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Pro Forma Earnings Presentation Effects and Investment Decisions

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ABSTRACT: Reacting to the criticism that companies routinely mislead investors by emphasizing non-GAAP or pro forma numbers, the SEC promulgated Regulation G in 2003, which requires firms to provide a reconciliation of the pro forma and GAAP numbers. In this study, we conduct an experiment to examine how investors' GAAP and non-GAAP earnings performance assessments affect their financial evaluations and investment decisions based on the presentation format of the reconciliation (presenting a full non-GAAP income statement, referred to as the full NGIS format, versus presenting only the items that caused the difference between GAAP and non-GAAP measures, referred to as the summary NGIS format). We find that even though a summary NGIS format for the reconciliation of pro forma earnings does not increase the perceived non-GAAP earnings performance, it does increase the weight given to non-GAAP earnings performance when making investment-related judgments and decisions, relative to a full NGIS format. These findings regarding the evaluation and weighting of non-GAAP earnings performance extend prior studies and suggest that non-GAAP earnings information may be processed differently based upon the format of the reconciliation. Further, our finding regarding the weighting of non-GAAP earnings performance is inconsistent with the concern expressed by the SEC that the full NGIS format may give greater prominence to non-GAAP information. Finally, the implications of these findings for regulators, investors, and future research are discussed.

Keywords: pro forma reconciliation; Regulation G; reconciliation format.

Data Availability: Contact the authors.

INTRODUCTION

The purpose of this study is to examine whether investors' investment-related judgments and decisions are influenced by alternative formats of pro forma reporting disclosures. Companies routinely provide financial market participants with non-GAAP or pro forma numbers to supplement U.S. GAAP-based financial reports (Bhattacharya, Black, Christensen, and Larson 2003).[1] Our study finds that even though a summary format for the reconciliation of pro forma (non-GAAP) earnings to GAAP earnings does not increase the perceived non-GAAP earnings performance, it does increase the weight given to non-GAAP earnings performance when making investment-related judgments and decisions, relative to a full non-GAAP reconciliation condition.

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[1] The Securities and Exchange Commission typically refers to "pro forma" as "non-GAAP" disclosure. However, since prior accounting literature typically uses the term "pro forma" disclosure, we use both these terms interchangeably in the paper.

Pro forma earnings typically exclude non-cash items such as asset impairments, amortization, or restructuring charges, and the exclusion of these items is based on the premise that it provides more relevant information about the performance of the business with respect to its core operations. However, critics have argued that pro forma numbers are often used by management to present a "rosier" picture of the earnings performance of the company and detract focus from legitimate, non-cash expenses (SEC 2001). Further, the number of firms releasing pro forma earnings has risen dramatically since the late 1980s (Frederickson and Miller 2004). A study by Larcker and Tayan (2010) indicates that over half of the companies in the Dow Jones Industrial Average reported non-GAAP earnings in 2009.

Prior literature has found evidence that nonprofessional investors have difficulty identifying and incorporating relevant information into their decision making and that professional investors acquire and analyze information differently than nonprofessional investors (Elliott, Hodge, Kennedy, and Pronk 2007; Frederickson and Miller 2004). As of 2008, over 51.5 million nonprofessional investors were directly investing in the U.S. stock markets, which represented an increase of over ten million investors since 2002 (Investment Company Institute [ICI] and Securities Industry and Financial Markets Association [SIFMA] 2008). In response to concerns that information relating to pro forma earnings may mislead investors, the SEC (2003) promulgated Regulation G (hereafter, Reg G). Specifically, under Reg G, firms disclosing pro forma earnings are required to include a comparable GAAP figure as well as provide a reconciliation of the pro forma and GAAP numbers.

While prior research has addressed issues relating to whether pro forma earnings and reconciliations of pro forma earnings to GAAP earnings are value relevant to investors (e.g., Allee, Bhattacharya, Black, and Christensen 2007; Bhattacharya, Black, Christensen, and Mergenthaler 2007; Elliott 2006), there is limited evidence on whether the manner in which the reconciliation information is presented to investors can unduly influence investment-related judgments and decisions. Specifically, there is no prior research on how the reconciliation format affects financial evaluations and investment decisions. Our study contributes to the literature by examining whether two reconciliation formats commonly used in practice have differential effects on investment evaluations and decisions. One reconciliation format presents a full non-GAAP income statement as part of the reconciliation (hereafter, full NGIS format), while the second format includes only the items that caused the difference between GAAP and non-GAAP income (hereafter, summary NGIS format).[2]

The inclusion of a full non-GAAP income statement in the full NGIS format provides a more vertically disaggregated view of financial performance than the separate reconciliation found in the summary NGIS method. Vertical aggregation involves the degree to which a firm combines transactions or accounts into summary line items and subtotals in financial information (Libby and Emett 2014). Prior literature has found that more disaggregated earnings forecasts enhance credibility (Hirst, Koonce, and Venkataraman 2007) and contain greater information content than either aggregated GAAP or non-GAAP earnings alone (Bradshaw, Christensen, Gee, and Whipple 2014).

The extent to which information is isolated (presented alone or among other statements) also influences how investors weight the information presented (Maines and McDaniel 2000). The authors find that greater isolation results in lower cognitive costs being incurred and more positive weighting. The non-GAAP reconciliation in the summary NGIS format is a separate, more isolated statement, which may also result in a more positive weighting of the non-GAAP information by investors. Based on this prior literature, we expect a higher weighting of pro forma information in the aggregated and more isolated summary NGIS format, as compared with the weighting of pro forma information in the disaggregated and less isolated full NGIS format when providing an overall financial evaluation of a firm.[3] Further, expanding upon prior studies that examine reconciliations from a net GAAP loss to a positive non-GAAP profit (Frederickson and Miller 2004; Elliott 2006), we predict that investors in the summary NGIS reconciliation will place greater emphasis on the non-GAAP earnings performance when making their investment decision than investors who receive the full NGIS format.

