Does Readability of Accounting Disclosure Matter? A Study on Readability of Accounting Disclosures, the Sensitivity of Investors' Valuation Judgement and Firm Performance

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Abstract: Extant literature proposes that there is a relationship between investors' decision and the readability of disclosures. In this experimental study, we investigated this relationship by considering how the readability of accounting disclosures affect the sensitivity of investors' valuation judgements to outside information as well as the effect of firm performance to this sensitivity given the quality of accounting disclosure (more or less readable). We find that if a firm provides a less readable disclosure, investors tend to be more sensitive to the content of the outside information. Moreover, when the outside information is less supportive, investor's valuation judgement decreases more than when the accounting disclosure is less readable. Our study also finds that an investor's sensitivity to outside information will not be affected by the readability of the accounting disclosure when the firm shows strong performance but not if the firm shows weak or poor performance.

Key Words: readability, disclosure, investors' valuation judgement, firm performance

1. INTRODUCTION

Investors' decisions to hold, buy or sell shares are often based on available information they can access. Oftentimes, this information comes from the announcements or disclosures released by the company. These are also read by analysts who make appropriate recommendations to buy or sell the shares of stocks. Thus, disclosures made by the company matters and affects investor behavior which in turn affects stock values.

One aspect of accounting disclosures that is often overlooked is the readability of these disclosures. Asay et al (2017) documented the first causal evidence of poor readability affecting investor judgement. Their study suggested that investors may feel uncomfortable with their valuation of a company if the disclosure was difficult to read. As a result, investors rely more on outside sources of information. Thus, suggesting that readability of the disclosures or reports ultimately influence a company's ability to communicate clearly and convince investors of their performance.

The concept of readability was further studied by Abernathy et al (2019) where they find that firms with less readable footnotes to financial statements are likely to incur longer audit report lag, higher audit fees, and higher likelihood of incurring a modified opinion. Lehavy et al (2011) and Tan et al (2015) further confirm that readability of reports or disclosure affects the reader's behavior.

Although the exact definition of readability varies, there is a general agreement that it refers to the ease with which a reader can process and comprehend written text (Bonsall et al, 2017). The United States' Securities and Exchange Commission

(SEC) has published *A Plain English Handbook: How to create clear SEC disclosure documents* (SEC, 1998) provided guiding principles in issuing clear and more readable disclosures or reports.

This study explores the impact of a disclosure's readability on an investor's sensitivity to outside information; that is, the degree that an investor's judgement is informed by the content of outside sources. While this study provides no new index for sensitivity, later sections analyse sensitivity through the statistical significance of key interaction variables and graphical representations.

1.1 Problem Statement

Using an experimental design, this study aims to determine the effect of disclosure readability on an investor's sensitivity to outside information and whether the performance of the firm would moderate this effect.

1.2 Theory, Framework and Hypotheses

Following the signaling theory whereby one party, the sender, must choose whether and how to communicate (or signal) information, and the other party, the receiver, must choose how to interpret the signal, this study recognizes that a firm can signal its performance and financial position to its current and prospective shareholders using accounting disclosure. The readability of the disclosure (signal) released by the firm (sender) is hypothesized to affect the investor's (receiver) likelihood of gathering outside information which will in turn affect his value judgement. Generally, firms can only control the information within the accounting disclosures they release. Thus, when disclosures are less readable, investors are more likely to be sensitive to outside information as the experimental study of Asay et al (2017) documented.

Therefore, we expect that an investor will account for outside information to a greater extent if they are faced with a less readable accounting disclosure such as an earnings report (refer to Figure 1).

H_1: Investors' valuation judgements will be more sensitive to outside information after viewing a less readable initial accounting disclosure.

