

## **Determinants of Socially Responsible Investment Decisions**

Ann L. Owen  
Hamilton College

Yejun Qian  
Hamilton College

September 2008

**Abstract:** To identify the determinants of the decision to engage in socially responsible investing on an individual level, this paper develops a general investor choice model using ordered probit regressions, and accounts for the omitted observations with the help of the Heckman selection model. Drawing from a recently compiled dataset with more than 1,800 individual observations across the U.S., the paper shows that in addition to certain demographic characteristics such as gender, education and income, non-financial motives also play an important role as an individual investor decides whether or not to consider SRI products. Consumer environmental concerns, in particular, are found to carry through in one's investment choices.

## **1. Introduction**

In recent years, the idea of combining social good and financial return has garnered popularity. As an industry, socially responsible investing (SRI) has accumulated increasing influence, accounting for \$2.3 trillion out of \$24 trillion of total managed assets in the U.S. as of 2005 (Social Investment Forum (2005)). Despite the greater acceptance of SRI in the mainstream investment arena, many questions regarding this booming industry remain unanswered. While the majority of existing literature concerning SRI focuses on comparing SRI funds' performance to its conventional peers, relatively little attention is paid to the SRI investors themselves. Williams (2005) and Rosen et al (1991) have laid some important groundwork in this area, in which they attempt to characterize SRI investors in terms of demographics and investor attitudes toward social aims. This paper seeks to shed light on the characteristics and motivations of SRI investors by developing a general investor choice model. In identifying the determinants of the decision to engage in SRI on an individual level, this paper finds evidence that in addition to certain demographic characteristics, non-financial motives also play an important role in these investment decisions. Consumer environmental concerns, in particular, are found to carry through in one's investment choices.

## **2. Related Literature**

Given the nascent stage of the SRI industry, the vast majority of SRI literature is concerned with the relative performance of the SRI industry to that of the broader market and, to a lesser extent, with the magnitude of the social impact that some SRI proponents have suggested. A number of studies have found, somewhat counter-intuitively, that there is no financial penalty for socially screened mutual funds or direct investments in socially responsible firms. For example, early evidence found by Hamilton et al. (1993) suggests that investors "lose nothing" by investing in socially responsible companies, and that these companies gain nothing in terms of their expected stock returns and financial cost of capital. A more recent study by Waddock and Graves (2000) finds similar results on the company level. On the other hand, few empirical studies have paid much attention to the actual social impacts of SRI, possibly because of data limitations. One theoretical investigation by Heinkel et al. (2001), however, suggests that the current fraction of funds controlled by "green investors" does not meet the threshold for polluting companies to reform, undermining the theory advanced in Waddock and Graves (2000) that social investors may use SRI to pressure for positive social change.

With so many uncertainties about the SRI industry itself, it seems an even harder task to explain why and how people consider corporate social responsibility issues when making investment decisions. Earlier studies tend to focus more on standard demographic profiling and neoclassical utility-maximization assumptions. For example, Rosen et al (1991) uses a mail survey of 4,000 investors in two socially-screened mutual funds and finds that socially responsible investors are younger and better educated compared to their conventional counterparts. A subsequent study by Nagy and Obenberger (1994) conducts a factor analysis based on data from a mail questionnaire sent to a random sample of individual investors with substantial equity holdings in Fortune 500 companies. They claim that classical wealth maximization criteria such as "expected earnings" and "risk minimization" dominate in individual investors' decision-making process when compared to contemporary concerns,

including a firm's environmental track record and "ethical posture." Both studies emphasize the importance of financial return as a key consideration for individual investors, which is not surprising but seems to inadequately account for the more recent surge in SRI activities in the U.S., in the absence of evidence that socially responsible investors receive superior financial returns than their traditional peers.