We test these predictions through an experiment where investors receive a press release modeled after a technology company that is listed on the New York Stock Exchange. All information in the earnings announcement was identical except each participant received one of two formats of reconciliation (full NGIS or summary NGIS). After examining the information

[2] The full NGIS format includes a GAAP income statement, a non-GAAP income statement, and a reconciling column of GAAP and non-GAAP differences, with all three items included in one statement. On the other hand, the summary NGIS format includes only the actual GAAP and non-GAAP earnings numbers, as well as the differences between these summary figures. Further, the summary NGIS reconciliation statement is separate from the GAAP income statement and no non-GAAP income statement is provided. As the full NGIS reconciliation format contains both full income statements in one summary presentation, the reconciliation is less isolated than the summary NGIS format presented in two separate statements. Further, the full NGIS format, through the inclusion of a full non-GAAP income statement, provides greater detail regarding individual GAAP and non-GAAP differences than the summary NGIS format in which summary earnings numbers are provided along with differences. See Appendix A (full NGIS format) and Appendix C (summary NGIS format) for examples of the reconciliation formats used in this study.

[3] Higher assessments of non-GAAP earnings, versus GAAP earnings, are likely to occur when pro forma earnings are greater than GAAP earnings. Larcker and Tayan (2010) report that in 2009, of the Dow Jones Industrial Average's 30 companies that report pro forma earnings, 81 percent of them reported a non-GAAP EPS that was higher than their GAAP EPS.

presented, participants were asked to make a decision about the amount of investment in the hypothetical company, an overall financial evaluation of the firm, and assessments about non-GAAP and GAAP earnings performance.

Consistent with expectations, findings show that participants placed greater weight on non-GAAP earnings performance in the vertically aggregated and more isolated summary NGIS reconciliation over those investors who received the full NGIS format when producing both an overall financial evaluation and an investment decision for a firm. However, results also indicate that actual assessments of non-GAAP earnings performance were greater in the full NGIS format. These two conflicting effects (summary evaluation and weighting) extend prior studies by confirming that non-GAAP earnings information may be processed differently based upon the format of the information.

These findings should interest policymakers as they continue to evaluate how nonprofessional investors weight non-GAAP information due to format effects. The SEC has expressed concern with the full NGIS format because they believe "it is not appropriate to present an entire non-GAAP income statement in an attempt to reconcile non-GAAP measures to GAAP measures." Further, the SEC has indicated that the full NGIS format "can result in the creation of many additional non-GAAP measures, gives the inappropriate impression that the non-GAAP presentation represents a comprehensive basis of accounting, and gives undue prominence to that non-GAAP information" (SEC 2009, 252–253). More recently, the SEC again reiterated that disclosures should not present a non-GAAP measure with greater prominence than the GAAP measure. Examples listed of undue prominence included providing a full non-GAAP income statement and the inclusion of a non-GAAP measure preceding the most directly comparable GAAP number (SEC 2016). However, our findings suggest that such concern regarding the full NGIS format may be misplaced and considering that a majority of large firms file using the summary NGIS format,[4] the SEC may wish to reconsider its position regarding both formats.

The remainder of the paper is organized with the prior literature and development of hypotheses being presented in the next section. Then, we present the experimental methods used to test the hypotheses, followed by the results of the experiment. The final section provides conclusions and implications of the findings.

PRIOR LITERATURE AND DEVELOPMENT OF HYPOTHESES

The reporting of "non-GAAP" or "pro forma" earnings by companies has become increasingly popular over the past few decades (Bradshaw and Sloan 2002). Firms often argue that pro forma disclosures are informative, and several studies provide support for this assertion, finding that pro forma earnings are value relevant and more representative of "core earnings" than GAAP earnings (e.g., Bhattacharya et al. 2003; Lougee and Marquardt 2004).

Other studies have questioned whether investors, especially nonprofessional investors, are overly influenced by pro forma disclosures. Frederickson and Miller (2004) find that nonprofessional investors (M.B.A. students), upon receiving an earnings announcement containing both pro forma and GAAP earnings assessed a higher stock price than other nonprofessional investors who received a GAAP-only earnings announcement. The authors note that the pro forma disclosures did not cause investors to assess a higher earnings number for determining the stock price. Instead, participants perceived the pro forma earnings announcement to be more favorable, which in turn caused them to translate earnings into a higher stock price.

As stated earlier, vertical aggregation involves the degree to which a firm combines transactions or accounts into summary line items and subtotals in financial information (Libby and Emett 2014). Bonner, Clor-Proell, and Koonce (2014) further define disaggregation as separately presenting the components of single or multiple line items in the financial statements. Libby and Emett (2014) discuss a large number of accounting studies on sophisticated investors (e.g., Kinney 1971; Collins and Simonds 1979; Collins 1976; Baldwin 1984; Swaminathan 1991; Ettredge, Kwon, Smith, and Zarowin 2005; Maines, McDaniel, and Harris 1997; Berger and Hann 2003), which have found that disaggregated accounting information can improve analysts' earnings forecasts and security valuation. Further, other studies have provided support that nonprofessional investors are also affected by location and by the degree to which the financial information presented is aggregated (Maines and McDaniel 2000; Frederickson and Miller 2004; Elliott, Hobson, and Jackson 2011; Bonner et al. 2014).

The reconciliation format preferred by the SEC (summary NGIS approach) provides substantially more vertically aggregated information about a firm's non-GAAP earnings performance than the full NGIS approach previously used by most firms. The full NGIS method provides investors with complete GAAP and non-GAAP income statements, and although the summary NGIS approach includes enough information for an investor to disentangle the GAAP and non-GAAP components and prepare a full non-GAAP income statement, this would require a substantial amount of additional cognitive processing by investors in order to create a non-GAAP income statement to compare with the GAAP income statement. This is particularly

[4] A hand-collected sample of firms, by the authors, of the S&P 500 companies from 2004–2006 revealed that approximately 75 percent of quarterly earnings reconciliations filed used the summary NGIS format.

relevant for non-professional investors since they are prone to certain judgment and cognitive effects that may be more pronounced than professional investors (Frederickson and Miller 2004).

