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**DETERMINANTS OF SUSTAINABILITY REPORTING
BY ENVIRONMENTALLY SENSITIVE FIRMS IN
NIGERIA**

ALHASSAN HALADU



**DOCTOR OF PHILOSOPHY
UNIVERSITI UTARA MALAYSIA
APRIL 2017**

**DETERMINANTS OF SUSTAINABILITY REPORTING BY
ENVIRONMENTALLY SENSITIVE FIRMS IN NIGERIA**

By

ALHASSAN HALADU



**Thesis Submitted to
Tunku Puteri Intan Safinaz School of Accountancy,
Universiti Utara Malaysia,
in Fulfilment of the Requirement for the Degree of Doctor of Philosophy**

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ABSTRACT

The effects of man's actions and industrialization on the bio-system have not been pleasant. The effect of environmental challenges likes drought, desertification, erosion, gas flaring, and pollution is suffering by Nigerian now. Indirectly, it affects the social and political landscape of Nigeria. Hence, this research has been made to investigate the relationship between sustainability reporting and its determinants like environmental policy administrators, corporate financial performance, board independence and corporate foreign ownership concentration. The research primarily targeted the nature and trend of sustainability disclosure in compliance with the Global Reporting Initiative (GRI-4 or G4) which is internationally recognized for sustainability reporting standards and guidelines. Concentrating on environmentally sensitive companies in Nigeria, the research covered 67 firms over a 6-year period (2009-2014). Data were analyzed through content analysis, descriptive statistics, and robust random effect regression after embarking on proper data screening and diagnostic tests. The results showed an appreciably higher level of sustainability disclosure by environmentally sensitive firms. However, on matters of influence only board independence and duality showed significant relationships. Both of which have inverse relationship with sustainability information disclosure indicating that an independent board and division of the CEO's duty does not encourage higher disclosure of sustainability information. The significance of these results is to enable the appropriate authorities to maintain the increasing trend in disclosure with the prospect of future improvements through mandatory disclosure. In addition, the research could serve as a basis for a major overhaul of the "Code of Corporate Governance - 2011".

Universiti Utara Malaysia

Keywords: - sustainability reporting, environmentally sensitive firms, environmental policy administrators, corporate financial performance, Nigeria.

ABSTRAK

Aktiviti manusia dan industrialisasi memberikan kesan yang buruk kepada sistem bio. Kesengsaraan oleh kesan cabaran-cabaran terhadap alam sekitar seperti kemarau, kegersangan, hakisan, pembakaran gas, dan pencemaran dirasakan oleh penduduk Nigeria sekarang. Secara tidak langsung, pencemaran ini memberikan kesan kepada lanskap sosial dan politik Nigeria. Oleh itu, kajian ini dijalankan untuk mengkaji hubungan di antara laporan pemampanan dan penentunya seperti pentadbir dasar alam sekitar, prestasi kewangan korporat, ciri-ciri lembaga dan penumpuan pemilikan asing korporat. Kajian ini mensasarkan kepada sifat dan kecenderungan pendedahan pemampanan selaras dengan Inisiatif Laporan Global (GR1-4 atau G4) yang diiktiraf di peringkat antarabangsa mengenai piawai dan garis panduan pendedahan pemampanan. Kajian ini memberi tumpuan kepada syarikat-syarikat peka alam sekitar yang meliputi 67 buah firma dalam tempoh 6 tahun (2009-2014) di Nigeria. Data dianalisis menggunakan kaedah analisis kandungan, statistik deskriptif dan kesan regresi teguh (robust random effect regression) selepas saringan data yang sesuai dilakukan serta ujian diagnostik. Hasil kajian menunjukkan tahap tertinggi pendedahan pemampanan oleh firma peka alam sekitar yang disenaraikan di NSE (Nigeria Stock Exchange). Walaubagaimanapun, hanya jawatankuasa bebas dan dualiti pengarah urusan menunjukkan hubungan yang signifikan. Kedua-dua faktor ini memberikan hubungan yang berlawanan dengan faktor pendedahan kemampanan maklumat, yang mana menunjukkan jawatankuasa bebas dan dualiti pengarah urusan tidak menggalakkan tahap pendedahan kemampanan maklumat yang tinggi oleh syarikat. Hasil kajian ini membolehkan pihak berkuasa yang berkenaan dalam mengekalkan kecenderungan peningkatan pendedahan kemampanan maklumat pada masa hadapan melalui pendedahan wajib. Tambahan lagi, kajian ini juga boleh dijadikan sebagai tanda aras dalam rombakan utama terhadap “Kod Tadbir Urus Korporat, 2011”.

Kata kunci: - laporan kemampanan, pendedahan kemampanan, firma peka alam sekitar, pentadbir dasar alam sekitar, prestasi kewangan korporat, Nigeria.

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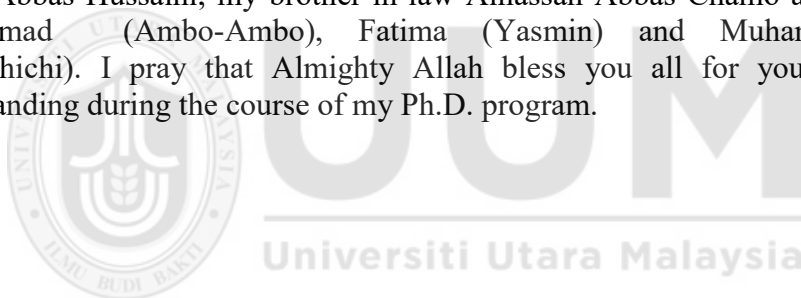


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LIST OF ABBREVIATIONS

BC	Board Characteristics
BC1	Board Independence
BC2	Duality
BC3	Environmental Experts
BC4	Board Size
BOD	Board of Directors
BPPM	Business Planning and Policy Model
CAC	Corporate Affairs Commission
CEO	Chief Executive Officer
CG	Corporate Governance
CO	Foreign ownership concentration
CO ₂	Carbon Dioxide
CP	Corporate Performance
CP1	Firm Size
CP2	Financial Leverage
CP3	Market-to-Book Value
CSED	Corporate Social environmental disclosure
CSER	Corporate Social environmental reporting
CSR	Corporate Social Reporting
CSRM	Corporate Social Reporting Model
DPR	Department of Petroleum Resources
EER	Environmental Evaluation Report/Environmental Effects Reporting
EGASPIN	Environmental Guidelines and Standards for the Petroleum Industry in Nigeria
EIAR	Environmental Impact Assessment Report
EMA	Environmental Management Accounting
EMAS	Environmental Management Accounting System
EMC	Environmental Management Cost
EPA	Environmental Policy Administrator
FME	Federal Ministry of Environment
G4	GRI (2013) – Latest Version of GRI
GGW	Great Green Wall
GHG	Greenhouse Gases
GJN	Global Justice Now
GSD	General Standard Disclosures
IDA	International Development Agency
IFRS	International Financial Reporting Standards
ILO	International Labour Organization
IOC	International Oil Companies
IPIECA	International Petroleum Industry Environmental Conservation Association
ISO	International Standard Organization
IUC	International Union for Conservation
IYC	Ijaw Youth Council
MAN	Manufacturing Association of Nigeria
MASSOB	Movement for the Actualization for the Sovereign State of Biafra
MDG	Millennium Development Goals

MEND	Movement for the Emancipation of the Niger Delta
MNC	Multinational Corporations
MVI	Mean Value Index
NDA	Niger Delta Avengers
NDPSF	Niger Delta People Salvation Front
NDPVF	Niger Delta People Volunteer Force
NEPA	National Environmental Protection Agency
NESREA	National Environmental Standards and Regulations Enforcement Agency
NEWMAP	Nigeria Erosion and Watershed Management Project
NGO	Non-Governmental Organizations
NIWMF	Nigeria Integrated Waste Management Facility
NLNG	Nigerian Liquefied Natural Gas
NNPC	Nigerian National Petroleum Corporation
NO ₂	Nitrogen Dioxide
NPMS	National Production and Monitoring System
OECD	Organization for Economic Cooperation and Development
PA1	Nigerian Stock Exchange
PA2	DPR/NESREA
PIB	Petroleum Industry Bill
RUWES	Rural Women Energy Security
RWES	Rural Women Empowerment Scheme
SADI	Simple Average Disclosure Index
SD	Standard Disclosure
SD1	Disclosure on Company's Strategy & Analysis
SD2	Disclosure on Company's Organizational Profile
SD3	Disclosure on Company's Governance
SD4	Disclosure on Company's Economic Issues
SD5	Disclosure on Company's Sustainability issues
SD6	Disclosure on Company's Social Issues
SD7	Disclosure on Company's Labour Practice & Decent Work
SD8	Disclosure on Company's Human Rights Issues
SD9	Disclosure on Company's Product Responsibility
SD10	Disclosure on Company's Ethical Policies on Environment
SEAR	Social and Sustainability accounting and Reporting
SEC	Security & Exchange Commission
SEM	Structural Equation Model
SEPA	State Environmental Protection Agency
SMA	Sustainability Management Accounting
SME	Small & Medium Enterprises
SO ₂	Sulphur Dioxide
SPDC	Shell Petroleum Development Company
SSD	Specific Standard Disclosure
TBL	Triple Bottom Line Reporting
UK	United Kingdom (Great Britain)
UN	United Nations Organization
UNCSD	United Nations Commission on Sustainable Development
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNSSEI	United Nations Sustainable Stock Exchange Initiative
VRA	Volta River Authority

WBCSD	World Business Council for Sustainable Development
WCED	World Commission on Environment and Development
WCS	World Conservation Strategy
WRI	World Resources Institute
WWF	World Wide-Life Fund



DECLARATION

I declare that this Thesis is based on a study undertaken by me on the “Determinants of Sustainability disclosure by Environmentally Sensitive Firms in Nigeria” in Tunku Puteri Intan Safinaz School of Accountancy (TISSA-UUM), College of Business, Universiti Utara, Malaysia. This research work was conducted solely by me under the supervision of Dr. Basariah Bt. Salim. I proudly declare that this work has never been previously submitted for the award of a degree elsewhere and all ideas and views contain in it are products of my research. Where the views of others have been expressed, proper citations were made and they have been duly acknowledged.



Alhassan Haladu

April 2017



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DEDICATION

This Ph.D. Accounting research work is dedicated to my late father whose high sense of discipline, principles, and steadfastness has made it easier for me to survive under any social, traditional, cultural, economic, and political conditions. While alive, he had always reminded and warned me of my future and life after him. Today I very much appreciate his effort as I have come to understand the full meaning of his words (*Success!*). May Almighty Allah grant him a special place in Al-Janatul Firdausi and may He continue to bless his family and entire legacy. I pray that his gentle soul rest in perfect peace. Ameen Thuma Ameen!

