

5-4-2013

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Recommended Citation

Dilla, William N.; Janvrin, Diane J.; Perkins, Jon D.; and Raschke, Robyn, "Investor Attitudes, Investment Screen Use, and Socially Responsible Investment Behavior" (2013). *Accounting Publications*. 7.

http://lib.dr.iastate.edu/acct_pubs/7

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Investor Attitudes, Investment Screen Use, and Socially Responsible Investment Behavior

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ABSTRACT: There is an increasing demand for socially responsible investment (SRI), and SRI screens are an important source of information for investors. Yet, little is known about the relationship between investors' attitudes, use of SRI screens, and actual SRI behavior. To examine this relationship, we gathered data on investors' environmental attitudes, use of SRI screens, and SRI behavior. We find that four out of five components of the New Ecological Paradigm (NEP) scale, a measure of basic environmental attitudes, are associated with specific attitudes towards environmentally responsible investment. These specific attitudes in turn are positively associated with SRI screen use, and SRI screen use is positively associated with the percentage of investors' portfolio held in SRIs. There is also a significant direct relationship between specific environmentally responsible investment attitudes and SRI holdings. Our results suggest that there are complex, multi-dimensional relationships between investor attitudes, SRI screen use, and investment behavior.

Keywords: environmental attitudes, sustainability reporting, socially responsible investment, new ecological paradigm scale.

Acknowledgements: We gratefully acknowledge comments from workshop participants at Iowa State University.

Investor Attitudes, Investment Screen Use, and Socially Responsible Investment Behavior

INTRODUCTION

This study examines the relationship between investors' attitudes, their use of socially responsible investment (SRI) screening tools, and their actual SRI behavior. The demand for SRIs, either directly or through SRI mutual funds, has increased considerably in recent years, as the investing community has become increasingly aware of concerns about corporate social responsibility (CSR) (Friedman and Miles 2001; Sparkes and Cowton 2004; Nilsson 2008; USSIF 2012). Today, more than one out of every nine dollars under professional management in the US is invested in SRIs totaling \$3.74 trillion, a 22 percent increase since year-end 2009 (USSIF 2012, 11). There is evidence that socially responsible investors use CSR performance information (Cohen et al. 2011), and that the supply of such information is rapidly increasing (Holder-Webb et al. 2009; KPMG 2011).

Individuals considering SRI, however, are often challenged by the lack of consistent, reliable information concerning companies' CSR performance (Eccles et al. 2012). SRI investment screening tools (i.e., SRI screens) attempt to mitigate this problem by providing CSR data in a summarized, standardized format. For example, the MSCI ESG (Environmental, Social, and Governance) Composite Rating is a measure of how effectively companies manage ESG risks and address ESG opportunities (Fidelity 2013; MSCI 2013). The information aggregator (MSCI Research) develops these ratings by gathering publicly available data, summarizing it, and expressing it on a standardized scale. Investors can use these screening tools (i.e., SRI screens) directly to choose SRIs, or rely on them indirectly by investing in a mutual fund such as the TIAA Social Choice fund, which uses SRI screens as part of its investment selection criteria (TIAA 2012, 32).

Despite the increasing demand for SRI and the importance of information intermediaries in providing CSR performance information through SRI screens, relatively little is known about the relationship between investors' attitudes, their use of SRI screens, and their actual SRI behavior. Shafer (2006) finds a positive association between the New Ecological Paradigm (NEP), a measure of basic attitudes towards ecological sustainability, and support for corporate environmental accountability. McLachlan and Gardner (2004), Williams (2007), and Nilsson (2008) all find a positive relationship between investor attitudes towards specific aspects of CSR and individuals' SRI behavior. These three studies, however, do not examine the relationship between so-called "primitive," or basic pro-social beliefs, such as those captured by the NEP scale (Dunlap et al. 2000; Dunlap 2008) and SRI behavior. We therefore are unaware of any studies that simultaneously examine the relationships between investors' basic pro-social attitudes and their specific attitudes towards SRI, their use of SRI information, and inclusion of SRIs in their portfolios.

To examine these relationships, we assess 195 nonprofessional investors' basic ecological sustainability attitudes using the Dunlap et al. (2000) revised NEP scale. We focus specifically on environmental attitudes, since research on the development and validation of assessment scales in this area is much more extensive than in other CSR-related domains (Dunlap 2008; Hawcroft and Milfont 2010). We also assess nonprofessional investors' specific attitudes towards environmentally responsible investment using an instrument designed for this study. Finally, we ask the investors about their use of SRI stock and mutual fund screens and the percentage of their portfolio held in SRIs.

Our data show that attitude dimensions representing four out of five of the original NEP components are positively correlated with attitudes towards environmentally responsible

investment. A dimension representing the NEP component of anti-exemptionalism (i.e., rejecting the idea that humans are somehow exempt from the constraints of nature), is not correlated with attitudes towards environmentally responsible investment. Next, we find that investors' attitudes towards environmentally responsible investment are positively associated with the use of SRI stock and mutual fund screens, and that use of these screens is positively associated with the percentage of their portfolio that investors hold in SRIs. There is also a positive, direct linkage between investors' attitudes towards environmentally responsible investment and the percentage of their portfolio they hold in SRIs. Finally, we find a direct negative relationship between anti-exemptionalism and the percentage of investors' portfolios held in SRIs.

Our study extends earlier research to simultaneously examine the influence of basic beliefs regarding ecological sustainability and specific beliefs about corporate environmental responsibility on individuals' use of SRI screens and the degree to which they hold SRIs as opposed to other investments. Our results suggest that for the environmental performance component of CSR, there is a complex, multi-dimensional relationship between investor attitudes, their use of SRI screens, and investment behavior. There is also a significant direct linkage between investor environmental attitudes and investment behavior, independent of SRI screen use.

