

**The Joint Effect of Voluntary Non-Financial Disclosure and Assurance
on Company Valuation Judgments**

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ABSTRACT: This study examines whether the voluntary provision of non-financial performance indicators (as part of the Balanced Scorecard framework) and assurance on this information impacts on stock price estimates in an experimental setting. A controlled experiment was performed on accountants who were provided with a case study containing excerpts from a fictitious company's annual report. In this case study the variables were manipulated in a 2 (positive and negative non-financial performance indicators) x 2 (assurance and no assurance) + 1 (base case) between-subjects design. Participants were then asked to assess whether the company's stock price would increase, decrease or stay the same based on the information provided. It was found that the non-financial performance indicators had a very significant effect in the expected directions on stock price estimates. Assurance also had a significant effect on stock price estimates but only when the non-financial information was positive, suggesting that the value of assurance is context specific.

Key Words: *Non-financial Performance Indicators; Value of Assurance; Behavioral Accounting*

INTRODUCTION

This study is an experimental evaluation of whether voluntary disclosures of non-financial performance indicators in a Balanced Scorecard framework impact on financial statement users' stock price estimates. It also evaluates the associated impact of assurance on this information.

This study is important to business, regulators, analysts and professional practice because it provides evidence about the value of providing non-financial performance indicators to the market and the associated impact of assurance. This will be of interest to managers in companies considering enhanced disclosure policies, regulators considering mandating disclosure of this type of information and analysts deciding how to use this information. The value of providing assurance should be of interest to the accounting profession as well as managers considering purchasing these services.

The results show non-financial performance indicators in the form of a Balanced Scorecard have a very significant impact on the stock price estimates of users. As well as providing evidence of the value of non-financial disclosure it shows specifically that the Balanced Scorecard framework may be appropriate for external disclosure. This proposition is inconsistent with the original view of the Kaplan and Norton who developed the Balanced Scorecard. They did not believe that it was appropriate for external disclosure (Kaplan and Norton 1993). The study also provides evidence that the value of assurance is context specific. Rather than adding value in all circumstances it was found that assurance only added value when the non-financial information disclosure was positive.

THEORY AND HYPOTHESES

Disclosure of Non-financial Information

Financial analysts, investors and valuers all use information in the financial statements of companies to make judgments about future company performance. Despite the obvious importance of this role, there are claims that the relevance of financial reporting is declining (Eccles et al 2001), although others suggest that the empirical evidence is mixed on this question (Kachelmeier and King 2002). However, irrespective of the empirical debate on the relative decline (or not) in the value of financial reporting there have been calls from a number of individuals and groups for greater disclosure of non-financial information by corporations (American Institute of Certified Public Accountants (AICPA) 1994; Eccles et al. 2001; Lev 2001). In response to calls for greater disclosure, the Financial Accounting Standards Board (FASB) (2001) produced a report called “Improving Business Reporting: Insights into Enhancing Voluntary Disclosures” to help companies improve their business reporting in relation to voluntary disclosures. This report did not state that non-financial performance measures must be disclosed but that companies should be encouraged to voluntarily report this type of information. Following from this report, a committee was set up to review the academic research with respect to this type of information. From the academic literature, they summarize that non-financial performance measures are relevant for predicting future financial performance and valuing corporate equity (American Accounting Association Financial Accounting Standards Committee (AAA FASC) 2002). However, they also note that the ability of investors to use this information is hampered by the non-comparability of measures or formats and there is little

evidence concerning the reliability of these measures, suggesting that further research is warranted.

