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Socially Responsible Investing: Data-Driven Decision Making

Authors
Delmas, Magali A
Lim, Jinghui

Publication Date
2016-05-26

Peer reviewed

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Magali A. Delmas
UCLA
delmas@ucla.edu

Jinghui Lim
UCLA
jinghuilim@ucla.edu

May 2016

Abstract

Socially responsible investing (SRI) is an investment process that screens investment opportunities based on ethical, social, corporate governance, or environmental. SRI has been growing rapidly; total U.S.-domiciled SRI-managed assets increased from $3.74 trillion in 2012 to $6.57 trillion in 2014. The growth of SRI puts it in a position to encourage sustainability as such firms have better access to capital markets. Unfortunately, while financial performance indicators have become standardized, social and environmental performance ratings have not. As the prominence of SRI grows, so does the number of metrics available to evaluate corporate social performance: there were 21 ratings in 2000 and that number grew to 108 by 2012.

The complexity of environmental and social performance contributes to the proliferation of rating metrics. Different aspects of environmental performance might be important to different rating schemes. For instance, one rating could place emphasis on greenhouse gas emissions, while another rating could focus on water usage. The heterogeneity of such ratings creates a situation in which the results of an assessment of environmental performance can differ based on which criteria are used. This case examines this phenomenon.

This case study examines 13 publicly traded chemical companies in order to understand the various measures and dimensions of corporate environmental performance. Students are presented with real-world data on corporate environmental performance (including pollutants released and third-party corporate social responsibility ratings) and asked to incorporate environmental and social performance into investing decisions downloadable at http://www.environment.ucla.edu/ccep/sri . This case highlights some of the challenges of evaluating corporate environmental performance. This includes the positive correlation between environmental strengths and concerns. That is to say firms that tend to have significant environmental issues, tend also to invest in sustainable practices. Thus looking only at environmental strengths might present a misleading picture of firm corporate environment performance. A companion teaching note is available upon request from the authors.

Skyler Riley has been a life-long advocate for the environment. She firmly believes that corporations have a critical role to play in sustainability, and that investors should encourage corporations to play that role. Naturally, she is excited to start work at one of California's largest pension funds, California Administration for Public Employee Retirement Savings (CAPERS), which was well known for being at the forefront of socially responsible investing.

On her first day of work, she is assigned to examine possible investments in the chemicals industry. Skyler is put in charge of creating an index for thirteen chemical companies on the Standard & Poor's 500 index. Her supervisor hands her data of these companies from 1991 to 2012, gleaned from several sources: MSCI, the EPA, and Compustat.

Background on Socially Responsible Investing[1]

Socially responsible investing (SRI) is an investment process that screens investment opportunities based on ethical, social, corporate governance, or environmental criteria. Total U.S.-domiciled SRI-managed assets increased from $3.74 trillion in 2012 to $6.57 trillion in 2014 (Social Investment Forum, 2014). The growth of SRI puts it in a position to encourage corporate sustainability as such firms have better access to capital markets (Ambec and Lanoie, 2008; Delmas and Blass, 2010; Siegel, 2009).

Good environmental performance can be associated with good financial performance for several reasons. First, reducing the amount of inputs can improve both environmental friendliness and financial performance (King and Lenox, 2001). Second, reducing waste can reduce waste management cost and regulatory fines and costs associated with future regulation (Reinhardt, 1999). Third, developing a reputation as a responsible organization can gain the firm support among stakeholders (Delmas, 2001; Delmas & Montiel, 2009; Delmas and Pekovic, 2013) and reduce the impact of environmental incidents on its valuation (Doh, Howton, Howton, and Siegel, 2009). The financial impact of being perceived as socially and environmentally responsible can be large. For instance, even though *Newsweek*'s Greenest Companies list is based on readily available data, Lyon and Shimshack (2015) found that appearing in the top 20% of the list results in an immediate increase in stock valuation.

