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**SEC interventions and the frequency and usefulness of
non-GAAP financial measures**

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Dedication

To Augusto, Alexandre and Andre

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**SEC interventions and the frequency and usefulness of
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Publication No. _____

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This dissertation examines the effect on both firms and investors of two SEC regulatory interventions related to disclosure of non-GAAP (pro forma) financial measures. The two interventions, a “warning” in late 2001 and Regulation G, adopted in early 2003, define three different regimes that coincide with the three calendar years in the sample (2001 to 2003).

The impact on investors is measured by analyzing the frequency and determinants of disclosure of a non-GAAP financial measure in the quarterly earnings’ press releases. The impact on investors is assessed via valuation models and an analysis of the correlation of earnings surprises with abnormal stock returns. Both analyses focus on the existence of a market reaction to the simple act of disclosing a non-GAAP financial measure as well as the way investors react to the magnitude of the adjustments made by both the financial analysts and the firms’ managers.

There are four main results. First, after the SEC's first intervention there is a decrease in the probability of disclosure of non-GAAP financial measures and this decline accelerates after the second SEC intervention. Second, all else equal, investors do not value firms higher or lower because of the disclosure of non-GAAP financial measures. Third, investors accept as generally transitory most of the adjustments to GAAP income made by I/B/E/S financial analysts, but not the additional adjustments made by firms. Finally, the way investors price differences between GAAP and non-GAAP financial measures was not affected by SEC interventions.

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Chapter 1: Introduction

Announcements of non-GAAP financial measures of overall performance (also called pro forma numbers) have become very common in the United States.¹ On August 21, 2001, the *Wall Street Journal* reported that more than 300 companies in the S&P 500 excluded some ordinary expenses, as defined by GAAP, from the operating-earnings numbers they provided to investors and analysts. Both the accounting literature and the financial press recognize that there are two possible explanations for this wide-spread disclosure of non-GAAP financial measures. One view is that managers want to reduce information asymmetry by communicating their informed view of the extent to which elements of GAAP income are transitory (via adjustments).² The alternative view is that managers want to mislead investors by excluding from income the effects of some negative events that are likely to recur in the future (and so are not really transitory).

Worried that investors may be misled by the disclosure of non-GAAP measures that are not well-defined and that have no uniform characteristics, the Securities Exchange Commission (SEC) has intervened twice on this topic: with a cautionary warning in December 2001 and with a new disclosure regulation in January 2003. The warning cautioned public companies disclosing non-GAAP financial measures that firms have an obligation not to mislead investors when providing non-GAAP information. The new regulation, Regulation G, requires public companies that disclose non-GAAP financial measures to include in that disclosure (a) a presentation of the most directly

¹ Throughout this dissertation I will use the term non-GAAP financial measures instead of pro forma because historically pro forma earnings represent earnings under the assumption that two merging (or divesting) companies have been merged (or divested) in prior years and that article 11 of Regulation S-X states “pro forma financial information should provide investors with information about the continuing impact of a particular transaction by showing how it might have affected historical financial statements if the transaction had been consummated at an earlier date.”

² See Appendix for some quotes from press releases.

comparable GAAP financial measure and (b) a reconciliation of the disclosed non-GAAP financial measure to the most directly comparable GAAP financial measure. These actions indicate that the SEC believes that more consistency and transparency in the way firms file and furnish information will enable investors to better understand the non-GAAP information disclosed, and that regulation is necessary to bring about this outcome. This dissertation examines how these two interventions by the SEC are associated with the frequency of firms' disclosures of non-GAAP financial measures and the impact these disclosures have on the pricing of securities.

I analyze the disclosure of non-GAAP financial measures in three different regimes: before the SEC warning, between the warning and the adoption of Regulation G and after Regulation G became effective. This is done using the quarterly press releases of all firms in the Standard & Poor's 500 Index (S&P 500), for calendar years 2001 to 2003. Thus, my sample includes not only observations where non-GAAP financial measures are disclosed, but also observations where no non-GAAP financial measure is disclosed.

The first issue I address is variation in the frequency of disclosure of non-GAAP financial measures across the three regimes. When controlling for several variables that affect the probability of disclosure of non-GAAP financial measures (via a logit model), results confirm a reduction in the propensity to disclose non-GAAP financial measures in 2002, and an additional reduction in 2003. Thus, both periods after the SEC's interventions are associated with a decrease in the probability of disclosure of non-GAAP financial measures. Also, this decline accelerates through the period, which is consistent with an increasing reaction to the increasing level of SEC intervention.

The second issue I address is variation in the value relevance of both the act of disclosing a non-GAAP financial measure across the three regimes and of the non-GAAP

measure itself. I conduct both a valuation study and an analysis of the correlation of earnings surprises with abnormal stock returns. The results of both analyses are consistent. There are two main results. First, the market, on average, does not assign a lower or higher value to firms that disclose a non-GAAP financial measure in their quarterly earnings press release controlling for the magnitude of the non-GAAP adjustments. Second, on average investors reverse some, but not all, of the adjustments made by firms. This suggests that investors do not view all of the items excluded by firms as transitory.

The third issue I address is variation across the three regimes in the value relevance of the items that firms exclude from the non-GAAP financial measure they disclose (indicating they consider them unusual or non-recurrent) but that analysts do not exclude. To do this, I divide the total adjustment made by firms into two parts: the portion made by financial analysts (identified using the I/B/E/S actual values) and the incremental adjustments made by the firms. My analysis examines whether the market assesses these two parts differently. The results reveal a stark difference between the market's assessment of the adjustments made by I/B/E/S and the incremental adjustments made by firms. The estimated regression coefficients indicate that investors view most of the analysts' adjustments as an appropriate elimination of items that are relatively transitory but that they generally consider the incremental adjustments made by firms as an inappropriate elimination of items that are relatively permanent. Moreover, the two sets of coefficients (for the analysts' adjustments and the firms' additional adjustments) have a different pattern across the three regimes. While the coefficients for the analysts' adjustments are not statistically different across the three regimes, the coefficients for the additional adjustments made by firms are viewed as even more transitory in regimes two and three than in regime one.

This dissertation answers the call of Healy and Palepu (2001), who find it surprising that empirical research on the regulation of disclosure is virtually non-existent and contributes to the literature on non-GAAP financial measures in several ways. First, it is the first study to have a pre-determined sample, regardless of whether the firms disclose (or disclosed in the past) non-GAAP financial measures. This allows me to determine if the simple act of disclosing non-GAAP financial measures affects the way investors value firms. Second, while previous papers use differences between earnings reported by the firm and “actual” earnings in the I/B/E/S database as a proxy for the non-GAAP financial measures disclosed by the firms in their press release, I collect the exact non-GAAP financial measures disclosed by the firms and present results that indicate the market reacts very differently to the adjustments made by analysts versus the incremental adjustments made by the firms. This result also extends previous research by allowing for different levels of persistence for I/B/E/S adjustments and incremental adjustment made by firms.

The remainder of the dissertation is organized as follows. The next section consists of a discussion of the SEC’s interventions on non-GAAP financial measures. Section three summarizes prior research. Section four explains how the final sample was obtained. Section five describes the sample of non-GAAP disclosures used in this study. Section six outlines the research design and reports the results of the analysis of firms’ behavior. Section seven outlines the research design and reports the results of the analysis of the investors’ behavior. The last section provides a summary with my concluding remarks.

Chapter 2: The SEC's interventions on non-GAAP financial measures

As mentioned above, the SEC has taken action related to disclosures of non-GAAP financial measures twice in recent years.³ The SEC's objectives for the December 4, 2001 warning were twofold: to caution public companies on their use of non-GAAP financial measures and to "alert investors to the dangers of such information." More specifically, the warning reminded firms that they have an obligation not to mislead investors when providing non-GAAP information. It also stated that, in order to inform investors fully, companies need to describe accurately how the non-GAAP numbers are calculated and reconcile them with GAAP earnings. Although the SEC recognized that non-GAAP financial measures could serve useful purposes (by allowing managers to communicate to investors which income components are transitory), it also expressed concern that these numbers could mislead investors (by excluding items that are not transitory, especially expenses and losses) if they obscured GAAP results. The warning mentions, as an example, that "investors are likely to be deceived if a company uses a "pro forma" presentation to recast a loss as if it were a profit... without clear and comprehensive explanations of the nature and size of the omissions."

The first enforcement action from the SEC against a company for improper use of non-GAAP earnings in a press release was in 2002. The SEC said that Trump Hotels & Casino Resorts' release of its third-quarter 1999 results showed earnings that beat Wall Street's expectations but failed to disclose that the results were chiefly due to an unusual \$17.2 million gain. At the same time, the non-GAAP results noted the exclusion of an \$81.4 million charge for discontinued operations. Wayne Carlin, director of the SEC's

³ In 1973, the SEC issued Accounting Series Release No. 142, warning of possible investor confusion from the use of financial measures outside of GAAP.

New York office, said at that time that the action against Trump Hotels was the first in what promised to be a wider crackdown on the use on non-GAAP results.⁴

In November of 2002 the SEC proposed Regulation G and amendments to the filing and furnishing rules, which are intended “to ensure that investors and others are not misled by the use of non-GAAP financial measures.” This regulation was consistent with one of the goals of the Sarbanes-Oxley Act: to enhance disclosures to investors. Approved on January 24, 2003, Regulation G became effective on March 28, 2003. In it is a definition of what the SEC considers a non-GAAP financial measure:

A non-GAAP financial measure is a numerical measure of a registrant’s historical or future financial performance, financial position or cash flows that:

- (i) Excludes amounts, or is subject to adjustments that have the effect of excluding amounts, that are included in the most directly comparable measure calculated and presented in accordance with GAAP in the statement of income, balance sheet or statement of cash flows (or equivalent statements) of the issuer; or
- (ii) Includes amounts, or is subject to adjustments that have the effect of including amounts, that are excluded from the most directly comparable measure so calculated and presented.

Regulation G requires public companies that disclose or release non-GAAP financial measures to include in that disclosure or release a presentation of the most directly comparable GAAP financial measure and a reconciliation of the disclosed non-GAAP financial measure to the most directly comparable GAAP financial measure. The SEC stated “the reconciliation will provide the securities markets with additional information to more accurately evaluate companies’ securities and, in turn, result in a more accurate pricing of securities.” Thus, the additional information will allow investors to decide if they agree with the firms’ adjustments (i.e., if they consider the adjusted items as transitory) or if they want to reverse these adjustments.

⁴ The *Wall Street Journal*, January 17, 2002.

Moreover, the SEC amended form 8-K to add a new item 12, “Disclosure of results of operations and financial condition.” This requires registrants to furnish the SEC with all releases or announcements disclosing material non-public financial information about completed annual or quarterly fiscal periods. The requirement of item 12 applies regardless of whether the release or announcement includes disclosure of a non-GAAP financial measure. Thus, all quarterly and annual earnings announcements made by registrants must now be furnished to the SEC.

As an additional regulatory action, on June 13, 2003, the staff members in the division of Corporation Finance of the SEC published responses to frequently asked questions regarding the use of non-GAAP financial measures. In the SEC responses companies are cautioned, for example, to explain clearly what they mean by free cash flow (if they disclose this measure) and to present a reconciliation, since this measure does not have a uniform definition.

This study examines how the recent SEC actions are associated with the extent to which firms use non-GAAP financial measures and the impact these disclosures have had on the pricing of securities. Because the two SEC interventions were at the end of 2001 and at the beginning of 2003, I examine a period of three calendar years (2001-2003). I include all press releases from 2001 in the first regime (prior to the warning), all press releases from 2002 in the second regime (between the warning and Regulation G) and all press releases from 2003 in the third regime (after approval of Regulation G).⁵ These three regimes are depicted in the following timeline:

⁵ I include the ninth calendar quarter in regime three, as my results indicate that Regulation G began having an effect as soon as it was published, and not just after it became effective. I realize that, in reality, the division into regimes is not based on “bright lines”, and that the increase in regulation is somewhat evolutionary. However, on average, successive regimes featured stronger regulation than previous regimes.

Figure 1: timeline of SEC interventions

Chapter 3: Prior research

The first studies published in the area of non-GAAP financial measures established that these measures were more informative than GAAP earnings. This result seems to be robust to different proxies and different methodologies. Bradshaw and Sloan (2002) was the first paper on the topic and used the numbers disclosed by Thomson Financial I/B/E/S as a proxy for the non-GAAP earnings. Some following research on non-GAAP earnings (e.g.: Brown and Sivakumar (2003)) used this same proxy. Most of the papers that use this proxy refer to the analysts' numbers as street earnings and use them as a proxy for the numbers disclosed by managers in their press releases, as these numbers also make adjustments to the GAAP figures and the numbers actually disclosed in the press releases are not available in a database format.

However, other papers have shown that this measure is not a good proxy for the non-GAAP earnings firms disclose in their press releases. Specifically, Bhattacharya et al. (2003b) use the actual non-GAAP numbers disclosed in a sample of press releases gathered from Lexis/Nexis and find a statistically significant mean difference of approximately 4 cents between non-GAAP earnings disclosed in press releases and the numbers reported in I/B/E/S as actual earnings. This value corresponds to adjustments that firms made, but analysts did not.⁶ Furthermore, Abarbanell and Lehavy (2002) examine the properties of differences between reported earnings per forecast data providers (including I/B/E/S, Zacks and First Call) and reported earnings per Compustat and state that inferences in pro forma papers that use reported earnings from commercial

⁶ Bhattacharya et al. (2003b) also find that non-GAAP earnings are more informative than operating earnings (as does Brown and Sivakumar (2003)).

databases are driven by a relatively small number of observations that lie in one extreme tail of the distribution of earnings.

The use of I/B/E/S actual to represent the non-GAAP earnings measures is not the only proxy discussed in this literature. In fact, Bhattacharya et al. (2003b) calculate their own GAAP earnings measure, instead of using net income per share or net income per share before extraordinary items and discontinued operations. They begin their calculation with GAAP basic earnings per share from operations, multiply this by the number of basic shares outstanding (to get total operating earnings) and then divide operating earnings by the number of diluted shares outstanding to obtain diluted operating earnings per share. This led Bradshaw (2003) to point out that the authors use a “Compustat-defined measure of GAAP operating earnings, so what is referred to as GAAP is actually another pro forma earnings number”. He concluded that additional evidence was necessary to determine whether the hand-collected pro forma EPS differ significantly (in the economic sense) from the I/B/E/S’s EPS values.

Taken together, these studies indicate that careful consideration must be given to the numbers used in studies of non-GAAP financial measures and that before comparing results of different papers readers need to establish if the measures discussed can, in fact, be compared. Furthermore, a significant difference seems to exist between the numbers disclosed by analysts and the numbers disclosed by managers (although both are non-GAAP).

Three different procedures have been used to study the value relevance of non-GAAP financial measures: (1) ability to predict future earnings [predictive ability], (2) association of earnings levels with stock price levels [valuation] and (3) correlation of earnings surprises (measured by forecast error) with abnormal stock returns [information content]. Brown and Sivakumar (2003) use all three and, in the last procedure, they use

both a long returns window (as in Bradshaw and Sloan, 2002) and a short returns window (as in Lougee and Marquardt, 2002 and Bhattacharya et al., 2003b).

Because the above-mentioned studies indicate that non-GAAP earnings are more informative than GAAP earnings, one may expect the items that are removed by managers not to be persistent and, as a consequence, not to have predictive value. As Penman (1992) mentions, “stock price changes associated with reported earnings innovations have been characterized as related to the persistence of earnings, which is defined as the revision in expected future earnings that is implied by a current earnings innovation”. In a valuation model, this lower persistence should lead to smaller valuation weights (or multipliers), as has been established in Lipe (1986) and Kormendi and Lipe (1987).

However, Doyle et al. (2003) analyze the predictive value of expenses excluded from non-GAAP earnings and find that these expenses have predictive value that the market does not fully appreciate. In this study, the authors calculate the difference between IBES and GAAP earnings and examine the stock return for up to three years after the earnings announcement.⁷ Their results document a significant difference between the firms with high and low amounts of excluded expenses. Furthermore, the amounts excluded significantly predict future cash flows.

One possible explanation for this result is a lack of sophistication of some investors. In fact, Bhattacharya et al. (2003c) analyze what group of investors is responsible for the market’s reaction to non-GAAP financial measures and their results indicate this reaction is attributable almost exclusively to small investors. This is consistent with the results of the experiment conducted by Frederickson and Miller

⁷ The fact that this is not a good proxy is mentioned in Easton (2003) discussion. The author states that since I/B/E/S earnings are different from the non-GAAP values reported by the firms, “it is not clear that the empirical analyses in this paper should be used as a basis for commentary about pro forma earnings”.

(2004). In this study the authors find that the non-GAAP disclosure led less sophisticated investors to price securities higher. However, these same investors did not perceive the non-GAAP disclosure to be informative. This led the authors to conclude that the higher valuation was caused by an unintentional cognitive effect.

