EFFECT OF FIRM CHARACTERISTICS ON SOCIAL AND ENVIRONMENTAL ACCOUNTING DISCLOSURE IN LISTED INDUSTRIAL GOODS FIRMS IN NIGERIA

BY

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CERTIFICATION

This Dissertation entitled Effect of Firm Characteristics on Social and Environmental Accounting Disclosure in Listed Industrial Goods Firms in Nigeria by Yusuf Balarabe (P16ADAC8337) meets the regulations governing the award of the degree of Master of Science (M.Sc) in Accounting and Finance of Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

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DECLARATION

I declare that the work in this Dissertation entitled Effect of Firm Characteristics on Social and Environmental Accounting Disclosure in Listed Industrial Goods Firms in Nigeria has been done by me in the Department of Accounting. The information derived from the literature has been duly acknowledged in the text and a list of references provided. To the best of my knowledge, no part of this Dissertation has been presented, either wholly or partly, for any degree elsewhere before.

……..

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P16ADAC8337

DEDICATION

This Dissertation is dedicated to my late parents, Malam Balarabe Danliman and Malama Halimatu Abubakar. Father, Mother, may their soul rest in perfect peace, amin!

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Abstract

The need for corporate entities to disclose their social and environmental activities in their annual reports is increasingly becoming a topical issue globally. This study examined the effect of corporate characteristics on social and environmental disclosure of listed industrial goods firms in Nigeria. Specifically, the study examined the extent to which social and environmental accounting disclosure of the firms is influenced by firm size, firm leverage, firm profitability, firm age, board size, board composition and managerial ownership. The population of the study consisted of all the 25 firms that are listed on the Nigerian Stock Exchange (NSE), under industrial goods sector of the economy. After applying two filters, eight (8) firms were studied based on census approach. Data were collected from the annual reports and accounts of the firms for the period 2004-2015. The study employed correlation research design and content analysis approach was utilized to determine the social and environmental accounting information disclosure in the annual reports. Both weighted and un-weighted disclosure indexes were used for measuring quantity and quality of social and environmental accounting disclosure. The results of the robust fixed effect models indicated positive and significant association between firm age, board size and social and environmental accounting disclosure. In contrast, social and environmental disclosure is negatively and significantly related to firm leverage, firm profitability and board composition. The study found no significant association between firm size, managerial ownership and social and environmental disclosure. Based on the findings, the study recommended the need for Accounting Standard setting bodies and other regulatory agencies to set up a framework for social and environmental reporting in order to improve the level of social and environmental disclosure and transparency among listed firms in Nigeria.

CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

The need for corporate organizations to disclose in their annual report the social and environmental accounting information is increasingly becoming a topical issue globally. This need is even more apparent in the developed nations, unlike in developing countries where less attention is being given to social and environmental accounting issues. The emergence and increasing interest in social and environmental accounting disclosure reflects the increasing demand for transparency and accountability from corporate organization. This less attention might not be unconnected with the general notion that, an organization's primary objective is to maximize profit without taking into cognisance the effect of their activities in the society where they operate.

The traditional view of a 'good' business manager or an entrepreneur in a capitalist society as opined by Idowu (2012) is that he is an individual capable of generating profits regardless of the effect of his actions on jobs, the environment and local, national and international communities, provided no law is broken in the course of these actions. So, the main concern here is about how efficient organizations are in terms of how much profit are made and how much dividends are paid. No serious attention is given to social and environmental accounting information in the annual reports.

Despite industrialization plays important role towards achieving meaningful economic development of a nation, it has been observed by Uwuigbe (2012) that economic development is associated with social and environmental related problems such as global warming,

environmental degradation, accusation and counter accusations of unfair treatment of host communities and pollution among others. Therefore, it is imperative for firms to behave in a responsive manner to social and environmental issues parallel to economic issues. One of the ways of achieving that by the organizations is through increase in the level of disclosure on social and environmental accounting related issues in the annual reports over and above regulatory requirements.

The extent of disclosure of social and environmental accounting information in the annual reports at company level is determined according to two dimensions; the extent of social pressure that face each company and the strategy adopted by each company in curving this pressure Hassan (2010). He further posited that, the interaction between corporate characteristics and media coverage of the company determine the degree of social pressure facing a company, while corporate governance mechanisms determine how each company responses to such pressure. Generally, studies on determinants of corporate social and environmental disclosure have been primarily concerned with the influence of firm characteristics such as firm size, profitability, leverage and size of audit firms while little attention was given to corporate governance attributes which is considered as a good explanatory variable that might influence firms to voluntarily disclose social and environmental information in the annual reports (Susi, 2005; Echave & Bhati, 2010).

Firms may be influenced by some reasons to disclose such information in their annual reports. For instance, legitimacy theory suggests that larger firms received greater attention from the society and would subsequently be subjected to more social pressure than the smaller firms. The former will increase their disclosure more than the latter so as to establish a good social image as part of their business strategy (Yao, Wang & Song, 2011). Similarly, capital providers who are

more concern with the financial performance and stability of the companies might also be concerned over the possibility for environmental liabilities on liquidation of the company, in response to debt providers. Corporate managers might seek to legitimize environmental performance through additional disclosure and thereby reducing the need for further scrutiny (Razeed, 2010).

Furthermore, profitable firms are more likely to disclose more information in order to distinguish themselves from less profitable firms. Given the substantial costs involved in becoming socially and environmentally responsible, the economic performance of the firm is an important factor to consider in determining whether social and environmental issues will be on the priority list. Elijido-Ten (2007) argued that in period of low economic performance, the firm's economic objectives will be given more attention than environmental and social concerns. Based on this line of thinking, it could be predicted that firm performance is directly related to social and environmental disclosures.

Firm age is another variable that might likely influence firms to disclose social and environmental related issues in their annual report. Owusu and Yeoh (2005) are of the believed that older firms may have competitive advantage over younger ones because the cost of gathering and disseminating information will be more difficult for the younger firm.

With regards to strategy adopted by corporate organizations in tackling the pressure from various groups, corporate governance mechanisms play important role. Good corporate governance is a critical issue for corporate success. The main issue here is the information asymmetry between the principal (stockholders) and the agents (managers) where managers consider their own interest in exercising their managerial judgment and thereby leading to social and disclosure gap.

Information disclosure is an efficient means of safeguarding shareholders and it is the major responsibility of managers.

One of the corporate governance mechanisms considered to be vital in determining firms' behavior toward social and environmental disclosure is board size. Halme and Huse (1997) argued that the role of the board may be linked to companies' environmental attention, the environmental group and corporate activist may ask the board to make their companies behave in a socially acceptable manner. A sizable board of directors would lead to greater monitoring and bring better recommendation that will lead to long term corporate sustainability.

Similarly, inclusion of non-executive directors on the board would result in more individuals having the incentive to protect their reputation by promoting higher transparency through disclosure of material information including social and environmental impact of business activities (Ajibolade & Uwuigbe, 2013). The proportion of directors' shareholding in a firm (managerial ownership) may also have some influence on information disclosure behavior exhibited by such company. Fama and Jensen (1983) proposed that where there is diffusion in ownership, the potential for conflict between the management and owners is greater. On the other hand, Uwuigbe (2011b) observed that the higher the proportion of directors' equity interest in a firm, the more they will be socially friendly to the environment in which they operate. In addition to that the greater the managerial ownership the less inclined the managers are to divert resource away from value maximization.

On the other hand, industrial goods sector listed on the Nigeria Stock Exchange (NSE) comprises of four different sub sectors namely: building materials, the electrical and electronics products, the packaging/container, and the tool and machinery (NSE Fact book, 2013). The sector is made

up of a category of companies that are involved in the production of tools, materials, components, machinery, and other products used in construction, manufacturing and other industrial applications. Their production processes are more likely to negatively affect the environment in which they operate. Much is expected from these firms in terms of social and environmental responsibilities and are subjected to comply with various enactments and most importantly the market capitalization of the selected firms. To this end, it is imperative to conduct a study that will examine the relationship between corporate characteristics and social and environmental accounting disclosure of listed industrial goods firms in Nigeria.

1.2 Statement of the Problem

The demand for corporate organizations to integrate social and environmental accounting issues into their annual reports has increased worldwide as users of the information become more attentive. The increasing demands for clear facts about the corporate social performance of organizations by an increasingly well-informed breed of stakeholders have made corporate social and environmental accounting disclosure an essential issue of debate (Uwuigbe, 2011a).

The rationale behind such disclosure is to ensure accountability and transparency from the part of the management who are charged with the responsibility of preparing financial statements. But in most cases, disclosure does not serve the need of the users because of the information asymmetry where managers prioritize their own interest in exercising their managerial judgment and thereby, leading to social and environmental disclosure gap. Promoters of corporate social responsibility disclosure argued that corporate social and environmental accounting disclosure is an important ingredient for business success and that where social and environmental activities

are fairly reported in the financial statement for all to see, some of the problems would be minimized if not eliminated (Davies &Okorotie, 2007).

Most of the previous studies on relationship between firm characteristics and social and environmental accounting disclosure were conducted in the industrialized Western countries (Kokubo, Noda, Onishi & Shinabe, 2001; Cormier, Magnan & Velthoven, 2004; Razeed, 2010; Hassan, 2010). In contrast, only few studies have so far been conducted in developing economies (Hossain, Islam & Andrew, 2006; Barako, 2007; Haron, Isma'il &Yahya, 2008; Buniamin, 2010). In Nigeria, most of the related studies concentrated on multinational oil companies and the financial sector (Owolabi, 2008).

Earlier research work on factors influencing firms to disclose social and environmental accounting issues examined various company attributes but failed to consider the inclusion of corporate governance variables as possible factors that could influence companies to disclose social and environmental accounting information in their annual financial reports. Little is also known about the relationship between firm characteristics and social and environmental accounting disclosure quality in developing markets such as those in Nigeria particularly, using data on industrial good firms. It is therefore pertinent to conduct a study that will fill this literature gap.

Studies conducted by Umoren and Okougbo (2011), Ajibolade and Uwuigbe (2013) which considered the incorporation of corporate governance variables, their analysis did not concentrate on a particular sector of the Nigerian economy. As a result, their findings appeared too generic and not sector specific. Furthermore, most of the studies conducted in developing countries pay scant attention to analysing the quality of social and environmental accounting information

disclosure, which limits the understanding of the issue. A number of studies focused on multinational organization and financial sector of the economy.

As a result, a study that will extend its analysis to corporate governance attributes and similarly focus on firms other than the financial sector is therefore desirable. This study aimed at filling these gaps that are evident in the literatures.

1.3 Research Questions

In line with the problem statement, the following research questions are raised to guide the study:

i. What is the effect of firm size on social and environmental accounting disclosure of listed industrial goods firms in Nigeria?

ii. What is the effect of Firm leverage on social and environmental accounting disclosure of listed industrial goods firms in Nigeria?

iii. How does firm profitability affect social and environmental accounting disclosure of listed industrial goods firms in Nigeria?

iv. To what extent does firm age affect social and environmental accounting disclosure of listed industrial goods firms in Nigeria?

v. What is the effect of board size on social and environmental accounting disclosure of listed industrial goods firms in Nigeria?

vi. What is the effect of board composition on social and environmental accounting disclosure of listed industrial goods firms in Nigeria?

vii. How does managerial ownership affect social and environmental accounting disclosure of listed industrial goods firms in Nigeria?

1.4 Objectives of the Study

The main objective of this study is to examine the effect of corporate characteristics on quantity and quality of social and environmental accounting disclosure of listed industrial goods firms in Nigeria. The specific objectives of the study are to:

i. examine the effect of firm size on social and environmental accounting disclosure of listed industrial goods firms in Nigeria;

ii. assess the effect of firm leverage on social and environmental accounting disclosure of listed industrial goods firms in Nigeria;

iii. examine the effect of firm profitability on social and environmental accounting disclosure of listed industrial goods firms in Nigeria;

iv. evaluate the effect of firm age on social and environmental accounting disclosure of listed industrial goods firms in Nigeria;

v. examine the effect of board size on social and environmental accounting disclosure of listed industrial goods firms in Nigeria;

vi. assess the effect of board composition on social and environmental accounting disclosure of listed industrial goods firms in Nigeria; and

vii. evaluate the effect of managerial ownership on social and environmental accounting disclosure of listed industrial goods firms in Nigeria.

1.5 Research Hypotheses

In line with the objectives and research questions, the following hypotheses are formulated in null form to guide the study:

$H0_1$ Firm size has no significant effect on social and environmental accounting disclosure of listed industrial goods firms in Nigeria.

$H0_2$ Leverage has no significant effect on social and environmental accounting disclosure of listed industrial goods firms in Nigeria.

$H0_3$ Profitability has no significant effect on social and environmental accounting disclosure of listed industrial goods firms in Nigeria.

$H0_4$ Firm age has no significant effect on social and environmental accounting disclosure of listed industrial goods firms in Nigeria.

$H0_5$ Board size has no significant effect on social and environmental accounting disclosure of listed industrial goods firms in Nigeria.

$H0_6$ Board composition has no significant effect on social and environmental accounting disclosure of listed industrial goods firms in Nigeria.

$H0_7$ Managerial ownership has no significant effect on social and environmental accounting disclosure of listed industrial goods firms in Nigeria.

1.6 Scope of the Study

This research work is aimed at examining the factors that influence industrial goods firms in Nigeria to disclose social and environmental information in their annual reports. The study

considers both the quantity and the quality of social and environmental disclosure among the selected firms for the period 2004-2015.The selection of these firms is based on their nature of operation and most importantly their market capitalization. The study covers only firm size, leverage, performance and firm age as proxy for firm characteristics; and board size, board composition and managerial ownership as proxy for corporate governance mechanisms.

1.7 Significance of the Study

The study would be of benefit to several parties including regulatory agencies, investors and other stakeholders in general. The research work will be relevant to regulatory authorities like National Environmental Standard Regulation Enforcement Agency (NESREA) in the sense that it will enable it identify the extent of environmental and social responsibility disclosure practice among the selected firms for the purpose of monitoring industrial activities and its effect and prescribe necessary control measures.

To other users of annual reports, the study will provide an insight into how industrial goods firms disclose their environmental and social responsibility in Nigeria. The study also contribute to the literature relating to corporate disclosure by providing empirical evidence for researchers, students and academic with respect to the content and extent of social and environmental disclosure of listed industrial goods firms in Nigeria.

The results contribute to the accounting literature by providing evidence that supports the positive role of corporate characteristics of the study firms. Furthermore, the findings of the research work would go a long way in contributing towards development of a framework on social and environmental disclosure index by Accounting Standards Setting Bodies in Nigeria

such as Financial Reporting Council of Nigeria (FRCN) which will assist in improving disclosure level among the firms.

The findings of this study also have implications to facilitate annual reports users, preparers as well as regulators of financial information in Nigeria. The users would also benefit from the study as a guide for decision making processes and understanding the factors that influence companies' social and environmental disclosure in Nigeria.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter discusses conceptual issues relating to the variables of the study. It also undertakes review of relevant theoretical and empirical literature on the association between the study variables. The aim is to establish a conceptual framework and relationships among the explained and explanatory variables of the study based on previous studies and identify the gap that exists in the literature. In addition, the chapter reviews relevant theories that are linked to the study with a view to selecting the appropriate theory that underpins the study.

2.2 Concept of Social and Environmental Accounting Information Disclosure

The concepts of social and environmental disclosure have been defined by different scholars. Guthrie and Matthew (1985) defined corporate social disclosure as the provision of financial and non-financial information relating to an organization's interaction with its physical and social environment, as stated in its corporate annual reports or its separate social reports. This means social and environmental disclosure could be integrated into a company's annual reports. Alternatively, it could be presented separately through other medium of communication such as stand-alone report, environmental report. Hassan (2010) explained that the extent of companies' corporate disclosure is dependent primarily on external and internal factors facing the companies. The external factors which include media pressure and Non-Governmental Organizations (NGOs) determine the degree of social pressure facing the firms, while *the* internal factors such as corporate governance attributes and ownership structure determine the strategy adopted by the firms in response to social pressure.

Barako (2007) defined corporate environmental disclosure as discretionary release of social information that has economic effect on the activities of the companies through annual reports over and above mandatory requirement either with regards to International Accounting Standards (IAS) or any other relevant regulatory requirement. It could be deduced from the above definition that disclosure could either be mandatory or voluntary. The information to be mandatorily disclosed in the annual report is extensively spelt out in IAS 1. The aim of voluntary disclosure is to promote accountability and transparency among companies beyond the traditional role of proving a financial accounting to the owners of the capital. Annual financial reporting is an important platform for communicating companies' financial and non-financial information. It has been documented in quite a number of researches that, improved disclosure by companies reduces the gap between management and outsiders, allow companies to gain competitive advantages, improved corporate image, enhance the value of stocks in the capital market, and reduce cost of capital (Kanda, 1999; Dye, 2001).

Social and environmental disclosure could also be described as a vehicle for transmitting social and environmental effect of organizations' economic action to particular interest groups within the society at large. Haron, Ismail and Yahya (2008) noted that corporate social disclosure gives information to the public regarding a company's activities that relates to the community. This means a socially responsible firm is expected to take step forward by adopting policies and business practice that go beyond the minimum legal requirements and thereby contributing to the welfare of its key stakeholders. Hassan (2010) argued that corporate social disclosure has developed mainly as a result of attention that has been paid to three other concepts in the

business world, which are: corporate social responsibility, sustainable development and socially responsible investment.

The European Commission as reported by Babalola (2012) defined corporate social responsibility as a concept whereby companies integrate social and environmental concern in their business operation and in their interaction with their stakeholders on a voluntary basis. It encompasses a variety of issues revolving around companies' interaction with society. The sorts of issues covered include ethics, governance, social activities such as philanthropic and community involvement, product safety and environmental activities (Idowu, 2009; Babalola, 2012). Idowu (2009) further opined that, when corporate social responsibility is considered from the perspective of accounting profession, such consideration is necessarily and inextricably linked with social and environmental reporting or accounting.

The concept of sustainable development was launched by the "Our Common Future" report under the lead of Gro Harlem Bruntland, Director of United Nation World Commission for Environment and Development (WCED). The report provides the definition of sustainable development as "development that meets the need of present without compromising the ability of future generation to meet their own need" (Ngwakwe, 2009). Therefore, it is essential for firms to develop ways to meet those needs that do not disregard the future. The concept of sustainable development is mainly used to motivate various political, legal and economic initiatives which seek to resolve the social, environmental and economic concerns found by individual organization and government (Hassan, 2010).It seeks to achieve societal and environmental equity while in pursuit of economic gain.

The concept of socially responsible investment (SRI) as opined by Steurer, Margula and Martinuzzi (2008), is an application of corporate social responsibility and sustainable development principles in investment decision. The SRI related investment decision can focus on social issues, environmental issues, ethical issues or the combination of the three approaches. It is the practice of making investment decision based on both financial and social performance. The SRI strategy asserts that investing is not value neutral and that there are significant ethical and social, as well as economic consequence in how the money is invested (Shapiro, 1992) as cited in Steurer, Margula and Martinuzzi (2008). Therefore, it can be argued that, generation of long term sustainable returns is dependent on stable, well-functioning and well governed social, environmental and economic system. Hassan (2010) noted that, socially responsible investment encompasses how investors might use their power as shareholders to encourage better environmental and social behavior from companies they invest in.

The concept of SRI is closely related to that of corporate social responsibility and sustainable development. In corporate social responsibility, the focus is on ethical, social and environmental activities of companies. Sustainable development on the other hand takes into cognizance the impact of companies' activities on wealth of next generation. On its part, socially responsible investment influences both social responsibility and sustainable development.

There are no clear definitions of what constitute social and environmental information (Aburaya, 2012). However, Social and environmental disclosure as noted by Uwuigbe (2012) encompasses a range of items that can be categorized into various social and environmental related information, energy usage information, research and development related information, employee health and safety information and community involvement information. Hassan (2010) and Aburaya (2012) indicated that absence of definite social and environmental information has

motivated initiatives to develop a comprehensive framework for social and environmental disclosure such as Global Reporting Initiatives (GRI) and Accountability AA1000 Assurance Standard. GRI is aimed at disseminating globally applicable sustainability reporting guidelines to enable organizations to voluntarily disclose the social, environmental and economic dimension of their activities (GRI, 2002). AA1000 Assurance Standard is an ethical performance framework introduced by the Institute for Social and Ethical Accounting (ISEA, 1999).