Studies have shown improved quality of corporate disclosure *per se* is associated with direct capital market benefits by increased stock prices (Botosan 1997) or through indirect capital market benefits, such as increased liquidity or analyst following (e.g. Botosan and Harris 2000; Healy et al. 1999; Lang and Lundholm 1996). Other studies have more specifically tried to evaluate the value relevance of non-financial performance indicators. Amir and Lev (1996) looked at the value relevance of non-financial information in the wireless communications industry. They found that non-financial indicators such as population size and market penetration are highly value relevant. In this industry, financial information in itself was largely irrelevant for security valuation, however, combined with non-financial information earnings did contribute to security prices. Ittner and Larcker (1998a) investigated whether customer satisfaction is a good predictor of financial performance. They suggested that non-financial indicators of investments in “intangible” assets might be better predictors of future financial performance than historical accounting measures. Their study used customer and business unit data and found modest support for claims that customer satisfaction measures are leading indicators of customer purchase behavior, growth in the number of customers, and accounting information. Further research on whether customer satisfaction measures are leading indicators of financial performance was provided by Banker et al. (2000). They used time series data for 72 months from 18 hotels to provide evidence on the behavior of non-financial measures and their impact on firm performance. Their results indicate that non-financial measures of customer satisfaction are significantly associated with future financial performance and contain

additional information not reflected in the past financial measures. These studies provide some evidence of an association between certain types of non-financial performance measures and firm performance. However, a cautionary note from the AAA FASC (2002) is that studies relying on a regression methodology measure “association” rather than “causation”. Therefore they do not actually tell us whether investors use the non-financial performance measures, it may be that they use other information that is correlated with the non-financial performance measures in their decision making processes.

Evidence on the importance of non-financial performance measures is also highlighted in a study by Ittner et al. (1997) that showed many firms use non-financial measures such as product quality, customer satisfaction and market share to evaluate and reward managerial performance. Of the 317 firms in their sample 36 percent employed non-financial measures in evaluating CEO performance, with a mean weighting placed on non-financial performance across all firms of 13 percent (Ittner et al. 1997). The rewarding of management based on these types of measures indicates that they are seen as value relevant information.

These studies provide evidence of the value of enhanced quality of disclosure and the value of increased disclosure of some types of non-financial performance indicators. However, external disclosure is varied, unstructured and uncommon. The AAA FASC (2002) raised the issue of whether companies should use an integrated framework for disclosure of non-financial and financial measures but questioned the ability of stock market participants to use this type of information appropriately. This was based on the results of the studies that questioned how well even managers within firms could understand the linkage of this type of information and profitability (Banker et al. 2000;

Ittner and Larcker 1998b). However they concluded by stating that "...the FASB should investigate and encourage the development of models and frameworks that enhance the relevance of financial performance measures via the inclusion of non-financial performance measures." (AAA FASC 2002, 361) This paper provides further evidence of the value of disclosure of non-financial information to investors in an experimental setting. Specifically, it will look at the impact of disclosure of non-financial performance indicators within a *structured* framework by using the Balanced Scorecard in an experimental setting. This has not been examined in the literature to date.

This study proposes that the Balanced Scorecard is a useful structured framework to disclose a firm's non-financial performance. The Balanced Scorecard is a performance measurement approach that is based on integrating leading indicator non-financial measures with financial ones (Kaplan and Norton 1992). It also emphasizes the importance of linking non-financial performance to strategy (Kaplan and Norton 1993). Kaplan and Norton (2001) suggest that the Balanced Scorecard is a way to assist in creating and deploying intangible assets such as customer relationships, innovative products and services, high quality and responsive operating processes, and skills and knowledge of the workforce. However, they do not think it is appropriate to try and put the value of these intangible assets on the balance sheet. They suggest that "The scorecard does not attempt to 'value' an organization's intangible assets, but it does measure the assets in units other than currency." (Kaplan and Norton 2001, 89)

The obvious question is that if it is "value relevant" as an internal management tool, why would it not be useful information to investors and analysts of the company? Eccles et al. (2001, 5) suggest that information on a broader range of performance measures has as

much relevance to analysts and investors as to managers. In particular because they believe many of these measures such as delivery performance, service quality and customer satisfaction are leading indicators of future earnings (Eccles et al. 2001, 17). However, Kaplan and Norton (1993) do not think that the Balanced Scorecard approach is easily adapted to the needs of the investment community. They believe the scorecard primarily makes sense for business units with a well-defined strategy and the problem is that most companies have several business units. Another consideration is that even for companies where it might be appropriate competitive sensitivity constrains disclosure of the information. They go on to say that even if it was more suited to external reporting, the financial community shows very little interest in making the change from financial to strategic reporting (Kaplan and Norton 1993). However, recent publications (AAA FASC 2002; Eccles et al. 2001; FASB 2001) suggest there is now more interest in making these types of changes to the reporting framework.

