

**DRIVERS OF ENVIRONMENTAL REPORTING PRACTICES BY  
LISTED FIRMS AT THE NAIROBI SECURITIES EXCHANGE**

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## DECLARATION

This research project is my original work and has never been submitted for partial fulfillment for the award of any another degree in this university or in any other university.

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This research project has been submitted for examination with my approval as candidate's supervisor.

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## **DEDICATION**

This research project is dedicated to my family. They offered me all the support I needed in order to accomplish it.

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## **ABBREVIATIONS**

ANOVA – Analysis of Variance

CMA – Capital Market Authority

CSD – Corporate Social Disclosure

CSER – Corporate Social and Environmental Reporting

CSR – Corporate Social Responsibility

GRI – Global Reporting Initiative

NSE – Nairobi Securities Exchange

ROA – Return on Asset

UAE – United Arab Emirates

## **ABSTRACT**

The objective the study was to measure the environmental reporting index by listed companies at the NSE. The study also aimed to establish the kind of relationship that exists between drivers of environmental reporting practices and the environmental reporting practice. Environmental reporting index was the dependent variable for the study and the independent variables were profitability, financial leverage, firm size, ownership structure and industry type. Descriptive research design was employed and the study was census in nature because the entire population of listed firms at the NSE as at August 2016 was looked at. Information found in CSR reports and annual reports of the participants were used as data for the study. A five year average from year 2011 to 2015 was done so that accurate measure for every variable of the study could be arrived at. The data obtained was analyzed using Statistical Package for Social Sciences (SPSS) version 22. A 95% confidence level was used by the study model and Analysis of Variance (ANOVA) and coefficient of determination were used as inferential statistics. Results from the study showed that the environmental reporting index by listed companies at the NSE was very low and that profitability and financial leverage had a negative association with environmental reporting index. Firm size, ownership structure and industry type were found to have a weak positive relationship with environmental reporting index.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

There has been an increasing global concern for business operations impact on the environment. Questions concerning activities that affect the natural environment have been on the rise. Issues such as: waste removal, emissions of destructive smoke, ozone layer protection, toxic waste destruction and climate change are examples of environmental concerns (Gamble et al., 1996). CSR policy of an organization identifies society-related issues such as environmental concerns (Roberts, 1992). Provision of environmental reports is a way of explaining environmental policies and taking responsibility for environmental actions caused by business operations (Adams, 2004; Brammer and Pavelin, 2006).

Several studies have been carried out to understand, explain and justify environmental reporting practices. Owen, (2005) noted that identifying the drivers for environmental reporting practices is an area that calls for research. The theoretical perspectives used in both developed and emerging economies to identify drivers of environmental reporting practices are based on agency theory, legitimacy theory, stakeholder theory and voluntary disclosure theory (Guthrie and Parker, 1990). Environmental report of a firm is shown in the firm's annual report or in a separate corporate social responsibility report (Guthrie and Parker, 1990).

This study aimed at providing a current state of environmental activities undertaken by listed firms at the NSE. The index on how they disclose environmental information in

form of environmental reporting was also looked at. The study also aimed to investigate the extent to which CSR reports and annual reports of listed firms at the NSE reflect the current trends in global environmental reporting practices.

### **1.1.1 The Drivers of Environmental Reporting**

Legitimacy theory and agency theory proposes that profitability and level of leverage of a firm are the drivers for environmental reporting (Deegan, 2002; Jenses and Meckling, 1976). The rationale behind profitability of a company being a driver of environmental reporting practice is that profitable companies have adequate financial resources that can enable them to engage in environmental reporting practices more than less profitable companies. According legitimacy theory firms operates in a society that provides a social contract within which a company operates (Deegan, 2002). Failure by firms to comply with society's social contract/legitimacy will threaten company's survival; therefore highly profitable firms are expected to voluntarily present environmental reports on a higher index as opposed to less profitable firms.

Profitability as a driver of environmental reporting practice is an important variable of this study because a controversial relationship that has not been solved exists between profitability and environmental reporting index (Choi, 1998). Mixed findings have been received from different studies that measured the relationship between profitability and environmental reporting. Several prior studies found a relationship between profitability and environmental reporting index. Studies by Smith et al., (2007); and Rahman et al., (2010) found no significant association between profitability and environmental reporting index. Also a study by Cormier and Magnan, (2004) found a weak relationship between

profitability and environmental reporting index. This study sought to establish the kind of association that exists between profitability and environmental reporting index in respect to listed firms at the NSE.

Profitability is measured using either accounting-based or market-based indicators. Market-based indicators as opposed to accounting-based indicators are subject to less bias of management manipulation and don't rely on firm's past performance (McGuire et al., 1988). Previous studies used a single year accounting indicators (Freedman and Jaggi, 1982) while other studies used multiple year averages which proved to be more reliable measures/indicators (Cowen et al., 1987; Hackston and Milne, 1996). This study used accounting-based measure (a five year average of return of total net assets) because it is based on investors' point of view on company's performance (Belkaoui and Karpik, 1989; Brammer and Pavelin, 2008).

According to agency theory environmental reporting index increases with the growth in firm's financial leverage (Jenses and Meckling, 1976). Studies by Bradbury, (1992) and Malone et al., (1993) found out that positive relationship exists between level of financial leverage and financial information reporting. Environmental reporting has similar drivers like those of financial information reporting; a similar association was therefore expected to exist between financial leverage and environmental reporting index (Richardson and Welker, 2001). A high level of leverage encourages a firm to increase its environmental reporting index in order to meet the expectations of its creditors on matters that relates to the environment (Roberts, 1992).

Prior studies that looked at the kind of relationship that exists between financial leverage and environmental reporting index gave controversial results. Studies by Cornell and Shapiro (1987) and Naser et al., (2006) found out that a positive relationship exists between financial leverage and environmental reporting index. Study that was carried out by Chow and Wong-Boren (1987) found out that financial leverage and environmental reporting index have no relationship. The study sought to establish the type of association that exists between financial leverage and environmental reporting index in respect to listed firms at the NSE. The study used debt to equity ratio to measure firm's level of financial leverage.

### **1.1.2 Environmental Reporting**

Environmental reporting is also known as CSR reporting (Deegan, 2007). It is defined as an environmental management strategy that is used in communicating with the firm's stakeholders. Environmental reporting is further described as a tool that spurs the policies of an entity, its strategies and its management systems that are geared towards minimizing adverse environmental effects by entity's business on environment. Environmental reporting developed in early 1990s by taking the form of disclosure in annual reports and in CSR reports. With passage of time, further development of environmental reporting is becoming apparent and also a call for comprehensive environmental reporting is being witnessed (Deegan, 2007). Environmental reporting index was the dependent variable for the study.