To explain this inconsistency, recent studies pay more attention to theories outside the traditional risk/return framework. For example, Statman (2004) argues that utilitarian benefits of investments should be complemented by expressive benefits such as social responsibility and status. Beal et al. (2005) shares a similar view, and proposes in broad terms two other factors that influence the individual SRI decision in addition to financial returns: psychic returns and social change. Recent literature that explicitly or implicitly acknowledges the psychic return theory in SRI decisions includes Williams (2005), who claims that consumer behavior and attitudes toward social aims carry through in portfolio strategies. While there is some empirical support for consumer preference for responsible companies, Mohr et al. (2001) asserts that only a small group of consumers actively use corporate social responsibility as a purchasing criterion. Moreover, Katz et al. (2001) suggests that culture-based tendencies shape a nation's expectations of social responsibility, which can also weaken the explanatory power of consumer preference in SRI decisions across different cultures. Other studies have examined this "psychic return" factor from different angles. For example, Webley et al. (2001) provides experimental evidence against the financial return and social change motives, as ethical investors were found to keep or even increase their ethical holdings when such investments performed poorly or proved to be ethically ineffective. This implies that ethical investors base their investment decisions more on ideology than financial return or impact of investment, and lends support to the existence of psychic returns as previously mentioned.

This paper builds upon this more recent literature, examining the individual characteristics that may be more related to psychic rather than financial returns of socially responsible investing. It uses a large, recently compiled dataset that consists of a variety of individual characteristics. The use of new data will help provide timely evidence for comparison with earlier studies and shed light on the latest trends in the SRI industry. The remainder of the paper proceeds as follows: Section 3 introduces the data and methods, section 4 discusses the results and section 5 concludes.

### **3. Data and Methods**

The dataset used comes from a nationally representative survey conducted in the Fall of 2007 which contains information on individuals' attitudes and behavior toward the environment, time discounting and risk preferences, participation in religious groups, as well as other demographic and attitudinal information.<sup>1</sup> Out of a total sample of 1,808 respondents from across the U.S., investors are identified using the following question:

---

<sup>1</sup>The survey was conducted using the Knowledge Networks panel. To download the data and obtain a more thorough description of the survey and survey methodology, see [http://www.hamilton.edu/levitt/Sustainability/Environmental\\_survey\\_2008.html](http://www.hamilton.edu/levitt/Sustainability/Environmental_survey_2008.html).

*“When making investment decisions, how often do you consider whether or not the companies you are investing in are socially responsible?”*

1. *Never*
2. *Occasionally*
3. *Frequently*
4. *Nearly all the time*
5. *N/A—I don’t have investments or make investment decisions”*

All respondents choosing options 1 through 4 are considered “investors” and constitute approximately 65% of the sample. This paper builds upon the General SRI Choice Model developed by Williams (2005), and extends it to an ordered probit model to allow for more variation in outcomes. To account for the excluded observations according to the above question, it then uses the Heckman model and tests for any inconsistencies with the results generated by the ordered probit model.

The independent variables used in the estimation fall into two categories, demographics and attitudinal variables. Demographic variables include age and age squared, the natural log of household income, dummy variables for gender, race, married, unemployed and three dummy variables for education. Variables measuring attitudes and values include a dummy variable if individuals belong to religious organizations, a series of dummy variables indicating the frequency with which individuals purchase environmentally friendly products, and a series of dummy variables indicating if they expect to leave an inheritance. Descriptive statistics for all variables used in the estimation appear in Table 1.

Although several of the demographic variables are entered simply as control variables, we do expect some of the coefficients on these demographic variables to have a meaningful interpretation. Specifically, we expect that more highly educated individuals would have lower transaction costs for obtaining information about socially responsible investing and would be more likely to engage in this behavior frequently. We also expect females to be more likely to consider SRI based on the conclusions of previous researchers (e.g., Eckel et al, 1998), that females are more socially-oriented.

