The Presentation Arrangements of Pro Forma Earnings Disclosures: Managerial Incentives and Market Responses

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Abstract

This study examines whether the presentation of pro forma earnings disclosures within earnings announcements reflects managerial incentives, as well as the impact of these presentation decisions on equity market pricing of earnings. Using hand-collected data, I measure "presentation" along two dimensions: emphasis of pro forma earnings within the earnings announcement, and the display format of earnings. Consistent with expectations, I document three empirical regularities. First, these presentation decisions appear to reflect managerial opportunism, such as the desire to beat benchmark earnings. Second, these decisions affect the market reaction to disclosed earnings. Finally, implementation of Regulation G, which mandated improved reconciliation of pro forma earnings to GAAP earnings, reduces both opportunistic presentation as well as the influence of presentation arrangements over investors' decision making. Overall, the results suggest that presentation of pro forma earnings also reflects managerial incentives and market pricing, and that regulatory efforts to mitigate these effects have been successful.

Keywords: Presentation arrangement, Pro forma earnings, Market valuation, Regulation G

1. Introduction

This paper investigates three issues. First, I examine managers' incentives to disclose pro forma earnings. In contrast to prior research, which focuses on the value relevance or persistence of pro forma earnings, I focus on the presentation arrangements of quarterly earnings releases, which include both pro forma and GAAP earnings. Specifically, I examine the relative weights, reflected in the prominence within the earnings releases, that managers place on pro forma versus GAAP earnings in presentation arrangements. Under the informational hypothesis, managers place higher weight on pro forma earnings if this provides new information to the market, irrespective of the directional nature of the information (e.g., whether it exceeds or is below a benchmark). Alternatively, under the opportunistic hypothesis, managers place a higher weight on pro forma earnings due to incentives to attain particular thresholds (e.g., beating a benchmark). Second, I investigate whether the presentation arrangements of pro forma releases affect investors' judgments. That is, after examining managers' incentives to disclose pro forma earnings, I investigate whether the market detects such incentives, as reflected in short-window market responses.

I then examine the impact of Regulation G (Reg G) upon both managerial incentives and the market response to presentation choices. Prior to adoption of Reg G, firms had significant discretion in including pro forma earnings in their earnings disclosure and providing any reconciliation to GAAP earnings. This discretion led to low credibility of the pro forma information. Reg G, effective as of March 2003, requires that disclosures containing pro forma earnings provide the most directly comparable GAAP number, and clear quantitative reconciliation of the two earnings numbers. Regulators believe "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." (Note 1) In this study, I examine whether the implementation of Reg G impacts both the presentation arrangement of pro forma earnings, as well as the market perception of presentation arrangement.

To examine these issues, I use hand-collected data on presentation arrangements from quarterly press releases spanning 2002 to 2004. I manually identify the nature and types of arrangements along two primary dimensions: the emphasis placed on GAAP versus pro forma earnings, and the display format of the earnings. The empirical results are consistent with all three expectations. First, I document that managers use presentation arrangements of earnings release opportunistically. Specifically, managers intentionally choose presentation arrangements allowing the favorable highlighting of firm performance. This finding is consistent with the argument that pro forma earnings

is reported due to opportunistic incentives. Second, the evidence suggests that these presentation arrangements also affect equity market perceptions of the GAAP and pro forma earnings, reflected in the strong market responses to the highlighted earnings. Finally, both effects are diminished following implementation Reg G, suggesting the regulation was successful in mitigating both opportunistic managerial presentation decisions, as well as the effects of these decisions upon equity investors.

This paper makes three primary contributions to the literature on pro forma earnings. First, the paper identifies the incentive of pro forma disclosures from a new perspective: the *presentation* of pro forma disclosures. Prior research disentangles the informational versus opportunistic incentives through examination of the value relevance or the persistence of pro forma earnings (Bhattacharya, Black, Christensen & Larson, 2003; Bhattacharya, Black, Christensen & Mergenthaler, 2004; Lougee & Marquardt, 2004; Johnson & Schwartz, 2005). An assumption underlying these studies is that the primary mechanism to manipulate perception of the firm's performance is through increasing or decreasing its pro forma earnings. However, managers may also manipulate these perceptions through the *presentation format* of the information. Thus, this paper builds on the prior literature and examines pro forma disclosures by revealing the presentation format also reflects managerial incentives and market pricing of these disclosures.

Second, this study examines the presentation of pro forma earnings by using a comprehensive sample. Due to the high cost of hand-collection, prior studies examining the emphasis or the placement of non-GAAP disclosure focus on specific groups of firms, such as S&P 500 firms and S&P Small Cap 600 firms. (Note 2)

Third, this paper builds upon the body of evidence examining the effects of regulation in reducing opportunistic managerial behavior, particularly that relating to Reg G. Specifically, it provides evidence that Reg G improves information transparency, and results in more accurate pricing of securities, as the impact of presentation was diminished after its implementation.

Section 2 describes prior research and the motivation. Sections 3 and 4 present the research design and data selection process. Section 5 provides empirical results, and Section 6 concludes.

2. Prior Research and Motivation

Since the 1990s, it has become increasingly common for companies to report non-standard financial performances metrics, commonly called pro forma earnings. Compared to GAAP earnings, pro forma earnings frequently omit expenses such as non-recurring expenses, non-cash expenses, and a variety of other miscellaneous charges. Many studies investigate whether the disclosure of pro forma earnings reflect informational or opportunistic incentives. Supporters of informational incentives contend that pro forma earnings provide a clearer picture of "core earnings," so that it is more informative than GAAP earnings (Bhattacharya et al., 2003; Lougee et al., 2004). However, managers may misreport the underlying firm performance by discretionally excluding or including items in the pro forma earnings. Supporters of opportunistic incentives allege that pro forma earnings are ad hoc, self-serving to the manager, and may be misleading to investors. First, firms have strong incentives to report a pro forma earnings number that exceeds the GAAP earnings numbers (Bradshaw & Sloan, 2002; Lougee & Marquardt, 2004; Bowen et al., 2005). Second, there is no universal format of pro forma earnings, leading to significant inconsistencies across firms and over time in their reporting (Bhattacharya et al., 2004). Third, the items excluded from pro forma earnings may be material and recurring. Doyle et al. (2004) find that the expenses excluded from pro forma earnings are predictive of future cash flow.

Pro forma earnings affect investors' judgments through multiple channels: not only by the information content of pro forma earnings (Brown & Sivakumar. 2003; James & Michello, 2010), but also by the presentation of pro forma and GAAP figures in press releases. Extant studies in psychology show that changes in display characteristics can affect judgment and decision behavior (Johnson, Payne & Bettman, 1988; Sanbonmatsu, Kardes, Posavaca & Houghtonb, 1997). Similarly, some studies in the accounting literature also provide evidence that an alternative presentation of equivalent accounting disclosures may affect an investor's judgments of firm value (Hirst & Hopkins, 1998; Maines & McDaniel, 2000; Bowen, 2005; Elliott, 2006; Allee, Bhattacharya, Black & Christensen, 2007; Riedl & Srinivasan, 2010).For instance, Bowen (2005) find that managers emphasize the metric that portrays more favorable firm performance. Campbell & Lopez (2010) find evidence that small cap firms place a higher level of emphasis on non-GAAP financial measures when GAAP earnings has lower value relevance.