The study used content analysis to measure environmental reporting index (Al-Tuwaijri et al., 2004; Clarkson et al., 2008). Checklist of 15 environmental disclosure items was



used to measure environmental reporting index. A score of either 1 or 0 was assigned for every environmental disclosure item found in CSR report or in annual report (Milne and Adler, 1999). A score of 1 was assigned if an environmental disclosure item in the checklist was available and 0 score was assigned if that item was not available. A five year period (from 2011 to 2015) content analysis was carried out and a maximum score that was to be achieved in each period/year was 15 points. An average of five year period scores divided by 15 points maximum score was used as a measure for environmental reporting index for each participant of the population.

### **1.1.3 Drivers of Environmental Reporting and Environmental Reporting**

The proposition that profitable companies have the required financial resources for purpose of engaging in environmental responsibilities and reporting is explicit (Cowen et al., 1987; Hackston and Milne, 1996). Management will concentrate engaging in business activities that generate positive cashflows at the expense of environmental reporting if a firm is not profitable or if it is less profitable (Roberts, 1992; Ullmann, 1985). Managers of profitable firms provides detailed environmental reports so as to support their position for a better environment and also so in order to get better compensation or reward.

Legitimacy theory holds that a positive association exists between profitability and environmental reporting index (Neu et al., 1998). These authors established that where a firm is profitable, environmental reporting for those stakeholders who value the environment will be a confirmation that profits made by the firm was not at the expense of the environment. In summary was expected that a positive association exists between profitability and environmental reporting index.

Roberts (1992) found out that a high proportion of debt in firm's capital structure would encourage the company to increase its environmental reporting index so that the company can meet the expectations of its creditors on environmental matters. Studies by Christopher and Filipovic (2008) and Ma and Zhao (2009) found out that firms with high levels of financial leverage are likely to disclose environmental reports to its creditors more than those firms with low levels of leverage. Significant positive relationship exists between highly levered firms and their environmental reporting index (Branco and Rodrigues, 2008). It can be concluded that high level of financial leverage leads to a high level environmental reporting index.

#### **1.1.4 Listed Firms at the Nairobi Securities Exchange**

There were 65 listed firms at the NSE as at August 2016. The business of NSE is regulated by CMA. At NSE companies are listed in respect to industry membership. The benefits of listing a company are: first it enables the company to acquire low cost of capital for business growth and second it enables a newly listed company to experience a lower corporate tax rate for the first five years of listing (NSE listing guide, 2014).

Listed companies in Kenya disclose their environmental information on their CSR reports and also on their annual reports. Local studies on CSER have shown that environmental reporting index by listed firms at the NSE is very low just like in any other emerging economy (Kalunda, 2012). The environmental reporting index in Kenya is determined by profitability, financial leverage, firm size, ownership structure and industry type.

## **1.2 Research Problem**

The last past few decades witnessed an increasing public awareness on the role that firms should play in the society. A substantial number of firms that have made significant contributions to technological and economic progress have been critiqued for creating environmental concerns. Depletion of resources, management of waste and pollution are examples of environmental focus that is receiving an ever increasing attention and concern. The increased public awareness on environmental concerns has resulted into increased environmental reporting by corporations (Deegan and Gordon, 1996). The study sought to determine the kind of relationship that exist between drivers of environmental reporting and environmental reporting so that ways of improving environmental reporting practice can be known in order to enable firms to be able to meet the increasing demand for environmental accountability.

In reference to firms listed at NSE, research have shown that they are practicing environmental reporting on a limited scale with mostly social issues such as education, health and philanthropy being given much attention (Kalunda, 2012). This low level of environmental reporting by listed firms posses a question on certainty of their going concern because of their inability to adequately meet their environmental demands. The study sought to establish the kind of association that exist between drivers of environmental reporting and environmental reporting index so that solutions on measures that should be put in place in order to increase the level of environmental reporting practices can be provided.

A study that was carried out in Netherlands by Dion and Rui (2012) found out that firm size and industry membership as drivers of environmental reporting have significant positive relationship with environment reporting index and that profitability was found not to have any significant positive association with environmental reporting index. Study by Kamal and Yousef (2013) revealed that environmental reporting index in UAE was influenced by industry type, corporate size and profitability. The study by Kamal and Yousef (2013) provides a contrary finding to a study by Dion and Rui (2012) that found profitability as a non-determinant of environmental reporting index and thereby raising a research problem in reference to this study as to whether profitability was a determinant of environmental reporting in Kenya.

Ponnu and Okoth (2009) carried out a study on corporate social responsibility disclosure practices by listed companies at NSE. The findings of their study revealed that CSR disclosure receives little attention with environmental reporting as one of the themes of CSR disclosure having the least level of disclosure. Muhia (2012) conducted a study on CSR practice by Kenya Airways; findings from the study revealed that the airline discloses extensively CSR information on areas such as health and education. The study revealed further that very little disclosure level of environmental reporting by the airline was identified. In reference to the findings of these studies, this study was guided by the following research question: What was the environmental reporting index for listed firms at the NSE as at August 2016?

### **1.3 Research Objective**

To measure environmental reporting index of listed firms at the NSE

### **1.3.1 Specific Research Objective**

To measure the kind of relationship that exists between drivers of environmental reporting and environmental reporting index

### **1.4 Value of the Study**

The government of Kenya was a beneficiary of this study. The study measured the environmental reporting index of listed firms in Kenya and the results obtained enabled the government to know the level of environmental disclosure in the country. This guided the government on development of policies relating to environment that will provide incentives to companies that embraces environmental sustainability through full environmental reporting disclosure.

The study was also of great benefit to academia. It provided the type of relationship that exists between determinants of environmental reporting and environmental reporting index; this was to be compared with contributions of agency, legitimacy and stakeholder theories. Any contrary relationship in respect to contributions of these theories has been suggested as areas for further research.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This section looks at theoretical literature review, determinants of environmental reporting, empirical review, conceptual framework and the summary of literature review.

#### **2.2 Theoretical Literature Review**

The theoretical perspectives that have been employed by scholars in both developed and emerging economies to identify drivers of environmental reporting practices are based on agency, legitimacy and stakeholder's theories (Gray et al., 1987, 1995; Guthrie and Parker, 1990; Roberts, 1992 and Patten, 1992). Each of these theories is discussed below in detail.