In light of the above, social and environmental disclosure is measure in two ways. These are quantitative and qualitative disclosure measurements. Each of the two is discussed below.

2.2.1 Social and Environmental Accounting Information Disclosure Quantity

The research technique commonly used in evaluating the quantity of corporate social and environmental disclosure is content analysis. Content analysis is considered as the fastest growing technique in quantitative research method. Content analysis of annual report is a method of gathering data which involves codifying qualitative and quantitative information into pre-defined categories in order to derive pattern in the presentation and reporting of information (Guthrie & Abeysekere, 2006). It allows corporate environmental information to be systematically classified and compared (Uwuigbe, 2011). The main advantages of content analysis as noted by Aburaya (2012) relate to reliability, objectivity, external validity and volume of data. A distinguishing feature of content analysis is that data are coded and measured in a reliable and systematic manner (Krippendorff, 1980).

Social and environmental disclosure content analysis involves the construction of classification scheme and establishing a set of decision rules for coding, measuring and recording the data

being examined (Milne & Adler, 1999). Specifically, its technique requires determining the documents to be used in the analysis (annual report, stand-alone or any other communication media), defining corporate social and environmental disclosure and its categories, the unit of analysis and the reliability of the content analysis techniques (Hassan, 2010; Aburaya, 2012). Corporate annual reports are formal public documents that incorporate both statutory and voluntary disclosure; can be accessed more easily than other media; and are widely recognized as the principal means for communicating corporate activities and intention (Wiseman, 1982). Thus, majority of the literature uses annual report as the principle focus of disclosure (Hossain, Islam & Andrew, 2006; Barako, 2007; Uwuigbe, 2011). Annual report is a statutory document that is produced regularly. It is the main path for transmission of communication of environmental and social information from the companies to their stakeholders; and thus are more formal, authoritative and accurate for researchers (Zhang, 2013).

The methods used in content analysis studies to quantify disclosure are number of words (Davey, 1982; Deegan& Gordon, 1986; Suttipun& Stanton, 2012), number of sentences (Milne & Adler, 1999; Hassan, 2010; Buniamin, 2010; Uwuigbe, 2012), proportion of pages (Haron, Ismail &Yahya, 2008; Hassan, 2010) and self-constructed disclosure index (Cormier, Magnan & Velthoven, 2004; Umoren & Okougbo, 2011). Self-constructed disclosure indices can be weighted or un-weighted. Both weighted and un-weighted disclosure index are usually used to determine the extent of disclosure by various companies. Researchers such as Cormier, Magnan and Velthoven (2004), Barako (2007) and Takhtaei and Mousavi (2012) used weighted disclosure index. This approach involves the application of weight to different items in the disclosure check list. The weights reflect the importance attributed by different classes of users to each disclosure item.

On the other hand, researchers such as Kokubu, Noda, Onishi and Shinabe (2001), Hossain, Islam and Andrew (2006), Galani, Gravas and Stavropoulos (2011) and Uwuigbe (2013) used un-weighted disclosure index approach. This is a dichotomous procedure of scoring in which a score of one (1) is awarded if the item is disclosed and Zero (0) if not disclosed. The underlying assumption in the un-weighted approach is that all items of information in the index are considered equally important to the average users. Un-weighted indices by construction can only measure the quantity of disclosure. In order to appreciate quality of disclosure, items are weighted according to predefined rankings defined by the researchers (Aburaya, 2012).

2.2.2 Social and Environmental Accounting Information Disclosure Quality

The concept of quality is a disputed topic in academic literature and in contemporary philosophy which has different meaning to different people (Aburaya, 2012). Disclosure quality is defined as the extent to which current and potential investors perceived information easily (Hopkins, 1996). International Organizations for Standardization (ISO 9000) defined quality as a degree to which a set of inherent characteristics fulfills requirement. Beattie *et al.* (2004) as cited in Hassan (2010) indicated that there are two principle ways to measure quality of disclosure: use of subjective analyst disclosure quality ranking; and use of researcher-constructed disclosure indices, in which the amount of disclosure is used as a proxy for disclosure quality. In determining disclosure quality, Cormier, Magnan and Velthoven (2004) asserted that management should considers the institutional framework of the company by focusing attention to what other companies either in the same industry or in the same country do in that respect. They should also consider what the company has done in the past as well as relevant regulations and laws governing disclosure.

Prior literature on social and environmental disclosure used various ranking system to determine the quality of disclosure in annual reports. Different point scales were used for assessing the quality of disclosed information. Cormier, Magnan and Velthoven (2004) used rating based on the score of one to three. Three for items described in quantitative terms, two where an item is described specifically and one for an item described in general terms. Yusoff and Lehman (2005) used rating base on the score of one to four; general information, qualitative information, quantitative information and combination of both qualitative and quantitative information respectively. Similarly, Barako (2007) proposed qualitative disclosure measure which denotes weight for different disclosure items based on the perceived importance of each item to various user categories; weight four to three were assigned where the information provided is highly essential, weight three to a very important, weight two moderately important, weight one slightly important and zero to un-important. Hassan (2010) and Petrova, Sotiropoulos and Vasileious (2012) suggested a two-point scale system in assessing the quality of social disclosure in annual report, one, if disclosure is quantitative, graphs or narrative which reports the policies and activities of a company concerning its social responsibility, and zero otherwise.

Yao, Wang and Song (2011) on their part used rating base on the score of two if an item is disclosed in great detail. For instance where company discloses a detail plan, estimated expenditure or main development related to environmental protection, a score of one is awarded if an item is disclosed qualitatively without detail explanation, if no related information is disclosed the score is zero. Cormier, Magnan and Velthoven (2004) noted that, the use of coding scale to qualify a firm's social disclosure is appropriate because it allows for integration of different type of information into a single figure that is comparable across firms in terms of relevance. The process of reading and of coding a firm's annual report leads to the computation

of comprehensive disclosure quality. Aburaya (2012) argued that as long as quality measurement is intended a weighted index is deemed appropriate in order to differentiate between varying degree of disclosure quality. The quality of disclosed information is assessed by assigning weight and defining scores that vary according to the distinct nature of the disclosed items.

2.3 Firm Characteristics

Various factors influence companies to voluntarily disclose social and environmental information in their annual reports, stand-alone reports or any other medium of communication. These factors are commonly referred to as corporate characteristics that underline companies' motivation to disclose social and environmental information. Firms might voluntarily disclose social and environmental information to develop corporate image, to improve accountability, to legitimize current activities or to divert attention from other areas and to forestall legislation (Damak, 2004). Hassan (2010) noted that analysis of disclosure determinants is a major consideration in accounting literature. Studies on determinants of social and environmental disclosure could be categorized into general and special model studies.

General studies are studies that analyzed some variable as potential determinants of social and environmental disclosure (Echave & Bhati, 2010; Suttipun& Stanton, 2012). Prior studies focused on the influence of firms characteristics such as firm size, profitability and industry group or general contextual factors such as social, political and economic context while relatively little work has examined the internal contextual factors such as corporate governance mechanisms and ownership structure (Adams, 2002; Damak, 2004). Special model studies refer to those studies that present a particular model to explain the corporate social disclosure. The

study of Elijido-Ten (2007) for example employed Ullmann's (1985) three-dimensional model of stakeholder power, strategic posture and economic performance to examine corporate social disclosure..

In view of the above, the corporate characteristics variables that explain social and environmental disclosure may be categorized broadly into governance mechanism and firm specific variables. Governance has become an important global issue as a result of corporate failures (Kanda, 1999). It has become one of the features of modern corporations. Corporate governance simply refers to the relationship of the enterprise to shareholders, or in a wider sense as the relationship of the enterprise to society as a whole. The Organization for Economic Co-operation and Development (OECD, 1999) defined corporate governance as a system on the basis of which companies are directed and managed. It is upon this system that specifications are given for the division of competencies and responsibilities between the parties included and formulate rules and procedures for adopting decisions on corporate matters. Lemo (2010) as cited in Demaki (2011) defined corporate governance structure as a body of rules of the game by which companies are managed and supervised by the board of directors in order to protect the interest and financial stakes of shareholders that are far removed from the management of the firm. It is a system by which corporations are managed with the view to increasing shareholders value and meeting expectation of other stakeholders.

Effective corporate governance ensures credible accounting and high quality financial reporting which provides transparency of information that enable users especially shareholders and investors to make informed decisions (Muhammad, Shahimi, Yahya & Mahzan, 2009). Therefore, corporate governance is viewed as effectively targeting transparency and accountability in an organization's process with the aim of fulfilling responsibilities to

shareholders, consumers, employees and the community it resides. Its structure specified the distribution of rights and responsibilities among different participants in the corporation such as board managers, shareholders and other stakeholders and spell out the rules and procedures for making decision on corporate affairs. Ho and Wong (2001) argued that under intensive monitoring environments, managers' opportunistic behaviors, information asymmetry and intention to withhold information for their own benefits are likely to be reduced, leading to improvement in corporate disclosure.

Different countries around the world have introduced corporate governance codes because of the corporate failures. In Nigeria, the Security and Exchange Commission (SEC) initially issued code of corporate governance for quoted firms in 2003. The purpose of introducing corporate governance codes is to help sustain investors' confidence and also serve as benchmark for monitoring and implementing corporate policies and practices. The Codes enhance transparency, accountability, enforceability in the market place. It equally builds confidence among shareholders and ensures country's long term success on financial platform as well as social responsibilities (Dombin, 2013).

Corporate disclosure and reporting by listed firms in Nigeria are largely influenced by the company's Act of 1968. However, as a result of numerous criticisms from stakeholders, it was repealed and replaced in 1990 by the then Companies and Allied matters Act Cap, C20, Laws of the Federation of Nigeria, 2004. This act was the product of rigorous process championed by the Nigeria Law Reform Commission (Momoh & Ukpong, 2013). Corporate governance therefore serves as a vehicle for incorporating social and environmental information into business decision-making process, benefiting not only financial investors, but also employees and communities (Uwuigbe, 2012). The main governance mechanisms that influence social and

environmental disclosure are board size, board composition and ownership structure particularly managerial ownership.

Firm characteristics are referred to as those variables having adhesive quality at firm's level across time. They are variables that affect a firm's decision both internally and externally (Shehu, 2012) cited in Shehu & Musa 2014). Firm's characteristics such as firm size, leverage, profitability and firm age among others play important role in determining corporate social and environmental disclosure practice. For instance, large firm are considered to be more subjected to public exposure and more often face litigation issues than smaller firms (Watts & Zimmerman, 1978), hence, are more likely to be subjected to public scrutiny and are expected to have more influence on the social practice of general business environment. It has been argued that large companies face greater political and agency costs because they require large volume of external capital to finance their investments (Jensen &Meckling, 1976; Watts & Zimmerman, 1990). Therefore, large firms are prone to disclose social and environmental information so as to boost investors' confidence and to reduce such cost.

In similar vein, capital providers are more concerned with financial performance and stability of the companies. They might also be concerned about the possibility for environmental liabilities on liquidation of the company (Neu, Warsame & Pedwell, 1998). Corporate managers, in response to debt providers, might seek to legitimize environmental performance through additional disclosure and thereby reducing the need for further scrutiny to understand the firms risk profile (Razeed, 2010). Legitimacy theory suggests that profitable firms are more likely to disclose more information in order to distinguish themselves from less profitable firms (Deegan,

2002). Belkaoui and Karpik (1989) argued that the underlying cause of a positive relation between social disclosure policy and profitability is management's knowledge. They argued that managers that have the knowledge to make their companies profitable also have the knowledge and understanding of social responsibility. This might explain the higher levels of Corporate Social Responsibility (CSR) disclosure by profitable companies.

Firm age also plays an important role in influencing firm's social and environmental disclosure behavior. Under legitimacy theory, organizations' societal existence depends on the acceptance of the society where they operate. Older company with longer societal existence may have taken relatively more legitimacy (Zhang, 2013). In the extant literature, there have been inconclusive findings and divergent views as to whether firm characteristics have effects on social and environmental disclosure.

2.4 Review of Empirical Studies on Firm Characteristics and Social and Environmental Accounting Information Disclosure

In this section related empirical studies on the nature and extent of relationship between corporate characteristics and social and environmental disclosure are reviewed. The review covered the two components of the explanatory variables of the study that is, firm characteristics and governance mechanism.

2.4.1 Firm Characteristics and Social and Environmental Accounting Information Disclosure

The nature and extent of relationship between firm characteristics and social and environmental disclosure are discussed under the following headings:

2.4.1.1 Firm Size and Social and Environmental Accounting Information Disclosure

Firm size is one of the most common determinants of corporate social and environmental disclosure examined by previous studies. A common argument is that because larger firms act to protect their reputation and avoid government intervention, they are more likely to release more information than smaller firms (Alfraih & Almutawa, 2014). Different measures of size have been used by different researchers such as total assets (Buniamin, 2010; Takhtaei & Mousavi, 2012), market capitalization (Echave & Bhati, 2010), turnover (Kokubu, Noda, Onishi & Shinabe, 2001; Hossain, Islam & Andrew 2006; Suttipun& Stanton, 2012), natural log of total assets (Damak, 2004; Uwuigbe, 2011; Yao, Wang & Song, 2011) and number of employees (Hassan, 2010) among others. Several researchers found positive association between size of the firm and the level of social and environmental information disclosure.

Buniamin (2010), using a sample of 243 companies listed in the main Board of Bursa Malaysia for the year 2005, examined two explanatory variables as determinants of quality and quantity of corporate environmental reporting, firm size measured by total asset and industry type determined by the sensitivity of the company (high and low environmentally sensitive).Content analysis of annual report was employed as a basis for determining both quantity and quality of environmental reporting. Quantity was measured by number of sentences and quality of environmental disclosure was determined based on the disclosure index developed. Un-weighted disclosure index consisting of 94 disclosure items which were categorized into 14 was utilized. The results showed that, firm size is positively and significantly associated with both quality and quantity of environmental disclosure in the annual reports of the selected firms. A study conducted by Zhang (2013) also found company size as one of the most significant variable

influencing the extent of corporate social disclosure in the annual report among Chinese listed mining, electricity supply and chemical companies.

On the other hand, Echave and Bhati (2010) examined the factors influencing social and environmental disclosure in annual reports of companies listed on the Spanish Stock market for the year 2007. They investigated the effect of size of the companies as measured by their assets and market capitalization, firm financial performance as determined by both profitability and leverage, and finally, internationalization as measured by number of operating countries and export revenue. Global Reporting Initiatives (GRI) framework was employed to analyze the disclosures made by the companies. The result obtained from multiple regression analysis based on the sample of 41 firms showed that both size of the companies and firm performance have no significant influence on corporate social and environmental disclosure. A study conducted by Abu Sufian (2012) on factors influencing corporate social responsibility disclosure among a sample of 70 non-financial firms for the year 2010 in Bangladesh found insignificant association between firm size and the level of corporate social responsibility disclosure.

Suttipun and Stanton (2012) examined the determinants of environmental disclosure in annual reports of companies listed on the Stock Exchange of Thailand (SET). The factors examined are; size of the company, type of industry, ownership status, country of origin and profitability. They used content analysis by word count to quantify environmental disclosure in Thai annual report issued in 2007. The empirical result based on a sample of 75 companies showed a positive and significant association between disclosure and company size. Juhmani (2013) also found positive and significant association between firm size and corporate voluntary disclosure among selected companies in Bahrain.

In the same vein, Nawaiseh, Boa and El-shohnah (2015) examined the influence of firm size, return on asset and return on equity on social responsibility disclosure of nine (9) Jordan banks for the year 2011. Content analysis was used to analyze the data obtained. The result obtained from multiple regression analysis showed that size of the companies has no significant influence on corporate social responsibility disclosure. Although, the above studies used a clear theoretical background for the selected variables, they failed to consider more than one year period. The result might differ if multiple years were considered for analysis.

Galani, Gravas and Stavropoulos (2011) investigated the extent to which various firm characteristics influence environmental disclosure in the annual report. The sample consisted of 100 most profitable companies in Greece which were examined for the year 2009. A disclosure index which consist 15 of items was used to measure the environmental disclosure by companies. Firm characteristics examined are; size measured by logarithm of total sales and profitability determined as return on equity among others. The result indicated that both size of the company and industry type are significant explanatory variables and positively related with the level of disclosure. Company size was also found to be significantly associated with the level of social and environmental disclosure among selected Indian firms (Joshi, Suwaidan& Kumar, 2011).

Takhtaei and Mousavi (2012) using a sample of 80 non-financial firms listed on the Tehran stock exchange for the period 2006-2009 investigated the effect of four independent variables on disclosure quality. The variables examined are: current ratio, acid ratio, size of the firm and profit to book value. Number allocated to companies by the Tehran stock exchange was utilized in measuring the disclosure quality. The quality was measured based on timeliness and reliability of the disclosed information. The weight of 1/3 was assigned to reliability and the weight of 2/3

was assigned to timeliness. The multiple regression result indicated that disclosure quality is having significant negative association with firm size. However, the study suffers from a major limitation for not presenting a clear theoretical background for choosing the determining factors examined.

2.4.1.2 Leverage and Social and Environmental Accounting Information Disclosure

Jensen and Meckling (1976) argued that the interest of bond holders rises when the level of debt is high. This is due to the fact that debt holders may impose some condition on the management's freedom of action. Legitimacy theory suggests a relationship between corporate social disclosure and community concerns, so that management must react to community expectations and changes (Juhmani, 2014). Firms with higher financial l& Kumar, 2011).Therefore, they are more likely to disclose more environmental information. However, empirical studies on the association between corporate social and environmental disclosure and leverage are somewhat mixed.

Hossain, Islam and Andrew (2006) examined the influence of several corporate attributes on corporate social and environmental disclosure in annual reports of firms in Bangladesh. The sample consisted of 107 non-financial firms listed on the Dhaka Stock Exchange (DSE) for the year 2003. Un-weighted disclosure index, a dichotomous approach consisting of 60 items of social and environmental information was employed to measure the extent of disclosure among the selected firms. The independent variables examined are: size of the company, profitability and leverage among others. Multiple regression result revealed positive significant relationship between leverage and environmental disclosure. On the other hand a study conducted by

Sukcharoensin (2012) found a significant negative relationship between leverage and voluntary disclosure among large 50 listed companies in Thailand. The study suggested that firm with high leverage have low level of corporate social responsibility disclosure. However, the study is deficient because the period covered was not specified.

In the same vein, Zhang (2013) found leverage to be significantly related with social and environmental disclosure. Similarly, Musa and Shehu (2013) investigated the impact of financial and non-financial determinants factors on CSR of listed deposit money banks in Nigeria. Explanatory variables examined included among others leverage, profitability and firm size. The amounts spent by the firms on CSR represented the dependent variable. Using a sample of 13 banks from 2005-2011, the multiple regression result obtained indicated that leverage is positively and statistically significantly influencing banks to embark on CSR.

Kokubu, Noda, Onishi and Shinabe (2001) analyzed some determinants of environmental reporting publication among firms listed in the first section of the Tokyo Stock Exchange. The explanatory variables used in the study are; company size, financial performance, strength of consumer relation, dependence on debt, dependence on capital market and type of industries. The study employed the publication or non-publication of environmental report by Japanese corporation as dependent variables. Logistic regression analysis was carried out. The result based on the sample of 1203 Japanese companies indicated that financial performance, strength of consumer relation and dependence on debts do not significantly influence the publication of corporate environmental reports. One major limitation of this study is that the use of publication

or non-publication of environmental report does not show the quantity or the quality of such disclosed information and the interpretation of such result might be difficult.

In the same vein, Akbas (2014) empirically investigated the relationship between company characteristics and the extent of environmental disclosure among Turkish listed firms for the year 2011. The sample consist of 62 non-financial firms listed on BIST 100-index for the year 2011. Number of words was used to measure the explained variable, while the explanatory variables are: leverage, firm age among others. The multiple regression result revealed that leverage was not statistically significant. This suggested that leverage in not related to the extent of environmental disclosure.