The next section reviews the relevant research and develops our research hypotheses. Then we describe the research method and present our results. The final section summarizes our findings and discusses future research opportunities with respect to the issues addressed in this paper.

THEORY AND HYPOTHESES

Investor Attitudes and Socially Responsible Investment Behavior

Moser and Martin (2012) describe two different perspectives on CSR activities. The first, which is based on traditional accounting, finance, and economic theory, is that companies engage in socially responsible activities only when doing so maximizes shareholder value. An alternative perspective is that companies might make socially responsible expenditures to benefit society, even if doing so decreases shareholder value. Investors with strong pro-social beliefs may therefore invest in socially responsible companies, even if this means incurring an “ethical penalty” for lower returns on investment (McLachlan and Gardner 2004). If the first perspective is true, then rational investors should rely on CSR performance information to choose SRIs to include in their portfolios, regardless of their attitudes towards CSR. On the other hand, the second perspective suggests that investors’ attitudes towards CSR should influence their decisions to use CSR performance information and choose SRIs.

Writing from a management research perspective, Cheah et al. (2011) describe two investor ‘views’ which also suggest that attitudes are important in the decision to choose SRIs. The first view is that some investors may consider a company’s financial performance to be less important than its social and environmental performance. This view is consistent with the idea that investors may give a higher priority to promoting social and environmental concerns than to maximizing shareholder wealth (McLachlan and Gardner 2004). Cheah et al’s (2011) second investor view is that companies should be more (or less) responsible to their shareholders than to the broader society. This view reflects divergent opinions about whether management can maximize a firm’s value by focusing exclusively on shareholder wealth maximization, as opposed to considering outside stakeholders’ interests. The degree to which a company engages

in CSR activities is viewed as a signal that management places a greater or lesser priority on shareholder versus outside stakeholder interests. Therefore, these two views suggest that individuals with strong pro-social attitudes will be inclined to choose SRIs because they: (1) view such investments as a means of promoting social and environmental concerns or (2) believe that an organization which responds to a wider range of stakeholder interests will ultimately be more successful in maximizing shareholder wealth.

Indeed, prior research provides evidence of an association between investor attitudes and SRI behavior. McLachlan and Gardner (2004) report that specific ethical issues such as environmental record, third world exploitation, racism, and sexism were more important in investment decision making for socially responsible investors (i.e., investors who were customers of an ethical investment provider or who held ethical investments) than for conventional investors (i.e., investors who were customers of a conventional investment provider and who did not hold any ethical investments). Williams (2007) reports that beliefs such as whether a company should be more responsible to society than to its shareholders and whether a company's social and environmental performance is as important as its financial performance influence the decision to invest in SRIs. Finally, Nilsson (2008) finds a positive association between investors' pro-social attitudes specific to SRI, such as whether it was important that the companies they buy from respect workplace rights, work actively with environmental issues, respect human rights, do not produce harmful goods (i.e., weapons), and do not use unethical business practices, and the percentage of their portfolio that they hold in SRI-profiled mutual funds. These research results are all consistent with the perspective that investors choose SRIs as a means of promoting social and environmental concerns or of favoring companies that are responsive to a diverse set of stakeholders' interests.

On the other hand, evidence of a positive relation between CSR performance and firm value is emerging (e.g., Margolis et al. 2009; Plumlee et al. 2010; Dhaliwal et al. 2011; Prakash et al. 2011). These findings are consistent with the first perspective described by Moser and Martin (2012), namely, that companies engage in socially responsible activities in order to maximize shareholder value. It is also in agreement with a third view of SRI described by Cheah et al (2011), which is that socially responsible companies are more profitable than socially irresponsible companies.¹ Both the Moser and Martin (2012) perspective on management behavior and Cheah et al's (2011) view of investor beliefs are consistent with agency theory, which suggests that management will only undertake socially responsible business strategies if such strategies satisfy shareholders' wealth maximization objectives (Jensen and Meckling 1976). Therefore, if positive CSR performance does indeed increase firm value, then rational investors should consider CSR performance information to be important and choose SRIs, regardless of their attitudes toward CSR.

Evidence that socially responsible decisions maximize shareholder value, however, contradicts the Dominant Social Paradigm (DSP) in western societies. The DSP is a world view that provides support for such concepts as free enterprise, private property rights, economic individualism, and unlimited economic growth (Dunlap and Van Liere 1978; Kilbourne et al. 2002; Shafer 2006). These values suggest that maximizing shareholder wealth is of paramount importance and takes precedence over CSR attributes such as social responsibility to the community, fair labor practices, and minimizing the impact of operations on the environment. While support for alternative world views to the Western DSP has been emerging in recent years (Dunlap 2008; Milfont and Duckitt 2010), a key characteristic of the DSP is that its support for

¹ In addition to the three CSR investor views discussed here, Cheah et al (2011) describe a fourth view, which is that the accuracy of financial statements of many companies cannot be trusted. This relates to the reliability of *financial* information and is therefore not relevant to our discussion of factors that influence investors to choose SRIs.

free-market capitalism, its disdain for government regulation, and its belief in the unlimited potential for economic growth “provides the primary rationale for the *status quo* in the global capitalist economy” (Shafer 2006, 122). Coupled with this status quo is the tendency for its supporters to ignore or even suppress any evidence that undermines the hegemony of the DSP (Gray 2002; Dunlap 2008). Thus, individuals with strong DSP beliefs may discount evidence regarding CSR performance in making investment decisions, while individuals who reject the DSP may incorporate such evidence, or possibly even overweight it.

