An Experimental Study on Providing Intangible Asset Information to Non-professional Investors -From the Perspective of Information Salience-

An Experimental Study on Providing Intangible Asset Information to Non-professional Investors: From the Perspective of Information Salience

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Key Words: Experimental Study, Salience, Intangible Asset, Brand, Non-financial Information

Table of Contents

1. Introduction

In recent years, there has been significant movement regarding intangible assets. The International Accounting Standards Board (IASB) has launched comprehensive review of accounting for intangibles in April 2024 [IFRS Foundation(2024)]. This project aims to assess whether the requirements of International Accounting Standards (IAS) 38 Intangible Assets remain relevant and continue to fairly reflect current business models or whether the IASB needs to improve the requirements. In the lead-up to the project' launch, reports have been published by various national standard setters, including UK Financial Reporting Council [FRC(2021)], European Financial Reporting Advisory Group [EFRAG(2021)], Australian Accounting Standards Board [AASB(2022)].

For example, EFRAG[(2021), p.6] considers how to provide better information on intangibles, due to issues such as the decreased value relevance of financial statements by not reflecting information about intangibles. Specifically, EFRAG presents three approaches and discusses their benefits and disadvantages. The three approaches are (1) Recognition

and measurement in the primary financial statements, (2) Information on specific intangibles in the notes to the financial statements or in the management report, and (3) Information on future-oriented expenses and risk/opportunity factors that may affect future performance in the notes to the financial statements or in the management report [EFRAG(2021), p.7].

Although it is important to consider how to provide intangible asset information, there are few studies that focus on which format of providing that information have greater influence on market value or investor's judgment, and no studies have been found that address this issue from the perspective of information salience.

In response to the current situation where provision of intangible asset information is being discussed, this paper addresses the question of which format of providing that information have greater influence on market value or investor's judgment. I will analyze this question from the perspective of information salience（prominence of information）, which is being actively investigated in experimental study.

There are three findings from the experiment in this paper. Firstly, information provision method of intangible asset by presenting details of intangible assets on financial statements and placing intangible asset items at the top of the balance sheet is effective in increasing the nonprofessional investors' evaluation of sufficiency. Secondly, this method doesn't lead to effect on such investors' willingness to invest or their desire to acquire additional information. Finally, the provision of non-financial information and the marking of links to that information don't effect on nonprofessional investors' evaluation of intangible asset information, their willingness to invest, and their willingness to obtain additional information.

The rest of the paper proceeds as follows. Section 2 review the relevant literature and set hypotheses. Under this hypothesis, Section 3 explains the experimental method, and Section 4 presents the results of this experiment. Chapter 5 discusses the results and concludes the paper.

2. Literature review

(1) Intangible asset information

In respect to the provision of intangible asset information, there are many empirical studies dealing with the effect of intangible asset information on market value [e.g.,

Kallapur and Kwan(2004); Ellis and Seng(2015); Dashti et al.(2016); Alfraih(2017); Shubita(2019); Kimouche et al(2019); Oryina et al.(2020)]. For example, Alfraih[(2017), pp. 22, 26-33] investigates whether intellectual capital disclosure (ICD) is value-relevant. By using a sample of 132 companies listed on the Kuwait Stock Exchange, the author reveals that ICD is positively associated with market value, and greater ICD is incorporated into the investment decisions of KSE market participants. As for the relationship between brand recognition and market value, Kallapur and Kwan(2004) examine the value relevance and reliability of brand assets recognized on the balance sheets, and the stock price reaction to the announcement of brand capitalization. Through the analysis of 33 firms that capitalized brands or titles (such as newspaper or, magazine titles), they found that brand assets are value relevant and associated with market values. Furthermore, they also found a positive association between stock price reaction during the 21 days surrounding the first announcement of brand recognition and brand amount.

Concerning to the influence of differences in the format of intangible asset information on market value or investors' decisions, Chen et al.(2017) focus on voluntary R&D disclosure with the capitalization of development costs. Using a sample of 180 Israeli high-technology and science-based firms, they find that the disclosure is value-relevant beyond the recognized earnings, book values, and capitalized R&D, and is associated with higher share price informativeness. In addition to these findings, they find that disclosure with capitalization of development costs is more positively associated with market value than disclosure with noncapitalization of those costs [Chen et al.(2017), pp. 699-700].

As we saw, previous research had focused on how the provision of intangible asset information affects market value. However, there are few studies that focus on which format of providing that information have greater influence on market value or investor's judgment, and no studies have been found that address this issue from the perspective of information salience.