Umoren and Okougbo (2011) examined the association between corporate governance mechanism (board size, board composition and board ownership), companies attributes (company size, profitability, leverage, sector and size of external auditors) and voluntary International Financial Reporting System (IFRS) and non-IFRS disclosure among 50 listed companies in Nigeria. Two different disclosure index consisting of 20 items on IFRS voluntary disclosure and 60 items non-IFRS voluntary disclosure were developed to measure the dependent variables for the year 2000. The regression result for IFRS disclosure indicated a negative and insignificant association between IFRS disclosure and leverage. While for non-IFRS disclosure, the result revealed a positive but insignificant relationship between leverage and disclosure level among the selected firms.

Jouirou and Chenguel (2014) examined the impact of some determinants of the level of disclosure in Tunisian listed firms. The explanatory variables examined were firm size, profitability, leverage and firm age. Disclosure index consisting of several items was developed

to measure voluntary disclosure by 22 sampled firms for the year 2007. The regression result indicated positive but insignificant association between voluntary disclosure and leverage. The study has failed to consider multiple years; a situation that might hinder proper generalization of the result.

2.4.1.3 Profitability and Social and Environmental Accounting Information Disclosure

The profitability of a firm is considered an important variable in determining whether social and environmental issues will be a priority or not. Joshi, Suwaidan and Kumar (2011) argued that in periods of low economic performance, the firm's economic objectives may be given more attention than environmental concerns. Profitability is also used widely to predict firm visibility in environmental context (Neu, Warsame & Pedwell, 1998).However, the result obtained from prior studies measuring the relationship between firm performance and corporate social and environmental disclosure give mixed results. It has been argued that mixed result obtained on the association between environmental disclosures and financial performance may be due to different measures applied (Ullman, 1985) as cited in Razeed (2010).

Cormier, Magnan and Velthoven (2004) examined the effect of information cost (measured by risk, capital market, trading volume, concentrated ownership and foreign ownership), financial condition (determined by market return and leverage) and public pressure (proxy by media exposure) on environmental disclosure quality in large German companies. Three controlled variable were introduced including firm age and firm size. The dependent variable, corporate environmental disclosure quality was measured using a qualitative scale. Weighted disclosure index based on the score of one to three was employed. The regression analysis based on 337 firm-year observation indicated that information costs are important determinants of environmental disclosure quality. Also environmental disclosure quality was found to be related

to firm public pressure while no relationship was found between financial condition and disclosure quality among selected German firms during the period 1992-1998.

Similarly, Yusoff and Lehman (2005) examined differences in the factors influencing environmental disclosure decision between Malaysian and Australian companies. The factors examined are; environmental sensitivity, corporate financial performance and environmental certification. Corporate financial performance was proxy using earnings before interest and tax, earning per share, return on assets, return on equity and net profit margin. A sample of top 50companies listed on both Bursa Malaysian Stock Exchange and Australian Stock Exchange for the year 2002 and 2003 was utilized. Weighted disclosure index based on the score of one to four was used to measure disclosure quality, the dependent variable. Multivariate analysis was carried out. The result of the analysis showed that, financial performance has no significant impact on environmental disclosure for Malaysian companies while for Australian companies, financial performance was found to be one of the significant predictors of environmental disclosure.

Joshi, Suwaidan and Kumar (2011) investigated the relationship between the level of environmental disclosure and a number of corporate characteristics including corporate size, profitability, financial leverage, industry type, accounting firm, legal ownership and foreign operation. Content analysis was used to measure the level of environmental disclosure. A checklist consisting of 19 items of environmental disclosure information and a decision rule was developed. Corporate size was measured using log of total assets, profitability was measured by return on equity, financial leverage using debt equity ratio, while industry type, accounting firm and foreign operation were treated as dummy variables. The annual reports and website of 45 Indian industrial listed companies were examined for 2008. The multiple regression result

showed that profitability and leverage have no significant impact on the disclosure level among selected Indian companies.

Dibia and Onwuchekwa (2015) examined the determinants of environmental disclosure using oil and gas companies in Nigeria. The sample firms were selected from quoted companies in the Nigerian Stock Exchange. The independent variables considered in the study include, firm size, profitability and leverage among others. The dependent variable was measured using dichotomous approach. The study was based on a sample of 15 companies from oil and gas sector for 2008-2013. Both probit and logit regression were utilized for the analysis of data collected. The binary regression result showed no significant association between profitability and environmental disclosure among selected firms. Similar result was obtained by Sukcharoensin (2012) in his study of among firms listed on Stock Exchange of Thailand.

Damak (2004) examined the influence of size of company, reputation of industry and financial performance on environmental reporting based on a sample of 82 companies in France. The binary logistic regression result revealed significant and negative relationship between environmental report and financial performance. This shows that the improvement in financial performance is not necessarily accompanied by improvement in disclosure of environmental information.

Akbas (2014) investigated the association between corporate characteristics and extent of environmental disclosure in annual reports of Turkish companies. The sample consisted of 62 non- financial firms listed on the BIST-100 index for the year 2011. The environmental disclosure was measured using number of words. The variables examined include firm size, profitability, leverage and firm age among others. Multiple regression result revealed negative

and significant relationship between profitability and environmental disclosure among sample firms. None of the above listed studies considered corporate governance variables.

Lu and Abeysekere (2014) investigated the effect of stakeholders' power and corporate characteristics on social and environmental disclosure practice of socially responsible Chinese listed firms using a sample of 100 firms for the year 2008. For the dependent variable, a stakeholder-driven, three dimensional social and environmental disclosure index including disclosure quantity, disclosure type quality and disclosure item quality is constructed to assess the sample firm's social and environmental disclosure in their two public reports. The independent variables examined include firm size and profitability among others. The multiple regression of cross sectional data showed a positive significant association between profitability and social and environmental disclosure among sample firm. However, the cross sectional data used for testing the relationship hypothesized in the study may restrict generalization of the finding.

Soliman (2013) investigated the relationship between company characteristics and extent of voluntary disclosure level. The study is based on the manual examination of the disclosure of the most active traded 50companiestradedon the Egyptian Stock Exchange (ESE) of non-financial sector during the period 2007-2010.A disclosure checklist consisting of 60 items of information was developed. A quantitative analysis was then used to test the relationship between corporate characteristics and disclosure level. The findings of the study indicated that the degree of disclosure by Egyptian companies is affected by profitability. The results indicated positive significant association between profitability and disclosure. Similarly, Nawaiseh, Boa and El-shohnah (2015) in Jordan found positive significant association between return on equity and social and environmental disclosure.

Barako (2007) reported positive significant association between firm profitability and financial as well as forward-looking disclosure among selected firms in Kenya. Zhang (2013) also found Profitability to be statistically significant factor influencing companies' social and environmental disclosure. Edogiawerie and David (2016) conducted study on effect of firm performance on voluntary disclosure in Nigerian quoted companies using a sample of 50 companies listed on Nigeria Stock Exchange. The independent variables examined return on capital employed, profit after tax, earning per share and dividend per share. Regression analysis result revealed positive and significant relationship between all the regressors and the voluntary disclosure among the selected firms. The major limitation of this study was that of failure to disclose the scope and the methodology used in ascertaining the dependent variable of the study.

2.4.1.4 Firm Age and Social and Environmental Accounting Information Disclosure

Firm age is another variable considered by a number of researchers as a possible determinant of company's social and environmental disclosure. Age of a company refers to the length of listing in the capital market, it also represent the years of operation in the market as a listed public limited company. Owusu and Yeoh (2005) explained three points that motivate older firm to disclose more information than younger firms. First, younger firms may suffer competitive disadvantage if they disclose certain items such as information on research expenditure and product development. The second factor is the cost and the ease of gathering, processing, and disseminating the required information. These costs are likely to be more difficult for younger firms than for their older counterparts. The third and final factor is that younger firms may lack a track record to rely on for public disclosure and therefore may have less information to disclose or less rich disclosures.

Roberts (1992) investigated the impact of stakeholder power, strategic posture and economic performance on corporate social responsibility disclosure. Social disclosure is measured using disclosure index published by the Council on Economic Priorities (CEP). Control variables used were company age, industry classification and firm size. A sample of 130 US corporations were empirically analyzed for three year period, 1984-1986.The author suggests that company age is significantly related to corporate social disclosure. Logistic regression result indicated positive significant association between company age and the extent of voluntary social disclosure. Economic performance measured using return on equity and systematic risk was also found to be significantly related to levels of corporate social disclosure.

Parsa and Kouhy (2008) examined the determinants of the disclosure of social information by small-and medium- sized companies (SME) in UK. The explanatory variables considered for the analysis include corporate age, industrial background, corporate size and gearing. The sample used in this study consists of 90 U.K companies listed on the Alternative Investment Market (AIM). Annual reports for the selected companies for three years 2001-2003 were examined. The empirical results indicated that the corporate age is not associated with social reporting among the selected companies. However, corporate size and gearing were found to be associated with the level of such disclosure. Impliedly, small-and medium- sized companies are similar to large companies in the impact of corporate size on social reporting.

Abu Sufian (2012) conducted a study on corporate social reporting disclosure in Bangladesh with a view to determine the association between firm attributes and corporate social responsibility disclosure. A sample of 70 listed companies for the year 2010 was analyzed. Five

explanatory variables including size of the firm, market capitalization, profitability, multinational affiliation and firm age have been considered. Regression analysis showed that firm age is not associated with the level of corporate social responsibility disclosure. In the same vein Sukcharoensin (2012) found no significant association was obtained between firm age and voluntary CSR disclosure

Bhattacharyya (2014) empirically investigated the factors influencing the disclosure level of corporate social and environmental reporting in Australian companies on the basis of legitimacy theory. Factors examined were size of the reporting entity, profitability, industrial membership, age of the reporting entity and size of the reporting entity's audit firm. Content analysis was used to measure the extent of social and environmental reporting, a checklist comprising seventeen social and eighteen environmental disclosure indicators was used. Weighted disclosure score was employed to reflect the quality of the social and environmental information. The regression analysis of a sample of 47 small and large publically listed Australian companies which were drawn from five industries revealed that organization's age is not associated with social and environmental reporting, while firm size was found to be the major significant factor influencing both social and environmental reporting. Profitability was found to be negatively and statistically significant only for social disclosure. This implies that companies with unfavorable profit performance disclose more social information.

On the other hand, Nagib, Marie and Geoff (2012) examined the effect of company age, size and industry on corporate social responsibility disclosure (CSRD)in the annual report of Libyan companies. Quantitative and qualitative methods of data collection were used. In quantitative

analysis, a sample of 40 firms for a period of 2007-2009 was utilized. While for the qualitative analysis, 31 financial and information managers express their perception about the determinants of (CSRD). The quantitative and qualitative findings revealed positive and significant association between company age and corporate social responsibility disclosure among selected firms.

Zhang (2013) examined factors influencing firms to disclose environmental and social information in their annual reports. The sample firms were selected from the Shenzhen Stock Exchange database. Content analysis was applied to review and examine their annual reports for the 2010 financial year. A dichotomous approach (un-weighted index) was used in the study to score the sample companies against each of the GRI indicators. Seven independent variables were considered for the analysis including government ownership, management role, firm size, company age, profitability, leverage, and member of industrial association. The dependent variable was measured in environmental and social dimensions. The study was based on a comprehensive sample of 193 Chinese companies drawn from three different industries (mining, electricity supply and chemical industries). Both regression and statistics functions were utilized. Company age was found to be significant variable influencing environmental information disclosure among all the industries. However, company age was only found to be significant in influencing social disclosure for chemical industry. No correlation was found between social disclosures and company age for both mining and electricity supply industries.

Similarly, Alfraih and Almutawa (2014) empirically investigated the effect of corporate characteristics on the level of financial disclosure as measured by IFRS requirement among Kuwait Stock Exchange (KSE)-listed firms. The corporate disclosure was measured using self-constructed disclosure index. The independent variables of the study include firm age, firm size,

profitability and leverage among others. A sample of 181 firms listed on KSE in the year 2010 was considered for the analysis. The multivariate regression analysis result showed a positive and significant association between firm age and financial disclosure among sampled firms. Similarly, positive and significant association was reported between financial disclosure and firm size, leverage and profitability among the sampled firms.

Juhmani (2014) investigated the influence of some firm characteristics on the level of social and environmental information disclosure on websites of Bahrain companies using legitimacy theory. The independent variables examined are: firm size, profitability, financial leverage, firm age and audit firm size. Content analysis by word count was used to determine the level of social and environmental disclosure among the selected firms. A sample of 33 companies in the year 2012 was considered for the analysis. The results obtained showed that firm age was not significant variable in explaining the social and environmental information disclosure on websites of selected Bahrain listed companies. In the same vein, no significant relationship was found between firm size, profitability and the disclosure level. On the other hand, positive significant relationship was found between financial leverage and social and environmental disclosure. However, the above studies by (Abu Sufian, 2010; Zhang, 2013; Juhmani, 2014) were based on a cross-sectional data set. The use of longitudinal data may reveal more reliable insights and trends into the determinants of voluntary social and environmental disclosure.

2.4.2 Board Attributes and Social and Environmental Accounting Information Disclosure

The relationship between governance mechanism and social and environmental disclosure as documented by empirical literature is discussed hereunder:

2.4.2.1 Board Size and Social and Environmental Accounting Information Disclosure

Corporate governance practice is basically explained through agency theory. Hassan (2010) explained that corporate governance attributes define how companies respond to societal pressure concerning their social and environmental responsibilities and consequently the level of use of corporate social disclosure as a tool to face the pressure. Halme and Huse (1997) posited that, the role of the board may be linked to the companies' environmental attention, the environmental groups and corporate activist may ask the board of directors to make their companies behave in a socially acceptable manner. Effective and efficient board of directors lead to greater monitoring and consequently to a high level of corporate social disclosure.

Empirically, Akhtaruddin, Hossain and Yao (2009) examined the extent to which governance structure influence a firm's disclosure behavior based on a sample of 105 firms listed on the main Board of Bursa Malaysia. The factors examined are board size, independent non-executive directors, ownership structure, family control and audit committee. Content analysis of the annual reports was carried out for the year 2002. The results showed that board size is statistically significant and positively related to the level of disclosure.

Hassan (2010) investigated the impact of several factors on both the quantity and quality of corporate social disclosure in annual reports as well as stand-alone reports. The factors examined were classified as corporate characteristics (corporate size, type of activity, profitability and multi-nationality); media pressure; and corporate governance (board size, board composition, presence of social responsibility committee and block ownership). The quantity of corporate social disclosure was measured by an alternative three units: number of sentences, number of pages and percentage of pages, while the disclosure quality was measured using a two-point ranking system with value 1, for quantity and specific disclosure, and value 0, for general disclosure. In the case of stand-alone reports, the quantity of corporate social disclosure was

measured by the number of report pages, while the disclosure quality was measured as a two-point dummy variable, according to which a report is audited or not and prepared using reporting guidelines or not. The study analyzed a sample of companies comprising FTSE 100 and FTSE 250 for the years 2005 and 2006. The analysis indicated that corporate social disclosure is associated with corporate size, industry, media pressure, board size, ownership diffusion and corporate social responsibility committee. The results also suggested that these factors are more associated with the quantity of disclosure than its quality.

AbdurRouf (2010) examined the linkage between corporate characteristics (firm size and profitability), corporate governance attributes (Independent non-executive directors, audit committee, board leadership structure, board size and ownership structure) and voluntary disclosure in Bangladesh companies. A sample of 120 listed non-financial companies in Dhaka Stock Exchange (DSE) was used. The annual reports of companies were content analyzed for the year 2008. An un-weighted disclosure index was utilized for measuring voluntary disclosure among the selected firms. The multiple regression result showed a positive significant association between board size and voluntary disclosure which suggested that larger board is positively related to the level of voluntary disclosure.

The study of Umoren and Okougbo (2011) on the association between corporate governance, company's attributes and voluntary disclosure in Nigerian listed companies revealed that board size is positively and significantly related to corporate social disclosure. Board size may influence the level of environmental disclosure because the level of disclosure is a strategic decision made by the board of directors. Soheilyfar, Tamimi, Ahmadi and Takhtaei (2014) investigated the effect of corporate governance variables on disclosure quality among 83 firms listed on Tehran Stock Exchange (TSE). Explanatory variables investigated include board size

and board independence. Content analysis of the annual reports was carried out for the period 2005-2010. Annual ranking by the Tehran Stock Exchange Organization (TSEO) was used as a proxy for disclosure quality. The result showed no association between board size and the disclosure quality among the selected firms.

Abu Sufian and Zahan (2013) examined the relationship between corporate ownership structure variables and corporate social responsibility disclosure in Bangladesh. The annual reports of 70 non-financial companies listed with Dhaka Stock Exchange (DSE) were analyzed for the year 2010. Their results showed that board size has no significant association with social responsibility disclosure. However, the sample size appeared to be small and only one year period was considered for the analysis.

2.4.2.2 Board Composition and Social and Environmental Accounting Information Disclosure

Board composition refers to the proportion of executive and non-executive directors in the board. The role of corporate governance in reducing agency problems between management and shareholders depend on the composition of the board of directors. Inside members (executive directors) are mostly selected from among the officers of the firm. They could be management group or are family that owns the firm. Outside directors (independent non-executive directors) are members whose only affiliation with the firm is their directorship. Board independence is argued to be a major contributory factor to the effectiveness of a board. Ajibolade and Uwuigbe (2013) noted that an independent board is expected to be in a position to bring pressure to bear on management to ensure transparent disclosure of material information.

The inclusion of higher proportion of non-executive directors on the board would result in more individuals having the incentive to protect their reputation by promoting higher transparency

through disclosure of material information including social and environmental impact of business activities (Ajibolade & Uwuigbe, 2013). It is also believed that more independent directors on a board will result in better disclosure quality (Htay, Rashid, Adnan & Meera, 2012). In the context of corporate social and environmental disclosure, Hassan (2010) argued that prior studies have traditionally adopted an agency theory perspective as it is mainly associated with the problem that companies need to show accountability to the shareholders. More recently, the considerations of corporate governance as noted by Brennan and Solomon (2008) has started to broaden as there has been a change of emphasis away from the traditional shareholder-oriented approach towards a more stakeholder-oriented approach.

The empirical results regarding the association between board composition and social and environmental disclosure are mixed. Ho and Wong (2001) investigated the relationship between corporate governance variables and the extent of voluntary disclosures of listed firms in Hong Kong Stock Exchange (HKSE).The corporate governance variables analyzed included the proportion of independent directors, the existence of a voluntary audit committee and the existence of dominant personalities among others. The results showed that independent directors have no significant relationship with the extent of voluntary disclosures.

Barako (2007) examined the factors influence the voluntary disclosure of four types of information; general and strategic information, financial data, forward-looking information and social and board information. Disclosure quality was determined with the aid disclosure index consisting 47 items. The items were weighted on a scale of 0-4. The explanatory variables are; corporate governance mechanism (board composition, board leadership and audit committee) ownership structures (ownership concentration, foreign ownership and institutional ownership),

company characteristics (size, leverage, type of audit firm, profitability and liquidity) and industry type as a control variable. A sample of 43 listed companies on the Nairobi Stock Exchange for the period 1992-2001 was content analyzed. Both the total disclosure level and disclosure level in each category were examined. The empirical results obtained from the pooled regression analysis revealed that board composition was significantly negatively associated with the disclosure of general and strategic information as well as financial information.

In Tunisia Mounira (2014) investigated the impact of board characteristics on the level of voluntary disclosure about innovation in the Tunisian context. A sample of 14 listed companies on Tunisia Stock Exchange (TSE) for the period 2000-2007 was analyzed. Random Effect result obtained reported a significant negative association between board composition and voluntary disclosure. The result suggested that increased presence of non-executive directors is associated with low level of innovation voluntary disclosure. Also, the result showed a negative effect of board size on voluntary disclosure about innovation.