In summary, the viewpoint that firms choose to engage in CSR activities as a means of advancing outside stakeholders’ interests regarding social and environmental concerns, as opposed to maximizing shareholder value, suggests that investors’ pro-social attitudes will influence their reliance on the CSR information contained in SRI screens, as well as their SRI choices. The viewpoint that firms engage in CSR activities only when doing so will increase shareholder value suggests that investors will rely on the information contained in SRI screens to choose investments, regardless of their attitudes. The hegemony of the Western DSP, however, suggests that investors may be slow to accept this worldview. Thus, it appears that both perspectives on socially responsible corporate activities described by Moser and Martin (2012), as well as the divergent investor views on SRI described by Cheah et al. (2011), indicate that investors’ reliance on SRI screens and their SRI choices will depend on their attitudes.

Basic versus Specific CSR Attitudes

Social science researchers have widely studied and analyzed basic attitudes towards environmental sustainability. Dunlap and Van Liere (1978) developed the original NEP scale as a measure of pro-environmental orientation, motivated in part by the observation that members

of the general public were beginning to reject the anti-environmental views contained within the DSP. While there is a considerable research literature dedicated to validating and refining the NEP and similar environmental attitude scales (Dunlap et al. 2000; Dunlap 2008; Milfont and Duckitt 2010), their use in business-related contexts is rare. An exception is Shafer (2006), which investigates the association between a measure of basic environmental sustainability attitudes (the NEP) and investor demands for environmental performance information.

The original NEP scale focused on three dimensions: beliefs about humanity's ability to upset the balance of nature, the existence of limits to growth for human societies, and humanity's right to rule over the rest of nature (i.e., anti-anthropocentrism) (Dunlap and Van Liere 1978). Dunlap et al. (2000) added two dimensions when they developed the revised NEP scale in order to better tap "primitive beliefs" about the nature of the earth and humanity's relationship to it. These dimensions represent beliefs about the likelihood of catastrophic environmental changes (i.e., "ecocrises") and rejection of the notion that humans, unlike other species, are somehow exempt from the constraints of nature (i.e., anti-exemptionalism).

To date, studies which report an association between investor attitudes and SRI behavior typically use attitude scales that focus directly on specific aspects of CSR, such as working actively with environmental issues, respecting workers' rights, and avoiding unethical business practices (McLachlan and Gardner 2004; Williams 2007; Nilsson 2008). None of these studies examines the relationship between basic environmental sustainability attitudes and specific attitudes toward environmentally responsible investment. There is evidence, however, of an association between basic environmental attitudes and specific attitudes towards pro-environmental behaviors such as recycling, refraining from driving, and contributing to an organization which promotes environmental causes (Stern et al. 1999; Kaiser et al. 2005; Oreg

and Katz-Gerro, 2006). Therefore, it is likely that investors' basic views about environmental sustainability may drive their specific attitudes towards environmentally responsible investment.

This leads to the following hypothesis.

H1: Investors' basic attitudes towards environmental sustainability will be positively associated with their specific attitudes towards environmentally responsible investment.

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Shafer (2006) finds a positive association between pro-environmental attitudes measured by the revised NEP scale and support for corporate environmental accountability, as defined on three dimensions: (1) individual executive accountability, (2) corporate accountability, and (3) adoption of standards for environmental accountability, including mandatory reporting rules. Given the discussion leading to the development of H1, it appears likely that specific attitudes towards environmentally responsible investment will also be associated with a demand for corporate environmental accountability on these dimensions. Further, it is reasonable to assume that the demand for provision of environmental accountability information found by Shafer (2006) implies a tendency to use such information. Environmental performance information is an important part of overall CSR disclosure, and concerns about environmental performance have been shown to be strongly associated with other CSR-related concerns that are reflected in SRI screens (Nilsson 2008). Therefore, we predict a positive association between attitudes towards environmentally responsible investment and the use of SRI screens, as stated in the following hypothesis.

H2: Investors' specific attitudes towards environmentally responsible investment will be positively associated with their use of SRI screens.

Cohen et al. (2011) find that socially responsible investors' preferred source for CSR information is third parties, followed by financial professionals and advisors. Such reliance on third party information accords with the lack of consistent, reliable information concerning companies' CSR performance reported by Eccles et al. (2012). Thus, there is likely to be an association between use of screened SRI information and individuals' SRI behavior, as reflected in the following hypothesis.

H3: Investors' use of SRI screens will be positively associated with the percentage of their portfolio held in SRIs.

H2 and H3 suggest a linkage between specific attitudes towards environmentally responsible investment and SRI investment behavior, mediated by the use of screened SRI information. However, McLachlan and Gardner (2004), Williams (2007), and Nilsson (2008) all suggest a strong association between "pro-social" attitudes and SRI investment behavior. This suggests that such a relationship may exist, independent of investors' information use. In the context of pro-environmental attitudes, we propose the following hypothesis.

H4: Investors' specific attitudes towards environmentally responsible investment will have a positive, direct association with the percentage of their portfolio held in SRIs.

Figure 1 graphically presents the hypothesized relationships between investors' basic attitudes towards environmental sustainability, their specific attitudes towards environmentally responsible investment, their use of SRI screens, and the percentage of their portfolios held in SRIs.

Insert Figure 1 about here.

METHOD

Participants and Procedure

One hundred ninety-five nonprofessional investors participated in the study. All participants were 24 years of age or older and had engaged in investment activity within the last five years. Investment activity includes: (1) buying or selling stocks, bonds, or mutual funds at least once or (2) managing asset or contribution allocations in a retirement fund account. Ninety-six were certified public accountants participating in an accounting continuing education program and 99 were faculty and staff at a large public university recruited through an e-mail announcement. The continuing education participants had a one-in-ten chance of winning a \$50 gift card to the university's bookstore in a random drawing. The other participants were given a flat \$25 cash payment at the end of the study.