As discussed above, analysts make adjustments to GAAP earnings when reporting “actual” earnings to their clients. Gu and Chen (2004) examine the rationale underlying analysts’ choice for what to exclude from GAAP financial measures. Their findings are that the items that analysts decide to include in their non-GAAP earnings are valued more by the market than the excluded items. This result is consistent with previous literature that establishes analysts as having a superior stock picking capability. Commenting on this paper, Lambert (2004) points out that it may be the case that either the forecast database service (First Call) makes the decision as to what items are included or excluded from the earnings number reported, or that company managers make this decision. Lambert bases his conclusion on the fact that (i) when the “actual” earnings from First Call is defined the earnings number has already been reported and the market response has already occurred and (ii) evidence also exists showing that many of the excluded items correspond to the items that are excluded in management’s calculation of their non-GAAP earnings.

Taken together, these studies indicate that there is a positive relation between the adjustments made by analysts and managers and the market’s reaction. Thus, it seems that the items adjusted for are not entirely transitory.

A closely related issue is how the emphasis given by managers to non-GAAP earnings measures influences the judgments and decisions of investors. Using an experimental setting, Elliot (2004) finds that non-professional investors’ judgments are influenced by the strategic emphasis of a non-GAAP profit relative to a GAAP loss, not

simply the presence of the non-GAAP disclosure. Consistent with Frederickson and Miller (2004), Elliot (2004) finds that these non-professional investors' behavior was consistent with a common judgmental heuristic: anchoring-and-adjustment. In practice, this means that when individuals are uncertain about the value or final estimate they want to report, the first pieces of evidence serve as an anchor in the judgment task. Elliot (2004) also finds that the effect of this heuristic is mitigated by the presence of a side-by-side reconciliation between a GAAP and a non-GAAP income statement (as opposed to a sequential display of the non-GAAP and GAAP income statements).

The emphasis given to non-GAAP earnings is also the topic of two empirical papers: Bowen et al. (2005) and Bhattacharya et al (2003a). Using a sample of 196 firms, Bowen et al. (2005) find that managers emphasize the metric that portrays better firm performance and recognize that it is possible that managers are doing this because this is the most relevant metric. They also find that firms with greater media exposure, firms with greater analysts following and firms with greater institutional ownership place greater emphasis on non-GAAP earnings and less emphasis on GAAP earnings. Their analysis on the change in emphasis (from 2001 to 2002) reveals that firms reduced their emphasis on non-GAAP earnings and increased their emphasis on GAAP earnings. Bhattacharya et al. (2003a) finds evidence that, on average, the magnitude of price reactions is higher when the non-GAAP number exceeds the GAAP number and the non-GAAP number is given more emphasis.

Taken together, the studies on emphasis seem to indicate that investors erroneously attribute a higher price to securities of firms that disclose their non-GAAP measures before their GAAP numbers, in the cases when the non-GAAP value is higher.

The only paper in the literature that studies how the frequency of non-GAAP financial measures disclosures relates to the SEC interventions is Heflin and Hsu (2004).

Since these authors do not hand collect their data, they define the frequency of non-GAAP financial measures disclosures as the difference between I/B/E/S actual earnings and GAAP earnings (on a per share basis). Excluding fourth quarters, they find a significant decrease in the percentage of firms that disclose non-GAAP financial measures in the first quarter of 2003 (the last quarter for which they had data). The authors assess the sensitivity of their time-series results searching Lexis/Nexis for the phrase “pro forma” on press releases for the second and third quarters of 2003 and conclude there was a sharp decrease in the use of non-GAAP financial measures.

By collecting the non-GAAP financial measures disclosed by firms directly from the earnings announcements press releases, I will be able to determine if these measures are significantly different from the numbers disclosed by I/B/E/S. This will answer the comment of Bradshaw (2003). I will also expand the analysis of Heflin and Hsu (2004) by analyzing the change in frequency of disclosure of non-GAAP measures through the three regimes. My sample period will also permit me to assess the changes, through time, of the emphasis given to the non-GAAP financial measures disclosed by the S&P 500 and to look into the specific situations that previous papers found to be misleading for investors. Finally, I will look at the market reaction to the adjustments made, in order to determine whether investors changed the way they react to these (in association with the SEC interventions, as a results of more transparency) and whether the reaction is different for analysts’ adjustments and incremental firms’ adjustments.

Chapter 4: Sample selection and data collection

I begin the sample selection process with all firms included in the Standard & Poor's 500 Index (S&P500) on December 31, 2003. I use the S&P500 as my starting point for several reasons. First, the S&P500 includes both firms that disclose non-GAAP financial measures and firms that do not, allowing for a comparison of these two sub samples through time.⁸ Second, there is evidence in the financial press that in 2001 the use of non-GAAP financial measures was widespread in the S&P500 firms.⁹ Finally, because of their size, S&P500 firms are economically important.

Table 1 provides a reconciliation between the S&P 500 on December 31, 2003 and the final sample. I removed firms with global industry classification standard (GICS) codes of 40 (financial firms) and 55 (utilities). Financial firms are removed because they have different regulations and routinely disclose a "cash earnings" number (Johnson and Schwartz (2001)). Utilities are removed because they are subject to more stringent regulation than other firms. I use GICS codes instead of the traditional standard industrial classification (SIC) codes because Bhojraj et al. (2003) show that the former are significantly better in various settings of capital market research.¹⁰ Finally, I removed firms that had mergers or splits, because this makes an analysis of the firm's evolution

⁸ This is the first study of which I am aware that allows for this type of comparison. Although there are now several papers other than Bhattacharya et al. (2003a) based on hand-collected non-GAAP financial measures, all these authors construct their samples by searching databases (such as Lexis/Nexis and Dow Jones) for specific words and/or phrases. This limits the samples to firms that disclose non-GAAP financial measures.

⁹ *The Wall Street Journal*, August 21, 2001.

¹⁰ The authors reach this conclusion after comparing GICS codes with three other sets of codes that are commonly used in the literature: SIC codes, the codes of the North American Industry Classification System (NAICS) and the Fama and French (1997) algorithm. Moreover, the authors show that the GICS advantage is most pronounced among the largest firms and that for firms in the S&P 500 index the GICS industry means dominate the industry means from the other three methods in terms of their ability to explain firm-level returns and valuation multiples in each of their sample years.

through time less reliable.¹¹ The final sample consists of 361 firms. Each observation corresponds to a quarterly earnings announcement press release made during a calendar quarter from 2001 to 2003.

As discussed in section three, although some early studies of non-GAAP disclosures use “actual” earnings from analyst forecast databases to proxy for non-GAAP disclosures by firms, recent studies provide evidence that there are significant differences between the “actual” earnings reported by these databases and the non-GAAP numbers disclosed by firms in their press releases. Thus, in order to ensure that I have the non-GAAP numbers disclosed by the firms I hand-collect my data from press releases obtained from either Business Wire or PR Newswire, both of which are available at Factiva.¹² When information is not available from either of those sources I collect the press release from the firm’s website. I use this source as a last resort (it represents less than 10% of the total press releases collected), as some firms have warnings stating that they sometimes alter the content and/or order of parts of the press release after its release date.

My data confirms significant differences between I/B/E/S actual numbers and the non-GAAP financial measures, as first identified in Bhattacharya et al. (2003b). My results indicate that the average adjustment made by firms is 32.53 cents, while the average adjustment made by I/B/E/S is only 12.43 cents. The difference between these two values is statistically significant, with a t-statistic of 7.11.

I identify non-GAAP measures by first defining what measures to classify as GAAP and then classifying all the remaining measures as non-GAAP. I initiate my definition of GAAP measures following the Financial Accounting Standards Board

¹¹ Firms were excluded by reason of merger only if they made it clear in the press release that the business arrangement altered their operations significantly.

¹² Schrand and Walther (2000) mention that these two services edit press releases only for grammar (such as commas, decimal points and AP style) and verify any changes with the firm.

standard on earnings per share (SFAS 128). Thus, I accept earnings before or after discontinued operations and extraordinary items as consistent with GAAP, whether it is reported as a gross amount or on either a basic or diluted per share basis. Following APB Opinion 20, I also consider as GAAP the amounts that reflect the retroactive application of accounting changes. Finally, I also classify as GAAP measures operating income and cash flow from operating activities.

Chapter 5: Descriptive statistics

5.1 DIVISION OF FIRMS BY INDUSTRY GROUP

Panel A of Table 2 shows the distribution of firms in the sample (columns 2 and 3) and the press releases with disclosures of non-GAAP financial measures (columns 4 and five) by industry group, based on four-digit GICS codes. Three of the industry groups represent 9% of the sample: materials, capital goods and technology hardware and equipment. The capital goods industry also represents 9% of the press releases with non-GAAP disclosures. Technology hardware and equipment, however, represents a bigger percentage of the non-GAAP disclosures (11%) than of the entire sample (where it represented 9%). Finally, the third most relevant industry in terms of industry, is software and services, which represents 9% of disclosures (although it only represents 7% of the entire sample). This predominance of technology firms is consistent with previous studies. For example, the results of Bhattacharya et al. (2004) provide evidence that firms in the business services industry (especially firms engaged in technology-related services) made up a large proportion of non-GAAP announcements.¹³

These industries can be aggregated into economic sectors that are identified via 2-digit codes. This is done in Panel B, for the non-GAAP observations. Results indicate that the division of observations by economic sector does not change significantly through the three regimes. Consistent with the above, the economic sector that represents a higher percentage of the observations with a non-GAAP disclosure is the information

¹³ These authors use SIC codes to divide their observations into industries.

technology sector. It represents 27% of the observations on both regimes 1 and 3 and 24% of the observations on regime 2.

5.2 NON-GAAP FINANCIAL MEASURES DISCLOSED

Table 3 presents descriptive statistics for the type of non-GAAP financial measures disclosed by sample firms. The first set of measures are per share measures, while the second set includes only aggregate measures. Many press releases disclosed more than one non-GAAP financial measure (as well as more than one GAAP measure). Because of this I do not add the number of disclosures, as this total would not be comparable with any other measure.

Results show that for both per share and aggregate measures, a version of net income is the most commonly disclosed non-GAAP measure followed by EBIT_DA, which includes disclosures of both EBITDA (earnings before interest, taxes, depreciation and amortization) and/or EBIT (earnings before interests and taxes).

As mentioned above, in the second intervention of the SEC, the rules for filing and furnishing information to the SEC were altered. The alterations to the instructions for filing forms (Regulation S-K) stated that registrants must not

Exclude charges or liabilities that require, or will require, cash settlement, or would have required cash settlement absent an ability to settle in another manner, from non-GAAP liquidity measures, other than the measures earnings before interest and taxes (EBIT) and earnings before interest, taxes, depreciation, and amortization (EBITDA).

Since this change may lead to an increase of disclosure of EBIT_DA in the third regime, I examine the disclosures of these measures for the three regimes. From the total 542 observations, 199 were in regime 1, 206 were in regime 2 and 137 were in regime 3.

Thus, the change in Regulation S-K is not associated with an increase in the disclosure of these measures.

Chapter 6: The association between the SEC interventions and the disclosure of non-GAAP financial measures by firms

6.1 FREQUENCY OF NON-GAAP DISCLOSURE

In order to assess the changes in the frequency of disclosure of non-GAAP financial measures I compare the percentage of sample firms disclosing non-GAAP financial measures across the 12 quarters of my sample period. The results reported by Heflin and Hsu (2004) suggest that both SEC interventions are associated with a reduction of the disclosure of non-GAAP financial measures. Thus, I expect the percentage of press releases containing non-GAAP disclosures in the first calendar quarter of 2002 to be lower than in the first calendar quarter of 2001 and the value of the second calendar quarter of 2003 to be lower than the value of the second calendar quarter of 2002.

Results reported in Table 4 do not indicate a clear decrease in the number of firms that disclosed non-GAAP financial measures in 2002 (the fifth through eight calendar quarters of my sample), relative to 2001 (the first four quarters of the study period). In fact, there was a small increase in the percentage of firms disclosing non-GAAP financial measures in the first two calendar quarters of 2002 relative to the same quarter in the previous year. In contrast, there was a small decrease in the last two calendar quarters of 2002, which suggests anticipation of Regulation G.

For 2003, the results indicate a clear decrease in the number of firms that disclosed non-GAAP financial measures relative to 2002 (the ninth through twelfth calendar quarters of my sample relative to the fifth through eight quarters of the study period). The average percentage of firms that disclosed non-GAAP financial measures

goes from 63% (in 2002) to just 51% (in 2003), a difference that is statistically significant at the 1% confidence level. Taken together, these results suggest that only Regulation G is associated with a decline in non-GAAP disclosures.

6.2 LOGIT ANALYSIS

Since many factors, other than SEC intervention, affect managers' decision on whether to disclose non-GAAP financial measures in their press releases, I next perform a logit analysis of the frequency of non-GAAP financial measures' disclosures. This is done in a way that addresses the limitations of Heflin and Hsu (2004). I take into consideration that firms call non-GAAP financial measures a wide range of names, such as current earnings, adjusted earnings, cash earnings, etc. Furthermore, I do not restrict the sample to non-GAAP financial measures labeled by the disclosing firms as "pro forma", as Heflin and Hsu do in their sensitivity analysis. Finally, I include fourth quarters, when most of the non-GAAP financial measures are disclosed (Bradshaw and Sloan (2002)), in my analysis.

A decrease in the use of non-GAAP financial measures can have two possible explanations: some firms were using these disclosures to mislead investors and a closer scrutiny (by the SEC) led them to stop; or the SEC actions have attached a stigma to the disclosure of these measures, motivating firms that were trying to decrease information asymmetry to stop this practice. On the other hand, an increase in the use of these disclosures may indicate that the SEC interventions gave non-GAAP financial measures a credibility that they lacked before.

Previous literature has identified several variables that affect the disclosure of non-GAAP financial measures. Thus, in order to correctly assess the relation between the calendar quarters in my sample and disclosure of non-GAAP measures I control for

contemporaneous changes in these determinants of non-GAAP disclosure.¹⁴ Following Heflin and Hsu (2004), I estimate the following logit model to assess how several independent variables affect the probability that a firm will disclose a non-GAAP financial measure:

$$\begin{aligned} \text{Log } (p/(1-p)) = & \beta_0 + \beta_1\text{CAL_QRT_02} + \beta_2\text{CAL_QRT_03} + \dots + \\ & \beta_{10}\text{CAL_QRT_11} + \beta_{11}\text{CAL_QRT_12} + \beta_{12}\text{SPEC} + \\ & \beta_{13}\text{SPEC_VAL} + \beta_{14}\text{B_BATH} + \beta_{15}\text{INTAN} + \beta_{16}\text{TECH} + \\ & \beta_{17}\text{LOSS} + \beta_{18}\text{UPEARN} + \beta_{19}\text{STDRO} + \beta_{20}\text{LNASSET} + \\ & \beta_{21}\text{LEV} + \beta_{22}\text{QRT_2} + \beta_{23}\text{QRT_3} + \beta_{24}\text{QRT_4} + \beta_{25}\text{NEGFE} \quad (1) \end{aligned}$$

In this model, the dependent variable is the log-odds ratio, where p is the probability that NG equals one and NG is a dummy variable that indicates whether a firm disclosed non-GAAP financial measures. The first eleven independent variables (all of the form CAL_QRT_X) are dummy variables for the calendar quarters (after the first) that are included in my analysis. If, as my previous results seem to indicate, Regulation G is associated with a significant decrease in the disclosure of non-GAAP financial measures, then the estimated coefficients for the last four calendar quarters should be negative and significant.

¹⁴ As mentioned above, one of the differences between my study and the study of Heflin and Hsu (2004) is that they do not include observations from fourth quarters in their sample. By including these, I must control for a factor that did not affect their results: the possibility of firms having adjusted their behavior in anticipation of the implementation of Regulation G in the first press release of 2003. This is possible because although the regulation only became effective on March 28 of 2003, it was approved in January (furthermore, the proposal was made public in November of 2002). Moreover, while Heflin and Hsu (2004) limit their sample to firms with December 31 fiscal year-ends, I do not limit my sample to these firms. Thus, I will always mention calendar quarters, instead of fiscal quarters. My results in Table 4 do show a decrease in the percentage of firms disclosing non-GAAP financial measures from the fifth calendar quarter (when the value was 70%) to the ninth calendar quarter (when the value was 61%).

Eight of the control variables included in the model were also used in Heflin and Hsu (2004).¹⁵ SPEC is a dummy variable that indicates the presence of special items, for which I expect to find a positive coefficient. B_BATH equals one if the firm has a negative special item and its earnings excluding the special item are negative. Thus, I expect a negative coefficient for this variable. TECH equals one if the firm operates in the three digit SIC codes 283, 357, 481, 360-367, 737 or 873. I expect this variable to have a positive coefficient. LOSS equals one if GAAP earnings are negative, and so a positive coefficient is expected. UPEARN equals one if the firm's GAAP earnings are greater than or equal to its earnings for the same quarter of the prior year. I expect a negative coefficient for this variable. STDROA is the standard deviation of the firm's quarterly return on assets over the sample period. I expect a positive coefficient for this variable. LNASSET is the natural log of total assets, for which I expect a positive coefficient. LEV is total liabilities divided by total equity, and a positive coefficient is expected.