Zhou (2008) examined the association between board composition and different types of voluntary disclosure among listed companies in the Shanghai Stock Exchange (SSE) of China and OMX Nordic exchange Stockholm, Swedish. The independent variable, board composition was measured by the proportion of independent directors to total number of directors on the board, while the dependent variable that is voluntary disclosure was classified into three categories: strategic, non-financial and financial information. The sample was based on 25 firms listed on SSE and 21 firms listed on OMX Swedish. Checklist consisting 15 items was utilized. The result on aggregate revealed no significant association between the proportion of independent directors in the board and the three categories of voluntary disclosure in companies' annual reports.

Al-Janadi, Abdul Rahman and Omar (2013) investigated the effect of internal and external corporate governance mechanisms on voluntary disclosure based on a sample of 87 companies listed on Saudi Stock Market. The factors examined are board size, board composition and ownership structure among others. Content analysis was carried out for annual reports between 2006 and 2007. The study used three level of disclosure in measuring the level of quality of voluntary disclosure. The results revealed that there is a significant positive relationship between the proportion of non-executive directors on the board and voluntary disclosure. Statistically significant positive association was obtained between board size, audit quality and voluntary disclosure among the firms.

Similarly, Clemente and Labat (2009) examined the effect of several corporate governance mechanisms on voluntary disclosure using annual reports of Spanish firms listed on the Madrid Stock Exchange for the year 2005. Un-weighted disclosure index was computed using binary coding scheme with a checklist of 76 identified information items. The result showed a significant positive association between independent directors and the amount of voluntary information reported by the firms.

2.4.2.3 Managerial Ownership and Social and Environmental Accounting Information Disclosure

In the literature, quite a number of studies have been undertaken to examine the relationship between corporate governance mechanisms and voluntary social and environmental disclosure. Corporate governance mechanisms, examined in these studies, include ownership structure. The association between voluntary social and environmental disclosure and different types of ownership structure were examined by various researchers at different times. Ownership structures examined include managerial ownership, institutional ownership and block holders'

ownership. Theoretically, Ariff (2012) explained that, managers that hold a smaller portion of company shares have more incentives to undertake opportunistic behavior, and hence a greater need for monitoring efforts by outside shareholders. Prior empirical research on the relationship between board ownership and voluntary disclosure give contradicting results

Ghazali (2007) examined the influence of ownership structure on corporate social disclosure. The factors examined are: director ownership, company size and profitability among others. The empirical findings, based on a sample of 86 Malaysian companies, indicated that, director ownership significantly influenced corporate social disclosure in annual report of selected firms.

On the other hand, Uwuigbe (2011b) investigated the relationship between management ownership and the level of corporate social responsibility disclosure of listed firms in Nigeria for the period 2006-2010.The independent variable, management ownership was measure using percentage of director's equity interest. Content analysis of the annual reports was carried out as a means of measuring dependent variable. The ordinary least square regression result based on sample of 40 listed firms both in the financial and non-financial sector of the Nigerian economy revealed positive relationship between management ownership and the level of corporate social responsibility disclosure among the selected firms. The study concluded that the higher the proportion of director's equity interest in the firms, the more they will be socially friendly to the environment in which they operate.

Htay, Rashid, Adnan and Meera (2012) examined the impact of various corporate governance mechanisms on social and environmental information disclosure of Malaysian listed Banks using panel data analysis during the period 1996-2005. Using content analysis weighted social and environmental information disclosure score was used as a dependent variable and questionnaire

was developed to obtain views from financial analyst and accountants. The selected explanatory variables include board composition, board size and director ownership. A sample of 12 listed Malaysian banks was drawn for the analysis. Generalized least square (GLS) analysis showed that director ownership was negatively related to social and environmental information disclosure. While board size, board composition were found to be significant and positively associated with social and environmental information disclosure among selected firms.

Juhmani (2013) analyzed the relationship between the ownership structure variables and corporate voluntary disclosure within annual financial statement from a sample of 44 companies listed with Bahrain Stock Exchange (BSE) for the year 2010. The study analyzed three major ownership structure variables: blockholder ownership, managerial ownership and government ownership while company size, leverage and profitability as control variables. The study employed dichotomous approach to measure the voluntary disclosure (the dependent variable). The empirical result revealed that managerial ownership was not associated with voluntary disclosure.

Sartawi, Hindawi, Bsoul and Ali (2014) investigated the impact of board composition and firm characteristics on the level of voluntary disclosure in the annual reports of listed Jordanian firms. Board composition variables considered includes: board size, board independent, board ownership concentration, institutional ownership, foreign ownership, member's age and gender. Board ownership concentration was measured as the percentage of shares outstanding held by the board of directors. The annual reports of 103 sample firms listed on Amman Stock Exchange (ASE) for the year 2012 was content analyzed. The result showed that board ownership concentration has a significant negative relationship with voluntary disclosure.

2.5 Theoretical Framework

A number of different theoretical approaches have been used in prior studies to explain corporate social and environmental disclosure. Some scholars used political economy theory to explain the existence and content of environmental accounting (Guthrie & Parker, 1989), agency theory (Umoren & Okougbo, 2011; Ajibolade & Uwuigbe, 2013), legitimacy theory (Haron, Ismail &Yahya, 2008; Hassan, 2010; Yao, Wang & Song, 2011; Joshi, Suwaidan& Kumar, 2011;Suttipun & Stanton, 2012; Juhmani, 2014) and stakeholders' theory (Damak, 2004; Uwuigbe, 2012). However, stakeholders' theory, agency theory and legitimacy theory are the predominant theories employed as providing strong justification for corporate social and environmental disclosure practice.

2.5.1 Stakeholder Theory

Stakeholder theory has been widely employed as one of the theories used by previous researchers in the area of accounting literature. Early research in the area of stakeholder management defined stakeholders as any group or individual who can affect the achievement of the organization's objective or is affected by the achievement of the organization's objectives (Freeman, 1984 cited in Hassan, 2010). Stakeholder theory posits that disclosure on social and environmental information by firms is as a result of the pressure from various stakeholders such as shareholders, customers, employees, communities and suppliers (Watts & Zimmerman, 1978). The basic assumption behind Stakeholders theory is that a firm survival is dependent upon the successful management of all the relationship that a firm has with its stakeholders (Uwuigbe, 2012). Therefore, the corporations' survival requires the support of various group of stakeholders and

their approval must be sought and that the activities of the organization should be adjusted to gain that approval (Chan & Milne, 1999).

Stakeholder theory asserts that, the behavior of these groups is looked upon as a constraint on corporate strategy. These groups may be hostile where their interest is not protected. Robert (1992) noted that the role of the directors is to evaluate the demands of different groups and make them coincide with the companies objectives. The main advantage of stakeholder theory is providing a means of dealing with multiple stakeholders with multiple conflicting interests (Aburaya, 2012). Unlike agency theory, stakeholder theory offered a new perspective in the context of corporate social responsibility research by suggesting that the need of shareholders cannot be met without satisfying the need of other stakeholders (Jamali, 2008 cited in Aburaya, 2012).

Elmogla (2009) observed that stakeholder theory at company level is concerned with interaction between the company and its stakeholder groups. The purpose of stakeholder analysis is to gain a realistic understanding of social responsibility relationships and the actions of a company towards its stakeholders so that managers can act socially in their decisions. Ali and Rizwan (2013) noted that stakeholder theory is a bit different from legitimacy theory because legitimacy theory treats the whole society as one group and asks the firm to meet the expectations of the whole society while the stakeholder theory divides the whole society into groups called stakeholders.

2.5.2 Agency Theory

Agency theory as proposed by Jensen and Meckling (1976) concerns the difficulties in motivating one party, the agent, to act on behalf of another, the principal. The two parties have different interests and asymmetric information, where the agent having more information, such that the principal cannot directly confirm that the agents are always acting in principals' best interests, particularly when activities that are useful to the principal are costly to the agent, and where elements of what the agent does are costly for the principal to observe. Moral hazard and conflict of interest may arise. Therefore, by disclosing information, the management can reduce the asymmetric information and, hence, agency costs. This means, agency costs are incurred in order to reduce or eliminate the effects of agency conflicts which exist when managers or agents undertake opportunistic actions to maximize their own interest.

According to agency theory, the separation of ownership and management results in agency costs such as monitoring costs, bonding costs and residual loss (Jensen & Meckling, 1976). Within the frame work of corporate governance mechanisms, agency theory suggests that managers are more likely than stockholders to emphasize corporate social and environmental concerns because they have no residual claim on firm's income (Aburaya, 2012). In other words Halme and Huse (1997) noted that agent might show devoted concern for environment because they are not spending their own money. Therefore, social and environmental disclosures can be a function of corporate governance in the sense that managers who have better access to a firm's information than shareholders can make credible disclosure to enhance firm value by reducing agency costs, as disclosure is one of monitoring devices used to reduce such costs (Aburaya (2012).

2.5.3 Legitimacy Theory

Legitimacy theory is one of the most adopted mechanisms for explaining corporate social and environmental information disclosure. Legitimacy is a generalized perception that the action of an entity are desirable, proper or appropriate within some socially constructed systems of norms, value, benefits and definition (Suchman, 1995). Legitimacy theory is derived from the idea of social contract that every company operates in a society through an expressed or implied social contract (Elmogla, 2009). The term social contract reflects the expectation of society about how an organization should conduct its operation. These expectations could be explicit or implicit (Elmogla, 2009).This theory relates to the extent and types of corporate social disclosure in annual report to be directly related to the management perception about the concerns of the community. Patten (1992) asserted that organization disclose information as a means of establishing or protecting the legitimacy of such entity in that they may influence public opinion. Tilling (2004) as cited in Hassan (2010) argued that there are two major classes of legitimacy theory: Institutional legitimacy which refers to the type of organizational structure that has gain acceptance from the society as a whole; and organizational legitimacy which refers to the strategy adopted by the company seeking legitimacy by approval or avoidance of sanction from group in society.

Hassan (2010) noted that legitimacy theory comprises two basic ideas: companies need to legitimize their activities and this legitimacy process provides some benefits for companies. The first element is in line with the argument that corporate social and environmental disclosure is linked to the presence of social pressure. In this context Hassan (2010) further argued that the

need for legitimacy is not equal for all companies due to the differences in both the degree of social pressure facing companies and the level of response to this pressure. There are a number of factors which determine the degree of social pressure facing the company and the response to this pressure. These factors are the potential determinants of corporate social and environmental disclosure. Legitimacy theory justifies the concept and the practice of environmental accounting by companies. This theory is of the view that organizations are expected to ensure that they operate within the bound and norms of the society (Tilt, 1994).

Unlike stakeholder and agency theory, legitimacy theory provides a more comprehensive view point on corporate social disclosure as it clearly recognizes that organizations are bound by the social contract in which they agree to perform various socially desired action in returns for approval of their objectives, which will guarantee their continued existence and their success (Deegan, 2002). The theory suggests a relationship between corporate social disclosure and community concerns so that management must react to community expectations and changes. Corporation continually seek to ensure that their activities are perceived by outside parties as legitimate (Juhmani, 2014).

This study adopts legitimacy theory because it considers the rights of the public at large and not merely those of the investors only.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methods and procedures employed in carrying out the research. It covers the research design, study population, sample size, sampling techniques, data gathering method, and method of data analysis used in the study.

3.2 Research Design

The study used correlation research design to investigate the effect of corporate characteristics on social and environmental disclosure of listed industrial goods firms in Nigeria using historical and descriptive method. Correlation design was employed because it describes the statistical association between the dependent and independent variables. Ex-post factor research was also utilized because the study is interested in the collection of data for interpreting past trends of firms attitude toward social and environmental disclosure in their annual reports. Descriptive method was used because the study aimed at observing, describing and interpreting the result to be obtained. The paradigm is based on positivism approach anchored on quantitative research method.

3.3 Population of the study

The population of this study consists of all the 25 industrial goods firms listed on the floor of the Nigerian Stock Exchange (NSE) as at December 2015. The time frame considered for this study is 2004 to 2015. Appendix 'A' showed the detail of the population of the study.

3.4 Sample size and Sampling Technique

The census approach was used in selecting the eight (8) listed industrial good firms. These firms were considered because they remained in operation throughout the period 2004-2015, and have the basic data required for the study in its financial statements over the period of the study. The eight firms, which represented the adjusted population, were all studied based on census approach.

3.5 Sources and Method of Data Collection

The study used secondary data contained in the annual financial statements of the eight firms for the period 2004- 2015. Relevant information on the dependent and independent variables of the study was extracted from the financial statements. The panel dataset comprised 96 observations which were subjected to different tests for analysis.

3.6 Variables Specification

The study comprised two dependent variables (quantity and quality of social and environmental accounting disclosure) and seven independent variables (firm size, firm leverage, firm profitability, firm age, board size, board composition and managerial ownership). The variables are explained below:

3.6.1 Dependent Variables

Social and environmental accounting disclosure was measured using content analysis of annual reports of listed industrial goods firms in Nigeria. The disclosure index was developed with the aid of checklist of social and environmental disclosure items as shown in appendix 'B'. The checklist is divided into eight (8) broad categories: employee health and safety, community involvement, diversity and human right, integrity and ethics, environmental management, environmental research and development, energy, and sustainable development. A dichotomous approach (un-weighted) scoring system was used. The disclosure quantity was calculated based on the presence or absence of each item in the individual annual report (Hossain, Islam & Andrew, 2006; Uwuigbe, 2013). A score of one (1) was awarded if an item is reported in the annual report; otherwise a score of zero (0) will be given. Therefore, a firm could score a minimum of zero (0) and a maximum of forty two (42) points.

Corporate social and environmental accounting disclosure quantity index for each firm was computed using the following formula:

$$SED_QNTY = \frac{\text{Total Score of the Individual Firm}}{\text{Maximum Possible Score Obtainable by Firm}}$$

Where:

SED_QNTY = Social and Environmental Accounting Disclosure Quantity.

Similarly, content analysis of annual reports of the firms was used to measure social and environmental accounting disclosure quality using weighted disclosure index. The procedure was as follows: first, disclosed information was checked against a given list of items developed. Secondly, a score is awarded depending on the presence or absence and the degree of specificity of each social and environmental item. The levels of extensiveness were measured and grouped

according to the nature of social and environmental information disclosed; (2) quantitative information, (1) qualitative information and (0) if no related information is disclosed. Quantitative information relates to disclosure of actual financial numbers or any quantifiable social and environmental information.

The second category; qualitative information covers any declarative/narrative social and environmental information other than financial information in nature. Therefore, an index number was arrived at by dividing all the above mentioned scores awarded to a company by its maximum possible scores as used by (Cormier, Magnan & Velthoven, 2004; Barako, 2007). Corporate disclosure quality index for each firm was computed using the following formula based on 0-2 rating scale:

$$SED_QLTY = \frac{\text{Total Weighted Score of the Individual Firm}}{\text{Maximum Possible Score Obtainable by Firm}}$$

Where:

SED_QLTY = Social and Environmental Accounting Disclosure Quality

3.6.2 Explanatory Variables

The independent variables of the study consist of firm characteristics and corporate governance mechanism. The firm characteristics examined are: firm size (FS), measured by taking the natural logarithm of total assets; firm leverage (LEV), measured using total debt to total assets; firm profitability (PROF) measured using the ratio of profit before tax to total asset; and firm age (AGE), measured as the number of years since listing.

The corporate governance variables are: board size(BS), which was measured using total number of directors on the board; board composition (BC), measured using the proportion of non-

executive directors to the total number of directors on the board; and managerial ownership (MO), measured using proportion of directors shareholding to total number of outstanding shares.

The dependent and independent variables of the study and the proxy used to represent them are given in table 3.1

Table 3.1: Proxies for dependent and independent variables

Variable	Type of Variable	Measurement	Source
Disclosure quantity (SED_ QNTY)	Dependent variable	Ratio of disclosure score of individual company to maximum score obtainable by the firm	Umoren and Okougbo (2011) and Uwuigbe (2012).
Disclosure quality (SED_ QLTY)	Dependent variable	Ratio of weighted disclosure score of individual company to maximum score obtainable by the firm	Cormier, Magnan and Velthoven (2004), Barako (2007)
Firm Size (FS)	Independent variables	Natural log of Total Assets	Damak (2004), Uwuigbe (2011).
Leverage (LEV)	,,	Total Debt to Total Asset	Kokubo, Noda, Onishi and Shinabe (2001), Umoren and Okougbo (2011)
Profitability (PROF)	,,	Profit before interest and tax divided by total assets	Yusoff and Lehman (2005),
Firm Age (AGE)	,,	Number of years of the reporting entity based on the date listed on NSE	Zhang (2013), Juhmani (2014),
Board Size (BS)	,,	Total number of Directors	Hassan (2010), Umoren and Okougbo (2011).
Board Composition (BC)	,,	Ratio of non-executive directors to total number of directors on the board	Zhou (2008), Hassan (2010)
Managerial Ownership (MO)	,,	Proportion of directors shareholding to total number of outstanding shares	Ghazali (2007), Juhmani (2013).

3.7 Model Specification

The following models are developed to help measure the relationship between the explained and the explanatory variables:

Model I

$$SED_QNTY_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 LEV_{it} + \beta_3 PROF_{it} + \beta_4 AGE_{it} + \beta_5 BS_{it} + \beta_6 BC_{it} + \beta_7 MO_{it} + \varepsilon_{it} \ldots\ldots\ldots (1)$$

Model II

$$SED_QLTY_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 LEV_{it} + \beta_3 PROF_{it} + \beta_4 AGE_{it} + \beta_5 BS_{it} + \beta_6 BC_{it} + \beta_7 MO_{it} + \varepsilon_{it} \ldots\ldots\ldots (2)$$

Where:

SED_QNTY = Total social and environmental disclosure quantity

SED_QLTY = Total social and environmental disclosure quality

β_0= Intercept

β_{1to} β_7 = coefficient of slop or regression coefficient

ε = error term

FS_{it} = firm size of firm i at year t.

LEV_{it} = leverage of firm i at year t.

$PROF_{it}$ = profitability of firm i at year t.

AGE_{it} = Firm age of firm i at year t

BS_{it} = Board size of firm i at year t

BC_{it} = Board composition of firm i at year t

M_{it} = Managerial ownership of firm i at year t

3.8 Technique of Data Analysis

In analyzing the relationship between the dependent and independent variables, longitudinal panel data approach was used. Multiple regression analysis was utilized as a tool of analysis. Fixed and Random Effects regression model were estimated using Stata 10 statistical software. Various diagnostic and robustness tests such as multicollinearity, normality, heteroskedasticity, and Hausman specification among others were conducted. Multicollinearity implies the existence of a linear relationship between two or more explanatory variables. Multicollinearity test was conducted to check whether there are strong correlations between independent variables which will mislead the result of the study. Heteroskedasticity test was conducted to check whether the variability of error terms is constant or not. The presence of heteroskedasticity signifies that the variation of the residuals or term error is not constant which would affect inferences in respect of beta coefficient, coefficient of determination (R^2) and F-statistics of the study. Where the chi-square is large it indicates that heteroskedasticity is present.

Considering the panel attributes of the study, Fixed and Random Effect test were carried out. Hausman specification test was carried out in order to decide the most effective model to choose between the two models. The test is designed to detect violation of the random effects modeling assumption that the explanatory variables are orthogonal to the unit effects. If there is no correlation between the independent variable(s) and the unit effects, then estimates of β in the Fixed Effects model should be similar to estimates of β in the Random Effects model. Under the null hypothesis of orthogonality, H is distributed chi-square with degrees of freedom equal to the number of regressors in the model. A finding that $p < 0.05$ is taken as evidence that, at

conventional levels of significance, the two models are different enough to reject the null hypothesis, and hence to reject the random effects model in favor of the fixed effects model. If the Hausman test does not indicate a significant difference (P> 0.05), then, it does not necessarily follow that the random effects estimator is “safely” free from bias, and therefore to be preferred over the fixed effects estimator.

CHAPTERFOUR
DATA PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction

This chapter deals with analysis of the data used in the study. The results of the various tests carried out on the dataset were analysed, interpreted and discussed. The chapter begins with discussion of the descriptive statistics of the dataset and analysis of the correlation matrix of the variables of the study. The chapter then presents and analyses the regression results and tests the hypotheses formulated. It further discusses the results in light of previous studies and ends with a highlight of policy implications of the findings.