##### **2.2.1 Agency Theory**

Modern corporations are characterized by the existence of separation between shareholders and management (Berle and Means, 1932). This separation leads to managers not acting in the best interest of shareholders; instead they act in their own self interest (Godfrey et al., 2006). Agency theory explains the possible conflict of interest between management and shareholders. Agency conflict/problem is brought by asymmetry of information where management has more private information on company's performance more than shareholders do (Thakor, 1993).

Management of corporations resolves information asymmetry which leads to agency conflict by putting in place good corporate governance practices (Melis, 2004). Full disclosure of information relating to the firm such as environmental report is another way of reducing agency problem or conflict (Narayanan et al., 2000). This theory informed the study by requiring the management to make full disclosure of all information they know relating to the firm; these information includes environmental reporting. As a result of this disclosure; the company will look attractive to its shareholders and other investors who will want to invest in the firm hence increasing the firm's profitability and in turn the firm will be required to disclose detailed environmental report as a way of justifying its profits.

### **2.2.2 Legitimacy Theory**

This theory holds that environmental reporting is a function of environmental pressure faced by a company with regard to its environmental performance (Cho and Patten, 2007). As a result a firm reacts to this pressure by providing more and detailed environmental reports. Business corporations try to strike a balance between their values and environment's/societal values; when this balance is attained a social contract between the organization and the environment is created and this gives an organization legitimacy to carry out its business operations in an environment.

When the environment observes that the firm's values are not in line with society's or environmental values, the firm will be said to be in breach of social contract and its legitimacy will be threatened and eventual results will be a negative effect on its going concern (Milne and Patten, 2002). Legitimacy gap is a breach of environmental contract

(Deegan, 2002) and companies that finds themselves to be in breach of environmental contract tries to repair it by providing positive, more and detailed environmental reports.

This study was informed by legitimacy theory as a result of the fact that companies that find themselves in a legitimacy gap are forced to engage themselves on more positive environmental reporting so that its going concern is not threatened. Furthermore this theory drives those corporations that are not in breach of environmental contract to regularly disclose their environmental reports/information for the good of their legitimacy.

### **2.2.3 Stakeholder Theory**

This theory focuses on communicating with different stakeholder groups. A company is made up of different stakeholder groups with different powers and influence over the operations of the business and all these groups are concerned with firm's environmental performance (Roberts, 1992). For an organization to be a going concern it needs the support of its stakeholder groups and for this to be achieved corporate activities must be geared towards meeting their demands (Gray et al., 1995). Stakeholders are important to an organization because they have control over resources that are necessary for running the operations of the business (Ullmann, 1985). Full environmental reporting is one way of meeting demands of stakeholder groups so that they can be in a position to discharge their mandate in respect to the organization in question.

Motivations for stakeholder's involvement have been studied by Wicks et al., (1999). The study found out that profitability is the main reason for stakeholder's involvement. In



respect to this study stakeholder theory holds that corporations meets their stakeholders' demands by providing more and detailed environmental reports, as a result these stakeholders will be able to release the resources that they control for purpose of investment by the entity. This will lead to increased profitability by the corporation and thus necessitating the corporation to engage in more environmental reporting practices so as to justify their profits.

### **2.3 Determinants/Drivers of Environmental Reporting**

According the agency, legitimacy and stakeholder theories profitability and level of leverage of a firm are the main drivers of environmental reporting practices. Studies based on stakeholder theory found positive association between environmental reporting index and profitability (Belkaoui and Karpik, 1989; Cowen et al., 1987; Ismail and Chander, 2005). The underlying cause of positive association between environmental reporting index and profitability is the knowledge of management. Knowledgeable managers make a company to be profitable and understand the need for environmental reporting this leads to more environmental disclosures (Belkaoui and Karpik, 1989).

Level of leverage has a positive relationship with environmental reporting index (Jensen and Meckling, 1976) because firms uses more of debt in their capital structure discloses environmental reports voluntarily so as to reduce their agency costs. Other drivers of environmental reporting as explained by agency theory, legitimacy theory and stakeholder theory include: firm size, ownership structure and industry type; these drivers are discussed below in detail.

### **2.3.1 Firm Size**

Large corporations are prone to public scrutiny whenever their actions seem to be in violation with their environmental contract (Watts and Zimmerman, 1986). This means that large firm respond by engaging in environmental reporting practices as a way of curing the negative image created by the society due to its breach of environmental contract and as a result the firm is able to close the legitimacy gap which is a threat to its going concern. Empirical studies found positive relationship between environmental reporting index and firm size (Adams et al., 1998; Hamid, 2004; Neu et al., 1998).

### **2.3.2 Ownership Structure**

Studies by Roberts (1992) and Ullmann (1985) revealed that the level to which ownership of company's ordinary stock is concentrated has an effect on the extent of environmental reporting practices by that firm. If a large proportion of firm's common stock is made up of few large investors that firm will disclose environmental reports in a small extent in most instances. If the firm's ordinary stock holding is mostly held up by dispersed local investors and the government; that firm will disclose detailed environmental reports so that management can reduce information asymmetries between the organization and common stockholders (Cullen and Christopher, 2002).

### **2.3.3 Industry Type**

Industry type according to prior studies is the most common variable that explains environmental reporting index by firms (Cowen et al., 1987; Gray et al., 1995). Findings from these studies indicated that firms in "more sensitive industries" such as mining, chemicals manufacturing and other manufacturing industries have more negative

influence on the environment and therefore they do more environmental reporting than their counterparts in “less sensitive industries” such as those in service industries.

## **2.4 Empirical Review**

This sub-section looks at previous global and local studies relates to the study.

### **2.4.1 Global Studies**

Juhmani (2014) carried out a research whose objective was to examine the environmental reporting index by firms listed at Bahrain as at 2012. A sample of 33 listed firms was used for the study. Findings from the study revealed that 57.57% of the listed firms disclosed 2012 environmental reports in their annual financial reports and in their CSR reports on their websites.

Kamal and Yousef (2013) conducted a study whose objective was to measure the level of corporate social responsibility and its determinants by listed firms at Abu Dhabi Securities Exchange. The study employed content analysis of 2011 annual reports of firms listed in UAE. Results of the study revealed that listed firms in UAE disclosed CSR reports at a mean rate of 34%; meaning that CSR disclosure was not a priority or a primary concern for these firms. Furthermore findings of the study revealed that CSR disclosure was influenced by industry, profitability and firm size.

