 million in the third quarter of 1999, excluding a one-time charge of \$81 million. Although the firm touted its EPS exceeded the analysts’ forecast, what actually exceeded First Call estimates of 0.54 cents per share was pro-forma EPS of 0.63 cents per share. It later turned out that the company included a one-time accounting gain of around \$17.2 million from the earlier termination of a lease agreement with the All Star Café. What is most striking in this case was that in their original press releases the firm provided a single revenue line to hide their one-time gain.

The first step is to regulate the presentation of non-GAAP earnings and its reconciliation with GAAP earnings in public communications other than SEC filings (e.g., earnings releases and conference calls). In the first step, the Rules address the first and the second problems identified above (i.e. no clear definition/reconciliation and the emphasis placed on positively spun pro-forma earnings). Specifically, Reg G requires firms to present GAAP earnings and provide reconciliations of non-GAAP earnings to GAAP earnings. In addition, within 4 business days of releasing an earnings release containing non-GAAP earnings, firms should disclose in item 12 of Form 8-K both GAAP and non-GAAP amounts and the reason why management believes the non-GAAP measure is useful to investors.⁶

The second step is geared towards dealing with the third problem (i.e. inconsistency in adjustment items). If firms additionally disclose non-GAAP earnings in SEC filings, the Rules give a set of specific guidelines about what should not be excluded or included in the calculation of non-GAAP earnings (see Appendix A for the details of the Rules). Because this requirement is highly likely to discourage firms from presenting non-GAAP earnings, the SEC restricts this requirement only to non-GAAP presentations in SEC filings.

Thus, when it comes to the reporting of non-GAAP earnings in preliminary earnings announcements (one form of non-SEC filing), one could view Reg G simply as a lax enforcement system, since firms still have the flexibility to select adjustment items in a discretionary manner as long as they reconcile non-GAAP earnings with GAAP

⁶ I do not find any meaningful variation in the sample firms' statements regarding why firms believe non-GAAP earnings are useful to investors. Two boilerplate reasons I find are: (1) such earnings better measure the firms' operating performance, and (2) firms provide such earnings for consistency (i.e., the importance of a disclosure precedent).

earnings and provide equal emphasis on both numbers. This is especially so because the expected preparation costs concerning Reg G are minimal according to the SEC (SEC 2003a). Thus, one can hold the view that absent other factors, complying with the mandated disclosure format requirement for the voluntary disclosure would have little impact on the disclosure decision.⁷ However, recent studies by Heflin and Hsu (2005) and Marques (2005) report that non-GAAP earnings disclosures outside SEC filings have significantly decreased after Reg G for I/B/E/S and S&P 500 firms respectively. A recent survey by NIRI also reports that 47% of survey respondents who previously provided non-GAAP earnings in their earnings announcements and now provide GAAP earnings only (26.4% of the total respondents) attribute their change in disclosure strategy to Reg G (NIRI 2003).

There could be two extreme interpretations of the decreased frequency of non-GAAP earnings disclosure after Reg G (Stuart 2004). One view suggests that Reg G has limited the frequency of non-GAAP earnings disclosures that were previously used to mislead investors. However because prior research also supports the value-relevance of pro-forma earnings over GAAP earnings (see next section), it is also possible that Reg G discouraged firms from providing value-relevant information. In this dissertation, I provide evidence to distinguish between these divergent claims to infer whether or not Reg G had intended (reducing misleading disclosures) and/or unintended (reducing transparent disclosures) consequences.

⁷ This is the official position of the SEC. Three out of 81 comment letters explicitly echoed this notion. Other comment letters were silent about whether Reg G would limit the use of non-GAAP earnings disclosures.

CHAPTER 3: LITERATURE REVIEW AND ANALYSIS

This section provides a summary of two strands of non-GAAP earnings research germane to the current paper, discusses why the current paper differs from concurrent studies on Regulation G, and identifies how the current paper extends prior research.

3.1. Pre-Regulation G Studies

3.1.1. Determinants of Non-GAAP (pro-forma) Earnings Disclosures

Prior literature assumes the following two conflicting strategic motives for disclosing non-GAAP (pro-forma) earnings.

Substitute for Less Relevant GAAP Earnings

Despite the issues relating to using R^2 and ERC's from returns-earnings regressions as a basis for inference about the value-relevance of reported earnings (e.g., Brown, Lo and Lys 1999), a number of studies provide evidence of a decline in GAAP earnings' relevance over time based on a temporal decline in the association between GAAP EPS and stock prices (e.g., Collins, Maydew and Weiss 1997; Francis and Schipper 1999; Lev and Zarowin 1999). In contrast, Bradshaw and Sloan (2002) report an increasing association between street earnings and stock prices over time. They provide preliminary evidence that earnings adjusted by managers in preliminary earnings announcements are likely to contribute to the formation of street earnings, conjecturing that managers may disclose non-GAAP earnings when their GAAP earnings are less relevant. Consistent with the conjecture, Lougee and Marquardt (2004) find that pro-forma earnings disclosure firms are more likely than their matched sample firms to have

less relevant GAAP earnings (i.e., lower R^2 's and ERC's from returns-earnings regressions).

Strategic Means to Alter Investors' Perception about Firm Performance

A number of papers show that managers may selectively report items in preliminary earnings announcements as a strategic tool either to alter investors' perception about the firm's performance or to change perceptions about its ability to meet or beat various earnings benchmarks. For example, Schrand and Walther (2000) find that managers are more likely to remind investors of extenuating circumstances (i.e., one-time gains) for strong performance in previous years than to remind investors of circumstances for poor performance in previous years, potentially making current performance look better (systematic spinning/tilting of information). Also, Bowen et al. (2005) show that firms strategically emphasize in their preliminary earnings announcement a specific earnings metric among multiple earnings metrics depending upon whether such an earnings metric meets or beats past EPS and/or analysts' EPS consensus. Relatedly, McVay (2005) shows that firms are likely to use income classification (e.g., reporting operating expenses as special charges) to make their core earnings look better.

Consistent with this notion, several studies show that firms are more likely to provide non-GAAP earnings disclosure when they have losses (Bhattacharya et al. 2003), negative seasonally differenced GAAP earnings (Lougee and Marquardt 2004), and GAAP earnings falling short of analysts' EPS consensus (Doyle et al. 2004) in order to change perceptions about whether they meet or beat typical past earnings benchmarks. Also, Frankel et al. (2005) show that ill-governed firms (proxied by fewer independent

board members) are more likely to disclose non-GAAP earnings that just meet or slightly beat analysts' consensus EPS.

3.1.2. Pricing of non-GAAP (Pro-forma) Earnings Disclosures

One line of research literature examines whether alternative earnings metrics have higher associations with contemporaneous returns and future operating performance than GAAP earnings. Vincent (1999) provides some evidence that funds from operations disclosed by real estate investment trust firms have higher association with contemporaneous returns than GAAP earnings measures. Similarly, a number of studies compare "street earnings" with GAAP earnings, documenting that street earnings are less conservative than GAAP earnings and have higher explanatory power for contemporaneous returns, price, and future earnings and cash flows than do GAAP earnings (Bradshaw and Sloan 2002; Brown and Sivakumar 2003; Frankel and Roychowdhury 2004; Doyle et al. 2003). Using "pro-forma" earnings and "street earnings" interchangeably, these studies conclude that management defined earnings (i.e., pro forma earnings) convey incremental information. However, these studies use earnings extracted from analysts' forecast data providers (i.e., First Call, I/B/E/S, and Zachs) as proxies for pro-forma earnings. Thus, it is not clear whether it is actually managers or analysts that provide the incremental information in earnings reported in these databases (see Abarbanell and Lehavy 2002, 2005; Gu and Chen 2004). In contrast, recent research explicitly collects earnings adjusted by managers from press releases and performs

similar tests, documenting relative and incremental information content of pro-forma earnings over GAAP earnings (Bhattacharya et al. 2003; Lougee and Marquardt 2004).⁸

Two studies examine whether pro-forma earnings are misleading investors. Using I/B/E/S actual earnings as a proxy for pro-forma earnings, Dolye et al. (2003) show that the difference between pro-forma earnings and GAAP earnings is a strong negative predictor of future performance, suggesting that pro-forma earnings are misleading investors. Using a P/E ratio approach with pro-forma earnings collected from actual press releases, Johnson and Schwartz (2005) do not find evidence that the magnitude of the pro-forma earnings adjustment explains market multiples.

Taken together, evidence on the transparency of non-GAAP earnings in the pre-Reg G period is mixed. Studies investigating causes (i.e., managers' motives) of non-GAAP earnings disclosures show that non-GAAP earnings disclosures are associated with both communication motives and opportunistic motives. Studies investigating consequences (i.e., pricing) of non-GAAP earnings disclosures show that while non-GAAP earnings are, on average, informative in short windows, the non-GAAP adjusted amount may lead to negative abnormal returns in a long window. This mixed evidence warrants further investigation into the transparency of non-GAAP earnings. Reg G provides a setting where researchers can address this issue by examining how the disclosure motives has changed across two regimes. Two caveats must be noted here on pre-Reg G non-GAAP earnings studies. First, inferences from studies that use actual earnings from analysts' forecast data providers as a proxy for non-GAAP earnings may

⁸ Following Biddle et al. (1995), these authors describe the "relative" information content of A being greater than that of B when the R^2 from a regression of 3-day cumulative returns on A is greater than that on B. Also, these authors describe A as incrementally informative over B when the coefficient on A is positive and significant from a regression of 3-day cumulative returns on A and B.

not be appropriate for drawing inferences about the transparency of non-GAAP earnings because the earnings construct provided by forecast data providers is not identical to that of non-GAAP earnings.⁹ Second, capital market studies address the joint hypotheses of information content of non-GAAP earnings and market efficiency. The evidence of long-term mispricing of pro-forma earnings and a higher association of non-GAAP earnings and various market metrics reported in capital market studies could be a mere manifestation of investors' functional fixation on reported metrics rather than indicating these metrics are more value-relevant (Bowen et al. 2005; Dyck and Zingales 2003). Thus, studies examining the effect of Reg G must address both determinants of and pricing of non-GAAP earnings across two regulatory regimes to draw a conclusion about the effect of Reg G on the transparency of non-GAAP earnings.

3.2. Post-Reg G Period Studies on non-GAAP Earnings

I am aware of three papers that attempt to draw inferences about the consequences of Reg G (Heflin and Hsu 2005; Marques 2005; Zheng and Zhang 2005). These studies provide mixed evidence on the consequences of Reg G.

Heflin and Hsu (2005) focus on the changes in disclosure frequency of various types of non-GAAP earnings. They report that the frequency of non-GAAP earnings disclosures has declined significantly in the post-Reg G period. They also report that firms with both "other exclusions (i.e., their proxy for opportunistic disclosure motives relating to non-GAAP earnings)" and "special items (i.e., their proxy for benign communication motives)" are less likely to disclose non-GAAP earnings in the post-Reg G period, perhaps indicating that Reg G dampens both the number of opportunistic and

⁹ See Appendix B for details.

non-opportunistic non-GAAP earnings. However, Heflin and Hsu (2005) do not provide direct tests of this hypothesis because they fail to examine attributes of actual non-GAAP earnings disclosures instead using I/B/E/S actual earnings as a proxy.

Marques (2005) focuses only on the capital market's temporal assessment of S&P 500 firms' non-GAAP adjustments from 2001 to 2003 based on information from actual press releases. She documents a decline in non-GAAP earnings disclosures in the post-Reg G period and shows that unique non-GAAP adjustments made by management beyond the adjustments made by analysts are negatively associated with prices and returns in the post-Reg G period. The results perhaps suggest a failure in Sarbanes-Oxley Act of 2002 achieving its objectives relating to improving the transparency of non-GAAP earnings disclosures. Marques (2005) does not examine strategic motives for firms providing non-GAAP earnings disclosures.

Zheng and Zhang (2005) also focus on the mispricing of pro-forma earnings only. Based on pro-forma earnings collected from actual press releases, they document that the negative association between pro-forma earnings and one-year size-adjusted returns in the pre-Reg G period is less pronounced when more reconciliation information is provided. They further report that the negative association has disappeared in their 2002 sample, suggesting that Reg G curtails mispricing of non-GAAP earnings.

3.3. Distinctive features of this study

I examine whether the decreased frequency of non-GAAP earnings disclosures post-Regulation G is consistent with the Sarbanes-Oxley Act of 2002 (1) increasing the propensity for firms to issue non-GAAP earnings to communicate economic prospects of

the firm and (2) decreasing the propensity for firms to issue non-GAAP earnings to opportunistically mislead investors' perceptions about firm performance. No previous research has explicitly tested these hypotheses. Prior research either has made inferences on these issues without examining actual non-GAAP earnings disclosures (Heflin and Hsu 2005) or has performed indirect security prices tests to make inferences about related issues (Marques 2005 and Zheng and Zhang 2005).

Specifically, this dissertation provides an incremental contribution to the literature by focusing on the *quality* of, as opposed to the quantity of, non-GAAP earnings disclosure following Reg G by examining the post-Reg G changes in: (1) managers' underlying strategic motives for disclosing non-GAAP earnings and (2) investors' perceptions of the relevance of non-GAAP earnings. In addition, I follow a group of predetermined firms from the intersection of CRSP and COMPUSTAT to avoid the sample selection bias and measurement error issues in Heflin and Hsu (2005), Marques (2005) and Zheng and Zhang (2005) (see Appendix B for details).

CHAPTER 4: HYPOTHESES DEVELOPMENT

4.1. Comparison of Disclosure Motives across Time

Among various costs and benefits associated with the disclosure of non-GAAP earnings (e.g., proprietary costs, litigation costs, cost of capital consideration etc.), I posit that management's incentives relating to the cost of capital and firm valuation are likely to play the first order role in the non-GAAP disclosure decision.

With respect to the proprietary costs, both Schrand and Walther (2000) and Hirshleifer and Teoh (2003) posit that the primary target audience of earnings announcements is likely to be equity investors, suggesting that the costs of additional disclosure that may trigger the entrance of a competitor may be, at most, the second order effect. Litigation costs certainly could affect the non-GAAP earnings disclosure decision in the post-Reg G period because it provides an additional context for the SEC to enforce disclosure rules. However, it is not certain whether the additional disclosures required by Reg G uniformly will induce declines in the disclosure of non-GAAP earnings for two reasons. First, what often triggers class action litigation filings is an ex post event such as sudden price drop, which can be caused by both appropriate and inappropriate representations of current firm performance (i.e., both disclosure and/or no disclosure of management defined earnings can trigger litigations to the extent that there is an ex post price drop). Second, plaintiffs' decision to file class action litigations may be more related to the expected settlement amount (e.g., Directors' and Officers' insurance amount, see Kim (2004)) than to the accounting issues per se. Thus, it is not only hard to make a directional prediction about the relation between the firm specific litigation risks

and the non-GAAP earnings disclosure decision before and after Reg G, but also difficult to suggest that litigation risks play a first order role in disclosure decision making.

The two strategic disclosure motives I examine are linked closely to (1) the avoidance of mispricing by voluntarily revealing management's beliefs about firm performance, and (2) the avoidance of the market's negative reaction to missing various earnings benchmarks. Although the SEC contended it did not expect the rules to hinder the flow of information to investors,¹⁰ the decreased frequency of non-GAAP earnings disclosures post-Reg G raises several possible consequences depending on the motives for providing non-GAAP earnings disclosures.

One possibility is that Reg G has effectively mitigated the incentive to disclose non-GAAP earnings to mislead investors, while having no impact on firms disclosing non-GAAP earnings for improved communication motives. An implicit assumption behind this scenario is that Reg G's disclosure requirements for non-GAAP earnings would serve as truth-telling mechanisms under which investors can clearly see through the strategic motives of non-GAAP earnings disclosures. Prior literature suggests that an improved disclosure format can help investors better assess the value relevance of an information cue by (1) reducing cognitive processing costs and (2) helping investors avoid functionally fixating on the saliently presented information cue (e.g., Dietrich et al. 2001, Maines and McDaniel 2000, Hirshleifer and Teoh 2003). Elliott (2006) confirms this notion experimentally in a pro-forma earnings setting. If managers rationally factor in the effect of enhanced disclosure format on the investors' ability to evaluate firm performance, managers with better communication motives would continue to present

¹⁰ The SEC spokesman was reported to say "We don't expect less disclosure, we expect more meaningful disclosure. There's nothing in the rule that precludes people from providing information that they want to provide to investors, just as long as it's reconciled." (Babington 2003).

non-GAAP earnings disclosure while managers with opportunistic motives would not, because any attempt to mislead investors with non-GAAP earnings will be screened and penalized by investors under the Reg G regime.