4.2 Descriptive Statistics

Summary of the dataset collected for the study in terms of central tendency and dispersion is presented in table 4.2. The table contains the minimum, maximum, mean, standard deviation, skewness and kurtosis of the dataset for all the variables used in the study.

Table 4.2: Summary of Descriptive Statistics of the Variables

Variables	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
SED_QNTY	0.4955	0.1289	0.2857	0.7381	0.3364	2.1139
SED_QLTY	0.5493	0.1411	0.3158	0. 8158	0.3351	2.1493
FS	6.8782	0.6878	5.5055	8.5812	0.3249	2.5135
LEV	0.4988	0.1590	0.1012	0.9331	0.1860	3.1436
PROF	0.1628	0.1441	0.0097	0.7412	1.9930	7.4032
AGE	24.378	7.7558	10	41	0.1790	2.0880
BS	9.4479	2.5747	6	17	0.4080	2.4265

BC	0.7582	0.1022	0.5455	0.9231	-0.3699	2.1611
MO	0.1077	0.2169	0	0.7331	1.9875	5.4165

Source: Computed from Annual report Data (2004-2015) using STATA version 10

Table 4.1 shows the summary of descriptive statistics for the dependent and independent variables. The table reveals that the mean of social and environmental accounting information disclosure quantity for the firms is 0.4955 with standard deviation of 0.13 signifying that the data deviate from the mean value by 0.13. It can be deduced from the result that there is no wide dispersion between the mean and the standard deviation. The minimum social and environmental accounting information disclosure quantity among the firms is 0.28 with a maximum value of 0.74. However, the coefficient of skewness 0.3364 implies that the data is positively skewed which deviate the condition of being symmetrically distributed that suggests a value of 0 for skewness. In terms of the kurtosis statistics the dataset with respect to social and environmental accounting information disclosure quantity is not normally distributed. This is because the value of kurtosis is 2.1139 which do not fall within the range of ±3 as suggested by Landau and Everitt (2004).

The table also reveals that the mean of social and environmental disclosure accounting information quality for the firms is 0.5493 with standard deviation of 0.14 signifying that the data deviate from the mean value by 0.14. It can be deduced from the result that there is no wide dispersion between the mean and the standard deviation. The minimum social and environmental accounting information disclosure quality among the firms is 0.31 with a maximum value of 0.82. However, the coefficient of skewness 0.3351 implies that the data is positively skewed which deviate the condition of being symmetrically distributed that suggests a value of 0 for skewness. In terms of the kurtosis statistics the dataset with respect to social and environmental

accounting information disclosure quantity is not normally distributed. This is because the value of kurtosis is 2.1493 which do not fall within the range of ±3 as suggested by Landau and Everitt (2004).

Table 4.1 also shows that firm size has minimum and maximum values of 5.5055 and 8.5812 respectively with the mean value of 6.8782 and standard deviation of 0.6878. This implies that the minimum total assets of the firms are ₦5.51 billion and the maximum value is₦8.58 billion. The average total asset of the firms is ₦6.88 billion with a deviation of ₦0.69 billion. The coefficient of skewness of 0.3249 implies that the data is positively skewed and therefore does not conform to the symmetrical distribution requirement of normal data. Moreover, the coefficient of kurtosis of 2.5135 indicates that the data is leptokurtic and does not fall within the acceptable range.

The result also shows that the mean of firm leverage during the period covered by the study is 0.4988 implying that on average total debt occupies a significant portion of the capital structure of the firms. The minimum and maximum values of firm leverage stands at 0.1012 and 0.9331. The coefficient of skewness 0.1860 implies that the data is positively skewed while the coefficient of kurtosis is 3.1436 indicates that firms leverage falls within the acceptable range ±3, which implies that the data is normally distributed.

The table further shows that profitability has an average value of 0.16 with standard deviation of 0.14. The minimum and maximum values are 0.0097 and 0.7412 respectively. This implies that average profit for the firms is ₦0.16 million while the minimum and maximum profits are ₦0.009 million and ₦0.74 million respectively. On the other hand, the coefficient of skewness of

1.9930 implies that the data is positively skewed while the kurtosis value of 7.4032 shows that the dataset is leptokurtic and not normally distributed.

The table also shows that the average age of the firms in Nigeria is 24 years from a mean value of 24.375 with a standard deviation of 7.7558. This implies that the data is widely dispersed from the mean value. The minimum number of operating years of the firms is 10 years and the maximum is 41 years. The coefficient of skewness 0.1791 implies that the data is not symmetrical while the coefficient of kurtosis 2.0880 indicates that the dataset is not normally distributed.

The descriptive statistics also indicates that the number of the board of directors ranges between 6 and 17 with a mean value of 9.45 which is in line with the 2009 Securities and Exchange Commission (SEC) Code of Corporate Governance which recommends that the board should be of a sufficient size relatives to the scale and complexity of the company's operation and that membership of the board should not be less than five (5).The standard deviation of 2.57 implies that the data is widely dispersed. Similarly, the skewness value of 0.4081 signifies that the data is not normally distributed. On the other hand, the kurtosis value of 2.4265 shows that the value does not fall within the acceptable range.

Table 4.1 also indicates that the mean proportion of non-executive directors to total number of directors on the board is 75.82%, which implies that a larger number of memberships of the board area non-executive director which is in line with the SEC recommendation. The standard deviation of 0.1022 implies that the data is positively skewed. This indicates that there is no too

much gap between the numbers of non-executive directors among the firms. The minimum and maximum values of non-executive directors on the total number of board of directors among the firms stood at 0.5454 and 0.9231 respectively. This implies that non-executive directors occupied a minimum of about 55% of the total number of the board of directors. The coefficients of skewness and kurtosis are -0.3699 and 2.1611 respectively. This indicates that the data is negatively skewed and therefore does not conform to the symmetrical distribution requirement.

The table further reveals that the overall average of shares held by management within the study period is 10.78 with standard deviation of approximately 0.2168. The highest shares own by the management for the period is 73% by Avon crown & Caps Nigeria plc in 2004 - 2007 while the minimum shares held was 0%. This might not be unconnected with the fact that in the year 2015 none of the directors of Ashaka Cement Plc has interest in the company's shares. On the other hand, the coefficient of skewness of 1.9875 implies that the data is positively skewed, and thus, the data meet the symmetrical distribution, which suggests a value of 0 for skewness. The kurtosis value of 5.4167 also shows that the data is leptokurtic and does not fall within the acceptable range of ±3 as suggested by Landau and Everitt (2004).

In view of the fact that the descriptive statistics of the data suggests that to a large extent the data is not normally distributed, the study used Shapiro Wilk test to find a statistical evidence as to whether the data follow the normal curve or not. The result of the normality test of the variables is presented in table 4.2

Table 4.2: Result for Normality Test

VARIABLES	**N**	**W**	**V**	**Z**	**Prob>Z**
SED_QNTY	96	0.9734	2.122	1.665	0.0480
SED_QLTY	96	0.9741	2.069	1.610	0.0537
FS	96	0.9814	1.484	0.874	0.1912
LEV	96	0.9941	0.469	-1.674	0.9529
PROF	96	0.7966	16.228	6.168	0.0000

AGE	96	0.9756	1.949	1.477	0.0699
BS	96	0.9572	3.417	2.720	0.0033
BC	96	0.9634	2.918	2.370	0.0089
MO	96	0.5486	36.020	7.933	0.0000

Source: Computed from Annual report Data (2004-2015) using STATA version 10

Under Shapiro-Wilk (W) test, the null hypothesis is that the dataset is normally distributed. Table 4.2 indicates that the data for the dependent variables are not normally distributed because the p-values are significant at 5% and 10% for disclosure quantity and quality respectively. Similarly, Profitability (PROF), Board Size (BS), Board Composition (BC), and Managerial Ownership (MO) are not normally distributed because the P-values are significant at 1% level of significance. Firm age is also not normally distributed because the p-value of 0.0699 is significant at 10%. Thus, the null hypothesis that the data is normally distributed is rejected. On the other hand, Firm size (FS) and firm leverage (LEV) are normally distributed as evidenced by the p-value of 0.1912 and 0.9529 for firm size and firm leverage respectively.

4.3 Correlation Matrix

Table 4.3 contains correlation values between dependent and independent variables as well as between the independent variables themselves. The values are obtained from Pearson Correlation of 2-tailed significance. It shows the correlation matrix with the top values containing the Pearson correlation coefficient between all pairs of variables and the bottom values containing two-tail significance of these coefficients.

Table 4.3: Correlation matrix for dependents and independent variables

VARIABLES	SED_QNTY	SED_QLTY	FS	LEV	PROF	AGE	BS	BC	MO
SED_QNTY	1.0000								
SED_QLTY	1.0000	1.0000							
FS	0.5065** (0.0000)	0.5021** (0.0000)	1.0000						
LEV	-0.3913** (0.0001)	-0.3843** (0.0001)	-.2907 (0.0041)	1.0000					
PROF	0.0839 (0.4785)	0.0809 (0.4164)	-0.2694 (0.0079)	0.1041 (0.3126)	1.0000				
AGE	0.5481** (0.0000)	0.5480** (0.0000)	0.0604 0.5589	-0.2193* (0.0319)	0.3142** (0.0018)	1.0000			
BS	0.5001** (0.0000)	0.5015** (0.0000)	0.4704 (0.0000)	-0.2613* (0.0101)	-0.2278* (0.0256)	0.1760* (0.0863)	1.0000		
BC	0.0331 (0.7489)	0.0226 (0.8266)	0.2677 (0.0084)	-0.2541* (0.0125)	-0.1175 (0.2544)	-0.0973 (0.3457)	0.4728** (0.0000)	1.0000	
MO	-0.2537* (0.0126)	-0.2534* (0.0127)	-0.3874** (0.0001)	0.1560 (0.1291)	-0.0148 (0.8861)	-0.3339** (0.0009)	0.0031 (0.9761)	0.0037 (0.9718)	1.0000

Source: Computed from Annual report Data (2004-2015) using STATA version 10

Table 4.3 shows that quantity and quality of social and environmental disclosure are 51% and 50% positively associated with firm size and significant at 1% level respectively. This signifies that the larger the size of the firm the higher the level of social and environmental disclosure by the firms. The table also shows the correlation coefficient between leverage and social and environmental accounting information disclosure quantity and quality of 39% and 38% respectively. This negative correlation is significant at 1% level indicating those firms with high leverage are likely not to disclose more information on social and environmental related issues. Profitability is positively associated with social and environmental accounting information disclosure of the firms but is not significant at all acceptable level of significance indicating that

profitability does not affect the disclosure of social and environmental information among the firms. The table also shows that there is positive relationship between quantity and quality of social and environmental accounting information disclosure and firm age from the correlation coefficient of 55% which is significant at 99% confidence level (p-value 0.0000). This suggests that as the firm age increases, the level of social and environmental accounting information disclosure increase. Similarly board size is positively associated with quantity and quality of social and environmental accounting information disclosure from the correlation coefficient of 0.5001 & 0.5015 and statistically significant at 1%. This signifies that a larger board will provide more voluntary information than a smaller one. The table also shows a correlation coefficient between board composition and social and environmental accounting information disclosure of 3% and 2% respectively. However, the association is not significant at all acceptable level as indicated by the p-value of 0.7489 and 0.8266 for disclosure quantity and quality respectively. This implies that board composition does not affect the level of social and environmental disclosure among the firms.

The table further shows a significant statistical negative relationship between quantity and quality of social and environmental accounting information disclosure and managerial ownership from the correlation coefficient of -0.2537 and -0.2534 respectively at 5% level of significance (p-value of 0.0126 and 0.0127). This implies that managerial ownership is negatively associated with social and environmental accounting information disclosure of listed industrial goods firms in Nigeria. The table however shows that the correlation among the explanatory variables ranges between -0.387 and 0.4728. Board size has the highest positive correlation with board composition which is significant at 1% level. Firm size has the next highest positive correlation with board size which is also significant at 1% level. However, these high correlations would not

pose any problem to the analysis. The correlation coefficient of firm size and firm age is only 6% and not significant at all acceptable level, while the correlation coefficients among other explanatory variables indicate that there is presence of mild multicollinearity among them.

4.4 OLS Regression Analysis

The summary of the pooled OLS regression results for the first model is presented in table 4.4 the table contained the OLS result, Fixed Effect and Random Effect model and their respective probabilities.

Table 4.4: OLS Regression Results for model I

Dependent Variables: Social and Environmental Disclosure Quantity						
Estimator	**OLS**		**FE**		**RE**	
Variables	**Coef.**	**Prob.**	**Coef.**	**Prob.**	**Coef.**	**Prob.**
FS	.0726**	0.000	.0314	0.322	.0726**	0.000
	(4.56)		***(1.00)***		***(4.56)***	
LEV	-.1523**	0.009	-.0743	0.010	-.1523**	0.008
	(-2.65)		***(-2.62)***		***(-2.65)***	
PROF	0.1273*	0.054	-.0545	0.118	0.1273*	0.051
	(1.95)		***(-1.58)***		***(1.95)***	
AGE	.0063**	0.000	.0131	0.000	.0063**	0.000
	(4.66)		***(6.39)***		***(4.66)***	
BS	.01716**	0.000	.0026	0.321	.01716**	0.000
	(3.90)		***(1.00)***		***(3.90)***	
BC	-.2870**	0.004	-.1089	0.157	-.2870**	0.003
	(-2.97)		***(-1.43)***		***(-2.97)***	
MO	.0312	0.502	.0431	0.043	.0312	0.501
	(0.67)		***(2.06)***		***(0.67)***	
Constant	-.04814	0.727	.0604	0.735	-.04814	0.726
	(-0.35)		***(0.34)***		***(-0.35)***	
R^2	0.6293					
Adj. R^2	0.6085					
F-Statistics	22.09					
Prob. F	0.0000					
R^2 within			0.7626		0.5761	
R^2between			0.3560		0.6730	
R^2overall			0.4476		0.6373	
Wald Ch2					154.65**	
Prb.Ch2					0.0000	
No of Obs.	96		96		96	

Note: ** significant at the 1% level
Numbers in parentheses are t- values
Z test in Prentices, bold face and italicized
SED_QNTY =Social and environmental disclosure quantity; FS = Firm size; Lev = Leverage; Prof= Profitability; Age= Firm age; BS= board size; BC= board composition; MO= Managerial ownership

Source: Computed from Annual report Data (2004-2015) using STATA version 10

Table 4.4 shows the results of all applied variables in the analysis of the first model. The table presents the results of Ordinary Least Square (OLS), Fixed Effect (FE) and Random Effect (RE) for the effect of corporate characteristics on social and environmental accounting information disclosure quantity of listed Industrial Goods firms in Nigeria. The table reveals that the coefficient of determination given by the R^2 and Adjusted R^2 for the first model is 0.64. The table also shows that the value of the overall model fitness represented by F-statistics is 22.09 and the p-value of 0.0000 indicating that it is significant at 1% level of significance.

Table 4.4 shows a significant positive association between social and environmental accounting information disclosure quantity of industrial good firms in Nigeria and firm size from the p-value of (0.0000) which is significant at 1% level of significance. Firm size has beta coefficient of 0.0726 which signifies that for every one naira (₦1) increase in firm size of industrial goods firms in Nigeria, the disclosure on social and environmental accounting information will increase by ₦0.0726. Beta value measures the degree to which each of the explanatory variables affects the dependent variables.

When FE model is applied, there was a significant decrease in the beta coefficient of firm sizes 0.0726 to 0.0314 which is not significant at any level of significance. With RE model, the beta coefficient is 0.0726 and is significant at 1% level of significance which is almost the same with that of OLS model.

Table 4.4 also shows that leverage has a significant negative relationship with social and environmental accounting information disclosure quantity of the firms. This is based on the beta coefficient of -0.1523 which is significant at 1% level. It therefore implies that for every one naira (₦1) increase in leverage of listed industrial goods firms, the disclosure quantity on social and environmental information will decrease by ₦0.15. When FE model is applied leverage has a beta coefficient of -0.0743 which is significant at 10% level of significance implying a decrease in disclosure of social and environmental information by ₦0.07. However, with RE model the result is similar to that of OLS.

The table further reveals that for both OLS and RE model, profitability has positive association with social and environmental accounting information disclosure quantity. The beta coefficient of 0.1273 which is significant at 10% signifies that profitability is positively and significantly related to social and environmental disclosure quantity of listed industrial goods firms in Nigeria. It implies that for every one naira (₦1) increase in profitability the amount of disclosure quantity on social and environmental information will increase by ₦0.13. However, when FE model is applied profitability has negative association with social and environmental disclosure quantity as indicated in the beta coefficient of -0.0545. It implies that for every one naira (₦1) increase in profitability the amount of disclosure quantity on social and environmental information will decrease by ₦0.05.

Table 4.4 also shows that for quantity of social and environmental accounting information disclosure, firm age has beta coefficients of 0.006 when OLS and RE models were applied which is significant at 1% level. When the FE model is taken into consideration, firm age has a beta coefficient of 0.0131 which is significant at 1% level. This signifies that firm age has positive

strong and significant effect on quantity of social and environmental disclosure of listed industrial goods firms in Nigeria.

Similarly, with OLS and RE models board size has beta coefficients of 0.0172 for quantity of social and environmental disclosure among the firms. The p-values for each of the model are 0.0000, which is significant at 1% level. This means that board size is positively and significantly associated with social and environmental disclosure quantity of listed industrial

goods firms in Nigeria. With FE model board size has a beta coefficient of 0.003 and p-value of 0.032 which is not significant at all level of significance.

The result from table4.4 further shows that board composition has significant negative effect on social and environmental disclosure quantity when OLS and RE model were applied as indicated by the coefficient of -0.2869. It therefore implies that the higher the proportion of non-executive directors on the board, the less the industrial goods firms disclose social and environmental information in the annual report. When FE model is applied board composition has a bête coefficient of -0.1089which is not significant at all level of significance.

Lastly, table 4.4 did not document a statistical significant association between quantity of social and environmental accounting information disclosure and managerial ownership among the firms during the period covered by the study. When OLS and RE model were applied, managerial ownership has beta coefficients of 0.0312 with p-value of 0.501 which is not statistically significant at all acceptable levels. When FE model is applied managerial ownership has a bête coefficient of 0.0431 which is significant at 5% level of significance.

4.4.1 OLS Regression Analysis

The summary of the pooled OLS regression results of the second model is presented in table 4.4.1 the table contained the OLS result, Fixed Effect and Random Effect model and their respective probabilities.

Table 4.4.1: OLS Regression Results for the model II

Dependent Variables: Social and Environmental Disclosure Quality						
Estimator	**OLS**		**FE**		**RE**	
Variables	**Coef.**	**Prob.**	**Coef.**	**Prob.**	**Coef.**	**Prob.**
FS	.0780**	0.000	.0094	0.777	.0780**	0.000
	(4.47)		***(0.28)***		***(4.47)***	
LEV	-.1624**	0.012	-.0743	0.015	-.1623**	0.010
	(-2.58)		***(-2.50)***		***(-2.58)***	
PROF	0.1358*	0.061	-.0669	0.069	0.1358*	0.058
	(1.90)		***(-1.84)***		***(1.90)***	
AGE	.0068**	0.000	.01622	0.000	.0068**	0.000
	(4.62)		***(7.56)***		***(4.62)***	
BS	.0195**	0.000	.0037	0.188	.0195**	0.000
	(4.03)		***(1.33)***		***(4.03)***	
BC	-.3330**	0.002	-.1302	0.108	-.3330**	0.002
	(-3.15)		***(-1.63)***		***(-3.15)***	
MO	.0314	0.538	.0403	0.071	.0314	0.538
	(0.62)		***(1.83)***		***(0.62)***	
Constant	-.0279	0.853	.0604	0.296	-.0279	0.853
	(-0.19)		***(1.05)***		***(-0.19)***	
R^2	0.6363					
Adj R^2	0.6074					
F-Statistics	22.00					
Prob. F	0.0000					
R^2 within			0.7860		0.5824	
R^2between			0.2711		0.6675	
R^2overall			0.3736		0.6363	
Wald Ch2					153.97**	
Prb.Ch2					0.0000	
No of Obs.	96		96		96	

Note: ** significant at the 1% level
Numbers in parentheses are t- values
Z test in Prentices, bold face and italicized

SED_QLTY =Social and environmental disclosure quality; FS = Firm size; Lev = Leverage; Prof= Profitability; Age= Firm age; BS= board size; BC= board composition; MO= Managerial ownership

Source: Computed from Annual report Data (2004-2015) using STATA version 10

Table 4.4.1 shows the results of all applied variables in the analysis of the second model. The table presents the results of Ordinary Least Square (OLS), Fixed Effect (FE) and Random Effect (RE) for the effect of corporate characteristics on social and environmental accounting information disclosure quantity of listed Industrial Goods firms in Nigeria. The table reveals that the coefficient of determination given by the R^2 and Adjusted R^2 for the first model is 0.64 and 0.61 respectively. The table also shows that the value of the overall model fitness represented by F-statistics is 22.00 and the p-value of 0.0000 indicating that it is significant at 1% level of significance. Table 4.4.1 shows a significant positive association between social and environmental accounting information disclosure quality of industrial good firms in Nigeria and firm size from the p-value of (0.0000) which is significant at 1% level of significance.