For the attitudinal variables, we expect that individuals who belong to religious organizations, who expect to leave an inheritance, and who purchase environmentally friendly products would be more likely to consider SRI. These expectations are based on the idea that individuals who participate in religious groups may be more likely to gain utility from considering non-financial returns. Similarly, expectations of leaving an inheritance may be an indication that individuals have a concern about future generations and are therefore likely to value socially responsible behavior that considers longer run societal impact. Finally, individuals who purchase environmentally friendly products are already demonstrating economic behavior that is driven by a concern for the public good.

#### **4. Results**

The results of the ordered probit regression are presented in Table 2. In the baseline model (Column 1), only demographic variables are included. Columns 2 through 4 each add one attitudinal variable and Column 5 includes all variables simultaneously. In interpreting these results, recall that these are reported only for those who make investment decisions. In a subsequent estimation, we report results that account for possible sample selection biases.

The results in Table 2 allow a few expected conclusions, but also provide some unexpected results. First, our hypothesis that women may be more likely to consider social responsibility when making investment decisions is borne out by the negative and significant coefficient on the dummy variable indicating if the respondent is male in four of the five estimations. In contrast, race, age, marital status, and employment status do not enter the estimations in a consistent and statistically significant way. Somewhat surprisingly, individuals who have not finished high school are more likely to report considering social responsibility of corporations when making investment decisions. Consistent with this finding, higher household income is associated with lower probabilities of making social responsibility a consideration. Possibly, lower income, less educated individuals may feel more vulnerable to corporate decisions and therefore are more likely to invest in companies that use socially responsible criteria in decision making.

The results in columns 2, 3 and 4 indicate that the attitudinal variables all enter the estimations as expected. The positive and significant coefficient on membership in religious organizations in column 3 indicates that people who belong to religious groups are more likely to consider social responsibility in investment decisions. Similarly, the positive coefficients on the three dummy variables indicating a greater likelihood of leaving an inheritance suggest that individuals with intergenerational concerns are also more likely to consider social responsibility. Finally, people who purchase environmentally friendly products as consumers also seem to carry over their societal concerns to investment decisions. When all variables are included in the same estimation (column 5 of Table 2), most of these conclusions remain intact, except the significance levels of the coefficients on expectations to leave an inheritance drop below ten percent.

Of course, one concern with these results is that they are affected by sample selection bias. Approximately 35 percent of the original sample indicated that they did not make investment decisions. To see if our results are affected by this, we present results from a Heckman selection model in Table 3.<sup>2</sup> The first column in Table 3 is comparable to the fifth column of Table 2. The comparison of these two sets of results indicates that the sample selection is not affecting the conclusions drawn. The second column of table 3, presents the results from the selection equation predicting whether or not individuals state that they make investment decisions. These coefficients deliver expected interpretations with male, more educated, higher income respondents reporting being more likely to make investment decisions.

## 5. Conclusion

To identify the determinants of the decision to engage in SRI on an individual level, this paper develops a general investor choice model using ordered probit regression, and accounts for omitted observations using the Heckman model. It finds evidence that demographic characteristics as well as non-financial motives play an important role as investors decide whether or not to consider SRI products. In particular, the results suggest that female investors, those who actively participate in religious groups, and those who consider the societal impact of their purchases as consumers are more likely to be interested in the social aspects of the companies they invest in. There is weaker evidence that individuals who expect to leave an

---

<sup>2</sup> Results in column 1 of Table 3 are estimated via OLS in the Heckman procedure rather than an ordered probit. However, we do not believe that this affects the conclusions that we draw. OLS estimation of the specifications reported in Table 2 provides similar results and conclusions to the ordered probit results.

inheritance are also more likely to consider corporate social responsibility in investment decisions. Unlike what Rosen et al. (1991) concluded their survey, age is found to have little impact on the SRI decision.