Another possibility is that Reg G has discouraged firms from providing value-relevant non-GAAP earnings disclosures by making managers overly sensitized to investors' skepticism about non-GAAP earnings in the post-Reg G period. For example, Robert Willens, an accounting analyst at Lehman Brothers, suggests that "a lot of people are gun shy about unwittingly providing information that could ... be seen as misleading," perhaps causing firms with communication motives to reconsider providing non-GAAP earnings information (see Babington 2003). In addition, business journalists contend that given the nature of Reg G (i.e., a reporting requirement), firms with opportunistic motives may still have incentive and ability to reverse routine expenses as special charges in deriving non-GAAP earnings insofar as they are technically permitted under the Rules (e.g., Countryman 2003, Stuart 2004, Taub 2003).¹¹ Thus, it also is possible that the decreased frequency of non-GAAP earnings disclosures post Reg G could occur more in firms with communication motives than in firms with opportunistic motives.

Finally, an alternative scenario is that Reg G dampens the propensity to disclose non-GAAP earnings regardless of disclosure motives. In order to distinguish among these possibilities, I test a set of hypotheses (stated in null form) relating to the pre- and post-

¹¹ Reg G explicitly states that "neither the requirements of Reg G nor a person's compliance or non-compliance with the requirements of Reg G shall in itself affect any person's liability under Exchange Act Section 10(b) or Rule 10b-5." Chuck Hill, former director of research at Thomson Financial First Call, was reported to say "while few are blatantly breaking the law by omitting GAAP equivalents or reconciliation tables, some companies are taking advantage of the relatively lax enforcement of regulations on press releases to spin their numbers in ways that would be illegal in official filings" (see Stuart 2004).

Reg G changes in the relative importance of managers' underlying strategic motives for disclosing non-GAAP earnings (i.e., communication vs. opportunism).

H1: (Communication motives and Reg G) The incremental propensity of firms to disclose non-GAAP earnings to communicate the economic prospects of firms rather than to opportunistically mislead investors has not changed over the pre- and the post-Reg G periods.

H2: (Opportunistic motives and Reg G) The incremental propensity of firms to issue non-GAAP earnings to opportunistically mislead investors' perceptions about firm performance rather than to communicate economic prospects has not changed over the pre- and the post-Reg G periods.

If Reg G had the consequences intended by Congress and the SEC, either the association between non-GAAP earnings disclosures and communication motives will have increased in the post-Reg G period and/or the association between non-GAAP earnings disclosures and opportunistic disclosure motives will have declined in the post-Reg G period. In contrast, Reg G will have had consequences unintended by Congress and the SEC, if either the association between non-GAAP earnings disclosures and communication motives declined in the post-Reg G period and/or the association between non-GAAP earnings disclosures and opportunistic motives increased in the post-Reg G period.

4.2. Comparison of Market's Perception of the Transparency of non-GAAP Earnings across Time

The final hypothesis relates to the incremental information content of non-GAAP earnings surprises in addition to GAAP earnings surprises across the pre- and post-Reg G periods. My motivation for this hypothesis is to examine whether inferences from H1 and

H2 are consistent with the market's perception of the transparency of non-GAAP earnings in the post-Reg G period. Assuming that with the help of increased disclosure requirements investors can determine the transparency of non-GAAP earnings more efficiently in the post-Reg G period than in the pre-Reg G period, I posit two plausible scenarios. On one hand, if Reg G is effective such that firms with communication (opportunistic) motives are more (less) likely to disclose non-GAAP earnings in the post-Reg G period than in the pre-Reg G period, it is likely that the incremental information content of non-GAAP earnings is greater in the post-Reg G period than in the pre-Reg G period. On the other hand, if Reg G is not effective, it is likely that the incremental information content of non-GAAP earnings is either unchanged or smaller in the post-Reg G period than in the pre-Reg G period. This discussion leads to the following hypothesis in null form.

H3: (Incremental Information Content of non-GAAP earnings and Reg G)
The incremental information content of non-GAAP earnings over GAAP earnings has not changed over the pre- and the post-Reg G regimes.

CHAPTER 5. RESEARCH DESIGN

5.1. Comparison of Disclosure Motives across Time

To jointly test H1 and H2, I separately run the following probit regression (1) for pre-Reg G and post-Reg G sample firm-quarters. I compare the coefficients and the marginal effects of two different disclosure motives across the time periods to draw inferences about the temporal change in the association between non-GAAP earnings disclosures and two strategic disclosure motives.¹²

$$\text{Probability } (NG=1|\mathbf{x}) = G(\beta_0 + \beta_1 EQRANK + \beta_2 LOSS + \beta_3 NES + \beta_4 CONSENSUS + \beta \cdot \text{CONTROLS}) \quad (1), \text{ firm/quarter index omitted}$$

The dependent variable is non-GAAP earnings disclosure, NG . The dichotomous variable, NG , is coded as 1 if managers voluntarily disclose non-GAAP earnings in preliminary earnings announcement press releases for a quarter, 0 otherwise.

$EQRANK$ is an empirical proxy for the firm's communication motives to disclose non-GAAP earnings. $EQRANK$ is a rank variable based on EQ , which is defined as the t-statistic on the coefficient of seasonally differenced GAAP earnings from the following firm-specific returns-GAAP earnings regression similar to Bradshaw and Sloan (2002) and Lougee and Marquardt (2004).

$$MKTADJRET = \alpha_0 + \alpha_1 \Delta GAAPEARN + \varepsilon \quad (2),^{13} \text{ firm/quarter index omitted}$$

¹² I prefer testing for differences in coefficients in equation (1) over time rather than using an alternative model specification which regresses non-GAAP earnings disclosures on disclosures motives and disclosure motives interacted with a post-Reg G time dummy variable. See Appendix C for an explanation behind this choice. See Table 13 for the results from the alternative specification.

¹³ For each firm/quarter, I estimated equation (2) using its time-series observations of at least eight quarters. Following Lougee and Marquardt (2004), I do not include the current quarter's earnings for the estimation of EQ to make sure that the current quarters earnings do not spuriously correlate with EQ .

Where

MKTADJRET is cumulative market adjusted returns (i.e., $RET - VWRETD$) from two days after the last quarterly earnings announcement to the day after the current quarter earnings announcement date, and

$\Delta GAAP EARN$ is seasonally differenced GAAP earnings before extraordinary items and discontinued operations deflated by the market capitalization at the beginning of the current quarter (i.e., $[(COMPUSTAT \text{ Data}25_t - (\text{Data}25_{t-4})) / (\text{Data}61_t * \text{Data}17_t * \text{Data}14_{t-1})]$).

This empirical proxy follows from the previous discussion of non-GAAP earnings as a substitute for less relevant GAAP earnings.¹⁴ If managers disclose non-GAAP earnings when their GAAP earnings are less relevant (i.e., communication motives), I expect a negative association between *NG* and *EQRANK*, that is, β_1 in equation (1), will be negative and significant in equation (1). I use a rank variable, *EQRANK*, instead of *EQ*, because coefficients on *EQRANK* estimated on a cross sectional basis can be used to measure well communication motives over time.¹⁵ I rank firm specific t-statistics (*EQ*) from equation (2) within each calendar quarter in which preliminary earnings announcements were announced, assigning a number from 0 to 99 as the *EQRANK* variable. Thus, *EQRANK* of 0 indicates the firm's GAAP earnings relevance is lowest among sample firms (i.e., suggesting these firms have higher incentives to communicate better with investors by disclosing non-GAAP earnings) while *EQRANK* of 99 indicate the firm's GAAP earnings relevance is highest among sample firms (i.e., suggesting these firms have lower incentives to disclose non-GAAP earnings). I use t-statistics for α_1 in the equation rather than the coefficient (α_1) or adjusted R^2 of the equation because t-

¹⁴ Although “no single culprit is to blame” for the temporal decline of an association between earnings and stock returns, Dechow and Schrand (2004, p.114) suggest any firm-specific attributes for the weak association are likely to be captured by low earnings-returns relation in a parsimonious fashion.

¹⁵ This is because *EQ* is time variant and, therefore, is not the appropriate specification when one wants to calculate the difference in the marginal effect of a variable across two different periods. *EQRANK* provide one with the ability to make an unequivocal interpretation of the changing marginal effect.

statistics parsimoniously combine the mean and variance of GAAP earnings informativeness in a single variable.¹⁶

LOSS, *NES*, and *CONSENSUS* are empirical proxies for the firm's opportunistic disclosure motives. *LOSS*, *NES*, and *CONSENSUS* are dichotomous variables, respectively coded as 1 if a firm has a GAAP loss, negative seasonally differenced GAAP EPS, or GAAP EPS falling short of the consensus EPS estimates, 0 otherwise. *LOSS*, *NES*, and *CONSENSUS* represent circumstances where firms may disclose non-GAAP earnings in order to mask poor GAAP earnings that fall short of various earnings benchmarks.¹⁷ These empirical proxies follow from the previous discussion of non-GAAP earnings as a possible means to alter investors' perception of firm performance (Hirshleifer and Teoh 2003, Lougee and Marquardt 2004; Doyle et al. 2004).¹⁸ Thus, if managers disclose non-GAAP earnings to mask poor GAAP earnings performance falling short of various earnings benchmarks (i.e., opportunistic motives), I expect positive and significant associations between *NG* and *LOSS*, *NES*, and *CONSENSUS*, respectively (i.e., positive and significant β_2 , β_3 , and β_4 in (1)).

¹⁶ The results of this dissertation are almost identical when I replace *EQRANK* with *EQ*, α_1 , and the rank of α_1 . The results are qualitatively similar but statistically weaker when I replace *EQRANK* with R^2 or the rank of R^2 .

¹⁷ When identifying *LOSS* and *NES*, I use diluted GAAP EPS excluding extraordinary items and discontinued operations (Data 9) after adjusting for stock splits. When identifying *CONSENSUS*, I compare GAAP EPS excluding extraordinary items and discontinued operations with the most recent mean consensus EPS forecast before the current quarter's earnings announcement date. In making this comparison, I use either basic (Data 19) or diluted (Data 9) GAAP EPS depending upon whether the corresponding EPS consensus forecast is basic or diluted. I extract the mean consensus EPS from the I/B/E/S unadjusted summary file and consider the stock splits factor to address the concern of rounding errors (Payne and Thomas 2003). For REIT (real estate investment trust) firms, I use FFO (funds from operations) forecasts, if available, for the comparison.

¹⁸ Out of the three earnings benchmarks described in DeGeorge et al. (1999), academic evidence suggests that firms appear to focus more on avoiding negative earnings surprises (i.e., missing the analysts' consensus EPS) than losses or negative seasonally differenced earnings (e.g., Brown and Caylor 2005, Matsumoto 2002). However, the survey of Graham et al. (2005) documents that U.S. CFOs themselves believe that the prior year's quarterly EPS is the most important yet hardest-to-beat number. Also, some argue that the kinks around earnings and earnings changes distribution may not be evidence of managers' efforts to meet or beat benchmarks (Durtschi and Easton 2005).

I also control for a vector of firm characteristics known to be associated with non-GAAP earnings disclosures and other voluntary disclosures.¹⁹ I include special items (*SI*, expected sign: –) because there often is a mechanical association between non-GAAP earnings and negative special items. I include the log of market capitalization (*LN MKT*, +), the book to market ratio (*BTM*, –), the debt to asset ratio (*LEVERAGE*, +), and the amount of intangible assets (*INTANGIBLE*, +) to capture the firm’s overall voluntary disclosure environment. I include the Herfindahl-Hirschman Index (*HHI*, –) to capture the firm’s propensity, if any, to conceal information due to competition. I also include the dichotomous variable indicating high litigation industries (*LITIGATIONIND*, ?) to capture the firm’s propensity, if any, to avoid additional disclosure for litigation concerns

I infer the consequences of Reg G on managers’ strategic disclosure motives by comparing coefficients on *EQRANK*, *NES*, *LOSS*, and *CONSENSUS* across two time periods.²⁰ If Reg G has decreased (increased) the propensity of firms with opportunistic disclosure to provide non-GAAP earnings disclosures, I expect the assumed positive associations between *NG* and *LOSS*, *NES*, and *CONSENSUS* (i.e., β_2 , β_3 , and β_4) to be weaker (stronger) in the post-Reg G period than in the pre-Reg G period respectively:

$\beta_{2_POST} - \beta_{2_PRE} < 0$, $\beta_{3_POST} - \beta_{3_PRE} < 0$, $\beta_{4_POST} - \beta_{4_PRE} < 0$ ($\beta_{2_POST} - \beta_{2_PRE} > 0$, $\beta_{3_POST} - \beta_{3_PRE} > 0$, $\beta_{4_POST} - \beta_{4_PRE} > 0$). If Reg G has increased (decreased) the propensity of firms with communication motives to non-GAAP earnings disclosures, I expect the assumed negative association between *NG* and *EQRANK* to be statistically stronger

¹⁹ This should mitigate concerns that non-GAAP earnings is a part of voluntary disclosure strategy that merely depicts the firm’s overall voluntary disclosure environment.

²⁰ These two disclosure motives may not be mutually exclusive. For example, *LOSS*, *NES*, and *CONSENSUS* firms may have legitimate reasons to communicate better. By including *EQRANK* as another variable, Equation (1) allows the possibility of the co-existence of these two disclosure motives for a given firm-quarter.

(weaker) in the post-Reg G period than in the pre-Reg G period: $\beta_{1_POST} - \beta_{1_PRE} < 0$

($\beta_{1_POST} - \beta_{1_PRE} > 0$).

5.2. Comparison of the Market's Perception of the Transparency of non-GAAP Earnings

Assessing whether investors' perception of the transparency of non-GAAP earnings disclosures are consistent with inferences drawn from the change in managers' disclosure motives (H3), I run the OLS regression of three-day size adjusted cumulative returns on both non-GAAP earnings surprises and GAAP earnings surprises after controlling for known covariates (i.e., book-to-market ratio and losses) and the interaction terms of these covariates with GAAP earnings surprises. I believe that this approach is better than an alternative approach of regressing long-run returns on non-GAAP adjustment and other risk factors (see Appendix D). See equation (3). Note that the sample in this test is restricted to firms that provide both GAAP and non-GAAP earnings surprises,²¹ limiting test observations to firms reporting GAAP and non-GAAP numbers both in the current quarter and in the four quarters prior.

²¹ Many firms that disclose non-GAAP earnings also disclose comparable four quarters ago non-GAAP earnings numbers. In such cases, I extract information about non-GAAP earnings surprises from the current quarter press release. However, in some cases, firms simply provide the current period non-GAAP earnings and there is no available four quarters ago non-GAAP earnings information from the current quarter press release. In the latter cases, I try to locate the four quarters ago press releases and extract non-GAAP earnings, if any. If I still cannot find the four quarters ago non-GAAP earnings, the observation is treated as missing. If there is a systematic sample selection bias such that only transparent reporters provide non-GAAP earnings surprises, the result from my study is biased toward the effectiveness of Reg G. In order to mitigate this bias, I use an alternative specification of earnings surprises (i.e., using I/B/E/S consensus EPS as the market's expectation) and find similar results. I do not report this alternative specification in the table because of the known fundamental econometric problems with using I/B/E/S as proxy for actual earnings (see Bradshaw 2003, p.331).

$$\begin{aligned}
SADJRET = & \gamma_0 + \gamma_1 UE_GAAP + \gamma_2 UE_NONGAAP + \gamma_3 POST \\
& + \gamma_4 UE_GAAP \cdot POST + \gamma_5 UE_NONGAAP \cdot POST \\
& + \gamma_6 LOSS + \gamma_7 BTM + \gamma_8 LOSS \cdot UE_GAAP + \gamma_9 BTM \cdot UE_GAAP + \varepsilon \\
& (3)^{23} \text{ (firm/quarter index omitted)}
\end{aligned}$$

Where

SADJRET is cumulative abnormal returns, defined as the sum of size adjusted daily returns over the three-day window (-1, 0, +1), where 0 is the date of the preliminary earnings announcement press release. Note that size factor for returns is implicitly controlled by size-adjusted returns.