In summary, there have been calls for greater disclosure of non-financial information and there has been *some* evidence to suggest benefits have arisen from this type of disclosure. However, due to the lack of disclosure of this type of information in the marketplace, this study evaluates the benefit of additional disclosure of non-financial information in an experimental setting through its impact on stock price estimates.

If the non-financial performance indicators contained in the Balanced Scorecard are value relevant, the information hypothesis suggests that it will therefore improve investor decision-making and reduce uncertainty. The information hypothesis (Fama and Laffer 1971; Wallace 1980) suggests the following three benefits in providing information to the financial markets:

- (1) improved decision making due to decreased firm to market information asymmetry,
- (2) reduced investor risk due to decreased uncertainty, and
- (3) enhanced trading profits due to lower transaction costs.

If non-financial measures are value relevant because they are leading indicators of financial performance, improved decision-making and decreased uncertainty will be reflected in a higher relative stock price estimates when positive non-financial indicators are disclosed and a lower relative stock price estimates when negative non-financial indicators are disclosed.

From the above discussion, the following hypotheses are proposed:

H_{1a}: Disclosure of positive non-financial performance indicators will increase users' stock price estimates.

H_{1b}: Disclosure of negative non-financial performance indicators will decrease users' stock price estimates.

Assurance Services and Non-financial Information

Since the release of the Elliott Report (AICPA 1997), there has been much discussion and debate about the role of assurance services in the future of the auditing profession. One of the potential areas of growth in assurance services is seen to be in the assurance of entity performance measures (AICPA 1997). Many of these entity performance measures would be of a non-financial nature and are consistent with the model proposed by the Jenkins Committee (AICPA 1994). Percy (1999) suggests that while the financial statements once fulfilled all of the information needs of stockholders and

stakeholders, there is now a push towards better management and analysis of operational reviews and reports. He believes there will be demand in these reports for the use of non-financial performance measures to assess the quality of a company and its ability to develop into the future. Elliott (1998, 2) sees a very clear linkage between the historical financial statement audit and assurance of new information. He states: “The audit provides assurance that an information set presented to investors and creditors is reliable. But the marketplace need for high-quality information is far greater than just the need for reliable historical-cost-based financial statements.”

The expectation that assurance will affect investors’ judgments comes from the information hypothesis, which asserts that independently audited information reduces information asymmetry and decreases uncertainty (Wallace 1987). This suggests that investors increase reliance on voluntary disclosure of information when assurance is provided on that information. There is significant evidence that shows the demand for audits in regulated and unregulated environments to support this theory (Abdel-khalik 1993; Chow 1982; Watts and Zimmerman 1983). Further support for the information hypothesis is provided by studies that have shown that the market places a stock price premium on independently audited information (Dopuch et al. 1986; Willenborg 1999). Although these studies have all looked at audits of financial statements, there are good arguments to suggest that this will also apply to assurance of information as provision of assurance services is generally considered a natural extension of the traditional financial audit role (Elliott 1998).

A few studies have examined the value of these new assurance services to users of information. Fargher and Gramling (1996) used an experimental setting to look at the

assurance on the Performance Presentation Standards of the Association for Investment Management and Research. They found that assurance did not affect users' perceptions of information credibility or their investment decisions. Hunton et al. (2000) assessed the impact of electronic commerce assurance on earnings forecasts and stock price estimates of financial analysts. They found that auditor provided electronic commerce assurance has a positive impact on earnings forecasts and stock price estimates. The present study will add to this literature by examining the value of assurance on non-financial information in an experimental setting.

However, the voluntary disclosure of non-financial information also raises questions about how this disclosure will be perceived by users, which may affect how users value the assurance. Attribution theory is concerned with the process by which individuals assign causes to events and the consequences of those perceptions (Kent and Martinko 1995). Heider (1958), who is considered to be the founder of attribution theory said that individuals function as "naïve psychologists," developing causal explanations for significant events.