These findings lend further support to the theory that the decision to invest responsibly should be explained by non-financial considerations in addition to financial ones. In particular, it confirms the theory, as advanced by Williams (2005), that consumer behavior carries through in one's portfolio strategy. It also provides empirical evidence toward the existence of psychic returns from investing, as proposed by Beal et al (2005). Claims that the social performance of companies is only given "cursory" considerations, as suggested by Naby et al (1994), cannot be reconciled with the evidence presented in this paper.

**Table 1: Descriptive Statistics**

Variable	Mean	SD	Definition
SRI=1	.274	.252	Never considers corporate social responsibility
SRI=2	.384	.299	Occasionally considers corporate social responsibility
SRI=3	.218	.225	Frequently considers corporate social responsibility
SRI=4	.124	.170	Considers corporate social responsibility nearly all the time
Male	.505	.500	=1 if male
White	.767	.423	=1 if white, non-Hispanic
Married	.634	.481	=1 if married
Unemployed	.022	.149	=1 if unemployed
Not finished high school	.092	.289	=1 if never finished high school
High school	.260	.439	=1 if high school highest level of school
Some college	.294	.456	=1 if some college highest level of school
Age	49.2	16.22	Age in years
Ln(household income)	10.74	.814	Log of household income
Religious organizations	.192	.394	=1 if belongs to religious organizations
Product=2	.316	.465	=1 if occasionally purchases environmentally friendly products
Product=3	.401	.490	=1 if frequently purchases environmentally friendly products
Product=4	.231	.422	=1 if purchases environmentally friendly products nearly all the time
Inheritexp=2	.25	.433	=1 if probably won't leave inheritance
Inheritexp=3	.358	.480	=1 if not sure if will leave inheritance
Inheritexp=4	.220	.414	=1 if probably will leave inheritance
Inheritexp=5	.084	.277	=1 if definitely will leave inheritance

Uses 1,055 observations that are used in Table 2 estimations.

**Table 2: Ordered Probit Results**

	(1)	(2)	(3)	(4)	(5)
	Invest	Invest	Invest	Invest	Invest
Male	-0.199	-0.170	-0.205	-0.125	-0.100
	(3.13)***	(2.53)**	(3.20)***	(1.94)*	(1.45)
White	-0.157	-0.124	-0.103	-0.109	-0.095
	(2.09)**	(1.54)	(1.35)	(1.43)	(1.16)
Married	-0.141	-0.086	-0.081	-0.096	-0.141
	(2.06)**	(1.16)	(1.14)	(1.35)	(1.85)*
Unemployed	-0.111	-0.161	-0.147	-0.109	-0.133
	(0.54)	(0.71)	(0.71)	(0.52)	(0.58)
Not finished high school	0.390	0.307	0.246	0.303	0.330
	(3.29)***	(2.30)**	(1.98)**	(2.44)**	(2.42)**
High school	0.172	0.086	0.069	0.132	0.149
	(2.06)**	(0.95)	(0.79)	(1.51)	(1.61)
Some college	0.108	0.069	0.040	0.043	0.036
	(1.36)	(0.82)	(0.49)	(0.53)	(0.42)
Age	-0.003	0.007	0.005	-0.006	0.002
	(0.28)	(0.56)	(0.41)	(0.56)	(0.19)
Age*Age	0.000	0.000	0.000	0.000	0.000
	(0.95)	(0.02)	(0.19)	(0.88)	(0.14)
Ln(household income)		-0.186	-0.205	-0.172	-0.178
		(3.96)***	(4.55)***	(3.89)***	(3.65)***
Religious organizations		0.163			0.155
		(1.91)*			(1.79)*
Product=2				0.344	0.275
				(2.09)**	(1.62)
Product=3				0.849	0.801
				(5.19)***	(4.76)***
Product=4				1.249	1.199
				(7.31)***	(6.81)***
Inheritexp=2			0.132		0.091
			(1.04)		(0.68)
Inheritexp=3			0.208		0.187
			(1.68)*		(1.44)
Inheritexp=4			0.222		0.187
			(1.68)*		(1.36)
Inheritexp=5			0.352		0.255
			(2.22)**		(1.53)
Observations	1155	1055	1151	1152	1050

