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Abstract

Socially responsible investment (SRI) is not as popular in Japan as compared to the United States and Europe. To consider future possibility of SRI in Japan, we examine whether Japanese individuals who are interested in investment are concerned about corporate social responsibility (CSR). We conduct a choice experiment to answer the question. We examine their preferences among social issues, including product management, relationship with the government, employee work–life balance, and environmental management. Our results suggest that negative performance on social issues offsets the satisfaction obtained from high dividends. Notably, negative business activities, such as corruption or suspect political donations, decrease attractiveness. Conversely, even if the company offers low dividends, positive attitudes toward work–life balance and environmental issues increase satisfaction and convince individuals to purchase its stock. Consideration of preference heterogeneity is also important. We use mixed logit model and latent class model to consider heterogeneity. Our results suggest that the tendency and extent of CSR preference differ among individuals.

Key word : choice experiment, corporate social responsibility, latent class model, mixed logit model, socially responsible investment

JEL Classifications: M14, Q51

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Introduction

The term “corporate social responsibility” (CSR) began to seep into the public consciousness of the Japanese in the 2000s, mainly owing to the various corporate scandals that surfaced in Japan around the year 2000, including disguised labeling of the origins of food or expiration dates, mass food poisonings, and so on. Environmental problems such as climate change also started attracting attention after the adoption of the Kyoto Protocol in 1997. Reflecting these social situations, certain public investment trusts began incorporating social issues into their investment decisions. However, socially responsible investment (SRI) is not as popular in Japan as compared to other countries such as the United States and Europe. To consider future possibility of SRI in Japan, we examine whether Japanese individuals who are interested in investment are concerned about CSR. We conduct a choice experiment to answer the question. According to the Bank of Japan (2013), the ratio of cash and deposit to total financial asset is 54.1% for a Japanese household. This figure is higher than its counterparts in the United States (13.0%) and the EU (35.5%). Instead, the ratio of bonds, investment trust, and equity in total financial asset is 14.6%. This figure is lower than the corresponding numbers for the United States (51.9%) and the EU (29.5%). Therefore, the Japanese tend to predominantly hold their financial assets in the

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form of cash and deposits. However, this situation might change gradually, given that one of the policy objectives of Japan's Financial Services Agency includes promoting investments by individual investors. The agency has been trying to construct a comfortable environment for individual investors (for details, see Financial Services Agency (2010)). Thus, people without investment experience might participate in the investment market in the future. Therefore, our survey respondents include individuals interested in making investments regardless of their experience. Before buying stock, one needs to collect as much information as possible about the business situation of the company and consider possible changes in the stock price. However, since our respondents would probably not have been conversant with such a situation, we propose a simplified situation in our questionnaire and apply the random utility model to their behavior. This allows respondents to make decisions in a way similar to the consumption behavior they are familiar with.

Therefore, we conduct a choice experiment to examine individuals' preferences among many social issues, including product management, relationship with the government, employee work-life balance, and environmental management. We find that people tend to hesitate in buying stocks of companies known to practice unfair business activities, such as corruption and suspect political donations. On the other hand, even if the dividend of a company is low, a positive attitude toward employee work-life balance and environmental issues increases satisfaction and makes people more likely to purchase the company's stock.

This paper is structured as follows. Section I discusses the background. Section II presents the survey design. Section III describes the analytical models. Section IV discusses the results, and the final section offers concluding comments.