To motivate their study on investors' reactions to analyst reports, Hirst et al. (1995) drew from the attribution and persuasion literature. One study they referred to was by Eagly and Chaiken (1975) who stated that attributions depend on: (1) the recipient's 'investor' ex ante expectation of the communicator's 'manager' message, and (2) whether the communicator's conclusion confirms or disconfirm the expectation. Further, Eagly et al. (1978) found that interpretation of voluntary disclosure is not only a function of the content of the disclosure, but also of the recipient's perception as to why the disclosure was made. Applying this to voluntary disclosure by corporations, the question is whether investors will

perceive certain disclosures as self-serving. Koonce and Mercer (2002), in relating attribution theory to a financial context, suggest that investors will discount self-serving statements if they are recognized as such. Applying this theoretical framework to voluntary disclosures of non-financial information, it is expected that investors would discount positive disclosures as self-serving but would not adjust negative disclosures in the same way because in most cases they would not be construed as self-serving.¹

When the voluntary provision of non-financial information is positive, it is expected that users will perceive the information as self-serving. Given this perception, attribution theory suggests that users would be more uncertain about the validity of the information and discount it. In these circumstances and given the expected benefits from provision of assurance to reduce uncertainty as per the information hypothesis, it is expected that assurance would have a positive effect on users' stock price estimates. However, it is unlikely that voluntary disclosure of negative non-financial information would be perceived as self-serving in most circumstances, therefore it is not expected that assurance would make any difference to users' stock price estimates. The following hypotheses are therefore proposed:

H_{2a}: When there is disclosure of positive non-financial performance indicators, provision of assurance increases users' stock price estimate.

¹ Some evidence supporting this assertion comes from a question in the research instrument that asked participants their perceptions of the reliability of the financial information on an 11 point Likert scale with '0' not reliable and '10' very reliable. A t-test found the assessed reliability of the financial information was significantly higher when the non-financial disclosure was negative (mean 5.98) compared to when it was positive (mean 5.40) ($t=-1.97, p=0.025$).

H_{2b}: When there is disclosure of negative non-financial performance indicators, provision of assurance does not affect users' stock price estimate.

EXPERIMENTAL METHOD

The participants were provided with a case study containing excerpts from a fictitious company's annual report, including: company information; non-financial performance indicators; financial statements; and audit and assurance (if applicable) reports. They were asked to assess whether the company's stock price would increase, decrease or stay the same based on the information provided. The experiment was a between-subjects 2 (positive and negative non-financial performance indicators) x 2 (assurance and no-assurance) + 1 (control group) design. As a consequence, there were five discrete versions of the experiment. To control for order effects the order of the financial and non-financial information was reversed to create a total of nine versions of the experiment.² The participants were 209 accountants undertaking a course as part of their professional training to become Chartered Accountants.³ Libby et al. (2002) suggest that the goals of the experiment should drive the choice of the subjects and to avoid using more sophisticated subjects than is necessary to achieve those goals. The objectives of this experiment required a participant group that represented financial statement users. However, assessing the stock price is quite a complex task so participants also needed a good knowledge of financial statement and security valuation concepts, i.e. a good level of

² The ANOVA was run with the different orderings included as a covariance. The order was not found to be significant in assessments of stock price ($F=0.12$, $p=0.732$).

³ The total original sample size was 232. Participants who completely missed the manipulations of the independent variables were removed (22 removed who missed the assurance manipulation) as well as outliers in responses given to the dependent variable (one removed). Tests that were run on the original sample data found consistent results to the results reported in this paper.

financially literacy. The group of accountants who participated in the experiment were appropriate because about half of them owned stock and they had the required knowledge to complete the task. In their self evaluation of financial statement knowledge they rated themselves with a mean of 6.4 (median of 7) (scale 0 (naïve) – 10 (sophisticated)).⁴ Of the participants who owned stock, they had an average stockholding of five. 80 percent of the participants had between one and four years accounting experience including 43 percent having between two and three years. 40 percent of participants worked in audit and assurance and 32 percent in tax.