This paper extends the priors literature by examining the determinants of a manager's choice of the presentation arrangements of pro forma releases. Particularly, I investigate whether these presentation decisions appear to reflect managerial opportunism, such as the desire to beat benchmark earnings. Second, I investigate whether the

presentation of pro forma earnings influences investors' decision making. The extended time span of my sample allows me to investigate these two questions in both Pre/Post-Reg G periods.

3. Research Design

I test the above hypotheses in the following manner. First, I define the emphasis and format of the pro forma earnings and test whether and how the choice of presentation relates to managerial incentives. Second, I examine whether the presentation of pro forma earnings in the quarterly earnings press releases influences investors' decision-making.

3.1 The presentation arrangements of pro forma earnings releases

In this study, I focus on two dimensions of presentation: emphasis and format. Emphasis measures which earnings matric is mentioned in the first place (Elliott, 2006). In the *GAAP Emphasis Condition*, quarterly GAAP earnings information is presented in the headline or at least ahead of the pro forma information. If GAAP information is given in the headline but the discussion of pro forma leads the discussion of GAAP in the narrative, this release is still considered as *GAAP Emphasis Condition.* Similarly, In the *Pro Forma Emphasis Condition*, quarterly pro forma earnings information is presented in the headline or at least ahead of the GAAP earnings. If pro forma information is given in the headline but the discussion of GAAP leads the discussion of pro forma in the narrative, this release is still considered as *Pro Forma Emphasis Condition.*

The second dimension is the format in which firms disclose the differences between GAAP and pro forma earnings measures. Although the quantitative reconciliation of the two earnings measurements may help investors to evaluate the reliability of the pro forma information, previous psychological studies show that changes in display characteristics can affect judgment and decision behavior (Johnson et al., 1988; Sanbonmatsu et al., 1997). In this study, I will focus on the presentation of the reconciliation between GAAP and pro forma. Following Elliott (2006), in the body of literature, if the GAAP (pro forma) income statement precedes a pro forma (GAAP) income statement, this is called *GAAP (Pro Forma) Sequential Format*. If the pro forma income statement is displayed side-by-side with GAAP earnings, it is called the *Reconciliation Format*.

Different types of presentation arrangements place unequal weight on GAAP earnings compared to pro forma earnings. The Pro Forma (GAAP) Emphasis Condition puts more weight on the pro forma (GAAP) number by disclosing the pro forma (GAAP) information in the headline or in the first paragraph. If the firm chooses the Sequential Format and presents the pro forma (GAAP) income statement in the first place, then the pro forma (GAAP) earnings are assigned with a higher weight. Under the reconciliation format, because the pro forma and GAAP earnings are presented side-by-side, it is difficult to infer the manager's intention directly. Compared with the Sequential Format, the side-by-side format makes the pro forma adjustments more accessible to the readers. Restated, the side-by-side format makes readers more aware of the importance of the pro forma earnings. From this point, the Reconciliation Format (side-by-side) puts a higher weight on the pro forma earnings relative to the GAAP earnings.

Accordingly, I further measure the weights that the managers place on pro forma/GAAP earnings for each presentation specifications. I use two proxies for weight: *WeightChoice*, and *TotalWeight. WeightChoice* measures whether the firm put higher weight on pro forma earnings or GAAP earnings in its presentation. If the firm uses the Pro Forma Emphasis Condition, the Pro Forma Sequential Format, or the Reconciliation Format, then *WeightChoice* equals to 1, which suggests that the firm puts a higher weight on the pro forma earnings. Otherwise, *WeightChoice* equals to 0. The second proxy, *TotalWeight,* measures the total weight put onto the pro forma earnings. For instance, if a firm reports its pro forma earnings in the first place and then presents the pro forma income statement before the GAAP income statement, this financial statement is under both the Pro Forma Emphasis Condition and the Pro Forma Sequential Format. In this case, *TotalWeight* equals to 2. Thus, the *TotalWeight* can be calculated by using Table 1.

Table 1. Definition of Weight Measurements

Firm	Emphasis	Presentation Format	Sequence (If applicable)	WeightChoice	TotalWeight
A	GAAP	Sequence	GAAP	0	0
B	GAAP	Sequence	Pro Forma	0	1
C	GAAP	Reconciliation	---	0	1
D	Pro Forma	Sequence	GAAP	1	1
E	Pro Forma	Sequence	Pro Forma	1	2
F	Pro Forma	Reconciliation	---	1	2

3.2 Determinants of the GAAP/pro forma presentation arrangements

Many studies have shed light on whether the manager's disclosure of the pro forma earnings reflects informational versus opportunistic incentives. Under the informational hypothesis, the managers highlight the pro forma earnings in order to provide additional information to the market. In other words, the bigger the absolute difference between the pro forma and the GAAP, the higher the weight that the managers put on the pro forma earnings. The relation between the pro forma adjustments and the highlight on the pro forma earnings can be expressed as Regression 1.

$$Weight_{it} = \alpha_0 + \alpha_1 \frac{E_{PF,it} - E_{GAAP,it}}{| E_{GAAP,it} |} + \alpha_5 Size_{it} + \varepsilon_{it} \quad (1)$$

The dependent variable is the weight that is put on to the pro forma earnings. I use two proxies for weight, *WeightChoice* and *TotalWeight.* The independent variable is the difference between the pro forma and the GAAP earnings scaled by the magnitude of GAAP earnings. According to the informational hypothesis, this independent variable measures the additional information provided by the pro forma earnings over the existing GAAP earnings. I do include *Size* (logarithm of firm's total revenue in billions) to control for different investing and operating environments, because firms in different environment may have different presentation preferences.

If the informational hypothesis holds, then the weight put on the pro forma earnings should have a positive relation with the absolute difference between pro forma and GAAP earnings. Thus, α_1 should be positive when the pro forma earnings are higher than the GAAP earnings and be negative when the pro forma earnings are lower than the GAAP earnings.

If opportunistic hypothesis holds, managers will assign higher weight on pro forma earnings *only if* doing so provides favorable results. In this case, α_1 should be significantly positive only when the pro forma earnings are higher than the GAAP earnings. If pro forma earnings are lower than the GAAP earnings, α_1 should be insignificant.