(2) Information salience and processing

Salience is "the protruding or jutting-out property of a physical structure; hence figuratively the prominence, conspicuousness, or striking quality of a stimulus" [Colman(2015)]. Research on salience has been conducted in the field of psychology.

Prior psychology research has attempted to clarify the information processing mechanisms when individuals make judgments and decisions. One of the results in this research

is a heuristic [Simon(1955); Simon(1956); Tversky and Kahneman(1974)]. Heuristic is "a rough-and-ready procedure or rule of thumb for making a decision, forming a judgement, or solving a problem without the application of an algorithm or an exhaustive comparison of all available options, and hence without any guarantee of obtaining a correct or optimal result" [Colman(2015)]. Individuals have limited cognitive capacity, and heuristic is often adopted in their information processing to save their cognitive effort. Salience influences this heuristic, so individuals refer to salient information when forming a judgment [Tversky and Kahneman(1974), p. 1127][(1)].

Based on these findings on salience, experimental accounting research deals with salience in the context of how investors judge information [e.g., Clor-Proell et al.(2014); Elliott et al.(2015 a); Elliott et al.(2015 b); Martin and Moser(2016); Dong et al.(2016); Guo and Zhou(2018); Kunz et al.(2020); Tadesse and Murthy(2021)]. Clor-Proell et al.[(2014), pp. 53-63] aim to examine the effects of presentation salience on nonprofessional investor's ability to process additional disclosures concerning differences in the measurement of that information. In this experience, they find that higher salience of fair value gains reported in the income statement increases users' ability to assess the subjectivity of those gains by processing additional disclosures in the notes to the financial statements. Elliott et al.(2015 a) and Martin and Moser(2016) examine the effect of information salience on investment willingness. For example, Elliott et al.(2015 a) finds that highlighting concrete language in a prospectus leads to a significantly higher investor willingness to invest in a firm compared to highlighting abstract language.

(3) Hypotheses Setting

As seen above, previous research shows that ① intangible asset information is positively associated with market value [Alfraih(2017); Kallapur and Kwan(2004)] and ② disclosure with capitalization of development costs is more positively associated with market value than disclosure with noncapitalization of those costs [Chen et al.(2017)]. In addition to these findings, previous experimental studies show that ③ nonprofessional investors' ability to process information are enhanced by information salience [Clor-Proell et al.(2014)] and ④ salience of a specific information affects investor willingness to invest in a firm [Elliott et al.(2015 a)].

Based on these findings, hypotheses to be tested in this experiment are set as follows.

Hypothesis 1: Nonprofessional investors' evaluations of ① sufficiency, ② relevance, and ③ faithful representation of intangible asset information will increase in the order of "A condition in which details of intangible assets are not presented on financial statements (Non-Salience Condition) < A conditions for presenting details of intangible assets on financial statements and placing intangible asset items at the top of the balance sheet (Normal Salience Condition) < In addition to normal Salience condition, non-financial information(2) about intangible asset is presented, and intangible asset item on the balance sheet is marked with a star mark to guide to the non-financial information (Strengthened Salience Condition)".

Hypothesis 2: Nonprofessional investors' willingness to invest in A, Ltd. and their willingness to obtain additional information about the company will increase in the order of "Non-salience Condition < Normal Salience Condition < Strengthened Salience Condition".

3. Method

(1) Participants

The Participants of this experiment are 58 students as nonprofessional investors (38 males, 13 females and 7 unknown) who take the lecture on "auditing" offered by the School of Commerce. Three of them are graduate students. Using students as proxies for nonprofessional investors is based on Clor-Proell et al.(2014) and Daigle et al.(2015). Among them, 6 passed the 3rd grade of The Official Business Skills Test in Bookkeeping, 10 passed the 2nd grade, 7 passed the 1st grade, and 1 person was certified as a Certified Public Accountant. Participants consist of third- and fourth-year undergraduate students. As compensation for their participation, the students were given 10 points plus α for the class. The provision of compensation related to grades in courses is based on Daigle et al.(2015).

(2) Design

The experimental design was an between-subject design with the following three conditions : (1) a condition in which details of intangible assets are not presented on financial statements (Non-Salience Condition); (2) a condition for presenting detailed breakdown

of intangible assets, such as brands, on financial statements and placing intangible asset items at the top of the balance sheet (Normal Salience Condition); (3) in addition to normal Salience condition, non-financial information about intangible asset is presented, and intangible asset item on the balance sheet is marked with a star mark to guide to the non-financial information (Strengthened Salience Condition) (Table 1).