Accounting research (e.g., Graham, Harvey, and Rajgopal 2005; Elliott et al. 2011; Bloomfield, Hodge, Hopkins, and Rennekamp 2015) suggests that investors evaluating a pro forma reconciliation for a firm using a summary NGIS reconciliation format are more likely to unduly focus on the summary measure[5] for non-GAAP (pro forma) earnings when evaluating the overall financial performance of the firm than investors evaluating a similar reconciliation using the disaggregated full NGIS format. Elliott et al. (2011), using a sample of nonprofessional investors find that disaggregation reduces this emphasis on aggregated information while Bloomfield et al. (2015) utilizes analysts and find that these professionals are better able to identify the operating structures of experimental firms as disaggregation is enhanced. While GAAP presentations are consistent between formats, the absence of a full non-GAAP income statement, and the cognitive cost required to accurately construct these GAAP and non-GAAP components, should enhance the emphasis placed on the summary non-GAAP earnings measure in the aggregated summary NGIS format.

Consistent with the idea that the summary NGIS format is likely to enhance the emphasis that nonprofessional investors place on non-GAAP earnings, Maines and McDaniel (2000) had a similar finding for the weight that nonprofessional investors placed on comprehensive income information. Their study found that nonprofessional investors placed a greater weight on comprehensive income that was presented in a FAS No. 130 income statement format (where the income information is more isolated) than when the comprehensive income information was presented within a less isolated stockholders' equity format (FAS No. 115 and FAS No. 130 formats).[6,7] Although both the full NGIS and summary NGIS formats for the non-GAAP earnings information are performance type statements, the summary NGIS format is a more isolated statement than the full NGIS format given that the non-GAAP earnings information is presented in a separate reconciliation statement. We expect that the isolation of the non-GAAP earnings information in a separate reconciliation for the summary NGIS format is likely to lower the cognitive costs of processing the non-GAAP earnings information and is also likely to signal a greater importance of the non-GAAP earnings information. We would expect that these isolation effects would increase the weighting of the non-GAAP earnings performance in subsequent investment decisions for the summary NGIS format.

Prior studies have documented an important relationship between financial performance and investment decisions. A recent survey involving CFOs (Dichev, Graham, Harvey, and Rajgopal 2014) found that the most important use of earnings numbers reported by companies is to help investors value companies, and the most important motivation for companies to misrepresent their earnings performance is to influence stock price. Hence, companies that generate GAAP and non-GAAP metrics for earnings performance expect that investors' assessment of these metrics will influence their investment decisions.

A recent study suggests that the benefits of disaggregation may be due to the fact that "disaggregation can make certain elements of a company's operation more salient to users" (Libby and Emett 2014, 9). Given the empirical observation that non-GAAP earnings are generally higher than GAAP earnings (Larcker and Tayan 2010), and the summary NGIS format involves a higher degree of aggregation due to the exclusion of a full non-GAAP income statement, we expect that investors will place greater emphasize on non-GAAP earnings when making their financial evaluation and investment decision in the summary NGIS format over participants who receive the full NGIS format. In addition, as discussed earlier, we would also expect that the isolation effects from the summary NGIS format would increase the weighting of the non-GAAP earnings performance in subsequent financial evaluations and investment decisions. Taken together, these expectations lead to the following hypotheses:

H1: Investors who receive a reconciliation prepared using a summary NGIS reconciliation format will emphasize the non-GAAP earnings performance of the firm more than investors who receive the same reconciliation prepared using a full NGIS format when performing an overall financial evaluation of a firm.

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[5] Literature on fixation often examines GAAP earnings as the summary measure in which investors place undue focus (Harris, Hobson, and Jackson 2015). However, other literature has provided evidence of the informativeness of non-GAAP earnings and that investors may view non-GAAP earnings as more representative of core earnings (Bhattacharya et al. 2003; Lougee and Marquardt 2004). Further, while not specifically finding that investors fixate on non-GAAP earnings, Bradshaw et al. (2014) note that participants discounted the GAAP and non-GAAP exclusions in relation to the summary non-GAAP earnings number when pricing investments. While we do not specifically examine non-GAAP earnings fixation in our study, we believe our findings, reported in a subsequent section, may be consistent with this type of fixation.

[6] In addition to the isolation of the comprehensive income information in the income statement format, Maines and McDaniel (2000) also indicate that this greater weight may also be explained by the fact that comprehensive income is included within a performance statement.

[7] In addition to the placement in the financial statements and the isolation of comprehensive income, Maines and McDaniel (2000) also evaluated their experimental formats based on the labeling of comprehensive income and the linkage to net income. In our study, we do not believe that the labeling of non-GAAP income or the linkage of non-GAAP income to net income is different between either the full NGIS or the summary NGIS experimental formats.

H2: Investors who receive a reconciliation prepared using a summary NGIS reconciliation format will emphasize the non-GAAP earnings performance of the firm more than investors who receive the same reconciliation prepared using a full NGIS format when making their investment decision.

METHOD

Participants

Participants were 97 graduate accounting students from a major university in the Northeastern U.S.[8,9] Similar to Elliott, Jackson, Peecher, and White (2014), we use graduate students as proxies for reasonably informed nonprofessional investors. Demographic data gathered from the participants indicate they had an average of 4.7 years of work experience. In regard to their prior investment experience, 51 percent of the participants had previously invested in individual stocks, 50 percent of the participants had invested in mutual funds, and 27 percent of the participants have previously examined a reconciliation between GAAP and non-GAAP earnings for a publicly traded company.[10]

Similar to the graduate student participants in Elliott et al. (2014), participants in our study had taken an average of 8.20 accounting and finance courses at the graduate and undergraduate levels. These demographic data indicate that our participants are sufficiently knowledgeable about accounting and finance issues and should serve as good proxies for reasonably informed investors.

Experimental Design, Task, and Procedures

We manipulated the format of the reconciliation provided to the participants (full NGIS or summary NGIS). This served as the primary manipulation used to examine our two research hypotheses.[11] Participants were first provided with a press release from a hypothetical technology company named Bord Corporation. The press release was modeled after an actual earnings release from a technology company that trades on the New York Stock Exchange. The press release announced the net revenues, GAAP operating income, non-GAAP earnings, and cash flows from operations for the most recent fiscal year, along with the change from the prior fiscal year. In addition, similar to the press release we used as our model, participants were informed that non-GAAP earnings and non-GAAP earnings per share "exclude the effect of certain expenses that management does not believe are relevant in assessing the core earnings for Bord Corporation." Also, they were told that these expenses include "share-based compensation expense, in-process research and development, restructuring expenses, and the amortization of purchased intangibles." These expenses are some of the more common expenses that are excluded by companies that report non-GAAP earnings (see, e.g., Entwistle, Feltham, and Mbagwu 2006) and represent the primary items excluded by the technology company we chose to use as a model for our press release. In addition to the above financial information included with the press release, the participants were informed that under Reg G, the SEC requires that "companies reconcile all non-GAAP earnings disclosures with the most relevant GAAP earnings disclosure." They were also informed that they would be provided this reconciliation.