In addition, I examine three conditions under which the managers will have opportunistic incentives to highlight the pro forma earnings: (1) pro forma earnings report a net gain while GAAP earnings report a net loss;(2) pro forma earnings beat or meet analyst forecast while GAAP earnings fail to do so, (3) pro forma earnings beat or meet the net income in the same quarter in previous year, but GAAP earnings fail to do so. The regressions are as follow:

$$Weight_{it} = \alpha_0 + \alpha_2 GainLoss_{it} + \alpha_5 Size_{it} + \varepsilon_{it} \quad (2)$$

$$Weight_{it} = \alpha_0 + \alpha_3 BMHistory_{it} + \alpha_5 Size_{it} + \varepsilon_{it} \quad (3)$$

$$Weight_{it} = \alpha_0 + \alpha_4 BMForecast_{it} + \alpha_5 Size_{it} + \varepsilon_{it} \quad (4)$$

GainLoss, BMHistory, and *BMForecast* are binary variables. *GainLoss* equals to 1 if the pro forma earnings are non-negative while GAAP earnings are negative. *BMHistory* equals to 1 if the pro forma earnings beat or meet the earnings in the same quarter in the last year while the GAAP earnings fail to do so. *BMForecast* equals to 1 if the pro forma earnings beat or meet the most recent analyst forecast while the GAAP earnings fail to do so. If the opportunistic hypothesis holds, that is, managers use pro forma earnings to push the earnings figure above certain thresholds, I expect that α_2, α_3, and α_4 will be significantly positive. If the informational hypothesis holds, that is, managers do not use presentation to highlight favorable earnings opportunistically, then α_2, α_3, and α_4 should be insignificant.

3.3 Market response to the GAAP/pro forma releases

Some studies in psychology show that both availability and clarity of information affect a user's judgments. In particular, many studies suggest that changes in display characteristics can affect judgment and decision behavior (Johnson et al., 1998; Sanbonmatsu et al., 1997). Prior research in accounting also suggests that investors' perceptions of the financial statement are partially based on its presentation (Maines & McDaniel, 2000; Frederickson & Miller, 2004; Elliott, 2006). Given that the presentation of information has a great impact on the recipients' perception, it is reasonable to expect that the presentation of earnings announcement may also affect the market's pricing of earnings. In this section, I examine whether the market has different reactions to GAAP and pro forma earnings under alternative presentation arrangements by looking at whether the earnings announcements are set up to highlight GAAP earnings versus pro forma earnings.

Following Doyle et al. (2003), I regress short-window market reactions on earnings surprises for firms with more highlights on pro forma earnings and GAAP earnings respectively. I also control for other documented determinants of stock returns, such as firms size and book to market ratio. The regressions are as follows:

$$Return_{it} = \alpha_0 + \alpha_1 Surp_{GAAP,it} + \alpha_2 Size_{it} + \alpha_3 BM_{it} + \varepsilon_{it} \quad \text{WeightChoice} = 1 \quad (5')$$

$$Return_{it} = \alpha_0 + \alpha_1 Surp_{GAAP,it} + \alpha_2 Size_{it} + \alpha_3 BM_{it} + \varepsilon_{it} \quad \text{WeightChoice} = 0 \quad (5'')$$

$$Return_{it} = \alpha_0 + \alpha_1 Surp_{PF,it} + \alpha_2 Size_{it} + \alpha_3 BM_{it} + \varepsilon_{it} \quad \text{WeightChoice} = 1 \quad (6')$$

$$Return_{it} = \alpha_0 + \alpha_1 Surp_{PF,it} + \alpha_2 Size_{it} + \alpha_3 BM_{it} + \varepsilon_{it} \quad \text{WeightChoice} = 0 \quad (6'')$$

$$Return_{it} = \alpha_0 + \alpha_1 Surp_{GAAP,it} + \alpha_2 Surp_{PF,it} + \alpha_3 Size_{it} + \alpha_4 BM_{it} + \varepsilon_{it} \quad \text{WeightChoice} = 1 \quad (7')$$

$$Return_{it} = \alpha_0 + \alpha_1 Surp_{GAAP,it} + \alpha_2 Surp_{PF,it} + \alpha_3 Size_{it} + \alpha_4 BM_{it} + \varepsilon_{it} \quad \text{WeightChoice} = 0 \quad (7'')$$

Return is the three-day abnormal return around the GAAP announcement. I use the value-weighted market return as a benchmark to calculate the abnormal return. $Surp_{GAAP}$ ($Surp_{PF}$) is GAAP (pro forma) earnings surprise. The pro forma (GAAP) earnings surprise is defined as the actual pro forma earnings per share (GAAP earnings per share) minus the most recent median IBES earnings per share forecast. Firm size (*Size*) is measured by the logarithm of market value of the equity at the end of fiscal quarter *t*; the book-to-market ratio (*BM*) is constructed as the book value of assets over the value of equity at the end of quarter *t*. I use the value-weighted market return as a benchmark to calculate the abnormal return.

If the presentation does not have an additional impact on the market's responses to earnings, then the results under both arrangements should be qualitatively the same as the results in Regression 6 and Regression 7. In other words, results in regression 5' (6' or 7') should be qualitatively the same as the results in regression 5'' (6'' and 7''). On the other hand, if the presentation does have an additional impact on the market's reaction, we may find qualitatively different results for firms with highlights on GAAP and pro forma earnings. Specifically, if the impact of presentation does exist, I expect the market returns to be more associated with the earnings than is highlighted in the announcement.

3.4 Sample Selection and Descriptive Analysis

Table 2 presents the sample selection process. I manually collect the earnings announcements with pro forma releases by searching the PR Newswire in the Lexis-Nexis Academic Universe database using the following key words: "pro forma," "proforma," or "pro-forma." I collect all pro forma releases from January 1, 2002 to March 28, 2004. Reg G was effective on March 28, 2003, leading to at least one year data for both pre-and post-Reg G periods. In total, I have 740 firm-quarter observations before Reg G and 409 observations after Reg G.

Table 2. Sample Selection

		Pre-Reg G		Post-Reg G	
		Firm quarters	Firms	Firm quarters	Firms
Step 1	Hand-collected earnings announcements with pro forma release	740	367	409	197
Step 2	Observations with data available on COMPUSTAT	417	239	356	174
Step 3	Observations with data available on COMPUSTAT , I/B/E/S, and CRSP	169	118	181	93

Notes:

The table shows the sample selection process. The huge fall between step 1 and step 2 is due to the significant proportion of private firms in hand-collected data. Since regressions have different requirement on the data selection, each regression has its own sample pool. Regression 1, 2 and 3 employ observations by the end of step 2. Regression 4, 5', 5'', 6', 6'', 7' and 7'' employ data by the end of step 3.

All samples meet the following criteria: (1) Firms must report actual GAAP net income and pro forma net income. Firms that only report pro forma sales, EBITDA, or income from operation are excluded; (2) All preliminary earnings announcements (e.g. "estimated" or "expected" or "anticipant") are excluded; (3)Daily security price adjusted for stock splits and dividends are available on the CRSP; (4) Quarterly financial information, including net incomes in the current quarter and the same quarter in the last year, current book value, and total revenue, are available on COMPUSTAT; and (5) Detailed history files of analyst forecasts are available on I/B/E/S.