I introduce six additional control variables. SPEC_VAL is the value of the special items, scaled by total assets. A negative coefficient is expected, as the value of special items is negatively signed. Thus, the higher the value of the firm's special items, the higher the probability of disclosing non-GAAP financial measures. INTAN is the value of intangibles, scaled by total assets, and I expect a positive coefficient for this variable, reflecting the tendency of firms to report earnings before amortization of goodwill.¹⁶ QRT_2, QRT_3 and QRT_4 are dummy variables for the fiscal quarters. Given that Bradshaw and Sloan (2002) find an increasing trend across fiscal quarters of non-GAAP financial measures, I expect to find positive coefficients for these dummy variables.

¹⁵ See Heflin and Hsu (2004) for a complete discussion.

¹⁶ The value of intangibles is obtained by adding Compustat quarterly items 234 and 235. Whenever an observation is missing this data, I assume that the value of intangibles is zero.

Finally, NEGFE equals one when there is a negative forecast error, i.e., when the analysts' consensus is higher than GAAP earnings per share. A positive coefficient is expected, indicating that firms have a higher probability of disclosing non-GAAP financial measures when they will not meet the analysts' consensus with their GAAP results.¹⁷ This would be consistent with the results of Lougee and Marquardt (2004) and Doyle et al. (2004).

Descriptive statistics for all of the control variables included in the logit model are reported in Table 5. In Panel A I present these descriptive statistics separately for observations that disclose and do not disclose non-GAAP financial measures, and I test for differences of the means of these variables. There are 2,289 observations with non-GAAP disclosures and 1,675 observations where no non-GAAP financial measure is disclosed. The results of the tests of means show that these two sub-samples are significantly different for all variables. Non-GAAP observations have special items, big baths and losses more frequently than observations where no non-GAAP financial measure is disclosed. Non-GAAP observations also have a higher value of intangibles, a higher standard deviation of return on assets and a higher value of leverage. Finally, non-GAAP measures are disclosed more often by tech firms, when there is a negative forecast error and when earnings decline (when compared to the same quarter of the previous year).

In Panel B I present the descriptive statistics per regime. This table shows an increase in the percentage of firms with special items and the percentage of firms with an increase in earnings, accompanied by an increase in the value of intangibles, assets and leverage. On the other hand, the percentage of firms with losses is decreasing over time, as well as the percentage of firms that have a negative forecast error.

¹⁷ As in Brown and Sivakumar (2003) I use the last mean consensus estimate in the I/B/E/S summary file prior to the quarterly earnings announcement as a proxy for expected EPS.

Results for the logit model in equation 1 are presented in Panel A of Table 6, after removal of outliers.¹⁸ These results indicate a decrease in the probability of disclosing non-GAAP financial measures both in the second regime (i.e., after the SEC's warning) and in the third regime (i.e., after the approval of Regulation G). More specifically, except for three quarters, the probability of a firm disclosing non-GAAP financial measures in its press release decreased in small increments from the calendar quarter after the warning until the end of the sample period. Thus, there is an accelerating decline through the period, consistent with a reaction to the increasing level of SEC intervention. Calculation of marginal effects shows that disclosing non-GAAP financial measures in the press release in the fifth (ninth) calendar quarter is 13% (25%) less probable than the first calendar quarter of my sample. All control variables that are statistically significant have the predicted sign.

The difference of results between the descriptive statistics and the logit can be attributed to the contemporaneous effects of the control variables included in the logit. In fact, by looking at Panel B of Table 5, one can see that there was an increase (from regime one to regime two) in the means of all the control variables that have positive coefficients and are statistically significant except for TECH and LOSS (that remain at the same level), while the only control variable that is significantly negative (SPEC_VAL) remains at a similar level. This indicates a trend in the economy to increase the disclosure of non-GAAP financial measures, while in reality (after controlling for these variables) there was a decrease in the frequency.

One aspect of the firm that may determine the decision to disclose a non-GAAP measure is the level of institutional ownership. Bowen et al. (2005) and Yi (2005) look at

¹⁸ Outliers were identified using the cut-off point of $2p/n$ for the hat matrix values (following Belsey et al., 2004). This resulted in the elimination of 131 observations (3.2% of initial sample). Results for the variables of interest are identical when all observations are included in the analysis.

this issue. The first paper finds that firms with greater institutional ownership place greater emphasis on non-GAAP financial measures and makes the comment that this is consistent with allegations that sophisticated investors prefer non-GAAP earnings. Yi (2005) investigates whether Regulation G has reduced misleading non-GAAP earnings disclosures in the business service and computer industries. He finds that firms with greater incentives to communicate economic performance through non-GAAP earnings are less likely to discontinue disclosing non-GAAP earnings, but only if the firms' investors are sophisticated.

In order to test whether institutional ownership affects the decision to disclose a non-GAAP measure I next divide my sample into three sub samples: high institutional ownership, medium institutional ownership and low institutional ownership.¹⁹ I start my analysis of the relation between the level of institutional ownership and the decision to disclose a non-GAAP financial measure by performing an independence test. Panel B of Table 6 presents the division of the observations into four cells. The value of the chi-square statistic is only 0.02, and so the null hypothesis of independence between the two variables is not rejected.

Finally, I estimate the logit model of equation 1 for the two extreme groups: high institutional ownership and low institutional ownership. Results of this estimation are in Panel C of Table 6. There are two main differences between the results of the observations with high institutional ownership and the observations with low institutional ownership. The first is the big difference between the intercepts. The intercept of the high institutional ownership is much lower than the coefficient estimated for the low

¹⁹ The division of the observations is done quarter-by-quarter, in a way that each one of the three groups has 33.3% of the observations of the respective quarter. I had data problems with the Thompson Financial f13 data for the quarter that ends in September/2002. In this quarter, my calculations of percentage of institutional ownership led me to values much above 100%. After making sure that the percentage of institutional ownership is relatively stable through the period I analyze, I replaced the values calculated for September/2002 by the values of June/2002.

institutional ownership. This indicates that, all else constant, the probability of disclosure of non-GAAP financial measures by firms with high institutional ownership is lower than the probability of disclosure of non-GAAP financial measures by firms with lower institutional ownership.

The second is the difference in the significance levels of the calendar quarters' variables. For the low institutional ownership subsample, calendar quarters 5 through 12 are statistically significant, but in the case of the high institutional ownership firms, only 3 calendar quarters (calendar quarters 9 through 11) have statistically significant coefficients. Thus, the decrease in probability of disclosure is less accentuated in the high institutional ownership firms, and there is no decrease in probability of disclosure in the second regime.

6.3 EMPHASIS GIVEN TO NON-GAAP FINANCIAL MEASURES

Previous papers have defined emphasis as where the measure appears in the press release. As already mentioned, Bhattacharya et al. (2003a) and Bowen et al. (2005) provide empirical evidence on the emphasis given to non-GAAP financial measures. Bowen et al. (2005) measures emphasis on a 5-point scale. However, according to this scale the information contained in the title, the subtitle and the highlights all have the same classification (5). Also, using this scale, whenever both GAAP and non-GAAP financial measures are in the same paragraph the information about their relative emphasis (i.e., which measure is disclosed first) is lost. To address these weaknesses I not only collect information about the emphasis put on the measures but also on how they are positioned within the same emphasis measure (via a dummy variable). My measure of emphasis can assume the following values:

- 1 - Not reported

- 2 - Reported in the financial statements only
- 3 - Reported in paragraph 3 or later
- 4 - Reported in the 1st or 2nd paragraph
- 5 - Reported in the subtitle or highlights
- 6 - Reported in the title.

Panel A of Table 7 presents the frequency of each level of emphasis given to both GAAP and non-GAAP financial measures. The most common location (for both GAAP and non-GAAP financial measures) for the first measure disclosed is in the first two paragraphs of the body of the quarterly earnings press release. In the case of GAAP measures, this represents 50.2% of the observations and in the case of the non-GAAP measures, this represents 42.9% of observations where a non-GAAP financial measure was disclosed (or 25.1% of total observations). This is consistent with the results of Bowen et al (2005), as presented in their table 2. There are 27 observations that do not disclose a GAAP measure and 1,759 observations that do not disclose a non-GAAP financial measure.

Panel B of this table presents the mean and median of the emphasis measures over the three regimes, only for observations that disclose a non-GAAP financial measure. This is done so that the observations where no non-GAAP measure is disclosed (and so, where the emphasis rating is 1) do not distort the comparison between the emphasis given to the GAAP measure (E_GAAP) and the emphasis given to the non-GAAP measure (E_NG). Consistent with previous studies, my results indicate that between 2002 and 2001 there was a statistically insignificant decrease in emphasis given to non-GAAP financial measures. The difference between the mean of E_NG in regime 3 and the mean

of this measure in regime 2 is much higher, as it decreases from 4.15 to 3.76. Furthermore, this difference is statistically significant at a 1% level of confidence.

In fact, while the mean emphasis given to the non-GAAP measure is higher than the mean emphasis given to the GAAP measure in regimes 1 and 2, this does not happen in regime 3. Furthermore, the difference between the two means was higher in regime 1 than in regime 2, indicating a gradual inversion of emphasis (from higher emphasis given to non-GAAP to higher emphasis given to GAAP). Bowen et al. (2005) call this difference in emphasis given to the two measures relative emphasis. In my sample this declines from 0.54 in regime 1 to 0.15 in regime 2 and ends (in regime 3) as -0.60 . Therefore, an increase in intervention from the SEC on this topic is associated with a decrease in the value of relative emphasis.

The last row of Panel B reports the mean and median of NG_F, a dummy variable equal to one when the non-GAAP financial measure is disclosed first. This measure takes a value of one both when the non-GAAP measure has a higher emphasis rating (as defined above) and when the non-GAAP financial measure and the GAAP measure have the same emphasis rating, but the non-GAAP financial measure is disclosed first. Consistent with the finding that the relative emphasis decreased through the three regimes, the means of this variable indicate that the percentage of observations where non-GAAP is disclosed first is decreasing through the three regimes. In regime 1 the mean of this variable is 0.69, in regime 2 it is 0.55 and in regime 3 it is only 0.17.

Panel C reports the frequency of all of the possible values for the measure of relative emphasis. Given that this table only considers observations where a non-GAAP financial measure is disclosed, the value of -5 is not possible, as it would imply that a GAAP measure was disclosed in the title (rating=6) and that the non-GAAP measure was not disclosed (rating=1). The results indicate that 41% of the press releases in regime 1

where a non-GAAP financial measure was disclosed gave the same emphasis to both the GAAP and the non-GAAP measures. Consistent with the non-GAAP measure being given more emphasis, the positive values of relative emphasis have higher frequencies. Given that in 69% of the observations the non-GAAP measure was disclosed first (as shown in Panel B), then it must be that from the 41% of observations where the relative emphasis is zero, 25% are observations where the non-GAAP measure was disclosed first.

A similar pattern, although not as strong emerges in regime 2. My results show that in 49% of the observations relative emphasis is zero. Since the sum of the percentages with positive relative emphasis is 31% and Panel B indicates that in 55% of the observations the non-GAAP measure was disclosed first, then it must be that 24% of 49% of zero relative emphasis observations disclose non-GAAP first. In regime 3 results once again depict the increase in emphasis given to the GAAP measures. This is portrayed by a decrease in the frequency of positive values of relative emphasis. Since the sum of the percentages with positive relative emphasis is now only 7% and Panel B indicates that in 17% of the observations the non-GAAP measure was disclosed first, then it must be that 10% of 55% of zero relative emphasis observations disclose non-GAAP first.

When analyzing press releases from 1998 to 2000 Bhattacharya et al. (2003a) find that firms earn higher returns when both the value of non-GAAP earnings is higher than the value of the GAAP earnings and emphasis on non-GAAP is higher. In order to assess if the S&P 500 firms give more emphasis to their non-GAAP financial measures when these have a higher value than GAAP earnings and how this has evolved through the three regimes of my sample period, I next divide the observations into two subgroups according to whether the non-GAAP value is higher than GAAP earnings or not. I then

test whether the mean values of relative emphasis of the two subgroups are significantly different. The results are reported in Panel D of Table 7. They show that the relative emphasis given by firms is not higher in the cases where the non-GAAP financial measure has a higher value than GAAP earnings (in any of the years). Thus, firms do not seem to disclose these measures in a way that may mislead investors.

Finally, I separate my observations into (a) cases where the firm has a GAAP loss but discloses a non-GAAP financial measure that is positive and (b) all other cases. This partition is undertaken to assess whether more emphasis is given to the non-GAAP measure when a loss is recast as a profit. Elliot's (2004) experimental results suggest that such emphasis could influence some investors. Panel E presents the results of this analysis and shows that the number of observations where a loss is recast as a profit diminishes progressively through the three sample years, both in value and as a percentage of the loss observations. In regime 1 there were 262 loss observations and 90% of those disclosed a non-GAAP financial measure; in regime 2 there were 270 loss observations and 83% of those disclosed a non-GAAP financial measure; in regime 3 there were 224 loss observations and 74% of those disclosed a non-GAAP financial measure. Furthermore, tests on the relative emphasis of the two sub samples show a significant difference in both regime 1 and regime 3. This indicates that investors may be misled. Since Elliot's (2004) results indicate the effect can be mitigated by the disclosure of a side-by-side reconciliation, I next analyze what type of reconciliations were disclosed, as this may have helped investors to understand what adjustments were made.

6.4 RECONCILIATION AND FINANCIAL STATEMENTS

Next, I examine how the SEC interventions affected disclosures about differences between non-GAAP financial measures and GAAP numbers (on quarterly earnings

announcements) and the financial statements that accompany this information. This is especially relevant after the SEC determined the need for a reconciliation when firms disclose non-GAAP financial measures. Furthermore, many firms disclose a non-GAAP income statement, and no study has analyzed the frequency of this disclosure.

Francis et al. (2002) conclude that the recently documented increase in the usefulness of earnings announcements is due to increases over time in the amount of other (besides “bottom line” earnings) information disclosed in the earnings announcement press release. More specifically, they state “managers’ voluntary decisions to expand concurrent disclosures in earnings announcement press releases (especially by including detailed income statements) drive the usefulness of those announcements to investors.” However, Francis et al. (2002) covers a 20-year period before the SEC interventions and does not take into consideration the existence of a non-GAAP consolidated income statement. Collins et al. (2005) reexamine this explanation for the increase in the usefulness of earnings announcements, and conclude that the increase is due not only to the disclosure of financial statements in the press releases but also to the disclosure of non-GAAP financial measures.²⁰

Panel A of Table 8 presents descriptive statistics on the disclosure of financial statements through the three regimes. This table shows a clear increase in the number of reconciliations disclosed by firms, especially if one takes into consideration that the number of observations with non-GAAP disclosures has decreased through the three regimes (as shown on table 3). In fact, while in regime 1 only 27% (233 out of 866) of the non-GAAP observations disclose a tabular reconciliation, in regime 2 this number increases to 49% (444 out of 899) and in regime 3 it jumps to 74% (527 out of 710).

²⁰ In this study the statement of cash flows is the most important financial statement disclosed. The authors attribute this to the fact that their sample is from 1985 to 2000 and that the statement of cash flows has been gaining importance over time.

Nevertheless, it is curious that the number in regime 3 is not 100%, as is required by Regulation G. Some of these observations are cases where firms disclose a measure they do not consider a non-GAAP financial measure (like EBITDA or FCF), and so these firms do not have a tabular reconciliation in their press releases.²¹ However, there are still many observations where a non-GAAP earnings measure is disclosed in the press release without the necessary reconciliation.

Contrary to the trend just described, the disclosure of a non-GAAP consolidated statement of income has decreased through the three regimes. This decrease exists even when I take into consideration the decrease in the number of non-GAAP observations through the regimes. In regime 1 the percentage of observations disclosing this statement is close to the number of observations where a reconciliation is disclosed: 24% (210 out of 866). But in the second regime this percentage drops to 22% (200 out of 899) and in the third regime it falls to 17% (118 out of 710). These results indicate that since the SEC interventions never mentioned a need for disclosure of a non-GAAP income statement, the disclosure of this financial statement has been decreasing progressively, while the opposite has happened to the reconciliation.

The disclosure of a consolidated income statement (the financial statement identified by Francis et al. (2002) as the more relevant) has been relatively stable through the three regimes: in regime 1 89% (1,241 out of 1,396) of the press releases analyzed disclosed this statement, while in regime 2 this statement was disclosed in 92% (1,311 out of 1,431) of the cases and in regime 3 this percentage was 91% (1,281 out of 1,407). Both the disclosure of a consolidated balance sheet and a consolidated statement of cash flows have increased through the three regimes. The percentage of press releases that disclose a consolidated balance sheet goes from 62% (870 out of 1,396) in regime 1 to

²¹ There are 20 observations where only FCF is disclosed and no reconciliation is present. There are 10 observations where only EBITDA or EBIT are disclosed and no reconciliation is present.

67% (964 out of 1,431) in regime 2 and to 73% (1,026 out of 1,407) in regime 3. The percentage of press releases that disclose a consolidated statement of cash flows is much smaller, but exhibits a similar pattern. It goes from 19% (264 out of 1,396) in regime 1 to 26% (366 out of 1,431) in regime 2 and to 37% (522 out of 1,407) in regime 3. This increase in frequency of disclosure of the statement of cash flows has, according to Collins et al. (2005) been accompanied by an increase of its informativeness, measured via excess trading volume.

