**Predictors of Organizational Decoupling in the Context of Corporate Sustainability**



By



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Abstract

PREDICTORS OF ORGANIZATIONAL DECOUPLING IN THE CONTEXT OF

CORPORATE SUSTAINABILITY

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The gap between what firms say and what they do is referred to as organizational

decoupling.  Despite the fact that decoupling is a widespread phenomenon, there is a paucity of

empirical studies that have examined individual level predictors of organizational decoupling,

especially in the context of corporate sustainability.  In this dissertation, utilizing upper echelon

theory, I examine how CEO psychological charactersitics predict policy-practice decoupling in

the environmental and social dimensions of corporate sustainability.  Using a sample of

U.S.manufacturing companies from S&P 1500 during the period  2009-2018, I test the

relationship between CEO personality (FFM traits), CEO value (self-transcendence), and CEO

cognition (cognitive complexity) and policy-practice decoupling in the environmental and social

dimensions of corporate sustainability.

The study finds support for positive relationships between CEO extraversion and CEO

neuroticism, and policy-practice decoupling in the environmental dimension.  The study also

finds support for negative relationship between CEO agreeableness and policy-practice

decoupling in the environmental dimension.  The results negative relationships between CEO

openness to experience and cognitive complexity and policy-practice decoupling in the social

dimension.  The study did not find support for the relationship between self-transcendence and

policy-practice decoupling both in the environmental and social dimensions.  The proposed

moderating effect of board power on the relationships between CEO psychological characteristics and policy-practice decoupling in the environmental and social dimension were not supported.

The study uses novel techniques such as computer-aided textual analysis and machine learning models to measure CEOs' psychological characteristics. Policy-practice decoupling in the context of corporate sustainability was measured using Sustainalytics ESG ratings indicators. An alternate measure for decoupling was developed using GRI reports, 10Ks, and Asset 4 ESG ratings. Similarly, CEO psychological characteristics are measured using open language approach and closed language approach. The study also uses two different sources of CEOs texts to derive psychological characteristics measures. The dissertation aims to contribute to both literatures on organizational decoupling and upper echelons. Developing an empirical measure for policy -practice decoupling may contribute to future empirical research on decoupling, especially in the context of corporate sustainability. Identification of the antecedents of decoupling will enable us to understand how and why decoupling occurs in organizations. Examining psychological characteristics of CEOs as antecedents will advance TMT research by moving beyond the reliance on demographic proxies that characterizes most prior research. The study concludes by discussing the limitations and providing directions for future research.

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Dedication

I have benefited from the affection, support, and care of my family, and I dedicate my dissertation to them.  I dedicate this study to my parents Sasikala and Venugopal who have always encouraged me to pursue my dreams.  Thanks for giving me the freedom to choose what I want to do and for your everlasting love, care, and sacrifice.  I dedicate this study to my wife, Silpa who has been with me throughout the program.  You never demanded anything even in the neediest times, and you have taken care of most of the household duties.  You never complained when I sat on my chair with research papers and computers for the whole day.  Thank you for your incredible patience, unconditional support, kindness, and love.  To my little daughter, Aarabhi, you brought all good fortune to me.  You have filled our lives with happiness and joy.  I am sorry for not giving you the full attention which you deserve.  .  My brother, Ajish Venugopal, and his family has always been inspirational and stood by me.  I thank my grandmother Rajamma, for her care and support.  I remember the support and affection of my parents-in-law Unnikrishnan and Sasikala and my uncles and aunties- Ashok, Anil, Sujatha, and Manju.

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# Chapter 1

# INTRODUCTION

## 1.1.Introduction

Ray Anderson, the founder and chairman of Interface Inc in his famous remark at the

U.S. Embassy, said that " I had a revelation about what industry is doing to our planet. I stood

convicted as a plunderer of the earth. In the future, people like me will go to jail." To me,

Anderson's statement is a representative sample of remorse statement that every C-suite leader

can make at some stage of their corporate career. It is fascinating to understand that CEOs

played an essential role in companies like General Electric, Dupont, Wal-Mart, Tesla, Virgin

Enterprises' commitment to sustainability initiatives. 'The Business Roundtable' in 2019

released a statement signed by 181 CEOs reiterated the point that delivering value to all

stakeholders is important (Wartzman, 2019). Because the first roundtables focused more on

shareholder advocacy, the change in the attitude of CEOs is phenomenal.