Table 3 provides a descriptive analysis for all of the sample pools after each selection step. Panel A presents the descriptive analysis for pre-Reg G period. For observations after step 1, the mean of *WeightChoice* is 0.646, meaning that 64.6% of the hand-collected earnings announcement put more weights on the GAAP earnings, and 35.4% of

them put highlights on pro forma earnings. The mean of *TotalWeight* is 0.855, indicating that on average, each earnings announcement has 0.855 arrangements, which highlights on pro forma earnings. Both the mean and the median of *Diff* is positive, showing that on average, pro forma earnings are higher than GAAP earnings. These findings are consistent with research by Bhattachrya et al. (2003), which demonstrates that the pro forma earnings figure exceeds the GAAP figure 70% of the time and is reported first 87% of the time.

Observations after step 2 are used to estimate regressions 1, 2, and 3. Observations after step 3 are used in the rest of regressions. For the GAAP earnings surprise, the mean is negative (Mean ($Surp_{GAAP}$)=-0.176), but the median is significantly positive (Median ($Surp_{GAAP}$)=0.592), indicating that there are several actual GAAP earnings that fall far below the earnings expectation. For the pro forma earnings surprise, both the mean and the median are positive (Mean ($Surp_{PF}$)=0.015 Median ($Surp_{PF}$)=0.235), indicating that there is a significant proportion of pro forma earnings that are higher than the analyst forecasts. These results are also consistent with prior literature that firms have strong incentives to report a pro forma earnings number that exceeds the GAAP earnings numbers (Bradshaw & Sloan, 2002; Lougee et al., 2004).

Panel B presents the descriptive analysis for the post-Reg G period. Comparing Panel B with Panel A, the means of *WeightChoice* and *TotalWeight* are generally lower than the values in Pre-Reg G period, suggesting that firms tend to put higher weights on GAAP rather than pro forma earnings after Reg G. Interestingly, the mean of *Diff*, which is the difference between the pro forma and GAAP earnings, drops from 0.730 to -0.162, showing that the GAAP earnings are generally lower than the pro forma earnings after Reg G. This finding is consistent with the SEC's intention to eliminate aggressive pro forma reporting. All other variables are qualitatively in the same range as the variables in Panel A.

Panel C presents the distribution of presentation arrangements in the pre-and post-Reg G periods. For firms who report both GAAP and pro forma earnings before Reg G, 64.19% of them highlight on the pro forma earnings. This percentage dropped to 32.03% after the implementation of Reg G. This finding suggests that Reg G curtailed the excessive use of pro forma information and reduced the firms' incentive to emphasize pro forma earnings over GAAP earnings in their quarterly disclosures.

Table 3. Descriptive Analysis

	N	Mean	Std	1%	5%	10%	90%	95%	99%
Panel A: Pre-Reg G									
Observation after Step 1									
WeightChoice	723	0.646	0.479	0	0	0	1	1	1
TotalWeight	723	0.855	0.738	0	0	0	2	2	2
Diff	723	0.73	1.334	-1.609	-0.389	-0.107	1.682	2.56	7.322
Observation after Step 2									
WeightChoice	417	0.602	0.49	0	0	0	1	1	1
TotalWeight	417	0.796	0.746	0	0	0	2	2	2
Gainloss	417	0.151	0.359	0	0	0	1	1	1
History	417	0.168	0.374	0	0	0	1	1	1
Size	417	752.994	3039.03	1.11	4.942	8.74	1293.17	3039.56	10044
Observation after Step 3									
Return	169	0.002	0.096	-0.254	-0.141	-0.089	0.093	0.162	0.355
WeightChoice	169	0.562	0.498	0	0	0	1	1	1
TotalWeight	169	0.734	0.736	0	0	0	2	2	2
SurpGAAP	169	-0.176	0.592	-3.009	-0.901	-0.572	0.118	0.186	0.761
SurpPF	169	0.015	0.235	-0.512	-0.156	-0.079	0.147	0.226	0.596
BM	169	1.968	2.489	0.144	0.239	0.427	4.396	9.389	11.95
Size	167	641.972	1433.714	1.11	10.49	16.024	1745.335	2916.352	9161.042
Panel B: Post-Reg G									
Observation after Step 1									
WeightChoice	409	0.323	0.468	0	0	0	1	1	1

TotalWeight	409	0.408	0.643	0	0	0	1	2	2
Diff	409	-0.162	2.148	-4.5	-1.571	-1.043	0.578	1.525	4.444
Observation after Step 2									
WeightChoice	356	0.337	0.473	0	0	0	1	1	1
TotalWeight	356	0.435	0.666	0	0	0	1	2	2
Gainloss	356	0.118	0.323	0	0	0	1	1	1
History	356	0.146	0.354	0	0	0	1	1	1
Size	356	594.86	3052.42	0.406	3.217	9.403	1372	2502	4613
Observation after Step 3									
Return	181	0.006	0.104	-0.261	-0.142	-0.105	0.138	0.198	0.37
WeightChoice	181	0.42	0.495	0	0	0	1	1	1
TotalWeight	181	0.558	0.725	0	0	0	2	2	2
SurpGAAP	181	-0.107	0.405	-1.49	-0.725	-0.366	0.058	0.166	0.735
SurpPF	181	0.009	0.156	-0.605	-0.131	-0.005	0.096	0.171	0.419
BM	181	1.271	1.909	0.127	0.238	0.26	2.539	5.151	10.909
Size	181	364.053	698.611	0.959	11.51	17.031	1179.26	2222.57	3562.3

Panel C: Distribution of Presentation Arrangement

	Total Observations	%	With highlights on GAAP earnings	%
Pre-Reg G	740	100%	265	35.81%
Post-Reg G	409	100%	278	67.97%

Notes:

The variables are defined as follow. *Weight*Choice measures if the firm put higher weight on pro forma earnings than GAAP earnings in its presentation. *TotalWeight* measures the total weight put on the pro forma earnings. *Diff* is the difference between pro forma and GAAP earnings scaled by the magnitude of GAAP earnings. *GainLoss*, *BMHistory*, and *BMForecast* are binary variables. *GainLoss* equals to 1 if the pro forma earnings is non-negative while GAAP earnings is negative. *BMHistory* equals to 1 if the pro forma earnings beats or meets the earnings in the same quarter in last year while the GAAP earnings fail to do so. *BMForecast* equals to 1 if the pro forma earnings beats or meets the most recent analysts forecast while the GAAP earnings fail to do so. *Return* is a three-day abnormal return around GAAP announcement. I use value-weighted abnormal return as benchmark to calculate abnormal earnings. $Surp_{GAAP}$ is the GAAP earnings per share minus the most recent median IBES earnings per share forecast. $Surp_{PF}$ is the actual pro forma earnings per share minus the most recent median IBES earnings per share forecast. *BM* is book to market ratio, which is quarterly total asset over total value of equity outstanding on the announcement date. *Size* is the quarterly total revenue.