MALLAM HALADU SULAIMAN HAFIZ WASAI (1920-1987)



CHAPTER ONE

INTRODUCTION

1.1 Background of the research

Traditionally, accounting has primarily focused on the financial performance of firms. Ayoola and Olasanmi (2013) suggested that this practice lacks an orientation towards the future as it emphasize on promoting the interest of shareholders only. Managers who wish to maximize businesses' potential should consider broad stakeholders' interest, and decisions taken at any time must consider the implication on all stakeholders (Ayoola & Olasanmi, 2013; Barde, 2009, Huang, Pepper & Bowrey, 2014). Today it has become acceptably clear that the governance and performance of companies in relation to sustainability issues are paramount in their long-term success and that of society as a whole; especially companies' desire for financial gains and improved corporate image (Akbas, 2014; Ayoola & Olasanmi, 2013).

Our environment consists of bio-diversification of the planet, which include different plant and animal species and microorganisms which must be conserved and preserved as a sign of recognition of its significance (Shah, 2014). However, this beautiful gift of nature has come under serious threat facing different types of problems to the extent that today this threat has become a global issue. Problems like climate change, energy demand and supply, waste disposal and removal, species loss, forest loss, resource depletion, alteration of atmospheric conditions and other sustainability issues are growing in magnitude (Beaudry, 2014; Creel, 2010). According to Beaudry (2014), the significant factors responsible for environmental

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APPENDIX A

LISTED COMPANIES IN THE NIGERIAN STOCK EXCHANGE 2011/2012 & 2012/2013

S/N	SECTOR	INDUSTRIES	COMPANIES	CAPITALI ZATION (₦)
1.	Agriculture	Crop Production	3	22.163 billion
		Fishing/Hunting/Trapping	1	
		Livestock/Animal Specialities	1	
		Sub-total	5	
2.	Alternative Securities Market (ASeM)	Property Management	1	4.072 billion
		Food Products	1	
		Personal/Household Products	1	
		Pharmaceuticals	1	
		Electronic & Electrical Products	1	
		Metals	1	
		Petroleum & Petroleum Product Distribution	4	
		Apparels Retailers	1	
		Food/Drug Retailers & Wholesalers	1	
		Sub-total	12	
3.	Conglomerates	Diversified Industries	6	78.805 billion
		Sub-total	6	
4.	Construction/Real Estate	Building Construction	2	129.788 billion
		Building Structure/Completion/Others	2	
		Non-Building/Heavy Construction	2	
		Real Estate Development	2	
		Real Estate investment Trust	2	
		Sub-total	10	
5.	Consumer Goods	Automobiles/Auto Parts	1	2.001 trillion
		Beverages Brewers/Distillers	7	
		Beverages Non-alcoholic	1	
		Food Products	11	
		Food Products Diversified	2	
		Household Durables	4	
		Personal/Household Products	2	
		Sub-total	28	
6.	Financial Services	Banking	16	2.010 trillion
		Insurance Carrier, Brokers & Services	30	
		Mortgage Carrier, Brokers & Services	4	
		Other Financial Institutions	5	
		Sub-total	55	
7.	Healthcare	Healthcare Providers	2	34.555 billion
		Medical Supplies	1	
		Pharmaceuticals	7	
		Sub-total	10	
8.	Information & Communication Technology (ICT)	Computer Based Systems	1	62.009 billion
		Computers & Peripherals	1	
		Electronic Communication Services	1	
		IT Services	2	
		Processing Systems	2	
		Telecommunications Carrier	1	
		Telecommunication Services	2	
		Sub-total	10	
9.	Industrial Goods	Building Materials	13	1.912 trillion
		Electronic & Electrical Products	3	

		Packaging Containers	6	
		Tools & Machinery	3	
		Sub-total	25	
10.	Memorandum Quotations	Diversified Industries	22	61.700 billion
		Sub-total	22	
11.	Natural Resources	Chemicals	1	8.327 billion
		Metals	2	
		Non-Metallic Mineral Mining	1	
		Paper/Forest Products	2	
		Sub-total	6	
12.	Oil & Gas	Energy Equipment & Services	1	217.9 billion
		Integrated Oil & Gas	1	
		Petroleum & Petroleum Products	8	
		Distributors		
		Sub-total	10	
13.	Services	Advertising	1	53.797 billion
		Apparel Retailers	1	
		Auto Mobile/Auto Parts Retailers	1	
		Courier/Flight/Delivery	2	
		Employment Solutions	1	
		Hospitality	1	
		Hotels/Lodging	2	
		Media/Entertainment	1	
		Printing Publishing	4	
		Road Transportation	1	
		Specialty	2	
		Transport-Related Services	2	
		Sub-total	19	
	Grand Total	63	218	6.596116 trillion

Source: NSE FactBook 2011/2012 & 2012/2013 financial year.

APPENDIX B

ENVIRONMENTALLY SENSITIVE LIST OF COMPANIES THAT MAKE UP THE POPULATION OF THE RESEARCH

S/N	COMPANY (POPULATION)	SAMPLE SIZE (82.72%)
AGRICULTURE		
1.	FTN COCOA PROCESSING PLC	4
2.	OKOMU OIL PALM PLC	
3.	PRESCO PLC	
4.	ELLAH LAKES PLC	
5.	LIVESTOCK FEEDS PLC	
CONSTRUCTION/REAL ESTATE		
6.	ARBICO PLC	8
7.	CAPPA & D'ALBERTO PLC	
8.	CONSTAIN (WEST AFRICA) PLC	
9.	G. CAPPA PLC	
10.	JULIUS BERGER NIGERIA PLC	
11.	ROADS NIGERIA PLC	
12.	PINNACLE POINT GROUP LTD	
13.	UACN PROPERTY DEVELOPMENT CO PLC	
14.	SKYE SHELTER FUND	
15.	UNION HOMES REAL INVESTMENT TRUST	
HEALTHCARE		
16.	EKOCORP PLC	8
17.	EVANS MEDICAL PLC	
18.	FIDSON HEALTHCARE PLC	
19.	GLAXO SMITHKLINE CONSUMER (NIG.) PLC	
20.	MAY & BAKER NIGERIA PLC	
21.	MORISON INDUSTRIES PLC	
22.	NEIMETH INTERNATIONAL PHARMACEUTICAL PLC	
23.	NIGERIA-GERMAN CHEMICALS PLC	
24.	PHARMA-DEKO PLC	
25.	UNION DIAGNOSTIC & CLINICAL SERVICES PLC	
INDUSTRIAL GOODS		
26.	ABPLAST PRODUCTS PLC	23
27.	AFRICAN PAINTS (NIGERIA) PLC	
28.	ASHAKA CEMENT PLC	
29.	AUSTIN LAZ & COMPANY PLC	
30.	AVON CROWN CAPS & CONTAINERS (NIGERIA) PLC	

31.	BERGER PAINTS NIGERIA PLC	
32.	BETA GLASS & CO. PLC	
33.	CAP PLC	
34.	CEMENT COMPANY OF NORTHERN NIGERIA PLC	
35.	CHEMICAL AND ALLIED PRODUCTS PLC	
36.	CURTIX PLC	
37.	DANGOTE CEMENT PLC	
38.	DN MEYER PLC	
39.	FIRST ALUMINIUM NIGERIA PLC	
40.	GRIEF NIGERIA PLC	
41.	IPWA PLC	
42.	LAFARGE CEMENT WAPCO NIGERIA PLC	
43.	NIGERIA WIRE INDUSTRIES PLC	
44.	NIGERIAN BOYS MANUFACTURING COMPANY PLC	
45.	NIGERIAN ROPES PLC	
46.	NIGERIAN SEWING MACHINE MANUFACTURING COMPANY PLC	
47.	NIGERIAN WIRE AND CABLE PLC	
48.	PAINTS AND COATINGS MANUFACTURERS NIGERIA PLC	
49.	POLY PRODUCTS NIGERIA PLC	
50.	PORTLAND PAINTS AND PRODUCTS (NIGERIA) PLC	
51.	PREMIER PAINTS PLC	
52.	STOKVIS NIGERIA PLC	
53.	WEST AFRICAN GLASS INDUSTRY PLC	
NATURAL RESOURCES		
54.	ALUMINIUM EXTRUSION INDUSTRIES PLC	5
55.	ALUMINIUM MANUFACTURING COMPANY PLC	
56.	BOC GASES PLC	
57.	HALLMARK PAPER PRODUCT PLC	
58.	MULTIVERSE PLC	
59.	THOMAS WYATT NIGERIA PLC	
OIL & GAS		
60.	ADDAX PETROLEUM NIGERIA PLC	19
61.	AFREN ENERGY RESOURCES NIGERIA PLC	
62.	AFROIL NIGERIA PLC.	
63.	BECO PETRO PRODUCTS NIGERIA PLC.	
64.	CGG VERITAS NIGERIA LIMITED	
65.	CHEVRON NIGERIA PLC	
66.	CONOCO PHILLIPS NIGERIA PLC	
67.	CONOIL NIGERIA PLC	

68.	EQUATOR EXPLORATION NIGERIA LIMITED
69.	ETERNA NIGERIA PLC.
70.	EXXONMOBIL NIGERIA PLC
71.	FORTE OIL NIGERIA PLC
72.	HARDY OIL AND GAS NIGERIA PLC
73.	JAPPAUL OIL & MARITIME SERVICES NIGERIA PLC.
74.	MRS (TEXACO) NIGERIA LIMITED
75.	NIGER DELTA EXPLORATION AND PRODUCTION PLC
76.	OANDO NIGERIA PLC
77.	ORIENTAL ENERGY RESOURCES NIGERIA LIMITED
78.	PETROLEUM GEO SERVICES NIGERIA LIMITED
79.	SHELL PETROLEUM DEVELOPMENT COMPANY NIGERIA PLC
80.	TECHNIP NIGERIA LIMITED
81.	TOTAL NIGERIA PLC

Source: Generated by the Author from FactBook (2011/2012 & 2012/2013).

- Companies found in only one financial year.



APPENDIX C

GUIDE TO SAMPLE SELECTION FROM EACH SECTOR

Summary of the Population of Environmentally Sensitive Sectors Quoted in the NSE

S/N	Sectors	No. of Quoted Firms	Percentage
Environmentally Sensitive Sectors			
1.	Agriculture	5	6.17
2.	Construction/Real Estate	10	12.35
3.	Healthcare	10	12.34
4.	Industrial Goods	28	34.57
5.	Natural Resources	6	7.41
6.	Oil & Gas	10+12	27.16
Total		81	100

Source: NSE FactBook 2011/12, 2012/13 & 2013/14

Summary of Companies in the Sample Size

S/N	Sectors	Total Population	Sample Size ($67/81 \times 100 = 82.72\%$)
1.	Agriculture	5	4
2.	Construction/Real Estate	10	8
3.	Healthcare	10	8
4.	Industrial Goods	28	23
5.	Natural Resources	6	5
6.	Oil & Gas	22	19
Total		81	67

Source: Generated by Author from the List that makes up the Population of the research. 82.72% is selected at random from the population of each sector as sample size.

