The Effects of Environmental Attitudes, Perceived Environmental Information Importance, Corporate Environmental Performance, and Independent Assurance on Investor Judgments

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Motivation

• Recent increase in nonfinancial information provided to stakeholders, particularly information on corporate social responsibility

• Prior research has shown that this CSR information, as well as assurance on this information, influences investors’ judgments

• However, little is known about the cognitive processes underlying investors’ use of this information
Contribution

• We extend previous research by investigating
  – Relationship between nonprofessional investors’ *environmental attitudes* and their perceptions of *environmental information importance*
  – Interactive influence of *environmental information importance* perceptions, *environmental performance*, and *environmental information assurance* on nonprofessional investors’ judgments
Contribution

• We also extend previous research by investigating
  – Impact of environmental performance and assurance on judgments likely to be performed by nonprofessional investors
  – Impact of information presentation information in a format likely to be encountered and used by nonprofessional investors
Disclosure of positive CSR performance information has a positive effect on investment decisions

- Holm and Rikhardsson (2008)
- Brown-Liburd, Cohen, and Zamora (2012)
- Elliott, Jackson, Peecher, and White (2012)
CSR Information Assurance

• Independent assurance of CSR performance information
  • Influences investors’ perceptions of information credibility (Pflugrath, Roebuck, and Simnett 2011) and reliability (Libby, Salterio, and Webb 2004; Coram, Monroe, and Woodliff 2009)
  • Has a greater influence on investors’ judgments when performance information is positive as opposed to negative (Coram et al. 2009; Brown-Liburd et al. 2012)
Environmental Attitudes

• Why would investors incorporate environmental information into their investment judgments?
  – Affective response (Elliott et al. 2012)
  – Environmental attitudes
Environmental Attitudes

• Prior research on association between investor attitudes and SRI behavior
  – Shafer (2006)
  – Williams (2007)
Environmental Attitudes

- Cheah, Jamali, Johnson, and Sung (2011)
  - 4 “views” on investors’ incorporation of CSR information into their JDM processes
    1. A company’s financial performance is less important than its social and environmental performance
    2. Socially responsible companies are more profitable than socially irresponsible ones
    3. Companies should be more responsible to their shareholders than to society as a whole
    4. The accuracy of financial statements of many companies cannot be trusted
Environmental Attitudes

• Research has shown an association between environmentally responsible investor behavior and
  – Overall attitude towards environmental sustainability (Shafer 2006)
  – Specific aspects of CSR (McLachlan and Gardner 2004; Williams 2007; Nilsson 2008)
Environmental Attitudes

• Hypothesis 1a
  – Investors’ overall attitudes towards environmental sustainability will be positively correlated with the relative importance they place on environmental, as opposed to financial, performance information in making investment judgments
Environmental Attitudes

• Hypothesis 1b
  – Investors’ specific attitudes towards environmentally responsible investment will be positively correlated with the relative importance they place on environmental, as opposed to financial, performance information in making investment judgments
Investors’ Attention to Environmental Performance Information

Adapted from Hogarth (1987) and Maines and McDaniel (2000)
Investors’ Attention to Environmental Performance Information

• Hypothesis 2
  – Differences in environmental performance information presented in a filtered format will have a greater influence on the investment judgments of investors who place relatively more importance on environmental versus financial performance information than on the investment judgments of investors who place relatively less importance on environmental performance information
Investors’ Attention to Environmental Assurance Information

• Assurance of information increases perceived credibility and reliability, which in turn increases the weight decision makers place on that information (Libby et al. 2004; Coram et al. 2009)

• However, this increased credibility and reliability is only an issue for information that decision makers believe is important
Investors’ Attention to Environmental Assurance Information

• Hypothesis 3
  – The presence of assurance on environmental performance information presented in a filtered format will have a greater influence on the investment judgments of investors who place relatively more importance on environmental versus financial performance information than on the investment judgments of investors who place relatively less importance on environmental performance information.
Participants and Design

• 195 nonprofessional investor participants
  – 25 years of age or older (mean age = 43.0 years)
  – 48 percent had three or more years investment experience

• 2 × 2 between-participants design
  – Environmental performance (high or low relative to industry)
  – Assurance on environmental performance information (present or absent)
Experimental Task

• All participants received the following information regarding a hypothetical diversified manufacturing company:
  1. Company overview (Exhibit 1, Panel A)
  2. Description of key financial and environmental performance metrics (Exhibit 1, Panel B)
  3. Summary financial information (Exhibit 3, Panel A)
  4. Summary environmental information (Exhibit 3, Panel B)
  5. Financial statement audit report
Experimental Task

• Participants in selected conditions also received an environmental information assurance report (Exhibit 2)

• All participants then made investment desirability and investment amount judgments
  – Desirability: Rating on a Likert-type scale between 0 (very undesirable) and 10 (very desirable)
  – Amount: Amount to invest (versus a fixed-yield savings account) out of $10,000 available
Experimental Task

• Finally, all participants completed a post-experimental questionnaire containing
  1. Manipulation checks
  2. NEP and ERI attitude scales (Exhibit 4 and Exhibit 5)
  3. Importance of and familiarity with financial and environmental measures
  4. Reliability and credibility of financial and environmental measures
  5. Demographic questions
Manipulation Checks

• 17 participants (8.7%) failed the financial information assurance consistency check
• 37 participants (19.0%) failed the environmental information assurance manipulation check
  – 18 participants (18.0%) who were not given assurance reported it was present
  – 19 participants (20.0%) who were given assurance reported that it was absent
Regression Model for H1a and H1b

• Independent variable
  – Environmental attitude
    • Score on NEP attitude scale (Models 1 and 3 only)
    • Score on ERI attitude scale (Models 2 and 3 only)