Table 1 Three Conditions

Non-Salience Condition	A condition in which details of intangible assets are not presented on financial statements.
Normal Salience Condition	A condition for presenting detailed breakdown of intangible assets (e.g., brands) on financial statements and placing intangible asset items at the top of the balance sheet.
Strengthened Salience Condition	In addition to normal Salience condition, non-financial information about intangible asset is presented, and intangible asset item on the balance sheet is marked with a star mark to guide to the non-financial information.

(3) Materials and Procedure

The experiment is conducted in the questionnaire format and was conducted during the final lecture of one semester. Participants are required to answer questions based on information about A, Ltd., one of the world's leading electronics manufacturers.

There are three questionnaires under the three conditions (Non-Salience Condition, Normal Salience Condition, Strengthened Salience Condition). The questionnaires under Non-Salience Condition and Normal Salience Condition contain information about A, Ltd., which includes a brief description of the company, owned brand name, and financial statements. In addition to that information, the questionnaire under Strengthened Salience Condition contains non-financial information. The questions in these three questionnaires are the same[(3)]. Participants are randomly assigned to one of the three questionnaires. The three questionnaires are presented in the Appendixes. These questionnaires were created based on actual IFRS financial statements with some additions and modifications. The financial statements actually referred to consist of a consolidated statement of financial position and a consolidated income statement, but in order to make it easier for participants to understand, they are presented as "balance sheet" and "profit and loss statement" in the questionnaire. The information on "Research and Development Activities" in the Strength-

ened Salience Condition is based on information in securities report of an actual company.

Firstly, participants evaluate information about A, Ltd., and answer their willingness to invest in the company and their interest in acquiring additional information about the company based on information given. Similar to Clor-Proell et al.(2014), a 15-point scale was employed in this evaluation. Secondly, they are required to respond manipulation checks and demographic questions.

4. Results

(1) Manipulation Checks

Four manipulation check questions concerning information about A, Ltd., financial statements of the company, and relationship between intangible asset information and willingness to invest are presented to the participants. Basically, analyses include all participants because excluding those who failed this manipulation check questions or did not respond to the questions does not affect the results of the hypothesis tests. However, analyses of Hypothesis 1 and hypothesis regarding investment willingness in Hypothesis 2 exclude only participants who answered "Correct" to manipulation check question "Information on intangible assets, including brands, is not very important. Therefore, that information does not affect investment willingness". In particular, the reason for excluding those participants in analyses of Hypothesis 1 is that this hypothesis concerns the evaluation of intangible asset information in the context of investment decision-making. Four participants were excluded from this manipulation check test.

(2) Hypothesis 1: Nonprofessional investors' evaluation of the sufficiency, relevance, and faithful representation of intangible asset information

Hypothesis 1 predict that nonprofessional investors' evaluations of ① sufficiency, ② relevance, and ③ faithful representation of intangible asset information will increase in the order of "Non-salience Condition < Normal Salience Condition < Strengthened Salience Condition". The breakdown of the data used in the analyses of Hypothesis 1 is 18 for Non-salience Condition, 18 for Normal Salience Condition, and 18 for Strengthened Salience Condition.

① Sufficiency

Table 2 Evaluation of sufficiency

	Data	Average	Median	SD	IQR
Non-salience Condition	18	4.33	4.00	3.01	3.75
Normal Salience Condition	18	6.94	5.00	4.53	6.75
Strengthened Salience Condition	18	6.39	5.50	3.69	6.50

(note) Likert scale: 1 (Not Sufficient) ～ 8 (Somewhat Sufficient) ～ 15 (Sufficient)
SD: Standard Deviation
IQR: Interquartile Range

Table 3 One-way ANOVA

	F-value	p-value
Non-salience Condition < Strengthened Salience Condition < Normal Salience Condition	2.362	0.104

(note) p-value in test for equality of variances is 0.417 and equality of variances is assumed(p-value=0.417 > 0.050).

Table 4 Kruskal-Wallis test

	Statistic	p-value
Non-salience Condition < Strengthened Salience Condition < Normal Salience Condition	3.838	0.147

As shown in Table 2, the average is 4.33 for Non-salience Condition, 6.39 for Strengthened Salience Condition, and 6.94 for Normal Salience Condition. The median is 4.00 for Non-salience Condition, 5.00 for Normal Salience Condition, and 5.50 for Strengthened Salience Condition.