After evaluating the press release described above, the remaining financial information provided to the participants was based on the condition to which they were randomly assigned. As indicated above, we manipulated the format of the reconciliation provided to the participants (full NGIS or summary NGIS). Similar to prior literature, participants received earnings information that included a GAAP net loss and a non-GAAP profit (Frederickson and Miller 2004; Elliott 2006). The participants in the full NGIS condition received GAAP income statements (two years) that included reconciliation to the non-GAAP income statements (see Appendix A). The participants in the second condition received a reconciliation that was prepared based upon a summary NGIS format. After evaluating the press release, these participants first received income statements for a two-year period that were based upon GAAP (see Appendix B) and that were identical to the GAAP income statements included with the full NGIS reconciliation. Next, the participants were provided a summary NGIS-type reconciliation (see Appendix C) that reconciled net income presented on the GAAP income statements with non-GAAP earnings. This format is the one that companies are more likely to be using in order to comply with recent guidance issued by the SEC (2009, 2010, 2016).

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[8] One participant was excluded from our study because regression diagnostics identified this participant as an outlier. However, we obtain qualitatively similar results if this participant is included in the sample.

[9] We obtained approval for our experiment from the Institutional Review Board at our university prior to gathering data.

[10] The results are qualitatively similar if measures of prior investment experience are included as covariates. However, because none of the covariates were significant, we did not include them with the analyses presented in the "Results" section.

[11] Because the SEC allows the direction of reconciliation to go from GAAP to non-GAAP or *vice versa,* for completeness, we also manipulated the direction of the reconciliation (GAAP to pro forma or pro forma to GAAP). However, we found no effect due to the direction of the reconciliation. In addition, given that the primary focus of the study is not on the direction of reconciliation, further discussion of the experimental design and the related results is restricted to the effects of the format of reconciliation on overall financial evaluation and on the investment decision.

Predictor and Dependent Variables

After evaluating all of the financial information described above, participants were asked to make several earnings and investment-related judgments and decisions based upon the GAAP and non-GAAP information that they had just evaluated. They were asked to assess Bord Corporation's non-GAAP earnings performance and their GAAP earnings performance over the two-year period. The two earnings performance assessments were measured on a seven-point scale with endpoints labeled "very weak" (1) and "very strong" (7). These two earnings performance assessments are measured variables that are used as predictor variables in the regression equations used to examine H1 and H2. We also asked the participants, "in general, how do you view the financial information of Bord Corporation?" This overall financial assessment was measured on a seven-point scale with endpoints labeled "very negative" (–3) and "very positive" (3), with "neither positive nor negative" (0) serving as a point of indifference. This overall financial assessment serves as the dependent variable used in testing H1. We also asked the participants to make an investment decision. The participants were asked the amount (from $0 to $5,000) they would invest in Bord Corporation assuming they had $5,000 to invest. The amount for this investment decision serves as the dependent variable in testing H2.

RESULTS

Table 1 presents the means (standard deviations) for each of the participants' judgments that are used to examine H1 and H2. The descriptive statistics are reported by the format (summary NGIS or full NGIS) of the reconciliation and include the participants' GAAP (Panel A) and non-GAAP (Panel B) earnings performance assessments, overall financial evaluation (Panel C), and the amount of their investment decision (Panel D).

As shown in Panel A in Table 1, there was no significant difference (Diff. = 0.14, t = 0.52; p = NS) between the mean GAAP earnings performance assessments for the participants in the full NGIS condition (mean = 3.63, s.d. = 1.35) and the participants in the summary NGIS condition (mean = 3.49, s.d. = 1.28). This should be expected, since the GAAP financial information received by the participants was identical in the two conditions. Further, Panel C indicates that the mean overall financial evaluation of the participants receiving the full NGIS format (mean of 0.13, s.d. = 1.26) was not significantly different than the mean evaluation (mean = 0.35, s.d. = 1.13) for the participants in the summary NGIS condition (Diff. = –0.22, t = –0.89; p = NS). Also, Panel D indicates that the mean investment amount of the participants receiving the reconciliation in the full NGIS format (mean of $1,064, s.d. = $1,411) was not significantly different than the mean investment amount (mean = $1,253, s.d. = $1,299) for the participants in the summary NGIS condition (Diff. = –189, t = –0.68; p = NS). However, Panel B shows that the mean non-GAAP earnings performance assessments of the participants receiving the reconciliation in the full NGIS format (mean of 4.69, s.d. = 1.29) was significantly higher than the mean assessment (mean = 4.09, s.d. = 1.32) for the participants in the summary NGIS condition (Diff. = 0.60, t = 2.22; p = 0.029, two-tailed). This finding regarding the evaluation of non-GAAP earnings performance is discussed further in the conclusion section of the paper.

Although we do not find that non-GAAP earnings performance is evaluated higher in the summary NGIS format, our hypotheses consider the differential weight given to the non-GAAP earnings performance. Both H1 and H2 predict that the weight assigned will be higher in the summary NGIS format over the full NGIS format.

Test of H1

H1 posits that the participants who receive a pro forma reconciliation prepared using a summary NGIS format will emphasize the non-GAAP earnings performance of the firm more in making an overall financial evaluation of the firm than the participants who receive a pro forma reconciliation prepared using a full NGIS format. Specifically, H1 is positing that the regression coefficient of non-GAAP earnings performance predicting the overall financial evaluation will be higher for the participants in the summary NGIS condition than it will be for the participants in the full NGIS condition.

