Advances in Accounting, incorporating Advances in International Accounting 27 (2011) 223–232

Contents lists available at ScienceDirect

Advances in Accounting, incorporating Advances in International Accounting

journal homepage: www.elsevier.com/locate/adiac

Corporate governance and environmental performance and disclosures

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ARTICLE INFO

Keywords:
Corporate governance
Pollution measures
Toxics Release Inventory (TRI)
Risk-Screening Environmental Indicators (RSEI)
Environmental accounting

ABSTRACT

In this study the relationships between good corporate governance practices and environmental performance and disclosure are examined. Firms that are among the major emitters of toxic emissions in the United States comprise the sample for the study. Pollution performance is measured using a methodology that includes both the toxicology of the emissions and the population density of the community. A corporate governance measure and a pollution disclosure evaluation that were previously presented in the accounting literature are utilized in the study to validate the main performance measure.

The findings indicate that there is no relationship between good governance and good pollution performance. Additionally good governance is positively related to pollution disclosure while the correlation does not hold when governance was improved by SOX. The overall findings support legitimacy theory. This may indicate that the story about pollution performance is better than the actual outcome.

United States environmental regulations have forced firms from industries that pollute to reduce their emissions. There are pollution regulations governing the air, water and land and this has impacted many firms, especially those from the chemical, pulp and paper, metals, oil and gas and electric utility industries. How successful firms have been in reducing pollution and how transparent they are in reporting their efforts is an open question (see, for example, GAO, 2004).

Corporate scandals of the last decade led to the passage of Sarbanes–Oxley which had a focus on the financial aspects of corporate governance. Requiring independent directors, more autonomy of the audit committee and the appearance of more accountability by the chief executive officer (CEO) and the chief financial officer (CFO) were all elements of this corporate governance focus. However, prior to the passage of Sarbanes–Oxley many firms had in place good governance mechanisms.

What we examine in this study is whether good corporate governance is related to relatively better pollution performance and/or pollution disclosures. Given the disparate interests in corporate governance, the term 'good' can be fairly fuzzy in this context. At least two perspectives are influential: a stakeholder view and a financial-centric one.

The former perspective focuses on the balance of the financial and socio-political performances. Particularly, good governance is perceived by many people as a wide spectrum that covers financial as well as socio-political aspects of corporate performance. If firms have set up good governance practices to be more accountable to their stakeholders then part of this accountability should include minimizing environmental degradation and reporting on whatever they have done. Recognizing that the way these industries have evolved in the US, like in many other nations, all firms in these industries will have a pollution problem to some extent. Therefore, good governance in the broader sense, if it makes any difference, will be in reducing the magnitude of the problem as opposed to eliminating it.

Taking the financially-centric perspective, one may intuitively expect firms to maximize profit at the expense of other factors that might impede the maximization. However, mixed results in the body of literature concerned with voluntary disclosure and environmental capital investment (e.g. Clarkson, Li, & Richardson, 2004) show that the chase for only profit can also lead to better environmental performance and disclosure. However, other studies contend that firms may not financially benefit from better environmental performance and may use environmental disclosure as a tool to manipulate public opinion (e.g. Patten, 2000).

Researchers have examined how environmental performance and disclosure are related to specific aspects of corporate governance, such as board composition (Brammer & Pavelin, 2006), board size, outside directorships and inside ownerships (Kassinis & Vafeas, 2002). Overall, the selection of the specific aspects in these studies tends to bias towards those that are likely to directly affect environmental performance and disclosure. Consequently these discrete aspects cannot be considered as the indicators or measures of how 'good' the overall corporate governance of a firm is. A model of the relationships between corporate governance, environmental performance and disclosure is less salient to test for voluntary

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doi:10.1016/j.adiac.2011.05.005

disclosure incentives if the model utilizes only these aspects since the selected aspects may not drive any economic incentive. Particularly, if environmental performance and disclosures are endogenized with economic incentives (Al-Tuwaijri, Christensen, & Hughes, 2004), a model that uses only discrete measures may be subject to criticism of the holders of such theories. Hence, to answer the question whether 'good' corporate governance is related to better pollution performance and disclosure as well as to reconcile these two theories, an overall measure (index) of corporate governance is desirable.

Using a governance index developed by Brown and Caylor (2006), innovative pollution performance measures documented in the environmental literature and the disclosure measures created by Freedman and Stagliano (2008), we test the associations between these three constructs. We find good governance and pollution performance were unrelated. Additionally, we find a positive relation between good governance and pollution disclosures. Apparently, accountability may better relate to telling the story as opposed to improving it.

The rest of the paper is organized as follows: we present the background for measuring pollution performance and disclosures and corporate governance. Next our hypotheses are developed and the methodology is explained. Results and analysis are presented followed by implications and conclusions.

1. Background

Determining pollution performance for a given US firm is a difficult undertaking, as the GAO discovered in their 2004 report (GAO, 2004). The GAO report was undertaken to determine the adequacy of the Securities and Exchange Commission's (SEC) environmental reporting standards. The GAO basically concluded that they could not assess the adequacy of the standards since they could not determine a firm's environmental performance based on public information.