UE_GAAP (*UE_NONGAAP*) is seasonally differenced quarterly GAAP (non-GAAP) earnings deflated by the market capitalization at the beginning of the current fiscal quarter adjusted by stock splits factor, and

POST is an indicator variable coded as 1 if the earnings announcement date for a fiscal quarter is after March 2003, 0 otherwise.

LOSS is an indicator variable coded as 1 if GAAP earnings is negative, otherwise 0.

BTM is the book to market ratio capturing growth factor.

If Reg G has discouraged firms with opportunistic disclosure motives from providing non-GAAP earnings disclosures *and* reconciliation information helps investors better appreciate the information content of non-GAAP earnings post-Reg G, I expect the assumed positive associations between *SADJRET* and *UE_NONGAAP* to be stronger in the post-Reg G period than in the pre-Reg G period (i.e., $\gamma_5 > 0$). If Reg G has discouraged firms with communication motives from presenting non-GAAP earnings disclosures *and* reconciliation information helps investors better discern managers' strategic motives post-Reg G, I expect the assumed positive associations between *SADJRET* and

²³ Note that size is implicitly controlled by the dependent variable. I choose this implicit SIZE control due to a high variance inflation factor score (i.e., if I include SIZE in the regression, the mean VIF is greater than 10).

UE_NONGAAP to be weaker in the post-Reg G period than in the pre-Reg G period (i.e., $\gamma_5 < 0$). Alternatively, if Reg G has discouraged firms with both opportunistic and communication motives relating to non-GAAP earnings disclosures, I may not expect the assumed positive association between *SADJRET* and *UE_NONGAAP* to be statistically different across the pre- and the post-Reg G periods (i.e., $\gamma_5 = 0$).

I also run a test as to whether POST coefficients on *UE_GAAP* and *UE_NONGAAP* are different from each other (i.e., $(\gamma_5 - \gamma_2) = (\gamma_4 - \gamma_1)$) to mitigate a concern that γ_5 may merely capture a factor associated with contemporaneous changes in both GAAP EPS and non-GAAP EPS.

The test described in this chapter provides confirmatory evidence as to whether investors' perceptions of the information content of non-GAAP earnings disclosures are consistent with evidence provided by equation (1). I do not draw direct inferences about the effectiveness of Reg G from this test without parallel evidence from disclosure equation (1), because my market test expectations are based on the joint hypothesis of market efficiency and managers' disclosure motives changes.

CHAPTE 6: SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

6.1. Sample Selection

I first determine sample firms of interest and then manually collect press releases for those firms over the sample period, constructing sample firm-quarters similar to a panel dataset. Table 1 summarizes my sample selection approach. I randomly draw 1,000 firms from the intersection of CRSP and COMPUSTAT as of 2004. Sample firms in the initial random sampling meet the following criteria: (1) the fiscal quarter ends (i.e., FQENDDT in COMPUSTAT) in 2001:01-2004:06 range, (2) membership on NYSE/AMEX/NASDAQ, and (3) availability of EPS data from 1999 to 2004. The first requirement makes sure that inferences are not confounded by including the pre-Regulation Fair Disclosure (Reg FD) periods (e.g., my sample encompasses only post Reg FD periods).²⁴ The second requirement is added to facilitate the acquisition of press releases of sample firms from public databases. The final requirement provides sufficient time-series of observations to permit estimation of an empirical proxy for communication motives (t-statistics from firm-specific regressions of returns on GAAP EPS). This process yields 13,913 initial firm-quarters.

I search preliminary earnings announcement press releases of those firms, collecting 12,238 press releases from 944 firms.²⁵ I include sample firms that have less

²⁴ In the pre-Reg FD period, the nature and form of communication between firms and investors in conference calls and other voluntary disclosures may have differed because there was no requirement to inform all investors of disclosures made to a few. Reg FD imposed such a requirement.

²⁵ I first search PR News Wire and Business News Wire through FACTIVA to locate preliminary earnings announcement press releases of sample firms. If I cannot locate press releases of a sample firm through FACTIVA, I further search the sample firm's website (typically, the investor relations section) to locate press releases. If I fail to locate press releases even at the company's website, I further search business journal articles that seem to "relay" press releases. The number of "relay" cases was less than 1% of total observations (107 out of 12,238).

than or equal to one missing observation in their time-series to make my sample firm-quarters similar to a panel dataset (792 firms' 10,896 firm-quarters).²⁶ Out of 10,896 press releases, I identify 3,228 non-GAAP earnings disclosures. I exclude 34 more firms (281 firm-quarters) for my probit regression due to unavailability of financial statement variables. Finally, out of 3,228 non-GAAP earnings disclosures, I use in my market test 2,458 firm-quarters where non-GAAP earnings surprises for both the current quarter and four quarters ago are available.²⁷

6.2. Descriptive Statistics

Table 2 provides descriptive statistics about the frequency of non-GAAP earnings over time. I first divided the sample firm-quarters into three regulatory regimes based on their earnings announcement dates: (1) 2001:01–2001:12 (pre Reg G (1) period), (2) 2002:01–2003:03 (pre Reg G (2) period), and (3) after 2003:03 (post Reg G period) to check whether other preceding events in the pre-Reg G (2) period (e.g., the SEC's cautionary advice as of December 2001, a series of corporate scandals, or the passage of Sarbanes-Oxley Act of 2002 etc.) affected the disclosure frequency of non-GAAP earnings prior to issuance of Reg G. For the three time periods, 34.6%, 33.96%, and 23.27% of firm-quarters disclosed non-GAAP earnings in their preliminary earnings announcement press releases, respectively.

²⁶ The proportion of firms issuing preliminary earnings releases is qualitatively similar to what Amir and Livnat (2005) found: "80% of companies consistently issue preliminary earnings announcements to the market through a press release prior to their SEC filings (Prelims), 8% consistently file 10Q/Ks without first issuing a preliminary earnings press release (Filers). The remaining 12% use a mixed strategy."

²⁷ I assume seasonal random walks of both GAAP and non-GAAP earnings in calculating earnings surprises. I do not use consensus EPS estimate for the market's expectation because such an approach introduces an errors in variables problem in favor of the informativeness of non-GAAP earnings (see Bradshaw 2003, p.331).

This result is consistent with Heflin and Hsu (2005) and Marques (2005) in terms of the overall declining reporting frequency (see Figure 2). However, there is a subtle difference between my result and their results. First, disclosures are most prevalent in the highly capitalized firms (S&P 500 firms) followed by bigger firms (I/B/E/S-COMPUSTAT firms), then by my sample firms. This implies that inferences drawn from highly capitalized firms (S&P 500 or I/B/E/S firms) may not depict the changing landscape of non-GAAP disclosure in the population when disclosures are correlated with firm characteristics (e.g., here, SIZE). Second, a χ^2 test of independence shows that there is no significant frequency difference between pre Reg G (1) period and pre Reg G (2) period (p-value=0.60). The decline in frequency of disclosures occurs only after Reg G is effective (p-value < 0.001). This indicates that the decreased frequency of non-GAAP earnings in my sample firm-quarters is not likely to be triggered by other preceding events. Thus, for the remainder of this paper, I provide various analyses based on two regulatory time periods; the pre- and post-Reg G periods (i.e., 2001:01–2003:03 vs. 2003:04–2004:08).²⁸

Table 3 provides industry breakdowns (Barth et al. 1998) for the disclosure of non-GAAP earnings. Reflecting my random selection procedure, the industry composition of sample firm-quarters (row (2)) closely parallels that of COMPUSTAT/CRSP firms as of 2004 (row (1)). The industries where non-GAAP

²⁸ Fiscal end quarter periods of my sample firms span from 2001:01 to 2004:06. Correspondingly, periods of preliminary earnings announcement releases span from 2001:01 to 2004:08.

earnings are more pronounced than their sample composition (row (6)) include insurance and real estate, chemicals, computer, transportation, and service and others.²⁹

Table 4 compares non-GAAP EPS, I/B/E/S actual EPS, GAAP EPS excluding extraordinary items and discontinued operations, and S&P Core EPS (see Blitzer and Friedman (2002) for the definition) across two regulatory time periods conditional upon non-GAAP earnings disclosures. Three points are noteworthy. First, all EPSs but non-GAAP EPS have increased over time ((a) through (d), p-values less than 0.05 except the mean difference of non-GAAP EPS), indicating that earnings performance in the post-Reg G period is better than in the pre-Reg G period. Second, non-GAAP EPS always is greater than other EPS metrics ((e) through (g), p-values less than 0.01), but the magnitude of difference between non-GAAP EPS and other EPSs vary across EPS definitions. This implies earnings adjusted by managers are not identical to earnings adjusted by other constituents (i.e., equity or credit analysts). Third, upward biases in non-GAAP earnings have decreased somewhat over time. Compared to GAAP EPS, the upward bias in non-GAAP earnings seems to have decreased over time (see the row (f) and columns (h) and (i), p-values less than 0.01). However, I do not find a similar decrease regarding I/B/E/S Actual EPS and S&P Core EPS (except the mean statistics in (e) and (h)). This raises the possibility that researchers can make an erroneous inference regarding the effect of Reg G when they restrict their sample firms to samples followed by specific constituents or screened by specific firm characteristics (e.g., highly capitalized firms).

²⁹ Some may view that the results of this dissertation are confounded by a 9-11 effect because of the high frequency of non-GAAP earnings disclosures in the transportation industry in Table 3. However, the results are unaffected after dropping this industry in my tests for H1 through H3.

I collect exact labels used for non-GAAP earnings in each press release to provide descriptive statistics about various nomenclatures which firms employ for their non-GAAP earnings disclosures.³⁰ Surprisingly, Table 5 reports that “pro-forma” earnings and its variations constitute only 13% of the nomenclatures, preceded by “earnings excluding xxx” and “(adjusted) EBITDA and its variation.” The implication is that key-word search using a specific string (e.g., “pro-forma”) may generate under-represented sample firm-quarters if such firms’ labeling choices are endogenously determined by firm’s opportunistic disclosure motives.

Finally, Table 6 provides descriptive statistics about adjustments firms make across the two time periods. Two points are noteworthy. First, while the restructuring charge adjustment has increased, amortizations adjustments have decreased over time. This implies that FAS 142, but not FAS 146, may contribute slightly to the decreased frequency of non-GAAP earnings in the post-Reg G period.³¹ Second, non-recurring/special items not clearly specified in press releases has slightly decreased but still remains in the post-Reg G period, implying that the consequence of Reg G on the transparency of non-GAAP earnings is still an empirical question.

³⁰ Untabulated descriptive statistics indicate that about 14.3% of sample firms that disclose non-GAAP earnings provide more than one non-GAAP earnings metric, and that the frequency of multiple non-GAAP earnings conditional upon non-GAAP earnings disclosures has decreased over time (19.43% in the pre-Reg G period vs. 9.6% in the post-Reg G period, χ^2 test independence p-value <0.01).

³¹ Beginning after December 15, 2001 FAS 142 requires that intangible assets with indefinite lives no longer be amortized over their useful life (i.e., previously up to forty years), but rather be subject to annual tests of validity of the previous assigned value. To the extent that the frequency of both amortization and related non-GAAP adjustments decreases, the frequency of non-GAAP earnings disclosures is expected to decrease.

CHAPTER 7: EMPIRICAL RESULTS

7.1. Characteristics of Disclosed non-GAAP earnings

In Table 7, 8, and 9, I provide descriptive statistics of various properties regarding “disclosed” non-GAAP earnings. In Table 7, I provide descriptive statistics of the presentation quality of non-GAAP earnings in press releases. *EMPSCORE* measures the emphasis placed on non-GAAP earnings (e.g., Bowen et al. 2005), coded from 3, where non-GAAP earnings was highlighted in the headline or in the lead paragraph of press releases over GAAP earnings, to 0, where non-GAAP earnings are not emphasized at all. *DISQUAL* measures the amount of reconciliation information provided in press releases (e.g., Zheng and Zhang 2005; Wallace 2002), coded from 3, where the firm provides a detailed pro-forma income statement or a tabular/columnar reconciliation table, to 0, where there is no clear definition of non-GAAP earnings. Panel A shows that firms are less likely to emphasize non-GAAP earnings in the post-Reg G period than in the pre-Reg G period (Z -value <0.001). Also, firms are more likely to provide detailed reconciliation information in the post-Reg G period than in the pre-Reg G period (Z -value <0.001). These results suggest that reporting firms have complied with Reg G requirements, improving the presentation quality of non-GAAP earnings in preliminary earnings announcements.

Table 8 presents descriptive statistics relating to whether disclosed non-GAAP earnings make the firm’s ability to meet or beat earnings benchmarks look better. The frequency of non-negative non-GAAP earnings masking GAAP losses (*HYPE_LOSS*) has not decreased over time (row (1) and (2)). The frequency of positive seasonally

differenced non-GAAP earnings masking negative seasonally differenced GAAP earnings (*HYPE_NES*) has declined (from 13.43% to 10.26%, p-value 0.01, row (3)). Once non-GAAP earnings are disclosed for negative seasonally differenced GAAP earnings, however, the frequency of positive seasonally differenced non-GAAP earnings does not change over time (p-value=0.961, row (4)). Rows (5) and (6) suggest that the firm's tendency to disclose non-GAAP earnings masking GAAP earnings falling short of analysts' consensus earnings forecasts has slightly decreased over time both with and without the condition of GAAP earnings falling short of consensus earnings. Finally, the percentage of non-GAAP earnings that were adjusted downward from GAAP earnings (*NEGADJ*) has increased over time by 4.62% (p-value < 0.01), suggesting firms in the post-Reg G period are more likely to clearly communicate by disclosing non-GAAP earnings, because these firms apparently had an option not to disclose income decreasing non-GAAP earnings.³² Overall, the descriptive statistics of "disclosed" non-GAAP earnings in Table 8 provide mixed preliminary (univariate) evidence on whether Reg G curtails the firm's general tendency to present non-GAAP earnings opportunistically.

One thing to note is that *EMPSCORE* and *DISCQUAL* are positively correlated (p-values <0.001), suggesting that firms emphasizing non-GAAP earnings are more likely to provide detailed reconciliation information (Table 9). This is consistent with Hutton et al. (2003), finding that firms are more likely to provide additional quantitative disclosures when they need to bolster the credibility of their favorable voluntary disclosures.

³² For example, Hirshleifer and Teoh's model (2003) characterizing the pro-forma earnings disclosure decision views GAAP earnings as a lower-bound of management defined earnings. Many financial press articles also indicate that pro-forma earnings are always income increasing. Thus, firms that disclosed non-GAAP earnings that are lower than GAAP earnings are likely to have a motivation to better communicate with investors by disclosing non-GAAP earnings.

7.2. Changes in Disclosure Motives across Time (H1 & H2, Equation (1))

H1 and H2 suggest two alternative explanations for the decline in non-GAAP earnings reports post Reg G. Table 10 compares the characteristics of firms that disclose and do not disclose non-GAAP earnings across the pre- and post-Reg G time periods. In the pre-Reg G period, firms that disclose non-GAAP earnings have lower *EQ* and *EQRANK* and higher *LOSS*, *NES*, and *CONSENSUS* than firms that do not. This is consistent with the notion that, in the pre-Reg G period, *both* firms with low earnings relevance (i.e., firms with communication motives) and firms with poor GAAP earnings performance (i.e., firms with possible opportunism motives) disclose non-GAAP earnings. Although these differences also are similarly pronounced in the post-Reg G period, the difference in *EQRANK* seems to be bigger in the post-Reg G period than in the pre-Reg G period while the differences in *LOSS*, *NES*, *CONSENSUS* seem to be either smaller or insignificant in the post-Reg G period than in the pre-Reg G period.

Table 11 shows both Pearson (upper) and Spearman (lower) correlations of the dependent variable (*NG*), independent variables (*EQRANK*, *NES*, *LOSS* and *CONSENSUS*) and control variables. Consistent with the descriptive statistics in Table 10, the disclosure of non-GAAP earnings (*NG*) are significantly correlated with independent variables (*EQRANK*, *NES*, *LOSS* and *CONSENSUS*) in predicted directions (negative for *EQRANK* and positive for *LOSS*, *NES*, and *CONSENSUS*) in both the pre- and the post-Reg G period. While the coefficients for *NG* and *EQRANK* are higher in the post-Reg G period than in the pre-Reg G period, the coefficients for *NG* and

LOSS/NES/CONSENSUS are smaller in the post-Reg G period than in the pre-Reg G period.