The financial statement information incorporated into the case study was originally developed from a real listed company on the Australian Stock Exchange and the Balanced Scorecard information was based on the case developed by Lipe and Salterio (2000), which was based on a case study originally developed by Kaplan and Norton (1996). The original version of the case study was pilot tested on eight professional financial analysts by the protocol analysis methodology. This pilot test resulted in a number of changes to the case to ensure realism and cue salience in the experiment.

The experiment held constant all information except for the information directly related to the two independent variables. The main information held constant was the company information and the financial statements. The company information was not manipulated and just provided some general information about the company and the industry in which it operated, as well as the average and range of price earnings ratio for the industry. All of this information was designed to be “average” and not to raise any concerns

⁴ The ANOVA was run with the response to this question as a covariance. It was not found to be significant in assessments of stock price ($F=1.46, p=0.229$).

for the participant evaluating the annual report. The three basic financial statements comprising the Statement of Financial Performance, Statement of Financial Position and Statement of Cash Flows were provided with two years of comparative information and were also not manipulated. The financial information was accompanied by an unqualified audit report that was not manipulated in the experiment. A control group of participants was asked to make a stock price estimate for the company based on the provision of the base information alone. This provided a benchmark against which to measure the impact of provision of non-financial performance indicators.

The first independent variable was the provision of non-financial performance indicators. This is a voluntary disclosure because there are no legal or professional reasons to provide it. This disclosure was in the form of a Balanced Scorecard outlining performance measures related to the strategy employed by the company. It was provided with both positive and negative information content. This was to try and isolate the effect of providing value relevant information from an effect of just providing more information *per se*. A variation in users' judgments from providing positive compared to negative Balanced Scorecard information would provide evidence of the value of that *type* of disclosure. The development of the two different types of Balanced Scorecards was by a pilot test on 61 3rd year commerce students. Five versions of each of the measures used in Lipe and Salterio (2000) were developed with the figures manipulated to ascertain 'salience' as to whether they were positive or negative as follows: original value; -50%; -25%; +25%; +50%. In a between-subjects design the students were then asked to rate these measures on an 11 point Likert scale (0 (very poor) – 10 (very good)). The positive version of the Balanced Scorecard for the experiment was then compiled from manipulations that rated close to

seven and the negative version by measures close to three.⁵ Normally a Balanced Scorecard includes a financial measure. This was not provided because in this experiment the financial statements were included, thereby negating any value in incorporating financial measures into the Balanced Scorecard.

The second independent variable was the provision or absence of an assurance report on the non-financial information. The assurance report provided related to a high level of assurance based on the guidance in the ISA (International Standard on Auditing) 100, Assurance Engagements.

After the participants had read the case materials they were given the stock price on the day preceding the release of the annual report.⁶ They were then asked whether the stock price would increase, decrease or stay the same and the percentage of that change (if applicable). This was done rather than asking them to estimate a stock price without a benchmark because of the suggestion by Libby et al. (2002) that it is better to measure directional effects rather than point predictions. They were next required to turn the page to answer some further questions that included manipulation checks. Finally, the last section of the experiment asked them a number of biographical questions. The experiments were conducted in a controlled setting during courses undertaken in Sydney and Melbourne and participants were given 25 minutes to complete the case. Participants were given a \$20 voucher as compensation for their time in performing the experiment.

⁵ This adjustment was made because of the lack of salience of the positive versus negative Balanced Scorecard manipulations used in the protocol analysis pilot test.

⁶ This was calculated in the same way as was observed from the valuations performed by financial analysts in the protocol analysis. The assessment of the expected average net profit after tax was multiplied by the estimate of the company's price earnings ratio (based on the industry average price earnings ratio) to calculate the stock price estimate.

RESULTS

Hypothesis Tests

The primary analysis to test the hypotheses is through an ANOVA with *post hoc* analyses as shown below in Table 1. The first hypotheses tested assess the effects of non-financial performance indicators on participants' assessment of the company's stock price.