Dion and Rui (2012) carried out a study that aimed to indentify variables that influence environmental reporting index. The study was carried out in Netherlands and only Dutch listed companies made up the population of the study. Environmental information for the year 2008 was used by the study and it was collected from 28 listed firms. A content

analysis scorecard was used to test the environmental reporting index by Dutch listed firms. Firm profitability, firm size and industry membership were selected variables used to carry out the test. Findings from the study revealed that industry membership as well as firm size has a significant positive association with environmental reporting index. Profitability was found not to have positive statistical significance with environmental reporting index.

Jon and Shyam (2010) conducted a study whose objective was to establish the level of CSD practices of Spanish companies. All firms listed at Spanish Stock Market as at 2010 made the population of the study. 41 companies formed the sample for the study and a content analysis scorecard based on GRI framework on environmental reporting was used to analyze social and environmental disclosures made by sampled firms. The findings from the study revealed that profitability had no positive significant association with environmental reporting index.

#### **2.4.2 Local Studies**

Tarus (2015) carried out a local whose objective was to examine the kind of association that exists between firm leverage and CSR practices. 44 firms were found to have actively traded at the NSE from 2005 to 2012 which was the study period. Results from the study revealed the existence of significant positive association between firm performance and CSR. Environmental reporting was found not to have any positive relationship with firm leverage.

Kalunda (2012) conducted a local study whose objective was to establish the level of CSR reporting adopted by listed firms at the NSE. The study was census in nature that looked a population of 42 listed companies at NSE as at the beginning of January 2006 up to the year end. Findings of the study showed that CSR reporting is practiced in Kenya and CSR reports produced were of poor quality, incomplete and lack uniformity and reliability and that the CSR reports produced only focused on health, education, social and philanthropic activities.

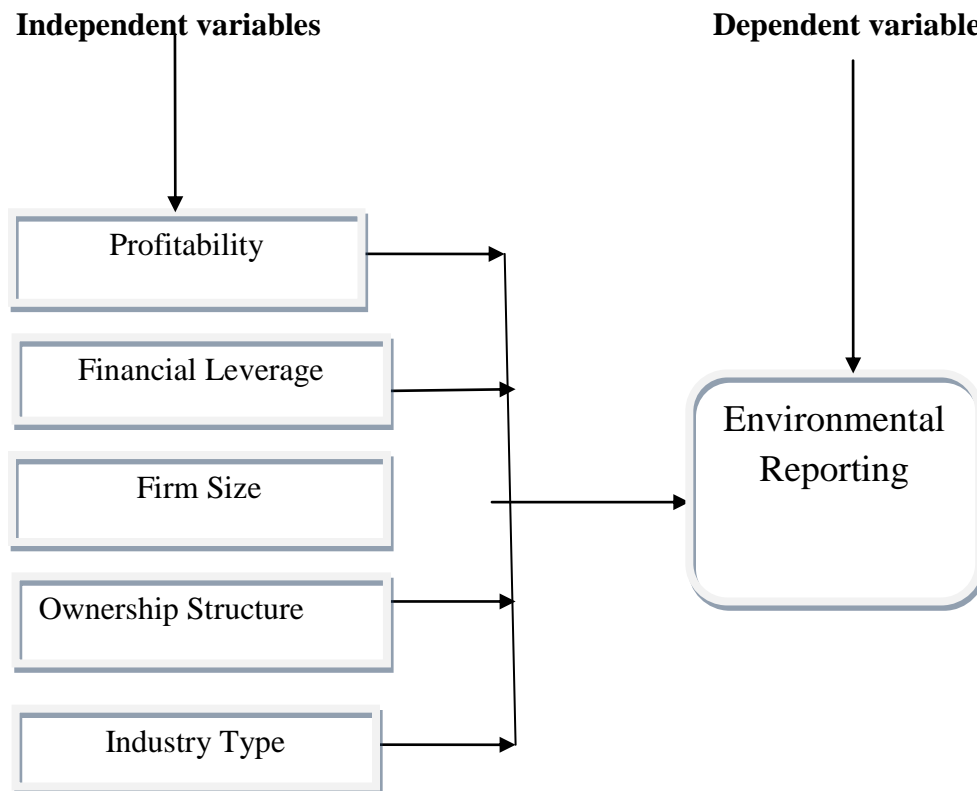
Muhia (2012) carried out a study that aimed to establish CSR practices at Kenya Airways. The study found out that the Airline has a CSR policy that is well articulated in the company's strategy. Its CSR policy is entrenched in the company's mission statement and that education and health are the main areas of CSR focus by the Airline.

Ponnu and Okoth (2009) conducted a study whose objective was to investigate CSR disclosure practices in Kenya. The study was census in nature that looked at 45 companies that were listed at NSE as at August 2009. Results of the study revealed that CSR disclosure received little attention with community involvement as a theme being mainly disclosed.

Analysis of these studies reveals that health, education, community and philanthropic activities are the main themes that are disclosed in CSR reports and in annual reports. Very little disclosure on environmental reporting has been observed and this calls for further research so that reasons behind its limited reporting can be known. This is a trend that is mostly common in Kenya. Also a single year observations for variables under

study has been used by these studies; this may pose a challenge of accuracy of findings because a single year observations for all the variables of the study may not necessarily translate to mean the same trend of observation for later/previous years.

## 2.5 Conceptual Framework



**Figure 2.5.1: Conceptual Framework**

The figure above shows how level of environmental reporting is influenced by different determinants which include: profitability, financial leverage, firm size, ownership structure and industry type. These determinants of environmental reporting influence the environmental reporting index/level in varying degrees depending on the nature and characteristics of the company in question.

## **2.6 Summary of Literature Review**

Global studies on environmental reporting disclosure have provided mixed results on profitability as a determinant/driver of environmental reporting. For example study by Dion and Rui (2012) found out that profitability does not have significant positive association with environmental reporting index. This finding is in contrast with legitimacy theory which holds that a significant positive association between profitability and environmental reporting index exists (Neu et al., 1998). The study filled this gap by giving the type of association that exists between profitability and level of environmental reporting.

Findings from local studies on CSER have revealed that health, education, community and philanthropic activities are the main themes that are being disclosed as CSR activities by most companies operating in Kenya and that environmental reporting/disclosure is being done on a very limited extent (Kalunda, 2012). From this finding the question on to what extent is environmental reporting being done in Kenya raises a research gap that the study sought to fill by measuring the environmental reporting index by listed firms in Kenya.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This section looks at the type of research methodology that was employed when the study was being carrying out. Specifically this section covers the research design, population, data collection, data analysis, analytical model and inferential statistics.