Firm size has beta coefficient of 0.0780 which signifies that for every one naira (₦1) increase in firm size of industrial goods firms in Nigeria, the disclosure on social and environmental information will increase by ₦0.0780. Beta value measures the degree to which each of the explanatory variables affects the dependent variables. When FE model is applied, there was a significant decrease in the beta coefficient of firm sizes 0.0780 to 0.0094 which is not significant at all level of significance. With RE model, the beta coefficient is 0.0780 and is significant at 1% level of significance which is almost the same with that of OLS model.

Table 4.4.1 also shows that leverage has a significant negative relationship with social and environmental disclosure quality of the firms. This is based on the beta coefficient of -0.1622 which is significant at 5% level. It therefore implies that for every one naira (₦1) increase in leverage of listed industrial goods firms, the disclosure quality on social and environmental information will decrease by ₦0.16. When FE model is applied leverage has a beta coefficient of -0.0743 which is significant at 5% level of significance implying a decrease in disclosure of

social and environmental information by ₦0.07. However, with RE model the result is almost similar to that of OLS.

The table further reveals that for both OLS and RE model, profitability has positive association with social and environmental disclosure quality. Profitability has a beta coefficient of 0.1358 which is significant at 10%. It signifies that profitability is positively and significantly related to social and environmental disclosure quality of listed industrial goods firms in Nigeria. It implies that for every one naira (₦1) increase in profitability the amount of disclosure quality on social and environmental information will increase by ₦0.14. However, when FE model is applied profitability has negative association with social and environmental disclosure quality as indicated in the beta coefficient of -0.0669. It implies that for every one naira (₦1) increase in profitability the amount of disclosure quality on social and environmental information will decrease by ₦0.07.

Table 4.4.1 also shows that for quality of social and environmental accounting information disclosure, firm age has beta coefficients of 0.0067 when OLS and RE models were applied which is significant at 1% level. When the FE model is taken into consideration, firm age has a beta coefficient of 0.0162 which is significant at 1% level. This signifies that firm age has positive strong and significant effect on quantity of social and environmental disclosure of listed industrial goods firms in Nigeria.

Similarly, with OLS and RE models board size has beta coefficients of 0.0195 for quality of social and environmental disclosure among the firms. The p-values for each of the model are 0.0000, which is significant at 1% level. This means that board size is positively and significantly associated with social and environmental disclosure quantity of listed industrial

goods firms in Nigeria. With FE model board size has a beta coefficient of 0.0037 and p-value of 0.188 which is not significant at all level of significance.

The result from table 4.4.1 further shows that board composition has significant negative effect on social and environmental disclosure quantity when OLS and RE model were applied as indicated by the coefficient of -0.3330. It therefore implies that the higher the proportion of non-executive directors on the board, the less the industrial goods firms disclose social and environmental information in the annual report. When FE model is applied board composition has a beta coefficient of -0.1304 coaches which is not significant at all level of significance.

Lastly, table 4.4.1 did not document a statistical significant association between quality of social and environmental accounting information disclosure and managerial ownership among the firms during the period covered by the study. When OLS and RE model were applied, managerial ownership has beta coefficients of 0.0312 with p-value of 0.501 which is not statistically significant at all acceptable levels. When FE model is applied managerial ownership has a bête coefficient of 0.0431 which is significant at 5% level of significance.

4.5 Results of Robustness Tests

Table 4.5 presents the summary of results in respect of the robustness tests conducted in order to make better the validity of all the statistical inferences of the study. Robustness checks are applied to examine the results under different circumstances. The tests carried out are multicollinearity and heteroskedasticity tests on the OLS result and Hausman specification test to select the best model between fixed and random effects models.

Table 4.5: Summary of Robustness Test

VAR	**Multicollinearity Test**		**Heteroskedasticity Test**		**Hausman specification test**	
			Model I	**Model II**	**Model I**	**Model II**
	VIF	**TV**	Breusch & Pagan/Cook-Weisberg Test for Heteroskedasticity: Chi2 (1) = 0.09	Breusch& Pagan/Cook-Weisberg Test for Heteroskedasticity: Chi2 (1) = 0.08	Hausman Chi2 73.72 Prob> chi2 = 0.000	Hausman Chi2 74.89 Prob>chi2 =0.000
FS	1.75	0.5713				
LEV	1.22	0.8211				

PROF	1.30	0.7717	Prob>Chi2 = 0.7684	Prob>Chi2=0.7753		
AGE	1.56	0.6402				
BS	1.88	0.5325				
BC	1.42	0.7032				
MO	1.47	0.6790				

Source: Computed from Annual report Data (2004-2015) using STATA version 10

Table 4.5 is analysed under the following sub-sections:

4.5.1 Multicollinearity Test

In a bid to check for the existence or absence of multicollinearity among the independent variables, two tests were conducted. The tests are the Variance Inflation Factor (VIF) and tolerance value. According to Gujarati and Porter (2009), there is no problem if the VIF is less than 10 and the tolerance coefficient is greater than 0.10. From table 4.6 the values for VIF and tolerance coefficients in respect of each of the independent variables indicate absence of multicollinearity in the data. The table shows that the highest VIF is 1.88 and the mean VIF is 1.51. Moreover, the lowest tolerance value is 0.533. Therefore, the results of the VIF and tolerance value confirmed the absence of multicollinearity.

4.5.2 Heteroskedasticity Test

Table 4.5 shows that for the model I the result obtained from heteroskedasticity test using the Breuch-Pagan/Cook-Weisberg returned a coefficient value of 0.09 and a p-value 0.7684. Similarly, the result obtained from model II returned a coefficient value of 0.08 and a p-value 0.7753. The large P-values, which are not statistically significant indicate the absence of heteroskedasticity, that is, there is constant variance in the residuals. The result is in conformity with assumption number four of classical linear regression model which states that there must be

constant variance, that is, the disturbances u_i appearing in the population regression function are homoscedastic.

4.5.3 Hausman Specification Test:

The result obtained from Hausman specification test as per as table 4.5 reveals chi-square value of 73.72 with ($p<0.05$) and 74.89 with ($p<0.05$) for model I and model II respectively. This shows that the Fixed Effect Model (FEM) is preferred to Random Effect Model (REM) for the purpose of analysis. The fixed effect result was further subjected to Modified Wald test for groupwise heteroskedasticity in fixed effect regression model to check for presence or absence of heteroskedasticity. The result returned a chi2 value of 326.62 and a P-value of 0.0000 that is significant at 1%. Based on the result, a robust fixed effect regression was carried out and used for analysis.

4.6 Analysis of Robust FE Regression Results and Hypotheses Testing

In chapter one, seven hypotheses on the relationship between corporate characteristics and social and environmental disclosure were formulated. In this section, the robust Fixed Effect results of the two models is analysed and discussed in light of previous studies. The hypotheses of the study were also tested.

The summary of the robust Fixed Effect models is presented in table 4.6

Table 4.6: Robust Fixed Effects Regression Results

Variables	**Model I (Disclosure Quantity)**			**Model II (Disclosure Quality)**		
	Coefficient	**t-values**	**P-value**	**Coefficient**	**t-values**	**P-value**
Firm Size	0.0314	0.99	0.353	0.0094	0.41	0.691
Leverage	-0.0743	-3.13	0.017	-0.0743	-2.33	0.052
Profitability	-0.5455	-2.14	0.070	-0.6687	-2.90	0.023
Firm age	0.1305	5.06	0.001	0.0162	8.78	0.000
Board Size	0.0026	1.92	0.096	0.0037	2.96	0.021
Board	-.1089	-2.59	0.036	-.1302	-3.22	0.015

Composition						
Managerial Ownership	0.4307	1.79	0.117	0.4030	1.59	0.157
R^2 Within			0.7626			0.7860
R^2 Between			0.3560			0.2711
R^2 Overall			0.4476			0.3736
F-Statistics			3308.95			231.42
Prob> F-Statistics			0.0000			0.0000

Source: Computed from Annual report Data (2004-2015) using STATA version 10

The results of model I from table 4.6 indicate that the explanatory variables are capable of explaining 44.76% of the variability in the disclosure of social and environmental information among listed industrial good firms in Nigeria. This could be deduced from the overall coefficient of multiple determinations (R-squared value of 0.4476). Similarly, the result from table 4.6 model II indicates that the explanatory variables are also capable of explaining 37.36% of the variability in the disclosure of social and environmental information among listed industrial good firms in Nigeria. This could be deduced from the overall coefficient of multiple determinations (R-squared value of 0.3736). Similarly, the table shows that the models are fitted as evident by the F-Statistics of 3308.95 and P-value of 0.0000 in the first model and F-statistics of 231.42 and P-value of 0.0000 in the second model which are less than 0.01 (1%). This implies that there is 99% confidence in the ability of the models to explain the dependent variable. Therefore, it can be concluded that the dependent variables were well explained by the regressors. The table is used to discuss the coefficient of P-value of each of the variables and subsequently test the hypotheses of the study as follows:

4.6.1 Effect of Firm size on Social and Environment Accounting Disclosure

In the first hypothesis, it was assumed that firm size has no significant effect on social and environmental accounting disclosure of listed industrial goods firms in Nigeria. Table 4.6 shows

that there is no statistical significant association between firm size and social and environmental disclosure quantity of listed industrial goods firms in Nigeria as indicated by the coefficient of 0.3143 with p-value of 0.353 which is statistically not significant at all acceptable level. This implies that the level of social and environmental disclosure is not affected by the firm size of listed industrial goods firms in Nigeria. Based on this, the study fails to rejects the first null hypothesis which states that firm size has no significant effect on social and environmental disclosure of listed industrial good firms in Nigeria. The study also infers that firm size has not contributed to social and environmental information disclosure of the firms during the period covered by the research.

The result contradicts the findings of Buniamin (2010) and Suttipun and Stanton (2012) who found significant positive association between firm size and disclosure level for Malaysian and Thailand firms respectively. The result however, corroborates the study of Takhtaei and Mousavi (2012) and Nawaiseh, Boa and El-shohnah (2015) whose findings show that firm size has no significant effect on disclosure. The findings is also contrary to that of Dibia and Onwuchekwa (2015) who found that firm size has significant negative effect on the disclosure quantity of social and environmental information by quoted oil and gas companies in Nigeria.

Table 4.6 shows that there is no statistical significant association between firm size and social and environmental disclosure quality of listed industrial goods firms in Nigeria as indicated by the coefficient of 0.0094 with p-value of 0.691 which is statistically not significant at all acceptable level. This implies that the level of social and environmental disclosure is not affected by the firm size of listed industrial goods firms in Nigeria. Based on this, the study fails to rejects the first null hypothesis which states that firm size has no significant effect on social and environmental disclosure of listed industrial good firms in Nigeria. The study also infers that

firm size has not contributed to social and environmental information disclosure of the firms during the period covered by the research.

The result contradicts the findings of Buniamin (2010) and Jouirou and Chenguel (2014) who found significant positive association between firm size and disclosure level for Greece and Tunisian firms respectively. The result however, corroborates the study of Takhtaei and Mousavi (2012) and Nawaiseh, Boa and El-shohnah (2015) whose findings show that firm size has no significant effect on disclosure. The findings is also contrary to that of Dibia and Onwuchekwa (2015) who found that firm size has significant negative effect on the disclosure of social and environmental information by quoted oil and gas companies in Nigeria.

4.6.2 Effect of Firm leverage on Social and Environment Accounting Disclosure

Hypothesis 2 stated that firm leverage has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria. The result from table 4.6 shows that firm leverage has significant negative effect on social and environmental disclosure of listed industrial goods firms in Nigeria. From the result, firm leverage has a coefficient of -0.0743with a P-value of 0.017 which is significant at 5%, indicating an inverse association between the two variables. Based on the result, the study rejects the null hypothesis which states that firm leverage has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria. The study also infers that firm leverage has significant negative effect on social and environmental disclosure of the firms during the period covered by research.

The significant negative association between the explanatory variable and social and environmental disclosure might be attributable to the rationale of signaling theory that lower-

geared companies may wish to draw attention to their financial structure by disclosing more voluntary information (Akerlof, 1970). Alternatively, the negative association between the two variables might be as a result of the fact that when debt level of a firm is high, it tends to disclose less information not to damage their competitive position in the market.

The result for firm leverage contradicts the findings of Hossain, Islam and Andrew (2006) and that of Musa and Shehu (2013) who found significant positive relationship between leverage and voluntary disclosure. It however, agrees with the result documented by Umoren and Okougbo (2011) who found significant association between leverage and voluntary disclosure among Nigerian firms. In addition, the result is contrary to the findings of Jouirou and Chenguel (2014) who found positive but insignificant association between the two variables.

The result from table 4.6 also shows that firm leverage has significant negative effect on social and environmental disclosure quality of listed industrial goods firms in Nigeria. From the result, firm leverage has a coefficient of -0.0743 with a P-value of 0.052 which is significant at 10%, indicating an inverse association between the two variables. Based on the result, the study rejects the null hypothesis which states that firm leverage has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria. The study also infers that firm leverage has significant negative effect on social and environmental disclosure of the firms during the period covered by research.

The significant negative association between the explanatory variable and social and environmental disclosure might be attributable to the rationale of signaling theory that lower-geared companies may wish to draw attention to their financial structure by disclosing more

voluntary information (Akerlof, 1970). Alternatively, the negative association between the two variables might be as a result of the fact that when debt level of a firm is high, it tends to disclose less information not to damage their competitive position in the market.

The result for firm leverage contradicts the findings of Kokubu, Noda, Onishi and Shinabe (2001) who found significant positive relationship between leverage and voluntary disclosure. It however, agrees with the result documented by Sukcharoensin (2011) who found significant association between leverage and voluntary disclosure among Nigerian and Thailand firms respectively. In addition, the result is contrary to the findings of Jouirou and Chenguel (2014) who found positive but insignificant association between the two variables.

4.6.3 Effect of Profitability on Social and Environment Accounting Disclosure

Hypothesis 3 assumed that Profitability has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria. From table 4.6, profitability has negative effect on social and environmental information disclosure of listed industrial Goods firms in Nigeria, considering the coefficient of -0.5455 and p-value of 0.070 as shown in model I. This implies that the relationship is significant at10% levels of significance. Thus, based on statistical evidence, the study rejects the null hypothesis which states that firm performance has no significant effect on social and environmental disclosure of listed industrial Goods firms in Nigeria.

The result contradicts the findings of Cormier, Magnan and Velthoven (2004), Joshi, Suwaidan and Kumar (2011), and Dibia and Onwuchekwa (2015) who found no significant relationship between the two variables. However, it agrees with Damak (2004) who found significant

negative association between profitability and environmental disclosure. The result also contrasts the findings of Soliman (2013) and Nawaiseh, Boa and El-shohnah (2015) who found significant positive relationship between profitability and social and environmental disclosure.

From table 4.6, profitability has negative effect on social and environmental information disclosure of listed industrial Goods firms in Nigeria, considering the coefficient of -0.0669 and p-value of 0.023 as depicted in model II. This implies that the relationship is significant at 5% levels of significance. Thus, based on statistical evidence, the study rejects the null hypothesis which states that firm performance has no significant effect on social and environmental disclosure of listed industrial Goods firms in Nigeria.

The result contradicts the findings of Yusoff and Lehman (2005) and Sukcharoensin (2012), Jouirou and Chenguel (2014) who found no significant relationship between the two variables. However, it agrees with Akbas (2004) who found significant negative association between profitability and environmental disclosure. The result also contrasts the findings of Hossain, Islam and Andrew (2006) and Lu and Abeysekere (2014) who found significant positive relationship between profitability and social and environmental disclosure.

4.6.4 Effect of Firm Age on Social and Environment Accounting Disclosure

Hypothesis 4 of the study stated that firm age has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria. The result from table 4.6 under model I show a significant positive association between firm age and quantity of social and environmental information disclosure of listed industrial goods firms in Nigeria from a coefficient of 0.1305 which is significant at 1% level of significance (p-value 0.001). This implies that firm age contributes significantly to the firms' voluntary disclosure of social and

environmental information in their annual reports. It also implies that the older a firm is the higher the level of its social and environmental disclosure quantity. Based on this, the study rejects the fourth null hypothesis which states that firm age has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria.

This result is in support of Roberts (1992), Nagib, Marie and Geoff (2012) and Zhang (2013) who found that firm age is a significant variable that influence a firm's social and environmental disclosure. The result however, is contrary to the findings of Parsa and Kouhy (2008), Abu Sufian (2012) and Juhmani (2014) whose findings showed no significant association between firm age and social and environmental disclosure. This finding also disagrees with the finding of Jouirou and Chenguel (2014) who found significant negative relationship between the variables.

Similarly, table 4.6 under model II, the result shows a significant positive association between firm age and social and environmental information disclosure of listed industrial goods firms in Nigeria from a coefficient of 0.0162 which is significant at 1% level of significance (p-value 0.000). This implies that firm age contributes significantly to the firms' voluntary disclosure of social and environmental information in their annual reports. It also implies that the older a firm is the higher the level of its social and environmental disclosure quantity. Based on this, the study rejects the fourth null hypothesis which states that firm age has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria.

This result is in support of Soliman (2013) and Alfraih and Almutawa (2014) who found that firm age is a significant variable that influence a firm's social and environmental disclosure. The result however, is contrary to the findings of Sukcharoensin (2012) and Bhattacharya (2014) whose findings showed no significant association between firm age and social and environmental

disclosure. This finding also disagrees with the finding of Jouirou and Chenguel (2014) who found significant negative relationship between the variables.

4.6.5 Effect of Board Size on Social and Environment Accounting Disclosure

Hypothesis 5 assumed board size has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria. With respect to board size, the result reveals that it is positively related with social and environmental disclosure of listed industrial goods firm in Nigeria. The relationship is strong based on the coefficient of 0.0026 which is significant at 10 % level of significance as indicated in table 4.6 model I. The finding provides evidence that board plays an important role in determining social and environmental information disclosure of the firms. The study therefore rejects the null hypothesis that board size has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria.

The result is in line with findings of Akhtaruddin, Hossain and Yao (2009) for Malaysian firms, Abdur Rouf (2010) and Ajibolade and Uwuigbe (2013) that a large number of board of directors plays a significant role in influencing social and environmental information disclosure. The result is however contrary to the findings of Abu Sufian and Zahan (2013). The findings also contradicts the view that large board size is dysfunctional because a large number of directors are easy to be controlled by top managers and, therefore, they cannot criticize the policies of the top managers or discuss the performance of the company truthfully.

Table 4.6 models II also reveals that board size is positively related with social and environmental disclosure of listed industrial goods firm in Nigeria. The relationship is strong based on the coefficient of 0.0366 which is significant at 5 % level of significance. The finding provides evidence that board size plays an important role in determining social and

environmental information disclosure of the firms. The study therefore rejects the null hypothesis that board size has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria.

The result is in line with findings of Hassan (2010), Umoren and Okougbo (2011) and Ajibolade and Uwuigbe (2013) that a large number of board of directors plays a significant role in influencing social and environmental information disclosure. The result is however contrary to the findings of Soheilyfar, Tamimi, Ahmad and Takhtaei (2014). Similar to disclosure quantity, the findings also contradicts the view that large board size is dysfunctional because a large number of directors are easy to be controlled by top managers and, therefore, they cannot criticize the policies of the top managers or discuss the performance of the company truthfully.