Finally, I focus my attention on the form of the reconciliation, since studies have established that alternative presentations of informationally equivalent accounting disclosures influence judgments of firm value (e.g.: Hopkins, 1996). Furthermore, and as mentioned above, Elliot (2004) found that the presence of a side-by-side reconciliation between a GAAP and a non-GAAP income statement mitigated the anchoring and adjustment effects that the strategic emphasis on a non-GAAP profit (relative to a GAAP loss) can have.

In practice, firms have different ways to present this reconciliation: they can do it side-by-side (i.e., presenting a reconciliation of all the items in the income statement) or in any other format, as long as the reader can follow the reconciliation from the non-GAAP financial measure to the most comparable GAAP number. Before the reconciliation was officially required, firms that disclosed non-GAAP financial measures usually offered some information about how those non-GAAP financial measures were obtained. Nichols et al. (2003) classify the methods utilized by sample companies to report non-GAAP financial measures in earnings releases into four categories: (1) reconciliation from GAAP to non-GAAP net income, (2) written explanation of nature and amount of adjustments, (3) written explanation of nature of adjustments, where researchers review GAAP income statement included in earnings release to determine

amount of adjustments and (4) written explanation of nature of adjustments, where researchers review form 10-K to determine amount of adjustments.

In order to better understand how information about the differences between GAAP numbers and non-GAAP financial measures affect investors, I create categories to classify the form of the reconciliation.²² These are as follows:

1. Side-by-side reconciliation, as used in Elliot (2004)
2. Reconciliation from GAAP to non-GAAP EPS
3. Reconciliation from GAAP to non-GAAP net income
4. Reconciliation from other non-GAAP measure to GAAP measure
5. Written explanation of nature and amount of adjustments (totals)
6. Written explanation of nature and amount of adjustments (per share basis)
7. Written explanation of nature of adjustments
8. No information about difference between GAAP and non-GAAP numbers

Panel B of Table 8 shows that when a non-GAAP disclosure is made in regime 1 the most common way firms use to communicate how that measure was calculated is to insert, on their press release, a written explanation of the nature and amount of the adjustments. In fact, this category represents 28% of the total observations with a disclosure of non-GAAP financial measures. A close second is category eight, meaning that in many cases firms did not give any explanation for the non-GAAP financial measures they disclose.

In regime 2 two categories of explanation share first place, each representing 20% of the observations where a disclosure of a non-GAAP financial measure was made.

²² Some firms provide the reader not only with a reconciliation (at the end of the press release, with the other financial statements), but also with an explanation of the adjustments made in the text of the press release. Other firms have a tabular reconciliation for a non-GAAP financial measure and just an explication of the adjustments of a second non-GAAP financial measure. In both cases, I collected the highest reconciliation category.

These are category 3 (reconciliation from GAAP to non-GAAP net income) and category 5 (written explanation of nature and amount of adjustments – totals). In this regime, the percentage of observations without any explanation dropped to 18%.

In regime 3 the most frequent categories are category 3 (reconciliation from GAAP to non-GAAP net income) and category 4 (reconciliation from other non-GAAP measure to GAAP measure). They represent 25% and 24%, respectively. The percentage of observations that does not present any explanation for the non-GAAP financial measure disclosed is now down to 10%, or 70 observations. If one takes into consideration that Panel A of this same table indicates that 26% of the observations where a non-GAAP measure is disclosed do not disclose a tabular reconciliation, we can conclude that 15% of those present some form of written explanation. Nevertheless, there are still observations that should disclose a reconciliation and do not. Overall, through the three regimes, there is an increase in the frequency of categories 1 to 4 (i.e., tabular reconciliation) and a decrease in categories 5 to 8 (explanation or no information).

6.5 BENCHMARKS USED FOR NON-GAAP FINANCIAL MEASURES

Schrand and Walther (2000) provide evidence that managers strategically select which prior-period earnings measure to use as a benchmark to evaluate current-period earnings in quarterly earnings announcements. As they mention, “this strategy provides the lowest possible benchmark against which to evaluate current earnings, thereby allowing managers to highlight and discuss the most favorable change in earnings.” Their study focuses on disclosures by firms that have a nonrecurring item in the prior year (but

not in the current year) because these firms have the most discretion to strategically select the earnings benchmark.”²³

Motivated by Schrand and Walther (2000), Krische (2005) uses an experimental setting to test alternative explanations for the empirical evidence that managers’ strategic disclosures of prior-period events in current earnings announcements influence investors’ judgments. Results indicate that investors adjust for a prior-period event “when a clear, quantitative description is present in the current-period announcement, but not when the description is absent, even though investors had previously identified the event.” The author links this result to the SEC interventions I study in this dissertation suggesting that managers may affect investors’ valuations by choosing to avoid any reminder about a transitory prior-period loss in a current-period announcement. Her main point is that comparability and consistency over time in the reporting of non-GAAP financial performance measures would limit what managers can do in response to their incentives.

In order to assess if managers are affecting investors’ perceptions through a selective disclosure of benchmarks, I classify the benchmarks disclosed in the quarterly earnings press releases into four categories:

1. Same type of measure (GAAP or non-GAAP) is disclosed as a benchmark, and this measure is from previous quarter
2. Same type of measure (GAAP or non-GAAP) is disclosed as a benchmark, and this measure is from the same quarter of the previous year
3. Different type of measure (GAAP or non-GAAP) is disclosed as a benchmark, and this measure is from previous quarter

²³ In fact, as Schrand and Walther (2000) indicate, firms registered on the New York Stock Exchange are required to announce the current quarter’s total earnings and are encouraged to include “like figures of the same period of the previous year, to afford a basis for comparison” (New York Stock Exchange 1995, para. 203.02c).

4. Different type of measure (GAAP or non-GAAP) is disclosed as a benchmark, and this measure is from the same quarter of the previous year.

Results of this analysis for the entire sample period are presented at Panel A of Table 9. They clearly indicate that regardless of the measure disclosed, the preferred benchmark is the same measure of the same quarter of the previous year. In 95% of the cases the benchmark for a GAAP measure is the value of that same GAAP measure in the same calendar quarter of the previous year. Similarly, in 92% of the cases, the benchmark for a NG measure is the value of the same NG measure in the same calendar quarter of the previous year. Thus, there is consistency in the benchmarks disclosed and managers do not seem to change them based on whether or not there is a previous-period item that they do not want to call attention to.

I also examine whether this use changed in the third regime, when firms that because non-GAAP financial measures were forced to include a reconciliation in their press releases. The results for regime three are reported in Panel B of Table 9. Results show that the benchmarks that dominated in the entire sample still dominate in regime 3. In 94% of the cases the benchmark for a GAAP measure is the value of the same GAAP measure in the same quarter of the previous year and in 90% of the cases the benchmark for a non-GAAP financial measure is the value of the same non-GAAP measure in the same quarter of the previous year. Thus, even in the third regime (where the motivation to do what Krische (2005) mentions is higher) the percentage of firms that disclose a GAAP benchmark for a non-GAAP financial measure is only 1%.

In order to assess if managers change the benchmarks disclosed when the GAAP earnings number is smaller than the GAAP earnings of the same quarter of the previous year (a situation where managers either change the benchmark or are forced to recognize a decrease in earnings) I next consider only this subsample of observations. My results

(untabulated) show that even in this situation 95% of the benchmarks disclosed are the GAAP measure of the same quarter of the previous year. This leads me to conclude that managers are not trying to affect investors' perceptions of the evolution of their disclosed financial measures via the selection of benchmarks.

6.6 SUMMARY OF CHAPTER

Overall, the results discussed in this chapter indicate that the SEC interventions are associated with a gradual decline of the frequency of disclosure of non-GAAP financial measures in the press releases of the S&P500 firms from 2001 to 2003. This gradual decline is concentrated in the firms with low institutional ownership, as the firms with high institutional ownership only have a decrease in probability of disclosure in the last regime.

The positioning of the non-GAAP financial measures (in the press releases) also changed through the three regimes: these measures lost emphasis, as the GAAP measures became the first measures to be disclosed. Furthermore, the frequency of disclosure of a tabular reconciliation (between the non-GAAP financial measures and the closest GAAP measure) increased through the three regimes. The one thing I analyzed that did not change through the three regimes is the type of benchmarks used by firms.

Chapter 7: SEC interventions and the use of non-GAAP financial measures by investors

The second issue I address is how the use of non-GAAP financial measures by investors has changed across the three regimes defined by the SEC interventions. More specifically, I look at the market reaction to (1) the presence of non-GAAP financial measures in an earnings announcement, (2) the magnitude and direction of adjustments made by firms, as both SEC interventions focus on giving the investors more information about the adjustments firms make in the calculation of their non-GAAP financial measures.

Three methodologies have been used in prior research to study the value relevance of non-GAAP financial measures' disclosures. Brown and Sivakumar (2003) is the only paper that uses all three. They assess value relevance through: (1) ability to predict future earnings, (2) association of earnings levels with stock price levels and (3) correlation of earnings surprises with abnormal stock returns. Data availability limitations prevent me from performing the first analysis. Thus, I perform the last two on a sample that has all data necessary for both analyses.²⁴

²⁴ There are 3,607 observations that have all the necessary data.

7.1 INITIAL VALUATION MODEL

7.1.1 Design

Presence of non-GAAP financial measures

The samples used in previous studies only include observations from firms that disclosed non-GAAP measures. Furthermore, these papers only consider non-GAAP earnings measures, failing to capture the effects of all other non-GAAP financial measures (such as adjusted cash flows and earnings before specific items). Thus, this paper is the first to analyze the data necessary to discover whether the market attributes a premium or a penalty to the act of disclosing a non-GAAP financial measure. At this stage I do not consider the adjustments made. I simply analyze the market's reaction to the presence of a non-GAAP financial measure in the earnings announcement press release.

Because previous studies indicate that non-GAAP earnings are more informative than GAAP earnings, one may expect the market to assign a higher value to a firm when these measures are disclosed. However, since non-GAAP measures have such a bad reputation in the financial press and are seen as potentially misleading, it is also possible that the market attributes a lower value to these firms. Thus, I make no directional prediction for this analysis. I analyze the impact of the presence of non-GAAP financial measures on price across the three regimes, as the credibility of management disclosures is usually enhanced by interventions of regulators (Healy and Palepu, 2001).

Adjustments made by firms

Firms claim that they disclose non-GAAP financial measures to give investors a clearer picture of their results by removing unusual or transitory items. If investors agree

that the adjustments correspond to transitory items, then I would expect investors not to reverse the adjustments (i.e., to consider the non-GAAP financial measure a reliable number). However, if investors, armed with more information about the items excluded by firms, decide that these are not transitory (i.e., that they are as persistent as the other items in the income statement), I would expect investors to reverse the adjustments in their valuation of the firms. To address this I calculate the adjustments made (i.e., the difference between the GAAP and the non-GAAP numbers) and analyze how investors' reaction to these adjustments changed across the three regimes. As found in previous literature (Lipe, 1986, Kormendi and Lipe, 1987), higher earnings persistence should lead to higher valuation weights. My initial valuation model is:

$$\begin{aligned} \text{Price} = & \beta_0 + \beta_1 R2 + \beta_2 R3 + \beta_3 \text{NG_R1} + \beta_4 \text{NG_R2} + \beta_5 \text{NG_R3} + \beta_6 \text{BV} + \\ & \beta_7 \text{INC_B_ADJ_R1} + \beta_8 \text{INC_B_ADJ_R2} + \beta_9 \text{INC_B_ADJ_R3} + \\ & \beta_{10} \text{ADJ_R1} + \beta_{11} \text{ADJ_R2} + \beta_{12} \text{ADJ_R3} + \beta_{13} \text{SPEC} + \beta_{14} \text{SPEC_VAL} + \\ & \beta_{15} \text{INTAN} + \beta_{16} \text{TECH} + \beta_{17} \text{LOSS} + \beta_{18} \text{LNASSET} + \beta_{19} \text{NEGFE} + \varepsilon \quad (2.1) \end{aligned}$$

Price is defined as the closing market value per share three months after the fiscal quarter end (Compustat monthly item PRCCM). R2 and R3 are dummy variables that indicate if the press release was made during regime two (R2) or regime three (R3). These were defined so that each regime corresponds to a calendar year, and are included to control for yearly (regime) economic effects. NG is an indicator variable for the disclosure of a non-GAAP financial measure in the press release in question. NG_R1, NG_R2 and NG_R3 are interaction terms between NG and the regime indicator variables. BV is common equity per share at the fiscal quarter end (Compustat items Q59/Q124).

INC_B_ADJ equals non-GAAP EPS if such a measure is disclosed in the press release (either on a per share basis or in the aggregated form).²⁵ If no non-GAAP measures are disclosed, INC_B_ADJ will be equal to NI_PS (GAAP EPS, before extraordinary items, on a diluted basis – Compustat item Q9). The variables INC_B_ADJ_R1, INC_B_ADJ_R2 and INC_B_ADJ_R3 are interactions between INC_B_ADJ and the regimes' dummies.

ADJ is defined as the difference between INC_B_ADJ and NI_PS. If a firm does not disclose a non-GAAP measure ADJ equals zero. The variables ADJ_R1, ADJ_R2 and ADJ_R3 are interactions between ADJ and the dummies for the different regimes. Finally, I include in the model all the control variables that were found significant in the logit estimation, to control for other factors that may affect the valuation of the firm.

The focus of this analysis is on how the market values the difference between NI_PS (GAAP measure) and the non-GAAP financial measure, i.e., the adjustment made by the firm. If investors consider the adjusted items purely transitory, then a coefficient close to zero would be expected for the adjustments made. However, if investors view the adjusted items as equivalent to any other income statement item, the estimated coefficients on the adjustments should be close, in absolute value, to the coefficients on INC_B_ADJ, but with a negative sign.²⁶

²⁵ If this measure is not disclosed, but some other non-GAAP financial measure is, then INC_B_ADJ equals the first non-GAAP value presented in the press release, on a per share basis.

²⁶ This negative sign is expected because it would represent the inversion of the adjustment made by firms. Thus, if the non-GAAP measure is higher than the GAAP measure because some expense or loss was identified as transitory this negative coefficient would represent including the item in the results (i.e., going back to the GAAP treatment of this item).

7.1.2. Results

Descriptive statistics for the variables used in equation 2.1 are presented in Panel A of Table 10. These values include all observations included in the estimation of equation 2.1 and show that the mean price per share is 32.97, although the mean book value is only 11.56. Moreover, 37% of the observations are in regime 2 and 33% of the observations are in regime 3, leaving 30% of the observations for regime 1.

Panel B of this table shows the mean and median of two variables (INC_B_ADJ and ADJ), for only the observations where a non-GAAP financial measure is disclosed. I present these values separately, as the ones in Panel A include all observations. Thus, in Panel A, in the cases where no non-GAAP financial measure is disclosed, INC_B_ADJ is the GAAP earnings per share value and ADJ is just zero. The data presented at Panel B indicates that the adjustments made are positive, on average, across the three regimes. This means that the average adjustment made to GAAP income is to add back an expense or loss so that the non-GAAP measure is greater than GAAP income.

Panel C of Table 10 reports the results from the estimation of equation 2.1, after removal of outliers.²⁷ The adjusted r-squared is 37%. The estimated coefficients on NG indicates that the market seems to value firms that disclose these measures either at the same level of firms that do not disclose these measures (in regimes 1 and 2) or less (in regime 3). The direction of the causality is not clear, as it may be that weak firms disclose more non-GAAP financial measures or that the market interprets the disclosure of non-GAAP financial measures as a sign of weakness.

The estimated coefficient for BV is positive and statistically significant (at the 1% confidence level), indicating that firms with higher book values are priced higher than

²⁷ Following Belsey, Kuh and Welsch (2004) I removed the observations where either Rstudent or Dfitts have an absolute value in excess of 2. This resulted in the elimination of 156 observations.

those with lower book values. The three coefficients of INC_B_ADJ (one for each regime) range from 7.62 to 14.53 and are statistically significant (at the 1% confidence level). Thus, the higher the financial measure considered (non-GAAP, if the firm discloses it, or GAAP, if no such disclosure is made), the higher the market values the firm.

The three coefficients of ADJ (one for each regime) range from -3.84 to -2.07 and are statistically significant (at different confidence levels). Panel D presents the results of tests performed on the estimated coefficients. The first set of tests shows that the three estimated coefficients for the adjustments are not statistically different from each other. The second set of tests shows that the coefficients estimated for the adjustment variables are statistically different from the coefficients estimated for INC_B_ADJ. As all coefficients for INC_B_ADJ are positive and all coefficients for ADJ are negative, this means that overall, and in absolute value, the coefficients on the adjustments are significantly smaller than the coefficients estimated on INC_B_ADJ.

In regime 1, for example, INC_B_ADJ has a coefficient of 9.50 and ADJ has a coefficient of -2.82 . The magnitude of these two coefficients is statistically different. Coefficients of a similar magnitude would indicate that investors, in their valuation process, viewed the adjusted items as permanent and reversed all adjustments made by firms. In contrast, a coefficient on ADJ of zero would indicate that investors viewed the items adjusted by the firms as purely transitory (and so didn't reverse the adjustments). This intermediary value for the coefficient of ADJ indicates that although some of the adjustments made were reversed, investors mostly agreed with the adjustments. In regime 2 and regime 3 the same effect is found: investors reverse some of the adjustments made by firms, but not all.