Participants' mean age is 43.0 years, and ranges from 24 to 73. One hundred eight (55.4 percent) were female. One hundred twenty-seven (65.1 percent) of participants report actively trading stock within the last five years. Ninety-four (48.2 percent) report actively trading stock for more than two years.

Participants completed the study in a lab setting using custom-designed software. During the first part of the study, participants viewed summary financial and environmental performance information for a hypothetical diversified manufacturing company. They indicated judgments of the company's desirability as an investment and of how much of \$10,000 US they would invest in the company versus a fixed-yield savings account. After making these judgments, participants responded to a series of questions about the financial and environmental performance information they had just viewed.²

² Procedures and results for this phase of the study are described in detail in (Dilla et al. 2013).

Subsequent to completing these tasks, participants completed the 15-item Revised NEP Scale (Dunlap et al. 2000) to assess their basic attitudes towards environmental sustainability (Exhibit 1) and six questions designed to assess their specific attitudes towards environmentally responsible investing (Exhibit 2). They responded to two further questions: “I use socially responsible investing products or services, such as SRI stock and mutual fund screens.” and “Please estimate the percentage of the value of your portfolio presently invested in socially responsible investments.”³ Finally, participants responded to a series of demographic questions.

Insert Exhibits 1 and 2 about here.

Data Analysis

Environmental Attitude Measures

Responses to the 15 Revised NEP Scale questions are coded on five-point scales, so that -2 = “strongly disagree” and +2 = “strongly agree.” Even-numbered items on the scale are reverse-coded, so that positively coded items are always consistent with a pro-environmental orientation. While the Revised NEP scale is based on five dimensions, the dimensionality of the scale has been shown to vary considerably from study to study (Dunlap 2008). Therefore, Dunlap (2008, also see Dunlap et al. 2000) suggests analyzing Revised NEP Scale data to determine whether it should be treated as a single or multidimensional scale. Accordingly, we performed principal components analysis with varimax rotation on our Revised NEP Scale data. Table 1 presents these results.

³ Participants indicated the percentage of their portfolio invested in SRIs on a Likert-type scale with endpoints of 0 and 100 percent, with 5 percent increments.

Insert Table 1 about here.

The principal components analysis extracts three factors with eigenvalues greater than 1.0. Together, these three factors explain 52.24 percent of the variance in the NEP scale items. All items representing the Balance, Eco-Crisis, and Limits dimensions load on the first factor, with the exception of item 3, which loads on the second factor, along with the three items representing the anti-anthropocentrism dimension. The three anti-exemptionalism items load on the third factor. These results indicate that for our sample, attitudes towards humans upsetting the balance of nature, the possibility of an eco-crisis, and the existence of limits to growth together reflect a single construct. Attitudes towards rejecting humanity's right to rule over nature and rejection of the idea of human exemptionalism each reflect an individual construct. All NEP scale items load together with other items representing the same dimension of an ecological worldview, except for item 3, which indicates an attitude towards balance of nature, but has its highest loading on the same factor as the anti-anthropocentrism items. Its loading on this factor is only 0.479, however, and its 0.381 loading on the first factor is only 0.098 less. Therefore, we treat item 3 in subsequent analyses as reflective of the combined balance / eco-crisis / limits construct.

Our environmentally responsible investment attitude scale potentially represents as many as four factors. The first item asks respondents directly about their attitudes toward including environmentally responsible investments in one's portfolio. The second and third items assess investors' willingness to incur an "ethical penalty" for environmentally responsible investments (McLachlan and Gardner 2004; Cheah et al. 2011). The fourth item assesses investors'

subjective norms towards environmentally responsible investing (Fishbein and Ajzen 1975). The last two items assess the perceived consumer effectiveness (i.e., the idea that consumers are more likely to act on a social issue if they believe that their behavior will help solve the issue) of environmentally responsible investment (Nilsson 2008). However, principal components analysis of responses to these items extracts only one item with an eigenvalue greater than 1.0. This item has an eigenvalue of 3.64 and explains 60.59 percent of the variance in the attitude scale items. Therefore, we treat the six items in the environmentally responsible investment attitude scale as reflecting a single construct.

Convergent and Discriminant Validity

Having determined that our participants' Revised NEP Scale responses are reflective of three constructs and their environmentally responsible investing attitude responses are reflective of a single construct, we employ partial least squares (PLS) analysis to assess construct convergent and discriminant validity and test our hypotheses. We assess convergent validity by examining average variance extracted, construct composite reliability, and factor loadings. In our initial model including all the Revised NEP and environmentally responsible attitude scale items, the average variance extracted was 0.480 for the balance / ecocrisis / limits construct and 0.462 for the anti-exemptionalism construct. These are both lower than the commonly accepted criterion of 0.50 for average variance extracted (Hair et al. 2011). The factor loadings for Revised NEP Scale items 6 (0.509) and 14 (0.430) were considerably lower than the loadings for other items, so we dropped these items from the analysis.⁴ Table 2, Panel A presents descriptive statistics after dropping Revised NEP Scale items 6 and 14 and Table 2. All four reflective constructs have average variance extracted of greater than 0.50 and composite reliability of 0.70, consistent with suggested guidelines for these convergent validity measures (Hair et al. 2011).

⁴ Item 3 had the next highest loading (0.623).

Insert Table 2 about here.

As shown in Table 2, Panel B, the square root of average variance extracted of each latent construct is greater than construct's correlation with other latent constructs, indicating discriminant validity (Hair et al. 2011). Further, Hair et al. (2011) state that an indicator's loadings should be higher than all of its cross loadings. Table 3 shows that all of our latent variable indicators meet this test.

Insert Table 3 about here.