As a result of one-way analysis of variance (One-way ANOVA) presented in Table 3 (F-value=2.362, p-value=0.104) and Kruskal-Wallis test presented in Table 4 (Statistic=3.838, p-value=0.147), there is no significant difference between these three groups at the 10% level. Therefore, no statistical significance was observed for that nonprofessional investors' evaluations of sufficiency of intangible asset information will increase in the order of "Non-salience Condition < Normal Salience Condition < Strengthened Salience Condition".

② Relevance

Table 5 Evaluation of relevance

	Data	Average	Median	SD	IQR
Non-salience Condition	18	5.22	6.00	2.90	5.75
Normal Salience Condition	18	7.11	8.00	3.68	2.75
Strengthened Salience Condition	18	5.83	5.50	3.47	4.50

(note) Likert scale: 1 (Not Relevant) ～ 8 (Somewhat Relevant) ～ 15 (Very Relevant)

Table 6 One-way ANOVA

	F-value	p-value
Non-salience Condition < Strengthened Salience Condition < Normal Salience Condition	1.477	0.238

(note) p-value in test for equality of variances is 0.023 and equality of variances isn't assumed (p-value=0.023 < 0.050).

Table 7 Kruskal-Wallis test

	Statistic	p-value
Non-salience Condition < Strengthened Salience Condition < Normal Salience Condition	2.488	0.288

Table 5 shows the average is 5.22 for Non-salience Condition, 5.83 for Strengthened Salience Condition, and 7.11 for Normal Salience Condition. The median is 5.50 for Strengthened Salience Condition, 6.00 for Non-salience Condition, and 8.00 for Normal Salience Condition.

Since p-value in test for equality of variances is 0.023 and equality of variances isn't assumed, this hypothesis test was mainly analyzed by Kruskal-Wallis test. As a result of Kruskal-Wallis test presented in Table 7 (Statistic=2.488, p-value=0.288), there is no significant difference between these three groups at the 10% level. Therefore, no statistical significance was observed for that nonprofessional investors' evaluations of relevance of intangible asset information will increase in the order of "Non-salience Condition < Normal Salience Condition < Strengthened Salience Condition".

③ Faithful Representation

Table 8 Evaluation of faithful representation

	Data	Average	Median	SD	IQR
Non-salience Condition	18	6.06	6.00	3.89	5.00
Normal Salience Condition	18	6.06	6.00	3.42	4.75
Strengthened Salience Condition	18	5.92	5.00	4.02	3.50

(note) Likert scale: 1 (Strongly Disagree) ～ 8 (Somewhat Agree) ～ 15 (Strongly Agree)

Table 9 One-way ANOVA

	F-value	p-value
Strengthened Salience Condition < Non-salience Condition/Normal Salience Condition	0.032	0.968

(note) p-value in test for equality of variances is 0.791 and equality of variances is assumed(p-value=0.791 > 0.050).

Table 10 Kruskal-Wallis test

	Statistic	p-value
Strengthened Salience Condition < Non-salience Condition/Normal Salience Condition	0.022	0.989

As shown in Table 8, the average is 5.92 for Strengthened Salience Condition, 6.06 for Non-salience Condition, and 6.06 for Normal Salience Condition. The median is 5.00 for Strengthened Salience Condition, 6.00 for Non-salience Condition, and 6.00 for Normal Salience Condition.

As a result of one-way analysis of variance (One-way ANOVA) presented in Table 9 (F-value=0.032, p-value=0.968) and Kruskal-Wallis test presented in Table 10 (Statistic=0.022, p-value=0.989), there is no significant difference between these three groups at the 10% level. Therefore, no statistical significance was observed for that nonprofessional investors' evaluations of sufficiency of intangible asset information will increase in the order of "Non-salience Condition < Normal Salience Condition < Strengthened Salience Condition".

(3) Hypothesis 2: Nonprofessional investors' willingness to invest in A, Ltd. and their willingness to obtain additional information about the company

Hypothesis 2 predict that nonprofessional investors' willingness to invest in A, Ltd. and

their willingness to obtain additional information about the company will increase in the order of "non-salience conditions < normal salience conditions < stronger salience conditions".

① Willingness to invest

Table 11 Evaluation of willingness to invest

	Data	Average	Median	SD	IQR
Non-salience Condition	18	7.33	8.00	3.60	3.00
Normal Salience Condition	18	7.72	8.00	4.11	7.25
Strengthened Salience Condition	18	7.27	6.50	3.20	5.75

(note) Likert scale: 1 (Unwilling) ～ 8 (Somewhat Willing) ～ 15 (Very Willing)

Table 12 One-way ANOVA

	F-value	p-value
Strengthened Salience Condition < Non-salience Condition < Normal Salience Condition	0.079	0.924

(note) p-value in test for equality of variances is 0.462 and equality of variances is assumed(p-value=0.462 > 0.050).