While financial performance indicators have become standardized, social and environmental performance ratings have not. As the prominence of SRI grows, so does the

[1] Parts adapted from Delmas, Etzion, and Nairn-Birch (2013), Delmas and Blass (2010) and Chen and Delmas (2011) with permission.

number of metrics available to evaluate corporate social performance. Sadowski, Whitaker, and Buckingham (2010) inventoried 108 ratings, of which only 21 existed in 2000.

The complexity of environmental and social performance contributes to the proliferation of rating metrics. Such ratings are artificial constructs that can be interpreted and evaluated differently. Different aspects of environmental performance might be important to different rating schemes. For instance, one rating could place emphasis on greenhouse gas emissions, while another rating could focus on water usage. The heterogeneity of such ratings creates a situation in which the results of assessment of environmental performance can differ based on which criteria are used.

Two Dimensions of Corporate Environmental and Social Performance

Although scholars agree that corporate environmental and social performance is multidimensional, there is little agreement as to what each dimension represents and thus what corporate social responsibility ratings measure. Nonetheless, conceptual models of corporate environmental performance mostly identify two dimension.

The first model distinguishes environmental "good" and "bad," stating that they are not different points on a line, but are two different dimensions. For instance, Minor and Morgan (2011) claim that firms that are "doing good" are not necessarily "avoiding harm," and Mattingly and Berman (2006) argue that positive and negative social actions are distinct aspects of a more general social performance construct.

Others use target stakeholder groups as dimensions of corporate environmental performance. Hillman and Keim (2001) differentiate between social actions aimed at primary stakeholders (e.g., employees, customers, and communities) and secondary stakeholders (e.g., those associated with social issues not directly related to the firm), and demonstrate that only the former are associated with profitability. Researchers also analyze social and environmental ratings along the forward-looking and backward-looking dimensions. In their assessment of the accuracy of KLD environmental ratings, Chatterji, Levine and Toffel (2009) emphasize the need for ratings to capture both historical environmental performance and current managerial practices. They find that KLD ratings do not make optimal use of publically available environmental performance data.

Finally, another framework of social and environmental ratings looks at an input/output dimension and a process/outcome dimension (Chen & Delmas, 2011; 2012; Busch & Hoffmann, 2011). For environmental ratings, output-based measures focus exclusively on

environmental impacts whereas process-based measures consider internal efforts, such as commitment to environmental causes, sophistication of environmental management systems and managerial quality in general (Chen & Delmas, 2011). However, it is unclear whether the two dimensions can or should be used independently by socially responsible investors. For example, using survey responses, Busch & Hoffmann (2011) found that their output-based measure—self-reported GHG emissions—had a positive relationship with financial performance, while the opposite was true for process-based measures. Nonetheless, these two dimensions can be helpful in understanding ratings. In their study of corporate environmental performance ratings, Delmas, Etzion, and Nairn-Birch (2013) find that two dimensions—environmental process and environmental outcomes—are responsible for approximately 80% of the variation in ratings.

Performance Indicators

Corporate environmental performance indicators are broadly divided into three categories: (1) environmental impact (toxicity, emissions, energy use, etc.); (2) regulatory compliance (non-compliance status, violation fees, number of audits, etc.); and (3) organizational processes (environmental accounting, audits, reporting, environmental management systems, etc.) (Ilinitch et al., 1998; Lober, 1996). Socially responsible investors can use different mixes of these three categories. For example, SAM, formerly known as Sustainable Asset Management, focuses on eco-efficiency and environmental reporting along with industry-specific criteria. KLD Research & Analytics, Inc., selects firms based on strengths and concerns in the following categories: products and services (beneficial products and services, ozone-depleting chemicals, agricultural chemicals); operations and management (pollution prevention, recycling, management systems, hazardous waste, regulatory problems, substantial emissions); and climate change (clean energy, revenues from coal oil and derivative products) (Waddock & Graves, 1997).

Socially responsible investors might have different objectives, which can result in different ratings of the same firm. Some investors evaluate corporate environmental performance in order to evaluate financial performance. For example, Innovest, now part of the Riskmetrics group, specializes in examining environmental, social, and strategic governance issues in order to reveal risks and potential not typically covered by traditional securities analysis. In that case, corporate environmental performance is a proxy for good management. Other investors filter out companies or entire sectors that are exposed to environmental risks. For example, the Sierra Club Mutual Fund screens out fossil fuel

generation because of its impact on climate change. Because of these different objectives, the same firm might be rated very differently by different investors.