In order to test H1, we perform a regression analysis with the participants' overall financial evaluation (*OVERALL*) serving as the dependent variable. The primary predictor variable is the participants' non-GAAP earnings performance assessment (*NON-GAAP PERFORM*). We also include the participants' GAAP earnings performance assessment (*GAAP PERFORM*) as a predictor variable in order to control for its effect on their overall financial evaluation. Finally, we also include a dichotomous variable (*FORMAT*) for the full NGIS format (coded 1) and the summary NGIS format (coded 2). The resulting regression model is as follows:

$$OVERALL = a + b_1 NON\text{-}GAAP\ PERFORM + b_2 GAAP\ PERFORM + b_3 FORMAT + e \quad (1)$$

TABLE 1

Mean (Standard Deviation) of Participants' Judgments

Panel A: Participants' GAAP Earnings Performance Assessment[a] (Std. Deviation)

Format of Reconciliation	n	Mean Assessment	Standard Deviation
Full NGIS	54	3.63	1.35
Summary NGIS	43	3.49	1.28

Mean Difference = 0.14, t-statistic = 0.52, p = NS.

Panel B: Participants' Non-GAAP Earnings Performance Assessment[a] (Std. Deviation)

Format of Reconciliation	n	Mean Assessment	Standard Deviation
Full NGIS	54	4.69	1.29
Summary NGIS	43	4.09	1.32

Mean Difference = 0.60, t-statistic = 2.22, p = 0.029.

Panel C: Participants' Overall Financial Evaluation[b] (Std. Deviation)

Format of Reconciliation	n	Mean Evaluation	Standard Deviation
Full NGIS	54	0.13	1.26
Summary NGIS	43	0.35	1.13

Mean Difference = −0.22, t-statistic = −0.89, p = NS.

Panel D: Participants' Mean Investment Amount[c] (Std. Deviation)

Format of Reconciliation	n	Mean Investment Amount	Standard Deviation
Full NGIS	54	1,064	1,411
Summary NGIS	43	1,253	1,299

Mean Difference = −189, t-statistic = −0.68, p = NS.

[a] The GAAP and Non-GAAP earnings performance assessments were the participants' responses to the following requests: "Based on the financial information provided to you, please indicate your assessment of Bord Corporation's GAAP (Non-GAAP) earnings performance over the two-year period." The participants' responses were measured on a seven-point scale with endpoints labeled "very weak" (1) and "very strong" (7).

[b] The overall financial evaluation was the participants' response to the following request: "In general, how do you view the financial information of Bord Corporation?" The participants' responses were measured on a seven-point scale with endpoints labeled "very negative" (−3) and "very positive" (+3).

[c] Investment amount was the participants' response to the following request: "Assume that you have $5,000 to invest in a stock. Assume the price of Bord Corporation's common stock is $13 per share after releasing their earnings information for the year ended August 31, 2012. Indicate below how much of the $5,000 (if any) you would invest in Bord Corporation common stock."

The results of the regression analyses for all of the participants are presented in Table 2[12] (Panel A). As shown in Table 2 (Panel A), the overall regression model is significant (adjusted $R^2 = 0.48$, $F = 30.79$; $p = 0.000$). Further, both the participants' non-GAAP earnings performance assessment (*NON-GAAP PERFORM:* Beta = 0.29, t = 3.60; p = 0.001) and the participants' GAAP earnings performance assessment (*GAAP PERFORM:* Beta = 0.56, t = 7.19; p = 0.000) have a significant and very strong effect on the participants' overall financial assessment (*OVERALL*). Further, it should be noted that the main effect of the format of the pro forma reconciliation (*FORMAT*) is also significant (t = 2.45; p = 0.016).

In order to examine H1, the above regression is next performed separately for the participants who received the non-GAAP reconciliation prepared using the summary NGIS format (Panel B of Table 2) and the full NGIS format (Panel C of Table 2).[13] H1 predicts that the regression coefficient for *NON-GAAP PERFORM* for the participants in the summary NGIS group will be significantly greater than the regression coefficient for *NON-GAAP PERFORM* for the participants in the full NGIS group.

[12] Variance Inflation Factors (VIFs) were calculated for each of the independent variables shown in Table 2. Each of these scores is well below 10, the level normally considered to warrant concern about multicollinearity.

[13] The variable *FORMAT* is not included because each regression is run separately by format.

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TABLE 2

Regression of Overall Financial Assessment on Earnings Performance and Format

Panel A: Full Sample

	B	Std. Error	Beta	t	Sig.	VIF
Constant				−7.16	0.000	
NON-GAAP PERFORM[b]	0.259	0.072	0.29	3.60	0.001[a]	1.18
GAAP PERFORM[b]	0.512	0.071	0.56	7.19	0.000[a]	1.12
FORMAT[c]	0.445	0.182	0.19	2.45	0.016	1.05

Model $F = 30.79$ ($p = 0.000$); $n = 97$; Adj. $R^2 = 0.48$.

Panel B: Summary NGIS

	B	Std. Error	Beta	t	Sig.	VIF
Constant				−6.08	0.000	
NON-GAAP PERFORM[b]	0.456	0.098	0.53	4.65	0.000[a]	1.20
GAAP PERFORM[b]	0.312	0.101	0.35	3.08	0.002[a]	1.20

Model $F = 25.68$ ($p = 0.000$); $n = 43$; Adj. $R^2 = 0.54$.

Panel C: Full NGIS

	B	Std. Error	Beta	t	Sig.	VIF
Constant				−5.34	0.000	
NON-GAAP PERFORM[b]	0.130	0.099	0.13	1.31	0.098[a]	1.07
GAAP PERFORM[b]	0.627	0.094	0.67	6.65	0.000[a]	1.07

Model $F = 26.99$ ($p = 0.000$); $n = 54$; Adj. $R^2 = 0.50$.

[a] Due to the directional prediction, the significance level is based on a one-tailed test.

[b] *GAAP PERFORM* (*NON-GAAP PERFORM*) was the participants' response to the following request: "Based on the financial information provided to you, please indicate your assessment of Bord Corporation's GAAP (Non-GAAP) earnings performance over the two-year period." The participants' responses were measured on a seven-point scale with endpoints labeled "very weak" (1) and "very strong" (7).

[c] *FORMAT* is a dichotomous variable coded as 1 if the participants were assigned to the Full NGIS format condition for the pro forma reconciliation, and as 2 if they were assigned to the Summary NGIS format condition.