I Background

Traditionally, investors have been interested only in economic performance when making their investment decisions. In recent decades, SRI emerged as a new concept challenging conventional way in this respect. Thus, there is a possibility that investors can exert a positive impact on many societal problems. However, the size of the SRI market is not large in Japan. According to SIF-Japan (Social Investment Forum Japan) (2009, 2012), the first public offered SRI investment trust in Japan appeared in 1999 (for details, see SIF-Japan (2009)). The Nikko Eco-Fund was unveiled by the Nikko Asset Management Co. and Good Bankers Co. (a Japanese SRI research company in charge of environmental screening for the fund). Other SRI investment trusts incorporating environmental screening soon appeared. Gradually, a variety of SRI investment trusts considering not only environmental issues but also the other CSR issues were introduced into the Japanese market, and the value of their combined assets reached 220.7 billion yen in March 2000 (SIF-Japan, 2012). However, the burst of the information technology (IT) bubble in April 2000, along with subsequent incidents such as the 9/11 terrorist attacks in the United States, had a negative impact on stock markets. After the downturn, the markets started to recover. In December 2007, Japanese SRI investment trust assets totaled 1120.7 billion yen (Japan Sustainable Investment Forum (JSIF), 2017). However, owing to the subsequent financial crisis, the market contracted. After 2012 to the present (September, 2017) the Japanese SRI investment trust assets were around 200 billion yen (JSIF, 2017). In 2008, impact investment bonds appeared in Japan. The sales continued to increase. At present (September, 2017), the total sales of bonds based on social contribution reached 1239.5 billion yen (JSIF, 2017).

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Do investors have an interest in CSR? Certain studies have focused on this issue. Research on investors' responses to social issues has typically employed event study methodology. Many of these studies have focused on changes in company stock prices in response to specific events related to the environment. For example, according to Dasgupta *et al.* (2001), stocks react negatively and positively to news of citizens' complaints and improved environmental performance, respectively. Gupta and Goldar (2005) showed that the stock prices of companies in the pulp and paper, automobiles, and chlor alkali industries tend to decrease after announcements of poor environmental performance. On the other hand, Takeda and Tomozawa (2006) found that the stock prices of the top 30 manufacturing companies in the Environmental Management Ranking issued by *Nihon Keizai Shimbun* (Nikkei newspaper) were not significantly affected after their rankings were released between 1998 and 2005. Takeda and Tomozawa (2008) investigated stock price reactions to Environmental Management Rankings and noted that market responses became significantly positive after 2003 and were significantly negative in 1999 and 2000. Therefore, they concluded that the market reactions changed between 2001 and 2002. Yamaguchi (2008) suggested that market reactions to corporate environmental performance (in terms of Environmental Management Rankings) have a positive and a negative effect for higher and lower frequencies of the rankings, respectively. Cañón-de-Francia and Garcés-Ayerbe (2009) showed that the ISO 14001 certification has a negative effect on the market value of certain firms, such as less polluting and less internationalized companies. Keele and DeHart (2011) investigated how stocks respond to the announcement of company partnership with the United States Environmental Protection Agency (USEPA) Climate Leaders Program. Yadav *et al.* (2016) found that firms with repeated green

rankings published by Newsweek for enhancing environmental performance show significantly higher standardized cumulative abnormal returns.

Other previous studies on stock markets and environmental issues include Blacconiere and Patten (1994), Hamilton (1995), Klassen and McLaughlin (1996), Konar and Cohen (1997), Khanna *et al.* (1998), and Yamashita *et al.* (1999). Wang *et al.* (2002) and Salin and Hooker (2001) investigated the relationship between product safety and the stock market.⁽¹⁾

As mentioned previously, the Japanese tend to hold their financial assets in the form of cash and deposits. Therefore, buying stocks is not as popular in Japan as compared to other countries such as the United States and Europe. However, the efforts of the Financial Services Agency (see Financial Services Agency, 2010) may bring about a change in this situation in the future. Therefore, individuals who do not currently make investments may enter the market in the future. Therefore, we aim to examine the preferences of individuals who have an interest in investment but who do not necessarily have the experience yet. Our purpose here is to understand the preferences and trade-offs among several CSR issues and their monetary benefits to people. Therefore, we simplify the choice experiment setting so that people without investment experience can easily answer our survey questions. First, as stated previously, we make the choice experiment setting and use the random utility model. Second, we employ