Table 12 provides the results from the probit regression examining non-GAAP earnings disclosure motives both pre- and post-Reg G. Within each regression (column (A) and (B)), all control variables have the expected signs and are statistically significant except the high litigation industry dummy variable (*LITGATIONDUM*), which had no predicted sign. Firms with negative special items (*SI*) are more likely to provide non-GAAP earnings. Firms with higher market value (*LNMKT*), more leverage (*LEVERAGE*) and greater intangible assets (*INTANGIBLE*) are more likely to provide non-GAAP earnings. Firms with higher growth potential (*BTM*) and lower competition (*HHI*) are more likely to conceal information (e.g., Bamber and Cheon 1998).

Column (A) of Table 12 shows the association between *NG* and non-GAAP earnings disclosure motives in the pre-Reg G period. I do not find a significant negative association between *NG* and *EQRANK* in the pre-Reg G period (column (a), p-value 0.197). In contrast, I find evidence consistent with firms with opportunistic motives (*LOSS*, *NES*, and *CONSENSUS*) disclosing non-GAAP earnings in the pre-Reg G period (column (a), p-values 0.000 respectively). The results in column (A) imply that firms primarily disclosed non-GAAP earnings for opportunistic but not communication motives in the less regulated environment. Column (B) of Table 12 shows the association between *NG* and disclosure motives in the post-Reg G period. I find a significant negative association between *NG* and *EQRANK*, suggesting that firms with communication motives disclose non-GAAP earnings in the post-Reg G period. While I

also find significant positive associations between *NG* and *LOSS/CONSENSUS*, I do not find such an association between *NG* and *NES* in the post-Reg G period.

In order to assess whether Reg G affects the magnitude of these associations over time (H1 and H2), I compare the coefficients of disclosure motive variables across the two time periods (χ^2 statistic from the Chow test in column (C)).³³ The coefficient difference on *EQRANK* across time is negative and significant (p-value=0.029), suggesting that the propensity of firms to disclose non-GAAP earnings for better communication has increased over time.³⁴ Specifically, compared to firms at the top of *EQRANK*, firms at the bottom of *EQRANK* (i.e., higher communication motives) in the post-Reg G period are about six percent more likely to disclose non-GAAP earnings than in the pre-Reg G period. In parallel, the positive association between *NG* and *LOSS* is lessened in the post-Reg G period (p-value=0.059), suggesting that compared to profit firms, *LOSS* firms in the post-Reg G period are about seven percent less likely to disclose non-GAAP earnings than *LOSS* firms in the pre-Reg G period. Similarly, while *NES* firms in the pre-Reg G period are 5.7% more likely to disclose non-GAAP earnings, this tendency no longer exists in the post-Reg G period (see column (B), p-value=0.135). The results regarding *LOSS* and *NES* suggest that the propensity of firms to issue non-GAAP earnings to opportunistically mislead investors' perceptions about GAAP earnings performance has decreased over time.

All of these results (*EQRANK*, *LOSS*, and *NES*) are consistent with Reg G having the consequences intended by Congress and the SEC. However, I do not find similar

³³ Consistent with my discussion, it appears that FAS 142 contribute to the decreased frequency of non-GAAP earnings. See the change of coefficients on *INTANGIBLE* in column (C) (P-value<0.01).

³⁴ In order to measure the economic effect, I use the coefficient estimates in the model to calculate the marginal effect of *EQRANK*, *LOSS*, *NES* and *CONSENSUS* on the probability of presenting non-GAAP earnings (Wooldridge 2002).

evidence on the association between *NG* and *CONSENSUS*. That is, firms with GAAP earnings falling short of consensus EPS estimates in the post-Reg G period are 2.5% more likely to disclose non-GAAP earnings than the similar firms in the pre-Reg G period (p -value=0.032). This finding suggests that regulation of non-GAAP earnings may not have alleviated the concern that firms use non-GAAP earnings' to meet or beat analysts' consensus EPS forecasts. We need to recall, however, the result in Table 8 that the frequency of "disclosed" non-GAAP earnings that actually meet or slightly beat the consensus EPS by up to 2 cents has decreased over time (4.53% difference, p -value=0.046). Taken together, the evidence from this section is likely to be more consistent with Reg G having consequences consistent with the objectives of Congress and the SEC.

7.3. Changes in the Market's Perception of the Transparency of non-GAAP Earnings

The previous section suggests that managers with benign communication motives (opportunistic motives) are more (less) likely to provide non-GAAP earnings in the post-Reg G period than in the pre-Reg G period. This section provides confirmatory evidence on whether investors' perceptions of the transparency of non-GAAP earnings are consistent with these changes in managers' disclosure motives by examining whether the incremental information content of non-GAAP earnings surprises over GAAP earnings surprises changes pre- and post-Reg G.

Table 14 presents the results of OLS regression of equation (3). The sample in this test is restricted to a sub-sample of firms where sufficient time series data exist to

calculate seasonal difference in non-GAAP earnings (2,458 observations out of 3,228 non-GAAP disclosures observations). After running the model using the initial 2,458 observations, I eliminated 141 influential observations.³⁵ The coefficient on GAAP earnings surprises (*UE_GAAP*) is positive in the pre-Reg G period, but only marginally (P-value=0.096). This is not surprising because firms that disclose non-GAAP earnings are more likely to exhibit low GAAP earnings quality. The coefficient on non-GAAP earnings surprise (*UE_NONGAAP*) in the pre-Reg G period is positive but statistically insignificant. The incremental information content of non-GAAP earnings in the pre-Reg G period may not be significant for two possible reasons: (1) investors perceive that firms were disclosing non-GAAP earnings previously for opportunistic motives and/or (2) investors cannot discern the disclosure motives but are so skeptical about the information content of all non-GAAP earnings that they undervalue non-GAAP earnings disclosures provided for either reason. The sample period of prior studies reporting the incremental information content of actual non-GAAP earnings covers years preceding 2001. Thus, the results may reflect skeptical investors in 2001 and 2002 years due to recent corporate scandals.³⁶

³⁵ Following Belsley, Kuh and Welsch (1980), I identified 141 observations that have the absolute value of *RSTUDENT* greater than 2 or the absolute value of *DFITTS* greater than $2 \cdot \sqrt{2,458 \text{ obs}/9 \text{ variables}}$. The estimation provided in Table 14 is the result excluding those influential observations. The sign and the significance of two interaction terms of interest do not change when including those influential observations. Because I controlled for the size effect implicitly by using size adjusted returns, multicollinearity does not seem to affect the estimation (the mean variance inflation factor score is just 1.12). Possible heteroskedasticity is controlled for by providing heteroskedasticity-robust estimation.

³⁶ Untabulated results show that the incremental information content of non-GAAP earnings is more significant when GAAP earnings are less relevant (i.e., $EQRANK \geq 50$) than when GAAP earnings are more relevant in the pre-Reg G period (i.e., $EQRANK < 50$). This suggests that the market distinguishes the transparency of non-GAAP earnings based on historical GAAP earnings' relevance. However, the incremental information content of non-GAAP earnings in the pre-Reg G period does not vary based upon *NES*, suggesting that the market's ability to distinguish non-GAAP earnings' transparency might have been limited.

In contrast, the coefficients on both UE_GAAP ($\gamma_1 + \gamma_4$, p-value=0.0054) and $UE_NONGAAP$ ($\gamma_2 + \gamma_5$, p-value=0.0198) in the post-Reg G period are positive and significant, suggesting both GAAP earnings and non-GAAP earnings are priced in the post Reg G period. The interaction term of *POST* and *UE_GAAP* (γ_4) is positive and marginally significant at the 0.07 level, indicating that the information content of earnings surprises in the post-Reg G period increases (consistent with Table 10 of Heflin and Hsu (2005)). The variable of interest in this study is the incremental information content of non-GAAP earnings surprises in the post-Reg G period ($POST*UE_NONGAAP$). The coefficient of the interaction term (γ_5) is positive and significant (p-value=0.028), suggesting that the information content of non-GAAP earnings surprises in the post-Reg G period also increases. *LOSS*, *BTM* and the interactions of *LOSS* and *BTM* with *UE_GAAP* all have predicted signs but *BTM* related variables are not statistically significant.

Some may view, however, that the increases in the coefficients of both GAAP and non-GAAP earnings in the post Reg G period imply other contemporaneous changes rather than the Reg G effect. In order to mitigate this concern, I first provide the test result that the *POST* coefficient $UE_NONGAAP$ is greater than the *POST* coefficient on UE_GAAP . Table 14 suggests that while the combined coefficients of the pre- and post- UE_GAAP (i.e., $\gamma_1 + \gamma_4$) and $UE_NONGAAP$ (i.e., $\gamma_2 + \gamma_5$) are significantly different from zero, the information content change of non-GAAP earnings over the two periods (i.e., $(\gamma_5 - \gamma_2)$) is greater than that of GAAP earnings (i.e., $(\gamma_4 - \gamma_1)$) (p-value of 0.0575), suggesting that the significant and positive γ_5 is not merely the manifestation of a contemporaneous factor associated with both GAAP and non-GAAP EPS.

In order to further investigate the source of non-GAAP earnings' incremental informativeness in the post Reg G period, I run the same regression for two sub-sets of firms that discontinued and continued disclosing non-GAAP earnings in the post Reg G period. First, Table 15 suggests that firms that disclosed non-GAAP earnings in both the pre- and post-Reg G periods show the incremental informativeness of non-GAAP earnings even in the pre-Reg G period. For this type of firms, the incremental informativeness in the post Reg G is not observed. When I regress the size adjusted returns on both GAAP and non-GAAP earnings for the firms that discontinued disclosing non-GAAP earnings in the post-Reg G period (Table 16), however, I find that both GAAP and non-GAAP earnings are not informative. Thus, Table 15 and 16 suggest that results in Table 14 are likely to come from the fact that firms that had noisy non-GAAP earnings had dropped their non-GAAP earnings disclosures in the post-Reg G period.

Overall, the results presented in Table 14 through Table 16 are consistent with the idea that investors in the post-Reg G period are more likely to value the information content of non-GAAP earnings. Assuming market efficiency, I interpret the results as evidence consistent with the story that Reg G affects managers' disclosure motives of non-GAAP earnings in a more transparent way, and investors concurrently view non-GAAP earnings as more transparent in the post-Reg G period.

CHAPTER 8: CONCLUSION

In this dissertation, I examine whether the decreased frequency of reporting non-GAAP earnings in the post-Regulation G period reflects either intended or unintended consequences of Congressional intervention. Based on 792 firms' quarterly earnings announcement press releases spanning from 2001 to mid 2004, I first document that firms in the post-Regulation G period provide more information reconciling non-GAAP earnings to GAAP earnings and put less emphasis on non-GAAP earnings over GAAP earnings than in the pre-Reg G period. Thus, firms appear to be complying with Reg G's requirements.

Borrowing from prior literature that posits firms may have two strategic disclosure motives (communication vs. opportunism) for the disclosure of non-GAAP earnings, I examine how managers' underlying strategic motives change over the pre- and the post-Reg G periods. Specifically, I regress the disclosure of non-GAAP earnings on variables (1) measuring GAAP earnings' historical relevance (proxied by t-statistics from a firm-specific returns-earnings regression) and (2) identifying situations where firms have the incentives to disclose non-GAAP earnings to mask the fact that GAAP has fallen short of various earnings benchmarks (zero, last year same quarter earnings, and consensus EPS from analysts). The results from the probit regression suggest that compared to the pre-Reg G period, the same sample firms in the post-Reg G period are more likely to provide non-GAAP earnings when they have low GAAP earnings relevance (i.e., high communication motives). In contrast, compared to the pre-Reg G period, the same sample firms in the post-Reg G period are less likely to provide non-GAAP earnings when they have GAAP losses

or negative seasonally differenced GAAP earnings. Although I do not find the same declining propensity for firms with GAAP earnings falling short of consensus EPS forecasts, descriptive statistics suggest that the frequency of non-GAAP earnings that meet or slightly beat the consensus EPS up to 2 cents decreased over time. Taken together, it appears that Reg G encourages firms with communication motives to continue disclosing non-GAAP earnings while discouraging firms with opportunistic motives from disclosing non-GAAP earnings.

To investigate how investors perceive the transparency of non-GAAP earnings across two regulatory time periods, I regress three-day size adjusted cumulative returns on both seasonally differenced GAAP and non-GAAP earnings. In contrast to the results from most prior studies that used I/B/E/S actual earnings as a proxy for non-GAAP earnings in sample periods preceding my period, I do not find the incremental information content of non-GAAP earnings over GAAP earnings in the pre-Reg G period (2001:01-2003:03). However, I find non-GAAP earnings incrementally informative over GAAP earnings in the post-Reg G period (2003:04-2004:08). The results are consistent with a joint statement that, compared to the pre-Reg G period, firms in the post-Reg G period disclose their non-GAAP earnings in a more transparent way, and investors perceive the increased transparency by assigning significant and positive returns to seasonally differenced non-GAAP earnings.

The current dissertation makes two contributions to the literature. First, my study provides timely and interesting evidence that responds to calls for research on the effects of Reg G (and the Sarbanes-Oxley Act of 2002) on firms' (mis)use of pro-forma earnings disclosures (e.g., Dechow and Schrand 2004, 116; Stuart 2004). This dissertation

examines both temporal change in managers' disclosure motives and temporal change in investors' perceptions of the transparency of non-GAAP earnings to draw inferences about the consequences of Reg G on motives for disclosing non-GAAP earnings. Thus, this dissertation differs from Heflin and Hsu (2005), Marques (2005) and Zheng and Zhang (2005) in that it focuses on (1) *why*, as opposed to whether or not, firms discontinued presenting non-GAAP earnings disclosure following Reg G and (2) whether the capital market's reaction to non-GAAP earnings adjustment is consistent with the implied disclosure motive change post Reg G.

Second, this dissertation adds to the debate on the transparency of pro-forma earnings (e.g., Bradshaw 2003) by providing evidence that pro-forma earnings were used as a means to obfuscate investors' perception about firm performance in the pre-Reg G period. The dual findings of this study that managers report non-GAAP earnings in a more transparent way in the post-Reg G period and that the market values this improvements in non-GAAP earnings transparency in the post-Reg G period suggest that many firms disclosed non-GAAP earnings opportunistically in the unregulated environment. In addition, investors perceived such disclosures as potentially opportunistic, biasing downward the pricing on non-GAAP earnings in the pre-Reg G period.

APPENDIX A: SUMMARY OF THE RULES: “CONDITIONS FOR USING NON-GAAP FINANCIAL MEASURES”

The Rules consist of three parts: (1) Regulation G; (2) amendments to the SEC filings; and (3) amendment to Form 8-K. The role of Regulation G is to provide general guidelines in releasing pro-forma earnings either in SEC filings or other disclosure venues. Amendments to the SEC filings contain specific rules about which items to exclude or include for non-GAAP earnings.

Under the Rules, if firms want to use pro-forma earnings in their SEC filings (e.g. their 10-K), they have to strictly abide by some restrictive rules discussed in (2) below.

However, if firms simply want to disclose pro-forma earnings in public communications other than the SEC filings (e.g. press releases or conference calls), they need only abide by Regulation G.

The Rules require firms that are releasing public non-GAAP earnings disclosures other than SEC filings to provide pro-forma earnings in their Form 8-K. Firms who so utilize their 8-K are treated as “furnishing” this information as opposed to “filing” it. Thus, firms can avoid the calculation restrictions in the SEC filings for pro-forma earnings in the 8-K. I will explain the role of the three rules below.

(1) *Regulation G*: This regulation requires firms to present: (1) the most directly comparable financial measure according to GAAP; and (2) a reconciliation of the differences between GAAP and non-GAAP measures in the form of schedules or any other clearly understandable method, when firms release any non-GAAP measures publicly. There is no definition of “most directly comparable GAAP measures” in the

Rules. However, footnote 26 of the Rules provides general guidance. For example, if a firm uses pro-forma earnings (e.g. self-defined cash flows), the firm may present equivalent GAAP earnings (cash flows.)