#### **3.2 Research Design**

A research design provides a framework for collection and analysis of data (Brayman, 2008). This study employed descriptive research design. Descriptive research design is concerned with describing the characteristics of particular participants (Kothari, 2004). This type of research design was used for the study because it helped in giving the kinds of relationships that exists between determinants/drivers of environmental reporting and the environmental reporting index by listed firms in Kenya.

The justifications for adoption of descriptive research design were: Firstly it helps to describe the characteristics of variables under study and also unlike other type of research design; it incorporates multiple variables for analysis (Cooper and Schindler, 2003). Secondly it is helpful in presentation of facts about the status and nature of the situation as it exist during the time of study. Thirdly it will maximize the reliability of data collected and analyzed (Mugenda and Mugenda, 2003).

#### **3.3 Population**

Population is defined as the elements from which a sample is selected (Kothari, 2004).



The target population for the study was 65 listed firms at the NSE as at August 2016, of which statistical attributes was estimated. Because of the small size of the target population, the study did not use any sampling.

### **3.4 Data Collection**

Archival/secondary data was used by the study. Secondary data is derived from electronic materials, books, magazines and journals (Mugenda and Mugenda, 2003). For this study secondary data for all the elements of the target population was obtained from CSR reports of the listed companies at NSE and also from their published annual reports found in their respective websites. Data which was collected for the study included values of: total net assets, profit after tax, total debt, equity and the shareholding of common stockholders for each listed firm. These data was collected for a five year period i.e. from 2011 to 2015 and then an average for each variable was used for purpose of analysis.

### **3.5 Data Analysis**

Data collected was first edited and cleaned for possible errors and omissions; thereafter it was coded in order to ease its analysis. Data was analyzed by use the of Statistical Package for Social Sciences (SPSS) version 22.

#### **3.5.1 Analytical Model**

The study was guided by a linear function; this function was to explain the environmental reporting index as a function of drivers/determinants of environmental reporting. The model that was used is given below:

$$ERI_{(x)} = \alpha + \beta_1 PROF + \beta_2 LEV + \beta_3 SIZ + \beta_4 STRU + \beta_5 IND + \epsilon$$

Where  $ERI_{(x)}$  = environmental reporting index scored by company X (dependent variable). It was measured by summation of scores awarded for every environmental item observed as per the checklist. The maximum score that was to be achieved was 15 points. The unweighted environmental reporting index for company X was then measured by dividing its score of ( $ERI_{(x)}$ ) over the maximum score of 15 points as follows:

$$ERI_{(x)} = (ERI_{(x)}/15),$$

$\alpha$  = Intercept,

$\beta_1$ .....  $\beta_5$  = Parameters of the model,

PROF = value of profitability. It was measured using return on total assets which is given by profit after tax divided by total net assets,

LEV = value of financial leverage. It was measured using debt to equity ratio which is given by total liabilities divided by equity (Cormier et al., 2005),

SIZ = value of firm size. It was measured by natural logarithm of total net assets,

STRU = value of ownership structure. It was measured by percentage of company's shares that was owned by dispersed investors/individual local investors and those owned by the government,

IND = value of industry type. It was measured by assigning a score i.e. a score of 2 for “environmental sensitive companies” and a score of 1 for “non-environmental sensitive companies”,

$\varepsilon$  = Error term.

Multiple regression analysis by use of Statistical Package for Social Sciences (SPSS) version 22 was used to establish the effect of drivers of environmental reporting on environmental reporting index. Correlation and regression analysis was carried out to confirm the kind of relationship that exists between the dependent variable (environmental reporting index) and the independent variables (drivers/determinants of environmental reporting).

### **3.5.2 Inferential Statistics**

The test of significance was performed at 95% confidence level. Analysis of Variance (ANOVA) and F test was used to determine the significance of the regression model. Correlation analysis was carried out to find out the type of association that exists between determinants/drivers of environmental reporting and environmental reporting index. Coefficient of determination ( $R^2$ ) was used to determine how much variation in dependent variable will be explained by independent variables.

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND DISCUSSION

#### 4.1 Introduction

This chapter looks at the diagnostic test of the study, descriptive statistics of the study variables such as means, standard deviations, coefficient of variation, kurtosis and skewness. Correlation analysis, regression analysis and discussion of research findings are also looked at in this chapter.

#### 4.2 Diagnostic Tests

The diagnostic tests that were carried out for the study are: test of normality and multicollinearity test. Table 4.2.1 below shows the normality test of the study:

**Table 4.2.1: Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Environmental Reporting Index	.132	59	.012	.925	59	.001
Profitability	.103	59	.188	.936	59	.004
Financial Leverage	.228	59	.000	.797	59	.000
Firm Size	.064	59	.200*	.991	59	.933
Ownership Structure	.064	59	.200*	.991	59	.933
Industry Type	.370	59	.000	.631	59	.000

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

From the above table; the study revealed that under Shapiro-Wilk test of normality, firm size and ownership structure were the study variables that are not normally distributed since their significance of normal distribution were above the required threshold of 0.05. Other study variables such as environmental reporting index, profitability, financial leverage and industry type were normally distributed from their mean values because their significance for test of normality lied below the recommended threshold of 0.05.

Table 4.2.2 below shows the multicollinearity statistics of the study:

**Table 4.2.2: Multicollinearity and Correlations Statistics**

	Correlations			Collinearity Statistics	
	Zero-order	Partial	Part	Tolerance	VIF
(Constant)					
Profitability	-.065	-.096	-.090	.988	1.012
Financial Leverage	-.020	-.038	-.036	.858	1.165
Firm Size	.330	.308	.302	.913	1.095
Ownership Structure	.192	.118	.111	.921	1.086
Industry Type	.031	.052	.048	.856	1.168

a. Dependent Variable: Environmental Reporting Index

The tolerance for the study variables were 0.988, 0.858, 0.913, 0.921 and 0.856 also the variation inflation factors for the study variables were 1.012, 1.165, 1.095, 1.086 and 1.168 for profitability, financial leverage, firm size, ownership structure and industry type respectively. Since the tolerance level for the independent variables of the study was

more than 0.2 and also since their variation inflation factors was less than 5 it means that there was no multicollinearity problem among the independent variables of the study.

### 4.3 Descriptive Statistics

The table below shows descriptive statistics of the study.