7.1.3. Heckman procedure

I next test whether the results are significantly affected by self-selection problems, since it is up to the firms to decide whether or not to disclose non-GAAP financial measures. Healy and Palepu (2001) consider that self-selection bias is the biggest limitation of studies of the capital markets consequences of voluntary disclosure. The issue is whether estimation results from valuation models (or models of correlation between abnormal returns and surprises) may be due not to the disclosure, but to other factors that led the firms to make that disclosure. Thus, failing to control for the reporting choice may lead to erroneous inferences. In my models I control for this possible effect by including as control variables the variables that were significant in my logit model.

As an alternative control for self-selection I also use the Heckman (1979) two-step estimation procedure. As Greene (1997) explains, this procedure starts with the estimation of a probit equation by maximum likelihood and then estimates the coefficients of interest via a least squares regression. This estimation of coefficients is done considering only the observations where the event is present (in my case, the observations where a non-GAAP financial measure is disclosed) and takes into consideration the inverse of the Mill's ratio (λ), in order to control for the determinants identified in the probit.

Table 11 shows the results of the application of this procedure to the initial valuation model. There is a table for the results of the estimation of the probit (that includes the same variables as my logit) and a table for the results of the valuation model. Of the initial 3,712 observations with all the data necessary for this procedure, 2,000 are uncensored (i.e., are observations where $NG=1$) and so used in the estimation of the valuation model. Since all these 2,000 observations disclose a non-GAAP financial measure, this model does not include the interaction terms between the NG dummy

variables and the regime indicator variables. Since this procedure controls for the determinants of the decision to disclose a non-GAAP measure via the inverse Mill's ratio, the control variables that I had in the model (and that were identified via my logit model) are also absent. After controlling for self-selection (which was present, as indicated by the statistical significance of λ) the estimated coefficients are even more significant now than they were in Panel B of Table 10. In fact, while in my initial estimation the coefficients for the adjustments made in regime 3 and the dummy for regime 3 were significant at a 5% level, now they are significant at a 1% level. Other than this, there are no changes in the results.

7.2 EXTENDED VALUATION MODEL

7.2.1 Design

Firms are not the only ones adjusting the GAAP values. Analysts have long made adjustments to GAAP values to eliminate items that they consider non-recurrent or unusual, saying exactly what some firms say to justify their behavior: that they are calculating a number that more accurately represents the results of the firms. Gu and Chen (2004) examine the rationale underlying analysts' selective exclusion of nonrecurring items in street earnings.²⁸ They find that the items analysts exclude have less predictive power for future operating performance and a lower correlation with returns than the items they include in street earnings. Thus, the results of my previous analysis (where I consider the entire adjustment made by firms) ignore the fact that a portion of the adjustment is "validated" by external analysts, and so may be more credible to investors than the additional adjustments made only by firms. To test this, I

²⁸ The authors use the term "street earnings" when referring to non-GAAP earnings.

next divide the total adjustment made by firms into two parts: the items analysts considered unusual (and so adjusted for) and the incremental adjustment made by the firms relative to the adjustments made by analysts. This partitioning allows me to examine whether the market values these two sets of adjustments differently.

To further investigate the impact of the adjustments made by firms in the market valuation of their securities, I extend equation 2.1 to separate the firms' adjustments into two parts: the adjustments made by analysts (identified using I/B/E/S data) and the incremental adjustments made by firms. ADJ_IBES is defined as the difference between the value of I/B/E/S actual and NI_PS. ADJ_F is defined as the difference between INC_B_ADJ and the I/B/E/S actual value. Thus, ADJ (from equation 2.1) is equal to the sum of ADJ_IBES and ADJ_F, both of which I include in equation 2.2 (interacting with the regime dummies):

$$\begin{aligned}
 \text{Price} = & \beta_0 + \beta_1 R2 + \beta_2 R3 + \beta_3 \text{NG_R1} + \beta_4 \text{NG_R2} + \beta_5 \text{NG_R3} + \beta_6 \text{BV} + \\
 & \beta_7 \text{INC_B_ADJ_R1} + \beta_8 \text{INC_B_ADJ_R2} + \beta_9 \text{INC_B_ADJ_R3} + \\
 & \beta_{10} \text{ADJ_IBES_R1} + \beta_{11} \text{ADJ_IBES_R2} + \beta_{12} \text{ADJ_IBES_R3} + \\
 & \beta_{13} \text{ADJ_F_R1} + \beta_{14} \text{ADJ_F_R2} + \beta_{15} \text{ADJ_F_R3} + \beta_{16} \text{SPEC} + \\
 & \beta_{17} \text{SPEC_VAL} + \beta_{18} \text{INTAN} + \beta_{19} \text{TECH} + \beta_{20} \text{LOSS} + \beta_{21} \text{LNASSET} + \\
 & \beta_{22} \text{NEGFE} + \varepsilon
 \end{aligned} \tag{2.2}$$

The separation of the total adjustment into these two parts allows me to analyze the persistence of the two parts separately. Since the results of Gu and Chen (2004) suggest analysts correctly adjusted for the items excluded, I expect the coefficients of the I/B/E/S adjustments to be close to zero, indicating that investors do not reverse them.

7.2.2. Results

Descriptive statistics for all observations used in equation 2.2 are presented in Panel A of Table 12. These show that there is a relatively large group of observations where the analysts and the firms do not agree on the need to make adjustments. These are the cases when firms make adjustments and analysts do not (399 observations, representing 12% of the sample) or analysts make adjustments but firms do not (561 observations, representing 16% of the sample).

Panel B presents the mean and median values of the adjustments variables. Means show that, on average, both analysts and firms exclude losses and/or expenses. Thus, on average, the value of actual earnings disclosed by I/B/E/S is higher than the GAAP earnings number and the value of the non-GAAP financial measures disclosed by firms in their press releases are higher than the I/B/E/S actual earnings (and the GAAP values). Panel B also shows that the value of the I/B/E/S adjustments is always (in the three regimes) higher than the additional adjustments made by the firms, indicating that analysts make most of the adjustments made by firms.

Panel C of Table 12 reports the results from the estimation of equation 2.2. In particular, note that the adjusted R-squared is now 45%.²⁹ Thus, disaggregating the total adjustment made by firms into two components increases the explanatory power of the model by eight percentage points. As in the previous estimated results, BV has a positive and statistically significant (at the 1% level of significance) estimated coefficient.

Estimated results also show a stark difference between the coefficients of the adjustments made by analysts and the coefficients of the incremental adjustments made by firms. The coefficients for the analysts' adjustments are close to zero, while the

²⁹ The results of the regression are after the removal of outliers, which were identified using the same method as in equation 3.1.

coefficients for the incremental adjustments made by firms have a magnitude similar to the coefficients of INC_B_ADJ (but with a negative sign). This difference indicates that the market recognizes the items adjusted by analysts as transitory but that the market considers the incremental adjustments made by firms as permanent in nature.³⁰ Untabulated results indicate that investors view analysts' adjustments as taking out transitory items, even when the firm does not disclose a non-GAAP financial measure in its press release (the case of 561 observations, as indicated in Panel A of Table 12).

I also find a difference in the patterns of the two sets of coefficients (for the analysts' adjustments and the firms' incremental adjustments) across time. While the coefficients for the analysts' adjustments are stable through the three regimes, the absolute value of the coefficients for the incremental firm adjustments increases through time. Panel D shows the results of statistical tests that confirm that the three coefficients for the analysts' adjustments are in fact statistically equal. This panel also shows that the coefficient estimated for the firms' incremental adjustments made in regime 1 is statistically smaller than the coefficients estimated for regimes 2 and 3. However, the coefficients of the last two regimes are not statistically different.

Finally, I perform tests on the coefficients to see if the market completely reverses the extra adjustments made by firms, i.e., I test if the sum of the coefficient of INC_B_ADJ and ADJ_F (for each one of the three regimes) is equal to zero. Panel D of Table 12 shows that this is confirmed for all regimes, as the hypothesis tested is never rejected. These results suggest that the SEC fears that firms were successfully misleading investors by making adjustments to the GAAP numbers were unfounded. In fact, investors have been reversing the incremental adjustments throughout the three regimes, and the SEC interventions did not affect this.

³⁰ Frankel et al (2005) also find indication, in their results, that the earnings numbers disclosed by analysts represent relatively "permanent" earnings.

7.2.3. Sensitivity analysis

Panel A of Table 13 shows the results of the application of the Heckman procedure to my extended valuation model. In this case 2,001 observations are used to estimate the valuation model. For the same reasons as in the application of this procedure to the initial valuation model, the variables for the effect of disclosure and the control variables identified via the logit are again absent. After controlling for self-selection (which was present, as indicated by the statistical significance of λ) the estimated coefficients are even more significant now than they were in Panel B of Table 12. In fact, two of the three estimated coefficients for the adjustments made by analysts are now significant, while in the previous estimation none of the coefficients was statistically significant. These two coefficients are -1.57 (for regime 1) and -1.30 (for regime 2). This means that in practice, investors not only reverse all of the incremental adjustments made by the firms, they also reverse some of the adjustments made by analysts (although a very small part).³¹

One of the main differences between my sample and the samples that the previous papers in this literature have used is that I collect my data from a pre-defined sample (the S&P 500 firms, as defined at the end of 2003). This results in a sample that includes both observations where non-GAAP financial measures are disclosed and observations where there is no such disclosure, while the other studies start their sample by identifying firms that do disclose non-GAAP financial measures. Thus, in order to determine if my choice of sample affects the results in any way and estimate results that more easily compared to

³¹ This result is consistent with the finding of Frankel et al. (2005) that exclusions made by analysts “are less permanent than normal expenses, but they are not entirely transitory”.

the previous literature, I also estimated my extended valuation model using only observations where non-GAAP financial measures are disclosed.

Panel B of Table 13 shows the results for this estimation. As in the Heckman procedure, this sample implies the removal of the variables for the effect of disclosure of non-GAAP financial measures and the control variables identified in the logit. Results of this estimation are generally consistent with both the original results and the results from the Heckman procedure. The three variables for the non-GAAP value disclosed (INC_B_ADJ) are statistically significant at a 1% level of confidence, as well as the variables for the incremental adjustments made by the firms. The difference, once again, is that the coefficients on the variables of the analysts' adjustments are statistically different from zero. This indicates that investors reverse some of the adjustments made by analysts. Finally, there is also a small increase in the explanatory power of the regression, as the adjusted R^2 goes from 45% to 48%.

Another big difference between my study and previous papers in this literature is that the literature has focused only on non-GAAP earnings measures, while I collect (and use in my analysis) all non-GAAP financial measures disclosed by firms in their quarterly earnings press releases. A possibility exists that my results are affected by this choice, if the choice of disclosing a non-GAAP financial measure is, in some cases, the result of a desire to disclose a cash-based measure rather than the results of a desire to exclude some items from the reported income. Thus, I also estimate my extended valuation model ignoring the disclosure of cash and cash flow non-GAAP measures. Panel C of Table 13 reports the results for this estimation. There are no relevant differences between these results and the original results of the extended valuation model, as magnitudes and significance levels are similar to the ones already discussed.

7.3 ANALYSIS OF CUMULATIVE ABNORMAL RETURNS

7.3.1 Design

Kothari and Zimmerman (1995) note that while the estimated slope coefficients from price models are less biased than those from return models, price models may suffer from econometric problems. Easton (1999) makes a similar observation and argues for the use of a returns specification. Thus, in this next section, I examine the correlation of earnings surprises with abnormal stock returns. Given that my results from the extended valuation model indicate there is a stark difference between the way investors respond to the adjustments made by analysts and the incremental adjustments made by the firms, my analysis here will rely on the extended valuation model design. Thus, I estimate the following regression:

$$\begin{aligned} \text{CAR} = & \beta_0 + \beta_1 R2 + \beta_2 R3 + \beta_3 \text{NG_R1} + \beta_4 \text{NG_R2} + \beta_5 \text{NG_R3} + \\ & \beta_6 \text{SURP_GAAP_R1} + \beta_7 \text{SURP_GAAP_R2} + \beta_8 \text{SURP_GAAP_R3} + \\ & \beta_9 \text{SURP_IBES_R1} + \beta_{10} \text{SURP_IBES_R2} + \beta_{11} \text{SURP_IBES_R3} + \\ & \beta_{12} \text{SURP_F_R1} + \beta_{13} \text{SURP_F_R2} + \beta_{14} \text{SURP_F_R3} + \beta_{15} \text{SPEC} + \\ & \beta_{16} \text{SPEC_VAL} + \beta_{17} \text{INTAN} + \beta_{18} \text{TECH} + \beta_{19} \text{LOSS} + \beta_{20} \text{LNASSET} + \\ & \beta_{21} \text{NEGFE} + \varepsilon \end{aligned} \tag{3}$$

This regression is estimated twice, using two alternative abnormal return cumulative periods. The first is a three-day interval centered on the day of the press release, and the second is a 63-day interval that begins 61 days before the day of the press release and ends one day after the press release. The objective of the short window is to measure the immediate response of the market to the quarterly earnings announcement. The objective of the long window is to capture all the information related to the quarter of

the press release under consideration. The cumulative abnormal returns (CARs) are market-adjusted, using a value-weighted index.

The total surprise, which is the difference between INC_B_ADJ and the analysts' consensus, is sub-divided into three parts. SURP_GAAP is equal to NI_PS minus the value of the analysts' consensus, SURP_IBES is defined as I/B/E/S actual minus NI_PS and SURP_F is equal INC_B_ADJ minus I/B/E/S actual. In equation form:

$$\begin{aligned} \text{INC_B_ADJ} - \text{I/B/E/S actual} &= \text{SURP_F} \\ \text{I/B/E/S} - \text{NI_PS} &= \text{SURP_IBES} \\ \text{NI_PS} - \text{Consensus} &= \text{SURP_GAAP} \\ \text{INC_B_ADJ} - \text{Consensus} &= \text{Total surprise} \end{aligned}$$

The three surprise measures are deflated by market value of equity at the end of the previous calendar quarter. They are then interacted with indicator variables for the regimes (as in equations 2.1 and 2.2). A small clarifying example follows:

If:	INC_B_ADJ	= 1.05	Then:		
	IBES actual	= 1.02		SURP_F	= 0.03
	NI_PS	= 1.00		SURP_IBES	= 0.02
	Consensus	= 0.95		SURP_GAAP	= 0.05

In the example above the I/B/E/S actual value is higher than the GAAP value (NI_PS) and the non-GAAP financial measure value (INC_B_ADJ) is higher than both the GAAP and the I/B/E/S value. Therefore, I assume that some items in the GAAP value are considered by analysts to be transitory and that firms adjust for even a higher value of

items. Using the formulas already presented, I calculate the total surprise (10 cents, in the example), which then is divided into three parts.³²

7.3.2 Results

Panel A of Table 14 presents the descriptive statistics for all the observations used in the estimation of equation 3. These show that, as in the valuation models, 37% of the observations occurred in the second regime, 33% in the third regime and the remaining 30% in the first regimes.

The example above is consistent with the descriptive statistics I present in Panel B of Table 14 for the observations where a non-GAAP financial measure is disclosed. The mean of the GAAP surprise is negative across the three regimes, indicating analysts' optimism (a result established by previous literature). The means of both the IBES surprises and the firms' surprises are positive across regimes, except for regime 3, where the surprise associated with the firms' incremental adjustments is zero. However, the levels of SURP_IBES are always higher than the levels of SURP_F. This is consistent with the descriptive statistics of Table 12. These indicated that, on average, both analysts and firms remove expenses and/or losses from the financial measures they disclose and that most of the adjustments made by firms were also made by analysts.

The estimation results for equation 3, for both return windows, are presented in Panel C of Table 14, after the removal of outliers (which were identified using the same method as in the previous equations). The adjusted R-squared values are 5% (for the short window) and 14% (for the long window). Overall, the results are consistent with those from equations 2.1 and 2.2. The coefficients estimated for the NG indicator variables, interacted with the dummies for regimes, are not statistically different from

³² The values calculated in this example have not yet been deflated.

zero, with one exception. This exception is the coefficient estimated for regime 3, in the long window regression.

All coefficients for the GAAP and I/B/E/S surprises are positive and statistically significant (at the 1% confidence level), indicating that the market rewards not only the difference between the GAAP income measure and the analysts' consensus, but also the additional difference between the I/B/E/S actual value and NI_PS (i.e., the adjustments made by analysts). Furthermore, the two sets of coefficients estimated in the long window regression (for the GAAP surprise and the I/B/E/S surprise) are always higher than the set of coefficients estimated in the short window. This was to be expected, since more information is released during the long window than in the short window.

Consistent with previous results, there is a stark difference between the estimated coefficients for the I/B/E/S surprises and the estimated coefficients for the surprises of the incremental adjustments made by the firms. While the estimated coefficients for the surprise of the I/B/E/S adjustment are similar in magnitude to the coefficients for the GAAP surprise, the estimated coefficients for the surprise of the additional adjustments made by the firms is always close to zero. Thus, the market's reaction to the adjustments made by analysts is similar to the GAAP surprise and there is no reaction to the firms' additional adjustments. I.e., the market reacts to a surprise that is the difference between the analysts' consensus and the analysts' value for actual earnings, instead of the difference between the consensus and the GAAP number.