RESULTS

We used PLS to fit the model shown in Figure 1. Figure 2, Panel A shows the results. The results support all of our hypotheses, except that the anti-exemptionalism component of the Revised NEP Scale is not correlated with environmentally responsible investment attitude. Further, the R^2 value for the percentage of portfolios held in SRIs is only 0.25. Therefore, we re-ran the model, adding a path from anti-exemptionalism to percentage of portfolios held in SRIs in order to assess whether anti-exemptionalism had a direct influence on this variable, independent of environmentally responsible investment attitude.

Insert Figure 2 about here.

Figure 2, Panel B shows the results for our second model. The coefficient for the direct path from anti-exemptionalism to the percentage of portfolio held in SRIs is negative and marginally significant ($\beta = -0.16$; $p < 0.10$), indicating that attitudes towards anti-exemptionalism have a slight negative effect on SRI investment, independent of environmentally responsible investment attitude. In addition, adding this direct path increases the path coefficient from ERI attitude to percentage of portfolio in SRIs from 0.26 to 0.30 and increases the R^2 value for the percentage of portfolios held in SRIs from 0.25 to 0.27.

The path coefficients from balance / ecocrisis / limits ($\beta = 0.39$; $p < 0.01$) and anti-anthropocentrism ($\beta = 0.30$; $p < 0.01$) to environmentally responsible investment attitude are both positive and significant, thus supporting H1 for these NEP-based constructs. R^2 for environmentally responsible investment attitude is 0.35, which indicates that the NEP-based constructs explain 35.0 percent of the variance in this measure. The path coefficient from environmentally responsible investment attitude to SRI screen use is positive and significant ($\beta = 0.40$; $p < 0.01$), consistent with H2. R^2 for SRI screen use is only 0.16, however, this statistic may be low due to the fact that SRI screen use is a binary variable.⁵ Finally, the path coefficients from SRI screen use ($\beta = 0.33$; $p < 0.01$) and environmentally responsible investment attitude ($\beta = 0.26$; $p < 0.01$) to percentage of portfolio held in SRIs are positive and significant. These results support H3 and H4, respectively. Additionally, the direct path coefficient from environmentally responsible investment attitude to percentage of portfolio held in SRIs (0.30) is greater than the indirect path from environmentally responsible investment attitude through SRI screen use to percentage of portfolio held in SRIs (0.40 times 0.33, or 0.13).

⁵ Hair et al. (2012) caution that since binary and categorical variables violate OLS regression assumptions, one must use care in interpreting results for such variables in a PLS application.

CONCLUSIONS AND OPPORTUNITIES FOR FUTURE RESEARCH

This study examines whether the “primitive beliefs” captured in the NEP about the nature of the earth and humanity’s relationship to it are related to investor attitudes regarding environmentally responsible investments, and whether these attitudes in turn are related to investors’ tendencies to hold SRIs. The basic environmental attitude beliefs captured by the NEP for our sample of nonprofessional investors appear to be multi-dimensional. Constructs representing four out of the five NEP dimensions are positively associated with specific attitudes towards environmentally responsible investment. These specific attitudes are in turn positively associated with the percentage of SRIs held in investors’ portfolios. There is an exception with respect to beliefs about anti-exemptionalism, or rejection of the notion that humans, unlike other species, are somehow exempt from the constraints of nature. Anti-exemptionalism is not related to attitudes regarding environmentally responsible investment and has a marginally significant negative relationship with the percentage of SRIs held in portfolios. These results contrast in part to earlier research finding a positive association between pro-environmental attitudes and the tendency to hold SRIs (McLachlan and Gardner 2004; Williams 2007; Nilsson 2008).

Our results suggest a need to further investigate the relationship between anti-exemptionalism attitudes and SRI behavior. Anti-exemptionalism includes disagreement with statements such as “human ingenuity will insure that we do not make the earth un-livable” and agreement with “despite our special abilities humans are still subject to the laws of nature.” It suggests a fundamental belief that human efforts to control the environment, including environmentally responsible investment, will have little impact on environmental quality. A related idea is that environmental performance disclosures do little to increase companies’ level of environmentally responsible activities and are instead an impression management tool

designed to appeal to certain investors (Thomson and Bebbington 2005; Bebbington et al. 2008; Gray 2010). Future research is needed to determine whether investors with strong anti-exemptionalism beliefs: (1) do *not* believe that socially responsible investment is an appropriate mechanism for addressing environmental problems, regardless of the truthfulness of CSR disclosures or (2) actually *do* believe that socially responsible investment might address environmental problems, but do not believe that CSR disclosures are a credible indicator of companies' level of environmentally responsible activities.

We also find a positive relationship between environmentally responsible investment attitudes and the use of SRI screens, and SRI screen use is positively associated with the percentage of SRIs held in portfolios. However, the direct relationship between environmentally responsible investment attitudes and the percentage of SRIs held in portfolios is stronger than the indirect relationship mediated by SRI screen use. The latter finding partially contradicts earlier evidence that socially responsible investors find CSR performance information to be important (Cohen et al. 2011). There is, however, a limitation in how we assessed participants' SRI use. The question "I use socially responsible investing products or services, such as SRI stock and mutual fund screens" did not distinguish between choosing a mutual fund, where the managers are screening investments, versus actively using the MSCI ESG composite ratings to select individual investments. Thus, future research might ask participants about the precise nature of the screening tools they use to select SRIs. It should also ask about the types of information they use in addition to SRI screening tools and investigate how using these other types of information mediates the relationship between investors' attitudes and their tendency to hold SRIs.

Finally, our results are consistent with two different theoretical explanations. Investors' environmental attitudes may be associated with the proportion of their portfolios held in SRIs

because individuals with strong pro-environmental attitudes either: (1) believe that socially responsible investment is important, regardless of the yield that SRIs provide relative to other investments or (2) are more likely to believe that CSR activities produce positive returns for investors. Future research should ask participants about their beliefs regarding the risk and return associated with SRIs compared to other investments (cf. Nilsson 2008). Doing so would allow us to examine to what extent pro-social attitudes vis-à-vis perceptions about the risks and returns associated with SRIs determine investment behavior. Examining whether and how individuals incorporate these attitudes and beliefs into their investment decisions is important, as CSR performance increasingly becomes a “mainstream” investment criterion (Eccles, et al. 2012).