Table 13 Kruskal-Wallis test

	Statistic	p-value
Strengthened Salience Condition < Non-salience Condition < Normal Salience Condition	0.155	0.925

Table 11 shows that the average is 7.27 for Strengthened Salience Condition, 7.33 for Non-salience Condition, and 7.72 for Normal Salience Condition. The median is 6.50 for Strengthened Salience Condition, 8.00 for Non-salience Condition, and 8.00 for Normal Salience Condition.

As a result of one-way analysis of variance (One-way ANOVA) presented in Table 12 (F-value=0.079, p-value=0.924) and Kruskal-Wallis test presented in Table 13 (Statistic=0.155, p-value=0.925), there is no significant difference between these three groups at the 10% level. Therefore, no statistical significance was observed for that nonprofessional investors' willingness to invest in A, Ltd. will increase in the order of "Non-salience Condition < Normal Salience Condition < Strengthened Salience Condition".

② Willingness to obtain additional information

Table 14 Evaluation of willingness to obtain additional information

	Data	Average	Median	SD	IQR
Non-salience Condition	20	12.70	13.50	2.34	4.00
Normal Salience Condition	19	11.11	11.00	3.00	4.00
Strengthened Salience Condition	18	12.00	12.00	2.68	2.75

(note) Likert scale: 1 (Unwilling) ～ 8 (Somewhat Willing) ～ 15 (Very Willing)

Table 15 One-way ANOVA

	F-value	p-value
Normal Salience Condition < Strengthened Salience Condition < Non-salience Condition	1.729	0.187

(note) p-value in test for equality of variances is 0.406 and equality of variances is assumed(p-value=0.406 > 0.050).

Table 16 Kruskal-Wallis test

	Statistic	p-value
Normal Salience Condition < Strengthened Salience Condition < Non-salience Condition	3.214	0.201

As shown in Table 14, the average is 11.11 for Normal Salience Condition, 12.00 for Strengthened Salience Condition, and 12.70 for Non-salience Condition. The median is 11.00 for Normal Salience Condition, 12.00 for Strengthened Salience Condition, and 13.50 for Non-salience Condition.

As a result of one-way analysis of variance (One-way ANOVA) presented in Table 15 (F-value=1.729, p-value=0.187) and Kruskal-Wallis test presented in Table 16 (Statistic=3.214, p-value=0.201), there is no significant difference between these three groups at the 10% level. Therefore, no statistical significance was observed for that nonprofessional investors' willingness to obtain additional information about A, Ltd. will increase in the order of "Non-salience Condition < Normal Salience Condition < Strengthened Salience Condition".

(4) Additional Analyses

As an additional analysis, I divided the participants into two groups: the Non-salience Condition group and the Salience Condition group, which includes both the Normal Sa-

lience Condition group and the Strengthened Salience Condition group. The data to be analyzed is the same as that used in the Hypothesis tests.

① Sufficiency

Table 17 Evaluation of sufficiency

	Data	Average	Median	SD	IQR
Non-salience Condition	18	4.33	4.00	3.01	3.75
Salience Condition	36	6.67	5.00	4.08	6.50

(note) Likert scale: 1 (Not Sufficient) ～ 8 (Somewhat Sufficient) ～ 15 (Sufficient)

Table 18 t-test

	t-value	p-value
Non-salience Condition < Salience Condition	-2.373	0.022**

(note) ** is 5% significant.

Table 19 Mann–Whitney U test

	U-value	p-value
Non-salience Condition < Salience Condition	430.000	0.050**

(note) ** is 5% significant.

As shown in Table 17, the average is 4.33 for Non-salience Condition, 6.67 for Salience Condition. The median is 4.00 for Non-salience Condition, 5.00 for Salience Condition.

As a result of t-test presented in Table 18 (t-value=-2.373, p-value=0.022) and Mann–Whitney U test presented in Table 19 (U-value=430.000, p-value=0.050), there is significant difference between these two groups at the 5% level. Therefore, statistical significance was observed for that nonprofessional investors' evaluations of sufficiency of intangible asset information will increase in the order of "Non-salience Condition < Salience Condition"(4).