Although the regulatory focus of Regulation G is pro-forma earnings, Regulation G also applies to non-GAAP financial measures to circumscribe all measures that are different from a performance measurement in GAAP or a measure of liquidity in Statement of Cash Flow under GAAP. Thus, not only alternative performance measures (e.g. pro-forma earnings, cash earnings, adjusted earnings, etc.) but also alternative liquidity measures (e.g. Tyco International’s self-defined “free cash flow from operations”) and other operational measures are also covered by Regulation G. This regulation G applies to all entities except for registered investment companies if the entity publicly releases or discloses any material information that includes non-GAAP financial measures.

(2) *Amendments to Item 10 of Regulation S-K (the SEC filings)* The purpose of the amendments is to govern a case where a registrant presents non-GAAP financial measures in its SEC filings. In such cases, in addition to Regulation G’s two presentation requirements, a firm must present the most directly comparable GAAP financial measures “with equal or greater prominence” and add two additional statements: (1) disclosure as to why management believes non-GAAP financial measures are useful; and (2) disclosure of any additional purposes for which management uses non-GAAP measures paragraphs (e)(1)(ii) of Item 10 (considered “additional disclosures.”)

In addition, the Rules impose additional direct restrictions on the presentation of non-GAAP information in SEC filings (paragraphs (e)(1)(ii) of Item 10, considered “calculation constraints.”). That is, non-GAAP financial measures in the SEC filings should: (1) not exclude cash settlement charges or liabilities; (2) not use non-GAAP earnings to remove or smooth items described as non-recurring if such items are likely to recur within 2 years or occurred within the previous 2 years; and (3) not present non-GAAP earnings on the face of the GAAP financial statements. Commentators seem to agree these constraints would effectively stamp out pro-forma earnings in SEC filings (KPMG 2003).

Thus, it is generally expected many firms would use pro-forma earnings in alternative disclosure venues other than 10-K. However, even in that case, the Rules still require firms to provide pro-forma earnings information in 8-K as follows.

(3) *The amendment to Form 8-K*: This change adds a new Item 12 to Form 8-K, which requires that whenever an entity discloses material non-public information regarding results of operations or financial conditions for a completed quarterly or annual period, the firm must provide such information dissemination in the Form 8-K within 5 business days. Earnings releases are highly likely to be simultaneously subject to Regulation FD (Item 9 in Form 8-K), which also requires firms to furnish earnings releases to 8-K. Thus, Form 8-K could meet both regulations if disclosure of non-GAAP were furnished to the SEC within the common timeframe of both requirements.

Although it seems the pro-forma earnings provided for Form 8-K are subject to the aforementioned calculation constraints for the SEC filings, the Rules explicitly treat

this information provision as “furnishing” rather than as filing under item 5 of Form 8-K. This special treatment in the Rules (as opposed to filing with the SEC) allows firms to enjoy two important benefits: (1) furnished (as opposed to filed) information is not directly subject to Section 18 (Liability for Misleading Statements) of the Exchange Act; and (2) furnished (as opposed to filed) information is not subject to the aforementioned calculation constraints for the SEC filings.

Form 8-K information provision applies to any releases or announcements irrespective of the inclusion of non-GAAP financial measures. However, if such releases include non-GAAP financial measures, they trigger both Regulation G and additional disclosure requirements for the SEC filings; i.e. firms that present pro-forma earnings other than in SEC filings still have to present: (1) the most directly comparable GAAP financial measures “with equal or greater prominence”; (2) the reconciliation information between pro-forma earnings and GAAP earnings; and (3) two additional explanations for the reasons management believes non-GAAP financial measures are useful, as well as any additional purposes for which management uses non-GAAP measures, in 8-K.

APPENDIX B: COMPARISON OF SAMPLE SELECTION APPROACHES

Many studies use the difference between I/B/E/S actual earnings and GAAP earnings as an empirical proxy for the disclosure of non-GAAP earnings (e.g., Doyle et al. 2004, Heflin and Hsu 2005). This empirical proxy has three issues. First, conceptually, earnings adjusted by managers are not identical to earnings adjusted by analysts because of different incentives relating to managers and analysts. Second, the disclosure, magnitude, and adjustment of non-GAAP earnings are often significantly different from those of earnings adjusted by either analysts or I/B/E/S. For example, Bhattacharya et al. (2005) shows that “a mechanical screen of the COMPUSTAT-I/B/E/S population only results in a 64% hit rate in identifying actual manager-reported adjusted GAAP earnings figures.” Finally, the intersection of I/B/E/S and COMPUSTAT does not translate well into the demographic profile of non-GAAP earnings disclosures (e.g., firm size and industries), limiting inferences about the impact of Reg G on the population of firms (see Bhattacharya et al. 2005).

In order to avoid these issues, later studies use key-word search programs through press releases databases (e.g., Zheng and Zhang 2005), and identify non-GAAP earnings disclosure firms. This approach is presumably better than the former approach in terms of the measurement error of non-GAAP earnings disclosures. Because language seems to play an important role in pro-forma earnings disclosures (Bradshaw 2003; Johnson and Schwartz 2005; Wallace 2002), however, it is likely that the sample firms in the post-Reg G period from the keyword search approach may suffer from a self-selection issue. For example, if firms tend to avoid the nomenclature of “pro-forma” earnings in the post-Reg

G period to avoid scrutiny from investors, a study that extracts sample firms based on the “pro-forma” key-word may generate under-represented sample firms, leading to an erroneous conclusion.

The sample selection strategy adopted in this dissertation is to follow a group of pre-determined firms for a time period of interest to construct a panel dataset. This approach is likely to effectively mitigate the issues raised in the previous two approaches. Although the sample selection approach in Marques (2005) resembles my sample selection, her sample firms of S&P 500 membership are biased to bigger firms. If bigger firms had been subject to severe public scrutiny even in the pre-Reg G period, studies with bigger firms might conclude that there was no evidence of the misuse of pro-forma earnings and, therefore, no justification of the SEC’s intervention. My sample firms of randomly drawn firms from COMPUSTAT are designed to help me draw inferences about the population regarding managers’ changing behaviors.

APPENDIX C: MODEL SPECIFICATION ISSUE FOR EQUATION (1)

I separately run equation (1) for both the pre- and post- Reg G period and compare the coefficients from two regression results to draw inferences about the effect of Reg G on the firm's disclosure motives relating to non-GAAP earnings disclosures. I prefer equation (1) over an alternative model specification such as a regression of non-GAAP earnings disclosures on disclosures motives and the interaction terms of disclosure motives and the post-Reg G time dummy variable as in (A1)

$$\text{Probability } (NG=1) = \Phi (\beta_1 \text{Communication} + \beta_2 \text{Opportunism} + \beta_3 \text{POST} + \beta_4 \text{Communication} * \text{POST} + \beta_5 \text{Opportunism} * \text{POST} + X\beta) \quad (\text{A1})$$

While the coefficient of an interaction term in a linear model (i.e., OLS) is straightforward to interpret because the coefficient could translate into the marginal effect of the interaction term, it is not always straightforward to translate the coefficient on such interaction terms in a non-linear model (e.g., probit in this case) into the marginal effect of variables across the partitioning variable (i.e., regulatory time periods in this case).

For example, suppose a simplified probit model as in (A2).

$$\text{Probability } (NG=1|EQ, POST, X) = \Phi (\beta_1 EQ + \beta_2 POST + \beta_3 EQ \cdot POST + X\beta) \quad (\text{A2})$$

where

Φ is the normal cumulative distribution function and NG, EQ, POST stand for the disclosure of non-GAAP earnings, GAAP earnings quality, and the Post-Reg G dummy respectively.

The coefficient of EQ·POST from the probit model is

$\partial\Phi(\cdot)/\partial(EQ \cdot POST) = \beta_3\Phi'(\cdot)$, and “most applied researchers interpret this as the interaction effect.” (Ai and Norton 2003, Norton 2004). However, the full interaction effect in this case must be the discrete difference (with respect to POST) of the single derivative (with respect to EQ). That is,

$$\Delta(\partial\Phi(\cdot)/\partial EQ) / \Delta POST = (\beta_1 + \beta_3)\Phi'((\beta_1 + \beta_3)EQ + \beta_2 + X\beta) - \beta_1\Phi'(\beta_1 EQ + X\beta).$$

Because we have three variables of interest, it is practically non-trivial to compute the exact full interaction effect. Thus, my approach gives a reliable yet conservative methodology to address H1 and H2. I provide the results of the alternative specification with a Post Reg G dummy variable in Table 13. Results are qualitatively identical.

APPENDIX D: PROBLEMS OF THE LONG-RUN RETURNS TEST

Many studies regress long run abnormal returns on the difference between non-GAAP earnings and GAAP earnings deflated by assets or sales to draw inferences about whether non-GAAP earnings are misleading or not, as in (A3) (e.g. Doyle et al. 2003; Zheng and Zhang 2005).

$$\begin{aligned} \text{One to three year} & & = f(\text{the difference between non-GAAP earnings and} \\ \text{long-run returns} & & \text{GAAP earnings deflated by assets or sales} \\ & & | \text{beta, size, book-to-market, momentum, other risk factors}) \end{aligned} \tag{A3}$$

These studies assume that the negative (no) association between long-run returns and the difference is evidence that non-GAAP earnings are (not) misleading investors. The test like (A1) has two issues. First, as well discussed by Easton (2003), it is hard to conclude that the negative association is evidence of misleading non-GAAP earnings because often the nature of adjustment changes the firm's risk characteristics. For example, firms that went through restructuring and adjusted the amount would experience low returns in the future (e.g., the negative association in (A3)) not because non-GAAP earnings are misleading but because the firm lowered risks by restructuring. Second, the negative association in (A3) is often driven by some extreme observations and, therefore, depends heavily on the power of the test. Thus, given the decreased number of non-GAAP earnings observations in the post Reg G, it is not obvious that no association in the post Reg G period can translate into evidence of non-GAAP earnings being transparent in the post Reg G (e.g., Zheng and Zhang 2005).

Figure 1. Regulation G and Timeline

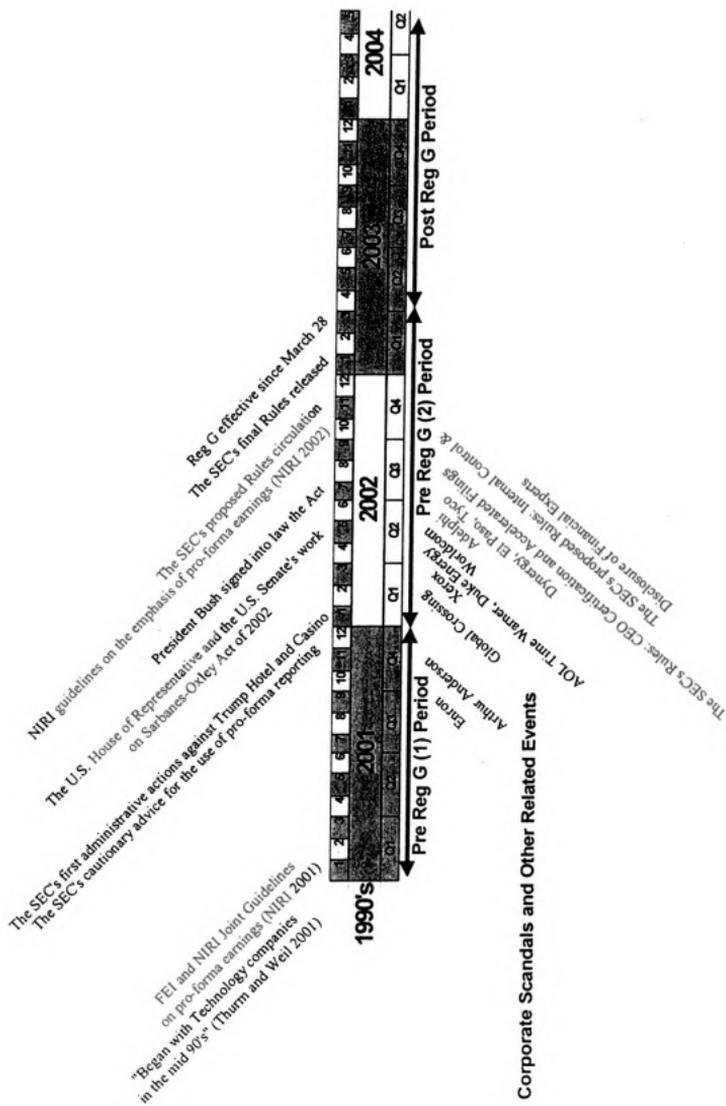
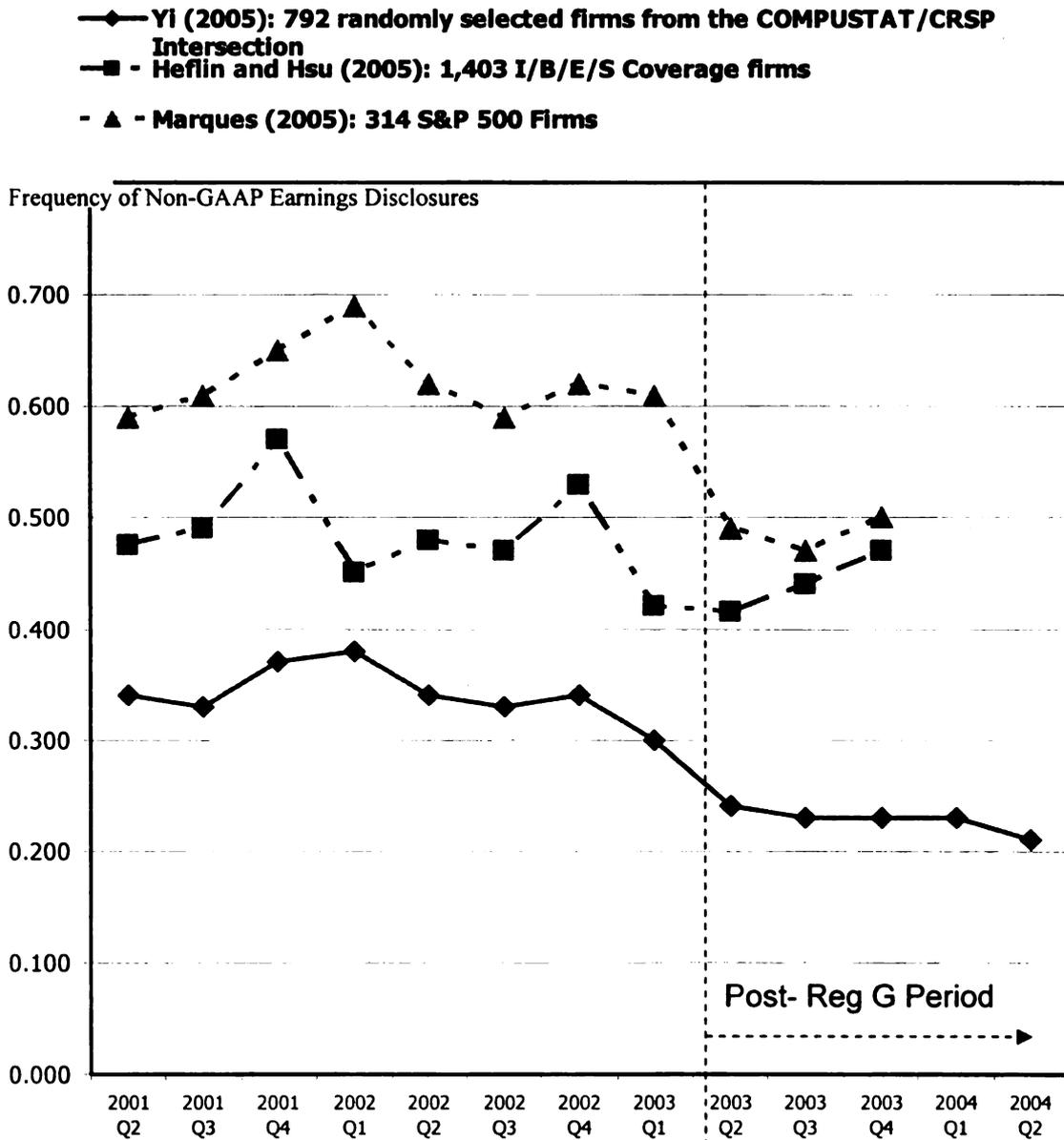


Figure 2. Frequency of Non-GAAP Earnings Disclosures by Calendar Quarters



Note: This figure describes the frequency of non-GAAP earnings disclosures over regulatory time periods depicted in Appendix A. Proposed Rules were circulated in Q4 2003. Finalized Rules were announced in Q1 2003. Reg G became effective from March 28, 2003. Thus, the effect of Reg G on the disclosure frequency of non-GAAP earnings disclosures could be captured from Q2 2003. The current study covers 792 randomly selected firms from the intersection of COMPUSTAT and CRSP. Heflin and Hsu (2005) and Marques (2005) follow 1,403 I/B/E/S firms and 314 S&P 500 firms respectively. The current paper and Marques (2005) manually collect non-GAAP earnings. Heflin and Hsu (2005) use the difference between GAAP EPS and IBES Actual EPS as a proxy for non-GAAP earnings disclosures.