4.6.6 Effect of Profitability on Social and Environment Accounting Disclosure

Hypothesis 6 which assumed that board composition has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria. Table 4.6 indicates a negative relationship between board composition and the level of social and environmental disclosure of industrial goods firms. This is evident from coefficient of -1.1089 which is significant at 5% from the p-value of 0.036 as shown under model I. This means that the more the number of outside directors, the lower the social and environmental disclosure of industrial goods firms in Nigeria. Thus based on the statistical evidence that the association is significant, this study rejects the null hypothesis which states that board composition has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria.

The negative effect noticed is likely to be because non-executive directors are too busy with other commitments and are only involved with the company business on a part-time basis. This

contradict the view that the inclusion of higher proportion of non-executive directors on the board would result in more individuals having the incentive to protect their reputation by promoting higher transparency through disclosure of material information. This also confirms that presence of outside directors has no significant effect on a firm's decision to voluntarily disclose social and environmental information in the annual report. Possibly, non-executive directors may also have a shallow idea of what is actually going on inside the company, thus their effect on managers' decision is limited.

The finding of this study contradicts the study of Ho and Wong (2001) who did not document significant positive relationship between board composition and disclosure. The finding also contradicts the study of Clemente and Labat (2009) and Al-janadi, Abdurrahman and Umar (2013) whose findings show significant positive relationship between board composition and social and environmental disclosure. The finding is however in line with the study of Jouirou and Chenguel (2014) who found a significant negative relationship between the variables.

Table 4.6 also indicates a negative relationship between board composition and the level of social and environmental disclosure quality of industrial goods firms. This is evident from coefficient of -1.1302 which is significant at 5% from the p-value of 0.015. This means that the more the number of outside directors, the lower the social and environmental disclosure of industrial goods firms in Nigeria. Thus based on the statistical evidence that the association is significant, this study rejects the null hypothesis which states that board composition has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria.

The negative effect noticed is likely to be because non-executive directors are too busy with other commitments and are only involved with the company business on a part-time basis. This

contradict the view that the inclusion of higher proportion of non-executive directors on the board would result in more individuals having the incentive to protect their reputation by promoting higher transparency through disclosure of material information. This also confirms that presence of outside directors has no significant effect on a firm's decision to voluntarily disclose social and environmental information in the annual report. Possibly, non-executive directors may also have a shallow idea of what is actually going on inside the company, thus their effect on managers' decision is limited.

The finding of this study contradicts the study of Zhou (2008) who did not document significant positive relationship between board composition and disclosure. The finding also contradicts the study of Htay, Rashid, Adnan and Meera (2012) and Ajibolade and Uwuigbe (2013) whose findings show significant positive relationship between board composition and social and environmental disclosure. The finding is however in line with the study of Jouirou and Chenguel (2014) and Mounira (2014) who found a significant negative relationship between the variables.

4.6.7 Effect of Managerial Ownership on Social and Environment Accounting Disclosure

Hypothesis 7 assumed that managerial ownership has no significant effect on social and environmental disclosure quantity of listed industrial goods firms in Nigeria. The result from table 4.6 indicates that managerial ownership has a positive effect on quantity of social and environmental disclosure of listed industrial goods firms in Nigeria, considering the coefficient of 0.4307and p-value of 0.117. However, based on the P-value the relationship is not significant at all levels of significance. The study therefore fails to reject the null hypothesis that managerial ownership has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria.

The findings contradict the study of Ghazali (2007) who found significant positive association between managerial ownership and environmental disclosure. It however contradicts the findings of Htay, Rashid and Meera (2012) whose findings showed significant association between the variables.

The result from table 4.6 indicates that managerial ownership has a positive effect on quality of social and environmental disclosure of listed industrial goods firms in Nigeria, considering the coefficient of 0.0403 and p-value of 0.157. However, based on the P-value the relationship is not significant at all levels of significance. The study therefore fails to reject the null hypothesis that managerial ownership has no significant effect on social and environmental disclosure of listed industrial goods firms in Nigeria.

The findings contradict the study of Uwuigbe (2011b) who found significant positive association between managerial ownership and environmental disclosure. It however contradicts the findings of Sartawi, Hindawi, Bsoul and Ali (2014) whose findings showed significant association between the variables.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

This study examined the effect of corporate characteristics on social and environmental disclosure of listed industrial goods firms in Nigeria. Specifically, the study assessed the effect of firm size, firm leverage, firm performance, firm age, board size, board composition and managerial ownership on social and environmental disclosure of the firms for the period 2004-2015. Seven hypotheses were formulated for testing each of the two model using panel data extracted from the annual financial reports of the firms on each of the variables over the period of the study.

Both conceptual and empirical literatures related to the study were reviewed. The review of empirical literature revealed that despite several studies on the relationship between corporate characteristics and social and environmental disclosure across the globe, there exist controversies regarding the direction and extent of the relationship. The review also established a number of gaps within the literature that arises from either methodology or scope.

The population of the study comprised all the eight listed industrial goods firms that have the data required for the study throughout the period of 2004-2015. Multiple regression models were used to estimate effect of seven explanatory variables – firm size, firm leverage, firm

performance, firm age, board size, board composition and managerial ownership on both quantity and quality of social and environmental disclosure. Two models were run using OLS regression based on quantity and quality of the disclosure. The results of the OLS for the two models were further subjected to various tests.

In view of the panel nature of the data, both Fixed and Random Effects models were run. Hausman specification test was carried out to select the best model between the two, which turned out to be the fixed effects model. The result of the Fixed Effects was further subjected to modified Wald test for groupwise heteroskedasticity. Based on the result robust Fixed Effect regressions were used for analysis.

The robust Fixed Effect regression results indicated that the variables of firm characteristics explained more than 45% and 37% of the total variation in the social and environmental disclosure quantity and quality of listed industrial goods firms in Nigeria at 99% confidence level during the period covered by the study. The result suggested that firm characteristics variables used in the study have significant effect on social and environmental accounting disclosure of the firms. Two independent variable, firm size and managerial ownership were found to have no significant effect on the explained variables.

The robust Fixed Effect regression result showed the leverage and profitability have significant negative effect on both quantity and quality of social and environmental accounting disclosure. The regression result also indicates that firm age and profitability have significant positive effect on the dependent variables at 1% and 10% significant level respectively. Board composition has significant negative effect on the explained variables.

5.2 Conclusions

The following conclusions were drawn based on analysis and discussion of the results obtained in the study.

Firstly, the study has provided both empirical and statistical evidence on the effect of five variables- leverage, profitability, firm age, board size and board composition on social and environmental disclosure of listed industrial goods firms in Nigeria. That is firm characteristics examined in this study except firm size and managerial ownership have improved the social and environmental information disclosure of listed industrial goods firms in Nigeria during the period covered by the study. Specifically, the study concludes that firm age and board size have significant positive effect on social and environmental information disclosure of listed industrial goods firms in Nigeria.

Secondly, the study also concludes that leverage, profitability and board composition have significant negative effect on social and environmental disclosure of listed industrial goods firms in Nigeria. Finally, the study concluded that firm size and managerial ownership have no significant effect on social and environmental disclosure among the listed industrial goods firms in Nigeria.

Thirdly, the study infers that some corporate characteristics have significant relationship with the social and environmental disclosure of listed industrial goods firms in Nigeria. It also infers that improving these attributes of the corporate characteristics could enhance the social and environmental accounting information disclosure of listed industrial firms in Nigeria for those with positive association.

5.3 Recommendations

In line with the findings of the study, the following recommendations are offered:

1. The study recommends that management and regulators should give less emphasis on firm size with regard to listed industrial goods firms in Nigeria. This is because it has been shown that it does not contribute to improving the quality of financial reporting.
2. The management and regulators of the firms should maintain a minimum level of debt to reduce extra cost and high risk attached to high geared firms. The level of debt should be below 50%. This is due to the fact that leverage has significant negative relationship with social and environmental information disclosure. This could be achieved by ensuring that concept of capital structure is strictly adhered to and applied accordingly.
3. The management, investors and regulators of the industrial goods firms in Nigeria should place emphasis on the number of years a firm has been in operation. This is because firm age was found to be a strong factor that influences firms to disclose social and environmental information in their annual reports.
4. Investors should consider corporate characteristics such as board size in investment decision particularly in industrial goods firms because it is one of the significant factors that influences corporate social and environmental disclosure. They should consider board size of between 6 and 17 because a large number of board size was found to be statistically significant in ensuring more disclosure of non-financial information.
5. The study recommends that management and regulators should not give much emphasis on managerial equity shareholding with regard to listed industrial goods firms in Nigeria.

This is because it has been found not contribute to improving the quality of financial reporting.

5.4 Limitation of the Study

This research work examined the effect of corporate characteristics on social and environmental disclosure of listed industrial goods firms in Nigeria and has paved the way for further research in the following areas as a result of the limitations encountered:

The study is limited to the Nigeria listed industrial goods firms and it does not provide a generalized overview in other sectors. The same research can be replicated using firms from other manufacturing sector of the economy such as building materials, oil and gas, Food/Beverages & Tobacco firms and comparisons formed by a larger population may demonstrate and explain trend more clearly.

5.5 Frontier for Further Research

1. It will be interesting to, beside the annual reports, take into account other communication channel such as stand-alone report, press releases websites etc. This can provide further insight into the relationship in question and might improve the explanatory power of future studies.
2. This study focused on some corporate governance variables, i.e. board size, board composition and managerial ownership. Hence, future research might be extended by observing other corporate governance variables such as board meeting frequency, which represents board activeness and the independence of audit committee, which represents its effectiveness.

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APPENDIX "A"

POPULATION AND SAMPLE OF THE STUDY

S/N	INDUSTRIAL GOODS FIRMS	ELIMINATED /SAMPLE FIRM	SAMPLE FIRMS
A	**BUILDING MATERIAL FIRMS**		
1	African Paint (NigPlc)	Eliminated	
2	Ashaka Cement Plc	Sample	1
3	Berger Paints NigeriaPlc	Sample	1
4	Chemical and Allied Product Plc	Sample	1
5	Cement Company of Northern Nigeria Plc	Sample	1
6	Dangote Cement Plc	Eliminated	
7	DN Meyer Plc	Eliminated	
8	First Aluminium Nigeria Plc	Eliminated	
9	IPWA Plc	Eliminated	
10	Lafarge Cement WAPCO Nigeria Plc	Sample	1
11	Paints & Coating manufacturers NigPlc	Eliminated	
12	Portland Paints & Products (Nig) Plc	Eliminated	
13	Premier Paints Plc	Eliminated	
B	**ELECTRONIC AND ELCTRICAL PRODUCTS**		
14	CutixPlc	Sample	1
15	Nigerian Wire and Cable Plc	Eliminated	
16	Nigerian Wire Industries Plc	Eliminated	
C	**PACKAGING/CONTAINERS**		
17	Abplast Products Plc	Eliminated	
18	Avon Crowncaps& Containers (Nig) Plc	Sample	1
19	Greif Nigeria Plc	Eliminated	
20	Nigerian Bags Manufacturing Company Plc	Eliminated	
21	Beta Glass Nig Plc	Sample	1
22	West African Glass Industry Plc	Eliminated	
D	**TOOLS AND MACHINERY**		
23	Nigerian Sewing Machine manufacturing Co.Plc	Eliminated	
24	Nigerian Ropes Plc	Eliminated	
25	Stokvis Nigeria Plc	Eliminated	
	SAMPLE OF THE STUDY		**8**

Source: Nigerian Stock Exchange Fact-book (2011/2012)

APPENDIX B

CORPORATE SOCIAL AND ENVIRONMENTAL DISCLOSURE CHECKLIST

A. EMPLOYEES HEALTH AND SAFETY

1. Disclosing accident statistics
2. Reducing or eliminating pollutants/irritant/hazard in the work place
3. Employee health and safety information
4. Employee training and education
5. Number of employee and their geographical distribution
6. Providing low cost health care for employees
7. Information on the management relationship with employees in an effort to improve job satisfaction

B. COMMUNITY INVOLVMENT

8. Social welfare
9. Summer or part time employment
10. Sponsoring public health project
11. Funding scholarship programs or activities
12. Donation to charity, Arts, sports etc
13. Sponsoring educational conferences, seminars or art exhibition
14. Company's statement of corporate commitment to its shareholders and for society as a whole

C. DIVERSITY AND HUMAN RIGHT

15. Any mention of policies or programs addressing work place harassment and discrimination
16. Policies or procedure dealing with human right issue
17. Number of percentage of women and minorities in the organization

D. INTEGRITY AND ETHICS

18. Policies for preventing anti- competitive behavior
19. Policy for consumer privacy
20. Provision of business code

E. ENVIRONMENTAL MANAGEMENT

21. Environmental Policies
22. Environmental Goal and target
23. Environmental partnership
24. Environmental Auditing
25. Environmental Stakeholders engagement

F. ENVIRONMENTAL RESEARCH AND DEVELOPMENT

26. Environmental Research and Development
27. Environmental awareness and education
28. Environmental impact survey research
29. Investment in research on renewable technology
30. Waste management reduction and recycling techniques

G. ENERGY

31. Firm energy policies
32. Disclosing energy saving
33. Utilizing waste materials
34. Disclosing increased energy efficiency product
35. Conservation of energy in the conduct of business

H. SUSTAINABLE DEVELOPMENT & OTHERS

36. Conservation of Natural resources
37. Land rehabilitation and remediation
38. Life cycle information
39. Recycling plant of waste product
40. Air Emission information
41. ISO Certification
42. Pollution Control mechanism
43. Sponsoring educational conferences, seminars or art exhibition

RESULT OF THE RELATIONSHIP BETWEEN CORPORATE CHARACTERISTICS AND SOCIAL AND ENVIRONMENTAL DISCLOSURE QUANTITY

  ___ ____ ____ ____ ____ tm
 /__   /   ____/   /   ____/
___/   /   /___/   /   /___/   10.0   Copyright 1984-2008
  Statistics/Data Analysis   StataCorp
                                       4905 Lakeway Drive
                                       College Station, Texas 77845 USA
                                       800-STATA-PC   http://www.stata.com
                                       979-696-4600   stata@stata.com
                                       979-696-4601 (fax)

28-student Stata for Windows (network) perpetual license:
       Serial number: 1910569294
         Licensed to: James Lin
                       UC Riverside

Notes:
      1. (/m# option or -set memory-) 1.00 MB allocated to data

```
. edit
(12 vars, 96 obs pasted into editor)

. xtset id year, yearly
       panel variable:  id (strongly balanced)
        time variable:  year, 2004 to 2015
                delta:  1 year

. summarize sed_qnty fs lev prof age bs bc mo
```

Variable	Obs	Mean	Std. Dev.	Min	Max
sed_qnty	96	.4955356	.128862	.28571	.7381
fs	96	6.878244	.6878245	5.50551	8.58124
lev	96	.4987501	.1590141	.101239	.9331
prof	96	.1628252	.1443993	.009744	.741217
age	96	24.375	7.755813	10	41
bs	96	9.447917	2.574653	6	17
bc	96	.7581914	.1022199	.545455	.923077
mo	96	.1077498	.2168903	0	.733127

```
. su sed_qnty fs lev prof age bs bc mo, detail
```

SED_QNTY

Percentiles		Smallest		
1%	.28571	.28571		
5%	.30952	.28571		
10%	.33333	.28571	Obs	96
25%	.40476	.30952	Sum of Wgt.	96
50%	.47619		Mean	.4955356
		Largest	Std. Dev.	.128862
75%	.59524	.7381		
90%	.69048	.7381	Variance	.0166054
95%	.7381	.7381	Skewness	.3364124
99%	.7381	.7381	Kurtosis	2.113894

FS

	Percentiles	Smallest		
1%	5.50551	5.50551		
5%	5.8916	5.60258		
10%	6.02536	5.62177	Obs	96
25%	6.340705	5.80473	Sum of Wgt.	96
50%	6.854995		Mean	6.878244
		Largest	Std. Dev.	.6878245
75%	7.34943	8.18349		
90%	7.82881	8.20376	Variance	.4731025
95%	8.18086	8.53609	Skewness	.3249435
99%	8.58124	8.58124	Kurtosis	2.513546

LEV

	Percentiles	Smallest		
1%	.101239	.101239		
5%	.246687	.142385		
10%	.311295	.187462	Obs	96
25%	.394423	.206338	Sum of Wgt.	96
50%	.4875695		Mean	.4987501
		Largest	Std. Dev.	.1590141
75%	.594287	.797391		
90%	.718454	.808536	Variance	.0252855
95%	.793344	.897713	Skewness	.1860339
99%	.9331	.9331	Kurtosis	3.143569

PROF

	Percentiles	Smallest		
1%	.009744	.009744		
5%	.020231	.012177		
10%	.037452	.014837	Obs	96
25%	.068594	.015158	Sum of Wgt.	96
50%	.1155285		Mean	.1628252
		Largest	Std. Dev.	.1443993
75%	.206372	.577641		
90%	.310214	.646138	Variance	.0208511
95%	.448934	.6867	Skewness	1.993012
99%	.741217	.741217	Kurtosis	7.403188

AGE

	Percentiles	Smallest		
1%	10	10		
5%	12	11		
10%	14	11	Obs	96
25%	18	12	Sum of Wgt.	96
50%	24		Mean	24.375
		Largest	Std. Dev.	7.755813
75%	30.5	38		
90%	35	39	Variance	60.15263
95%	37	40	Skewness	.1790491
99%	41	41	Kurtosis	2.088018

BS

Percentiles		Smallest		
1%	6	6		
5%	6	6		
10%	6	6	Obs	96
25%	7	6	Sum of Wgt.	96
50%	9		Mean	9.447917
		Largest	Std. Dev.	2.574653
75%	12	13		
90%	13	15	Variance	6.628838
95%	13	15	Skewness	.4080617
99%	17	17	Kurtosis	2.426524

BC

Percentiles		Smallest		
1%	.545455	.545455		
5%	.571429	.545455		
10%	.6	.571429	Obs	96
25%	.666667	.571429	Sum of Wgt.	96
50%	.777778		Mean	.7581914
		Largest	Std. Dev.	.1022199
75%	.833333	.916667		
90%	.888889	.916667	Variance	.0104489
95%	.888889	.923077	Skewness	-.3698855
99%	.923077	.923077	Kurtosis	2.161143

MO

Percentiles		Smallest		
1%	0	0		
5%	.000211	.000126		
10%	.00053	.000152	Obs	96
25%	.0009085	.000152	Sum of Wgt.	96
50%	.006759		Mean	.1077498
		Largest	Std. Dev.	.2168903
75%	.044195	.733127		
90%	.490329	.733127	Variance	.0470414
95%	.703933	.733127	Skewness	1.987477
99%	.733127	.733127	Kurtosis	5.416649

```
. swilk sed_qnty fs lev prof age bs bc mo
```

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
sed_qnty	96	0.97341	2.122	1.665	0.04795
fs	96	0.98141	1.484	0.874	0.19118
lev	96	0.99412	0.469	-1.674	0.95289
prof	96	0.79664	16.228	6.168	0.00000
age	96	0.97558	1.949	1.477	0.06988
bs	96	0.95718	3.417	2.720	0.00326
bc	96	0.96344	2.918	2.370	0.00889
mo	96	0.54863	36.020	7.933	0.00000

```
. pwcorr sed_qnty fs lev prof age bs bc mo, star (0.05) sig
```

	sed_qnty	fs	lev	prof	age	bs	bc
sed_qnty	1.0000						
fs	0.5065*	1.0000					
	0.0000						
lev	-0.3913*	-0.2907*	1.0000				
	0.0001	0.0041					
prof	0.0839	-0.2694*	0.1041	1.0000			
	0.4164	0.0079	0.3126				
age	0.5481*	0.0604	-0.2193*	0.3142*	1.0000		
	0.0000	0.5589	0.0319	0.0018			
bs	0.5001*	0.4704*	-0.2613*	-0.2278*	0.1760	1.0000	
	0.0000	0.0000	0.0101	0.0256	0.0863		
bc	0.0331	0.2677*	-0.2541*	-0.1175	-0.0973	0.4728*	1.0000
	0.7489	0.0084	0.0125	0.2544	0.3457	0.0000	
mo	-0.2537*	-0.3874*	0.1560	-0.0148	-0.3339*	0.0031	0.0037
	0.0126	0.0001	0.1291	0.8861	0.0009	0.9761	0.9718

	mo
mo	1.0000

```
. regress sed_qnty fs lev prof age bs bc mo
```

Source	SS	df	MS
Model	1.00539863	7	.143628376
Residual	.572116277	88	.006501321
Total	1.57751491	95	.01660542