② Relevance

Table 20 Evaluation of relevance

	Data	Average	Median	SD	IQR
Non-salience Condition	18	5.22	6.00	2.90	5.75
Salience Condition	36	6.47	6.50	3.58	4.25

(note) Likert scale: 1 (Not Relevant) ～ 8 (Somewhat Relevant) ～ 15 (Very Relevant)

Table 21 t-test

	t-value	p-value
Non-salience Condition < Salience Condition	-1.283	0.205

Table 22 Mann–Whitney U test

	U-value	p-value
Non-salience Condition < Salience Condition	375.000	0.339

Table 20 shows that the average is 5.22 for Non-salience Condition, 6.47 for Salience Condition. The median is 6.00 for Non-salience Condition, 6.50 for Salience Condition.

As a result of t-test presented in Table 21 (t-value=-1.283, p-value=0.205) and Mann–Whitney U test presented in Table 22 (U-value=375.000, p-value=0.339), there is no significant difference between these three groups at the 10% level(5).

③ Faithful Representation

Table 23 Evaluation of faithful representation

	Data	Average	Median	SD	IQR
Non-salience Condition	18	6.06	6.00	3.89	5.00
Salience Condition	36	5.92	5.50	3.68	4.00

(note) Likert scale: 1 (Strongly Disagree) ～ 8 (Somewhat Agree) ～ 15 (Strongly Agree)

Table 24 t-test

	t-value	p-value
Salience Condition < Non-salience Condition	-0.159	0.874

Table 25 Mann–Whitney U test

	U-value	p-value
Salience Condition < Non-salience Condition	320.000	0.941

As shown in Table 23, the average is 5.92 for Salience Condition, 6.06 for Non-salience Condition. The median is 5.50 for Salience Condition, 6.00 for Non-salience Condition.

As a result of t-test presented in Table 24 (t-value=-0.159, p-value=0.874) and Mann–Whitney U test presented in Table 25 (U-value=320.000, p-value=0.941), there is no significant difference between these three groups at the 10% level.

④ Willingness to invest

Table 26 Evaluation of willingness to invest

	Data	Average	Median	SD	IQR
Non-salience Condition	18	7.33	8.00	3.60	3.00
Salience Condition	36	7.50	7.50	3.64	6.25

(note) Likert scale: 1 (Unwilling) ～ 8 (Somewhat Willing) ～ 15 (Very Willing)

Table 27 t-test

	t-value	p-value
Salience Condition < Non-salience Condition	0.271	0.788

Table 28 Mann–Whitney U test

	U-value	p-value
Salience Condition < Non-salience Condition	170.500	0.791

As shown in Table 26, the average is 7.33 for Non-salience Condition, 7.50 for Salience Condition. The median is 7.50 for Salience Condition, 8.00 for Non-salience Condition.

As a result of t-test presented in Table 27 (t-value=0.271, p-value=0.788) and Mann–Whitney U test presented in Table 28 (U-value=170.500, p-value=0.791), there is no significant difference between these three groups at the 10% level.

⑤ Willingness to obtain additional information

Table 29 Evaluation of willingness to obtain additional information

	Data	Average	Median	SD	IQR
Non-salience Condition	20	12.70	13.50	2.34	4.00
Salience Condition	37	11.54	12.00	2.84	2.00

(note) Likert scale: 1 (Unwilling) ～ 8 (Somewhat Willing) ～ 15 (Very Willing)

Table 30 t-test

	t-value	p-value
Salience Condition < Non-salience Condition	1.558	0.125

Table 31 Mann–Whitney U test

	U-value	p-value
Salience Condition < Non-salience Condition	283.000	0.141

As shown in Table 29, the average is 11.54 for Salience Condition, 12.70 for Non-salience Condition. The median is 12.00 for Salience Condition, 13.50 for Non-salience Condition.

As a result of t-test presented in Table 30 (t-value=1.558, p-value=0.125) and Mann–Whitney U test presented in Table 31 (U-value=283.000, p-value=0.141), there is no significant difference between these three groups at the 10% level.

5. Discussion and Conclusion

This experimental study explores which format of providing that information have the greatest influence on market value or investor's judgment. Prior research had focused on how the provision of intangible asset information affects market value. However, there are few studies that focus on which format of providing that information have greater influence on market value or investor's judgment, and no studies have been found that address this issue from the perspective of information salience.

The results of this study are the following two points:

(1) Statistical significance wasn't observed for that nonprofessional investors' evaluations of ① sufficiency, ② relevance, and ③ faithful representation of intangible asset information will increase in the order of "Non-salience Condition < Normal Salience Condition < Strengthened Salience Condition" (Hypothesis 1). However, in additional analyses divided into two groups, the Non-salience Condition group and the Salience Condition group, the significance was observed in terms of increasing the evaluation of the sufficiency of intangible asset information in the order of "Non-salience Condition < Salience Condition".