(1) In addition, there are many studies on consumer preference about social issues. Many researchers are analyzing consumers' preferences on environmental problems, organic products, genetically modified food, fair trade (including fair business practices and labor issues in developing countries), and so on. Related researches include Loureiro and Lotade (2005), Briggeman and Lusk (2011), Onozaka and McFadden (2011), Brouhle and Khanna (2012), Sirieix *et al.* (2013), Balderjahn *et al.* (2013), Carlsson *et al.* (2010), Kimura *et al.* (2012), Salazar *et al.* (2013), Larson (2003), Thompson *et al.* (2010), Burton *et al.* (2001) and Lusk *et al.* (2005).

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“dividend” as the monetary benefit to the respondent. Moreover, we assume the same stock price (and similar changes to it in the future) for all the alternatives, because predicting changes in the stock price and deciding when to buy and sell stock is complicated for the respondent. This simplified setting is appropriate for the examination of the trade-offs in preferences among the various CSR issues and the monetary benefits.

Our study is unique in the following respects. First, we investigate the relative importance among several social issues by using choice experiment. Previous studies using event study focused on only specific issue although they have the advantage of using actual stock price data. Second, our respondents are individuals who are interested in investment. We investigated the preference of potential investors in the future although our respondents do not necessarily have experience with investment.

II Survey Design

Our choice experiment uses the multi-attributes utility function developed by Lancaster (1966) and Rosen (1974). Recently, these methods have been applied to many areas, valuing many functions of the environment, marketing research, and transportation studies (for details of the history of this method, see Holmes and Adamowicz (2003)).

In deciding the CSR attributes to use in our choice experiment, we base our questions on a report (Ministry of the Environment, 2003) which broadly surveys the interests of individuals who have interest in investment. We choose the following four attributes from among the categories that recorded high levels of interest. A summary of the attributes and levels is shown in Table 1.

Table 1. Attributes and levels

Attribute	Levels		
Product	Yes	No	
Politics	Yes	No	
Balance	Yes	No	
Environment	30 points	60 points	90 points
Dividend	5 yen	50 yen	150 yen

1) Product

If a company product has had issues that resulted in product repair and recall, or if the company has used fraudulent labeling, the *Product* attribute for that company is set to “yes.” Otherwise, it is set to “no.”

2) Politics

When a company has had issues with corruption and has made suspect political donations, the *Politics* attribute for that company is set to “yes.” Otherwise, it is set to “no.”

3) Balance

If a company strives to ensure employee work–life balance, the *Balance* attribute for that company is set to “yes.” Otherwise, it is set to “no.” In this study, work–life balance was explained to the respondents as follows. The company respects the right of employees to a healthy and comfortable life. To achieve this philosophy, the company avoids long working hours, improves the rate of paid holiday usage, and shows concern for its employees’ mental health. In addition, the company respects diversity in working styles and tries to improve the rate of childcare leave usage for both male and female workers.

4) Environment

We use the scores of the Nikkei Environmental Management Ranking Survey

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conducted by the Nikkei Inc. and Nikkei Research Inc. The survey attempts an evaluation of a firm's environmental management practices and includes questions about various categories, including greenhouse gas emissions reduction, waste reduction, and chemical material management. Based on the answers, they calculate the environmental management score for each firm (For example, see Nikkei Newspaper and Nikkei Research, 2008). In our choice experiment questionnaire, we convert the scores into points ranging from 0 to 100. We use three hypothetical levels of these scores: 30 points, 60 points, and 90 points.

5) Dividend

In addition to the above four elements, we include the attribute of dividend per stock to capture the respondent's interest regarding monetary benefit. The groupings are set to 5 yen, 50 yen, and 150 yen per stock.

The questionnaire requests a respondent to imagine that the respondent is going to buy 100 shares of company stock from two companies the respondent selects as the final candidate companies. The two companies' stock prices and the respondents' expectations of the future stock prices of the companies are assumed to be almost the same, and they are assumed to belong to the same industry.