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FIGURE 1
Hypothesized Relationships Between Investor Attitudes, SRI Screen Use, and SRI Behavior

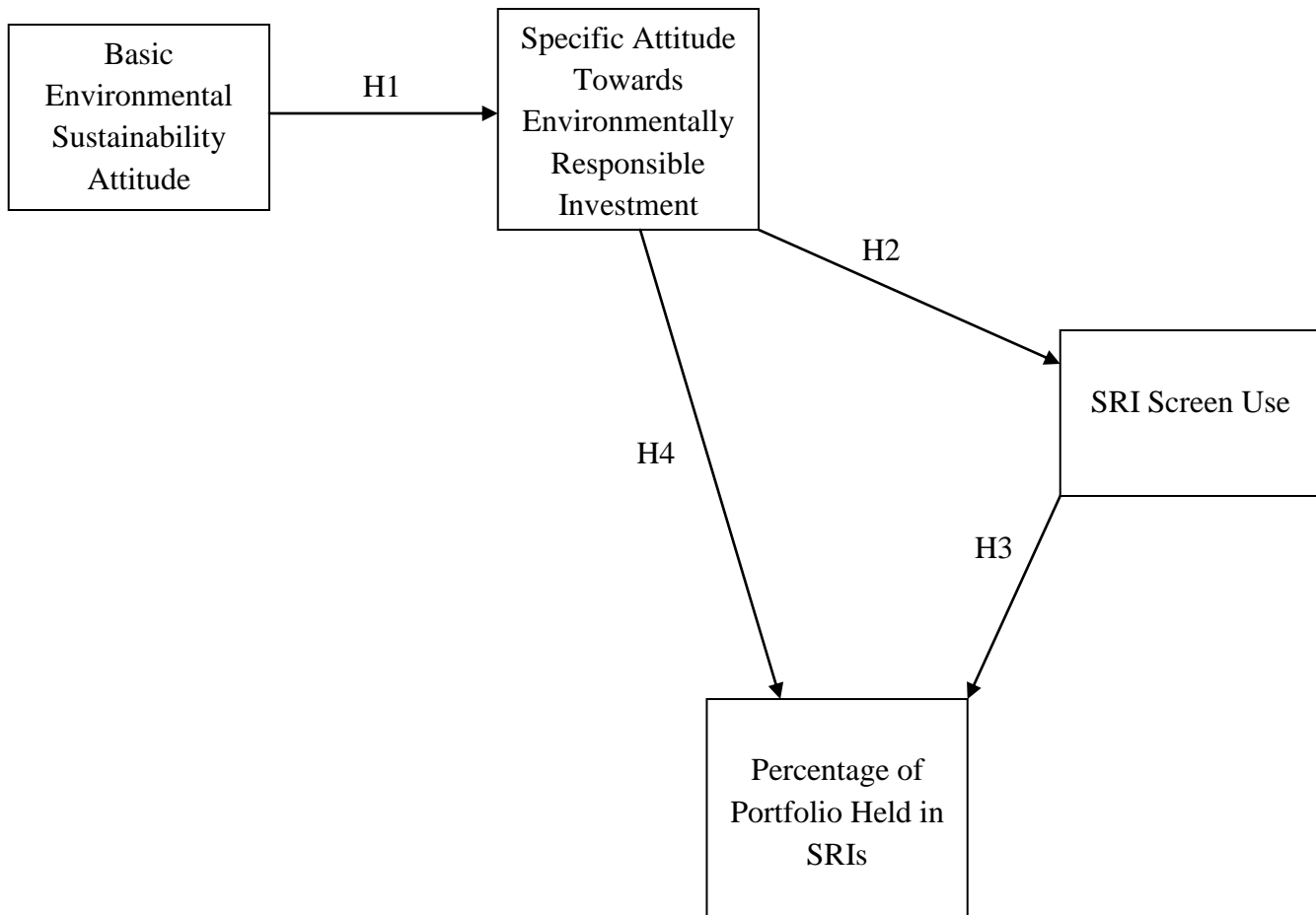
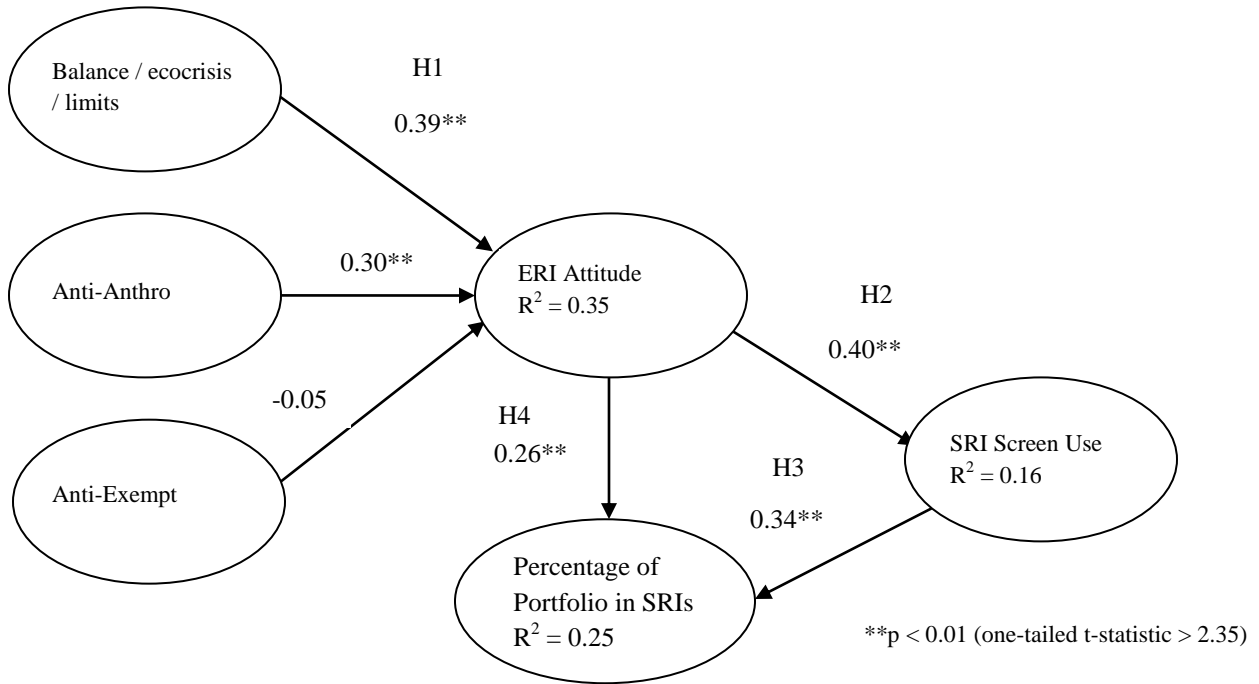