Absolute value of z statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 3: Results for Heckman Selection Model**

	SRI	Selection Equation
Male	-.196 (1.47)	.218*** (3.15)
White	-.096 (1.33)	.101 (1.30)
Married	-.118* (1.76)	.080 (1.05)
Unemployed	-.096 (0.50)	-.141 (0.77)
Not finished high school	.374* (1.72)	-.766*** (6.31)
High school	.184 (1.37)	-.542*** (5.62)
Some college	.061 (0.69)	-.293*** (3.04)
Age	-.0001 (0.01)	.004 (0.35)
Age*Age	.00003 (0.28)	.00002 (0.15)
Ln(household income)	-.182** (2.27)	.290*** (6.67)
Religious organizations	.136* (1.89)	-.019 (0.21)
Product=2	.158 (1.19)	.061 (0.42)
Product=3	.555*** (3.82)	.258* (1.74)
Product=4	.916*** (6.33)	.178 (1.16)
Inheritexp=2	.040 (0.34)	.167 (1.47)
Inheritexp=3	.091 (0.64)	.381*** (3.41)
Inheritexp=4	.077 (0.42)	.657*** (4.99)
Inheritexp=5	.126 (0.66)	.588*** (3.51)
Considered Household Head		.241** (2.42)
Observations	1,050	1,632

|z| in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

## References

- Beal, D., Goyen, M., and Phillips, P. (2005): "Why Do We Invest Ethically?" *Journal of Investing*, 14(3): 66-77.
- Eckel, C.C. and Grossman, P.J. (1998): "Are Women Less Selfish than Men? Evidence from Dictator Experiments" *The Economic Journal*, 108: 726-735.
- Hamilton, S., Jo, H., and Statman, M. (1993): "Doing Well While Doing Good? The Investment Performance of Socially Responsible Mutual Funds" *Financial Analyst Journal*, 49(6): 62-66.
- Heinkel, R., Kraus, A., and Zechner, J. (2001): "The Effect of Green Investment on Corporate Behavior" *Journal of Financial and Quantitative Analysis*, 36(4).
- Katz, J.P., Swanson, D.L., and Nelson, L.K. (2001): "Culture-Based Expectations of Corporate Citizenship: A Propositional Framework and Comparison of Four Cultures" *The International Journal of Organizational Analysis*, 9(2): 149-171.
- Mohr, L.A., Webb, D.J. and Harris, K.E. (2001): "Do Consumers Expect Companies to be Socially Responsible? The Impact of CSR on Buying Behavior" *The Journal of Consumer Affairs*, 35(1).
- Nagy, R.A., and Obenberger, R.W. (1994): "Factors Influencing Individual Investor Behavior" *Financial Analyst Journal*, 50(4): 63-68.
- Rosen, B.N., Sandler, D.M., and Shani, D. (1991) "Social Issues and Socially Responsible Investment Behavior: A Preliminary Empirical Investigation" *Journal of Consumer Affairs*, 25(2): 221-234.
- Social Investment Forum (SIF) (2005): "Report on Socially Responsible Investing Trends in the United States" Washington: Social Investment Forum.
- Statman, M. (2004): "What Do Investors Want?" Working paper, SSRN, <http://ssrn.com/abstract=603683>.
- Waddock, S., and Graves, S.B. (2000): "Performance Characteristics of Social and Traditional Investments" *Journal of Investing*, 9(2): 27.
- Webley, P., Lewis, A., and Mackenzie, C. (2001): "Commitment among Ethical Investors: An Empirical Approach" *Journal of Economic Psychology* 22: 27-42.
- Williams, G.A. (2005) "Some Determinants of the Socially Responsible Investment Decision: A Cross Country Study" *Journal of Behavioral Finance*, 8(1): 43-57.