4. Empirical Results

4.1 Determinants of the GAAP/pro forma presentation arrangements

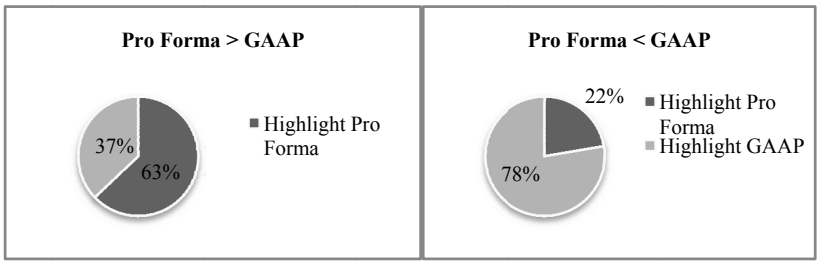
To distinguish the opportunistic hypothesis from informational hypothesis, I investigate the use of the presentation arrangement in scenarios in which the pro forma earnings provide more favorable results than the GAAP earnings do. The four scenarios are as follows: 1) pro forma earnings are higher than GAAP earnings; 2) pro forma earnings are positive while GAAP earnings are negative; 3) pro forma earnings beat or meet earnings in the same quarter of the last year while the GAAP earnings fail to do so; and 4) pro forma earnings beat or meet analyst forecast while the GAAP earnings fail to do so. The descriptive results in Figure 1 show that, intuitively, managers are more likely to highlight pro forma earnings if they are more favorable than the GAAP earnings. For instance, Figure 1.1 shows that 63% of firms highlight pro forma earnings in the earnings disclosures if the pro forma earnings are higher than the GAAP earnings while only 22% of firms highlight the pro forma earnings when they are lower than the GAAP earnings. Figures 1.2, 1.3, and 1.4 show that firms with benchmark-beating pro forma earnings and benchmark-missing GAAP earnings are more likely to highlight pro forma earnings. However, when GAAP (pro forma) earnings beat (miss) earnings targets, only a few firms highlight pro forma earnings in disclosure. These findings directly challenge the information role of the pro forma earnings, which implies that firms highlight pro forma earnings as long as they differ from GAAP earnings.

Additionally, Figure 1 suggests that Reg G effectively constraints the overemphasis of pro forma earnings and

strengthens the dominant position of the GAAP earnings. After Reg G, only 19% of firms whose pro forma earnings are higher than GAAP earnings actually highlight pro forma earnings. The ratio is 63% in the pre-Reg G period. On average, after Reg G, only 24.3% (Note 3) of firms with benchmark-beating pro forma and benchmark-missing GAAP highlight pro forma numbers. The average ratio is 68.7% (Note 4) in-pre Reg G period.

Fig. 1.1: When pro forma earnings are different from GAAP earnings

Pre Reg G



Post Reg G

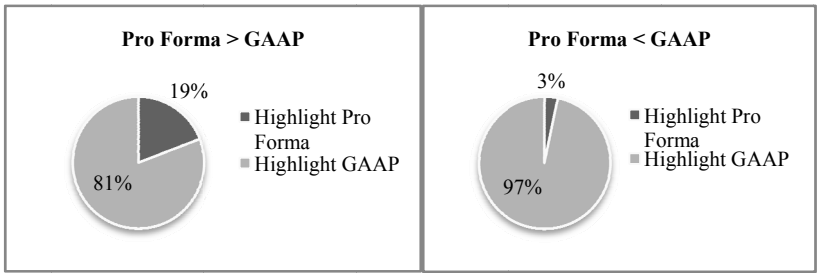
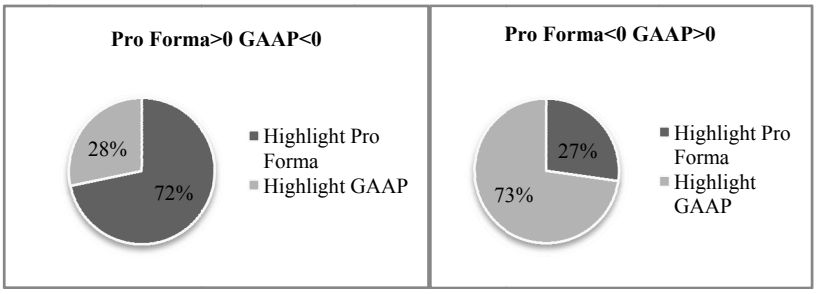


Fig. 1.2: When one earnings is positive and the other one is negative

Pre Reg G



Post Reg G

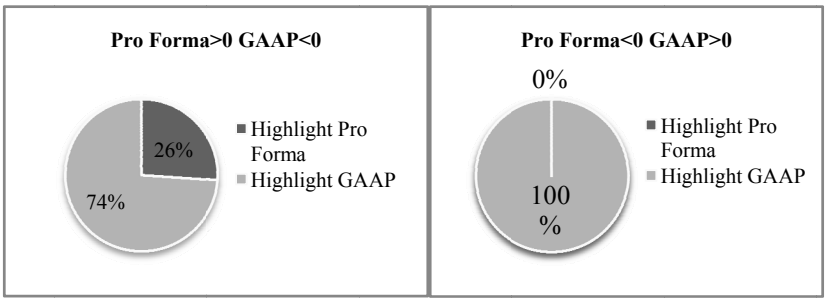
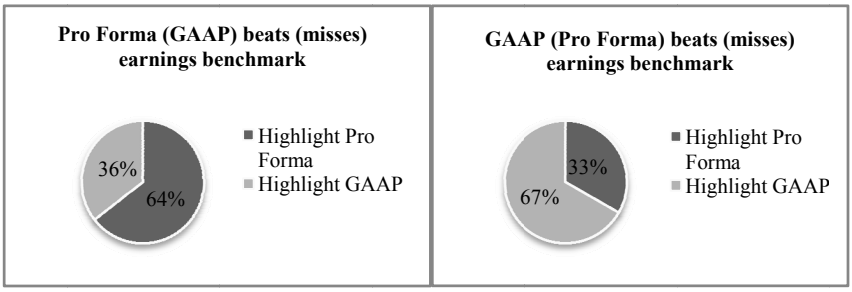


Fig. 1.3: When one earning beats or meets historical benchmark and the other one misses the benchmark