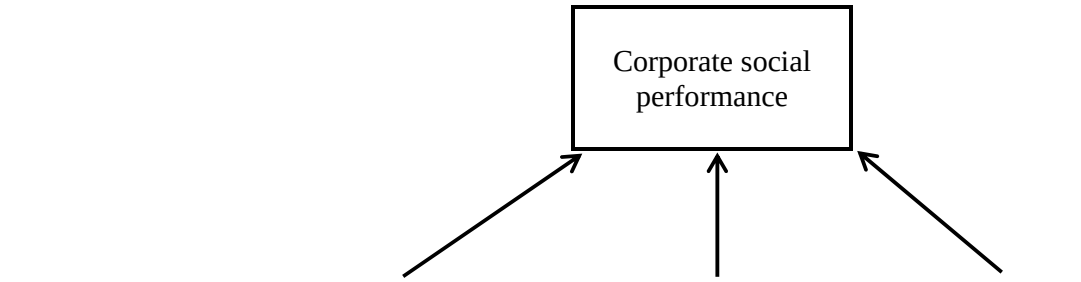
Negative and Positive Screening

Sustainable investors can use negative or positive screening methodologies. Negative screening, also called "exclusionary screening," excludes companies that do not perform well on some indicators or do belong to sectors that might be perceived as having a relatively high impact on the environment. Positive screening identifies companies that are the best performers on some indicators. For example, SAM, through the Dow Jones Sustainability Index, screens companies that are the best in their sector on several corporate social responsibility criteria. Negative screening has been initially favored because it is often easier to agree on what constitutes a problem than to agree on what constitutes excellence. Indeed, there is always room for criticism: publicly traded corporations are complex entities and that can excel on many indicators but perform poorly on a few indicators. Negative screening does not identify best-in-class companies that might also perform well financially. The trade-off is therefore between focusing on penalizing corporations based on poor performance, to the detriment of rewarding corporations based on good performance.

The Data

MSCI ESG KLD STATS is a data set of annual positive and negative environmental, social, and governance (ESG) performance indicators. MSCI ESG Research collects information from company disclosures, academic datasets, government databases, NGO sources, media, and other stakeholders. Figure 1 illustrates the organization of the KLD data and shows the indicators available on the dataset regarding corporate social performance.

Figure 1. Description of 2007 KLD Data



Level 1: Categories	1-1. Environmental performance	1-2. Social ratings	1-3. Governance ratings
Level 2: Issues	1-2 • Climate change • Products and services • Operations and management • Other factors	2-2 • Community • Diversity • Employee relations • Human rights • Product	2-3 • Reporting • Structure • Other
Level 3: Items	*Concerns* • Climate change • Ozone depleting chemicals • Agricultural chemicals • Hazardous waste • Regulatory problems • Substantial emissions *Strengths* • Clean energy • Beneficial products and services • Pollution prevention • Recycling • Management systems	*Concerns* • Investment controversies • Negative economic impact • Tax disputes • Other concerns *Strengths* • Charitable giving • Innovative giving • Support for education • Other strengths	*Concerns* • Public policy • Transparency • Compensation • Ownership • Accounting *Strengths* • Political accountability • Public policy • Transparency • Compensation • Ownership

As shown in Figure 1, the KLD data encompasses three categories: environmental, social, and governance ratings. Within each category, there are several issues. For instance, within environmental performance, the data rates the firms on four issues: climate change, product and services, operations and management, and other factors. Lastly, the ratings are divided into areas of concerns and strengths. For instance, having regulatory problems would be considered an environmental concern, but having environmentally beneficial products and services would be considered a strength. KLD assess the company for each item. If the

company meets the criteria, it is assigned "1"; if the company does not meet the criteria, it is assigned a "0"; if the company was not assessed for the particular indicator, it is not assigned a value. Additionally, the data provides a more general picture of the company's performance within each category by providing a sum of its strengths and concerns within that category. The data also provides information for involvement in controversial business issues: alcohol, gambling, firearms, military, nuclear power, and tobacco. Information about this dataset is available at this link.