APPENDIX D

LIST OF COMPANIES THAT MAKE UP THE SAMPLE SIZE OF THE RESEARCH

S/N	SAMPLE SIZE	
	2011/2012 & 2012/2013 FINANCIAL YEAR	
	CODE	AGRICULTURE (AGS)
1	101	FTN COCOA PROCESSING PLC.
2	102	OKOMU OIL PALM PLC.
3	103	PRESCO PLC.
4	104	LIVESTOCK FEEDS PLC.
CONSTRUCTION/REAL ESTATE (CRE)		
5	201	ARBICO PLC.
6	202	CAPPA & D'ALBERTO PLC.
7	203	CONSTAIN (WEST AFRICA) PLC.
8	204	G. CAPPA PLC.
9	205	JULIUS BERGER NIGERIA PLC.
10	206	ROADS NIGERIA PLC.
11	207	PINNACLE POINT GROUP PLC.
12	208	UACN PROPERTY DEVELOPMENT CO. PLC.
HEALTHCARE (HCS)		
13	301	EVANS MEDICAL PLC.
14	302	FIDSON HEALTHCARE PLC.
15	303	GLAXO SMITHKLINE CONSUMER (NIG) PLC.
16	304	MAY & BAKER NIGERIA PLC.
17	305	MORISON INDUSTRIES PLC.
18	306	NEIMETH INTERNATIONAL PHARMACEUTICAL PLC.
19	307	NIGERIAN GERMAN CHEMICALS PLC.
20	308	PHARMA-DEKO PLC.
INDUSTRIAL GOODS (IGS)		
21	401	AFRICAN PAINTS (NIGERIA) PLC.
22	402	ASHAKA CEMENT PLC.
23	403	NIGERIAN BAG MANUFACTURING COMPANY PLC.
24	404	AVON CROWN CAPS & CONTAINERS (NIGERIA) PLC.
25	405	BERGER PAINTS NIGERIA PLC.
26	406	BETA GLASS & CO. PLC.
27	407	CHEMICAL AND ALLIED PRODUCTS PLC.
28	408	CEMENT COMPANY OF NORTHERN NIGERIA PLC.
29	409	CURTIX PLC.
30	410	DANGOTE CEMENT PLC.
31	411	DN MEYER PLC.

32	412	FIRST ALUMINIUM NIGERIA PLC.
33	413	GRIEF NIGERIA PLC.
34	414	IPWA PLC.
35	415	LAFARGE CEMENT WAPCO NIGERIA PLC.
36	416	NIGERIA WIRE AND CABLE INDUSTRIES PLC.
37	417	NIGERIAN ROPES PLC.
38	418	WEST AFRICAN GLASS INDUSTRY PLC.
39	419	PAINTS AND COATINGS MANUFACTURERS NIGERIA PLC.
40	420	POLY PRODUCTS NIGERIA PLC.
41	421	PORTLAND PAINTS AND PRODUCTS (NIGERIA) PLC.
42	422	PREMIER PAINTS PLC.
43	423	STOKVIS NIGERIA PLC.
NATURAL RESOURCES COMPANIES (NRS)		
44	501	ALUMINIUM EXTRUSION INDUSTRIES PLC.
45	502	ALUMINIUM MANUFACTURING COMPANY PLC.
46	503	BOC GASES PLC.
47	504	MULTIVERSE PLC.
48	505	THOMAS WYATT NIGERIA PLC.
OIL & GAS COMPANIES (OAG)		
49	601	AFREN ENERGY RESOURCES NIGERIA PLC.
50	602	AFROIL NIGERIA PLC.
51	603	BECO PETRO PRODUCTS NIGERIA PLC.
52	604	CHEVRON NIGERIA PLC.
53	605	CONOCO PHILLIPS NIGERIA PLC.
54	606	CONOIL NIGERIA PLC.
55	607	EQUATOR EXPLORATION NIGERIA LIMITED.
56	608	ETERNA NIGERIA PLC.
57	609	EXXONMOBIL NIGERIA PLC.
58	610	FORTE OIL NIGERIA PLC.
59	611	HARDY OIL AND GAS NIGERIA PLC.
60	612	JAPPAUL OIL & MARITIME SERVICES NIGERIA PLC.
61	613	MRS (TEXACO) NIGERIA LIMITED.
62	614	NIGER DELTA EXPLORATION AND PRODUCTION PLC.
63	615	OANDO NIGERIA PLC.
64	616	ORIENTAL ENERGY RESOURCES NIGERIA LIMITED.
65	617	PETROLEUM GEO SERVICES NIGERIA LIMITED.
66	618	SHELL PETROLEUM DEVELOPMENT COMPANY NIGERIA PLC.
67	619	TOTAL NIGERIA PLC.

Source: Generated by the Author from the Population of the research (2015)

APPENDIX E

SUMMARY OF COMPANY CODES FOR THE RELEVANT YEARS

SECTOR	NO. OF FIRMS	YEAR					
		2009	2010	2011	2012	2013	2014
		COMPANY/FIRM CODES					
AGRICULTURE (AGS)	4	AGS101-AGS104	AGS105-AGS108	AGS109-AGS112	AGS113-AGS116	AGS117-AGS120	AGS121-AGS124
CONSTRUCTION/REAL ESTATE (CRE)	8	CRE201-CRE207	CRE208-CRE214	CRE215-CRE221	CRE222-CRE228	CRE229-CRE235	CRE236-CRE242
HEALTHCARE (HCS)	8	HCS301-HCS307	HCS308-HCS314	HCS315-HCS321	HCS322-HCS328	HCS329-HCS335	HCS336-HCS342
INDUSTRIAL GOODS (IGS)	23	IGS401-IGS418	IGS419-IGS436	IGS437-IGS454	IGS455-IGS472	IGS473-IGS490	IGS491-IGS408
NATURAL RESOURCES (NRS)	5	NRS501-NRS504	NRS505-NRS508	NRS509-NRS512	NRS513-NRS516	NRS517-NRS520	NRS521-NRS524
OIL & GAS (OAG)	19	OAG601-OAG616	OAG617-OAG632	OAG633-OAG648	OAG649-OAG664	OAG665-OAG680	OAG681-OAG696

Universiti Utara Malaysia

APPENDIX F

CODES AND MEASUREMENT INDICES OF THE VARIABLES

S/N	Code	Variable	Definition	Measurements	Source (Authority)
DEPENDENT VARIABLES					
1.	SD1	Strategy and Analysis	Disclosure of Key Items	Dummy values of 0-5	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
2.	SD2	Organizational Profile	Disclosure of Key Items	Dummy values of 0-5	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
3.	SD3	Governance	Disclosure of Key Items	Dummy values of 0-5	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
4.	SD4	Economic Issues	Disclosure of Key Items	Dummy values of 0-3	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
5.	SD5	Sustainability issues	Disclosure of Key Items	Dummy values of 0-5	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
6.	SD6	Social Issues	Disclosure of Key Items	Dummy values of 0-4	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
7.	SD7	Labour practices and Decent Work	Disclosure of Key Items	Dummy values of 0-2	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
8.	SD8	Human Rights Issues	Disclosure of Key Items	Dummy values of 0-2	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
9.	SD9	Product Responsibility	Disclosure of Key Items	Dummy values of 0-1	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)

10.	SD10	Ethical Policies on Environment	Disclosure of Key Items	Dummy values of 0-1	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
11.	SADI	Simple Average Disclosure Index	The Average Disclosure	Index values of 0-1	Ahmad, Hassan & Mohammad (2003), Sulaiman & Mokhtar (2012) and Monteiro & Aibar-Guzman (2010)
INDEPENDENT VARIABLES					
Policy Administrators (PA)					
12.	PA1	Security and Exchange Commission (SEC)/Nigerian Stock Exchange (NSE)	Survey (Questionnaire)	Mean value index using Likert Scale	Hossain, Islam, & Andrew, 2006; Enahoro, 2009; Sulaiman and Mokhtar, 2012
13.	PA2 (A)	Department for Petroleum Resources (DPR)	Survey (Questionnaire)	Mean value index using Likert Scale	Hossain, Islam, & Andrew, 2006; Enahoro, 2009; Sulaiman and Mokhtar, 2012
14.	PA2 (B)	National Environmental Standard and Regulations Enforcement Agency (NESREA)	Survey (Questionnaire)	Mean value index using Likert Scale	Hossain, Islam, & Andrew, 2006; Enahoro, 2009; Sulaiman and Mokhtar, 2012
Corporate Performance (CP)					
15.	CP1	Firm Size	Value of Total Assets	$\log_{10}(\text{Total Assets})$	Monteiro & Aibar-Guzman, 2010
16.	CP2	Financial leverage	Long-term Debt	Total Debt/Total Equity	Andrikopoulos & Kriklani, 2013
17.	CP3	Market-to-Book value	Value of Firm	Market value/Book value	Andrikopoulos & Kriklani, 2013
Board Characteristics (BC)					
18.	BC1	Board Independence	Non-executive membership	Non-executive members/Executive members	Eng and Mak, 2003; Barako, Hancock & Izan, 2006
19.	BC2	Duality	Independence of CEOs	Dummy values (1 for independent & 0 for non-independent)	Barako, Hancock & Izan, 2006
20.	BC3	Environmental Experts	Environmentalists	Dummy values (1 for Experts & 0 for no Experts)	Sulaiman & Mokhtar, 2012
21.	BC4	Board Size	Quantity	Total Number of Members	Cheng & Courtenay, 2006

Corporate Foreign Ownership Concentration (CO)					
22.	CO1 (A)	Foreign ownership concentration	Proportion of Foreign Interests	Percentage/Dummy of 1 for foreign owned (> 50%)	Al-Farooque, 2010; Delgado-Garcia, Quevedo-Puente, & Fuente-Sabate, 2010; Fauzi, & Locke, 2012; and Maquieira, Espinosa & Vieito, 2012 (Percentage). Monteiro & Aibar-Guzman, 2010; Prado-Lorenzo, Gallego-Alvarez, and Garcia-Sanchez, 2009 (Dummy).
23.	CO1 (B)	Foreign ownership concentration	Proportion of Local Interests	Percentage/Dummy of 0 for local interest (> 50%)	Al-Farooque, 2010; Delgado-Garcia, Quevedo-Puente, & Fuente-Sabate, 2010; Fauzi, & Locke, 2012; and Maquieira, Espinosa & Vieito, 2012 (Percentage). Monteiro & Aibar-Guzman, 2010; Prado-Lorenzo, Gallego-Alvarez, and Garcia-Sanchez, 2009 (Dummy).
Control Variable					
24.	IT	Industrial Type	Nature of Firms	Dummy values from 1 to 6	Ahmed, Hassan & Junaini, 2003; Akbas, 2014; Ismail & Ibrahim, 2009; Smith, Amiruddin, & Yahya, 2007