Pre Reg G



Post Reg G

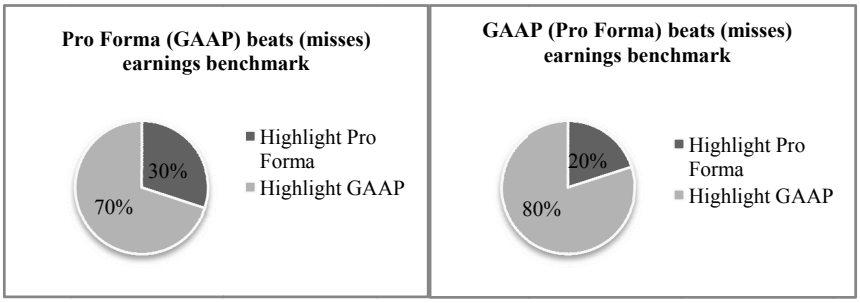
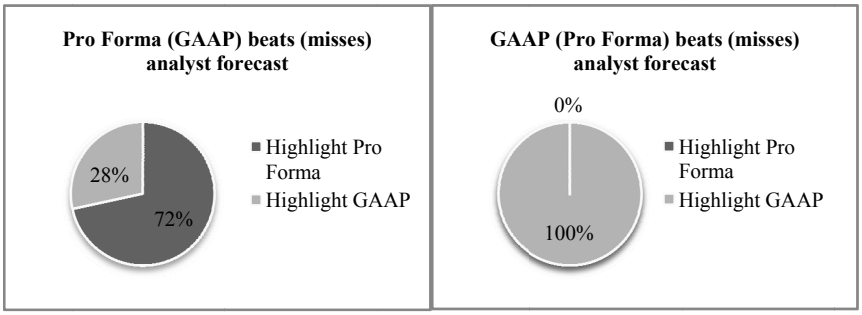


Fig. 1.4: When one earning beats or meets analyst forecast and the other one misses the forecast

Pre Reg G



Post Reg G

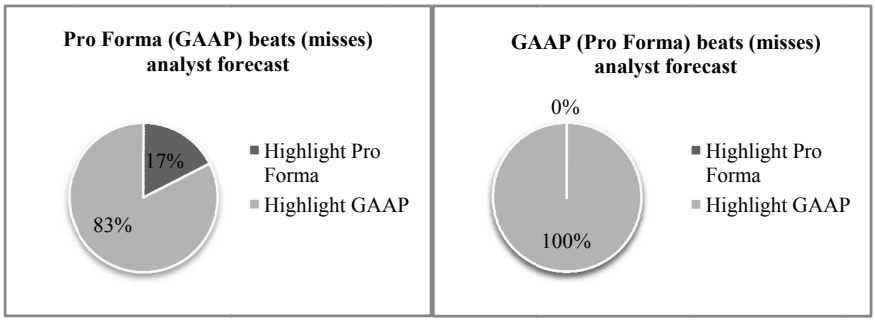


Figure 1. Compare presentation arrangements in pre- and post- Reg G period

The multivariate results of Regressions 1, 2, 3, and 4 are presented in Table 4. Table 4 Panel A shows the results from the logistic regressions, which examine the determinants of the presentation arrangements of the pro forma earnings in quarterly earnings announcements in the pre-Reg G period. In the first part of Panel A, the dependent variable is *WeightChoice*, which measures if the firm put higher weight on the pro forma earnings than the GAAP earnings in its presentation. Without including any control variables, columns 1 and 2 present the results of Regression 1by using all

hand-collected data. Under the informational hypothesis, the weight put on the pro forma earnings should have a positive relation with the deviation of the pro forma earnings from GAAP earnings. In other words, *Diff* should be positively significant when both *Diff* ≥0 and *Diff* <0.Under the opportunistic hypothesis, managers will put a higher weight on the pro forma release only if pro forma gives a better performance. Therefore, *Diff* should be positively significant only if *Diff* ≥ 0. The result of Regression 1 is consistent with the opportunistic hypothesis. When the pro forma earnings are higher than the GAAP earnings (*Diff* ≥ 0), the coefficient of *Diff* is significantly positive (0.222, t=2.337), indicating that firms whose pro forma earnings give better performances are more likely to highlight pro forma figures in their announcements. In contrast, when the pro forma earnings are lower than GAAP earnings (*Diff* <0), then *Diff* is insignificant.

Columns 3, 4, and 5 present the result in Regressions 2, 3, and 4, respectively. In column 3, *GainLoss* is positively significant (0.867, t=2.752), suggesting that firms are more likely to highlight pro forma earnings if their pro forma earnings are non-negative, while the GAAP earnings are negative. In column 4,*BMHistory*is positively significant (0.776, t=2.630), indicating that firms tend to put higher weight on pro forma earnings if the pro forma earnings beat or meet the earnings in the same quarter in the last year while the GAAP earnings fail to do so. Similarly, in column 5, *BMForecast* is significant (0.958, t= 2.494). This result suggests that firms are more likely to highlight pro forma earnings if the pro forma earnings beat or meet the most recent analyst forecast while the GAAP earnings fail to do so.

In the second part of Panel A, the dependent variable is *TotalWeight,* which measures the total weight put on the pro forma earnings; the scales measure from 0 to 2. I use the ordered logit model for this set of regressions. The results in Table 4 Panel B are quantitatively similar to the results in Panel A. Overall, the results in Table 4 show that firms tend to highlight pro forma earnings if the pro forma earnings beat or meet a certain threshold, while the GAAP earnings fail to do so. Again, the findings are consistent with the opportunistic hypothesis, which suggests that managers will assign higher weight on pro forma earnings if pro forma earnings provide favorable results.

Table 4 Panel B shows the results of Regressions1, 2, 3, and 4in the post-Reg G period. Following the prior research design, we have conducted an analysis for post-Reg G period by using *WeightChoice* and *TotalWeight* as dependent variables, respectively. Comparing Panel A and Panel B, we find that the results in the post-Reg G period are very different from the results in the pre-Reg G period. Inconsistent with either the informational hypothesis or the opportunistic hypothesis, *Diff* is insignificant in Regression 1, suggesting that the difference between the GAAP and pro forma earnings has no impact on the firm's choice of presentation arrangement. Similarly, *BMForecast* is insignificant in Regression 4, suggesting that beating or meeting the analyst forecast is not one of the firms' motivations to emphasize pro forma earnings over GAAP earnings.

Similar to those in Panel A, Regressions2 and 3 in Panel B show that *Gainloss* and *BMHistory* are significant at the 1% and 5% level, respectively. These results suggests that even after the implementation of Reg G, firms are more likely to highlight pro forma earnings in the following two situations: 1) the pro forma earnings are non-negative, while the GAAP earnings are negative; or 2) the pro forma earnings beat or meet the earnings in the same quarter in last year, while the GAAP earnings fail to do so.

The results in Table 4 tell an interesting story about when and why managers have incentives to highlight pro forma earnings over GAAP earnings. Before Reg G, there is no specific requirement about the composition of the pro forma earnings. The results in Table 4 Panel A show that the managers' attempts to put more emphasis on the pro forma earnings are driven by four motivations: 1) to present higher earnings; 2) to report gains and avoid losses; 3) to beat or meet the earnings in the same quarter of the last year; and 4) to beat or meet the analyst forecasts.