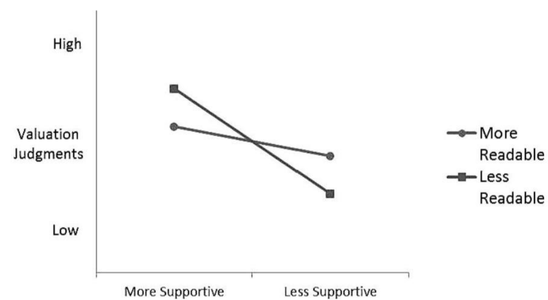

Figure 1. Predicted pattern for H_1 (Asay et al, 2017)

When the information is not neutral such as distinguishing between strong or weak performance of firms, investors would tend to latch onto positive (strong performance) as opposed to negative (weak performance) information. This is based on the optimistic update bias (Garrett & Sharot, 2017). This is particularly relevant in countries such as the Philippines, where short selling is not permitted. Therefore, it is possible that the readability of disclosures would be immaterial provided that the positive sentiment of the report be made out. Asay et al (2017) further argues that investors may over-rely on management reports especially when the report is readable. Thus, performance of the firm moderates the readability of disclosures and investor's value judgment. H_2 and H_3 are formulated to test this using the conceptual framework shown in Figure 2.

Figure 2. Conceptual framework

H_2: The effect of readability on an investors' sensitivity to outside information is reduced when accounting disclosures report strong performance.

H_3: The effect of readability on an investors' sensitivity to outside information is increased when accounting disclosures report weak performance.

2. METHODOLOGY

2.1 Participants

The experiment was participated in by 160 junior students enrolled in either economics, finance, or accounting programs of De La Salle University. They were between the ages of 18 to 23 years old. They

are adequate proxies for non-professional investors since the experimental task does not require specialized accounting knowledge.

2.2 Design and Manipulations

Using a controlled experimental design to test our 3 hypotheses, the study directed the participants to assume the role of prospective investors in a hypothetical firm, Jackson's Beverage Manufacturing Store Inc. However, we developed two versions of the firm's performance – profitable year (strong performance) or incurred losses (weak performance).

To test our hypotheses, we used a 2x2 between-subjects design. We manipulated the readability of the management's earnings report provided by the company by formulating versions that either do (more readable) or do not (less readable) follow the principles in the SEC's (1998) A Plain English Handbook. We also manipulated whether the three sources of outside information are more or less supportive of management's claim in their earnings report. The three (3) sources of outside information – (1) an analyst's report, (2) a report summarizing the consensus forecasts and recommendations of all analysts following the firm, and (3) a news article. The 2x2 between-subject design is presented in Table 1.

Table 1. Design of 2x2 between-subject experiment

	Outside Information	
Earnings Report	Supportive	Unsupportive
More readable	(Readable) x (Supportive)	(Readable) x (Unsupportive)
Less readable	(Unreadable) x (Supportive	(Unreadable) x (Unsupportive)

Both the earnings reports and outside information were pre-tested with 30 individuals who verified that the earnings reports were either more or less readable and the outside information reports were either more or less supportive of management's claims.

Table 2: Tests of Readability

	Readability Measures	
Earnings Report	Flesch Reading Ease	Gunning Fog
More readable	60.1	9.2
Less readable	48.1	12.7

As an additional test, we also performed the calculations of the Flesch Reading Ease and Gunning Fog measure as seen in the research of DuToit (2017). On one hand, a higher Flesch Reading Ease score indicates better readability. On the other hand, a lower Gunning Fog measure indicates readability. Table 2 confirms the expected readability of our instruments.

2.3 Research Procedure

Step 1. Each participant was given a brief introduction describing Jackson's Beverage Manufacturing Store. They were then asked to provide an initial valuation judgement for Jackson's using an 11-point scale with 1 being the lowest and 11 being the highest. This served as the baseline basis to measure the investor's reaction to the different materials (and scenarios) introduced in the experiment.

Step 2. Participants were asked to view the management earnings report describing how the firm's during the most recent quarter.