TABLE 1. Sample Selection

	Sample Selection Criteria	Firms (pre/post)	pre Reg G ^a	Firm/Quarters post Reg G ^a	Total
1	1,000 randomly selected firms from the intersection of quarterly COMPUSTAT and CRSP loaded on WRDS as of 2004 that meet the following criteria: - the fiscal quarter ends in 2001:01-2004:06 ^b - membership of NYSE/AMEX/NASDAQ - non-missing EPS data from 1999 to 2004	1,000	8,041	5,872	13,913
2	Less firms that have more than 1 missing press release ^c in the time-series	(208)	(1,709)	(1,308)	(3,017)
3	Sample used for Descriptive Statistics (Table 2, 3) Less firms/quarters that have missing financial statement variables	792	6,332	4,564	10,896
4	Disclosure Analysis Sample (Table 4, 5) Less firms/quarters that missing non-GAAP earnings surprises Market test sample (Table 6)	(34) 758	(172) 6,160	(109) 4,455	(281) 10,615
		(359/533)	(4,537)	(3,623)	(8,157)
		379/225	1,626	832	2,458

a. Regulation G applies to all public disclosures, including earnings releases and filings with the SEC, made after March 28, 2003. Because the focus of this paper is earnings releases, I divide firm-quarter observations into the pre- and post- Reg G observations based on each firm-quarter's preliminary earnings announcement date. Thus, preliminary earnings announcement date after March 28, 2003 is classified as the post-Reg G observations.

b. The sample starts from quarters after 2001 in order to make sure that inferences are not affected by Regulation Fair Disclosure. The fiscal quarter end of sample firms ends at 2004:06 due to financial statement variables availability from COMPUSTAT.

c. I eliminate observations that have more than 1 missing observations in 2001:01–2004:06 time series to construct a panel dataset.

TABLE 2. The Frequency of Disclosure of Non-GAAP Earnings Across Regulatory Time Periods

By three sub-periods	(a) Pre Reg G 2001:01-2001:12		(b) Pre Reg G 2002:01-2003:03		(c) Post Reg G 2003:04 and after		χ^2 Test of Independence (a) - (b) P-values		χ^2 Test of Independence (b) - (c) P-values	
	Number of press releases, (1)	2,445	3,887	4,564						
No disclosures	1,559	2,567	3,502							
Non-GAAP earnings disclosures, (2)	846	1,320	1,062							
Disclosure percentage, (2)/(1)	34.60%	33.96%	23.27%	0.904	<0.001	<0.001	<0.001			

By two sub-periods	(e) Pre Reg G 2001:01-2003:03		(f) Post Reg G 2003:04 and after		χ^2 Test of Independence (e) - (f) P-values	
	Number of press releases, (1)	6,332	4,564			
No disclosures	4,166	3,502				
Non-GAAP earnings disclosures, (2)	2,166	1,062				
Disclosure percentage, (2)/(1)	34.60%	23.27%	<0.001			

Note: This table presents the frequency of non-GAAP earnings disclosures in preliminary earnings announcement press releases over various regulatory time periods. The breakdown is based on two events: the SEC's cautionary advice for misleading non-GAAP earnings (Dec. 2001) and the implementation of Regulation G (March 2003). For details of the regulatory timeline, see Figure 1.

TABLE 3. The Frequency of Disclosure of Non-GAAP Earnings Across Industries

	Industries	Agriculture	Mining and Construction	Food	Textiles and Printing/Publis	Chemicals	Pharmaceuticals	Extractive	Durable	Computer	Transportation	Utilities	Retails	Financials	Insurance and Real Estate	Services and Others
(1) COMPUSTAT/CRSP																
Firms as of 2004 (N= 7,581)	0.3%	2.3%	1.8%	3.4%	1.8%	4.9%	2.8%	17.3%	14.4%	6.1%	2.4%	8.0%	14.2%	11.9%	8.4%	
(2) Sample Firm/Quarters																
(N=10,896)	0.3%	1.9%	2.3%	4.5%	1.9%	4.7%	2.7%	21.7%	13.7%	4.6%	3.2%	10.4%	14.2%	5.8%	8.1%	
(3) Pre Reg G Period (N=6,332)																
No. of Press Releases	17	117	147	290	120	288	165	1,377	876	287	199	683	885	359	514	
No. of non-GAAP earnings disclosures	11	34	50	85	58	67	42	386	411	147	58	179	173	254	219	
Frequency (within the industry)	64.7%	29.1%	34.0%	29.3%	48.3%	23.3%	25.5%	28.0%	46.9%	51.2%	29.1%	26.2%	19.5%	70.8%	42.6%	
Frequency (across the industries)	0.5%	1.6%	2.3%	3.9%	2.7%	3.1%	1.9%	17.8%	18.9%	6.8%	2.7%	8.2%	8.0%	11.7%	10.1%	
(4) Post Reg G Period (N=4,564)																
No. of Press Releases	11	89	99	204	88	223	126	990	617	212	150	455	660	278	370	
No. of non-GAAP earnings disclosures	3	15	23	38	25	31	32	177	165	56	38	61	101	174	115	
Frequency (within the industry)	27.3%	16.9%	23.2%	18.6%	28.4%	13.9%	25.4%	17.9%	26.7%	26.4%	25.3%	13.4%	15.3%	62.6%	31.1%	
Frequency (across the industries)	0.3%	1.4%	2.2%	3.6%	2.4%	2.9%	3.0%	16.8%	15.7%	5.3%	3.6%	5.8%	9.6%	16.5%	10.9%	
(5) Overall (N=10,896)																
No. of non-GAAP earnings disclosures	14	49	73	123	83	98	74	563	576	203	96	240	274	428	334	
Frequency (within the industry)	50.0%	23.8%	29.7%	24.9%	39.9%	19.2%	25.4%	23.8%	38.6%	40.7%	27.5%	21.1%	17.7%	67.2%	37.8%	
Frequency (across the industries)	0.4%	1.5%	2.3%	3.8%	2.6%	3.0%	2.3%	17.4%	17.8%	6.3%	3.0%	7.4%	8.5%	13.3%	10.3%	
(6) Overall Frequency (5)																
/ Industry Composition (2)	169%	80%	100%	84%	135%	65%	86%	80%	130%	137%	93%	71%	60%	227%	128%	

Note: This table presents the industry composition for the population and sample firm/quarters based on Barth et al.'s (1998) classification scheme (Agriculture 0-999, Mining and construction 1000-1999, except 1300-1399, Food 2000-2111, Textiles, printing and publishing 2200-2799, Chemicals 2800-2824, and 2840-2899, Pharmaceuticals 2830-2836, Extractive industries 2900-2999, and 1300-1399, Durable manufacturers 3000-3999, except 3570-3579, and 3670-3679, Computers 7370-7379, 3570-3579, and 3670-3679, Transportation 4000-4899, Utilities 4900-4999, Retail 5000-5999, Financial institutions 6000-6411, Insurance and real estate 6500-6999, Services 7000-8999, except 7370-7379, others >9000 and 2111-2199).

TABLE 4. Comparison of Non-GAAP EPS, I/B/E/S Actual EPS, GAAP EPS, and S&P Core EPS across Two Regulatory Periods

Various Earnings Properties	Pre/Post	N	Mean	Median	Stddev.	(h) Pre – Post	
						(mean)	(i) Pre – Post (median)
(a) non-GAAP Earnings	Pre Reg G	2,166	0.440	0.290	2.328	0.020	-0.030 **
	Post Reg G	1,062	0.420	0.320	0.661		
(b) I/B/E/S Actual Earnings	Pre Reg G	1,797	0.220	0.170	0.433	-0.039 **	-0.020 **
	Post Reg G	802	0.258	0.190	0.400		
(c) GAAP EPS excluding EI and DO	Pre Reg G	2,166	0.005	0.090	1.399	-0.143 ***	-0.040 ***
	Post Reg G	1,062	0.148	0.130	0.586		
(d) S&P Core EPS	Pre Reg G	1,229	-0.010	0.030	0.712	-0.088 ***	-0.040 ***
	Post Reg G	597	0.079	0.070	0.505		
(e) Difference, (a) - (b)	Pre Reg G	1797	0.178 ***	0.000 ***	0.521	0.024 ***	0.000
	Post Reg G	802	0.155 ***	0.000 ***	0.588		
(f) Difference, (a) - (c)	Pre Reg G	2,166	0.436 ***	0.140 ***	2.629	0.163 ***	0.040 ***
	Post Reg G	1,062	0.273 ***	0.100 ***	0.657		
(g) Difference, (a) - (d)	Pre Reg G	1229	0.444 ***	0.191 ***	3.019	0.099	0.004
	Post Reg G	597	0.344 ***	0.187 ***	0.725		

Note: ** and *** denote that mean/median differences are significantly different from zero at 0.05 and 0.01 levels respectively (both-sided, t/z statistics). When I calculated differences across non-GAAP EPS, I/B/E/S Actual EPS, GAAP EPS and S&P core EPS, I took steps to make sure that all EPS are consistent in terms of stock split factor as well as a dilution factor for each firm-quarter. Definitions of non-GAAP EPS, GAAP EPS, and I/B/E/S Actual EPS are as follows respectively:

(a) Manually collected EPS from the preliminary earnings announcement press releases. When multiple non-GAAP EPS are found in a press release, non-GAAP EPS in the first place is chosen for the descriptive statistics. When not expressed as an EPS form (i.e., non-GAAP earnings in \$MM), such non-GAAP earnings are converted into an EPS form using the number of shares used to calculate diluted EPS (i.e., Data 124).

(b) I/B/E/S Actual EPS from the I/B/E/S Unadjusted Actual file, adjusted by stock split factor and dilution factor.

(c) GAAP EPS indicate either basic (Data19) or diluted (Data9) EPS excluding extraordinary items and discontinued operations depending upon corresponding non-GAAP EPS's dilution factor. When it is not clear whether non-GAAP EPS is a basic or diluted one, I assume that such non-GAAP EPS is a diluted one.

(d) Standard & Poor's Core EPS excludes any gains related to pension activities, net revenues from the sale of assets, impairment of goodwill charges, prior-year charge and provision reversals, and settlements related to litigation. S&P Core earnings, however, include expenses related to employee stock option grants, pensions, restructuring of present operations or any merger and acquisition costs, R&D purchases, write-downs of depreciable or amortizable operating assets, and unrealized gains/losses from hedging activities. See Blitzer and Friedman (2002) for the details of Standard and Poor's core earnings.

TABLE 5. The Frequency of the Adjustment Items Used for Non-GAAP Earnings Presentation

Adjustment Items	Pre Reg G		Post Reg G	
	Count	Frequency	Count	Frequency
1. Restructuring charges	627	14.2%	304	16.2%
2. Gain/loss	479	10.9%	276	14.8%
3. Depreciation/Amortization	469	10.6%	160	8.6%
4. Non-recurring items/Special charges (Not identified)	507	11.5%	100	5.3%
5. Acquisition/related costs	299	6.8%	180	9.6%
6. Asset write-down	271	6.1%	83	4.4%
7. Stock based compensation/charges	130	2.9%	65	3.5%
8. Below the line item	105	2.4%	53	2.8%
9. Acquired R&D related	52	1.2%	27	1.4%
10. Others	1,471	33.4%	623	33.3%
Sub Total	4,410		1,871	

Note: The "others" category includes cases: (1) when firms do not specify the adjustment amount of certain items as a part of adjustment (e.g., "restructuring charges and others") and (2) when the firm uses the item "other(s)."

TABLE 6. The Frequency of the Adjustment Items Used for Non-GAAP Earnings Presentation

Adjustment Items	Pre Reg G		Post Reg G	
	Count	Frequency	Count	Frequency
1. Restructuring charges	627	14.2%	304	16.2%
2. Gain/loss	479	10.9%	276	14.8%
3. Depreciation/Amortization	469	10.6%	160	8.6%
4. Non-recurring items/Special charges (Not identified)	507	11.5%	100	5.3%
5. Acquisition/related costs	299	6.8%	180	9.6%
6. Asset write-down	271	6.1%	83	4.4%
7. Stock based compensation/charges	130	2.9%	65	3.5%
8. Below the line item	105	2.4%	53	2.8%
9. Acquired R&D related	52	1.2%	27	1.4%
10. Others	1,471	33.4%	623	33.3%
Sub Total	4,410		1,871	

Note: The "others" category includes cases: (1) when firms do not specify the adjustment amount of certain items as a part of adjustment (e.g., "restructuring charges and others") and (2) when the firm uses the item "other(s)."

TABLE 7. Emphasis of Non-GAAP Earnings and Reconciliation Information

EMPSCORE		DISQUAL			
Distribution	Pre Reg G (N=2,166)	Post Reg G (N=1,062)	Distribution	Pre Reg G (N=2,166)	Post Reg G (N=1,062)
0	1,292 (59.65%)	843 (79.38%)	0	178 (8.22%)	58 (5.46%)
1	404 (18.65%)	90 (8.47%)	1	166 (7.66%)	54 (5.08%)
2	92 (4.25%)	68 (6.4%)	2	655 (30.24%)	169 (15.91%)
3	378 (17.45%)	61 (5.74%)	3	1,167 (53.88%)	781 (73.54%)

EMPSCORE		DISQUAL			
Statistics	Pre Reg G (N=2,166)	Post Reg G (N=1,062)	Statistics	Pre Reg G (N=2,166)	Post Reg G (N=1,062)
Mean	0.795	0.385	Mean	2.297	2.575
P25	0	0	P25	2	2
Median	0	0	Median	3	3
P75	1	0	P75	3	3
Stddev	1.138	0.842	Stddev	0.925	0.821
			Z-value		2
			Z-value		3
			Z-value		3
			Z-value		<0.001
			Z-value		<0.001

Note.

EMPSCORE is my proprietary measure for the emphasis of non-GAAP earnings over GAAP earnings. EMPSCORE takes the following values:

3: if non-GAAP earnings are highlighted in the title or the lead paragraph.

2: if non-GAAP earnings are highlighted in the title or the lead paragraph, but with GAAP earnings immediately following non-GAAP earnings.

1: if non-GAAP earnings are not highlighted in the title or the lead paragraph but appears earlier in the body of press releases over GAAP earnings.

0: none of above cases.

DISQUAL is my proprietary measure for the amount of reconciliation information provided in earnings releases of 2001 based on Wallace's (2002) observation. DISQUAL takes the following values:

0: if there is no clear definition of Non-GAAP earnings in earnings releases.

1: if there is a clear definition of Non-GAAP earnings in earnings releases, but one needs careful reading of financial statement information to reconstruct non-GAAP earnings.

2: if there is a paragraph exhibiting the line items of and the amount of non-GAAP adjustment.

3: if there is detailed reconciliation information in the accompanying financial statements of earnings releases or tabular/columnar/side-by-side reconciliation schedule in earnings releases.