Estimation results also show that half of the six estimated coefficients for the firms' additional adjustments are not statistically different from zero. This indicates that the market views incremental adjustments made by firms as largely or completely transitory and is consistent with the results of the extended valuation model (as

previously reported), which suggest that investors ignore all of the incremental adjustments made by firms.

Panel D of Table 14 shows the results of tests performed on the estimated coefficients. These results indicate that although the coefficients of the GAAP surprise and the coefficients of the I/B/E/S surprise are very similar, the coefficients for the GAAP surprise are, in fact, not always statistically identical to the coefficients of the I/B/E/S surprise. More specifically, this equality is true in only half of the estimated sets of coefficients. The differences are in regime 2 of the short window and in regimes 1 and 3 of the long window. Furthermore, and as in previous results, the estimated coefficients for the I/B/E/S surprise are identical through the three regimes.³³

For the surprise of the firms' incremental adjustments, results in Panel D indicate that all the estimated coefficients are statistically smaller (at the 1% confidence level) than the coefficients of the GAAP surprise of the same regime. Finally, the pattern found in the coefficients estimated in the extended valuation model is not found in the coefficients estimated for the firms' surprises. In fact, while Panel D of Table 12 shows that the coefficient estimated for regime 1 is statistically smaller than the coefficients estimated for regimes 2 and 3, Panel D of Table 14 shows that the only pair of coefficients that are distinct are the coefficients of regime 2 and 3 (in both windows).

7.3.3. Sensitivity analysis

Since the robustness checks I performed on the valuation models indicated that self-selection bias was present in my sample, I next apply the 2-step Heckman (1979) procedure to my results of the analysis of the correlation between abnormal returns and

³³ There is one exception to this in the results of the long window estimation, where the coefficient estimated for the third regime is statistically smaller than the coefficient estimated for the second regime.

surprises. Because I could not find any important difference between my initial valuation models and the ones I later run only with observations where non-GAAP financial measures were disclosed, I do not repeat that analysis here. The same comment applies to my analysis of the results when no cash-based measures were considered.

The results of the Heckman procedure are in Panels A (for the short window analysis) and B (for the long windows analysis) of Table 15. Results for the short window show that after controlling for self-selection bias (which was present, given that λ is statistically significant) results are very similar to the ones estimated before. The only difference worth mentioning is that while on the initial results the only relevant estimated coefficient not statistically different from zero was the one for firms' adjustments in regime 1, while these new results have the only relevant estimated coefficient not statistically different from zero as the one for the firms' adjustments made in regime 3. In the case of Panel B, where I present the results of the Heckman procedure for the long window analysis, no significant difference is found between these results and the initial ones, although self-selection was present (and so, is controlled for).

Chapter 8: Concluding remarks

This dissertation studies how two SEC interventions on the topic of disclosure of non-GAAP financial measures are related to the behavior of both firms and investors. The two SEC interventions were a warning (on December of 2001) and a regulation (approved on January of 2003). Therefore, there were three different levels of SEC intervention regarding this topic and I use these two dates to define three different regimes. These regimes are defined as coinciding with the three calendar years included in the sample: 2001, 2002 and 2003.

My sample firms are the S&P 500 firms excluding utilities and financial institutions, given the economic importance of this subset of US firms. In order to analyze firms' decisions to disclose non-GAAP financial measures I start by simply looking at the frequency of these disclosures. I then do a more thorough analysis using a logit model, where I control for several variables identified in previous studies as determinants of the decision to disclose non-GAAP earnings. Results from a logit model show an accelerating decline in the probability of disclosure of non-GAAP measures through the period analyzed, which is consistent with a reaction to the increasing level of SEC interventions. This idea is reinforced by the fact that before the warning (i.e., in regime 1) there is no significant change in the probability of disclosure of non-GAAP financial measures. When considering the level of institutional ownership, results indicate that this accelerating decline is concentrated in firms with low institutional ownership, and that in the case of firms with high institutional ownership a decrease in probability of disclosure of non-GAAP financial measures is only found in the last regime.

I study three other aspects of firms' decisions to disclose non-GAAP financial measures. Results of an analysis of the positioning of the non-GAAP financial measures

(in the press releases) show that this has changed through the three regimes: these measures lost emphasis, as the GAAP measures became the first measures to be disclosed. Furthermore, the frequency of disclosure of a tabular reconciliation (between the non-GAAP financial measures and the closest GAAP measure) increased through the three regimes. Finally, the type of benchmarks used by firms did not change through the three regimes.

My analysis of the investors' reactions to the non-GAAP financial measures disclosed in the quarterly earnings press releases focuses on two items. The first is the valuation of firms that disclose non-GAAP measures (regardless of magnitude or direction) and the second is the evolution of the market reaction to the adjustments made by firms through the three regimes. The analysis of the market reaction indicates that investors assign, on average, an equal value to firms that disclose non-GAAP financial measures in their quarterly earnings press releases and to firms that do not disclose these measures.

Descriptive statistics reveal that, on average, the adjustments made are the exclusion of losses and/or expenses. My initial valuation model shows that investors do not view all adjusted items as transitory or unusual, and so reverse some of these adjustments. A more detailed analysis (via both a valuation model and an analysis of the correlation between abnormal earnings and surprises) reveals that investors differentiate adjustments to income. While most adjustments made by I/B/E/S financial analysts are considered as credible (and thus not reversed by investors), investors reverse all of the additional adjustments made by firms. Thus, data indicates that the SEC fears that firms were misleading investors by making adjustments to the GAAP numbers were unfounded. In fact, investors have been reversing the incremental adjustments through the three regimes, and the SEC interventions did not affect this.

Table 1 - Sample selection

S&P 500 firms	500
Utilities (GICS = 55)	(36)
Financial institutions (GICS = 40)	(83)
Firms with mergers or splits	(16)
Firms with data problems	(11)
Final sample	361

Table 2 – Analysis of economic sectors and industry groups

Panel A: Industry distribution of all observations

	Press Release		Non-GAAP disclosure	
	Freq.	%	Freq.	%
Energy	248	6%	158	6%
Materials	367	9%	209	8%
Capital goods	400	9%	229	9%
Commercial serv. & supplies	153	4%	97	4%
Transportation	106	3%	38	2%
Automobiles & components	108	3%	55	2%
Consumer durables & apparel	260	6%	151	6%
Hotels, restaurants & leisure	111	3%	53	2%
Media	160	4%	120	5%
Retailing	319	8%	96	4%
Food staples retailing	118	3%	49	2%
Food, beverage & tobacco	231	5%	118	5%
Household & personal products	83	2%	44	2%
Health care equipment & serv.s	321	8%	183	7%
Pharmaceuticals & biotechnology	173	4%	105	4%
Software & services	309	7%	221	9%
Technology hardware & equip.	391	9%	271	11%
Semiconductors & equip.	235	6%	152	6%
Telecommunication services	141	3%	123	5%
TOTAL	4,234	100%	2,472	100%

Panel B: Division of non-GAAP observations by economic sector

	Regime 1		Regime 2		Regime 3	
	Freq.	%	Freq.	%	Freq.	%
Energy	55	6%	59	7%	44	6%
Materials	73	8%	77	9%	59	8%
Industrials	121	14%	133	14%	110	16%
Consumer discretionary	171	20%	174	19%	130	18%
Consumer staples	80	9%	85	9%	46	7%
Health care	88	10%	110	12%	90	13%
Information technology	234	27%	218	24%	192	27%
Telecommunication services	43	5%	43	5%	37	5%

Table 3 – Non-GAAP measures disclosed

	Present	Not present
NG_EPS	1,709	2,525
NG_EPS_cont	168	4,066
NG_EPS_ops	78	4,156
NG_EPS_cash	137	4,097
NG_CF_PS	16	4,218
NG_NI	1,316	2,918
NG_NI_cont	153	4,081
NG_NI_ops	364	3,870
NG_cash	34	4,200
NG_CF	414	3,820
EBIT_DA	542	3,692
NG_INC_MEASURE	2,257	1,977

NG_EPS stands for non-GAAP earnings per share

NG_EPS_cont stands for non-GAAP earnings per share from continuous operations

NG_EPS_ops stands for non-GAAP operating earnings per share

NG_EPS_cash stands for non-GAAP cash earnings per share

NG_CF_ps stands for non-GAAP cash flow measure, per share

NG_NI stands for non-GAAP net income

NG_NI_cont stands for non-GAAP income from continuing operations

NG_NI_ops stands for non-GAAP operating earnings

NG_cash stands for non-GAAP cash earnings

NG_CF stands for non-GAAP cash flow measure

EBIT_DA stands for earnings before interest, taxes, depreciation and amortization and earnings before interest and taxes measures.

Table 4 – Frequency of non-GAAP disclosures, by calendar quarter

Calendar quarter	Firms with NG	N	Firms with NG (as % of N)	Difference from same quarter, year t-1
1 st	220	338	65%	-
2 nd	208	352	59%	-
3 rd	208	349	60%	-
4 th	230	357	64%	-
Average			62%	
5 th	249	356	70%	+5%
6 th	221	358	62%	+3%
7 th	209	359	58%	-1%
8 th	220	358	61%	-3%
Average			63%	
9 th	217	353	61%	-8%
10 th	169	357	47%	-15%
11 th	159	352	45%	-13%
12 th	165	345	48%	-14%
Average			51%	
TOTAL	2,475	4,234	--	

NG stands for non-GAAP financial measures.

Table 5 – Descriptive statistics on logit variables

Panel A: division of observations by NG

	NG=1 (N=2,289)		NG=0 (N=1,675)		Test (dif. means)
	Mean	Median	Mean	Median	
SPEC	0.75	1.00	0.27	0.00	34.12***
SPEC_VAL	-0.01	0.00	0.00	0.00	-7.88***
B_BATH	0.10	0.00	0.01	0.00	13.23***
INTAN	0.13	0.06	0.09	0.02	8.22***
TECH	0.35	0.00	0.20	0.00	10.70***
LOSS	0.24	0.00	0.06	0.00	16.89***
UPEARN	0.50	0.00	0.64	1.00	-8.91***
STDROA	0.03	0.01	0.01	0.01	16.68***
LNASSET	8.89	8.77	8.67	8.54	5.92***
LEV	2.30	1.51	1.65	1.34	2.58***
NEGFE	0.54	1.00	0.26	0.00	18.70***

*** - t-statistic statistically significant at a 1% level (2-sided test)

** - t-statistic statistically significant at a 5% level (2-sided test)

* - t-statistic statistically significant at a 10% level (2-sided test)

Panel B: division of observations by regime

	Regime 1 (N=1,319)		Regime 2 (N=1,350)		Regime 3 (N=1,295)	
	Mean	Median	Mean	Median	Mean	Median
SPEC	0.52	1.00	0.56	1.00	0.57	1.00
SPEC_VAL	-0.01	0.00	-0.01	0.00	0.00	0.00
B_BATH	0.06	0.00	0.08	0.00	0.04	0.00
INTAN	0.01	0.00	0.16	0.10	0.18	0.14
TECH	0.29	0.00	0.29	0.00	0.28	0.00
LOSS	0.18	0.00	0.18	0.00	0.13	0.00
UPEARN	0.41	0.00	0.60	1.00	0.66	1.00
STDROA	0.02	0.01	0.02	0.01	0.02	0.01
LNASSET	8.74	8.61	8.80	8.70	8.86	8.76
LEV	1.86	1.44	2.11	1.44	2.11	1.40
NEGFE	0.44	0.00	0.47	0.00	0.35	0.00

Table 6 – Logit model for the probability of disclosure of non-GAAP financial measures

Panel A: All observations

Variable	Expected sign	Estimated coefficient	Marginal effect
Intercept		-1.69 ***	--
CAL_QRT_02		-0.07	-2%
CAL_QRT_03		-0.34	-8%
CAL_QRT_04		-0.27	-6%
CAL_QRT_05		-0.57 ***	-13%
CAL_QRT_06		-0.49 **	-11%
CAL_QRT_07		-0.86 ***	-18%
CAL_QRT_08		-0.99 ***	-21%
CAL_QRT_09	-	-1.24 ***	-25%
CAL_QRT_10	-	-1.41 ***	-27%
CAL_QRT_11	-	-1.76 ***	-31%
CAL_QRT_12	-	-1.58 ***	-29%
SPEC	+	1.89 ***	41%
SPEC_VAL	-	-11.53 **	-280%
B_BATH	-	0.01	0%
INTAN	+	3.56 ***	87%
TECH	+	0.63 ***	16%
LOSS	+	0.47 ***	12%
UPEARN	-	0.01	0%
STDROA	+	2.78	68%
LNASSET	+	0.09 **	2%
LEV	+	0.01	0%
QRT_2	+	0.10	2%
QRT_3	+	0.22	5%
QRT_4	+	0.17	4%
NEGFE	+	0.60 ***	15%

N	3,964
% concordant	83%

The marginal effects are computed as $e^{\beta'X}/(1 + e^{\beta'X})^2$, where $\beta'X$ is computed at the mean values of X.

*** - chi-square (one degree of freedom) statistically significant at a 1% level

** - chi-square (one degree of freedom) statistically significant at a 5% level

* - chi-square (one degree of freedom) statistically significant at a 10% level.

$$\begin{aligned} \text{Log}(p/(1-p)) = & \beta_0 + \beta_1 \text{CAL_QRT_02} + \beta_2 \text{CAL_QRT_03} + \dots + \beta_{10} \text{CAL_QRT_11} + \\ & \beta_{11} \text{CAL_QRT_12} + \beta_{12} \text{SPEC} + \beta_{13} \text{SPEC_VAL} + \beta_{14} \text{B_BATH} + \beta_{15} \text{INTAN} + \\ & \beta_{16} \text{TECH} + \beta_{17} \text{LOSS} + \beta_{18} \text{UPEARN} + \beta_{19} \text{STDRO} + \beta_{20} \text{LNASSET} + \beta_{21} \text{LEV} + \\ & \beta_{22} \text{QRT_2} + \beta_{23} \text{QRT_3} + \beta_{24} \text{QRT_4} + \beta_{25} \text{NEGFE} \end{aligned} \quad (1)$$

p – probability that NG=1

NG – dummy variable that indicates if a firm disclosed non-GAAP financial measures

CAL_QRT_X – dummy variables that indicates if observation is from calendar quarter X

SPEC – dummy variable that indicates the presence of special items

SPEC_VAL – value of the special items, scaled by total assets

B_BATH – dummy variable that equals one if the firm has a negative special item and its earnings excluding the special item are negative

INTAN – goodwill plus other intangibles, divided by total assets

TECH – dummy variable that equals one if the firm operates in the three digit SIC codes 283, 357, 481, 360-367, 737 or 873

LOSS – dummy variable that equals one if GAAP earnings are negative

UPEARN – dummy variable that equals one if the firm's GAAP earnings are greater than or equal to its earnings for the same quarter of the prior year

STDROA – standard deviation of the firm's quarterly return on assets over the sample period;

LNASSET – natural log of total assets

LEV – total liabilities divided by total equity

QRT_Y – dummy variables for the fiscal quarters

NEGFE – dummy variable that equals one when the analysts' consensus is higher than GAAP earnings per share.

Panel B: Division of observations, considering level of institutional ownership

	NG=1	NG=0	
High institutional ownership	740	521	1,261
Low institutional ownership	572	398	970
	1,312	919	2,231
Chi-square test	0.02	(1 degree of freedom)	

Panel C: Extremes of institutional ownership

Variable	High institutional ownership	Low institutional ownership
Intercept	-4.10 ***	-0.74 ***
CAL_QRT_02	-0.02	-0.14
CAL_QRT_03	0.06	-0.33
CAL_QRT_04	0.34	-0.09
CAL_QRT_05	-0.43	-1.07 ***
CAL_QRT_06	-0.37	-0.97 **
CAL_QRT_07	-0.21	-1.40 ***
CAL_QRT_08	-0.46	-1.13 ***
CAL_QRT_09	-0.85 **	-1.96 ***
CAL_QRT_10	-0.94 **	-1.94 ***
CAL_QRT_11	-0.87 **	-2.31 ***
CAL_QRT_12	-1.09	-1.99 ***
SPEC	1.85 ***	1.72 ***
SPEC_VAL	-20.14 *	-8.58 **
B_BATH	0.83	-0.10
INTAN	2.21 ***	4.91 ***
TECH	0.94 ***	0.80 ***
LOSS	0.52 *	0.71 **
UPEARN	-0.06	0.47
STDROA	7.67	0.49
LNASSET	0.37 ***	-0.07
LEV	0.05 **	0.00
QRT_2	-0.22	0.25
QRT_3	-0.01	0.05
QRT_4	0.15	0.29
NEGFE	0.26 *	0.97 ***
N	1,230	937
% concordant	83%	84%

Table 7 – Emphasis

Panel A: Frequency of emphasis measures

	Frequency	Percentage
GAAP measures		
- In title	568	13.4%
- In subtitle or highlights	588	13.9%
- In 1 st or 2 nd paragraphs	2,124	50.2%
- In body of text	771	18.2%
- In financials	156	3.7%
- Not present	27	0.6%
Non-GAAP measures		
- In title	265	6.3%
- In subtitle or highlights	456	10.8%
- In 1 st or 2 nd paragraphs	1,064	25.1%
- In body of text	540	12.8%
- In financials	150	3.5%
- Not present	1,759	41.5%

Panel B: Emphasis on observations that disclose a non-GAAP measure

	Regime 1		Regime 2		Regime 3	
	Mean	Median	Mean	Median	Mean	Median
E_GAAP	3.65	4.00	4.00	4.00	4.36	4.00
E_NG	4.19	4.00	4.15	4.00	3.76	4.00
REL_E	0.54	0.00	0.15	0.00	-0.60	0.00
NG_F	0.69	1.00	0.55	1.00	0.17	0.00

E_GAAP stands for emphasis given to the first GAAP financial measure disclosed in the press release

E_NG stands for emphasis given to the first non-GAAP financial measure disclosed in the press release

REL_E stands for relative emphasis, the difference between E_NG and E_GAAP

NG_F stands for non-GAAP financial measure disclosed first.