All possible combinations of these five attributes are provided as alternatives. A respondent is provided information on the companies' record on social issues. If a respondent deems that neither company is suitable, the respondent can choose the option "I do not make any investment." An example of the choice set is shown in Table 2. Each respondent is asked to answer nine choice tasks.

This survey was conducted online from February 18 to February 22, 2010. It targeted the general public, monitors of a research firm who have an interest in general investment. The survey response rate was about 12% (651 people

Table 2. An example of the choice set

	Investment candidate company 1	Investment candidate company 2	I do not make any investment
Product	Yes	No	
Politics	No	Yes	
Balance	Yes	No	
Environment	30	90	
Dividend	50	5	
choose one and check			

responded). A high-level summary of the personal attributes of the respondents is shown in Table 3.

Table 3. Sample demographics

Gender	Male	56.8%
	Female	43.2%
Age (years)	10s	4.0%
	20s	15.2%
	30s	18.0%
	40s	17.4%
	50s	17.4%
	60s	22.0%
	70s	5.1%
	80s	1.1%

III Analytical Model

Conditional Logit Model

An individual k choosing alternative i receives utility U_{ki} . Based on the random

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utility model, U_{ki} is decomposed into two parts: the observable part V_{ki} and the unobservable random part ε_{ki} .

$$U_{ki} = V_{ki} + \varepsilon_{ki}. \quad (1)$$

The probability P_{ki} that individual k will choose alternative i from choice set C is equal to the probability that U_{ki} is larger than U_{kj} , which is the utility for any other alternative.

$$\begin{aligned} P_{ki} &= \Pr[U_{ki} > U_{kj} \quad \forall j \in C, j \neq i] \\ &= \Pr[V_{ki} - V_{kj} > \varepsilon_{kj} - \varepsilon_{ki} \quad \forall j \in C, j \neq i]. \end{aligned} \quad (2)$$

The conditional logit model, developed by McFadden (1974), is derived by assuming that ε_{ki} is distributed independently and identically with a type I extreme value distribution.

$$P_{ki} = \frac{\exp(\lambda V_{ki})}{\sum_{j \in C} \exp(\lambda V_{kj})} \quad (3)$$

where λ is a scale parameter assumed to be 1, and the parameters of the attributes are estimated by the maximum likelihood method (Train, 2009). The log-likelihood function is as follows.

$$\ln L = \sum_{k=1}^K \sum_{i \in C} \delta_k^i \ln P_{ki}. \quad (4)$$

Here, δ_k^i is a dummy variable, which takes 1 if an individual k chooses alternative i and 0 otherwise.

The term V_{ki} can be assumed as linear in the parameters, where the notations k and i are abbreviated to avoid complexity.

$$V(\mathbf{x}) = \sum_n \beta_n x_n \quad (5)$$

where \mathbf{x} is an attribute vector, x_n is each attribute of the vector, and β_n refers to the parameter to be estimated.

Totally differentiating Equation (5) gives Equation (6).

$$\sum_n \frac{\partial V}{\partial x_n} dx_n = dV. \quad (6)$$

By assuming that the utility level is invariable ($dV=0$) and that all the variables except for attribute 1 and the dividend are fixed to an initial level ($dx_n=0, n \neq 1$), the marginal willingness to pay (MWTP) for attribute 1 is obtained from the ratio of the estimated parameters of attribute 1 (β_1) and the dividend ($\beta_{dividend}$) as follows.

$$MWTP_{x_1} = \frac{d(\text{dividend})}{dx_1} = \frac{\partial V / \partial x_1}{\partial V / \partial (\text{dividend})} = \frac{\beta_1}{\beta_{dividend}}. \quad (7)$$

Mixed Logit Model

In the conditional logit model described above, the parameters are assumed to be constant among all respondents and independence from irrelevant alternatives (IIA) is assumed to be satisfied. However, because these assumptions are restrictive, a mixed logit model is often used in empirical studies (Train, 2009).