TABLE 8. Non-GAAP Adjustments and Earnings Benchmarks

Charateristics of Disclosed non-GAAP Earnings	Pre Reg G period		Post Reg G period		χ^2 Test P-values
	Frequency	%	Frequency	%	
(1) HYPE_LOSS/NG	414/2,166	19.11%	182/1,062	17.14%	0.205
(2) HYPE_LOSS/(NG LOSS)	414/791	52.34%	182/306	59.48%	0.024
(3) HYPE_NES/NG	291/2,166	13.43%	110/1,062	10.36%	0.016
(4) HYPE_NES/(NG NES)	291/1,114	26.12%	110/415	26.51%	0.961
(5) HYPE_CONSENSUS/NG	313/2,166	14.45%	130/1,062	12.24%	0.087
(6) HYPE_CONSENSUS/(NG CONSENSUS)	313/1,130	27.70%	130/561	23.17%	0.046
(7) NEGADJ/NG	309/2,166	14.24%	189/1,062	18.86%	0.008

Note. NG is the case where there is Non-GAAP earnings disclosure. LOSS, NES, CONSENSUS are the cases where the firm's GAAP EPS are below zero, the last year same quarter EPS, and the consensus EPS forecast respectively (see Appendix B for details). HYPE_LOSS is the case where the firm's Non-GAAP turned GAAP losses to zero or positive Non-GAAP EPS up to 2 cents. HYPE_NES is the case where the firm's Non-GAAP turned a negative seasonally differenced GAAP earnings surprise to a positive seasonally differenced Non-GAAP earnings surprise. HYPE_CONSENSUS is the case where the firm's Non-GAAP EPS met or beat the mean consensus EPS forecast estimates up to 2 cents when their GAAP EPS was below the consensus estimate. NEGADJ is the case where the Non-GAAP EPS are below GAAP EPS (i.e., downward non-GAAP adjustments).

TABLE 9. Pearson (Upper) and Spearman (Lower) Correlations of Characteristics of Disclosed Non-GAAP Earnings

Variables	Pre/Post	1	2	3	4	5	6
1. HYPE_LOSS	Pre Reg G	1	0.050 **	0.042 *	-0.198 ***	0.041 *	0.002
	Post Reg G	1	0.186 ***	-0.011	-0.212 ***	-0.037	0.059 *
2. HYPE_NES	Pre Reg G	0.050 **	1	0.049 **	-0.112 ***	0.036 *	0.077 ***
	Post Reg G	0.186 ***	1	0.069 **	-0.118 ***	-0.012	0.002
3. HYPE_CONSENSUS	Pre Reg G	0.042 *	0.049 **	1	-0.168 ***	0.062 ***	0.100 ***
	Post Reg G	-0.011	0.069 **	1	-0.174 ***	0.058 *	0.098 ***
4. NEGADJ	Pre Reg G	-0.198 ***	-0.112 ***	-0.168 ***	1	-0.063 ***	-0.098 ***
	Post Reg G	-0.212	-0.118 ***	-0.174 ***	1	-0.058 *	-0.194 ***
5. EMPSCORE	Pre Reg G	0.065 ***	0.031	0.068 **	-0.073 ***	1	0.192 ***
	Post Reg G	-0.014	-0.010	0.065 **	-0.079 ***	1	0.131 ***
6. DISQUAL	Pre Reg G	0.005	0.089 **	0.096 ***	-0.092 ***	0.218 ***	1
	Post Reg G	0.061 **	0.000	0.075 **	-0.166 ***	0.141 ***	1

Note. See notes for Table 7 and 8 for definitions. *, ** and *** denote statistical significance at the 0.10, 0.05 and 0.01 levels respectively.

TABLE 10. Descriptive Statistics of Firm Characteristics by Non-GAAP Earnings and Regulation G Regimes

Variables	Statistics	Predictions (1) vs. (2)	Pre Reg G period (N=6,229)		P-VALUES
			(1) Non-GAAP EPS Disclosures Firms (N=2,166)	(2) No disclosures Firms (N=4,063)	
EQ	Mean	<	0.211	0.359	<.0001
	Median	<	0.201	0.304	<.0001
	Stddev		0.028	0.021	
EQRANK	Mean	<	47.481	50.404	0.0001
	Median	<	47.000	51.000	0.0001
	Stddev		0.621	0.449	
LOSS	Mean	>	0.365	0.223	<.0001
	Median	>	0.000	0.000	<.0001
	Stddev		0.010	0.006	
NES	Mean	>	0.516	0.397	<.0001
	Median	>	1.000	0.000	<.0001
	Stddev		0.011	0.008	
CONSENSUS	Mean	>	0.522	0.343	<.0001
	Median	>	1.000	0.000	<.0001
	Stddev		0.011	0.007	
LNMKT	Mean	>	6.479	5.544	<.0001
	Median	>	6.459	5.614	<.0001
	Stddev		0.043	0.032	
LEVERAGE	Mean	>	0.573	0.548	0.0006
	Median	>	0.580	0.534	0.0010
	Stddev		0.006	0.004	
BTM	Mean	>	285.220	261.230	0.0658
	Median	>	131.606	121.673	0.0181
	Stddev		10.372	7.896	
SI	Mean	<	-0.012	-0.001	<.0001
	Median	<	0.000	0.000	<.0001
	Stddev		0.001	0.000	
HHI	Mean	<	0.210	0.239	<.0001
	Median	<	0.151	0.191	<.0001
	Stddev		0.004	0.003	
INTANGIBLE	Mean	>	0.094	0.056	<.0001
	Median	>	0.000	0.000	<.0001
	Stddev		0.004	0.002	
LITIGATIONIND	Mean	?	0.236	0.178	<.0001
	Median	?	0.000	0.000	<.0001
	Stddev		0.009	0.011	

TABLE 10. (Continued)

Variables	Statistics	Predictions (1) vs. (2)	Post Reg G period (N=4,477)		P-VALUES
			(1) Non-GAAP EPS Disclosures Firms (N=1,062)	(2) No disclosures Firms (N=3,415)	
EQ	Mean	<	0.142	0.455	<.0001
	Median	<	0.121	0.368	<.0001
	Stddev		0.037	0.023	
EQRANK	Mean	<	44.391	51.241	<.0001
	Median	<	42.000	51.000	<.0001
	Stddev		0.867	0.492	
LOSS	Mean	>	0.288	0.233	0.0005
	Median	>	0.000	0.000	0.0003
	Stddev		0.014	0.007	
NES	Mean	>	0.409	0.347	0.0003
	Median	>	0.000	0.000	0.0002
	Stddev		0.015	0.008	
CONSENSUS	Mean	>	0.528	0.332	<.0001
	Median	>	1.000	0.000	<.0001
	Stddev		0.015	0.008	
LNMKT	Mean	>	6.755	5.811	<.0001
	Median	>	6.608	5.852	<.0001
	Stddev		0.058	0.035	
LEVERAGE	Mean	>	0.591	0.550	<.0001
	Median	>	0.597	0.531	<.0001
	Stddev		0.007	0.005	
BTM	Mean	>	325.490	307.100	0.2814
	Median	>	161.744	148.084	<.0001
	Stddev		13.236	10.789	
SI	Mean	<	-0.006	-0.002	<.0001
	Median	<	0.000	0.000	<.0001
	Stddev		0.001	0.001	
HHI	Mean	<	0.229	0.256	0.0005
	Median	<	0.166	0.199	<.0001
	Stddev		0.007	0.004	
INTANGIBLE	Mean	>	0.151	0.115	<.0001
	Median	>	0.055	0.036	<.0001
	Stddev		0.006	0.003	
LITIGATIONIND	Mean	?	0.205	0.194	0.4309
	Median	?	0.000	0.000	0.4256
	Stddev		0.012	0.007	

Note: Variables are as follows.

<p><i>EQ</i></p>	<p>An empirical proxy for the firm's communication motives to disclose non-GAAP earnings due to low GAAP earnings relevance. Defined as the t-statistics of the coefficient on seasonally differenced GAAP earnings from the following firm-specific returns-earnings regression:</p> $MKTADJRET = \alpha_0 + \alpha_1 \Delta GAAPEARN + \varepsilon$ <p style="text-align: right;">(firm/quarter index omitted)</p> <p>where</p> <p><i>MKTADJRET</i> is cumulative market adjusted returns (i.e., $RET - VWRETD$) from two days after the last quarterly earnings announcement to the day after the current quarter earnings announcement date, and</p> <p>$\Delta GAAPEARN$ is seasonally differenced GAAP earnings before extraordinary items and discontinued operations deflated by the market capitalization at the beginning of the current quarter (i.e., $(Data25_t - Data25_{t-4}) / (Data61_t * Data17_t * Data14_{t-1})$). I require at least 8 quarters for the estimation of t-statistics. The estimation does not include the current quarter EPS observation.</p>
<p><i>EQRANK</i></p>	<p><i>EQRANK</i> is a rank transformed variable from <i>EQ</i>. I rank <i>EQ</i> by the calendar quarters in which preliminary earnings announcements were announced, assigning from 0 (lowest <i>EQ</i>) to 99 (highest <i>EQ</i>). <i>EQRANK</i> is designed to facilitate the interpretation of the coefficient and marginal effect of <i>EQ</i> variable in probit regression model across different regulatory regimes.</p>
<p><i>LOSS</i></p>	<p>An indicator coded as 1 if the GAAP EPS excluding extraordinary items and discontinued operations for the quarter is negative, 0 otherwise.</p>
<p><i>NES</i></p>	<p>An indicator coded as 1 if the seasonally differenced GAAP EPS is declining (i.e. negative GAAP earnings changes), 0 otherwise.</p>
<p><i>CONSENSUS</i></p>	<p>An indicator variable, coded as 1 if the GAAP EPS excluding extraordinary items and discontinued operations (dilution factor considered) is less than the mean EPS estimate from the <i>I/B/E/S summary</i> file. For REIT (real estate investment trust) firms, I use FFO (funds from operations) forecast for the comparison, if available.</p>
<p><i>BTM</i></p>	<p>Book-to-market ratio</p>
<p><i>HHI</i></p>	<p>Hirschmann-Herfindahl's index of market concentration (an indicator of competition among firms).</p> $\text{Defined for firm } i \text{ as } \sum_{i=1}^n \left(\frac{\text{sales}_i}{\sum_{i=1}^n \text{sales}_i} \right)^2$ <p>where n denotes the number of firms in each industry broken down by 2 digit SIC code and i denotes a firm in the industry. Higher HHI values in a given industry can translate into less competition in the market.</p>
<p><i>INTANGIBLE</i></p>	<p>The total intangible assets divided by the total assets (from <i>annual</i> data). I assign 0 if this item is missing in COMPUSTAT. The same non-missing value was assigned for other quarters in the same year.</p>

<i>LEVERAGE</i>	Total liabilities divided by total assets.
<i>LITIGATIONIND</i>	An indicator coded 1 for the high litigation industries (i.e., SIC codes 2833~2836, 3570~3577, 7370~7374, 3600~3674) following Francis et al. (1994).
<i>LNMKT</i>	Log of market value at the end of quarter.
<i>SI</i>	The amount of special items deflated by the total assets. 0 was assigned for missing values.

**TABLE 11. Correlation Table of Firm Characteristics
by Non-GAAP Earnings and Regulation G Regimes**

Variables	Pre/Post	0	1	2	3	4
0.NG	Pre Reg G	1	-0.052 ***	-0.048 ***	0.152 ***	0.113 ***
	Post Reg G	1	-0.101 ***	-0.100 ***	0.054 ***	0.055 ***
1.EQ	Pre Reg G	-0.050 ***	1	0.942 ***	0.064 ***	0.001
	Post Reg G	-0.101 ***	1	0.932 ***	0.056 ***	0.032 **
2. EQRANK	Pre Reg G	-0.048 ***	0.998 ***	1	0.064 ***	0.010
	Post Reg G	-0.100 ***	0.999 ***	1	0.063 ***	0.042 ***
3. LOSS	Pre Reg G	0.152 ***	0.063 ***	0.064 ***	1	0.293 ***
	Post Reg G	0.054 ***	0.063 ***	0.063 ***	1	0.300 ***
4. NES	Pre Reg G	0.113 ***	0.007	0.010	0.293 ***	1
	Post Reg G	0.055 ***	0.042 ***	0.042 ***	0.300 ***	1
5. CONSENSUS	Pre Reg G	0.173 ***	-0.053 ***	-0.054 ***	0.135 ***	0.232 ***
	Post Reg G	0.171 ***	-0.058 ***	-0.058 ***	0.077 ***	0.222 ***
6. LNMKT	Pre Reg G	0.205 ***	-0.172 ***	-0.173 ***	-0.192 ***	-0.001
	Post Reg G	0.185 ***	-0.231 ***	-0.232 ***	-0.307 ***	-0.134 ***
7. LEVERAGE	Pre Reg G	0.041 ***	-0.086 ***	-0.084 ***	-0.131 ***	-0.075 ***
	Post Reg G	0.079 ***	-0.023	-0.023	-0.077 ***	0.028 *
8. BTM	Pre Reg G	0.030 **	-0.153 ***	-0.152 ***	-0.359 ***	-0.046 ***
	Post Reg G	0.059 ***	-0.166 ***	-0.166 ***	-0.464 ***	-0.113 ***
9. SI	Pre Reg G	-0.253 ***	0.017	0.018	-0.321 ***	-0.224 ***
	Post Reg G	-0.205 ***	0.038 **	0.038 ***	-0.238 ***	-0.196 ***
10. HHI	Pre Reg G	-0.091 ***	0.004	0.001	0.000	-0.002
	Post Reg G	-0.089 ***	0.002	0.002	0.021	0.004
11. INTANGIBLE	Pre Reg G	0.069 ***	-0.011	-0.016	-0.016	-0.131 ***
	Post Reg G	0.059 ***	-0.097 ***	-0.097 ***	-0.042 ***	-0.055 ***
12. LITIGATIONIND	Pre Reg G	0.069 ***	0.101 ***	0.100 ***	0.284 ***	0.057 ***
	Post Reg G	0.012	0.079 ***	0.079 ***	0.200 ***	-0.037 **

TABLE 11. (Continued)

Variables	Pre/Post	5	6	7	8
0.NG	Pre Reg G	0.173 ***	0.213 ***	0.043 ***	0.023 *
	Post Reg G	0.171 ***	0.195 ***	0.064 ***	0.013
1.EQ	Pre Reg G	-0.065 ***	-0.173 ***	-0.073 ***	-0.074 ***
	Post Reg G	-0.055 ***	-0.225 ***	-0.019	-0.060 ***
2. EQRANK	Pre Reg G	-0.054 ***	-0.170 ***	-0.081 ***	-0.069 ***
	Post Reg G	-0.058 ***	-0.222 ***	-0.018	-0.064 ***
3. LOSS	Pre Reg G	0.135 ***	-0.190 ***	-0.109 ***	-0.188 ***
	Post Reg G	0.077 ***	-0.313 ***	-0.063 ***	-0.219 ***
4. NES	Pre Reg G	0.232 ***	0.000	-0.077 ***	-0.032 **
	Post Reg G	0.222 ***	-0.135 ***	0.021	-0.038 **
5. CONSENSUS	Pre Reg G	1	0.282 ***	-0.049 ***	0.009
	Post Reg G	1	0.224 ***	-0.007	-0.024
6. LNMKT	Pre Reg G	0.274 ***	1	0.050 ***	0.355 ***
	Post Reg G	0.217 ***	1	0.091 ***	0.336 ***
7. LEVERAGE	Pre Reg G	-0.041 ***	0.066 ***	1	0.107 ***
	Post Reg G	-0.002	0.108 ***	1	0.104 ***
8. BTM	Pre Reg G	0.104 ***	0.625 ***	0.129 ***	1
	Post Reg G	0.068 ***	0.613 ***	0.139 ***	1
9. SI	Pre Reg G	-0.277 ***	-0.082 ***	0.060 ***	0.061 ***
	Post Reg G	-0.235 ***	-0.062 ***	-0.043 ***	0.083 ***
10. HHI	Pre Reg G	0.041 ***	-0.036 ***	-0.189 ***	-0.087 ***
	Post Reg G	-0.028 *	-0.065 ***	-0.212 ***	-0.088 ***
11. INTANGIBLE	Pre Reg G	0.070 ***	0.106 ***	-0.003	0.016
	Post Reg G	0.120 ***	0.186 ***	-0.112 ***	-0.013
12. LITIGATIONIND	Pre Reg G	0.091 ***	-0.030 **	-0.335 ***	-0.248 ***
	Post Reg G	0.029 *	-0.055 ***	-0.290 ***	-0.295 ***

TABLE 11. (Continued)