(2) Statistical significance wasn't observed for that nonprofessional investors' willingness to invest in A, Ltd. and their willingness to obtain additional information about the company will increase in the order of "Non-salience Condition < Normal Salience Condition < Strengthened Salience Condition" (Hypothesis 2).

The findings from these results are that information provision method of intangible asset by presenting details of intangible assets on financial statements and placing intangible asset items at the top of the balance sheet is effective in increasing the nonprofessional investors' evaluation of sufficiency. However, this method doesn't lead to effect on their willingness to invest or their desire to acquire additional information. In addition, I find that

the provision of non-financial information and the marking of links to that information don't effect on nonprofessional investors' evaluation of intangible asset information and their willingness to invest, and so on.

There are several possible factors that had led to these results. Firstly, there were variations in the evaluations of several groups for each hypothesis as showed by the standard deviation. This might not have led to significant differences. Second factor is about non-professional investors' evaluations of relevance, and faithful representation. As for relevance and faithful representation, it is possible that the participants did not understand these two concepts well and couldn't make appropriate decisions. Thirdly, in terms of willingness to invest, the presenting details or explanation of extremely large amounts of intangible assets might have given participants a sense of distrust, hence did not increase their willingness to invest.

The findings in this paper are considered to be highly suggestive in the current situation where intangible asset information provision is being debated. Future directions include conducting experiments focusing on other groups such as professional investors, changing the content of non-financial information provided from qualitative to quantitative, and experimenting with another version of information salience.

Notes

(1) Tversky and Kahneman (1974) describes three heuristics: ① Representativeness, ② Availability, and ③ Adjustment and Anchoring. Among these three heuristics, salience affects ② Availability [Tversky and Kahneman (1974), p. 1127].

(2) In this paper, "non-financial information" refers to information disclosed outside of financial statements and notes.

(3) There are five questions in total (see Appendix 4). In regard to each question, there is a difference in wording between "After reading the financial statements and so on" and "After reading the balance sheet and so on," but these refer to the same content and there is no substantive difference.

(4) This statistical significance was also observed in analysis using Non-salience Condition and Normal Salience Condition at 5% (t-value=-2.037, p-value=0.050).

(5) However, in the analysis using the Non-salience Condition and the Normal Salience Condition, there was a significant difference at the 10% level (t-value=-1.711, p-value=0.096).

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Appendix 1. Questionnaire under Non-Salience Condition

A, Ltd.

・A, Ltd. is one of the world's leading general electronics manufacturers.
・The company owns Brand A, a global brand.

Balance Sheet

(in ¥ millions)

(Assets)	
Current assets	
Cash and cash equivalents	833,283
Trade receivables and contract assets	2,874,987
Inventory	1,646,188
Securities and other financial assets	346,916
Other current assets	227,161
Total current assets	5,928,535
Non-current assets	
Investments accounted for using the equity method	478,620
Securities and other financial assets	496,897
Property, plant and equipment	1,700,471
Intangible assets	3,410,038
Other non-current assets	486,853
Total non-current assets	6,572,879
Total assets	12,501,414

Profit and loss statement

(in ¥ millions)

Sales	10,881,150
Cost of goods sold	△ 8,192,063
Gross profit	2,689,087
General and administrative expense	△ 1,940,943
Other income	302,196
Other expense	△ 245,016
Financial income	7,878
Financial expense	△ 20,417
Equity gains (losses) of affiliated companies	52,847
Profit before income taxes after adjusting for interest income and expenses	845,632
Interest income	25,652
Interest expense	△ 51,313
Income before tax	819,971
Income tax expense	△ 116,101
Net Income	703,870

Appendix 2. Questionnaire under Normal Salience Condition

A, Ltd.

・A, Ltd. is one of the world's leading general electronics manufacturers.
・The company owns Brand A, a global brand.

Balance Sheet

(in ¥ millions)

(Assets)	
Intangible assets	
Brands	2,981,735
Goodwill	204,366
Other intangible assets	223,937
Total intangible assets	3,410,038
Non-current assets other than intangible assets	
Investments accounted for using the equity method	478,620
Securities and other financial assets	496,897
Property, plant and equipment	1,700,471
Other non-current assets	486,853
Total non-current assets other than intangible assets	3,162,841
Current assets	
Cash and cash equivalents	833,283
Trade receivables and contract assets	2,874,987
Inventory	1,646,188
Securities and other financial assets	346,916
Other current assets	227,161
Total current assets	5,928,535
Total assets	12,501,414

Profit and loss statement

(in ¥ millions)