Step 3. Participants were told that they have the option to view or not to view outside information before providing their second value judgement for the firm. Those who opted to view outside information can either view (1) GlobalMeta Analyst Report (representing an individual analyst's report), (2) Analyst Consensus Summary (summary of analysts consensus forecast), and (3) Yahoo! Finance News story (news article). These three sources were manipulated to either be more or less supportive of management's claims in the earnings report. Those who opted to view outside information were asked to answer a series of comprehension questions per source accessed.

Step 4. Once the participants indicate that they are ready to make an investment evaluation, they were asked to make a final valuation judgement on the firm's stock using an 11-point scale, with 1 being the lowest and 11 being the highest.

No variable performance-based compensation was provided to the participants.

3. RESULTS AND DISCUSSION

3.1 Investors' valuation judgement and sensitivity to outside information (H_1)

Table 3 presents descriptive statistics for the 160 participants' initial and final valuation

judgements, as well as the mean and standard errors and the minimum and maximum ratings.

Table 3. Descriptive Statistics (H_1)

Accounting Disclosure Readability	Outside Information	Initial valuations Mean	Initial valuations Standard Error	Min	Max
More readable	More supportive	7.91358	0.1563448	3	10
	Less supportive	7.679012	0.1898888	2	11
Less readable	More supportive	7.190476	0.166359	3	10
	Less supportive	7.56962	0.1954394	2	11

Accounting Disclosure Readability	Outside Information	Final Valuations Mean	Final Valuations Standard Error	Min	Max
More readable	More supportive	7.765432	0.2479992	2	11
	Less supportive	7.530864	0.1834902	3	10
Less readable	More supportive	7.666667	0.2409184	2	11
	Less supportive	6.594937	0.2499718	2	11

On the average, the participants initially rated the firm within the range of 7 to 8 regardless of the instrument that they were presented. After viewing the management earnings report and outside information (for those who opted), participants adjusted their valuation judgement. To test H_1, we used a one-way analysis of variance (ANOVA) to determine if there are any statistically significant differences between the means of the four independent variables (see Table 4).

Table 4. ANOVA Results (H_1)

Source of variation	SS	df	MS	F-statistics	P-value
Initial valuation	136.825897	9	15.2028774	3.74	***0.002
Readability	10.0284949	1	10.0284949	2.46	0.1175
Outside information	33.1401317	1	33.1401317	8.14	***0.0046
Readability#Outsideinfo	21.0264667	1	21.0264667	5.17	**0.0237
Error		312	4.06921408		

*Significance level *** p<0.01, **p<0.05, *p<0.1.*

The ANOVA results show that there is a statistically significant difference between the initial and final value judgement at 5% significance level. More importantly, outside information (p-value of 0.0046) and the interaction of readability and outside information (p-value 0.0237) shows a significant source of variation for final value judgement. This significant interaction indicates that participants become sensitive to the content of outside information when they initially view a less readable disclosure.

Using the tests of simple main effects, we show the effects of an independent variable to another independent variable within one level. Using the full data sample, Table 5 summarizes the results of the tests of simple main effects which confirms that the content of outside information (p-value of 0.0024) significantly affects the participant's valuation judgement when they initially view a less readable disclosure. This is again indicative of the impact of a disclosure's readability on an investor's sensitivity to outside information. Participants who viewed an initially unreadable disclosure produced valuations that reflected the opinions of outside sources to a greater degree. This is highlighted in the cases where the disclosure and outside sources reflect conflicting opinions of the firm's prospects. Thus, supporting our H_1.