Paradoxically, we have seen many firm's commitment to sustainability remains as talk

rather than as action. The academic field has labeled the gap between talk and action as in many

different ways including organizational hypocrisy (Brunsson, 1993), symbolic management

(Westphal & Zajac, 1994), greenwashing (Bowen, 2014), and cheap talk (Farrell & Rabin,

1996), to name a few. The organizational theory literature refers to the gap between talk and

action as decoupling (Crilly et al., 2012; Meyer & Rowan, 1977; Orton & Weick, 1990). Despite

the different ways decoupling has been explained, as a phenomenon, it is at the center of interest

in management research and is drawing significant attention from management scholars

(Yoshikawa et al., 2007).

Even though decoupling is a widespread phenomenon, there is a paucity of empirical studies that can shed light on it. Moreover, the limited empirical studies relied more on qualitative methods such as case studies, ethnographic studies, and historical analysis. Similarly, decoupling studies in the context of corporate sustainability are limited. Scholars argue that in an opaque field like socio-environmental practices, there are high chances of decoupling, and firms can engage in ceremonial adoption (Banerjee, 2008; Wijen, 2014). Anecdotal evidence of organizational decoupling practices in the arena of corporate sustainability support such an argument.

Many scholars agree that the actions and interests of morally devious and power-hungry managers can create organizational decoupling. Yet, there is a shortage of studies that systematically investigate the relationship between top CEO characteristics and organizational decoupling. A significant motivation for this study is the shortage of such studies.

Many anecdotal pieces of evidence from the real world also show the role of CEOs in organizational decoupling behavior, especially in the context of corporate sustainability. For instance, John Browne, the CEO of British Petroleum, was well accoladed for B.P.'s corporate sustainability initiatives. However, John Browne was severely criticized after B.P.'s Deepwater Horizon accident, especially the way he justified the incident. Similarly, Ken Lay, the CEO of Enron, was known for his philanthropic activities, and later after the Enron fraud incident, his philanthropic activities were seen as purely symbolic. Another CEO who was much renowned for his social responsibility activities and then blamed for decoupling was Ramalinga Raju, the CEO of Satyam Computers. In essence, there are enough examples in the practical world where CEOs can lead organizations to various forms of deviant behavior.

The studies that explored the relationship between CEO characteristics and deviant organizational behavior have used the upper echelon theory for explanations (Hambrick & Mason, 1984). Many of the studies based on upper echelon theory used various demographic measures as proxies for the psychological characteristics of executives (Hambrick & Mason, 1984; Wiersema & Bantel, 1992). Scholars have criticized such an approach, and they question the appropriateness of the use of such proxies. For instance, executives' cognitive complexity can be operationalized through age, tenure, or functional experience or a combination of all of them or other demographic indicators. Thus there is disagreement regarding the use of demographic variables as proxies for psychological constructs (Priem et al., 1999). Paying attention to such criticism, scholars are increasingly moving to more reliable proxies developed through novel methods and techniques. Scholars also argue that the progress of upper echelon theory lies in such developments.

In essence, exploring CEO psychological characteristics as a predictor of organizational decoupling may be appealing both to the academicians and practitioners. Moreover, measuring CEO psychological characteristics using novel methods and techniques may help in the advancement of upper echelon theory.

1.2. Research Questions of the Study

In this dissertation, my effort is to answer the following questions:

1. Do the personality characteristics of CEOs predict organizational decoupling in the context of corporate sustainability?

2. Do CEOs' value predict organizational decoupling in the context of corporate sustainability?

3. Do CEOs' cognition predict organizational decoupling in the context of corporate sustainability?

4. What role does board power play in the above relationships?

I am using the U.S. manufacturing firms in the S&P 1500 for a period of 10 years starting from 2009 to 2018, for examining the relationships mentioned above.  Using Sustainalytics ratings,  policy -practice decoupling is measured as the difference between policy and implementation scores of various subcategories of the environmental and social dimension of corporate sustainability.  CEOs 'conference calls transcripts and letters to shareholders are used to derive CEO psychological characteristics.  'The IBM Watson™ Personality Insights service.  'is used to obtain the five-factor model of personality (FFM) and CEO value.  Text analysis using Linguistic Inquiry and Word Count (LIWC) is used to derive cognitive complexity measures.  Board power is measured as a formative construct of three indicators.  The relationship between CEO psychological characteristics and decoupling is tested using a generalized estimation equation (GEE) model.  Supplemental analyses are conducted for checking robustness.

1.3. Contributions

Traditional research on organizational decoupling has been mostly descriptive and has primarily relied on qualitative methods.  Moreover, organizational decoupling in the context of corporate sustainability has not been examined, although this is a context in which the potential for decoupling is high.  An empirical study may contribute to future empirical research on decoupling, especially in the context of corporate sustainability.