Dependent Variable: Overall Financial Assessment (from −3 to +3): In general, how do you view the financial information of Bord Corporation?" The participants' responses were measured on a seven-point scale with endpoints labeled "very negative" (–3) and "very positive" (+3).

Using the statistical methodology developed by Paternoster, Brame, Mazerolle, and Piquero (1998) and Clogg, Petkova, and Haritou (1995), we directly compare these two regression coefficients. The results of this analysis indicate that the regression coefficient for the summary NGIS ($B = 0.456$) treatment group is significantly greater than it is for the full NGIS ($B = 0.130$) treatment group (Diff. = 0.326, $Z = 2.34$; $p = 0.0096$, one-tailed).[14] Overall, this test provides strong support for H1.

We also compare the regression coefficient for *GAAP PERFORM* for the participants in the summary NGIS group to the regression coefficient for *GAAP PERFORM* for the participants in the full NGIS group. We again use the statistical methodology developed by Paternoster et al. (1998) and Clogg et al. (1995) to directly compare the two regression coefficients. The results of this analysis indicate that the regression coefficient for the summary NGIS ($B = 0.312$) treatment group is significantly lower than it is for the full NGIS ($B = 0.627$) treatment group (Diff. = 0.315, $Z = 2.28$; $p = 0.023$, two-tailed). Thus, this test provides evidence that the participants receiving a full NGIS reconciliation format emphasized the GAAP earnings performance of the firm significantly more in making their overall financial evaluation of the firm than the participants who received the pro forma reconciliation prepared using a summary NGIS format. However, as predicted by H1 and shown by our earlier analysis, the reverse effect in terms of emphasis occurred with the participants' non-GAAP earnings performance assessment. Taken together, these results suggest that the participants provided with the more disaggregated full NGIS format appear to be placing more emphasis on the GAAP earnings information versus the non-GAAP earnings information. This result

[14] If the outlier that was excluded from our sample is included as part of the analysis, then the results are as follows: Diff. = 0.24, $Z = 1.58$; $p = 0.057$.

TABLE 3

Regression of Investment Amount on Earnings Performance and Format

Panel A: Full Sample

	B	Std. Error	Beta	t	Sig.	VIF
Constant				−1.50	0.137	
NON-GAAP PERFORM[b]	117.73	105.79	0.12	1.11	NS	1.18
GAAP PERFORM[b]	343.63	104.48	0.33	3.29	0.001[a]	1.12
FORMAT[c]	306.83	266.59	0.11	1.15	NS	1.05

Model $F = 5.54$ ($p = 0.002$); $n = 97$; Adj. $R^2 = 0.12$.

Panel B: Summary NGIS

	B	Std. Error	Beta	t	Sig.	VIF
Constant				−1.19	0.239	
NON-GAAP PERFORM[b]	280.26	151.45	0.29	1.85	0.036[a]	1.20
GAAP PERFORM[b]	257.27	156.74	0.25	1.64	0.055[a]	1.20

Model $F = 5.15$ ($p = 0.01$); $n = 43$; Adj. $R^2 = 0.17$.

Panel C: Full NGIS

	B	Std. Error	Beta	t	Sig.	VIF
Constant				−0.43	0.672	
NON-GAAP PERFORM[b]	−1.50	147.84	0.00	−0.01	NS	1.07
GAAP PERFORM[b]	385.48	140.83	0.37	2.74	0.005[a]	1.07

Model $F = 4.01$ ($p = 0.024$); $n = 54$; Adj. $R^2 = 0.10$.

[a] Due to the directional prediction, the significance level is based on a one-tailed test.

[b] *GAAP PERFORM* (*NON-GAAP PERFORM*) was the participants' response to the following request: "Based on the financial information provided to you, please indicate your assessment of Bord Corporation's GAAP (Non-GAAP) earnings performance over the two-year period." The participants' responses were measured on a seven-point scale with endpoints labeled "very weak" (1) and "very strong" (7).

[c] *FORMAT* is a dichotomous variable coded as 1 if the participants were assigned to the Full NGIS format condition for the pro forma reconciliation, and as 2 if they were assigned to the Summary NGIS format condition.

Dependent Variable: Investment Amount—The investment amount is based on the participants' response to the following request: "Assume that you have $5,000 to invest in a stock. Assume the price of Bord Corporation's common stock is $13 per share after releasing their earnings information for the year ended August 31, 2012. Indicate below how much of the $5,000 (if any) you would invest in Bord Corporation common stock."

is contrary to concerns expressed by the SEC about the full NGIS format. Policy implications of this finding are discussed in the "Summary and Conclusions" section.

Test of H2

H2 posits that the participants who receive a pro forma reconciliation prepared using a summary NGIS format will emphasize the non-GAAP earnings performance of the firm more in deciding the amount of their investment than the participants who receive the full NGIS format. More specifically, H2 is positing that the regression coefficient of non-GAAP earnings performance predicting the investment amount will be higher for the participants in the summary NGIS condition than it will be for the participants in the full NGIS condition.

In order to analyze H2, we perform a regression analysis with the participants' investment amount (*AMOUNT*) serving as the dependent variable. The predictor and dichotomous variables are identical to the variables included in the analysis of H1 (see regression Equation (1)). The results of this regression for all of the participants are presented in Table 3[15] (Panel A). As shown in Table 3 (Panel A), the overall regression model is significant (Adjusted $R^2 = 0.12$, $F = 5.54$; $p = 0.002$). Further, the participants' GAAP earnings performance assessment (*GAAP PERFORM:* Beta = 0.33, $t = 3.29$; $p = 0.001$) has a significant

[15] Variance Inflation Factors (VIFs) were calculated for each of the independent variables shown in Table 3. Each of these scores is well below 10, the level normally considered to warrant concern about multicollinearity.

and strong effect on the participants' investment decision. However, the participants' non-GAAP earnings performance assessment (*NON-GAAP PERFORM:* Beta = 0.12, t = 1.11; p = NS) and the format of the pro forma reconciliation (*FORMAT:* Beta = 0.11, t = 1.15; p = NS) are not significant.