**Table 4.3.1: Descriptive Statistics**

	N	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Environmental Reporting Index	59	.2798	.22520	.051	.639	.311	-.233	.613
Profitability	59	.1460	.14241	.020	.345	.311	3.655	.613
Financial Leverage	59	1.9671	2.08076	4.330	1.471	.311	1.635	.613
Firm Size	59	22.4991	1.71706	2.948	-.209	.311	.383	.613
Ownership Structure	59	.2761	.22813	.052	.707	.311	-.462	.613
Industry Type	58	1.4483	.50166	.252	.214	.314	-2.025	.618
Valid N	58							

From the table above the mean for environmental reporting index is 0.2798; this means that as at August 2016 listed companies at the NSE were giving environmental reports in their CSR and annual reports at an average rate of 27.98%. The mean for profitability was found to be 0.146; this means that the average return on assets for listed companies was 14.6%. The mean value for financial leverage was 1.9671; it means that more debt than equity was employed by listed firms in their capital structure. The mean of ownership structure was 0.2721; this means that 27.21% of shares of listed companies were owned by government and individual local investors. Finally the mean value for industry type was found to be 1.4483; this means that on average listed companies at the NSE as at August 2016 were classified under the category of “non-environmental sensitive firms”.

The standard deviation for environmental reporting index, profitability, ownership structure and industry type was 0.225, 0.1424, 0.228 and 0.5017 respectively. This means that the deviation from mean values of these variables was low. The standard deviation for financial leverage and firm size was 2.081 and 1.717 respectively; this means that the deviation from their mean values was very high. The same trend was also observed in the variance for these variables.

Environmental reporting index, profitability, financial leverage, ownership structure and industry type had positive skewness. This means that their data values are positively dispersed from their mean values. Firm size was found to be the only variable with negative skewness; this means that its data values were negatively dispersed from its mean value. Environmental reporting index, ownership structure and industry type had

negative kurtosis; this means that their data values were negatively centered towards their mean values. Profitability, financial leverage and firm size had positive kurtosis; this means that their data values were positively centered towards their mean values.

#### 4.4 Correlation Analysis

The table below shows the correlation analysis for the study.

**Table 4.4.1: Correlation Analysis**

		Environmental Reporting Index	Profitability	Financial Leverage	Firm Size	Ownership Structure	Industry Type
Environmental Reporting Index	Pearson Correlation	1					
Profitability	Pearson Correlation	-.052	1				
Financial Leverage	Pearson Correlation	-.010	.030	1			
Firm Size	Pearson Correlation	.363**	.113	.111	1		
Ownership Structure	Pearson Correlation	.213	.006	.092	.304*	1	
Industry Type	Pearson Correlation	.031	-.046	-.370**	-.089	-.101	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).



From the table above the study found out that a very weak negative correlation of  $-0.052$  exists between profitability and environmental reporting index. This means that increase in profitability of listed firms at the NSE as at August 2016 did not translate to high index of environmental reporting practice. A very weak negative association of  $-0.010$  was found to exist between financial leverage and environmental reporting index. This means that increase in financial leverage did not translate to an increase in environmental reporting index.

Firm size, ownership structure and Industry type was found to have weak positive relationship of  $0.0363$ ,  $0.213$  and  $0.031$  respectively with environmental reporting index. This means that big listed companies in terms of total net assets were found to have high level of environmental reporting index; the same applied to companies whose majority of its common stock were owned by government and individual local investors as well as those companies that are categorized under “environment sensitive firms”.

The study results above for correlation analysis revealed that the following types of established associations exist between the study variables: Firstly; profitability has a very weak negative relationship with environmental reporting index. Secondly; financial leverage has a very weak negative association with environmental reporting index. Thirdly; firm size, ownership structure and industry type have a weak positive relationship with environmental reporting index.

#### 4.5 Regression Analysis

The table below shows the model summary results.

**Table 4.5.1: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.367 <sup>a</sup>	.134	.051	.21825

a. Predictors: (Constant), Industry Type, Profitability, Ownership Structure, Firm Size, Financial Leverage

From the above table the Pearson's R is 0.367; this means that there is a weak positive relationship between drivers/determinants of environmental reporting practices (Independent variables/predictors) with environmental reporting index (dependent variable). The R Square of the study was 0.134; this means that 13.4% of the changes in the dependent variable were caused by the changes of the independent variables.

Table 4.5.2 below shows Analysis of Variance (ANOVA) for the regression model.

**Table 4.5.2: Analysis of Variance (ANOVA)**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.385	5	.077	1.615	.172 <sup>b</sup>
	Residual	2.477	52	.048		
	Total	2.862	57			

a. Dependent Variable: Environmental Reporting Index

b. Predictors: (Constant), Industry Type, Profitability, Ownership Structure, Firm Size, Financial Leverage

From the above table the deviation from the mean values for the variables of the study is 0.077 at 5 degrees of freedom at 0.172 significance level.

Table 4.5.3 below shows the coefficients of the model

**Table 4.5.3: Coefficients of the Model**

Model	Unstandardized Coefficients		Standardized Coefficients
	B	Std. Error	Beta
(Constant)	-.742	.429	
Profitability	-.142	.203	-.091
Financial Leverage	-.004	.015	-.038
Firm Size	.044	.019	.316
Ownership Structure	.114	.133	.115
Industry Type	.023	.062	.052

The regression model for the study that was derived from the above model coefficients is as follows:

$$ERI_{(x)} = -0.742 - 0.142PROF - 0.044LEV + 0.044SIZ + 0.114STRU + 0.023IND + 0.21825$$

#### **4.6 Interpretation and Discussion of Research Findings**

The study found out that the environmental reporting index by listed companies in Kenya as at August 2016 was 0.2798 which is equivalent to 27.98%. This result revealed that in

Kenya environmental reporting index is still very low and this finding supports the findings of early scholars for example (Owen, 2005) whose study found out that the volume of environmental reporting practices/environmental reporting index in developing economies is very low as compared to developed countries. This is attributed to the fact that most firms in developing countries falls into the category of “non-environmental sensitive firms” hence they are not under pressure to present the effects and the costs of their business activities on environment in either annual reports or in their CSR reports.

The research also found out that profitability had no positive association with environmental reporting practice. This is because the study found a Pearson correlation coefficient of -0.052 as relationship that exists between profitability and environmental reporting index. It means that increase in profitability by listed firms at the NSE leads to a decrease in environmental reporting index by a very low margin. This finding provides contrary results to the findings of a study by Cormier and Magnan, (2004) and the prepositions of stakeholder theory and legitimacy theory. This controversial finding is explained by the fact that listed firms at the NSE are not under pressure to provide environmental reports as a way of justifying profits made by these businesses.