After the implementation of Reg G, firms are required to provide detailed reconciliation between pro forma earnings and GAAP earnings. Therefore, any earnings manipulations that intentionally boost pro forma earnings can be more easily detected by the market. As a result, it is natural to expect that the number of firms that report excessive pro forma earnings is decreased over time. This argument is supported by the results in Table 3 Panel C. For firms that report both GAAP and pro forma earnings, 64.19% of the firms highlight the pro forma earnings in the pre-Reg G period, and this number dropped to 32.03% in the post-Reg G period. At mean time, suggested by the insignificant *Diff* in Table 4 Panel B, firms have less incentive to stress pro forma earnings over GAAP earnings in the post-Reg G period, even if the pro forma earnings are higher than the GAAP earnings. One possible explanation is that firms do not have to rely on presentation arrangements to highlight pro forma numbers because the detailed reconciliation is self-explanatory.

To summarize, the results in Table 4 Panel B show that the managers' attempts to put more emphasis on pro forma earnings are driven by only two motivations: 1) to report gains and avoid losses; and 2) to beat or meet the earnings

in the same quarter of the last year. This finding suggests that the firms are less motivated to emphasize.

Table 4. Determinants of the pro forma presentation

	Predicted Sign	Regress 1 Diff>=0		Diff<0		Regress 2		Regress 3		Regress 4	
Panel A: Pre-Reg G											
Dependent variable=*WeightChoice*											
Intercept		0.669	***	-0.547	**	0.284	**	0.278	**	0.201	
		-5.718		(-2.431)		-2.582		-2.482		-1.511	
Diff	+/-	0.222	**	0.192							
		-2.337		-0.502							
Gainloss	+					0.867	***				
						-2.752					
BMHistory	+							0.776	***		
								-2.63			
BMForecast	+									0.958	**
										-2.495	
Rev						0.016		0.023		0.006	
						-0.457		-0.639		-0.14	
Likelihood Ratio		7.144	***	0.259		8.611	**	7.735	**	6.959	**
Dependent variable= *TotalWeight*											
Intercept 1		-1.377	***	-1.901	***	-1.543	***	-1.518	***	-1.54	***
		(-11.974)		(-5.996)		(-11.345)		(-11.161)		(-9.39)	
Intercept 2		0.717	***	-0.519	**	0.299	***	0.311	***	0.242	*
		-6.961		(-2.135)		-2.743		-2.827		-1.847	
Diff	+/-	0.151	***	0.242							
		-2.581		-0.381							
Gainloss	+					0.736	***				
						-2.875					
BMHistory	+							0.537	**		
								-2.192			
BMForecast	+									0.716	**
										-2.295	
Rev						0.01		0.027		-0.02	
						-0.03		-0.03		-0.041	
Likelihood Ratio		6.879	***	0.437		8.542	**	5.048	*	5.767	*

Panel B: Post Reg G

Dependent variable=*WeightChoice*											
Intercept		-0.576	***	-0.857	***	-0.979	***	-1.055	***	-1.673	
		(-3.329)		(-4.925)		(-3.353)		(-3.482)		(-3.211)	
Diff	+/-	-0.012		-0.108							
		(-0.156)		(-1.213)							
Gainloss	+					0.891	***				
						-2.644					
BMHistory	+							0.631	**		
								-2.11			
BMForecast	+									0.289	
										-0.926	
Rev						0.051		0.07		0.258	***
						-0.879		-1.207		-2.632	
Likelihood Ratio		0.024		1.954		7.82	**	4.916	*	8.017	**
Dependent variable= *TotalWeight*											
Intercept 1		-2.006	***	-2.539	***	-2.622	***	-2.669	***	-3.168	***
		(-8.024)		(-9.167)		(-8.018)		(-7.943)		(-5.802)	
Intercept 2		-0.571	***	-0.87	**	-1.056	***	-1.117	***	-1.628	***
		(-3.301)		(-5.148)		(-3.654)		(-3.736)		(-3.243)	
Diff	+/-	-0.018		-0.127	*						
		(-0.231)		(-1.788)							
Abdiff	+/-										
Gainloss	+					0.894	***				
						(-2.803)					
BMHistory	+							0.605	**		
								(-2.017)			
BMForecast	+										
										(-0.508)	
Rev						0.068		0.085		0.262	***
						(-1.193)		(-1.491)		(-2.818)	
Likelihood Ratio		0.057		2.42		9.045	***	5.451	*	8.321	**

Note:

This table shows the results from logistic regressions which examine the determinants of pro forma presentation. In panel A, the dependent variable is *WeightChoice*, which measures if the firm put higher weight on pro forma earnings than GAAP earnings in its presentation. In panel B, the dependent variable is *TotalWeight*, which measures the total weight put on the pro forma earnings, scales from 0 to 2. The control variable is firm size, which is proxied by the total revenue for firm i in quarter t. * means the variable is significant at the 0.10 level (two-tailed). ** means the variable is significant at 0.05 level (two-tailed). *** means the variable is significant at 0.01 level (two-tailed).

4.2 Market response to GAAP/pro forma releases

As previously discussed, the presentation of earnings announcements may have an additional impact on the market's pricing of earnings. Thus, I decompose the pooled samples by the presentation arrangements of earnings announcements: firms putting highlights on GAAP and pro forma earnings. Columns 1, 2 and 3 in Table 5 show the results of Regressions 5', 6' and 7' by using samples that highlight the GAAP earnings, while columns 4, 5 and 6 show the results of Regressions5'', 6'' and 7'' by using samples that highlight the pro forma earnings

Table 5 Panel A shows the results in the pre-Reg G period. For firms that highlight GAAP earnings, the market has a significant reaction to the GAAP earnings surprise (0.042, t=2.800) at the 1% significant level, but it has no reaction to the pro forma earnings surprise (0.001, t=0.345). Similar results are found in Column 3, where both the GAAP and pro forma earnings surprises are included in the regression (0.053,t=3.118). In contrast, for firms that highlight the pro forma earnings, Columns 4 and 5in Table 5 show that the market has a significant reaction to pro forma earnings surprise(0.146,t=1.70), but it has no reaction to GAAP earnings surprise. Again, Column 6 shows that the market only reacts to a pro forma earnings surprise when both surprises are included in the regression (0.156, t=1.707). In summary, Table 5Panel A demonstrates that the market's reaction to the earnings announcements is strongly affected by the presentation arrangements of the announcements. Specifically, the market only has a reaction to the earnings that are highlighted in the earnings release.

Table 5 Panel B presents the results in the post-Reg G period. Similar to the results in Panel A, for firms that highlight the GAAP earnings, the market has a significant reaction to the GAAP earnings surprise (0.032, t=1.778), but it has no reaction to the pro forma earnings surprise (0.026, t=0.456). If both the GAAP and pro forma earnings are included in the model, then the market still only has a reaction to the GAAP earnings (0.034, t=1.789). However, the results in Regressions5'',6'',and 7''are different from the results in Panel A. For firms that highlight the pro forma earnings, however, the market has no significant response to either pro forma or GAAP earnings.