Panel C: Relative emphasis on observations that disclose a non-GAAP measure

	Regime1		Regime 2		Regime 3	
	Frequency	%	Frequency	%	Frequency	%
-4	8	1%	10	1%	17	2%
-3	20	2%	26	3%	44	6%
-2	53	6%	55	6%	81	11%
-1	44	5%	88	10%	130	18%
0	352	41%	439	49%	394	55%
1	157	18%	149	17%	22	3%
2	166	19%	101	11%	18	3%
3	45	5%	22	2%	4	1%
4	20	2%	9	1%	0	0%
5	1	0%	0	0%	0	0%

Panel D: Emphasis, considering value of measures

	2001		2002		2003	
	NG_h	NG_l	NG_h	NG_l	NG_h	NG_l
E_GAAP	3.63	3.74	3.97	4.09	4.32	4.51
E_NG	4.18	4.26	4.14	4.19	3.74	3.81
REL_E	0.54	0.52	0.17	0.10	-0.57	-0.70
NG_F	0.70	0.64	0.55	0.54	0.17	0.16
N	723	140	718	181	565	140
Test on differences of REL_E						
T-statistic	0.14		0.65		1.07	

NG_h indicates observations where the value of the non-GAAP financial measure disclosed is higher than the GAAP measure disclosed

NG_l indicates observations where the value of the non-GAAP financial measure disclosed is equal or lower than the GAAP measure disclosed.

Panel E: Emphasis, considering GAAP loss and non-GAAP profit

	2001		2002		2003	
	GL_NGP	Other	GL_NGP	Other	GL_NGP	Other
E_GAAP	3.43	3.70	3.74	4.04	4.13	4.39
E_NG	4.32	4.16	4.02	4.17	3.79	3.75
REL_E	0.89	0.47	0.28	0.13	-0.34	-0.64
N	151	712	126	773	94	611
Test on differences of REL_E						
T-statistic	3.85 ***		1.24		2.36 **	

GL_NGP indicates observations where the GAAP earnings number is a loss and the non-GAAP value is positive

Other indicates observations where the above situation does not exist

*** - Statistical significance at a 1% level

** - Statistical significance at a 5% level

* - Statistical significance at a 10% level

Table 8 – Descriptive statistics on the reconciliation and the financial statements

Panel A: Disclosure of reconciliation and financial statements

	REC	% of NG	CSI_NG	% of NG	CSI_GAAP	CBS	CSCF
Regime 1							
NG observ.s	233	27%	210	24%	747	537	141
Non-NG observ.s	0		0		494	333	123
Regime 2							
NG observ.s	444	49%	200	22%	813	619	213
Non-NG observ.s	0		0		498	345	153
Regime 3							
NG observ.s	527	74%	118	17%	629	536	258
Non-NG observ.s	0		0		652	490	264
TOTAL	1,204		528		3,833	2,860	1,152

NG observ.s – Observations where a non-GAAP financial measure is disclosed

Non-NG observations – Observations where no non-GAAP financial measure is disclosed

REC – Number of observations where a tabular reconciliation is disclosed

CSI_NG – Number of observations where a non-GAAP consolidated income statement is disclosed

CSI_GAAP – Number of observations where a GAAP consolidated income statement is disclosed

CBS – Number of observations where a consolidated balance sheet is disclosed

CSCF – Number of observations where a consolidated statement of cash flows is disclosed

Panel B: Explanation of non-GAAP financial measures disclosed by the firms

	Regime 1		Regime 2		Regime 3	
	Freq.	%	Freq.	%	Freq.	%
Cat. 1	66	8%	86	10%	95	13%
Cat. 2	42	5%	93	10%	87	12%
Cat. 3	74	9%	183	20%	176	25%
Cat. 4	51	6%	82	9%	169	24%
Cat. 5	240	28%	182	20%	68	10%
Cat.6	18	2%	15	2%	8	1%
Cat. 7	157	18%	99	11%	37	5%
Cat.8	218	25%	159	18%	70	10%

Cat. 1 - Side-by-side reconciliation, as used in Elliot (2004)

Cat. 2 - Reconciliation from GAAP to non-GAAP EPS

Cat. 3 - Reconciliation from GAAP to non-GAAP net income

Cat. 4 - Reconciliation from other non-GAAP measure to GAAP measure

Cat. 5 - Written explanation of nature and amount of adjustments (totals)

Cat. 6 - Written explanation of nature and amount of adjustments (per share basis)

Cat. 7 - Written explanation of nature of adjustments

Cat. 8 - No information about difference between GAAP and non-GAAP numbers

Table 9 – Benchmarks

Panel A: Benchmarks used in entire sample period

	Frequency	Percentage
GAAP measures		
GAAP measure, q-1	130	4%
GAAP measure, q-4	3,471	95%
NG measure, q-1	2	0%
NG measure, q-4	61	2%
TOTAL	3,664	100%
NG measures		
NG measure, q-1	127	6%
NG measure, q-4	1,804	92%
GAAP measure, q-1	0	0%
GAAP measure, q-4	36	2%
TOTAL	1,967	100%

Panel B: Benchmarks used in third regime

	Frequency	Percentage
GAAP measures		
GAAP measure, q-1	70	5%
GAAP measure, q-4	1,198	94%
NG measure, q-1	1	0%
NG measure, q-4	7	1%
TOTAL	1,276	100%
NG measures		
NG measure, q-1	48	9%
NG measure, q-4	495	90%
GAAP measure, q-1	0	0%
GAAP measure, q-4	6	1%
TOTAL	549	100%

Table 10 – Initial valuation model

Panel A: descriptive statistics (all observations)

	Mean	Median
Price	32.97	32.02
R2	0.37	0.00
R3	0.33	0.00
NG (Regime 1)	0.59	1.00
NG (Regime 2)	0.62	1.00
NG (Regime 3)	0.52	1.00
BV	11.56	9.35
INC_B_ADJ (Regime 1)	0.42	0.34
INC_B_ADJ (Regime 2)	0.41	0.36
INC_B_ADJ (Regime 3)	0.48	0.41
ADJ (Regime 1)	0.20	0.01
ADJ (Regime 2)	0.16	0.00
ADJ (Regime3)	0.17	0.00

Price – closing market value per share three months after the fiscal quarter end

Rz – dummy variables for the three regimes

NG – dummy variable that indicates if a firm disclosed non-GAAP financial measures

$NG_Rz = NG * Rz$

BV – common equity per share at the quarter end

INC_B_ADJ – income before adjustments, on a per share basis

$INC_B_ADJ_Rz = INC_B_ADJ * Rz$

$ADJ = INC_B_ADJ - NI_PS$

$ADJ_Rz = ADJ * Rz$

Panel B: descriptive statistics (NG observations)

	Mean	Median
INC_B_ADJ (Regime 1)	0.40	0.33
INC_B_ADJ (Regime 2)	0.42	0.35
INC_B_ADJ (Regime 3)	0.52	0.41
ADJ (Regime 1)	0.33	0.11
ADJ (Regime 2)	0.25	0.08
ADJ (Regime3)	0.32	0.09

Panel C: results of estimation

$$\begin{aligned} \text{Price} = & \beta_0 + \beta_1 R2 + \beta_2 R3 + \beta_3 \text{NG_R1} + \beta_4 \text{NG_R2} + \beta_5 \text{NG_R3} + \beta_6 \text{BV} + \beta_7 \text{INC_B_ADJ_R1} + \\ & \beta_8 \text{INC_B_ADJ_R2} + \beta_9 \text{INC_B_ADJ_R3} + \beta_{10} \text{ADJ_R1} + \beta_{11} \text{ADJ_R2} + \beta_{12} \text{ADJ_R3} + \\ & \beta_{13} \text{SPEC} + \beta_{14} \text{SPEC_VAL} + \beta_{15} \text{INTAN} + \beta_{16} \text{TECH} + \beta_{17} \text{LOSS} + \beta_{18} \text{LNASSET} + \\ & \beta_{19} \text{NEGFE} + \varepsilon \end{aligned} \quad (2.1)$$

	Estimated coefficient	White t-statistic	
Intercept	22.72	12.63	***
R2	-2.72	-2.66	***
R3	-2.33	-2.15	**
NG_R1	1.25	1.31	
NG_R2	0.02	0.02	
NG_R3	-1.93	-2.29	**
BV	0.47	14.86	***
INC_B_ADJ_R1	9.50	9.77	***
INC_B_ADJ_R2	14.53	13.52	***
INC_B_ADJ_R3	7.62	6.96	***
ADJ_R1	-2.82	-2.68	**
ADJ_R2	-3.84	-4.32	***
ADJ_R3	-2.07	-2.24	**
SPEC	-2.71	-4.79	***
SPEC_VAL	-21.38	-2.68	**
INTAN	-3.02	-1.73	*
TECH	-0.59	-1.08	
LOSS	-7.46	-10.63	***
LNASSET	0.59	2.95	***
NEGFE	-0.25	-0.49	
N	3,451		
Adj. R ²	37%		

*** - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 1% level
(2-sided test)

** - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 5% level
(2-sided test)

* - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 10% level
(2-sided test)

Panel D: Tests on coefficients

Test	Chi-square	P-value
ADJ_R1 = ADJ_R2	0.90	0.34
ADJ_R1 = ADJ_R3	0.45	0.50
ADJ_R2 = ADJ_R3	2.50	0.11
INC_B_ADJ_R1 = - ADJ_R1	27.11	<0.0001 ***
INC_B_ADJ_R2 = - ADJ_R2	73.77	<0.0001 ***
INC_B_ADJ_R3 = - ADJ_R3	28.21	<0.0001 ***

*** - Statistical significance at a 1% level

** - Statistical significance at a 5% level

* - Statistical significance at a 10% level

Table 11 – Heckman procedure, initial valuation model

	Estimated coeff.	
Intercept	-1.91	***
CAL_QRT_02	0.81	***
CAL_QRT_03	0.58	***
CAL_QRT_04	0.63	***
CAL_QRT_05	0.56	***
CAL_QRT_06	0.58	***
CAL_QRT_07	0.29	*
CAL_QRT_08	0.17	
CAL_QRT_09	0.17	
CAL_QRT_10	0.02	
CAL_QRT_11	-0.32	**
CAL_QRT_12	-0.33	**
SPEC	1.15	***
SPEC_VAL	0.07	
B_BATH	-0.05	
INTAN	2.08	***
TECH	0.41	***
LOSS	0.23	***
UPEARN	0.01	
STDROA	2.38	**
LNASSET	0.04	*
LEV	0.00	
QRT_2	0.15	
QRT_3	0.28	***
QRT_4	0.07	
NEGFE	0.51	***

	Estimated coeff.	
Intercept	22.25	***
R2	-3.26	***
R3	-4.41	***
BV	0.57	***
INC_B_ADJ_R1	11.69	***
INC_B_ADJ_R2	17.58	***
INC_B_ADJ_R3	8.68	***
ADJ_R1	-2.90	***
ADJ_R2	-5.01	***
ADJ_R3	-2.74	***

Total observ.s	3,712
Censored observ.s	1,712
Uncensored observ.s	2,000
Lambda	1.71 **

*** - Statistical significance at a 1% level

** - Statistical significance at a 5% level

* - Statistical significance at a 10% level

Table 12 – Expanded valuation model

Panel A: descriptive statistics (all observations)

	Mean	Median
ADJ_IBES (Regime 1)	0.13	0.00
ADJ_IBES (Regime 2)	0.10	0.00
ADJ_IBES (Regime 3)	0.13	0.00
ADJ_F (Regime 1)	0.07	0.00
ADJ_F (Regime 2)	0.06	0.00
ADJ_F (Regime 3)	0.03	0.00

$ADJ_IBES = Actual - NI_PS;$

$ADJ_IBES_Rz = ADJ_IBES * Rz$

$ADJ_F = INC_B_ADJ - Actual;$

$ADJ_F_Rz = ADJ_F * Rz;$

Rz – dummy variables for the three regimes;

	NG=0	NG=1	
ADJ_IBES=0	883	399	1,282
ADJ_IBES not 0	561	1,602	2,163
	1,444	2,001	3,445

Panel B: descriptive statistics (NG observations)

	Mean	Median
ADJ_IBES (Regime 1)	0.24	0.05
ADJ_IBES (Regime 2)	0.17	0.03
ADJ_IBES (Regime 3)	0.17	0.02
ADJ_F (Regime 1)	0.10	0.00
ADJ_F (Regime 2)	0.09	0.00
ADJ_F (Regime 3)	0.15	0.00

Panel C: results of estimation

$$\begin{aligned} \text{Price} = & \beta_0 + \beta_1 R2 + \beta_2 R3 + \beta_3 \text{NG_R1} + \beta_4 \text{NG_R2} + \beta_5 \text{NG_R3} + \beta_6 \text{BV} + \beta_7 \text{INC_B_ADJ_R1} + \\ & \beta_8 \text{INC_B_ADJ_R2} + \beta_9 \text{INC_B_ADJ_R3} + \beta_{10} \text{ADJ_IBES_R1} + \beta_{11} \text{ADJ_IBES_R2} + \\ & \beta_{12} \text{ADJ_IBES_R3} + \beta_{13} \text{ADJ_F_R1} + \beta_{14} \text{ADJ_F_R2} + \beta_{15} \text{ADJ_F_R3} + \beta_{16} \text{SPEC} + \\ & \beta_{17} \text{SPEC_VAL} + \beta_{18} \text{INTAN} + \beta_{19} \text{TECH} + \beta_{20} \text{LOSS} + \beta_{21} \text{LNASSET} + \beta_{22} \text{NEGFE} + \varepsilon(2.2) \end{aligned}$$

	Estimated coefficient	White t-statistic	
Intercept	25.12	14.45	***
R2	-4.11	-3.89	***
R3	-7.05	-6.65	***
NG_R1	1.55	1.72	*
NG_R2	0.76	0.91	
NG_R3	-0.21	-0.27	
BV	0.35	12.37	***
INC_B_ADJ_R1	15.15	11.47	***
INC_B_ADJ_R2	24.19	17.46	***
INC_B_ADJ_R3	24.08	17.40	***
ADJ_IBES_R1	-0.68	-0.98	
ADJ_IBES_R2	-0.22	-0.23	
ADJ_IBES_R3	-0.50	-0.77	
ADJ_F_R1	-15.48	-8.53	***
ADJ_F_R2	-22.49	-11.37	***
ADJ_F_R3	-24.09	-16.41	***
SPEC	-2.86	-5.44	***
SPEC_VAL	3.78	0.67	
INTAN	0.65	0.40	
TECH	-0.60	-1.18	
LOSS	-3.51	-5.08	***
LNASSET	0.27	1.41	
NEGFE	-1.43	-2.99	***

N	3,445
Adj. R ²	45%

*** - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 1% level
(2-sided test)

** - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 5% level
(2-sided test)

* - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 10% level
(2-sided test)

Panel D: Tests on coefficients

Test	Chi-square	P-value
ADJ_IBES_R1 = ADJ_IBES_R2	0.23	0.63
ADJ_IBES_R1 = ADJ_IBES_R3	0.05	0.82
ADJ_IBES_R2 = ADJ_IBES_R3	0.07	0.79
ADJ_F_R1 = ADJ_F_R2	7.37	0.01 ***
ADJ_F_R1 = ADJ_F_R3	15.13	<0.01 ***
ADJ_F_R2 = ADJ_F_R3	0.48	0.49
INC_B_ADJ_R1 = - ADJ_F_R1	0.08	0.78
INC_B_ADJ_R2 = - ADJ_F_R2	1.47	0.22
INC_B_ADJ_R3 = - ADJ_F_R3	0.00	0.99

