ENVIRONMENTAL SUSTAINABILITY AMONG TOP SUPPLY CHAIN COMPANIES

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ABSTRACT

This paper studied the development of private regulations on environmental sustainability. Specifically, the self-disclosure of environment related policies as well as the usage of renewable energy and waste recycled data at company level are analyzed. Companies investigated under this study are leading supply chain companies from the Gartner's list.

Keywords: sustainability, supply chain

EXTENDED ABSTRACT

The sustainable development combines and addresses three aspects of sustainability: economic sustainability, environmental sustainability, and social sustainability. Economic sustainability is the ability of an organization to be competitive and profitable. Environmental sustainability is the ability of practices and methods to operate without negatively affecting resources or the environment. Social sustainability requires the benefits of implementation to outweigh the costs derived, as well as social norms and health to remain unaffected.

Actions are taken by the companies as many stakeholders and consumers are pressuring them to do so to stay competitive (Tatchi, 2013). The success of sustainability in the environmental and social dimensions is hard to measure and there are many challenges that come with creating sustainable practices. These challenges include costs, complexity, operationalization, and the mindset and cultural changes of the company (Abassi, 2012).

This paper reviews the development of private regulation in companies and look into areas beyond engineering and logistics. Specifically, I explore the self-disclosure of environment related policies by companies from different industry sectors. Companies investigated under this study come from the technology, consumer goods, wholesale/retail, industrial, apparel, beverage, pharma/chemical, and automotive industry sectors.

Data

Bloomberg, in conjunction with the firm Sustainalytics, have provided comprehensive environment, social, and governance (ESG) assessments to subscribers of the Bloomberg Professional service (Sustainalytics ESG Research Now Available on Bloomberg, 2014). While there are extensive variables in which Bloomberg analysts gather detailed data on, some of the most consistent are the variables that pertain to the disclosure and reporting on environmental policies, social policies, and governance structure. There are 11,300 companies covered in Bloomberg's ESG database. The number of unique customers using ESG data grew from 1,545 in 2009 to 12,078 in 2015. This study focuses on the environmental assessment data from Bloomberg's proprietary database. The data include an Environmental Disclosure Score (EDS), greenhouse gas (GHG) emissions, energy consumption, water usage, waste volume, as well as thirteen environment related policies gathered at company level.

Since 2004, a list of top supply chain performers has been published every year, first by AMR Research, and then by Gartner after the acquisition of AMR Research. It starts with the Fortune 500 list of top US companies by revenue and the Forbes global 2000 list and eliminates those companies that do not operate much physical supply chains and with revenue less than $12 billion. Then Gartner analyzes publicly available financial data, such as return on assets (ROA), inventory turns, and revenue growth. Qualitative representation of both peer and Gartner analyst opinions is also considered in ranking. In 2016, the Corporate Social Responsibility (CSR) component score, assessing each company's commitment to and proficiency in running socially and environmentally responsible supply chains, was added to the evaluation criterions for the first time (Gartner Supply Chain Top 25, 2016). Companies on the list are widely considered as leaders in the industry.

Forty companies were selected from Gartner's top supply chain company list. In addition to EDS, the data on the disclosure of thirteen environment related policies, GHG Scope 1 and Scope 2 emissions, renewable energy use, and waste recycled were also gathered from the proprietary Bloomberg database. This paper analyzes data for the development trend over that last decade. Moreover, using Gartner's financial data, I also investigate the correlation between the environmental sustainability development and the firm's return on asset and revenue growth.

Results

At the aggregate level the average EDS is showing a significant upward trend over the years ($p=0.000$ and $R=0.8891$). However, further analyses show the different trends of EDS in different industry sectors. Pharma/chemical companies are leading, followed by technology, apparel, apparel, and automotive companies. Consumer goods, industrial, and beverage companies are in the distant third place and retail/wholesale companies are lagging much behind.

Table 1 shows the percentages of the fourteen environmental policies that were disclosed by all company from 2005 to 2015. As of 2015, six policies were widely adopted by the companies. Another three policies were moderately adopted and four policies gained limited attentions. Detailed analyses and discussion will be presented at the conference.

Table 1: EDS score and Environmental Policies Disclosed by Top Supply Chain Companies

Year	Environmental Disclosure Score	Renewable Electricity Target Policy	Emissions Reduction Initiatives	Environmental Supply Chain Management	Green Building Policy	Waste Reduction Policy	Water Policy	Sustainable Packaging	Environmental Quality Management Policy	Climate Change Opportunities Discussed	Risks of Climate Change Discussed	Climate Change Policy	New Products - Climate Change	Biodiversity Policy
2005	21.72		58.82%	52.94%	52.94%	17.65%	58.82%	40.00%	23.53%	35.29%	0.00%	0.00%	35.29%	11.76%
2006	25.76		70.97%	67.74%	64.52%	32.26%	70.97%	42.86%	32.26%	45.16%	0.00%	0.00%	51.61%	6.45%
2007	31.17		89.19%	83.78%	75.68%	35.14%	86.49%	51.43%	45.95%	59.46%	2.70%	0.00%	64.86%	13.51%
2008	35.97		94.74%	92.11%	81.58%	36.84%	89.47%	55.26%	60.53%	68.42%	5.26%	10.53%	73.68%	13.16%
2009	40.38		94.87%	92.31%	87.18%	35.90%	94.87%	63.16%	69.23%	69.23%	2.56%	25.64%	76.92%	20.51%
2010	41.18		94.87%	92.31%	89.74%	43.59%	94.87%	66.67%	74.36%	74.36%	2.56%	30.77%	82.05%	17.95%
2011	44.70		94.87%	92.31%	89.74%	56.41%	94.87%	82.05%	79.49%	74.36%	2.56%	28.21%	82.05%	20.51%
2012	45.80	33.33%	97.44%	94.87%	87.18%	64.10%	94.87%	94.87%	74.36%	69.23%	2.56%	28.21%	76.92%	17.95%
2013	47.22	16.13%	97.37%	94.74%	89.47%	60.53%	94.74%	94.74%	76.32%	68.42%	2.63%	28.95%	81.58%	13.16%
2014	46.28	27.78%	97.37%	94.74%	89.47%	60.53%	97.37%	97.37%	73.68%	65.79%	2.63%	31.58%	81.58%	10.53%
2015	45.97	41.03%	100.00%	94.87%	94.87%	64.10%	97.44%	97.44%	74.36%	61.54%	2.56%	30.77%	87.18%	10.26%

References available upon request from the author.