APPENDIX G

APPORTIONMENT OF SCORES FOR DEPENDENT VARIABLES

CODE	OBSERVATIONS	KEY ITEMS	MEASUREMENT	TOTAL SCORE
SD1	STRATEGY AND ANALYSIS	Relevance	1	5
		Strategy	1	
		Impact	1	
		Risks	1	
		Opportunities	1	
SD2	ORGANIZATIONAL PROFILE	Name of Firm	1	5
		Address of Firm	1	
		Accounting year-end	1	
		Re-statement	1	
		Auditing & Assurance	1	
SD3	GOVERNANCE	Organizational Structure	1	5
		Mission & Vision	1	
		Agreements	1	
		Industrial Membership	1	
		List of Stakeholders	1	
SD4	ECONOMIC ISSUES	Flow of Capital	1	3
		Economic Impact on Society	1	
		Impact on the Economy	1	
SD5	ENVIRONMENTAL ISSUES	Material Used	1	5
		Energy	1	
		Effluents	1	
		Biodiversity & Wastes	1	
		Environmental Management Department	1	
SD6	SOCIAL ISSUES	Social Policy	1	4
		Organizational Responsibility	1	
		Employment	1	
		Management's Relationship with the Community	1	
SD7	LABOUR PRACTICES AND DECENT WORK	Health & Safety	1	2
		Training & Education	1	
SD8	HUMAN RIGHTS ISSUES	Equal Rights	1	2
		Privileges	1	
SD9	PRODUCT RESPONSIBILITY	Environmental Impact of the Product	1	1
SD10	ETHICAL POLICIES ON ENVIRONMENT	Environmental Code of Conduct	1	1
Total Expected Score			33	33
Simple Average Disclosure Index (SADI) = Total Score/Total			33/33 = 1.00	1

Source:	Expected Score		
	Generated by Author from GRI 4. 1 Point is awarded for disclosure of each Key item and 0 for non-disclosure. (Total Maximum Score = 33, Minimum Score = 0).		



APPENDIX H
LETTER TO RESPONDENT

**SCHOOL OF ACCOUNTANCY
COLLEGE OF BUSINESS
UNIVERSITI UTARA, MALAYSIA**

28th May 2015.

Dear Valued Respondent,

The Determinants of Sustainability disclosure by Environmentally Sensitive Firms in
Nigeria

This questionnaire is designed strictly for the purpose of academic research only at the Post Graduate level at Universiti Utara, Malaysia. The research is to evaluate the adequacy, sufficiency or otherwise of items being disclosed on environmental reports by companies listed in the Nigerian Stock Exchange and your role as a government enforcement agency. It is hoped that the outcome of the research was beneficial to the Nigerian society, environment, and economy as a whole. Be rest assured that any information given for the purpose of this research was treated in strict confidence and used only for academic purpose.

Thank you for your kind response and participation in this research.

Alhassan Haladu

(Doctoral Candidate)

APPENDIX I

RESEARCH QUESTIONNAIRE FOR Ph.D. THESIS (DPR & NESREA)

This Questionnaire was prepared to serve government Agencies charged with the responsibility of enforcing environmental standards and guidelines in Nigeria or Agencies considered as environmental policies’ regulatory bodies. The questionnaire targets any of the following in organizations where administered: Chief Executive Officers, or Health, Social, and Environmental Experts in the organization.

A questionnaire was issued for each year starting from 2009 to 2014. With a questionnaire issued to each of the 2 environmental enforcement Agencies of DPR & NESREA, for the sectors under their jurisdiction and covered by the research, it means 6 questionnaires were issued for each year. 1 for DPR and 5 for NESREA. The total questionnaire issue for the entire 6-year period was therefore 36.

AGENCY: DPR & NESREA

PERIOD: 2009/2010/2011/2012/2013/2014 (Please circle the appropriate year)

SECTOR COVERED: Oil & Gas (DPR) and the other 5 Environmentally Sensitive Sectors (NESREA)
Sustainability disclosure-Compliance

The table below contain items scored 1-5 points with the key indicating the equivalent of the responses to the questions. You are required after careful consideration, to tick the appropriate box based on the performance of the sector in relation to the items outlined.

S/N	Items	Code	Scores					
			0	1	2	3	4	5
1.	Number of registered firms.	REF						
2.	The employment of Environmental experts as part of management team.	EMT						
3.	Companies’ disclosure of environmental information.	EIM						
4.	Compliance with local environmental standards and guidelines.	ESG						
5.	Compliance with GRI sustainability disclosure standards and guidelines.	GED						
6.	Compliance with other international sustainability disclosure standards and guidelines.	IED						
7.	The extent of monitoring by local environmental agencies.	EML						
8.	Lack of obstacles to the enforcement of environmental rules.	OER						
9.	Non-sanctioned for violation of sustainability information disclosure.	NVE						
10.	Level of local investment attracted because of sustainability disclosure.	LIA						
11.	Level of foreign direct investment (FDI) attracted because of sustainability disclosure.	FIA						
12.	Prospects for future improvements	PFI						
Total								
Mean values index = [(total scores obtained/total expected scores (60))*5]								

KEY FOR MEAN VALUE INDEX

0.00-0.00 = unacceptable

1.01-2.00 poor

3.01-4.00 = good

0.01-1.00 = very poor

2.01-3.00 = fair

4.01-5.00 = very good



APPENDIX J

RESEARCH QUESTIONNAIRE FOR Ph.D. THESIS (NSE)

This Questionnaire was prepared to serve government Agencies charged with the responsibility of enforcing environmental standards and guidelines in Nigeria or Agencies considered as environmental policies’ regulatory bodies. The questionnaire targets any of the following in organizations where administered: Chief Executive Officers, or Health, Social, and Environmental Experts in the organization.

A questionnaire was issued for each year starting from 2009 to 2014. With a questionnaire issued to the environmental enforcement Agency of NSE for the sectors under their jurisdiction and covered by the research, it means 6 questionnaires were issued for each year. The total questionnaire issue for the entire 6-year period is therefore 36.

AGENCY: NSE

PERIOD: 2009/2010/2011/2012/2013/2014 (Please circle the appropriate year)

SECTOR COVERED: All Six Environmentally Sensitive Sectors

Sustainability disclosure-Compliance

The table below contain items scored 1-5 points with the key indicating the equivalent of the responses to the questions. You are required after careful examination of your records, to tick the appropriate box based on the performance of the sector in relation to the items outlined.

S/N	Items	Code	Scores					
			0	1	2	3	4	5
1.	Number of registered firms.	REF						
2.	Sectors non-environmental impact.	SEI						
3.	Firms environmental policies and strategies.	FPS						
4.	The employment of Environmental experts as part of management team.	EMT						
5.	The strength of Environmental Standards and Guidelines for the sector.	SSG						
6.	Companies’ disclosure of environmental information.	EIM						
7.	Compliance with GRI sustainability disclosure standards and guidelines.	GED						
8.	Compliance with other international sustainability disclosure standards and guidelines.	IED						
9.	Lack of obstacles to the enforcement of environmental rules.	OER						
Total								
Mean values index = [(total scores obtained/total expected (45))*5]								

KEY FOR MEAN VALUE INDEX

0.00-0.00 = unacceptable

0.01-1.00 = very poor

1.01-2.00 poor

2.01-3.00 = fair

3.01-4.00 = good

4.01-5.00 = very good

APPENDIX K

RESULTS OF DATA ANALYSIS (STATA13, SPSS22 & EXCEL 2013)

DATA ANALYSED THROUGH SPSS22

Missing Data

Item	N	Missing	
		Count	Percent
SD1	337	65	16.2
SD2	337	65	16.2
SD3	337	65	16.2
SD4	335	67	16.7
SD5	337	65	16.2
SD6	337	65	16.2
SD7	337	65	16.2
SD8	336	66	16.4
SD9	336	66	16.4
SD10	336	66	16.4
SADI	337	65	16.2
CP1	365	37	9.2
CP2	362	40	10.0
CP3	350	52	12.9
BC1	348	54	13.4
BC2	353	49	12.2
BC3	352	50	12.4
BC4	348	54	13.4
PA1	141	261	64.9
PA2	332	70	17.4
CO	402	0	.0
IT	402	0	.0

Replaced Missing Values

	Result Variable	N of Replaced Missing Values	Creating Function
1	SD1_1	65	SMEAN(SD1)
2	SD2_1	65	SMEAN(SD2)
3	SD3_1	65	SMEAN(SD3)
4	SD4_1	67	SMEAN(SD4)
5	SD5_1	65	SMEAN(SD5)
6	SD6_1	65	SMEAN(SD6)
7	SD7_1	65	SMEAN(SD7)
8	SD8_1	66	SMEAN(SD8)
9	SD9_1	66	SMEAN(SD9)
10	SD10_1	66	SMEAN(SD10)
11	SADI_1	65	SMEAN (SADI)
12	CP1_1	37	SMEAN(CP2)
13	CP2_1	40	SMEAN(CP3)
14	CP3_1	52	SMEAN(CP4)
15	BC1_1	54	SMEAN(BC1)
16	BC2_1	49	SMEAN(BC2)
17	BC3_1	50	SMEAN(BC3)
18	BC4_1	54	SMEAN(BC4)
19	PA1_1	261	SMEAN(PA1)
20	PA2_1	70	SMEAN(PA2)
21	CO_1	0	SMEAN(CO)

22	IT 1	0	SMEAN(IT)
----	------	---	-----------

Validity Statistics for SADI

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.883
Approx. Chi-Square	3745.207
Bartlett's Test of Sphericity Df	45
Sig.	.000

Communalities

	Extraction
SD1	.834
SD2	.872
SD3	.723
SD4	.086
SD5	.881
SD6	.827
SD7	.751
SD8	.829
SD9	.757
SD10	.773

Reliability Statistics for SADI

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.896	.917	10

ANOVA with Friedman's Test

		Sum of Squares	Df	Mean Square	Friedman's Chi-Square	Sig
Between People		2817.230	401	7.026		
	Between Items	5214.512 ^a	9	579.390	2401.551	.000
Within People	Residual	2641.288	3609	.732		
	Total	7855.800	3618	2.171		
Total		10673.030	4019	2.656		