In a given industry a firm may emit pollutants into the air, water or on the land. Pollutants have differing impacts. A minute amount of a chemical may be more dangerous than a ton of another emission. Some pollutants may have long gestation periods until they harm humans or other life forms while others may have an immediate adverse effect. A lesser amount of pollution in a highly dense population area may directly impact more people than higher pollution in a sparsely populated area. Although firms in given industries may emit similar pollutants the unique emissions and the plant location may make all the difference.

In the US public pollution information is available from a number of sources. The Clean Air Act (1990) requires electric utilities to do continuous emission monitoring (CEM) of sulfur dioxide, nitrogen oxides and carbon dioxide from power plants of a certain size. This data is publicly available and is even cleaned by the Environmental Protection Agency (EPA). As part of the Clean Water Act, firms are required to file monthly monitoring reports with the regional EPAs on water pollution for each plant emitting into navigable bodies of water. Included in Superfund and CERCLA are descriptions of the toxic waste sites that need to be cleaned and the parties that are deemed responsible for the cleanups along with any agreements to clean-up the sites. Environmental actions resulting in fines are also publicly available. Weighing all of these factors and assessing the environmental performance of a firm either on an individual or relative basis is a difficult undertaking. In fact, the GAO did not even attempt to do this. Rather it relied on academic studies concerning pollution performance and pollution disclosure in reaching its conclusion.

1.1. Measuring environmental performance

In the academic literature, the Toxics Release Inventory (TRI) (EPA, http://www.epa.gov/tri/) has been widely used as an aggregate measure of emissions to ground, water and air. TRI is comprised of annual releases of hazardous chemicals from US plants and was created so that the exposed communities would be aware of these dangerous pollutants (Konar & Cohen, 1997). This approach to regulation has been deemed as "information as regulation." If a community is aware that plants are emitting dangerous chemicals it may be motivated to take action so the plant owners reduce these hazardous emissions. The quantitative quality of TRI makes it useful as a measure of overall corporate pollution. Annual emissions by plant are available online from the EPA. The emissions can also be aggregated by chemical and by destination (air, water or land). Although it does not include all the different types of pollutants it does include most of them and particularly the ones that are most immediately hazardous.

TRI has a number of limitations as a tool for measuring corporate pollution performance. The emissions consist of only hazardous chemicals as defined by EPA. Other pollutants such as sulfur oxides, nitrogen oxides, carbon dioxide, particulates and measures such as total suspended solids and bio-oxygen demand are not included in TRI. Virtually all the research employing TRI uses total pounds of pollution releases and considers all releases to be equally toxic (see, for example, Freedman & Patten, 2004; Hamilton, 1995). TRI is only available on a plant basis so using it to determine corporate pollution can be a difficult task.

Recently in the environmental and ecological literature more comprehensive metrics have been developed to measure the impact of pollutants. Toxicologists have assessed the individual hazardous chemicals and derived a weighting of toxicology by chemical (EPA, 2009a, 2009b, 1990b; SRC, 2002a). Models to quantify the dispersion of toxic chemicals and the exposure of human to these chemicals have also been built (EPA, 1986a,1986b, 1988a, 1990a, 1991a, 1991b, 2007). Furthermore, the population density around the release can be accurately estimated with the aid of Geographic Information Systems (GIS) and US Census data. These scientific advents enable models that jointly use the volume metric of releases, the toxicology of the releases and the exposed population in assessing pollution performance. Among them the RSEI models built by EPA are arguably the most pronounced ones (Toffel & Marshall, 2004).

RSEI measures the impact of pollution in three ways: Pounds-based results (PBR), Hazard-based results (HBR) and Risk-related results (RRR). PBR is the total pound of chemicals released by a plant. Essentially it is the same as the TRI pound measure that was used in most of the environmental accounting and economics literature (for instance, Freedman & Patten, 2004; Clarkson, Li, Richardson, & Vasvari, 2008; Hamilton, 1995). HBR incorporates the release and toxicity of a chemical release by a facility by "multiplying the pounds released by the appropriate chemical-specific toxicity." (EPA, 2009b). An extension of HBR is Modeled Hazard Population Results (MHPR). MHPR multiplies the HBR of a chemical released by the population that is exposed to the release but overlooks the fate and transport modeling of the chemical in the human body. In RRR, the surrogate dose, toxicity, and population components are multiplied to obtain a score for each chemical release by a plant. The results of the releases by a plant can be then aggregated to calculate a total result for the plant. Further aggregations can be extended to firm or industry level.

In this paper, we utilize these improved measures to assess environmental performance. We believe that MHPR and RRR are superior to PBR/TRI since they weigh separately all the disparate elements of pollution performance and arrive at an overall measure that accounts for volume, toxicity and population. There are, no doubt, potentially superior measures of environmental performance yet to be utilized in the environmental accounting literature.

1.2. Environmental disclosure

Most environmental disclosures concerning hazardous environmental emissions fall under the rubric of voluntary disclosures.