Insert Table 1 here

H_{1a} and H_{1b} relate to the perceived value of the non-financial performance indicators compared to the control group. The ANOVA in Table 1, Panel B shows a significant main effect for the non-financial information variable indicating that non-financial performance indicators affect stock price estimates. To confirm the hypotheses *post hoc* tests were required because they propose that a difference will be observed for both of the positive and negative disclosures compared to the control group. H_{1a} proposes that disclosure of positive non-financial performance indicators will increase users' stock price estimates. As can be seen in Table 1, Panel C, the stock price when positive non-financial information is provided is \$0.14 higher than the control group and that difference is significant from the *post hoc* test performed ($p=0.009$), supporting H_{1a}. H_{1b} proposes that disclosure of negative non-financial performance indicators will decrease users' stock price estimates. As can be seen from Table 1, Panel C, when negative non-financial information is provided the stock price is \$0.12 lower than the control group and that difference is significant in the *post hoc* test performed ($p=0.039$), supporting H_{1b}. The next two hypotheses (H_{2a} and H_{2b}) test the proposition that the value of assurance is context specific,

i.e. the signal of the non-financial performance indicators will vary the value that users' place on the assurance provided through their stock price estimates. As can be seen in Table 1, Panel B, there is a significant interaction effect observed between the non-financial and assurance manipulations, providing evidence that an interrelationship exists between these two variables.

To test the hypotheses, simple effects tests were performed as shown in Table 1, Panel D. H_{2a} proposes that when there is a disclosure of positive non-financial information, provision of assurance will increase users' stock price estimates. As can be seen in Table 1, Panel A, when the non-financial information is positive and assurance is provided the stock price was \$6.12, whereas when assurance was not provided the stock price was \$5.99. The simple effects t-test shown in Table 1, Panel D shows that this difference was significant ($t=2.13$, $p=0.019$, one-tailed), thereby supporting H_{2a} .

H_{2b} proposes that when there is disclosure of negative non-financial performance indicators, provision of assurance does not affect users' stock price estimates. From the simple effects test performed in Table 1, Panel D, the difference in the mean stock price of \$5.77 when assurance was provided and \$5.82 when assurance was not provided was found to be not significant ($t=-.83$, $p=0.410$), thereby supporting H_{2b} .

Sensitivity Analyses

There were a couple of factors that could possibly bias the results that are explored in this section. Firstly, whether the results were driven by the auditors in the group. Secondly, whether responses might be different dependent on whether the participants were stockholders.

Of the CA candidates who performed the experiment, 40 percent were auditors. To ensure that results were not being driven by this group an ANOVA was run to with a separate independent variable indicating whether the participant was an auditor or not. The descriptive statistics and ANOVA showing the differences between the two groups' stock price estimates are shown below in Table 2.

Insert Table 2 here

From the ANOVA results shown in Table 2, Panel B, it can be seen that there are no significant differences in responses between the auditors compared to non-auditors. The closest result to being significant is the interaction between auditors and assurance. From review of Table 2, Panel A, it can be seen that this interaction is due to auditors undervaluing the audit function rather than overvaluing it as may have been expected. When both positive and negative non-financial information is provided, non-auditors place a higher value on the stock price when assurance is provided and a lower value when assurance is not provided than auditors.⁷ The other possible concern was whether the holding of stock made a difference to stock price estimates. The ANOVAs were re-run with participants' response to whether they owned stock included as a covariance. This was found to make a significant difference in participants' estimation of the company's stock price estimate ($F=5.86$, $p=0.016$). As a result of this an ANOVA was performed for the stock price estimation that included whether the participants owned stock or not as an

⁷ In fact, when the non-auditors are examined alone stronger support would have been found for H_{2a} ($t=2.33$, $p=0.012$, one-tailed).

independent variable in the analysis. Table 3 shows the differences in stock price estimates and the ANOVA performed.

Insert Table 3 here

As can be seen from the above, the stockholding variable was found to be significant in the ANOVA ($F=5.46, p=0.020$). In looking at the mean differences, it can be seen that this significant difference is due to stockholders consistently adopting more conservative stock price estimations than non-stockholders. There were no interactions between whether the participants owned stock and the non-financial or assurance variables. This provides some assurance that the validity of the results is not affected by the differences due to whether the participants owned stock or not.