A mixed logit model assumes that the estimated parameters vary randomly among respondents. Therefore, when individual k chooses alternative i , the utility level U_{ki} , as described in Equation (8), is obtained.

$$U_{ki} = V_{ki}(\beta_k) + \varepsilon_{ki}. \quad (8)$$

Here, ε_{ki} is assumed to be distributed independently and identically with a type I extreme value distribution, and β_k indicates that parameters vary among respondents.

The probability that individual k with parameter β_k chooses alternative i is described by

$$L_{ki}(\beta) = \frac{\exp(V_{ki}(\beta_k))}{\sum_{j \in C} \exp(V_{kj}(\beta_k))}. \quad (9)$$

Because an individual's parameter cannot be observed, the choice probability

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of a mixed logit model can be described as the integral of the choice probability of a conditional logit model over all possible values of β weighted by the probability density function of β , $f(\beta|\Omega)$.

$$P_{ki}(\Omega) = \int L_{ki}(\beta) \cdot f(\beta|\Omega) d\beta. \quad (10)$$

Here, Ω is the parameter of this density. The parameter estimation of the mixed logit model is conducted via simulation (see Train (2009) for details).

Parameters can be estimated from the simulated log-likelihood SLL seen in Equation (11).

$$SLL(\Omega) = \sum_{k=1}^K \sum_{i \in C} \delta_k^i \ln SP_{ki}(\Omega) \quad (11)$$

Here, δ_k^i is a dummy variable, which takes 1 if individual k chooses alternative i and 0 otherwise, and $SP_{ki}(\Omega)$ indicates simulated probabilities.

Latent Class Model

We successfully allow parameters to vary stochastically in the mixed logit model. However, the assumptions regarding the preferences varying continuously among individuals and the distribution of the preference are restrictive. Furthermore, mixed logit models cannot explain the reason for the heterogeneity in the preference. To overcome this disadvantage, we use a latent class model, which was developed by McFadden (1986; 2001) and applied to the logit model approach by Swait (1994). For the application of the latent class model to environmental valuation, see Boxall and Adamowicz (2002), Provencher *et al.* (2002), and Provencher and Bishop (2004).

The latent class model classifies individuals into several groups based on some perceptions and their socioeconomic characteristics. Suppose that there are S classes in the population and individual k belongs to one of the groups s ($s=1,$

..., S). When individual k chooses alternative i , the random utility model is described as

$$U_{ki|s} = \beta'_s \mathbf{x}_{ki} + \varepsilon_{ni|s}. \quad (12)$$

The choice probability in class s is described as

$$P_{k|s}(i) = \frac{\exp(\mu_s \beta'_s \mathbf{x}_{ki})}{\sum_{j \in C} \exp(\mu_s \beta'_s \mathbf{x}_{kj})} \quad (13)$$

where β_s and μ_s are class-specific parameters to class s and a class-specific scale parameter to class s , respectively.

Following Swait (1994) and Boxall and Adamowicz (2002), consider a latent class membership function M^* that classifies individuals into one of the classes. Since explanatory variables \mathbf{z}_k are used in the classification, we can include the general attitudes and perceptions as well as the socioeconomic characteristics of the individuals. When individual k belongs to class s , the latent class membership function is described by

$$M_{ks}^* = \gamma'_s \mathbf{z}_k + \zeta_{ks} \quad (14)$$

where γ_s and ζ_{ks} are the estimated parameters and the error term, respectively. We assume that ζ_{ks} is distributed independently and identically with a type I extreme value distribution. Then, the probability P_{ks} that individual k is classified into class s is described as

$$P_{ks} = \frac{\exp(\lambda \gamma'_s \mathbf{z}_k)}{\sum_{s^*=1}^S \exp(\lambda \gamma'_{s^*} \mathbf{z}_k)} \quad (15)$$

where λ is a scale parameter, s^* is a segment, and s is the specific segment. In the estimation, the parameters in one class should be set to zero, so it can be used as the standard.