The study also found out that level of firm’s financial leverage had no positive association with the level/index of environmental reporting practice. This is explained by the Pearson correlation coefficient of -0.010 that the study found to be the type of association that exists between financial leverage and environmental reporting index. The explanation for this type of relationship is that providers of debt capital do not require provision of environmental reports as a way of justification of how well their resources

are being put into proper use. This finding is in contraction to the preposition of agency theory (Jenses and Meckling, 1976) and the findings of studies by (Bradbury, 1992 and Malone et al., 1993).

The study found a significant positive relationship of 0.363 between firm size and environmental reporting index. This type of association is explained by the fact that big firms in terms of net assets have sufficient financial resources for providing their environmental reports and furthermore their interest is to provide environmental reports to different stakeholders as a way of justifying that their big asset base is as a result of engagement in environmentally friendly business activities that do not violates its social contract. This finding supports the preposition of legitimacy theory which advocates for provision of social/environmental reports so that environmental/social contract is not breached; also the study findings by Hamid, (2004) is supported by this type of relationship that the study found to exist between financial leverage and environmental reporting index.

Ownership structure was found to have a positive relationship of 0.213 Pearson's correlation coefficient with environmental reporting index. This means that listed firms whose ordinary shares were mostly owned by the government and individual local investors reported high index of environmental reporting because local individual investors and the government are very concerned about the impact of firm's business activities on the natural environment. This means therefore that management of these firms provides environmental reports on a higher scale in order to meet the expectations of their investors.

The study also found out that those firms that fall under the category of “environment sensitive” have a higher environmental reporting index than those firms that fall under the category of “non-environment sensitive”. This finding is explained by the positive association that the study found to exist between industry type and environmental reporting index.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter looks at the summary of research findings, the conclusion of the study, recommendations, limitations of the study and suggestions for further research.

#### **5.2 Summary of Findings**

The finding of the study revealed that environmental reporting index by listed firms at the NSE stood at 27.98%. This index of environmental reporting was very low and it can be attributed to factors such as lack of proper laws and guidelines that regulates environmental reporting practices, lack of professionals who are to be tasked to produce environmental reports and lack of incentives by the government that motives companies to produce detailed environmental reports.

The study found a negative association between profitability and environmental reporting index. This means that even if profitability of the listed firms at the NSE increases, it does not translate into an increment in environmental reporting index. This can be explained by the existence of relaxed laws that do not require companies to mandatorily provide environmental reports as a way of justifying their profits.

The study also found out that firm's level of financial leverage had a negative association with environmental reporting index. This means that firm's creditors do not demand for

environmental reports while making their investment decisions on the firm in question. This can be also a contributing factor behind low levels of environmental reporting practices by listed firms at the NSE.

Significant positive relationship between firm size and environmental reporting index was found to exist. This means that big firms in terms of total net assets had a higher environmental reporting index compared to small size firms. Hence this provided a positive association between firm size and environmental reporting index.

The study found out that ownership structure had a positive relationship with environmental reporting index. This was explained by the positive correlation that was found to exist between the two variables. It therefore means that firms whose majority of its ordinary stock being held by the government and individual local investors had a high environmental reporting index as a way of taking care of their interests in terms of calls for environmentally friendly business activities.

Positive association was also found to exist between industry type and environmental reporting index. This type of association is explained by the fact that firms that engages in business activities that are most likely to cause harm to the environment e.g. mining and chemicals manufacturing are required to provide detailed environmental reports as opposed to those firms whose activities are less likely to cause damage to the environment e.g. banking and insurance.



### **5.3 Conclusions**

In summary the study findings revealed that environmental reporting index by listed firms at the NSE was 27.98%. This is a very low level of environmental reporting disclosure and this finding resonates with the study by Gray et al., (1987) whose study findings revealed that developing economies are characterized by very low level of environmental reporting. Profitability has been found to have negative association with environmental reporting index and this finding is in line with the study by Cormier and Magnan, (2004).

The study however found a controversial result on the kind of relationship that exists between financial leverage and environmental reporting index. This study found a negative correlation between these two variables while other studies for example a study by Neu et al., (1998) found a positive association to exist among these two variables. This mixed result is explained by the in Kenya creditors are not interested in firm's environmental reports while they are making their investment decisions; instead their concern is only firm's ability to service the debt.

Firm size, ownership structure and industry type were found to have a positive association with environmental reporting index. This means that increase in firm's size coupled with majority of firm's shareholding being made up of individual local investors and the government plus a firm being classified under "environmental sensitive" category will lead to an increase in that firm's environmental reporting index. This finding was consisted with the empirical studies of Hamid, (2004); Cowen et al., (1997) and Roberts, (1992).

#### **5.4 Recommendations**

The findings of the study revealed that environmental reporting index by listed firms at the NSE was very low; In this respect the researcher is recommending to the government of Kenya to put in place incentives that will encourage corporations to increase on their environmental reporting indexes. These incentives will lead to the practice of environmentally friendly business activities by firms.

Proper laws by the government and its agencies needs to be put in place so that companies are compelled to provide detailed environmental reports on their annual reports. This is attributed by the fact that the low level of environmental reporting index may be explained by existence of relax laws and regulations that do not full force of the law for companies that are in breach of environmental laws.

#### **5.5 Limitations of the Study**

The use of secondary/archival data was a major limitation of the study. Archival data contains historical data which may not reflect the current position of how events are taking place. This therefore may to some small degree affect the reliability of the study findings.

Content analysis was used to measure environmental reporting index as a dependent variable for the study. Content analysis is highly subjective and its accuracy entirely depends on the exhaustiveness of the researcher and his research skills. This might have therefore affected the accuracy of environmental reporting index values for the study.

Inadequate data was another limitation that was faced in the study. The study was census in nature that looked at the entire population of listed firms at the NSE as at August 2016, as at this date 65 firms were listed. Out of 65 listed firms the study only found data for 59 firms. To some small degree therefore the study findings of 59 firms might not accurately be sufficient to provide a basis for making conclusions regarding the entire population of 65 firms.

## **5.6 Suggestions for Further Research**

The study found controversial results on the kind of relationship that exists between financial leverage and environmental reporting practice. Previous studies that have been carried out found positive relationship between the financial leverage of a firm and its environmental reporting practice index. This controversial results by the study is researcher's suggestion for further research i.e. to find out why the level of financial leverage of listed companies in Kenya do not have a positive relationship with the level of environmental reporting practices.