Table 5. Simple Main Effects Results (H_1)

Effect of	df	SS	F-statistics	P-value
Outside info given more readable disclosures	1	2.22839506	0.58	0.4482
Outside info given less readable disclosures	1	46.7616163	9.53	***0.0024
Readability given more supportive outside info	1	0.402244669	0.08	0.7755
Readability given less supportive outside info	1	35.0329358	9.18	***0.0029

*Significance level *** p<0.01, **p<0.05, *p<0.1.*

Figure 3 shows the results of the investors' final valuation judgments from different readability (more or less readable) and outside information (more or less supportive). Generally, final valuation judgement is lower if outside information are less supportive and initial disclosures are less readable and its effect is considerably more than if the outside information is more supportive and initial disclosures more readable as evidence by a steeper slope of the former compared to the latter (-0.0331 vs -0.1399). The greater fluctuation of investor valuations in response to outside information is indicative of the increased sensitivity when investors initially view an unreadable disclosure.

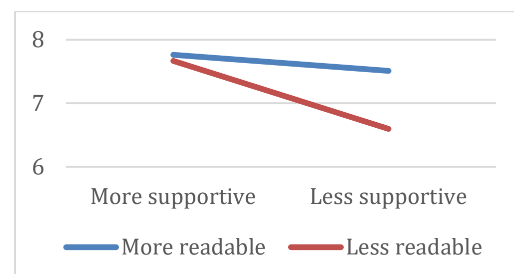

Figure 3. Valuation Judgements

3.2 Readability and outside information based on performance (H_2 and H_3)

To test our hypothesis 2 and 3, we split our sample according to the financial performance of the firm (strong/weak). Table 6 summarizes the descriptive statistics of our divided samples.

Table 6. Descriptive Statistics Accounting for the Firm's Performance (H_2 and H_3)

Strong performing (n=164)				Weak performing (n = 161)			
Readability	Outside source	Initial valuation	Final valuation	Readabilit y	Outside source	Initial valuation	Final valuation
more readable	more supportive	7.93	8.95	more readable	more supportive	7.9	6.55
	less supportive	7.88	8.05		less supportive	7.48	7
less readable	more supportive	7.31	8.79	less readable	more supportive	7.07	6.55
	less supportive	7.45	7.38		less supportive	7.69	5.79

In general, the results of the one-way ANOVA (refer to Table 7) show that firm performance can significantly vary the investor's final valuation judgement is statistically significant at 1% level.

Table 7. ANOVA Results (H_2 and H_3)

Source of variation	SS	df	MS	F-statistics	P-value
Initial valuation	104.646984	9	11.6274426	3.5	***0.0004
performance	237.637947	1	237.637947	71.62	***0.0000
Readability	11.2824067	1	11.2824067	3.4	*0.0661
Outside information	33.4156168	1	33.4156168	10.07	***0.0017
Readability#Outsideinformation	22.8790555	1	22.8790555	6.9	***0.0091
Error	1031.95685	311	3.31818922		

*Significance level *** p<0.01, **p<0.05, *p<0.1.*

To test the effects of readability and financial performance, we conducted tests of simple main effects. The results of the tests of simple main effects shown in Table 8 shows that readability is not significant when financial performance is strong (p-value of 0.1071) but it is significant at 10% level when the financial performance is weak (p-value=0.0923). Thus, we can accept H_3 that the effect of readability on the investor's sensitivity to outside information is increased when the firm performance is weak but reject H_4 that the effect of readability on the investor's sensitivity to outside information is reduced when the firm performance is strong.

Table 8. Simple Main Effects Accounting for the firm's Financial Performance (H_2 and H_3)

Effect of	df	SS	F-statistics	P-value
readability given a strong performance	1	6.6402439	2.63	0.1071
readability given a weak performance	1	14.0016908	2.87	*0.0923
performance given a more readable disclosure	1	120.494444	38.68	***0.0000
performance given a less readable disclosure	1	149.024523	34.9	***0.0000

*Significance level *** p<0.01, **p<0.05, *p<0.1*

Presenting the results of samples split according to financial performance in graphical form (Figure 4), we can see that investor's valuation judgement is reduced if there is less supportive outside information when the firm 's performance is strong. While the reverse is seen when the investor's valuation judgement is increased when there is less supportive outside information when the firm's performance is weak.