Consider the probability $P_k(i)$ that individual k chooses alternative i . The choice probability is expressed as

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$$P_k(i) = \sum_{s=1}^S \left[\frac{\exp(\lambda \gamma'_s z_{ki})}{\sum_{s'=1}^S \exp(\lambda \gamma'_{s'} z_{ki})} \right] \left[\frac{\exp(\mu_s \beta'_s x_{ki})}{\sum_{j \in C} \exp(\mu_s \beta'_s x_{kj})} \right]. \quad (16)$$

IV Results

The results of the conditional logit and mixed logit models are shown in Table 4. In the mixed logit model, we assume a normal distribution in the distribution of parameters. The number of iterations is 100. The coefficient of variation is defined as the standard deviation (S.D.) divided by the mean. The *Dividend* is assumed to be fixed. We estimate panel data model (Train, 2009).

All the variables are significantly estimated. The negative coefficient of *Product* means that the attractiveness of buying stocks decreases for a company whose products have had some issues or fraudulent labeling. The negative coefficient of *Politics* means that when a company is suspected of corruption or of making dubious political donations, people hesitate to buy its stocks. *Balance* and *Environment* have positive and significant coefficients. Therefore, companies that show concern about their employees' work-life balance and environmental issues increase their investment attractiveness. As expected, *Dividend* has a positive and significant coefficient. Therefore, people are interested in earning dividends. The results of the mixed logit model show that all the standard deviations are significant. This means that preference varies across individuals. The coefficient of variation of *Politics* is relatively small. This means that individuals tend to be repelled by corruption to a relatively similar extent. The low coefficients of variation of ASC1 and ASC2 show that the unwillingness to invest is relatively similar among individuals. On the other hand, evaluation of *Product*, *Balance*, and *Environment* differ among individuals, because their

Table 4. Estimation results of the conditional logit and mixed logit models

Model	Conditional logit model coefficient mean	Mixed logit model coefficient mean	S.D.	Coefficient of variation
<i>Product</i>	-0.2226*** (-9.41)	-0.6331*** (-10.39)	1.3121*** (16.81)	-2.0725
<i>Politics</i>	-0.4067*** (-18.71)	-1.1136*** (-14.95)	1.2774*** (16.79)	-1.1471
<i>Balance</i>	0.1368*** (6.44)	0.1928*** (5.12)	0.4857*** (9.84)	2.5192
<i>Environment</i>	0.0052*** (6.22)	0.0087*** (5.70)	0.0204*** (13.69)	2.3448
<i>Dividend</i>	0.0077*** (21.48)	0.0138*** (21.91)	— —	—
<i>ASC1</i>	-1.0142*** (-13.16)	-1.3814*** (-10.93)	1.2338*** (12.56)	-0.8932
<i>ASC2</i>	-0.9259*** (-12.80)	-1.1420*** (-10.10)	0.7912*** (4.96)	-0.6928
Sample size	5859	5859		
Log-likelihood	-5775.736	-4557.034		
Adjusted ρ^2	0.1027	0.2920		

Note 1. Numbers in parentheses are t-values.

Note 2. *** indicates significant at 1%.