FIGURE 2
Structural Models

Panel A: Initial Model



Panel B: Model with Direct Path from Anti-Exemptionalism to Percentage of Portfolio Held in SRIs

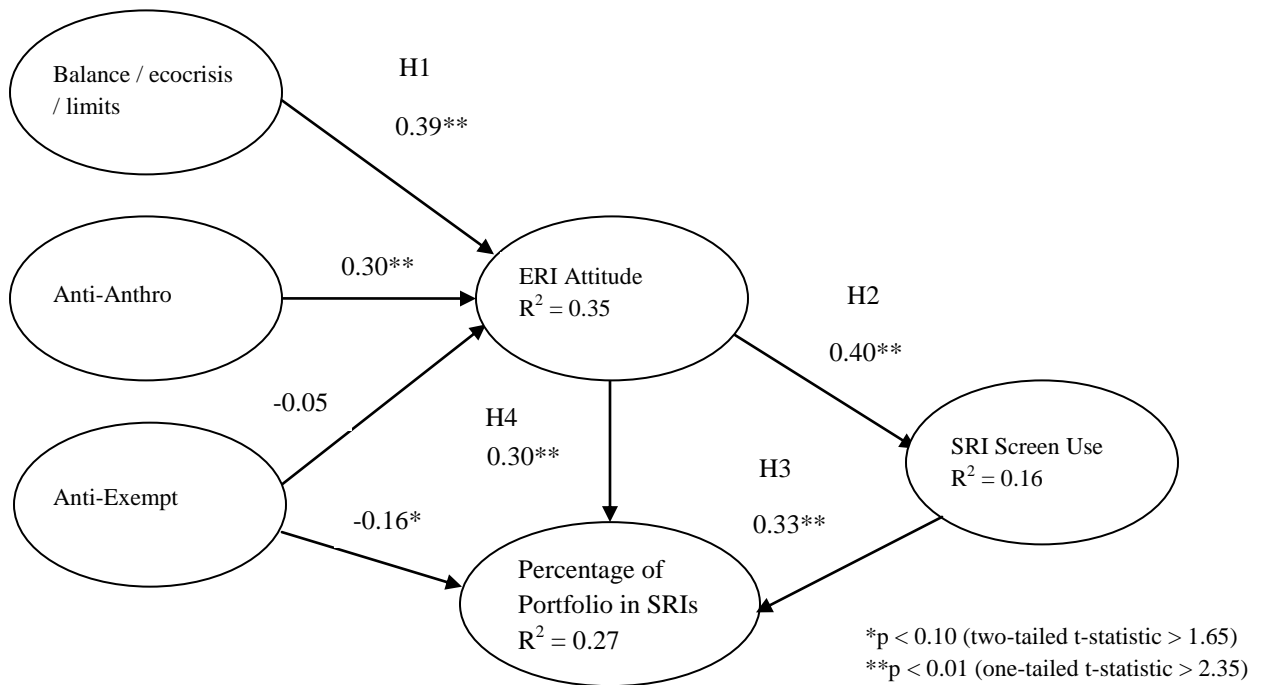


TABLE 1
Principal Components Analysis of Revised NEP Scale Items with Varimax Rotation

Item Number	Brief Description	Factors			NEP Scale Dimension
		1	2	3	
2	Modify environment	0.108	0.740	0.121	Anti-Anthro
7	Plants / animals have right	0.332	0.645	-0.011	Anti-Anthro
12	Humans rule over nature	0.229	0.677	0.057	Anti-Anthro
4	Human ingenuity	0.276	0.275	0.570	Anti-Exempt
9	Subject to laws of nature	0.328	-0.060	0.587	Anti-Exempt
14	Humans control nature	-0.122	0.075	0.852	Anti-Exempt
3	Disastrous consequences	0.381	0.479	0.117	Balance
8	Balance of nature strong	0.746	0.146	0.203	Balance
13	Balance of nature delicate	0.529	0.330	0.176	Balance
5	Abusing environment	0.593	0.356	0.008	Eco-Crisis
10	Crisis exaggerated	0.659	0.291	0.046	Eco-Crisis
15	Ecological catastrophe	0.793	0.273	0.070	Eco-Crisis
1	Number of people	0.636	0.281	0.030	Limits
6	Plenty of resources	0.481	0.251	0.110	Limits
11	Spaceship limited room	0.760	0.038	0.189	Limits
	Eigenvalue	5.49	1.30	1.05	
	Percentage of variance explained	36.60	8.65	6.99	

Highest factor loading for each item is in **bold**.