To further examine H2, the above regression is performed separately for the participants who received the pro forma reconciliation prepared using the summary NGIS format (Panel B of Table 3) and the full NGIS format (Panel C of Table 3). H2 predicts that the regression coefficient for *NON-GAAP PERFORM* for the participants in the summary NGIS group will be significantly greater than the regression coefficient for *NON-GAAP PERFORM* for the participants in the full NGIS group. Using the statistical methodology developed by Paternoster et al. (1998) and Clogg et al. (1995), we directly compare these two regression coefficients. The results of this analysis indicate that the regression coefficient for *NON-GAAP PERFORM* for the summary NGIS (B = 280.26) treatment group is marginally significantly greater than it is for the full NGIS (B = −1.50) treatment group (Diff. = 281.76, Z = 1.33; p = 0.0918, one-tailed).[16] Overall, this test provides marginal support for H2.

We also compare the regression coefficient for *GAAP PERFORM* for the participants in the summary NGIS group to the regression coefficient for *GAAP PERFORM* for the participants in the full NGIS group. We again use the statistical methodology developed by Paternoster et al. (1998) and Clogg et al. (1995) to directly compare these two regression coefficients. The results of this analysis indicate that the regression coefficient for the summary NGIS (B = 257.27) treatment group is not significantly different than it is for the full NGIS (B = 385.48) treatment group (Diff. = 128.21, Z = 0.608; p = NS, two-tailed). However, unlike the participants' non-GAAP earnings performance assessment (only significant for the summary NGIS treatment group), the participants' GAAP earnings performance assessments are significantly associated with the investment decision for both the participants in the summary NGIS (t = 1.64; p = 0.055) treatment group and the full NGIS (t = 2.74; p = 0.005) treatment group.

The results for H2 suggest that that the participants who received a pro forma reconciliation prepared using a summary NGIS format emphasized the non-GAAP earnings performance of the firm more in deciding the amount of their investment than the participants who received the full NGIS format. Further, for the participants in the full NGIS format, the amount of their investment decision is primarily based on their assessment of the firm's GAAP earnings performance. Similar to the results from H1, these findings appear to be inconsistent with the SEC's expressed concerns about the full NGIS format. In fact, our results suggest that the more aggregated summary NGIS format preferred by the SEC may in fact be the format that is providing undue prominence to the non-GAAP information. This issue will be discussed further in the conclusion section of the paper.

SUMMARY AND CONCLUSIONS

Our paper examines GAAP and pro forma reconciliations to identify whether investors are influenced by the reconciliation format. We predict and find that investors who received a pro forma reconciliation prepared using a summary NGIS format emphasized the non-GAAP earnings performance of the firm more in making an overall financial evaluation of the firm than investors who received a pro forma reconciliation prepared using a full NGIS format. This result is inconsistent with the concern expressed by the SEC that the full NGIS format for purposes of reconciliation may unduly emphasize non-GAAP information (SEC 2009, 252–253).

We further predict and find that investors who received the summary NGIS reconciliation format also emphasized the non-GAAP earnings performance more than the participants who received the full NGIS format when making their investment decision. This finding is consistent with our above finding concerning how investors use non-GAAP earnings performance in making an overall financial evaluation. As discussed earlier, the SEC has expressed a preference for the summary NGIS reconciliation format because of concerns they have about investors' excessive reliance on non-GAAP financial information in the full NGIS format (SEC 2009, 2010). Further, the summary NGIS reconciliation is the most common pro forma reconciliation used in practice. Given these overall findings, the SEC may wish to revisit this decision because our results suggest that their concerns about the full NGIS format may not be warranted.

In summary, our two findings indicate that the summary NGIS format increased the participants' emphasis on non-GAAP earnings performance versus the full NGIS format when making investment decisions. However, even though the summary NGIS format increased the weight applied to non-GAAP earnings performance, the summary NGIS format did not increase the perceived non-GAAP earnings performance relative to a full non-GAAP reconciliation condition. In fact, we found that the participants in the summary NGIS reconciliation format assessed the overall non-GAAP earnings performance significantly *lower* than those participants receiving the full NGIS format reconciliation. Taken together, our findings suggest

[16] If the outlier that was excluded from our sample is included as part of the analysis, then the results are as follows: Diff. = 232.50, Z = 1.10; p = 0.136.

that investors' evaluation and weighting of highly aggregated and isolated earnings information may be processed differently. Our finding regarding the weighting of the non-GAAP earnings performance is consistent with other accounting studies that suggest that the highly summarized and isolated nature of non-GAAP earnings information in the summary NGIS format (versus the full NGIS format) increases the weighting of this information when making subsequent investment decisions. However, our study also finds that the evaluation of this information is likely to depend on the nature of the details of the non-GAAP earnings information.[17] In particular, this finding extends the Maines and McDaniel (2000) study, which found no differences in the evaluation of accounting information based upon format.

Finally, the results of this study may be of interest to the SEC if they continue to consider the possible adoption of International Financial Reporting Standards (IFRS) by U.S. companies. The "Roadmap" issued by the SEC in November of 2008 discusses the potential use of IFRS by U.S. issuers and discusses various potential requirements for reconciliation from IFRS-based financial statements to U.S. GAAP (SEC 2008). In addition, the SEC (2008, 70) indicates that after the initial time period during which reconciliations might be required, "nothing would prevent a U.S. issuer from voluntarily disclosing such U.S. GAAP information to the market that it believes may be useful for investors." Given the findings of our study, the SEC may want to carefully consider the format of any potential reconciliation between IFRS-based and U.S. GAAP-based financial information.

As with any research study, the findings must be considered along with the limitations. One limitation relates to the experimental materials provided to the participants. The participants did not receive all of the financial information that they would normally examine before they made their investment decision. However, this type of limitation is typical for most experimental studies and is necessary in order to make the experiment doable given time constraints on the availability of participants. An additional limitation of the study relates to the fact that we only examine a situation in which non-GAAP earnings are higher than GAAP earnings. Although this is the most common situation in practice and is consistent with prior literature examining pro forma reconciliations, future research can examine whether the format effects we found in our study generalize to reconciliations in which GAAP earnings are higher than non-GAAP earnings. Despite these limitations, our research study makes some important contributions to understanding how the presentation of pro forma reconciliations required under Reg G may affect investors' financial assessments and investment decisions. Finally, because our study focuses on investment decisions for nonprofessional investors, future research can examine whether the results of our study extend to investment decisions made by professional investors.