Table 5.8 Jonckheere-Terpstra Test on Sub-Items Disclosure

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Number of Levels in YEAR	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
N	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402
Observed J-T Statistic	37419.500	34237.000	36682.500	36682.500	39094.500	.000	.000	.000	39161.500	38826.500	35912.000	34036.000	36984.000	36615.500	36012.500	.000	33567.000	33567.000	35744.500	36749.500	36012.500	36280.500	35878.500
Mean J-T Statistic	33667.500	33667.500	33667.500	33667.500	33667.500	.000	.000	.000	33667.500	33667.500	33667.500	33667.500	33667.500	33667.500	33667.500	.000	33667.500	33667.500	33667.500	33667.500	33667.500	33667.500	33667.500
Std. Deviation of J-T Statistic	1056.100	695.171	1086.817	1121.940	1070.105	.000	.000	.000	1074.489	1143.386	1147.619	875.970	1120.673	1113.878	850.918	.000	114.424	114.424	783.308	1107.883	1005.937	949.844	1051.142
Std. J-T Statistic	3.553	.819	2.774	2.687	5.071	.000	.000	.000	5.113	4.512	1.956	.421	2.959	2.647	2.756	.000	-.878	-.878	2.652	2.782	2.331	2.751	2.103
Asymp. Sig. (2-tailed)	.000	.413	.006	.007	.000	1.000	1.000	1.000	.000	.000	.050	.674	.003	.008	.006	1.000	.380	.380	.008	.005	.020	.006	.035

Jonckheere-Terpstra Test of Dependent variable Items with SD4 (Pre and Post IFRS)

	SD1	SD2	SD3	SD4	SD5	SD6	SD7	SD8	SD9	SD10	SADI
Number of Levels in YEAR	6	6	6	6	6	6	6	6	6	6	6
N	389	389	389	389	389	389	389	389	389	389	389
Std. J-T Statistic	5.301	4.472	2.105	1.153	3.708	1.821	2.629	3.571	4.622	2.967	4.086
Asymp. Sig. (2-tailed)	.000	.000	.035	.249	.000	.069	.009	.000	.000	.003	.000

J-T= SD1 SD2 SD3 SD4 SD5 SD6 SD7 SD8 SD9 SD10 SADI BY YEAR (2009 2014) SPSS22

Jonckheere-Terpstra Test of Dependent variable without SD4 (Pre and Post IFRS)

	SD1	SD2	SD3	SD5	SD6	SD7	SD8	SD9	SD10	SADI
Number of Levels in YEAR	6	6	6	6	6	6	6	6	6	6
N	389	389	389	389	389	389	389	389	389	389
Std. J-T Statistic	5.301	4.472	2.105	3.708	1.821	2.629	3.571	4.622	2.967	4.137
Asymp. Sig. (2-tailed)	.000	.000	.035	.000	.069	.009	.000	.000	.003	.000

J-T= SD1 SD2 SD3 SD5 SD6 SD7 SD8 SD9 SD10 SADI BY YEAR (2009 2014) SPSS22

Independent Sample Test (Mean Group Statistics) for Pre & Post IFRS

	PERIOD	N	Mean
SD1	1	201	2.55
	2	188	3.47
SD2	1	201	2.84
	2	188	3.57
SD3	1	201	3.25
	2	188	3.58
SD5	1	201	1.98
	2	188	2.60
SD6	1	201	1.80
	2	188	2.08
SD7	1	201	.94
	2	188	1.13
SD8	1	201	.89
	2	188	1.13
SD9	1	201	.20
	2	188	.41
SD10	1	201	.29
	2	188	.43
SADI	1	201	.491542
	2	188	.613834

NSE

Communalities

	Initial	Extraction
A	1.000	.801
C	1.000	.969
D	1.000	.982
E	1.000	.924
F	1.000	.965
H	1.000	.903
I	1.000	.879
K	1.000	.986
B	1.000	.982
AVG	1.0000	.932
KMO		

Extraction Method: Principal Component Analysis.

Reliability Statistics

Cronbach's Alpha	N of Items
.637	9

DPR/NESREA

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.696
Approx. Chi-Square	6207.588
Bartlett's Test of Sphericity	Df
	66
	Sig.
	.000

Reliability Statistics

Cronbach's Alpha	N of Items
.742	12

Independent Sample Test (Pre & Post IFRS) Significance

		Levene's Test for Equality of Variances	
		F	Sig.
SD1	Equal variances assumed	4.510	.034
	Equal variances not assumed		
SD2	Equal variances assumed	4.253	.040
	Equal variances not assumed		
SD3	Equal variances assumed	.796	.373
	Equal variances not assumed		
SD5	Equal variances assumed	1.531	.217
	Equal variances not assumed		
SD6	Equal variances assumed	.303	.583
	Equal variances not assumed		
SD7	Equal variances assumed	.987	.321
	Equal variances not assumed		
SD8	Equal variances assumed	1.786	.182
	Equal variances not assumed		
SD9	Equal variances assumed	76.139	.000
	Equal variances not assumed		
SD10	Equal variances assumed	29.018	.000
	Equal variances not assumed		
SADI	Equal variances assumed	4.370	.037
	Equal variances not assumed		

New Validity Statistics for SADI

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.881
Bartlett's Test of Sphericity	Approx. Chi-Square	3538.473
	Df	36
	Sig.	.000

New Reliability Statistics for SADI

Cronbach's Alpha	N of Items
.905	9

CONVERSION TO PANEL DATA

```
. xtset id year
      panel variable:  id (unbalanced)
      time variable:  year, 2009 to 2014, but with gaps
      delta: 1 unit
```

DESCRIPTIVE STATISTICS OF ENVIRONMENTAL DISCLOSURE SUB-ITEMS

Sub-Items	Obs	Mean	Std. Dev.	Min	Max
relevance	389	.7043702	.456913	0	1
strategy	389	.9023136	.2972725	0	1
impact	389	.6606684	.4740923	0	1
risks	389	.6041131	.4896701	0	1
opportunities	389	.3161954	.465589	0	1
nameoffirm	389	1	0	1	1
addressoffm	389	1	0	1	1
accountingd	389	1	0	1	1
restatement	389	.3213368	.4675912	0	1
auditingasve	389	.4473008	.4978554	0	1
organizational	389	.5141388	.5004437	0	1
missionvision	389	.8277635	.3780721	0	1
agreements	389	.3907455	.4885458	0	1
industrialp	389	.6246787	.4848293	0	1
listofstake	389	.8303342	.3758223	0	1
flowofcash	389	1	0	1	1
economicim	389	.9974293	.050702	0	1
impactonth	389	.9974293	.050702	0	1
materialused	389	.874036	.3322361	0	1
energy	389	.6452442	.4790554	0	1
effluents	389	.2467866	.4316967	0	1
biodiversity	389	.218509	.4137668	0	1
environmen	389	.3007712	.459184	0	1
socialpolicy	389	.8637532	.3434922	0	1
organizational	389	.2699229	.4444912	0	1
employment	389	.596401	.4912507	0	1
relationsh	389	.2236504	.417227	0	1
healthsafety	389	.7532134	.4316967	0	1
traininged	389	.2904884	.4545724	0	1
equalrights	389	.3084833	.462462	0	1
priviledges	389	.7069409	.4557515	0	1
productenv	389	.3059126	.4613863	0	1
codeofcond	389	.3573265	.4798293	0	1

Source: Computed using StataSE13

APPENDIX L

DESCRIPTIVE STATISTICS

DEPENDENT VARIABLE ITEMS

. xtsum sd1 sd2 sd3 sd5 sd6 sd7 sd8 sd9 sd10 sadi cp1 cp2 cp3 bc1 bc2 bc3
bc4 pal pa2 co it

Variable		Mean	Std. Dev.	Min	Max	Observations
sd1	overall	2.997429	1.588455	0	5	N = 389
	between		1.067011	.25	5	n = 67
	within		1.194651	-.835904	5.997429	T-bar = 5.80597
sd2	overall	3.192802	1.596178	0	5	N = 389
	between		1.064808	.25	5	n = 67
	within		1.208201	-.8071979	5.859469	T-bar = 5.80597
sd3	overall	3.411311	1.649891	0	5	N = 389
	between		1.00721	1	5	n = 67
	within		1.317344	-.7553556	6.411311	T-bar = 5.80597
sd5	overall	2.277635	1.5697	0	5	N = 389
	between		1.125243	0	5	n = 67
	within		1.108775	-1.389032	5.444302	T-bar = 5.80597
sd6	overall	1.935733	1.295704	0	4	N = 389
	between		.9863041	0	4	n = 67
	within		.8496007	-.8976007	4.435733	T-bar = 5.80597
sd7	overall	1.033419	.7225484	0	2	N = 389
	between		.5146846	0	2	n = 67
	within		.5133526	-.6332476	2.200086	T-bar = 5.80597
sd8	overall	1.007712	.7232816	0	2	N = 389
	between		.5253257	0	2	n = 67
	within		.5011585	-.6589546	2.174379	T-bar = 5.80597
sd9	overall	.3059126	.4613863	0	1	N = 389
	between		.3395739	0	1	n = 67
	within		.3136363	-.5274207	1.139246	T-bar = 5.80597
sd10	overall	.3573265	.4798293	0	1	N = 389
	between		.3596964	0	1	n = 67
	within		.319404	-.4760069	1.19066	T-bar = 5.80597

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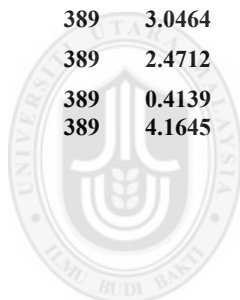
DEPENDENT AND INDEPENDENT VARIABLES

Variable		Mean	Std. Dev.	Min	Max	Observations
sadi	overall	.5506447	.2760662	0	1	N = 389
	between		.1988304	.066675	.96666	n = 67
	within		.1954284	-.1049219	1.056195	T-bar = 5.80597
cp1	overall	6.658138	.8075194	4.7997	9.4982	N = 389
	between		.6699075	5.236033	8.287017	n = 67
	within		.4429669	4.718871	8.297237	T-bar = 5.80597
cp2	overall	4.06776	10.40374	-17.4103	91.4788	N = 389
	between		6.435974	-4.068083	28.43003	n = 67
	within		8.208847	-24.36227	70.04118	T-bar = 5.80597
cp3	overall	7.191919	11.99558	0	81.2952	N = 389
	between		10.81937	.1	55.7712	n = 67
	within		5.677215	-30.23598	40.40282	T-bar = 5.80597
bc1	overall	2.007696	1.387329	.2857	10	N = 389
	between		.9215568	.66665	6.074533	n = 67
	within		1.039336	-2.343237	7.787096	T-bar = 5.80597
bc2	overall	.7172237	.4509286	0	1	N = 389
	between		.2736807	0	1	n = 67
	within		.3617802	-.1161097	1.550557	T-bar = 5.80597
bc3	overall	.1131105	.3171358	0	1	N = 389
	between		.2485447	0	1	n = 67
	within		.1998711	-.7202228	.9464439	T-bar = 5.80597
bc4	overall	9.208226	2.466337	2	18	N = 389
	between		2.04763	5	15.5	n = 67
	within		1.40446	3.808226	17.54156	T-bar = 5.80597
pa1	overall	3.046435	.1026895	2.9088	3.2724	N = 389
	between		.0434645	2.98152	3.0906	n = 67
	within		.0931905	2.937355	3.228235	T-bar = 5.80597
pa2	overall	2.471162	.4785324	1.9159	3.332	N = 389
	between		.327393	2.04085	3.012683	n = 67
	within		.3472225	1.860295	3.193095	T-bar = 5.80597
co	overall	.4138817	.4931621	0	1	N = 389
	between		.4969377	0	1	n = 67
	within		0	.4138817	.4138817	T-bar = 5.80597
it	overall	4.164524	1.477905	1	6	N = 389
	between		1.537057	1	6	n = 67
	within		.046344	3.997858	4.997858	T-bar = 5.80597