NEP Scale Dimensions:

Anti-anthro: Rejection of humanity's right to rule over nature

Anti-exempt: Rejection of exemptionalism

Balance: Fragility of nature's balance

Eco-crisis: Possibility of an eco-crisis

Limits: Existence of limits to growth

TABLE 2
Descriptive Statistics and Correlations

Panel A: Descriptive Statistics

Variable	Average Variance Extracted	Composite Reliability	Mean	Standard Deviation
Balance / ecocrisis / limits ^a	0.509	0.892	0.422	0.855
Anti-anthro ^a	0.575	0.802	0.301	0.984
Anti-exempt ^a	0.604	0.753	0.867	0.720
ERI attitude ^a	0.604	0.901	0.109	0.790
SRI screen use	n/a	n/a	0.251	n/a
Percentage of portfolio in SRIs	n/a	n/a	30.15	26.65

^a Descriptive statistics are based on the average of the indicators for each measure. These measures can potentially range from -2 to +2, with 0 indicating a neutral opinion.

Panel B: Correlations

	Balance / ecocrisis / limits	Anti-anthro	Anti-exempt	ERI attitude	SRI screen use	Percentage of portfolio in SRIs
Balance / ecocrisis / limits	0.713					
Anti-anthro	0.599	0.758				
Anti-exempt	0.461	0.318	0.777			
ERI attitude	0.541	0.513	0.222	0.777		
SRI screen use	0.192	0.211	0.086	0.403	n/a	
Percentage of portfolio in SRIs	0.081	0.198	-0.062	0.395	0.439	n/a

Diagonal items in **bold** are the square roots of average variance extracted.

TABLE 3
Item Loadings and Cross-Loadings

Construct	Indicator	Balance / ecocrisis / limits	Anti- anthro	Anti- exempt	ERI attitude	SRI screen use	Percentage of portfolio in SRIs
Balance / Ecocrisis / Limits	NEP1	0.657	0.400	0.294	0.270	0.108	0.039
	NEP3	0.622	0.393	0.287	0.383	0.134	0.013
	NEP5	0.726	0.459	0.290	0.433	0.159	0.054
	NEP8	0.737	0.395	0.415	0.342	0.090	-0.004
	NEP10	0.737	0.455	0.313	0.411	0.126	0.094
	NEP11	0.686	0.334	0.371	0.247	0.098	-0.020
	NEP13	0.669	0.444	0.294	0.364	0.169	0.123
	NEP15	0.851	0.498	0.388	0.522	0.179	0.112
Anti-anthro	NEP2	0.397	0.743	0.244	0.386	0.161	0.121
	NEP7	0.521	0.814	0.251	0.458	0.197	0.205
	NEP12	0.439	0.715	0.230	0.300	0.106	0.109
Anti-exempt	NEP4	0.402	0.304	0.789	0.175	0.017	-0.054
	NEP9	0.312	0.188	0.765	0.170	0.118	-0.042
ERI attitude	ERI1	0.504	0.515	0.202	0.827	0.400	0.402
	ERI2	0.420	0.425	0.199	0.763	0.280	0.288
	ERI3	0.417	0.413	0.117	0.795	0.309	0.325
	ERI4	0.350	0.366	0.170	0.753	0.344	0.319
	ERI5	0.418	0.347	0.192	0.807	0.303	0.267
	ERI6	0.396	0.274	0.150	0.715	0.200	0.191
SRI screen use		0.192	0.211	0.086	0.403	1.000	0.439
Percentage of portfolio in SRIs		0.081	0.198	-0.062	0.395	0.439	1.000

EXHIBIT 1

Revised New Ecological Paradigm (NEP) Scale Items (Dunlap et al. 2000)

Listed below are statements about the relationship between humans and the environment. For each one, please indicate whether you Strongly Agree, Mildly Agree, Unsure, Mildly Disagree, or Strongly Disagree with it.

1. We are approaching the limit of the number of people the earth can support.
2. Humans have the right to modify the natural environment to suit their needs. ^a
3. When humans interfere with nature it often produces disastrous consequences.
4. Human ingenuity will insure that we do NOT make the earth un-livable. ^a
5. Humans are severely abusing the environment.
6. The earth has plenty of natural resources if we just learn how to develop them. ^{a b}
7. Plants and animals have as much right as humans to exist.
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations. ^a
9. Despite our special abilities humans are still subject to the laws of nature.
10. The so-called “ecological crisis” facing humankind has been greatly exaggerated. ^a
11. The earth is like a spaceship with very limited room and resources.
12. Humans were meant to rule over the rest of nature. ^a
13. The balance of nature is very delicate and easily upset.
14. Humans will eventually learn enough about how nature works to be able to control it. ^{a b}
15. If things continue on their present course, we will soon experience a major ecological catastrophe.

^a Reverse-coded item.

^b Item dropped from analysis because of low factor loading.

EXHIBIT 2

Environmentally Responsible Investment Attitude Scale Items

Indicate the degree that you agree or disagree with the following statements. (Response categories were Strongly Agree, Mildly Agree, Unsure, Mildly Disagree, or Strongly Disagree ^a)

1. I believe that it is important to include environmentally responsible investments in my portfolio.
2. It is more important that a company act in an environmentally responsible manner as opposed to earning significant returns for its shareholders.
3. In choosing investments, I believe that environmental responsibility is more important than financial performance.
4. Most people who are important to me believe that it is important to invest in environmentally responsible companies.
5. I believe that I can have a positive impact on the environment if I invest in environmentally responsible companies.
6. I believe that companies will become more environmentally responsible if I only invest in environmentally responsible companies.

^a All items are coded in the same direction.