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[17] Although no normative benchmark exists for evaluating the quality of these assessments, the detailed non-GAAP income statement provided in the full NGIS format would potentially allow investors to make a more informed decision about the firm's non-GAAP earnings performance. In our experiment, the hypothetical technology company is one in which the non-GAAP earnings information is more favorable than the GAAP information (non-GAAP income versus GAAP loss). Thus, the full NGIS format that provided detailed information about the nature of this favorable non-GAAP income resulted in a higher assessed non-GAAP earnings performance than the summary NGIS format.

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APPENDIX A

Bord Corporation
Consolidated Income Statement and Reconciliation between Non-GAAP Results Included in the Press Release and GAAP Results
Years Ended August 31, 2012 and 2011
(Amounts in Millions)

	Year Ended August 31, 2012			Year Ended August 31, 2011		
	GAAP	**Adjustments**	**Non-GAAP**	**GAAP**	**Adjustments**	**Non-GAAP**
Net Sales Revenue	$8,285	—	$8,285	$7,300	—	$7,300
Operating Expenses:						
Cost of Sales	6,294	(15)[a]	6,279	5,522	(16)[a]	5,506
Research and Development	413	(5)[b]	408	385	(19)[b]	366
SG&A	1,437	(45)[a]	1,392	1,287	(47)[a]	1,240
Restructuring Expenses	27	(27)[c]	—	39	(39)[c]	—
Amortization of Purchased Intangibles	97	(97)[d]	—	78	(78)[d]	—
Total Operating Expenses	8,268	(189)	8,079	7,311	(199)	7,112
Operating Income (Loss)	17	189	206	(11)	199	188
Interest Income (Expense), Net	(22)	—	(22)	(19)	—	(19)
Income (Loss) before Tax	(5)	189	184	(30)	199	169
Income Tax Benefit (Expense)	1	(47)[e]	(46)	8	(50)[e]	(42)
Net Income (Loss)	($4)	$142	$138	($22)	$149	$127
Earnings (Loss) per Share	($0.03)	$1.14	$1.11	($0.17)	$1.15	$0.98

Adjustments Effect on Non-GAAP EPS: (2012) [2011]:
[a] Share-based compensation expense: (2012: +0.48) [2011: +0.48].
[b] In-process research and development: (2012: +0.04) [2011: +0.15].
[c] Restructuring expenses: (2012: +0.22) [2011: +0.30].
[d] Amortization of purchased intangibles: (2012: +0.78) [2011: +0.60].
[e] Adjustment for taxes: (2012: −0.38) [2011: −0.38].
Total effect of a–e: (2012: +$1.14) [2011: +$1.15].

The non-GAAP results exclude certain expenses because management does not believe that the excluded items are reflective of ongoing operating results and they believe that the non-GAAP earnings are more relevant in assessing the core earnings for Bord Corporation. For example, share-based compensation expenses have been excluded since management views the valuation of options as theoretical and unrelated to the company's operating performance. Also, it is not an expense that requires or will require a cash payment by the company. In-process research and development costs, restructuring expenses, and amortization of purchased intangibles are excluded since these are expenses that are incurred infrequently and are generally unpredictable. Further, management believes that their exclusion provides a more meaningful evaluation of current operating performance. Finally, the adjustment for taxes considers the related tax effect for the exclusion of these expenses.

APPENDIX B

Bord Corporation
Consolidated Income Statement
Based on Generally Accepted Accounting Principles (GAAP)
Years Ended August 31, 2012 and 2011
(Amounts in Millions)

	2012	2011
Net Sales Revenue	$8,285	$7,300
Operating Expenses:		
Cost of Sales	6,294	5,522
Research and Development	413	385
SG&A	1,437	1,287
Restructuring Expenses	27	39
Amortization of Purchased Intangibles	97	78
Total Operating Expenses	8,268	7,311
Operating Income (Loss)	17	(11)
Interest Income (Expense), Net	(22)	(19)
Income (Loss) Before Tax	(5)	(30)
Income Tax Benefit (Expense)	1	8
Net Income (Loss)	($4)	($22)
Earnings (Loss) per Share	($0.03)	($0.17)

APPENDIX C

Bord Corporation
Reconciliation between Non-GAAP Results Included in the Press Release and GAAP Results
Years Ended August 31, 2012 and 2011
(Amounts in Millions)

	Year Ended August 31, 2012	Earnings (Loss) Per Share	Year Ended August 31, 2011	Earnings (Loss) Per Share
GAAP Net Income (Loss)	($4)	($0.03)	($22)	($0.17)
Non-GAAP Adjustments:				
Share-Based Compensation Expense	60	0.48	63	0.48
In-Process Research and Development	5	0.04	19	0.15
Restructuring Expenses	27	0.22	39	0.30
Amortization of Purchased Intangibles	97	0.78	78	0.60
Adjustment for Taxes	(47)	(0.38)	(50)	(0.38)
Non-GAAP Net Income	$138	$1.11	$127	$0.98

The non-GAAP results exclude certain expenses because management does not believe that the excluded items are reflective of ongoing operating results and they believe that the non-GAAP earnings are more relevant in assessing the core earnings for Bord Corporation. For example, share-based compensation expenses have been excluded since management views the valuation of options as theoretical and unrelated to the company's operating performance. Also, it is not an expense that requires or will require a cash payment by the company. In-process research and development costs, restructuring expenses, and amortization of purchased intangibles are excluded since these are expenses that are incurred infrequently and are generally unpredictable. Further, management believes that their exclusion provides a more meaningful evaluation of current operating performance. Finally, the adjustment for taxes considers the related tax effect for the exclusion of these expenses.

The above Non-GAAP adjustments affect the Non-GAAP Income Statement as follows:

- The $60 million adjustment for share-based compensation reduces cost of sales by $15 million and SG&A expense by $45 million.
- The $5 million adjustment for in-process research and development reduces research and development expense by $5 million.
- The $27 million adjustment for restructuring expenses and the $97 million adjustment for amortization of purchased intangibles reduce the identically described expenses.
- The $47 million adjustment for taxes increases income tax expense by $47 million.