Sales	10,881,150
Cost of goods sold	△ 8,192,063
Gross profit	2,689,087
General and administrative expense	
Employee benefits expense	△ 780,161
Research and development expense	△ 469,785
Advertising expense	△ 295,123
Depreciation expense	△ 149,197
Amortization expense for brands	△ 149,087
Other expense	△ 97,590
Total general and administrative expense	△ 1,940,943
Other income	302,196
Other expense	△ 245,016
Financial income	7,878
Financial expense	△ 20,417
Equity gains (losses) of affiliated companies	52,847
Profit before income taxes after adjusting for interest income and expenses	845,632
Interest income	25,652
Interest expense	△ 51,313
Income before tax	819,971
Income tax expense	△ 116,101
Net Income	703,870

Appendix 3. Questionnaire under Strengthened Salience Condition

A, Ltd.

・A, Ltd. is one of the world's leading general electronics manufacturers.
・The company owns Brand A, a global brand.

Balance Sheet

(in ¥ millions)

(Assets)	
Intangible assets	
Brands ★	2,981,735
Goodwill	204,366
Other intangible assets	223,937
Total intangible assets	3,410,038
Non-current assets other than intangible assets	
Investments accounted for using the equity method	478,620
Securities and other financial assets	496,897
Property, plant and equipment	1,700,471
Other non-current assets	486,853
Total non-current assets other than intangible assets	3,162,841
Current assets	
Cash and cash equivalents	833,283
Trade receivables and contract assets	2,874,987
Inventory	1,646,188
Securities and other financial assets	346,916
Other current assets	227,161
Total current assets	5,928,535
Total assets	12,501,414

★ See "Research and Development Activities" for details.

"Research and Development Activities" in the securities report Brands mainly consist of Brand A. Five home appliances of Brand A won the Good Design Award, and two of them were selected for the Good Design Gold Award. Brand A's home appliances have the core design value of providing both "usability as a practical product" and "beauty that does not get in the way of daily life". We will continue to be close to people's lives and contribute to improving each consumer's QoL (Quality of Life).

Profit and loss statement

(in ¥ millions)

Sales	10,881,150
Cost of goods sold	△ 8,192,063
Gross profit	2,689,087
General and administrative expense	
Employee benefits expense	△ 780,161
Research and development expense	△ 469,785
Advertising expense	△ 295,123
Depreciation expense	△ 149,197
Amortization expense for brands	△ 149,087
Other expense	△ 97,590
Total general and administrative expense	△ 1,940,943
Other income	302,196
Other expense	△ 245,016
Financial income	7,878
Financial expense	△ 20,417
Equity gains (losses) of affiliated companies	52,847
Profit before income taxes after adjusting for interest income and expenses	845,632
Interest income	25,652
Interest expense	△ 51,313
Income before tax	819,971
Income tax expense	△ 116,101
Net Income	703,870

Appendix 4. List of questions in questionnaire

Questions	Answers
(Question 1) After reading the financial statements and so on of A, Ltd., please select one of the 15 numbers and circle it to indicate whether the information on intangible assets is sufficient. If you are unsure, please select "8. Somewhat Sufficient".	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15 ↑ ↑ ↑ Not Sufficient Somewhat Sufficient Sufficient
(Question 2) After reading the balance sheet and so on of A, Ltd., please select one of the 15 numbers and circle it to indicate whether the information on intangible assets is relevant. If you are unsure, please select "8. Somewhat Relevant".	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15 ↑ ↑ ↑ Not Relevant Somewhat Relevant Very Relevant
(Question 3) After reading the financial statements and so on of A, Ltd., do you think that the company's intangible fixed asset information provides a faithful representation? Please select one of the 15 numbers and circle it to indicate your evaluation. If you are unsure, please select "8. Somewhat Faithful Representation". Faithful representation means that the information is complete, unbiased, and free of errors and omissions.	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15 ↑ ↑ ↑ Strongly Disagree Somewhat Agree Strongly Agree
(Question 4) After reading the balance sheet and so on of A, Ltd., please select one of the 15 numbers and circle it to indicate your willingness to invest in A, Ltd. If you are unsure, please select "8. Somewhat Willing".	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15 ↑ ↑ ↑ Unwilling Somewhat Willing Very Willing
(Question 5) After reading the balance sheet and so on of A, Ltd., would you like to obtain additional information about the company ? Please select one of the 15 numbers and circle it to indicate your willingness to obtain additional information. If you are unsure, please select "8. Somewhat Willing".	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15 ↑ ↑ ↑ Unwilling Somewhat Willing Very Willing