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INTERPRETATION OF STANDARD DEVIATION (3 TIMES LOWER AND UPPER LIMITS)

VARIABLE	OBS.	MEAN	STD. DEV.	MIN.	MAX.	L. L.	U. L.	RMKS. 1	RMKS. 2
SD1	389	2.9974	1.5885	0	5	-1.7681	7.7629	G	G
SD2	389	3.1928	1.5962	0	5	-1.5958	7.9814	G	G
SD3	389	3.4113	1.6499	0	5	-1.5384	8.361	G	G
SD5	389	2.2776	1.5697	0	5	-2.4315	6.9867	G	G
SD6	389	1.9357	1.2957	0	4	-1.9514	5.8228	G	G
SD7	389	1.0334	0.7225	0	2	-1.1341	3.2009	G	G
SD8	389	1.0077	0.7233	0	2	-1.1622	3.1776	G	G
SD9	389	0.3059	0.4614	0	1	-1.0783	1.6901	G	G
SD10	389	0.3573	0.4798	0	1	-1.0821	1.7967	G	G
SADI	389	0.5506	0.2761	0	1	-0.2777	1.3789	G	G
CP1	389	6.6581	0.8075	4.7997	9.4982	4.2356	9.0806	G	B
CP2	389	4.0678	10.4037	-17.4103	91.4788	-27.1433	35.2789	B	B
CP3	389	7.1919	11.9956	0	81.2952	-28.7949	43.1787	B	B
BC1	389	2.0077	1.3873	0.2857	10	-2.1542	6.1696	G	B
BC2	389	0.7172	0.4509	0	1	-0.6355	2.0699	G	B
BC3	389	0.1131	0.3171	0	1	-0.8382	1.0644	G	B
BC4	389	9.2082	2.4663	2	18	1.8093	16.6071	G	B
PA1	389	3.0464	0.1027	2.9088	3.2724	2.7383	3.3545	G	G
PA2	389	2.4712	0.4785	1.9159	3.332	1.0357	3.9067	G	G
CO	389	0.4139	0.4932	0	1	-1.0657	1.8935	G	G
IT	389	4.1645	1.4779	1	6	-0.2692	8.5982	G	G



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CORRELATION

```
pwcorr simpleavgdisclindex firmsize financialleverage mbvratio
boardcomposition duality environmentalexpert boardsize nse dprnesrea ownersh
> ipconcentration industrialtype, star (0.05)
```

Variables	simple~x	firmsize	financ~e	mbvratio	boardc~n	duality
enviro~t						
simpleavgd~x	1.0000					
firmsize	0.2120*	1.0000				
financiall~e	0.1414*	0.3216*	1.0000			
mbvratio	0.0864	0.1279*	0.2731*	1.0000		
boardcompo~n	-0.1736*	0.0975	0.0587	-0.0950	1.0000	
duality	-0.0434	0.0374	0.0789	-0.0198	-0.1041*	1.0000
environmen~t	0.2131*	0.1811*	0.0979	0.1805*	0.0113	-0.0101
boardsize	0.1376*	0.1797*	0.0638	0.1393*	0.1499*	0.0902
nse	0.1510*	-0.0316	0.0297	-0.0101	-0.0600	-0.0326
dprnesrea	-0.1121*	-0.1519*	-0.1470*	-0.1608*	-0.0731	-0.0963
ownershipc~n	0.0501	-0.0426	-0.0208	0.1264*	-0.0178	-0.0055
industrial~e	0.2335*	0.2326*	0.1764*	0.1440*	-0.0250	0.0081

Variables	boards~e	nse	dprnes~a	owners~n	indust~e
boardsize	1.0000				
nse	-0.0024	1.0000			
dprnesrea	0.0746	0.1640*	1.0000		
ownershipc~n	0.0328	0.0889	-0.0611	1.0000	
industrial~e	-0.1240*	0.2209*	-0.5754*	-0.0123	1.0000

FIXED EFFECTS REGRESSION

```
. xtreg sadi cp1 cp2 cp3 bc1 bc2 bc3 bc4 pa1 pa2 co it, fe
```

```
note: co omitted because of collinearity
```

```
note: it omitted because of collinearity
```

```
Fixed-effects (within) regression
```

```
Number of obs =
```

```
389
```

```
Group variable: id
```

```
Number of groups =
```

```
67
```

```
R-sq: within = 0.0852
```

```
Obs per group: min =
```

```
4
```

```
between = 0.0186
```

```
avg =
```

```
5.8
```

```
overall = 0.0467
```

```
max =
```

```
6
```

```
F(9,313)
```

```
=
```

```
3.24
```

```
corr(u_i, Xb) = -0.1231
```

```
Prob > F =
```

```
0.0009
```

sadi	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
cp1	.0287462	.0257237	1.12	0.265	-.0218669
cp2	.0008035	.0014043	0.57	0.568	-.0019596
cp3	-.0051594	.0019239	-2.68	0.008	-.0089449
bc1	-.0335284	.0108802	-3.08	0.002	-.0549361

```

bc2 | -.0980788 .0312615 -3.14 0.002 -.159588 -
.0365695
bc3 | .0078449 .0560712 0.14 0.889 -.1024793
.118169
bc4 | .0022946 .0079884 0.29 0.774 -.0134231
.0180123
pa1 | .2493215 .1338881 1.86 0.064 -.014113
.5127559
pa2 | -.0405215 .0365804 -1.11 0.269 -.1124961
.0314531
co | 0 (omitted)
it | 0 (omitted)
_cons | -.1506774 .4343605 -0.35 0.729 -1.005313
.7039582
-----
sigma_u | .20009685
sigma_e | .20811615
rho | .48036268 (fraction of variance due to u_i)
-----
F test that all u_i=0: F(66, 313) = 3.91 Prob > F =
0.0000
. est store fixed

```

RANDOM EFFECTS REGRESSION

```

. xtreg sadi cp1 cp2 cp3 bc1 bc2 bc3 bc4 pa1 pa2 co it, re
Random-effects GLS regression              Number of obs   =
389                                         Number of groups  =
67                                         Obs per group: min =
4                                           avg =
5.8                                         max =
6                                           Wald chi2(11)     =
45.11                                         Prob > chi2       =
corr(u_i, X) = 0 (assumed)
0.0000

```

```

-----
sadi |      Coef.   Std. Err.      z    P>|z|     [95% Conf.
Interval]
-----+-----
cp1 | .0401548   .0206028     1.95   0.051   -.0002259
.0805355
cp2 | .0016098   .0013083     1.23   0.219   -.0009545
.004174
cp3 | -.0026803   .0014445    -1.86   0.064   -.0055115
.0001508
bc1 | -.0376429   .0099131    -3.80   0.000   -.0570723
.0182135
bc2 | -.089821   .028922    -3.11   0.002   -.146507
.0331349
bc3 | .0533835   .0485855     1.10   0.272   -.0418424
.1486094
bc4 | .0109156   .0065722     1.66   0.097   -.0019657
.0237968
pa1 | .2234239   .1286065     1.74   0.082   -.0286403
.4754881
pa2 | -.0364916   .0345078    -1.06   0.290   -.1041256
.0311425
co | .0249852   .0429686     0.58   0.561   -.0592317
.1092022
it | .0023911   .0012819     1.87   0.062   -.0001214
.0049036
_cons | -.3558728   .3978538    -0.89   0.371   -1.135652
.4239062

```

```

-----+-----
sigma_u | .14512155
sigma_e | .20811615
rho | .32716195 (fraction of variance due to u_i)
-----+-----

. est store random

HAUSMAN TEST (FIXED AND RANDOM EFFECTS)
. hausman fixed

-----+-----
V_B)) |      Coefficients      |      (b-B)      |      sqrt(diag(V_b-
      |      (b)      (B)      |      Difference      |      S.E.
-----+-----
cp1 | .0287462 .0401548 -.0114086 .0154024
cp2 | .0008035 .0016098 -.0008063 .0005103
cp3 | -.0051594 -.0026803 -.0024791 .0012708
bc1 | -.0335284 -.0376429 .0041145 .0044843
bc2 | -.0980788 -.089821 -.0082578 .0118659
bc3 | .0078449 .0533835 -.0455387 .0279898
bc4 | .0022946 .0109156 -.008621 .004541
pa1 | .2493215 .2234239 .0258976 .0372342
pa2 | -.0405215 -.0364916 -.0040299 .0121383
-----+-----

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(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 10.74
Prob>chi2 = 0.2939
(V_b-V_B is not positive definite)

```

POOLED OLS REGRESSION

```
. reg sadi cp1 cp2 cp3 bc1 bc2 bc3 bc4 pa1 pa2 co it
Source |               SS              df            MS              Number of obs =
389
-----+-----
7.23
Model |   5.14959221          11   .468144746   Prob > F =
0.0000
Residual |  24.4208819        377   .064776875   R-squared =
0.1741
-----+-----
0.1500
Total |  29.5704741        388   .076212562   Adj R-squared =
.25451
Root MSE =

-----+-----
sadi |      Coef.   Std. Err.      t    P>|t|     [95% Conf.
Interval]
-----+-----
cp1 |   .0487846   .0176516     2.76   0.006   .0140768
.0834925
cp2 |   .0020043   .00137      1.46   0.144   -.0006895
.004698
cp3 |  -.0013211   .0011866    -1.11   0.266   -.0036542
.0010119
bc1 |  -.0433044   .0097705    -4.43   0.000   -.0625158
.024093
bc2 |  -.0560088   .0294767    -1.90   0.058   -.1139682
.0019506
bc3 |   .0857884   .0449538     1.91   0.057   -.0026031
.17418
bc4 |   .0168646   .0057571     2.93   0.004   .0055446
.0281846
pa1 |   .2444338   .1422095     1.72   0.086   -.0351894
.5240571
pa2 |  -.0259917   .0368774    -0.70   0.481   -.0985029
.0465195
co |   .016525   .0269903     0.61   0.541   -.0365454
.0695955
it |   .0021081   .0009697     2.17   0.030   .0002014
.0040148
_cons |  -.5708135   .4291538    -1.33   0.184   -1.414648
.2730214

. est store ols
```