Number of obs	96
F(7, 88)	22.09
Prob > F	0.0000
R-squared	0.6373
Adj R-squared	0.6085
Root MSE	.08063

sed_qnty	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
fs	.0726377	.0159119	4.56	0.000	.0410161	.1042592
lev	-.1522793	.0574106	-2.65	0.009	-.2663707	-.0381878
prof	.1272886	.0652138	1.95	0.054	-.0023102	.2568874
age	.0062098	.0013331	4.66	0.000	.0035605	.008859
bs	.0171579	.004403	3.90	0.000	.0084078	.025908
bc	-.2869392	.0965072	-2.97	0.004	-.4787269	-.0951514
mo	.0311821	.046287	0.67	0.502	-.0608035	.1231677
_cons	-.0481352	.1372937	-0.35	0.727	-.3209775	.2247072

```
. estat vif
```

Variable	VIF	1/VIF
bs	1.88	0.532519
fs	1.75	0.571319
age	1.56	0.640165
mo	1.47	0.679017
bc	1.42	0.703215
prof	1.30	0.771736
lev	1.22	0.821150
Mean VIF	1.51	

```
. estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of sed_qnty

         chi2(1)      =     0.09
         Prob > chi2  =   0.7684

. xtreg sed_qnty fs lev prof age bs bc mo, fe

Fixed-effects (within) regression               Number of obs      =        96
Group variable: id                              Number of groups   =         8

R-sq:  within  = 0.7626                         Obs per group: min =        12
       between = 0.3560                                        avg =      12.0
       overall = 0.4476                                        max =        12

                                                F(7,81)            =     37.18
corr(u_i, Xb)  = -0.2150                        Prob > F           =    0.0000

------------------------------------------------------------------------------
    sed_qnty |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          fs |   .0314285    .031511     1.00   0.322    -.0312685    .0941255
         lev |   -.074268   .0283144    -2.62   0.010    -.1306048   -.0179312
        prof |  -.0545476   .0345172    -1.58   0.118    -.1232259    .0141307
         age |   .0130458   .0020428     6.39   0.000     .0089812    .0171104
          bs |   .0026205   .0026237     1.00   0.321    -.0025998    .0078409
          bc |  -.1088571   .0762195    -1.43   0.157      -.26051    .0427958
          mo |   .0430733   .0209552     2.06   0.043     .001379    .0847676
       _cons |   .0604289   .1780612     0.34   0.735    -.2938571    .4147148
-------------+----------------------------------------------------------------
     sigma_u |  .09858468
     sigma_e |  .03385214
         rho |  .89452577   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(7, 81) =    59.75                 Prob > F = 0.0000

. estimates store fe


. xtreg sed_qnty fs lev prof age bs bc mo, re

Random-effects GLS regression                   Number of obs      =        96
Group variable: id                              Number of groups   =         8

R-sq:  within  = 0.5761                         Obs per group: min =        12
       between = 0.6730                                        avg =      12.0
       overall = 0.6373                                        max =        12

Random effects u_i ~ Gaussian                   Wald chi2(7)       =    154.65
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
    sed_qnty |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          fs |   .0726377   .0159119     4.56   0.000     .0414509    .1038244
         lev |  -.1522793   .0574106    -2.65   0.008    -.2648019   -.0397566
        prof |   .1272886   .0652138     1.95   0.051    -.0005282    .2551053
         age |   .0062098   .0013331     4.66   0.000     .0035969    .0088226
          bs |   .0171579    .004403     3.90   0.000     .0085281    .0257877
          bc |  -.2869392   .0965072    -2.97   0.003    -.4760898   -.0977886
          mo |   .0311821    .046287     0.67   0.501    -.0595387    .1219029
       _cons |  -.0481352   .1372937    -0.35   0.726    -.3172259    .2209555
-------------+----------------------------------------------------------------
     sigma_u |          0
     sigma_e |  .03385214
         rho |          0   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. estimates store re
```

```
. hausman fe re
```

	Coefficients (b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
fs	.0314285	.0726377	-.0412092	.0271984
lev	-.074268	-.1522793	.0780113	.
prof	-.0545476	.1272886	-.1818362	.
age	.0130458	.0062098	.0068361	.0015479
bs	.0026205	.0171579	-.0145374	.
bc	-.1088571	-.2869392	.1780821	.
mo	.0430733	.0311821	.0118912	.

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= -19.26 chi2<0 ==> model fitted on these data fails to meet the asymptotic assumptions of the Hausman test; see suest for a generalized test

```
. hausman fe re, sigmamore
```

	Coefficients (b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
fs	.0314285	.0726377	-.0412092	.0733485
lev	-.074268	-.1522793	.0780113	.0353875
prof	-.0545476	.1272886	-.1818362	.0500642
age	.0130458	.0062098	.0068361	.0046795
bs	.0026205	.0171579	-.0145374	.0044348
bc	-.1088571	-.2869392	.1780821	.1537674
mo	.0430733	.0311821	.0118912	.0186747

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 73.72
Prob>chi2 = 0.0000

```
. estimates store fe_robust
. estimates store fe_robust
. xtreg sed_qnty fs lev prof age bs bc mo, fe vce(robust)

Fixed-effects (within) regression               Number of obs      =        96
Group variable: id                              Number of groups   =         8

R-sq:  within  = 0.7626                         Obs per group: min =        12
       between = 0.3560                                        avg =      12.0
       overall = 0.4476                                        max =        12

                                                F(7,7)             =   3308.95
corr(u_i, Xb)  = -0.2150                        Prob > F           =    0.0000

                                    (Std. Err. adjusted for 8 clusters in id)
------------------------------------------------------------------------------
             |               Robust
    sed_qnty |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          fs |   .0314285   .0316109     0.99   0.353    -.0433194    .1061764
         lev |   -.074268   .0237045    -3.13   0.017    -.1303201   -.0182158
        prof |  -.0545476   .0255136    -2.14   0.070    -.1148777    .0057825
         age |   .0130458   .0025765     5.06   0.001     .0069533    .0191383
          bs |   .0026205   .0013652     1.92   0.096    -.0006075    .0058486
          bc |  -.1088571    .042061    -2.59   0.036    -.2083156   -.0093987
          mo |   .0430733   .0240936     1.79   0.117    -.0138989    .1000455
       _cons |   .0604289   .1979752     0.31   0.769     -.407708    .5285657
-------------+----------------------------------------------------------------
     sigma_u |  .09858468
     sigma_e |  .03385214
         rho |  .89452577   (fraction of variance due to u_i)
------------------------------------------------------------------------------

.


. estimates store fe_robust
```

RESULT OF THE RELATIONSHIP BETWEEN CORPORATE CHARACTERISTICS AND SOCIAL AND ENVIRONMENTAL DISCLOSURE QUALITY

```
  ___  ____  ____  ____  ____ tm
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>         stata@stata.com
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Notes:
      1.  (/m# option or -set memory-) 1.00 MB a
> llocated to data

. edit
(12 vars, 96 obs pasted into editor)

. xtset id year, yearly
       panel variable:  id (strongly balanced)
        time variable:  year, 2004 to 2015
                delta:  1 year



. summarize sed_qlty fs lev prof age bs bc mo
```

Variable	Obs	Mean	Std. Dev.	Min	Max
sed_qlty	96	.5492874	.1411234	.31579	.81579
fs	96	6.878244	.6878245	5.50551	8.58124
lev	96	.4987501	.1590141	.101239	.9331
prof	96	.1628252	.1443993	.009744	.741217
age	96	24.375	7.755813	10	41
bs	96	9.447917	2.574653	6	17
bc	96	.7581914	.1022199	.545455	.923077
mo	96	.1077498	.2168903	0	.733127

```
. su sed_qlty fs lev prof age bs bc mo, detail
```

SED_QLTY

	Percentiles	Smallest		
1%	.31579	.31579		
5%	.34211	.31579		
10%	.36842	.31579	Obs	96
25%	.44737	.34211	Sum of Wgt.	96
50%	.52632		Mean	.5492874
		Largest	Std. Dev.	.1411234
75%	.65789	.81579		
90%	.76316	.81579	Variance	.0199158
95%	.81579	.81579	Skewness	.335113
99%	.81579	.81579	Kurtosis	2.149738

FS

	Percentiles	Smallest		
1%	5.50551	5.50551		
5%	5.8916	5.60258		
10%	6.02536	5.62177	Obs	96
25%	6.340705	5.80473	Sum of Wgt.	96
50%	6.854995		Mean	6.878244
		Largest	Std. Dev.	.6878245
75%	7.34943	8.18349		
90%	7.82881	8.20376	Variance	.4731025
95%	8.18086	8.53609	Skewness	.3249435
99%	8.58124	8.58124	Kurtosis	2.513546

LEV

	Percentiles	Smallest		
1%	.101239	.101239		
5%	.246687	.142385		
10%	.311295	.187462	Obs	96
25%	.394423	.206338	Sum of Wgt.	96
50%	.4875695		Mean	.4987501
		Largest	Std. Dev.	.1590141
75%	.594287	.797391		
90%	.718454	.808536	Variance	.0252855
95%	.793344	.897713	Skewness	.1860339
99%	.9331	.9331	Kurtosis	3.143569

PROF

	Percentiles	Smallest		
1%	.009744	.009744		
5%	.020231	.012177		
10%	.037452	.014837	Obs	96
25%	.068594	.015158	Sum of Wgt.	96
50%	.1155285		Mean	.1628252
		Largest	Std. Dev.	.1443993
75%	.206372	.577641		
90%	.310214	.646138	Variance	.0208511
95%	.448934	.6867	Skewness	1.993012
99%	.741217	.741217	Kurtosis	7.403188

AGE

	Percentiles	Smallest		
1%	10	10		
5%	12	11		
10%	14	11	Obs	96
25%	18	12	Sum of Wgt.	96
50%	24		Mean	24.375
		Largest	Std. Dev.	7.755813
75%	30.5	38		
90%	35	39	Variance	60.15263
95%	37	40	Skewness	.1790491
99%	41	41	Kurtosis	2.088018

BS

	Percentiles	Smallest		
1%	6	6		
5%	6	6		
10%	6	6	Obs	96
25%	7	6	Sum of Wgt.	96
50%	9		Mean	9.447917
		Largest	Std. Dev.	2.574653
75%	12	13		
90%	13	15	Variance	6.628838
95%	13	15	Skewness	.4080617
99%	17	17	Kurtosis	2.426524

BC

	Percentiles	Smallest		
1%	.545455	.545455		
5%	.571429	.545455		
10%	.6	.571429	Obs	96
25%	.666667	.571429	Sum of Wgt.	96
50%	.777778		Mean	.7581914
		Largest	Std. Dev.	.1022199
75%	.833333	.916667		
90%	.888889	.916667	Variance	.0104489
95%	.888889	.923077	Skewness	-.3698855
99%	.923077	.923077	Kurtosis	2.161143

MO

	Percentiles	Smallest		
1%	0	0		
5%	.000211	.000126		
10%	.00053	.000152	Obs	96
25%	.0009085	.000152	Sum of Wgt.	96
50%	.006759		Mean	.1077498
		Largest	Std. Dev.	.2168903
75%	.044195	.733127		
90%	.490329	.733127	Variance	.0470414
95%	.703933	.733127	Skewness	1.987477
99%	.733127	.733127	Kurtosis	5.416649

```
. swilk sed_qlty fs lev prof age bs bc mo
```

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
sed_qlty	96	0.97407	2.069	1.610	0.05374
fs	96	0.98141	1.484	0.874	0.19118
lev	96	0.99412	0.469	-1.674	0.95289
prof	96	0.79664	16.228	6.168	0.00000
age	96	0.97558	1.949	1.477	0.06988
bs	96	0.95718	3.417	2.720	0.00326
bc	96	0.96344	2.918	2.370	0.00889
mo	96	0.54863	36.020	7.933	0.00000

```
. pwcorr sed_qlty fs lev prof age bs bc mo, star (0.05) sig
```

	sed_qlty	fs	lev	prof	age	bs	bc
sed_qlty	1.0000						
fs	0.5021*	1.0000					
	0.0000						
lev	-0.3843*	-0.2907*	1.0000				
	0.0001	0.0041					
prof	0.0809	-0.2694*	0.1041	1.0000			
	0.4333	0.0079	0.3126				
age	0.5480*	0.0604	-0.2193*	0.3142*	1.0000		
	0.0000	0.5589	0.0319	0.0018			
bs	0.5015*	0.4704*	-0.2613*	-0.2278*	0.1760	1.0000	
	0.0000	0.0000	0.0101	0.0256	0.0863		
bc	0.0226	0.2677*	-0.2541*	-0.1175	-0.0973	0.4728*	1.0000
	0.8266	0.0084	0.0125	0.2544	0.3457	0.0000	
mo	-0.2534*	-0.3874*	0.1560	-0.0148	-0.3339*	0.0031	0.0037
	0.0127	0.0001	0.1291	0.8861	0.0009	0.9761	0.9718

	mo
mo	1.0000

```
. regress sed_qlty fs lev prof age bs bc mo
```

Source	SS	df	MS
Model	1.203916	7	.171988
Residual	.688085322	88	.007819151
Total	1.89200132	95	.019915803

Number of obs	96
F(7, 88)	22.00
Prob > F	0.0000
R-squared	0.6363
Adj R-squared	0.6074
Root MSE	.08843

sed_qlty	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
fs	.0779944	.0174502	4.47	0.000	.0433158	.1126731
lev	-.1622426	.0629609	-2.58	0.012	-.2873641	-.037121
prof	.13578	.0715186	1.90	0.061	-.0063481	.2779081
age	.0067586	.001462	4.62	0.000	.0038532	.009664
bs	.0194641	.0048287	4.03	0.000	.009868	.0290602
bc	-.3329749	.1058373	-3.15	0.002	-.5433043	-.1226456
mo	.0313607	.0507619	0.62	0.538	-.0695179	.1322392
_cons	-.0279243	.1505669	-0.19	0.853	-.3271444	.2712959

```
. estimates store ols_qlty

. estat vif
```

Variable	VIF	1/VIF
bs	1.88	0.532519
fs	1.75	0.571319
age	1.56	0.640165
mo	1.47	0.679017
bc	1.42	0.703215
prof	1.30	0.771736
lev	1.22	0.821150
Mean VIF	1.51	

```
. estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of sed_qlty

         chi2(1)      =     0.08
         Prob > chi2  =   0.7753
```

```
. xtreg sed_qlty fs lev prof age bs bc mo, fe

Fixed-effects (within) regression               Number of obs      =        96
Group variable: id                              Number of groups   =         8

R-sq:  within  = 0.7860                         Obs per group: min =        12
       between = 0.2711                                        avg =      12.0
       overall = 0.3736                                        max =        12

                                                F(7,81)            =     42.50
corr(u_i, Xb)  = -0.3630                        Prob > F           =    0.0000

------------------------------------------------------------------------------
    sed_qlty |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          fs |   .0094104   .0331152     0.28   0.777    -.0564784    .0752992
         lev |  -.0742943   .0297558    -2.50   0.015    -.1334991   -.0150895
        prof |  -.0668725   .0362744    -1.84   0.069    -.1390471    .0053021
         age |   .0162192   .0021468     7.56   0.000     .0119477    .0204907
          bs |   .0036608   .0027573     1.33   0.188    -.0018254    .0091469
          bc |  -.1302396   .0800997    -1.63   0.108    -.2896128    .0291336
          mo |   .0403035    .022022     1.83   0.071    -.0035133    .0841204
       _cons |   .1969763   .1871259     1.05   0.296    -.1753456    .5692981
-------------+----------------------------------------------------------------
     sigma_u |  .12183619
     sigma_e |  .03557548
         rho |  .92143758   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(7, 81) =    66.10                 Prob > F = 0.0000

. estimates store fe


. xtreg sed_qlty fs lev prof age bs bc mo, re

Random-effects GLS regression                   Number of obs      =        96
Group variable: id                              Number of groups   =         8

R-sq:  within  = 0.5824                         Obs per group: min =        12
       between = 0.6675                                        avg =      12.0
       overall = 0.6363                                        max =        12

Random effects u_i ~ Gaussian                   Wald chi2(7)       =    153.97
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
    sed_qlty |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          fs |   .0779944   .0174502     4.47   0.000     .0437926    .1121962
         lev |  -.1622426   .0629609    -2.58   0.010    -.2856437   -.0388415
        prof |    .13578   .0715186     1.90   0.058    -.0043938    .2759538
         age |   .0067586    .001462     4.62   0.000     .0038932    .0096241
          bs |   .0194641   .0048287     4.03   0.000          .01    .0289282
          bc |  -.3329749   .1058373    -3.15   0.002    -.5404122   -.1255377
          mo |   .0313607   .0507619     0.62   0.537    -.0681308    .1308521
       _cons |  -.0279243   .1505669    -0.19   0.853      -.32303    .2671815
-------------+----------------------------------------------------------------
     sigma_u |           0
     sigma_e |  .03557548
         rho |           0   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. estimates store re
```

```
. hausman fe re

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re          Difference          S.E.
-------------+----------------------------------------------------------------
          fs |    .0094104     .0779944        -.068584        .0281443
         lev |   -.0742943    -.1622426        .0879483               .
        prof |   -.0668725       .13578       -.2026525               .
         age |    .0162192     .0067586        .0094606        .0015721
          bs |    .0036608     .0194641       -.0158033               .
          bc |   -.1302396    -.3329749        .2027353               .
          mo |    .0403035     .0313607        .0089429               .
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =   -15.44    chi2<0 ==> model fitted on these
                                        data fails to meet the asymptotic
                                        assumptions of the Hausman test;
                                        see suest for a generalized test


. hausman fe re, sigmamore

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re          Difference          S.E.
-------------+----------------------------------------------------------------
          fs |    .0094104     .0779944        -.068584        .0804396
         lev |   -.0742943    -.1622426        .0879483        .0388087
        prof |   -.0668725       .13578       -.2026525        .0549043
         age |    .0162192     .0067586        .0094606        .0051319
          bs |    .0036608     .0194641       -.0158033        .0048635
          bc |   -.1302396    -.3329749        .2027353        .1686332
          mo |    .0403035     .0313607        .0089429        .0204802
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       74.89
                Prob>chi2 =      0.0000
```

```
. xtreg sed_qlty fs lev prof age bs bc mo, fe vce(robust)

Fixed-effects (within) regression               Number of obs      =        96
Group variable: id                              Number of groups   =         8

R-sq:  within  = 0.7860                         Obs per group: min =        12
       between = 0.2711                                        avg =      12.0
       overall = 0.3736                                        max =        12

                                                F(7,7)             =    231.42
corr(u_i, Xb)  = -0.3630                        Prob > F           =    0.0000

                                    (Std. Err. adjusted for 8 clusters in id)
```

sed_qlty	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
fs	.0094104	.0227447	0.41	0.691	-.0443722	.063193
lev	-.0742943	.031851	-2.33	0.052	-.1496099	.0010213
prof	-.0668725	.0230705	-2.90	0.023	-.1214256	-.0123195
age	.0162192	.0018474	8.78	0.000	.0118509	.0205876
bs	.0036608	.0012357	2.96	0.021	.0007388	.0065827
bc	-.1302396	.0404357	-3.22	0.015	-.2258548	-.0346244
mo	.0403035	.0254243	1.59	0.157	-.0198155	.1004226
_cons	.1969763	.1609618	1.22	0.261	-.1836379	.5775904
sigma_u	.12183619					
sigma_e	.03557548					
rho	.92143758	(fraction of variance due to u_i)				

```
.
. estimates store fe_qlty_robust

.
```