This dissertation contributes to both literatures on organizational decoupling and upper echelons.  Identification of the antecedents of decoupling enables us to understand how and why decoupling occurs in organizations.  Examining the psychological characteristics of CEOs as antecedents can advance TMT research by moving beyond the reliance on demographic proxies that characterizes most prior research.  I employ novel research methods such as linguistics and

textual analysis.  I believe that by demonstrating the use of these new analytical techniques in my dissertation can contribute to their wider use to answer a number of research questions.

1.4 Overview of the remaining chapters

In the following chapters, I will attempt to shed light on policy-practice decoupling both in the environmental dimension and the social dimension of corporate sustainability.  In chapter 2, I will present relevant literatures in the area of study, which includes decoupling, corporate sustainability, upper echelon theory, and various CEO psychological characteristics.  Followed by chapter 3, in which I will develop the theoretical arguments and hypotheses.  In chapter 4, I will give an account of the methodology, including the operationalization of the constructs, about data and sources of data.  In chapter 5, I will present the results of empirical estimation and supplemental analysis.  In the concluding chapter, chapter 6, I will discuss the findings, implications, limitations, and future research directions.

Chapter 2

LITERATURE REVIEW

2.1. Organizational Decoupling

Organizational decoupling has long been examined in a variety of academic fields including management, economics, sociology, psychology, criminology, accounting, and finance (Bowen, 2014). Given this breadth of research, decoupling has been labelled in many different ways including organizational hypocrisy (Brunsson, 1993), symbolic management (Westphal & Zajac, 1994), greenwashing (Bowen, 2014), and cheap talk (Farrell & Rabin, 1996), to name a few. Despite the different ways decoupling has been explained, as a phenomenon, it is at the center of interest in management research and is drawing significant attention from management scholars (Yoshikawa et al., 2007).

Traditional organizational research, such as Max Weber's account of bureaucracy, posits that the formal policies of any organizations are supposed to be highly integrated into its activities. Such perspectives consider organizations as systems that are tightly interwoven by different units. Even organizational decision- making is assumed as a top-down process which requires tight coupling (Bussigel, Barzansky, & Grenholm, 1986). Many organizational theorists have questioned such an integrated approach and argued that it is more an ideal than a reality. For instance, Cohen, March, and Olsen (1972) considered organizations as 'organized anarchies' and described the disconnect between problems, solutions, and decision makers within organizations through their garbage can model. Similarly, another earlier proponent who challenged the traditional perspective was Karl Weick, who posits that formal policies represent

the ideal theory of organizational action, whereas organizational actions and decisions are governed by specific contexts and resources (Bromley & Powell, 2012).

Organizations as loosely coupled systems challenge the earlier dominant system theory that considers organizations as coherent units of tightly linked interdependent elements. According to the concept of loose coupling, an organization can act as a closed system to outside forces to produce stability (coupling) and can act as an open system to outside forces to produce flexibility (loose coupling) (Orton & Weick, 1990). In essence, the absence of both responsiveness and distinctiveness makes an organization as a noncoupled system, whereas the presence of both responsiveness and distinctiveness makes an organization a loosely coupled system. The presence of responsiveness alone makes an organization a tightly coupled system, whereas the presence of distinctiveness without responsiveness makes an organization a decoupled system (Orton & Weick, 1990). Research has found that loose coupling results in various organizational outcomes such as persistence, buffering, adaptability, job satisfaction, and effectiveness (Orton & Weick, 1990).

Meyer and Rowan (1977) extended the initial idea of loose coupling by conceptualizing an institutional account of decoupling. They defined decoupling as a "deliberate disconnection between organizational structures that enhance legitimacy and organizational practices that are believed within the organization to be technically efficient" (Boxenbaum & Jonsson, 2017). Drawing on the social construct of reality, the institutional view portrays organizations as the enactment of social beliefs rather the rational agents of transactions. Under such conceptualization, formal elements of organizations emerge owing to the rationalization pressure or "myths" of the external environment (Meyer & Rowan, 1977). Rationalization pressure forces organizations to incorporate various elements that are socially constructed beliefs in the