• Dependent variable
  – Relative importance placed on environmental performance information
Regression Model for H1a and H1b

- Control variables
  - Age
  - Gender
  - Education level
  - College major
  - Trading experience
Results for H1a and H1b

• Descriptive statistics (Table 1)
• Hypothesis 1a (Table 2, Model 1)
  – ATTITUDE (using the NEP attitude scale score) is significantly positively related to REL_IMPORT ($\beta = 0.443; p < 0.01$)
• Hypothesis 1b (Table 2, Model 2)
  – ATTITUDE (using the ERI attitude scale score) is significantly positively related to REL_IMPORT ($\beta = 0.533; p < 0.01$)
Results for H1a and H1b

• We also fit a model using both attitude scale scores as independent variables (Table 2, Model 3)
  – The coefficients on both measures remain positive and highly significant ($\beta_{\text{NEP}} = 0.273; p < 0.01; \beta_{\text{ERI}} = 0.417; p < 0.01$)
ANOVA Model for H2 and H3

• To test Hypotheses 2 and 3, we divided participants into two groups based on their rating of the relative importance of environmental versus financial information
  – “Low importance” (financial information more important than environmental) (N = 91)
  – “High importance” (environmental information equally or more important than financial) (N = 67)
ANOVA Model for H2 and H3

• Independent variables
  – Relative environmental information importance (Low importance / High importance)
  – Environmental performance (Low / High)
  – Environmental Information Assurance (Present / Absent)

• Dependent variables
  – Investment desirability
  – Investment amount
Results for H2 and H3

• Descriptive statistics (Table 3)
• Hypothesis 2 (Table 4)
  – Significant Env. Performance × Relative Env. Information Importance interaction for both investment desirability ($F_{1,150} = 4.96; p = 0.03$) and investment amount ($F_{1,150} = 5.21; p = 0.02$)
Results for H2 and H3

• Hypothesis 3 (Table 4)
  – Significant Env. Assurance × Relative Env. Information Importance interaction for investment amount ($F_{1,150} = 6.38; p = 0.01$), but not for and investment desirability ($F_{1,150} = 1.44; p = 0.23$)

• We further investigate these interactions by performing separate ANOVAs for each of our environmental information importance sub-groups (Table 5)
Results for H2 and H3

• “Low importance” participant sub-group
  – Environmental performance
    • Marginally significant positive effect on investment desirability ($F_{1,87} = 3.59; p = 0.06$); no effect on investment amount ($F_{1,87} = 0.26; p = 0.61$)
  – Environmental information assurance
    • No effect on investment desirability ($F_{1,87} = 0.42; p = 0.52$); marginally significant negative effect on investment amount ($F_{1,87} = 2.95; p = 0.09$)
Results for H2 and H3

• “High importance” participant sub-group
  – Environmental performance
    • Significant positive effect on both investment desirability ($F_{1,63} = 19.30; p < 0.01$) and investment amount ($F_{1,63} = 16.95; p < 0.01$)
  – Environmental information assurance
    • No effect on investment desirability ($F_{1,63} = 1.02; p = 0.32$); significant positive effect on investment amount ($F_{1,63} = 4.08; p = 0.04$)
Environmental Performance × Assurance Interaction

• Unexpected significant environmental performance × environmental assurance interaction for entire sample (seemingly driven by “low importance” participants)
  – For these participants, assurance has no effect on investment amount when environmental performance is low, but has a marginally significant negative effect when environmental performance is high
  • This contrasts with Coram et al. (2009)
Mediation Analysis of Assurance Effect

• Credibility has been shown to mediate the influence of assurance on investors’ stock price estimates when nonfinancial information is positive (Coram et al. 2009)
Mediation Analysis of Assurance Effect

• Requirements for mediation effect:
  1. Credibility must be influenced by the relevant independent variable(s)
  2. Credibility must be correlated with the dependent variable
  3. When the relationships in #1 and #2 are controlled in a statistical model, the previously observed significant relationship between those independent variables and the dependent variable becomes insignificant
Mediation Analysis for “Low Importance” Participant Group

• Results
  – Assurance has a significant effect on credibility ($F_{1,87} = 74.80; p < 0.01$)
  – However, credibility is not correlated with investment amount ($r = 0.00; p = 1.00$)
  – ∴ Credibility does not mediate the influence of assurance on these investors’ investment amount judgments
Environmental Performance Effect

• Hypothesis 3 was supported for investment amount but not for investment desirability

• Important difference between these two judgments: Investment desirability is independent of other alternatives while investment amount is not

— Hsee and Zhang (2004)
Mediation Analysis of Environmental Performance Effect

- It appears that investment desirability may be mediating the influence of environmental performance information on investment amount judgments, independent of assurance.
- We also investigate the potential mediating effect of credibility on the relationship between assurance and investment amount for this “high importance” participant subgroup.
Mediation Analysis for “High Importance” Participant Group

Environmental Performance

β = 0.23, p = 0.04

Desirability partially mediates the effect of performance on investment amount

β = 0.48, p < 0.01

Investment Desirability

Information Credibility

β = 0.33, p < 0.01

β = 0.30, p = 0.01

Investment Amount

β = 0.23, p = 0.03

Credibility does mediate the effect of assurance on investment amount

β = 0.45, p < 0.01

Assurance

β = 0.04, p = 0.71
Summary

• Differences in nonprofessional investors’ environmental attitudes influence the relative importance they assign to environmental and financial performance information

• Nonprofessional investors’ relative information importance perceptions are consistent with their weighting of such information
Future Research

• Boundary condition for self-insight into use of environmental performance information
• Cheah et al.’s (2011) second view of SRI
• Investor misperceptions about the presence or absence of environmental information assurance