Manipulation and Other Checks

The results of the manipulation checks indicate that the participants saw the two variables as intended. For the non-financial information variable, participants were asked to assess on an 11 point Likert scale the level of the non-financial performance indicators with 0 “very poor” and 10 “very good”. The group in the positive condition rated the information better than the negative condition with a mean of 6.77 compared to 5.08 ($t = 5.77, p < 0.001$). For the provision of assurance, participants were asked on an 11 point Likert scale the level of assurance provided by the external auditors on the non-financial indicators with 0 “no assurance” and 10 “high assurance”. The group in the assurance condition rated the assurance level significantly higher with a mean of 6.84 than the group

in the non-assurance condition with a mean of 3.90 ($t = 6.45, p < 0.001$). These results suggest that the manipulations were seen by the participants as intended. However, a greater difference was expected between the groups in the assurance versus the no-assurance condition because of the dichotomous nature of this variable. It seems that there were some participants who hardly noticed the assurance report at all, which may be due to the fact that it is very rarely produced in practice.⁸ There were also some participants who appear to have attributed some assurance from the audit report on the financial statements to the non-financial indicators where there was no assurance provided.⁹

ANOVAs were also run to check whether order manipulations in the case made a difference. This was not found to be a significant factor in participants stock price estimation ($F=0.21, p=0.645$).

CONCLUSION

Contribution

This study provides experimental evidence of the impact of voluntary disclosure of structured non-financial information on stock price estimates and the effect of assurance on that information.

Two main findings emerge from the results. Firstly, non-financial performance indicators in the form of a Balanced Scorecard have a very significant impact on the stock price estimates of financially literate users of financial statements. This should be of

⁸ Twenty two participants were removed from the analysis where they rated the level of assurance as '0' when an assurance report was provided or '10' where an assurance report was not provided. The overall results as presented in Table 1 did not significantly change after these participants were removed.

⁹ Some comfort about this possible concern can be gained from the fact that this would work against finding support for Hypothesis 2a.

interest to regulators, users and the accounting profession. If this type of information is value relevant, as these findings suggest, companies will benefit from its disclosure. Of course there are costs associated with the disclosure of proprietary information, and managers need to weigh up whether the benefits outweigh these costs. These findings also indicate that the Balanced Scorecard framework may be appropriate for external disclosure, which is inconsistent with the view of Kaplan and Norton (1993). By experimentally examining the impact of the Balanced Scorecard on external financial statement users the study also provides evidence for the value of one type of structured disclosure of non-financial information, as called for by the AAA FASC (2002).

Secondly, this study shows that the value of assurance is context specific. Assurance made a significant difference to stock price estimates when the non-financial information disclosure was positive, but did not make any difference when the non-financial information disclosure was negative. It was expected that users would be more uncertain about the validity of the positive information disclosures because of concerns about the motivations of managers in making the disclosure and therefore (according to attribution theory) it is expected that they would discount it. This creates a situation where there would be expected to be a benefit from provision of assurance to reduce this uncertainty and this was found to be the case. This has implications for managers by showing that if voluntary disclosures of non-financial information are positive then there is value in engaging an auditor to attest the information but if the disclosures are negative it would seem that assurance does not add value for the company. The information hypothesis asserts that independently audited information reduces information asymmetry and

decreases uncertainty in a broad sense. This study shows that the value of assurance on disclosure is not independent of the signal provided by the disclosure.

Future research should examine the value of alternative models of non-financial information disclosure in experimental settings. The impact of these types of disclosures on the judgments of other user groups should also be evaluated. It would also be interesting to further explore the finding that the value of assurance is not independent of the type of disclosure.

Limitations

The study had some limitations beyond those inherent in experimental studies. The market is made up of participants with a variety of financial literacy levels. Accountants were seen as a good “mid-way” group between financial analysts who have a very high level of this type of expertise and stockholders who often have a more basic financial literacy and understanding of valuation concepts. However, it is accepted that using one group such as this is a limitation. Another possible limitation is that only one type of non-financial disclosure was provided - the Balanced Scorecard. This is partially a limitation associated with the experimental approach. The Balanced Scorecard is also a measurement tool designed only for segments; one Balanced Scorecard would therefore not be appropriate for a company with diverse interests. Finally, the experiment related to only one period and users’ decisions may have been different if they were measured over a multi-period setting.