Table 5. The Impact of Presentation Arrangements on Market Response to Earnings Surprise

	Predicted Sign	Quarterly Announcement without highlight on Pro forma earnings *WeightChoice*= 0			Quarterly Announcement with Highlight on Pro forma earnings *WeightChoice*> 0		
		Regression 5'	Regression 6'	Regression 7'	Regression 5"	Regression6"	Regression 7"
Panel A: Pre-Reg G							
Intercept		-0.008	-0.009	-0.008	-0.003	-0.005	-0.009
		(0.011)	(0.012)	(0.011)	(0.016)	(0.015)	(0.016)
$Surp_{GAAP}$	+	0.042 ***		0.053 ***	-0.012		-0.016
		(0.015)		(0.017)	(0.019)		(0.019)
$Surp_{PF}$	+		0.001	0.043		0.146 *	0.156 *
			(0.029)	(0.03)		(0.085)	(0.091)
Size	?	-0.001	-0.002	-0.002	-0.002	-0.007	-0.007
		(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)
BM	?	0.005	0.007 **	0.004	0.001	0.003	0.001
		(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
R^2		0.145	0.052	0.17	0.006	0.029	0.004
Panel B: Post-Reg G							
Intercept		0.006	0.001	-0.014	0.001	-0.006	0.016
		(0.011)	(0.011)	(0.025)	(0.021)	(0.02)	(0.054)
$Surp_{GAAP}$	+	0.032 *		0.034 *	0.083		0.088
		(0.018)		(0.019)	(0.071)		(0.075)
$Surp_{PF}$	+		0.026	-0.004		0.026	-0.024

			(0.057)	(0.058)		(0.115)	(0.122)
Size	?	0.001	-0.011	0.005	-0.006	0.001	-0.004
		(0.002)	(0.016)	(0.006)	(0.023)	(0.023)	(0.011)
BM	?	-0.005	-0.005	-0.004	0.022	0.018	0.023
		(0.005)	(0.005)	(0.005)	(0.015)	(0.015)	(0.015)
R^2		0.038	0.01	0.041	0.044	0.026	0.045

Note:

$Surp_{PF}$ earnings surprise is defined as actual pro forma per share minus the most recent median IBES earnings per share forecast. $Surp_{GAAP}$ is defined as the actual GAAP earnings per share minus the most recent median IBES earnings per share forecast. *Size* is measured by market value of the equity at the end of fiscal quarter t; Beta is measured by Fama and French approach by using weekly returns in the prior three years; book to market ratio (*BM*) is constructed as the book value of assets over the value of equity at the end of quarter t.

When comparing the two types of earnings, most prior literature explains the difference in the market reactions by the inherent difference in the informativeness of these earnings. The findings in Table 5 Panel A provide an alternative explanation. The results in Table 5 show that the market response of earnings is not only determined by the magnitude of the GAAP or pro forma earnings only, but instead, it is also determined by the *presentation* arrangement of the earnings release. In fact, before the implementation of Reg G, the market only reacted to the earnings that are highlighted in the press release, regardless of the value of the earnings. This finding suggests that the presentation of these two types of earnings played an even more important role in affecting the market perceptions and valuation process in the pre-Reg G period. After the implementation of Reg G, the upsurge of highlighting pro forma earnings in earnings releases was curtailed, and more firms switched back to the conventional presentation arrangement, which put GAAP earnings in the first place. Interestingly, this study shows that the market's perception of the presentation arrangement has changed after the implementation of Reg G, as well. Instead of reacting to any of the earnings that are highlighted, the market only reacts to the GAAP earnings when they are highlighted in the press release. In other words, the findings show that the market has no reaction to either the GAAP or the pro forma earnings release when the earnings release is under the pro forma-highlighted arrangement. One possible explanation is that Reg G reinforces the dominant position of GAAP earnings, so that earnings disclosures with more stress on pro forma earnings are considered with less credibility and, thus, cannot trigger a significant market response.

5. Conclusion

This paper examines the presentation of the pro forma earnings release and the corresponding market reaction to these different arrangements. All presentation arrangements are directly hand-collected from quarterly earnings announcements and coded on two dimensions: the emphasis put on the GAAP versus pro forma earnings and the display format of the earnings information.

I first examine the determinants of the presentation arrangements and whether these presentation arrangements present informational or opportunistic incentives. Under the informational hypothesis, the managers will put more weight on the pro forma earnings if the pro forma earnings provide new information to the market, regardless of the directional change from reported earnings. Alternatively, under the opportunistic hypothesis, the managers will put more weight on pro forma earnings only if such information results in higher net income or pushes the firm above a certain threshold. Before Reg G, the evidence shows that managers' attempts to put more emphasis on pro forma earnings appear driven by four motivations: 1) present higher earnings; 2) report gains and avoid losses; 3) beat or meet the earnings in the same quarter of the last year; and 4) beat or meet the analyst forecasts. After Reg G, firms have to provide detailed reconciliation between the GAAP and pro forma earnings so that the presentation arrangements are less likely to have a major impact on investors' perceptions. As a result, firms have less incentive to stress pro forma earnings over GAAP earnings, even though the pro forma earnings are higher than the GAAP earnings. Managers' motivations are limited to two items: 1) report gains and avoid losses; and 2) beat or meet the earnings in the same quarter of the last year.

I then examine whether managers' choice of presentation has any impact on market reactions. Specifically, I examine whether the market has different reactions to GAAP and pro forma earnings under alternative presentation arrangements. This study shows that the presentation has a major impact on the market perception of the earnings in both the pre- and the post-Reg G period. In the pre-Reg G period, the market only reacted to the earnings that were

highlighted by the presentation arrangement. In the post-Reg G period, the power of the pro forma-highlighted arrangements was limited, and the market only reacted to earnings that were under the GAAP-highlighted arrangements. Although market efficiency theory implies that the presentation of earnings should be irrelevant in earnings pricing, the choice of presentation arrangement appears to impact investors' decision making, though this impact is partially curtailed by Reg G. (Note 5)

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Notes

Note 1. Securities and Exchange Commission (SEC), 2002b. Final rule: Conditions for use of non-GAAP financial measures. Release No. 33-8176, 34-47226; FR-65, November 2002

Note 2. For instance, Marques (2010) examines the disclosure strategies of non-GAAP financial measures by using a sample of S&P 500 firms. Campbell & Lopez (2010) discuss the placement of pro forma information in the earnings release of S&P Small Cap 600 firms.

Note 3. 26%(Fig.1.2) +30% (Fig.1.3)+17% (Fig.1.4))/3=24.3%

Note 4. (72% (Fig.1.2) +64% (Fig.1.3)+72% (Fig.1.4))/3=68.7%

Note 5. There are some caveats to this study. Firstly, since all of the earnings releases need to be collected manually, my sample period was limited to 27 months (15 months before Reg G and 12 months after Reg G), and the sample size is relatively small. Therefore, it is still unclear whether my findings can be generalized into long sample periods. Secondly, I do not further investigate the reason behind the change of motivations. Specifically, it is unclear why "beating or meeting analyst forecasts" dropped out of the motivation set after Reg G. Thirdly, it is unclear how the implementation of Reg G changed the market's perception of pro forma earnings psychologically.