The study only measured the environmental reporting index of listed firms at the NSE and it was found out that listed firms provides environmental disclosures on a very limited scale. The study did not investigate the impediments of environmental reporting practices. The study is therefore suggesting that further research should be carried out in order to find out impediments of environmental reporting practices. This will help to provide solutions that are useful in improving environmental reporting index.

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## APPENDICES

### Appendix I: Environmental Reporting Checklist

1. Existence of environmental policy that lists environmental objectives, issues of environmental concern and prioritization of environmental concerns in terms of their impact;
2. Existence of Environmental Management System (EMS);
3. Environmental impact assessment and risk management;
4. Presence of an environmental audit program;
5. Environmental budget/spending and activities;
6. Land remediation and rehabilitation;
7. Rehabilitation costs and provision for contingent liabilities;
8. Air emissions;
9. Water effluent;
10. Odors;
11. Environmental cost accounting;
12. Availability of sustainable development report including a statement which states the company subscribes to sustainable development;
13. Waste recycling, reduction and reuse;

14. Management of spills;

15. Research and development on energy management and non-renewable resources

use.

## Appendix II: Data used for the Study

	<b>ERI</b>	<b>PROF</b>	<b>LEV</b>	<b>SIZ</b>	<b>STRU</b>	<b>IND</b>
<b>1.</b>	0.333	-0.001	0.193	19.743	0.197	2.000
<b>2.</b>	0.533	0.189	0.329	21.745	0.217	2.000
<b>3.</b>	0.467	0.126	0.674	20.777	0.208	2.000
<b>4.</b>	0.267	0.363	2.222	19.093	0.191	2.000
<b>5.</b>	0.400	0.025	0.404	22.585	0.226	2.000
<b>6.</b>	0.400	0.049	0.443	22.245	0.222	2.000
<b>7.</b>	0.133	0.147	1.820	21.404	0.214	1.000
<b>8.</b>	0.133	0.020	1.066	19.802	0.198	1.000
<b>9.</b>	0.800	0.063	0.564	21.551	0.216	1.000
<b>10.</b>	0.267	0.244	4.346	24.245	0.242	1.000
<b>11.</b>	0.400	0.133	4.000	24.152	0.242	1.000
<b>12.</b>	0.800	0.228	3.510	23.613	0.236	1.000
<b>13.</b>	0.200	0.290	4.692	24.377	0.244	1.000
<b>14.</b>	0.133	0.139	6.390	22.318	0.223	1.000
<b>15.</b>	0.467	0.229	0.339	23.442	0.234	1.000
<b>16.</b>	0.667	0.237	6.145	24.612	0.246	1.000
<b>17.</b>	0.467	0.109	5.483	23.073	0.231	1.000
<b>18.</b>	0.133	0.221	0.448	23.288	0.233	1.000
<b>19.</b>	0.400	0.264	5.986	23.971	0.240	1.000
<b>20.</b>	0.467	0.254	6.192	23.971	0.240	1.000
<b>21.</b>						
<b>22.</b>	0.000	-0.312	9.274	19.661	0.197	1.000
<b>23.</b>						
<b>24.</b>	0.444	-0.052	0.837	25.527	0.255	1.000
<b>25.</b>	0.067	0.144	0.904	19.719	0.197	1.000
<b>26.</b>	0.000	0.072	1.000	17.798	0.178	1.000
<b>27.</b>	0.133	0.270	0.460	22.651	0.227	1.000
<b>28.</b>	0.333	0.070	0.749	21.578	0.216	1.000
<b>29.</b>	0.800	0.048	0.453	23.164	0.232	1.000
<b>30.</b>	0.000	0.128	0.771	21.679	0.217	1.000
<b>31.</b>	0.000	0.180	0.777	22.255	0.223	1.000
<b>32.</b>	0.400	0.026	1.325	23.629	0.236	2.000
<b>33.</b>	0.733	0.166	0.391	24.038	0.240	2.000
<b>34.</b>	0.333	0.095	1.007	20.832	0.208	2.000
<b>35.</b>	0.000	0.158	1.166	21.679	0.217	2.000
<b>36.</b>	0.333	0.085	1.620	22.386	0.224	2.000
<b>37.</b>	0.600	0.016	0.620	25.727	0.257	2.000
<b>38.</b>	0.333	-0.147	2.951	23.052	0.231	2.000

<b>39.</b>	0.333	0.178	2.072	24.450	0.245	2.000
<b>40.</b>	0.267	-0.010	1.786	23.336	0.233	2.000
<b>41.</b>	0.000	0.060	1.144	26.836	0.268	2.000
<b>42.</b>	0.200	0.153	2.527	23.408	0.234	1.000
<b>43.</b>	0.133	0.178	1.884	22.564	0.226	1.000
<b>44.</b>	0.000	0.272	4.545	22.765	0.228	1.000
<b>45.</b>	0.200	0.180	0.641	23.294	0.233	1.000
<b>46.</b>	0.133	0.190	4.363	22.297	0.223	1.000
<b>47.</b>	0.200	0.240	4.890	21.589	0.216	1.000
<b>48.</b>	0.067	0.216	0.231	23.934	0.239	1.000
<b>49.</b>						
<b>50.</b>						
<b>51.</b>	0.133	0.045	0.572	20.569	0.206	1.000
<b>52.</b>	0.133	0.176	3.915	22.071	0.221	2.000
<b>53.</b>	0.000	0.189	0.078	21.229	0.212	1.000
<b>54.</b>						
<b>55.</b>	0.133	0.121	0.423	21.169	0.212	2.000
<b>56.</b>	0.000	0.507	0.962	22.754	0.228	2.000
<b>57.</b>	0.267	0.256	0.401	21.195	0.212	2.000
<b>58.</b>	0.400	0.657	2.618	23.309	0.233	2.000
<b>59.</b>	0.467	-0.012	0.171	22.227	0.222	2.000
<b>60.</b>	0.000	0.321	1.344	20.065	0.201	2.000
<b>61.</b>	0.000	0.005	0.013	22.519	0.225	2.000
<b>62.</b>	0.267	0.131	0.675	23.438	0.234	2.000
<b>63.</b>	0.200	0.102	0.567	22.076	0.221	2.000
<b>64.</b>	0.600	0.184	0.685	24.975	0.250	1.000
<b>65.</b>						

**Key**

ERI Environmental Reporting Index

PROF Profitability

LEV Financial Leverage

SIZ Firm Size

STRU Ownership Structure

IND Industry Type