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TABLE 1

Stock Price Estimations

Panel A: Descriptive Statistics

<u>Non-financial</u>	<u>Assurance</u>		<u>Condition Means</u>
	<u>Provided</u>	<u>Not Provided</u>	
Positive	6.12 (0.35) n = 38	5.99 (0.21) n = 44	6.05 (0.29) n = 82
Negative	5.77 (0.28) n = 42	5.82 (0.27) n = 38	5.79 (0.27) n = 80
Condition Means	5.94 (0.36) n = 80	5.91 (0.25) n = 82	
Base Case			5.91 (0.18) n = 47

Panel B: Analysis of Variance

<u>Source of Variation</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F-Ratio</u>	<u>F-Test p-level</u>
<u>Main Effects</u>					
Non-financial	2.81	1	2.81	41.27	<0.001
Assurance	0.08	1	0.08	1.14	0.287
<u>Interaction</u>					
Non-financial × Assurance	0.36	1	0.36	5.33	0.022
Error	13.91	204	0.07		

TABLE 1 (cont.)

Panel C: Post Hoc Test – Tukey HSD

Non-financial	H1a: Base case versus positive	H1b: Base case versus negative	Positive versus negative
Mean Difference	(0.14)	0.12	0.26
Std. Error	0.05	0.05	0.04
Significance	0.009	0.039	<0.001

Panel D: Planned Comparisons - Assurance

Contrast:	df	t-Statistic	p-level
<u>H2a: Positive Non-financial Information</u> Assurance versus No Assurance	80	2.13	0.019 ¹
<u>H2b: Negative Non-financial Information</u> Assurance versus No Assurance	78	-.83	0.410

¹ One tailed

TABLE 2**Comparison Between Auditors and Non-Auditors – Stock Prices****Panel A – Descriptive Statistics**

	Control	Positive Non-financial/ Assurance	Positive Non-financial/ No Assurance	Negative Non-financial/ Assurance	Negative Non-financial/ No Assurance
Auditors	5.93 (0.25) n=18	6.04 (0.28) n=12	6.01 (0.24) n=18	5.75 (0.32) n=22	5.87 (0.27) n=13
Non-auditors	5.89 (0.13) n=29	6.16 (0.38) n=26	5.97 (0.19) n=26	5.79 (0.24) n=20	5.79 (0.27) n=25
Dif. in mean	0.04	(0.12)	0.04	(0.04)	0.08
Overall	5.91 (0.18) n=47	6.12 (0.35) n=38	5.99 (0.21) n=44	5.77 (0.28) n=42	5.82 (0.27) n=38

Panel B: Analysis of Variance

Source	d.f.	F-statistic	Probability
Auditors	1	0.01	0.909
Auditors x Non-financial	1	0.61	0.436
Auditors x Assurance	1	2.84	0.093

TABLE 3**Comparison Between Stockholders and Non-Stockholders – Stock Prices****Panel A – Descriptive Statistics**

	Control	Positive Non-financial/ Assurance	Positive Non-financial/ No Assurance	Negative Non-financial/ Assurance	Negative Non-financial/ No Assurance
Stockholders	5.88 (0.17) n=27	6.10 (0.36) n=21	5.96 (0.23) n=24	5.72 (0.24) n=14	5.71 (0.20) n=17
Non-Stockholders	5.94 (0.20) n=20	6.16 (0.35) n=17	6.02 (0.19) n=20	5.79 (0.30) n=28	5.90 (0.29) n=21
Dif. in mean	(0.06)	(0.06)	(0.06)	(0.07)	(0.19)
Overall	5.91 (0.18) n=47	6.12 (0.35) n=38	5.99 (0.21) n=44	5.77 (0.28) n=42	5.82 (0.27) n=38

Panel B: Analysis of Variance

Source	d.f.	F-statistic	Probability
Stockholding	1	5.46	0.020
Stockholding x Non-financial	1	0.74	0.390
Stockholding x Assurance	1	0.49	0.487