BREUSCH & PAGAN LAGRANGIAN MULTIPLIER TEST

```
. xttest0
Breusch and Pagan Lagrangian multiplier test for random effects
sadi[id,t] = Xb + u[id] + e[id,t]
Estimated results:
              |      Var      sd = sqrt(Var)
-----+-----
sadi |   .0762126   .2760662
e |   .0433123   .2081161
u |   .0210603   .1451215
Test:  Var(u) = 0
chibar2(01) = 77.06
Prob > chibar2 = 0.0000
```

TABULATION OF FIXED, RANDOM AND POOLED OLS

```
. estimates table fixed random ols, star stat(N)
-----+-----
Variable |      fixed      random      ols
-----+-----
cp1 |   .02874624   .04015479   .04878463**
cp2 |   .00080351   .00160976   .00200425
cp3 |  -.00515943**  -.00268034  -.00132114
```


bc1		-.03352845**	-.03764294***	-.04330441***
bc2		-.09807876**	-.08982099**	-.05600878
bc3		.00784486	.05338352	.08578843
bc4		.00229458	.01091556	.01686461**
pa1		.24932145	.2234239	.24443382
pa2		-.04052152	-.03649158	-.0259917
co		(omitted)	.02498525	.01652504
it		(omitted)	.00239108	.00210813*
_cons		-.15067739	-.35587284	-.57081352

N		389	389	389

Legend: * p<0.05; ** p<0.01; *** p<0.001				



APPENDIX M

DIAGNOSTICS TESTS

GOODNESS OF MODEL TEST

```
. predict e
(option xb assumed; fitted values)
```

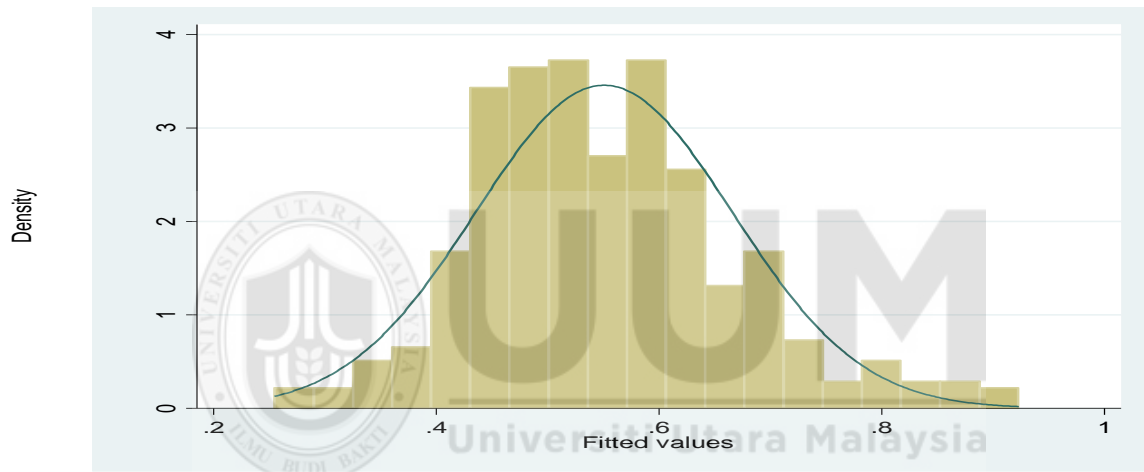
SHAPIRO WILK NORMALITY TEST

```
. swilk e
```

Shapiro-Wilk W test for normal data					
Variable	Obs	W	V	z	Prob>z
e	389	0.96958	8.168	4.991	0.00000

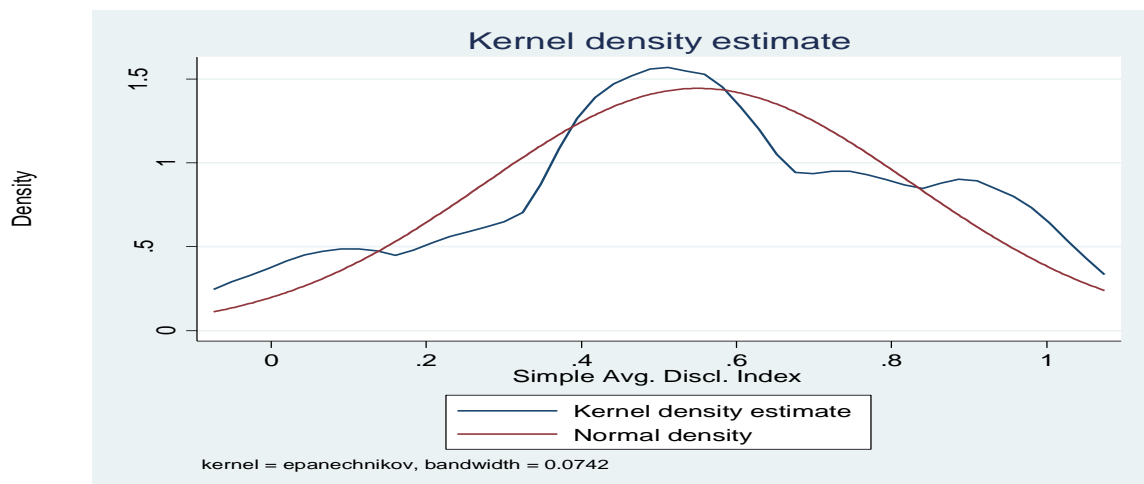
HISTOGRAM

```
. histogram e, kdensity normal
(bin=19, start=-.18283038, width=.03825416)
```



KDENSITY ESTIMATES

```
kdensity sadi, nor
```



Normal $F[(e-m)/s]$

Mean VIF | 1.32

Prob > F = 0.0330

324

hatsq		.1895272	.587816	0.32	0.747	-.9661947
1.345249						
_cons		.0615164	.2007199	0.31	0.759	-.3331248
.4561576						

OMITTED VARIABLE TEST

```
. ovtest
Ramsey RESET test using powers of the fitted values of sadi
Ho: model has no omitted variables
F(3, 374) = 1.41
Prob > F = 0.2402
```

HETEROSKEDASTICITY TEST:

```
. hettest
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of sadi
chi2(1) = 2.51
Prob > chi2 = 0.1131
```

OR

```
. estat imtest
Cameron & Trivedi's decomposition of IM-test
```

Source	chi2	df	p
Heteroskedasticity	118.57	74	0.0008
Skewness	20.33	11	0.0410
Kurtosis	8.90	1	0.0028
Total	147.81	86	0.0000

***CO (DUMMY) & CONTROL VARIABLE

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	116.33	74	0.0012
Skewness	20.47	11	0.0393
Kurtosis	8.69	1	0.0032
Total	145.49	86	0.0001

OR

```
. xttest3
Modified Wald test for group wise heteroskedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (67) = 1.8e+05
Prob>chi2 = 0.0000
```

APPENDIX N

ROBUST REGRESSIONS

RANDOM EFFECTS REGRESSION (ROBUST)

```
. xtreg simpleavgisclindex firmsize financialleverage mbvratior boardcomposition
duality environmentalexpert boardsize nse dprnesrea ownershi
> pconcentration industrialtype, re robust
```

```
Random-effects GLS regression              Number of obs      =       389
Group variable: id                        Number of groups    =        67
R-sq:  within = 0.0701                    Obs per group: min =         4
      between = 0.2408                      avg =         5.8
      overall = 0.1499                      max =         6
                                           Wald chi2(11)       =      35.45
                                           Prob > chi2         =    0.0002
corr(u_i, X) = 0 (assumed)                (Std. Err. adjusted for 67 clusters in
id)
```

		Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
simpleavgisclindex						
firmsize		.0519938	.0354899	1.47	0.143	-.0175651
financialleverage		.000316	.0031559	0.10	0.920	-.0058694
mbvratior		-.0025848	.0027353	-0.94	0.345	-.007946
boardcomposition		-.0444301	.0161125	-2.76	0.006	-.0760101
duality		-.082373	.0351256	-2.35	0.019	-.1512179
environmentalexpert		.055921	.0730112	0.77	0.444	-.0871782
boardsize		.0082181	.009612	0.85	0.393	-.0106211
nse		.239816	.1319663	1.82	0.069	-.0188332
dprnesrea		-.0384019	.0392799	-0.98	0.328	-.1153892
ownershipconcentration		.0204833	.0444643	0.46	0.645	-.0666652
industrialtype		.0272394	.0145303	1.87	0.061	-.0012394
_cons		-.4736918	.398819	-1.19	0.235	-1.255363

CORPORATE PERFORMANCE ESTIMATION (ROBUST)

```
. xtreg simpleavgisclindex firmsize financialleverage mbvratior industrialtype, re
robust
```

```
Random-effects GLS regression              Number of obs      =       389
Group variable: id                        Number of groups    =        67
R-sq:  within = 0.0246                    Obs per group: min =         4
      between = 0.1085                      avg =         5.8
      overall = 0.0676                      max =         6
                                           Wald chi2(4)       =      12.65
                                           Prob > chi2         =    0.0131
corr(u_i, X) = 0 (assumed)                (Std. Err. adjusted for 67 clusters in id)
```

		Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
simpleavgiscli~x						
firmsize		.0572666	.0342447	1.67	0.094	-.0098517
financialleverage		-.0023885	.0028871	-0.83	0.408	-.0080472
mbvratior		-.0017193	.002783	-0.62	0.537	-.0071738
industrialtype		.0395111	.015136	2.61	0.009	.0098451
_cons		.0229316	.2185804	0.10	0.916	-.4054781

BOARD COMPOSITION ESTIMATION REGRESSION (ROBUST)

```
. xtreg simpleavgdisclindex boardcomposition duality environmentalexpert boardsize
industrialtype, re robust
```

```
Random-effects GLS regression              Number of obs   =       389
Group variable: id                        Number of groups  =       67
R-sq:  within = 0.0450                    Obs per group: min =       4
      between = 0.2176                      avg =       5.8
      overall = 0.1243                      max =       6
                                           Wald chi2(5)     =    25.86
                                           Prob > chi2      =    0.0001
corr(u_i, X) = 0 (assumed)
                                           (Std. Err. adjusted for 67 clusters in id)
```

		Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
simpleavgdisclindex							
boardcomposition		-.0415386	.0158294	-2.62	0.009	-.0725637	-.0105135
duality		-.0823591	.034582	-2.38	0.017	-.1501385	-.0145797
environmentalexpert		.0775974	.0687717	1.13	0.259	-.0571926	.2123874
boardsize		.0090566	.0098984	0.91	0.360	-.010344	.0284572
industrialtype		.0406882	.0136726	2.98	0.003	.0138904	.0674859
_cons		.4285024	.1106573	3.87	0.000	.211618	.6453867