Note 3. The dividend is assumed to be fixed.

coefficients of variation are larger than those of *Politics* and ASCs. We compare the results of the conditional and mixed logit models and find that taking the preference heterogeneity into consideration improves the adjusted ρ^2 . To further investigate the reasons for the variety among preferences, we refer to the results of the latent class model. Table 5 shows the information on the latent class models. To specify the number of classes, we use information criteria such as the minimum Akaike information criterion (AIC), AIC with a penalty factor of 3 (AIC3), and the Bayesian information criterion (BIC). These criteria are

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defined as

$$AIC = -2LL + 2K, \tag{17}$$

$$AIC3 = -2LL + 3K, \tag{18}$$

$$BIC = -2LL + \frac{2 + 2(K+1)(K+2)}{N-K-2}K \tag{19}$$

where LL is the log-likelihood, K is the number of parameters, and N is the sample size. First, we calculate AIC and BIC. However, each index supports different models. AIC supports a 5-class model, while BIC supports a 2-class model. Therefore, we also calculate AIC3. AIC3 supports a 3-class model, which is about the average of the number of classes supported by AIC and BIC. In addition, the increase in ρ^2 is the largest when the number of classes changes from 2 to 3 compared to the changes from 3 to 4 or from 4 to 5. Therefore, we decide to use a 3-class model.

Table 5. Information on the latent class model

Number of classes	Number of parameters	Log-likelihood at convergence	ρ^2	AIC	AIC3	BIC
2	19	-5612.272	0.1267	11263	11282	11389
3	31	-5584.514	0.1301	11231	11262	11438
4	43	-5568.553	0.1317	11223	11266	11510
5	55	-5551.876	0.1334	11214	11269	11581

Table 6 shows the parameters of the membership function for the 3-class model. We include *Age*, *Gender* (female = 1 and male = 0), *KnowCSR* (when the respondent has heard of the term “CSR” or knows what it means, the variable takes 1; otherwise, it takes 0), and *Participation* (when the respondent has experienced social activities such as volunteering, the variable takes 1; otherwise, it takes 0). In this case, class 3 is set as the standard. The people

Table 6. Parameters of the membership function for the 3-class model

Variables	Class 1	Class 2	Class 3
<i>Constant</i>	-0.3188 (-0.99)	1.0058*** (4.48)	0
<i>Age</i>	0.0048 (0.92)	-0.0177*** (-4.91)	0
<i>Gender</i>	0.4033** (2.32)	-0.6013*** (-4.91)	0
<i>KnowCSR</i>	-0.6908*** (-3.47)	-0.1158 (-0.75)	0
<i>Participation</i>	-0.1444 (-0.86)	0.0280 (0.25)	0

Note 1. *** and ** indicate significant at 1% and 5%, respectively.

Note 2. Numbers in parentheses are t-values.

belonging to class 1 tend to be female and people who have no knowledge of CSR, compared to those in class 3. On the other hand, class 2 consists of people who tend to be young and male.

Table 7 shows the results of the parameters of the attributes. People in class 1 do not view product management as an issue. However, people in class 2 tend to buy stocks of companies that have had product issues, unlike those in class 3. In the free answer part of the questionnaire, there is a description saying “even if a company had a trouble in the past, I want to support a company that makes a statement about their product issue honestly and changes its attitude faithfully.” Therefore, some people believe that companies that have experienced product issues will be careful about avoiding similar issues in the future. On the other hand, people in class 3 do not want to buy stocks of companies that have had product issues in the past.

As for the relationship with politics, all three classes show negative and significant estimates. Therefore, all the respondents avoid companies doing business in

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Table 7. Estimation results of attributes for the 3-class model

Variable	Class 1	Class 2	Class 3
<i>Product</i>	-0.2940 (-0.86)	0.1271*** (4.81)	-1.5859*** (-23.27)
<i>Politics</i>	-0.6218** (-2.34)	-0.1972*** (-8.55)	-1.7215*** (-25.25)
<i>Balance</i>	1.9178** (2.43)	0.0379* (1.68)	0.4620*** (9.56)
<i>Environment</i>	0.0914** (2.05)	0.0016* (1.70)	0.0171*** (9.14)
<i>Dividend</i>	0.0291** (2.24)	0.0084*** (19.82)	0.0161*** (17.34)
<i>ASC1</i>	-13.0874** (-2.22)	6.4900*** (5.63)	-1.8618*** (-11.11)
<i>ASC2</i>	-17.5117** (-2.39)	6.6540*** (5.78)	-1.4817*** (-9.83)
Sample size		5859	
Log-likelihood		-5584.514	
Adjusted ρ^2		0.1301	

Note 1. ***, ** and * indicate significant at 1%, 5% and 10%, respectively.