Another possible measure of environmental performance is the amounts of toxic chemicals released by the company, as provided by the EPA's Toxics Release Inventory (TRI). The TRI program requires facilities in certain industries (such as mining, utilities, manufacturing, wholesalers, publishing, and hazardous waste) that employ at least ten full-time equivalents and manufacture, process, or use at least certain amounts of TRI-listed chemicals to report annual releases of toxic chemicals. This database is complex, with data of over 650 toxic chemicals, and documents how much, in pounds, of each chemical is released (through air, water, or land) and how much is managed through recycling, energy recovery, and treatment. In this analysis, for the sake of simplicity, we compare firms based on their total pounds of toxic releases, which has been the indicator most used by scholars and screening organizations (Chatterji et al., 2009; Gerde & Logsdon, 2001; Ilinitch et al., 1998). The data presented has information, for 1991-2012, on the total air releases, total water releases, total releases over all media, the number of facilities a company has that reports to the TRI, and the per-facility average air, water, and total releases. Looking at 2012 data, DuPont released the largest amount of toxics, 44 million pounds, while Avon released no toxics.

The TRI covers over 650 chemicals of varying degrees of toxicity that can cause a variety of negative health impacts and it is difficult to assess the toxicity of various chemicals. One of the limitations of using total pounds from TRI is that this measure does not provide information about the toxicity of the chemical and its potential impact on the population (Toffel & Marshall, 2004). The EPA developed Risk-Screening Environmental Indicators (RSEI) to measure toxicity of various chemicals.

RSEI is a modelling tool that can help identify situations that may pose chronic health risks. It includes the amount of chemical released, the location of that release, the toxicity of the chemical, its fate and transport through the environment, the route and extent of human exposure, and the number of people affected. RSEI computes the health risk and can be used

to analyze risk over time and across sectors and locations. However, it is not a formal risk assessment and cannot be used to draw individual conclusions about specific populations, locations, facilities, or individuals. In this exercise, we use it as an indication of toxicity. The data also has information on total and per-facility average RSEI.

It is worth pointing out some weaknesses of the TRI. Although the TRI currently covers over 650 chemicals, it does not cover all toxic chemicals used in the United States. Another issue is that the TRI does not cover all industries. Thus, the TRI cannot help with decisions regarding firms that have many facilities not covered by the TRI. Lastly, TRI data are entirely self-reported and thus rely on managers' honesty and knowledge in reporting.

The Corporations

The corporations are: Avon Products, Inc.; Clorox Co.; Colgate-Palmolive Co.; Dow Chemical Co.; E. I. Du Pont de Nemours and Co.; Eastman Chemical Co.; Ecolab, Inc.; Eli Lilly and Co.; International Flavors and Fragrances, Inc.; Johnson & Johnson; Merck & Co.; Pfizer, Inc.; and Procter & Gamble Co.

Avon Products, Inc., manufactures and markets beauty and related products worldwide and is headquartered in New York, NY. Avon is perhaps best known for its direct-selling operations, with 6.4 million representatives selling its products globally. Avon's three-digit SIC code is 284 (soap, detergents, and cleaning preparations; perfumes, cosmetics, and other toilet preparations).

The Clorox Company manufactures and markets consumer and professional products worldwide. The company operates in four segments: Cleaning, Household, Lifestyle, and International. It is headquartered in Oakland, CA. The Clorox Company has many brands, including Brita, Burts' Bees, Clorox, Glad, and Green Works. Clorox's three-digit SIC code is 284 (soap, detergents, and cleaning preparations; perfumes, cosmetics, and other toilet preparations).

Colgate-Palmolive Company, together with its subsidiaries, manufactures and markets consumer products worldwide. It operates in two segments: Oral, Personal and Home Care; and Pet Nutrition. It is based in New York, NY. Its brands include Ajax, Colgate, Palmolive, and Softsoap. Colgate's three-digit SIC code is 284 (soap, detergents, and cleaning preparations; perfumes, cosmetics, and other toilet preparations).