Variables	Pre/Post	9	10	11	12
0.NG	Pre Reg G	-0.119 ***	-0.070 ***	0.127 ***	0.069 ***
	Post Reg G	-0.061 ***	-0.052 ***	0.086 ***	0.012
1.EQ	Pre Reg G	-0.040 **	0.018	-0.039 ***	0.081 ***
	Post Reg G	0.018	0.035 **	-0.089 ***	0.067 ***
2. EQRANK	Pre Reg G	-0.031 **	0.009	-0.047 ***	0.100 ***
	Post Reg G	0.026 *	0.011	-0.094 ***	0.079 ***
3. LOSS	Pre Reg G	-0.216 ***	-0.022 *	0.011	0.284 ***
	Post Reg G	-0.192 ***	-0.005	-0.021	0.200 ***
4. NES	Pre Reg G	-0.122 ***	-0.008	-0.085 ***	0.057 ***
	Post Reg G	-0.136 ***	0.007	-0.029 **	-0.037 **
5. CONSENSUS	Pre Reg G	-0.114 ***	0.032 **	0.083 ***	0.091 ***
	Post Reg G	-0.098 ***	-0.024	0.105 ***	0.029 *
6. LNMKT	Pre Reg G	-0.022 *	-0.040 ***	0.107 ***	-0.027 **
	Post Reg G	0.019	-0.044 ***	0.148 ***	-0.043 ***
7. LEVERAGE	Pre Reg G	0.033 ***	-0.125 ***	-0.071 ***	-0.299 ***
	Post Reg G	0.010	-0.133 ***	-0.115 ***	-0.257 ***
8. BTM	Pre Reg G	0.039 ***	-0.027 **	-0.007	-0.143 ***
	Post Reg G	0.034 **	-0.040 ***	-0.004	-0.149 ***
9. SI	Pre Reg G	1	0.007	-0.055 ***	-0.101 ***
	Post Reg G	1	-0.003	-0.036 **	-0.045 ***
10. HHI	Pre Reg G	-0.050 ***	1	0.119 ***	-0.164 ***
	Post Reg G	-0.034 **	1	0.148 ***	-0.138 ***
11. INTANGIBLE	Pre Reg G	-0.082 ***	0.118 ***	1	0.046 ***
	Post Reg G	-0.108 ***	0.282 ***	1	0.081 ***
12. LITIGATIONIND	Pre Reg G	-0.130 ***	-0.145 ***	0.025 *	1
	Post Reg G	-0.066 ***	-0.104 ***	0.089 ***	1

Note: This table presents Pearson (upper) and Spearman (lower) correlations for the variables for two regulatory time periods. *, ** and *** denote significance at <0.10, <0.05, and <0.01 levels, respectively, for two-tailed tests. Pre-Reg G observations are obtained from preliminary earnings announcement press releases from 2001:01-2003:03. Post Reg G observations are obtained from preliminary earnings announcement press releases after 2003:03. See Appendix B for the definition of variables. NG is an indicator variable of disclosures of non-GAAP earnings in preliminary earnings announcement press releases. NG is coded as 1 if firms disclose non-GAAP earnings, 0 otherwise. The underlying construct of NG is voluntary disclosure of management defined earnings. Thus, NG is not coded as 1 when, for example, “pro-forma” earnings are required by GAAP (e.g., Reg S-X, accounting changes etc.). For other variables, see the note for Table 10.

TABLE 12. Probit Regression for H1 & H2 (Dependent variable = NG, non-GAAP earnings disclosure) based on Firm-Clustered Standard Errors

Model: Probability ($NG=1|x$) = $G(\beta_0 + \beta_1 EQRANK + \beta_2 LOSS + \beta_3 NES + \beta_4 CONSENSUS + \beta \cdot CONTROLS)$ firm/quarter index omitted

Variables	Prediction within each regression	(A) Pre Reg G Period				(B) Post Reg G Period				(C) Hypotheses Tests				
		Coef. (1)	Z-stat.	P-value	$\partial y/\partial x$	Coef. (2)	Z-stat.	P-value	$\partial y/\partial x$	Coef. (1)	Reg G Not Effective	Coef. (2)	Reg G Effective vs.	Chow Test P-values
Intercept	.	-1.656	-19.120	0.000	0.000	-1.845	-16.930	0.000	0.000	-0.002	H1: - vs. +	-0.002	H1: - vs. +	0.029 **
EQRANK	-	-0.001	-1.290	0.197	-0.0003	-0.003	-3.790	0.000	-0.0009	-0.136	H2: - vs. +	-0.136	H2: - vs. +	0.059 *
LOSS	+	0.434	9.920	0.000	0.1620	0.298	5.180	0.000	0.0921	-0.085	H2: - vs. +	-0.085	H2: - vs. +	0.165
NES	+	0.157	4.290	0.000	0.0571	0.073	1.500	0.135	0.0215	0.126	H2: - vs. +	0.126	H2: - vs. +	0.032 **
CONSENSUS	+	0.171	4.650	0.000	0.0622	0.297	6.470	0.000	0.0894	0.745		0.745		0.526
SI	-	-2.908	-3.460	0.001	-1.0512	-2.163	-2.630	0.009	-0.6333	-0.629		-0.629		0.000 ***
INTANGIBLE	+	1.073	8.670	0.000	0.3879	0.444	3.590	0.000	0.1300	-0.004		-0.004		0.971
LEVERAGE	+	0.331	4.950	0.000	0.1197	0.327	4.120	0.000	0.0958	0.000		0.000		0.985
LN MKT	+	0.143	14.920	0.000	0.0518	0.143	11.650	0.000	0.0420	0.000		0.000		0.448
BTM	-	-0.000	-1.890	0.058	0.0000	-0.000	-2.710	0.007	0.0000	0.164		0.164		0.265
HHI	-	-0.461	-4.770	0.000	-0.1668	-0.297	-2.670	0.008	-0.0870	-0.078		-0.078		0.302
LITIGATIONIND	?	0.056	1.170	0.242	0.0204	-0.022	-0.380	0.705	-0.0065					

N=6,229

Pseudo R² = 9.07%

N=4,477

Pseudo R² = 7.54%

Note: For the definition of variables, see notes for Table 10 and 11. *G* stands for the normal cumulative distribution function. *, ** and *** denote significance at <0.10, <0.05, and <0.01 levels, respectively, for two-tailed tests. Estimations are based on firm-clustered standard errors. The marginal effect ($\partial y/\partial x$) of EQRANK, LOSS, NES and CONSENSUS on the probability of presenting non-GAAP earnings are calculated by assigning mean values for the remaining variables (Wooldridge 2002). By the construction of variables, the marginal effect of EQRANK is for discrete change of the rank variable from one level to the next level while the marginal effects of LOSS, NES, and CONSENSUS are for discrete changes of dummy variables from 0 to 1 respectively.

**TABLE 13. Random Effect Probit Regression for H1 & H2:
Alternative Specification with the Post Time Dummy
(Dependent variable = NG, non-GAAP earnings disclosure)**

Probability (NG=1|x)

$$= G(\beta_0 + \beta_1EQRANK + \beta_2LOSS + \beta_3NES + \beta_4CONSENSUS + \beta \cdot CONTROLS + \beta_5POST + \beta_6EQRANK*POST + \beta_7LOSS*POST + \beta_8NES*POST + \beta_9CONSENSUS*POST + \beta \cdot CONTROLS*POST)$$

(firm/quarter index omitted)

<u>Variables</u>	<u>Coefficient</u>	<u>Standard Errors</u>	<u>Z Stat.</u>	<u>P-Values</u>	
INTERCEPT	-2.507	0.237	-10.590	0.000	
EQRANK	-0.002	0.001	-1.400	0.162	
LOSS	0.587	0.070	8.410	0.000	***
NES	0.100	0.053	1.890	0.059	*
CONSENSUS	0.225	0.054	4.150	0.000	***
SI	-3.352	0.857	-3.910	0.000	***
INTANGIBLE	0.405	0.195	2.070	0.038	**
LEVERAGE	0.176	0.173	1.010	0.311	
LN MKT	0.246	0.028	8.760	0.000	***
BTM	0.000	0.000	-3.360	0.001	***
HHI	-0.381	0.251	-1.520	0.129	
LITIGATIONRISK	0.263	0.162	1.620	0.105	
POST	-0.395	0.206	-1.920	0.055	*
EQRANK*POST	-0.004	0.001	-2.790	0.005	***
LOSS*POST	-0.213	0.103	-2.070	0.039	**
NES*POST	-0.081	0.088	-0.930	0.353	
CONSENSUS*POST	0.144	0.083	1.740	0.083	*
SI*POST	0.424	1.321	0.320	0.748	
INTANGIBLE*POST	-0.967	0.234	-4.130	0.000	***
LEVERAGE*POST	0.074	0.157	0.470	0.636	
LN MKT*POST	0.020	0.024	0.840	0.403	
BTM*POST	0.000	0.000	-1.510	0.132	
HHI*POST	0.172	0.197	0.870	0.382	
LITIGATIONRISK*POST	-0.215	0.109	-1.970	0.049	**

Number of Observations: 10,615

Pseudo R Square: 9.3 %

Note: The results are based on random effect probit model (Gaussian assumption) and firm clustered standard errors. Pseudo R² is calculated by scaling the log-likelihood value of equation (1) with the log likelihood of the constant-only model. For the definition of variables, see notes for Table 10 and 11. *G* stands for the normal cumulative distribution function. *, ** and *** denote significance at <0.10, <0.05, and <0.01 levels, respectively, for two-tailed tests.

TABLE 14. OLS Regression for H3

$$\begin{aligned}
 SAdjRET = & \gamma_0 + \gamma_1 UE_GAAP + \gamma_2 UE_NONGAAP + \gamma_3 POST \\
 & + \gamma_4 UE_GAAP \cdot POST + \gamma_5 UE_NONGAAP \cdot POST \\
 & + \gamma_6 LOSS + \gamma_7 BTM + \gamma_8 LOSS \cdot UE_GAAP + \gamma_9 BTM \cdot UE_GAAP + \varepsilon
 \end{aligned}$$

(Firm-quarter index omitted)

Variables	Expected Sign	Coef. Estimates	Robust T Stat.	P> t
Intercept		γ_0 0.0067	3.310	0.001
UE_GAAP	+	γ_1 0.0187	1.670	0.096
UE_NONGAAP	+	γ_2 0.0064	0.990	0.322
POST	.	γ_3 0.0023	0.930	0.351
UE_GAAP*POST	?	γ_4 0.0185	1.810	0.070
UE_NONGAAP*POST	?	γ_5 0.1225	2.200	0.028
LOSS	-	γ_6 -0.0105	-3.450	0.001
BTM	+	γ_7 0.0000	0.040	0.965
UE_GAAP*LOSS	-	γ_8 -0.0217	-1.940	0.053
UE_GAAP*BTM	+	γ_9 0.0000	1.000	0.319
No. of Obs.		2,317		
Adjusted R ²		1.70%		

Tests	Results	P-values (Two-sided)
$\gamma_1 + \gamma_4 = 0$	Different	0.0054
$\gamma_2 + \gamma_5 = 0$	Different	0.0198
$(\gamma_5 - \gamma_2) = (\gamma_4 - \gamma_1)$	Different	0.0575

Note: Sample consists of 2,317 press releases where seasonally differenced non-GAAP EPS surprises are defined. In order to avoid a spurious inference from influential observations, I exclude 141 observations, as suggested by Belsley, Kuh, Welsch (1980) (e.g., $\text{abs}(RSTUDENT) > 2$ or $\text{abs}(DFITTS) > 2 \cdot \sqrt{2,458/9}$ from original 2,458 observations). If I include those influential observations, I get a stronger result for the UE_NONGAAP*POST interaction term. Alternatively, if I use a rank-transformed regression to avoid a spurious inference from outliers, I also get a stronger result for the interaction term. All t-statistics are heteroskedasticity-robust (White 1980) and the mean VIF (variance inflation factor) score is 1.12. SAdjRET is cumulative abnormal returns, defined as the sum of size adjusted daily returns over the three-day window (-1, 0, +1), where 0 is the date of the preliminary earnings announcement press release. UE_GAAP (UE_NONGAAP) is seasonally differenced quarterly GAAP (non-GAAP) earnings deflated by the market capitalization at the end of prior fiscal quarter. Stock-split factor has been considered for both surprises. POST is an indicator variable coded as 1 if the earnings announcement date is after March 2003, 0 otherwise. Size factor for returns is implicitly controlled by size-adjusted returns. LOSS is an indicator variable coded as 1 if GAAP earnings is negative, otherwise 0. BTM is the book to market ratio capturing growth factor.

**TABLE 15. OLS Regression for H3
with the Sub-Sample of Continuous Disclosing Firms**

$$\begin{aligned}
 SAdjRET = & \gamma_0 + \gamma_1 UE_GAAP + \gamma_2 UE_NONGAAP + \gamma_3 POST \\
 & + \gamma_4 UE_GAAP \cdot POST + \gamma_5 UE_NONGAAP \cdot POST \\
 & + \gamma_6 LOSS + \gamma_7 BTM + \gamma_8 LOSS \cdot UE_GAAP + \gamma_9 BTM \cdot UE_GAAP + \varepsilon
 \end{aligned}$$

(firm-quarter index omitted)

Variables	Expected Sign	Coef. Estimates	Robust T Stat.	P> t
Intercept		γ_0 0.0072	1.840	0.065
UE_GAAP	+	γ_1 0.0217	1.440	0.150
UE_NONGAAP	+	γ_2 0.0517	1.670	0.096
POST	.	γ_3 0.0046	1.190	0.233
UE_GAAP*POST	?	γ_4 0.0168	1.130	0.257
UE_NONGAAP*POST	?	γ_5 0.0904	1.310	0.189
LOSS	-	γ_6 -0.0137	-2.750	0.006
BTM	+	γ_7 0.0000	-1.420	0.156
UE_GAAP*LOSS	-	γ_8 -0.0228	-1.490	0.137
UE_GAAP*BTM	+	γ_9 0.0002	1.240	0.214
No. of Obs.		1,866		
Adjusted R ²		2.00%		

Tests	Results	P-values (Two-sided)
$\gamma_1 + \gamma_4 = 0$	Different	0.0402
$\gamma_2 + \gamma_5 = 0$	Different	0.0204
$(\gamma_5 - \gamma_2) = (\gamma_4 - \gamma_1)$	Not Different	0.6423

Note: This table presents the results of regression for a sub-sample of 225 firms that disclose at least one non-GAAP earnings disclosure both in the pre- and the post Reg G periods. Sample consists of 1,866 press releases where seasonally differenced non-GAAP EPS surprises are defined. All t-statistics are heteroskedasticity-robust (White 1980). *SADJRET* is cumulative abnormal returns, defined as the sum of size adjusted daily returns over the three-day window (-1, 0, +1), where 0 is the date of the preliminary earnings announcement press release. *UE_GAAP* (*UE_NONGAAP*) is seasonally differenced quarterly GAAP (non-GAAP) earnings deflated by the market capitalization at the end of prior fiscal quarter. Stock-split factor has been considered for both surprises. *POST* is an indicator variable coded as 1 if the earnings announcement date is after March 2003, 0 otherwise. Size factor for returns is implicitly controlled by size-adjusted returns. *LOSS* is an indicator variable coded as 1 if GAAP earnings is negative, otherwise 0. *BTM* is the book to market ratio capturing growth factor.

TABLE 16. OLS Regression with the Sub-Sample of Firms that Discontinued Disclosing Non-GAAP Earnings in the Post-Reg G Period

$$SADJRET = \gamma_0 + \gamma_1 UE_GAAP + \gamma_2 UE_NONGAAP + \varepsilon$$

(firm-quarter index omitted)

Variables	Expected Sign	Coef. Estimates		Robust T Stat.	P> t
Intercept		γ_0	0.0051	0.004	0.163
UE_GAAP	+	γ_1	0.0014	0.003	0.670
UE_NONGAAP	+	γ_2	-0.0168	0.019	0.401
No. of Obs.		590			
Adjusted R ²		0.32%			

Note: This table presents the results of regression for a sub-sample of 154 firms that discontinued disclosing non-GAAP earnings in the post-Reg G period. Thus, sample consists of 590 pre-Reg G period press releases where seasonally differenced non-GAAP EPS surprises are defined. All t-statistics are heteroskedasticity-robust (White 1980). *SADJRET* is cumulative abnormal returns, defined as the sum of size adjusted daily returns over the three-day window (-1, 0, +1), where 0 is the date of the preliminary earnings announcement press release. *UE_GAAP* (*UE_NONGAAP*) is seasonally differenced quarterly GAAP (non-GAAP) earnings deflated by the market capitalization at the end of prior fiscal quarter. Stock-split factor has been considered for both surprises.

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