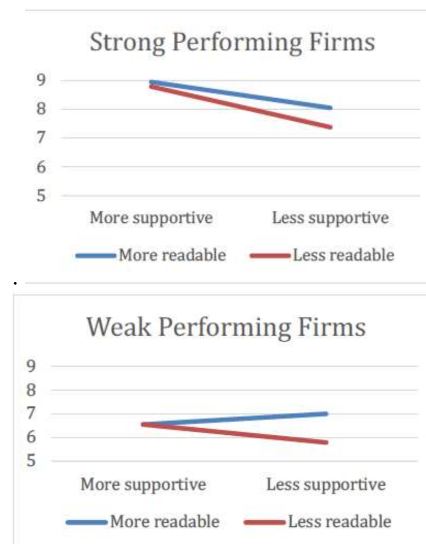

Figure 4. Investor's final valuation judgement comparisons across firms with different financial performance

4. CONCLUSIONS

In this study we investigated how less readable accounting disclosures affect the sensitivity of investors to outside information in making valuation judgements. Using a between-subject experiment, we find support that if a firm provides a less readable disclosure, participants tend to be more sensitive to the content of the outside information. Moreover, when the outside information is less supportive, investor's valuation judgement decreases

more than when the accounting disclosure is less readable. This is potentially explained by the decline in an investor's confidence in his/her own understanding of an unreadable disclosure. As a result, the investor relies on outside information to a greater degree. This corroborates the study of Asay et al (2017).

When a firm is reporting strong financial performance, our results reflect that an investor's sensitivity to outside information will not be affected by the readability of the accounting disclosure. This affirms the optimistic update bias theory, where readers exhibit more confidence and gather less information about a decision when given positive information. In this scenario, investors are more confident and take less effort in gathering or relying on outside information when making investment decisions which may lead to discounting the possible negative outcomes. This is particularly significant for developing markets like the Philippines where short selling is not allowed and investors gain when there is an increase in the value of publicly traded stocks.

However, when a firm reports a weak or poor performance, our results show that the effect of readability on an investor's sensitivity to outside information is increased. This suggests that providing more or less readable accounting disclosures only matters if the firm has weak financial performance. If the firm is in fact reporting weak financial performance, then providing less readable disclosures may limit the managers' ability to effectively communicate with investors. Moreover, this is consistent with previous studies showing that obfuscating financial reports of losing companies makes it more difficult for investors to understand the implications indicated in the report. This makes obfuscation a tool for managers whose companies have performed poorly, since investors react less strongly to less readable disclosures thus minimizing the negative effects of the report (Tan, et. al., 2015). In effect, investors have a reduced processing fluency. This further provides support to the study of Courtis (2004) which concludes that there may be some association between obfuscation and the reporting of "bad" news.

The results prove that attempts in providing low quality information during times of weak performance to control the reaction of the public will result in more adverse results. Further, if management is attempting to obfuscate their information, then chances are investors will simply rely on outside information to arrive at a valuation (Asay et al, 2017). The unreadability of the disclosure is also likely to result in a significantly lower valuation for the firm. This is presumably due to the negative perception that investors get after viewing unreadable disclosures.

Managers of publicly listed companies must consider the implications of having poor disclosure readability when financial performance is weak. This results in having a lower stock valuation due to the decrease in confidence and increase in discomfort brought by poor disclosure readability. This is in line with past studies that show how the readability of disclosures affect the value derived by shareholders. (DuToit, 2017). Additionally, the ability of managers to provide a narrative on how companies would recover from a weak financial position weakens due to the increase in reliance on outside information when disclosure readability is poor. The reliance on outside information stems from the fact that investors do not completely understand the contents of unreadable financial disclosures. This would result in information asymmetry, where investors are making investment judgements without having all the relevant information.

Our results imply that while investors' valuation judgements are affected by the readability of disclosures and supporting outside information, this is moderated by the performance of the firm.

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