The Dow Chemical Company manufactures and supplies products that are used primarily as raw materials in the manufacture of customer products and services worldwide. Its

headquarters are in Midland, MI. In 2014, Dow Chemical had more than 6,000 product families, manufactured at 201 sites in 35 countries across the globe. Dow's three-digit SIC code is 282 (plastics materials and synthetic resins, synthetic rubber and cellulosic).

E. I. du Pont de Nemours and Company operates as a science and technology based company worldwide. The company's Agriculture segment offers corn hybrid, soybean, canola, sunflower, sorghum, inoculants, seed products, wheat, rice, herbicides, fungicides, and insecticides. It is headquartered in Wilmington, DE. In 2014, it had $35 billion in net sales and returned $4 billion of capital to shareholders. DuPont's three-digit SIC code is 282 (plastics materials and synthetic resins, synthetic).

Ecolab Inc. provides water, hygiene, and energy technologies and services for customers worldwide. The company operates in four segments: Global Industrial, Global Institutional, Global Energy, and Other. It is headquartered in St. Paul, MN. In 2015, it had customers in 171 countries. Ecolab's three-digit SIC code is 284 (soap, detergents, and cleaning preparations; perfumes, cosmetics, and other toilet preparations).

International Flavors & Fragrances Inc., together with its subsidiaries, creates, manufactures, and supplies flavors and fragrances for use in various consumer products worldwide. The company operates in two segments, Flavors and Fragrances. It is headquartered in New York, NY. In 2015, it had more than 6,200 employees in 32 countries. IFF's three-digit SIC code is 286 (industrial organic chemicals).

Johnson & Johnson, together with its subsidiaries, researches and develops, manufactures, and sells various products in the health care field worldwide. It operates in three segments: Consumer, Pharmaceutical, and Medical Devices. Its headquarters are in New Brunswick, NJ. Among its best known brands are: Band-Aid, Tylenol, Johnson's, Neutrogena, Clean & Clear, and Acuvue. Johnson & Johnson's three-digit SIC code is 286 (drugs).

Eli Lilly and Company discovers, develops, manufactures, and sells pharmaceutical products worldwide. It operates in two segments, Human Pharmaceutical Products and Animal Health products. It is headquartered in Indianapolis, IN. Eli Lilly's three-digit SIC code is 286 (drugs).

Merck & Co., Inc. provides health care solutions worldwide. It is headquartered in Kenilworth, NJ. Merck's three-digit SIC code is 286 (drugs).

Pfizer Inc., a biopharmaceutical company, discovers, develops, manufactures, and sells healthcare products worldwide. It is headquartered in New York, NY. Pfizer's three-digit SIC code is 286 (drugs).

The Procter & Gamble Company, together with its subsidiaries, manufactures and sells branded consumer packaged goods. The company operates through five segments: Beauty; Grooming; Health Care; Fabric Care and Home Care; and Baby, Feminine and Family Care. Its headquarters are in Cincinnati, OH. Procter & Gamble's three-digit SIC code is 284 (soap, detergents, and cleaning preparations; perfumes, cosmetics, and other toilet preparations).

Eastman Chemical Company, a specialty chemical company, manufactures and sells materials, chemicals, and fibers in the United States and internationally. It is headquartered in Kingsport, TN. Eastman's three-digit SIC code is 282 (plastics materials and synthetic resins, synthetic).

Assignment Questions

What should Skyler do? She has gathered a **spreadsheet** available here http://www.environment.ucla.edu/ccep/sri that includes information about the social and environmental performance of these 13 firms from MSCI and the US EPA, as well as financial data from Compustat. The data is available from 1991 to 2012. Her supervisor has asked her to: (1) rank these firms in order to choose the top three firms to invest in and (2) write a memo describing and explaining her suggested rankings and criteria. She is considering if she should focus solely on environmental criteria or take a broader approach that includes social and governance criteria.

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