Note 2. Numbers in parentheses are t-values.

a politically unfair manner. Regarding employee work–life balance and environmental efforts, all three classes evaluate these issues positively. However, the extent of importance for people in class 2 is slightly lower than that for people in classes 1 and 3. All three classes show an interest in companies offering high dividends. ASC1 and ASC2 show that people in class 2 are relatively more willing to buy stocks of companies regardless of the type of social information (positive or negative) in contrast to class 1 and 3.

Next, we calculate the MWTP for each model. The results are summarized in Table 8. The MWTP based on the conditional logit model differs from that based

Table 8. Marginal willingness to pay to increase each attribute by one level

Variable	Latent class				
	Conditional Logit	Mixed logit	Class 1	Class 2	Class 3
<i>Product</i>	-28.9	-45.9	N.A.	15.1	-98.5
<i>Politics</i>	-52.8	-80.7	-21.4	-23.5	-106.9
<i>Balance</i>	17.8	14.0	65.9	4.5	28.7
<i>Environment</i>	21	18	93	6.0	33

Note. Unit: Japanese yen.

on the mixed logit model. Therefore, considering preference heterogeneity is important. On average, poor product management and corrupt political dealings with the government result in negative MWTP values, while good performances in terms of employee work–life balance and environmental efforts result in positive MWTP values. From the absolute MWTP, we can deduce that negative performance exerts a greater impact than positive performance. To further investigate the preference heterogeneity, we consider the MWTP values calculated using the latent class model and ascertain the respondents’ characteristics depending on the class they belong to. For example, the respondents in class 3 (wherein the share of elderly people is larger than that in class 2 and the share of respondents aware about CSR is larger than that in class 1) are strongly averse to the above-mentioned negative issues. For the respondents in class 3, the extent of decreased satisfaction owing to product issues almost equals the decrease in the dividend by 99 yen. On the other hand, the respondents in class 2 (wherein the share of young men is larger compared to those in class 3) are tolerant toward negative issues and do not evaluate positive issues highly; the respondents in class 2 will buy stocks regardless of the company’s CSR activities. The respondents in class 1 (wherein the shares of female and respon-

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dents unaware about CSR are large compared to the corresponding numbers in class 3) give priority to environmental issues. Among these three classes, the respondents in class 1 evaluate good governance (employee work–life balance and environmental issues) higher than those in the other classes. Therefore, according to this analysis, there are three types of people: those who are strongly averse to negative issues (class 3), those who evaluate positive issues strongly (class 1), and those who are not much concerned about CSR (class 2). The share of class 1, class 2, and class 3 in the sample is about 25%, 35%, and 40%, respectively.

Conclusion

We conducted a choice experiment to examine preferences among social issues, such as product management, relationship with the government, employee work–life balance, and environmental management. We found that many individuals who are interested in investment are averse to negative issues and tend to decide not to buy stocks of companies with such problems. Even if the company offers a high dividend, negative social issues offset the satisfaction of the high dividend. Notably, unfair business practices, such as corruption and suspect political donations, decrease willingness to buy stocks. On the other hand, even if the company offers a low dividend, a positive attitude toward employee work–life balance and environmental issues increases satisfaction and thus increases the tendency to buy the company’s stock. Moreover, it is possible to categorize people into specific types; their degrees of tolerance toward negative issues and their evaluations of positive issues differ markedly.

Although SRI is yet to mature in Japan, some CSR issues are positively evaluated. Our results suggest that Japanese individuals who are interested in

investment are concerned about CSR on average, although the tendency and extent differ among individuals.

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