POLICY ADMINISTRATORS ESTIMATION REGRESSION (ROBUST)

```
. xtreg simpleavgdisclindex nse dprnesrea industrialtype, re robust
```

```
Random-effects GLS regression              Number of obs   =       389
Group variable: id                        Number of groups  =       67
R-sq:  within = 0.0096                    Obs per group: min =       4
      between = 0.1184                      avg =       5.8
      overall = 0.0643                      max =       6
                                           Wald chi2(3)     =    12.48
                                           Prob > chi2      =    0.0059
corr(u_i, X) = 0 (assumed)
                                           (Std. Err. adjusted for 67 clusters in id)
```

		Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
simpleavgdis~x							
nse		.2100859	.1456805	1.44	0.149	-.0754425	.4956144
dprnesrea		.0050497	.0393864	0.13	0.898	-.0721462	.0822456
industrialtype		.0409344	.0140884	2.91	0.004	.0133216	.0685471
_cons		-.2735852	.3980458	-0.69	0.492	-1.053741	.5065702

CORPORATE FOREIGN OWNERSHIP CONCENTRATION ESTIMATION (ROBUST)

```
. xtreg simpleavgdisclindex ownershipconcentration industrialtype, re robust
```

```
Random-effects GLS regression              Number of obs   =       389
Group variable: id                        Number of groups  =       67
R-sq:  within = 0.0018                    Obs per group: min =       4
      between = 0.1138                      avg =       5.8
      overall = 0.0573                      max =       6
                                           Wald chi2(2)     =    10.70
                                           Prob > chi2      =    0.0047
corr(u_i, X) = 0 (assumed)
                                           (Std. Err. adjusted for 67 clusters in id)
```

```
--
|
Robust
```

simpleavgdisclindex	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ownershipconcentration	.0323497	.0478619	0.68	0.499	-.0614579
.1261573					
industrialtype	.0434383	.0141248	3.08	0.002	.0157543
.0711223					
_cons	.3548665	.0602735	5.89	0.000	.2367325
.4730004					

ENVIRONMENTAL POLICY ADMINISTRATOR REPORTING AS A MODERATOR (ROBUST)

```
. xtreg environmentalreporting firmsizelog10 financialleverage mbvratio
boardcomposition duality environmentalexpert boardsize ownershipconce
> ntration industrialtype, re robust
```

```
Random-effects GLS regression              Number of obs   =      389
Group variable: id                        Number of groups  =       67
R-sq:  within = 0.0484                    Obs per group:   min =        4
      between = 0.1981                      avg =         5.8
      overall = 0.1132                      max =         6
                                           Wald chi2(9)     =    25.22
corr(u_i, X) = 0 (assumed)                Prob > chi2      =    0.0027
                                           (Std. Err. adjusted for 67 clusters in
id)
```

environmentalreporting	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
firmsizelog10	.1079956	.3088809	0.35	0.727	-.4973998
.713391					
financialleverage	.0001316	.000475	0.28	0.782	-.0007994
.0010626					
mbvratio	-.0002699	.0003796	-0.71	0.477	-.0010138
.0004741					
boardcomposition	-.2240251	.0685709	-3.27	0.001	-.3584215
.0896286					
duality	-.0081688	.0047691	-1.71	0.087	-.0175162
.0011785					
environmentalexpert	.0134688	.0103098	1.31	0.191	-.0067381
.0336756					
boardsize	.0198307	.1902123	0.10	0.917	-.3529786
.39264					
ownershipconcentration	-.0008982	.0058199	-0.15	0.877	-.012305
.0105087					
industrialtype	.0029787	.0020971	1.42	0.155	-.0011315
.0070889					
_cons	.5304019	.3230984	1.64	0.101	-.1028594
1.163663					

RATIO OF ENVIRONMENTAL EXPERTS TO NON-ENVIRONMENTAL EXPERTS

ITEMS	NUM.	%
EXPERT	44	11.31
NON-EXPERT	345	88.69

TOTAL	389	100
--------------	------------	------------

CORPORATE OWNERSHIP

OWNERSHIP	NUMBER	%AGE
LOCAL	228	59
FOREIGN	161	41
TOTAL	389	100

MODERATING EFFECTS OF ENVIRONMENTAL POLICY ADMINISTRATORS
. su environmentalreporting firmsizelog10 financialleverage mbvratio boardcomposition
duality environmentalexpert boardsize ownershipconcentr
> ation industrialtype, det

Sustainability reporting

95%	1	1	Skewness	-.2035478
99%	1	1	Kurtosis	2.37412

Firm Size (Log10)

95%	1.8414	1.8567	Skewness	.0248215
99%	1.8567	1.8567	Kurtosis	2.154394

Financial leverage

95%	131.0678	145.0553	Skewness	2.053351
99%	145.0553	145.0553	Kurtosis	6.360493

MBV Ratio

95%	238.3808	277.3158	Skewness	2.359187
99%	277.3158	277.3158	Kurtosis	8.25558

Board Composition

95%	1.5376	1.5738	Skewness	-.1410562
99%	1.5738	1.5738	Kurtosis	2.461716

Duality

95%	9.995	10.631	Skewness	-.534923
99%	10.631	10.631	Kurtosis	1.853249

Environmental Expert

95%	7.4963	7.7461	Skewness	2.525906
99%	7.7461	7.7461	Kurtosis	7.542784

Board Size

95%	2.0352	2.1004	Skewness	-.0351334
99%	2.1004	2.1004	Kurtosis	2.330767

Foreign ownership concentration

95%	9.5407	10.631	Skewness	.5681462
99%	10.631	10.631	Kurtosis	1.624496

Industrial Type

95%	42.5242	46.4768	Skewness	-.4688524
99%	46.4768	46.4768	Kurtosis	2.780665

APPENDIX O

GLOBAL REPORTING INITIATIVE 4 (GRI-4 or G4) SUSTAINABILITY DISCLOSURE INDICATORS

SCORE CARD FOR STANDARD DISCLOSURES

S/N	Code	Disclosure Indicator	Weight Scores	Actual Scores
General Standard Disclosures (GSD)				
1.	G4-01 – G4-02	Strategy & Analysis	2	
2.	G4-03 – G4-16	Organizational Profile	14	
3.	G4-17 – G4-23	Identified Material Aspects and Boundaries	7	
4.	G4-24 – G4-27	Stakeholders Engagement	4	
5.	G4-28 – G4-33	Report Profile	6	
6.	G4-34 – G4-55	Governance	22	
7.	G4-56 – G4-58	Ethics and Integrity	3	
Sub-Total			58	
Specific Standard Disclosure (SSD)				
Specific Standard Disclosure (Economic Category)				
8.	G4-EC01 – G4-EC04	Economic Performance	4	
9.	G4-EC05 – G4-EC06	Market Presence	2	
10.	G4-EC07 – G4-EC08	Indirect Economic Impacts	2	
11.	G4-EC09	Procurement Practices	1	
Sub-Total			9	
Specific Standard Disclosure (Environmental Category)				
12.	G4-EN01 – G4-EN02	Materials	2	
13.	G4-EN03 – G4-EN07	Energy	5	
14.	G4-EN08 – G4-EN10	Water	3	
15.	G4-EN11 – G4-EN14	Biodiversity	4	
16.	G4-EN15 – G4-EN21	Emissions	7	
17.	G4-EN22 – G4-EN26	Effluents and Wastes	5	
18.	G4-EN27 – G4-EN28	Products and Services	2	
19.	G4-EN29	Compliance	1	
20.	G4-EN30	Transport	1	
21.	G4-EN31	Overall	1	
22.	G4-EN32 – G4-EN33	Supplier Environmental Assessment	2	
23.	G4-EN34	Environmental Guidance Mechanism	1	
Sub-Total			34	
Specific Standard Disclosure (Social Category – Labour & Decent Work)				
24.	G4-LA01 – G4-LA03	Employment	3	
25.	G4-LA04	Labour Management Relations	1	
26.	G4-LA05 – G4-LA08	Occupational Health & Safety	4	
27.	G4-LA09 – G4-LA11	Training & Education	3	
28.	G4-LA12	Biodiversity & Equal Opportunity	1	
29.	G4-LA13	Equal Remuneration for Women & Men	1	
30.	G4-LA14 – G4-LA15	Supplier Assessment for Labour Practices	2	
31.	G4-LA16	Labour Practices Grievance Mechanism	1	
Sub-Total			16	
Specific Standard Disclosure (Social Category – Human Rights)				
32.	G4-HR01 – G4-HR02	Investment	2	
33.	G4-HR03	Non-discrimination	1	
34.	G4-HR04 – G4-HR05	Freedom of Association & Collective Bargaining	2	
35.	G4-HR06	Forced or Compulsory Labour	1	
36.	G4-HR07	Security Practices	1	
37.	G4-HR08	Local Rights	1	

38.	G4-HR09	Assessments	1	
39.	G4-HR10 - G4-HR11	Suppliers Human Rights Assessment	2	
40.	G4-HR12	Human Rights Grievance Mechanism	1	
Sub-Total			12	
Specific Standard Disclosure (Social Category – Society)				
41.	G4-SO01 – G4-SO02	Local Community	2	
42.	G4-SO03 – G4-SO05	Anti-Corruption	3	
43.	G4-SO06	Public Policy	1	
44.	G4-SO07	Anti-Competitive Behaviour	1	
45.	G4-SO08	Compliance	1	
46.	G4-SO09 – G4-SO10	Supplier Assessment for Impact on Society	2	
47.	G4-SO11	Grievance Mechanism for Impacts on Society	1	
Sub-Total			11	
Specific Standard Disclosure (Social Category – Product Responsibility)				
48.	G4-PR01 – G4-PR02	Customer Health & Safety	2	
49.	G4-PR03 – G4-PR05	Product & Service Labelling	3	
50.	G4-PR06 - G4-PR07	Marketing Communications	2	
51.	G4-PR08	Customer Privacy	1	
52.	G4-PR09	Compliance	1	
Sub-Total			9	
Grand Total Score			149	



APPENDIX P

KEY CONTACTS OF POLICY ADMINISTRATORS

1. NESREA

No. 4 Oro Ago Street,
Off Mohammed Buhari Way,
Garki – Abuja

Web: nesrea.gov.ng

Email: dg@nesrea.gov.ng or

GSM: +2348096508800, +2348174634670 (Abuja), +2348034524121 (Kano) and +2347093683207 (Laboratory).

2. NSE

Mukhtar El-Yakub Place
Plot 1129, Zakariya Maimalari Street,
Beside Metro Plaza.
Central Business District,
Abuja.

Web: nse.com.ng

Email: nseabuja@nse.com.ng or contactcenter@nse.com.ng

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