*** - Statistical significance at a 1% level

** - Statistical significance at a 5% level

* - Statistical significance at a 10% level

Table 13 – Robustness checks on the extended valuation model

Panel A: Heckman procedure

	Estimated coeff.		Estimated coeff.
Intercept	-1.91 ***	Intercept	21.37 ***
CAL_QRT_02	0.80 ***	R2	-3.94 ***
CAL_QRT_03	0.59 ***	R3	-8.23 ***
CAL_QRT_04	0.63 ***	BV	0.43 ***
CAL_QRT_05	0.56 ***	INC_B_ADJ_R1	18.51 ***
CAL_QRT_06	0.57 ***	INC_B_ADJ_R2	25.64 ***
CAL_QRT_07	0.29 *	INC_B_ADJ_R3	24.95 ***
CAL_QRT_08	0.18	ADJ_IBES_R1	-1.57 ***
CAL_QRT_09	0.17	ADJ_IBES_R2	-1.30 *
CAL_QRT_10	0.02	ADJ_IBES_R3	-1.04 ***
CAL_QRT_11	-0.30 *	ADJ_F_R1	-20.10 ***
CAL_QRT_12	-0.31 *	ADJ_F_R2	-24.38 ***
SPEC	1.14 ***	ADJ_F_R3	-25.97 ***
SPEC_VAL	-0.09		
B_BATH	-0.06	Total observ.s	3,713
INTAN	2.06 ***	Censored observ.s	1,712
TECH	0.41 ***	Uncensored observ.s	2,001
LOSS	0.23 ***		
UPEARN	0.01	Lambda	3.41 ***
STDROA	2.35 **		
LNASSET	0.04 *		
LEV	0.00		
QRT_2	0.15		
QRT_3	0.29 ***		
QRT_4	0.08		
NEGFE	0.50 ***		

*** - Statistical significance at a 1% level

** - Statistical significance at a 5% level

* - Statistical significance at a 10% level

Panel B: Estimation using only non-GAAP observations

	Estimated coefficient	White t-statistic	
Intercept	21.65	27.98	***
R2	-3.67	-3.73	***
R3	-6.90	-6.28	***
BV	0.48	12.39	***
INC_B_ADJ_R1	22.22	14.68	***
INC_B_ADJ_R2	27.27	17.27	***
INC_B_ADJ_R3	25.14	13.55	***
ADJ_IBES_R1	-1.83	-3.54	***
ADJ_IBES_R2	-2.09	-3.72	***
ADJ_IBES_R3	-1.49	-2.06	**
ADJ_F_R1	-22.97	-12.49	***
ADJ_F_R2	-25.20	-12.08	***
ADJ_F_R3	-25.80	-11.74	***
N	1,997		
Adj. R ²	48%		

*** - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 1% level
(2-sided test)

** - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 5% level
(2-sided test)

* - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 10% level
(2-sided test)

Panel C: Excluding non-GAAP cash measures

	Estimated coefficient	White t-statistic	
Intercept	24.98	14.24	***
R2	-3.95	-3.73	***
R3	-6.90	-6.44	***
NG_R1	1.42	1.58	
NG_R2	0.95	1.15	
NG_R3	-0.31	-0.40	
BV	0.35	12.37	***
INC_B_ADJ_R1	15.17	11.41	***
INC_B_ADJ_R2	24.15	17.42	***
INC_B_ADJ_R3	24.01	17.03	***
ADJ_IBES_R1	-0.01	-0.04	
ADJ_IBES_R2	-0.36	-0.40	
ADJ_IBES_R3	0.19	0.27	
ADJ_F_R1	-10.36	-3.98	***
ADJ_F_R2	-23.69	-10.48	***
ADJ_F_R3	-23.76	-14.62	***
SPEC	-2.80	-5.31	***
SPEC_VAL	7.88	1.79	*
INTAN	0.70	0.43	
TECH	-0.62	-1.22	
LOSS	-3.66	-5.35	***
LNASSET	0.27	1.40	
NEGFE	-1.46	-3.02	***
N	3,446		
Adj. R ²	45%		

*** - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 1% level
(2-sided test)

** - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 5% level
(2-sided test)

* - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 10% level
(2-sided test)

Table 14 – Model of the association between earnings surprises and abnormal stock returns

Panel A: descriptive statistics (all observations)

	Mean	Median
R2	0.369	0.00
R3	0.334	0.00
NG (Regime 1)	0.591	1.00
NG (Regime 2)	0.609	1.00
NG (Regime 3)	0.518	1.00
SURP_GAAP (Regime 1)	-0.004	0.00
SURP_GAAP (Regime 2)	-0.005	0.00
SURP_GAAP (Regime 3)	-0.009	0.00
SURP_IBES (Regime1)	0.004	0.00
SURP_IBES (Regime 2)	0.005	0.00
SURP_IBES (Regime 3)	0.009	0.00
SURP_F (Regime 1)	0.002	0.00
SURP_F (Regime 2)	0.002	0.00
SURP_F (Regime 3)	0.000	0.00

NG – dummy variable that indicates if a firm disclosed non-GAAP financial measures

$NG_Rz = NG * Rz$

Rz – dummy variables for the three regimes

$SURP_GAAP = (NI_PS - \text{consensus}) / \text{market value of equity}$

$SURP_IBES = (I/B/E/S \text{ actual} - NI_PS) / \text{market value of equity}$

$SURP_F = (INC_B_ADJ - I/B/E/S \text{ actual}) / \text{market value of equity}$

$SURP_GAAP_Rz = SURP_GAAP * Rz$

$SURP_IBES_Rz = SURP_IBES * Rz$

$SURP_F_Rz = SURP_F * Rz$

Panel B: descriptive statistics (NG observations)

	Mean	Median
SURP_GAAP (Regime 1)	-0.007	-0.002
SURP_GAAP (Regime 2)	-0.008	-0.001
SURP_GAAP (Regime 3)	-0.011	0.000
SURP_IBES (Regime1)	0.007	0.001
SURP_IBES (Regime 2)	0.009	0.001
SURP_IBES (Regime 3)	0.012	0.001
SURP_F (Regime 1)	0.003	0.000
SURP_F (Regime 2)	0.003	0.000
SURP_F (Regime 3)	0.007	0.000

Panel C: results of estimation

$$\begin{aligned}
 CAR = & \beta_0 + \beta_1 R2 + \beta_2 R3 + \beta_3 NG_R1 + \beta_4 NG_R2 + \beta_5 NG_R3 + \beta_6 SURP_GAAP_R1 + \\
 & \beta_7 SURP_GAAP_R2 + \beta_8 SURP_GAAP_R3 + \beta_9 SURP_IBES_R1 + \beta_{10} SURP_IBES_R2 \\
 & + \beta_{11} SURP_IBES_R3 + \beta_{12} SURP_F_R1 + \beta_{13} SURP_F_R2 + \beta_{14} SURP_F_R3 + \beta_{15} SPEC \\
 & + \beta_{16} SPEC_VAL + \beta_{17} INTAN + \beta_{18} TECH + \beta_{19} LOSS + \beta_{20} LNASSET + \beta_{21} NEGFE + \varepsilon \quad (3)
 \end{aligned}$$

	Window = (-1,+1)		Window = (-61,+1)	
	Est. coef.	White t-statistic	Est. coef.	White t-statistic
Intercept	0.020	2.83 ***	0.179	8.95 ***
R2	0.005	1.58	-0.041	-4.32 ***
R3	-0.001	-0.32	-0.074	-8.27 ***
NG_R1	0.002	0.63	-0.007	-0.70
NG_R2	-0.004	-1.26	-0.000	0.02
NG_R3	0.002	0.67	0.018	2.32 **
SURP_GAAP_R1	2.577	3.26 ***	9.448	4.37 ***
SURP_GAAP_R2	2.240	4.10 ***	13.314	7.26 ***
SURP_GAAP_R3	1.553	5.83 ***	7.422	6.58 ***
SURP_IBES_R1	2.678	3.37 ***	9.004	4.16 ***
SURP_IBES_R2	2.394	4.28 ***	13.461	7.29 ***
SURP_IBES_R3	1.582	5.76 ***	8.213	7.04 ***
SURP_F_R1	0.144	0.84	0.649	1.28
SURP_F_R2	0.436	3.79 ***	1.060	4.28 ***
SURP_F_R3	-0.103	-2.43 **	-0.029	-0.10
SPEC	0.002	1.00	0.006	1.10
SPEC_VAL	0.116	3.50 ***	0.223	2.24 **
INTAN	0.000	0.02	-0.028	-1.62
TECH	-0.002	-0.89	-0.025	-4.56 ***
LOSS	-0.005	-1.67 *	-0.012	-1.34
LNASSET	-0.001	-1.29	-0.010	-5.00 ***
NEGFE	-0.011	-5.50 ***	-0.030	-5.48 ***
N	3,396		3,407	
Adj. R ²	5%		14%	

*** - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 1% level
(2-sided test)

** - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 5% level
(2-sided test)

* - White (1980) heteroscedasticity-adjusted t-statistic statistically significant at a 10% level
(2-sided test)

Panel D: Tests on coefficients

Results from short window estimation

Test	Chi-square	P-value
SURP_IBES_R1 = SURP_IBES_R2	0.09	0.77
SURP_IBES_R1 = SURP_IBES_R3	1.73	0.19
SURP_IBES_R2 = SURP_IBES_R3	1.74	0.19
SURP_F_R1 = SURP_F_R2	2.06	0.15
SURP_F_R1 = SURP_F_R3	1.97	0.16
SURP_F_R2 = SURP_F_R3	20.28	<0.01 ***
SURP_GAAP_R1 = SURP_IBES_R1	1.52	0.22
SURP_GAAP_R2 = SURP_IBES_R2	3.36	0.07 *
SURP_GAAP_R3 = SURP_IBES_R3	0.54	0.46
SURP_GAAP_R1 = SURP_F_R1	8.64	<0.01 ***
SURP_GAAP_R2 = SURP_F_R2	11.12	<0.01 ***
SURP_GAAP_R3 = SURP_F_R3	39.04	<0.01 ***

*** - Statistical significance at a 1% level

** - Statistical significance at a 5% level

* - Statistical significance at a 10% level

Results from long window estimation

Test	Chi-square	P-value
SURP_IBES_R1 = SURP_IBES_R2	2.49	0.11
SURP_IBES_R1 = SURP_IBES_R3	0.11	0.75
SURP_IBES_R2 = SURP_IBES_R3	5.86	0.02 **
SURP_F_R1 = SURP_F_R2	0.54	0.46
SURP_F_R1 = SURP_F_R3	1.36	0.24
SURP_F_R2 = SURP_F_R3	8.15	<0.01 ***
SURP_GAAP_R1 = SURP_IBES_R1	4.37	0.04 **
SURP_GAAP_R2 = SURP_IBES_R2	1.15	0.28
SURP_GAAP_R3 = SURP_IBES_R3	27.19	<0.01 ***
SURP_GAAP_R1 = SURP_F_R1	14.25	<0.01 ***
SURP_GAAP_R2 = SURP_F_R2	43.97	<0.01 ***
SURP_GAAP_R3 = SURP_F_R3	42.26	<0.01 ***

*** - Statistical significance at a 1% level

** - Statistical significance at a 5% level

* - Statistical significance at a 10% level

Table 15 – Robustness checks on the correlation (CARS, surprises)

Panel A: Short window, Heckman procedure

	Estimated coeff.
Intercept	-1.95 ***
CAL_QRT_02	0.82 ***
CAL_QRT_03	0.62 ***
CAL_QRT_04	0.64 ***
CAL_QRT_05	0.58 ***
CAL_QRT_06	0.56 ***
CAL_QRT_07	0.29 *
CAL_QRT_08	0.15
CAL_QRT_09	0.18
CAL_QRT_10	0.03
CAL_QRT_11	-0.30 *
CAL_QRT_12	-0.27 *
SPEC	1.15 ***
SPEC_VAL	-0.26
B_BATH	-0.07
INTAN	2.07 ***
TECH	0.38 ***
LOSS	0.22 **
UPEARN	0.03
STDROA	2.04 **
LNASSET	0.05 **
LEV	0.00
QRT_2	0.12
QRT_3	0.25 ***
QRT_4	0.05
NEGFE	0.49 ***

	Estimated coeff.
Intercept	-0.002
R2	0.002
R3	-0.000
SURP_GAAP_R1	3.030 ***
SURP_GAAP_R2	2.217 ***
SURP_GAAP_R3	1.429 ***
SURP_IBES_R1	2.931 ***
SURP_IBES_R2	2.217 ***
SURP_IBES_R3	1.365 ***
SURP_F_R1	0.075 ***
SURP_F_R2	0.284 ***
SURP_F_R3	0.016

Total observ.s	3,658
Censored observ.s	1,712
Uncensored observ.s	1,946
Lambda	0.009 ***

*** - Statistical significance at a 1% level

** - Statistical significance at a 5% level

* - Statistical significance at a 10% level

Panel B: Long window, Heckman procedure

	Estimated coeff.
Intercept	-2.03 ***
CAL_QRT_02	0.92 ***
CAL_QRT_03	0.70 ***
CAL_QRT_04	0.74 ***
CAL_QRT_05	0.69 ***
CAL_QRT_06	0.67 ***
CAL_QRT_07	0.40 **
CAL_QRT_08	0.26
CAL_QRT_09	0.27 *
CAL_QRT_10	0.14
CAL_QRT_11	-0.20
CAL_QRT_12	-0.17
SPEC	1.15 ***
SPEC_VAL	-0.14
B_BATH	-0.06
INTAN	2.08 ***
TECH	0.38 ***
LOSS	0.20 **
UPEARN	0.02
STDROA	2.03 **
LNASSET	0.05 **
LEV	0.00
QRT_2	0.13
QRT_3	0.24 **
QRT_4	0.05
NEGFE	0.47 ***

	Estimated coeff.
Intercept	0.043 ***
R2	-0.035 ***
R3	-0.056 ***
SURP_GAAP_R1	16.121 ***
SURP_GAAP_R2	15.276 ***
SURP_GAAP_R3	8.130 ***
SURP_IBES_R1	15.218 ***
SURP_IBES_R2	15.175 ***
SURP_IBES_R3	8.717 ***
SURP_F_R1	0.408
SURP_F_R2	0.844 ***
SURP_F_R3	-0.040

Total observ.s	3,657
Censored observ.s	1,711
Uncensored observ.s	1,946
Lambda	0.033 ***

*** - Statistical significance at a 1% level

** - Statistical significance at a 5% level

* - Statistical significance at a 10% level

Appendix

Halliburton – Press release of April 29, 2003

“The company believes that the effects of the net gain on the sale of Mono Pumps and Wellstream and the charges related to the proposed global settlement should be excluded for the purposes of understanding ongoing operations.”

Staples – Press release of May 20, 2003

“The following table reconciles Staples’ results on a GAAP basis with results adjusted for the accounting change and the one-time tax benefit. The company uses the adjusted net income and dilutes earnings per share to measure operating performance and believes such information is beneficial to an understanding of its results of operations on a comparative basis.”

Starwood Hotels & Resorts Worldwide – Press release of October 30, 2003

“The company has included the above supplemental information concerning special items to assist investors in analyzing Starwood’s financial position and results of operations. The Company has chosen to provide this information to investors to enable them to perform meaningful comparisons of past, present and future operating results and as a means to emphasize the results of core on-going operations.”

Southwest Airlines – Press release of July 21, 2003

“The Company believes it is helpful to management and investors to evaluate ongoing operational performance and trends by excluding these special items for

comparative purposes. A reconciliation of key financial measures excluding these special items is included in this press release, pursuant to Regulation G issued by the Securities and Exchange Commission.”

Tellabs – Press release of October 15, 2003

“In addition to reporting financial results in accordance with generally accepted accounting principles, or GAAP, Tellabs, Inc. provides non-GAAP results of operations as additional information for its operating results. These measures are not in accordance with, or an alternative for, GAAP and may be different from measures used by other companies. The non-GAAP results of operations eliminate certain items of expenses and losses from cost of goods sold, operating expenses and other income and expenses. The Company’s management believes that this presentation allows investors to evaluate the current operational and financial performance of the Company’s core business as an indicator of future operational and financial performance. The Company’s management uses these measures for reviewing its financial results and for business planning and performance. Tellabs, Inc.’s management discloses this information externally along with a complete reconciliation of their comparable GAAP amounts, to provide access to the detail and general nature of adjustments made to GAAP financial results. Furthermore, while some of these items have been periodically reported in Tellabs, Inc.’s results of operations, including significant restructuring and other charges, their occurrence in future periods is dependent upon future business and economic factors, among other evaluation criteria, and may frequently be beyond the control of management.”

Tenet Healthcare Corporation– Press release of May 14, 2003

“The following is a reconciliation of net income (loss) as determined in accordance with GAAP to adjusted net income (loss) from continuing operations, (a non-GAAP term we define as income from continuing operations before impairment and restructuring charges, losses from early extinguishment of debt, and goodwill amortization) used herein, in millions, except per share amount. Adjusted net income (loss) from continuing operations excludes certain items that may not relate to the conditions and circumstances of the current operating environment, including differences in accounting policies, portfolio changes and financing actions, as well as the impact of impairment and restructuring charges. Adjusted net income from continuing operations is a metric used by senior management to measure the effectiveness of the company’s operating strategies in the current operating environment, and to allow more direct comparisons of operating performance trends between periods. Adjusted net income from continuing operations should not be considered as a measure of financial performance under GAAP, and the items excluded from it are significant components in understanding and assessing such financial performance. Because adjusted net income from continuing operations is not a measure determined in accordance with GAAP, and thus susceptible to varying calculations, as presented herein it may not be comparable to other similarly titled measures of other companies. Investors are encouraged to use GAAP measures when evaluating the company’s financial performance.”

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