external environment to gain legitimacy. On the contrary, organizations have internal pressure for economic efficiency, which conflicts with the external pressure for social conformity. Meyer and Rowan posited that firms adopt decoupling as a strategic response to these conflicting pressures (Boxenbaum & Jonsson, 2017). Under a school setting, they found that classroom teachers operate largely independent of formal policies in their classrooms. Similarly, Hagan et al., (1979) in their study of the American court system found that the probation subsystem of courts are legal myths than decision making mechanisms and the structure and functioning of the court system are loosely coupled. In another study, Covaleski and Dirsmith, (1983) found that nurses could decouple their treatment practices from formal regulations and nursing administration could decouple their communications from hospitals administrators thereby saving cost. Thomas (1984) also argued that individuals decouple their behavior from formal rules in the context of prisons. The aforementioned organizations under each study were experiencing competing demands and resource constraints. Hence, they engaged in decoupling to buffer their internal operations while at the same time gaining legitimacy by acting according to the widely shared understandings of the social reality. Similar studies on decoupling in diverse settings such as judicial systems (Hagan et al., 1979), network of state agencies (Covaleski et al., 1985; Kaplan, 1982), baseball teams (Keidel, 1984), and investment coalitions (Bygrave, 1988) confirm the use of decoupling as a buffering strategy as well as legitimacy enhancing strategy.

2.2. Types of Organizational Decoupling

Recent literature distinguishes between two forms of decoupling- "policy-practice decoupling" and "means-ends decoupling" (Bromley & Powell, 2012). The policy-practice decoupling refers to; "… policies adopted purely as ceremonial window dressing or

implemented, evaluated, and monitored so weakly that they do little to alter daily work routines"
(Bromley & Powell, 2012:489). In the event of external pressure, organizations can adopt
multiple and conflicting policies without disturbing the routine operations (Bromley & Powell,
2012). Firms adopt policies that are ceremonial window dressing or even if policies are
implemented, they are loosely monitored. In short, policy-practice decoupling is symbolic
adoption rather than substantive adoption (Scott, 2008; Wijen, 2014). In means-end decoupling:
"…policies are implemented, but the link between formal policies and the intended outcome is
opaque" (Bromley & Powell, 2012:489). Under means-ends decoupling, organizations
rigorously implement and evaluate policies, alter work activities that are related to the goals of
the organization, but such implementation does not lead to organizational effectiveness or
outcomes (Bromley & Powell, 2012). In other words, organizations utilize resources towards the
implementation of policies and practices that are linked to the core goals without having results.
Means-ends decoupling can be characterized as symbolic implementation (Bromley & Powell,
2012)

     Numerous studies have found evidence for policy-practice decoupling. In one of the
earliest studies, Bussigel, Barzansky, and Grenholm (1986) examined medical schools and found
that formal policies and practices are loosely related. In another earlier study, Westphal and
Zajac (1998) found that firms adopt certain governance features, and stock markets react to such
features regardless of implementation. Similarly, Westphal and Zajac in their different studies
analyzed the conditions under which organizations adopted stock repurchase and found that
organizational leaders could use decoupling to enhance their political interest and preserve their
power when boards are less powerful. They found that influential CEOs encourage the adoption
of practices that signal the concern for shareholders' interests but discourage the implementation

of such practices. They argued that such acts are legitimacy enhancing strategies. They also found that a firm's network ties to other firms engaging in similar decoupling as well as the prior experience of firms with decoupling increase the likelihood of decoupling (Westphal & Zajac, 1994, 2001; Zajac and Westphal, 2004). In another study on total quality management (TQM) practices of U.S hospitals, Westphal, Gulati, and Shortell, (1997) found that late adopters of TQM implemented it for ceremonial purposes irrespective of the benefits. Tilcsik, (2010) by studying the budgeting systems inferred that government agency adopts a new budgeting system to satisfy the external stakeholders, and the adoption is purely symbolic in nature. Thus, research shows ample evidence for policy-practice decoupling.

Several studies focused on means-ends decoupling. For instance, Kelly and Dobbin (1998), in their historical analysis of Equal Employment Opportunity/ Affirmative Action (EEO/AA) in the U.S. found a weak link between firms' measurement of EEO/AA and implementation of the policy. Most of the firms assumed that hiring of internal specialist and professional would lead to internalization of diversity values regardless of regulations. In another study, Kalev, Dobbin, and Kelly (2006) studied the effectiveness of the firms' employment practices to promote diversity. They found that firms dedicated extensive resources for diversity enhancing practices such as diversity training, networking, and mentoring. However, these practices had only marginally reduced social isolation of women and minority workers in those organizations. In another context, Sauder and Espeland, (2009) studied school rankings and found that the rankings are weakly linked to the quality of academic work, despite its wide implementation. They observe that law schools may engage in improper behavior and counterproductive behavior to enhance their rankings, which in turn questions the trust and credibility of legal education systems. They demonstrated that many of the efforts aimed at

improving rankings are not related to teaching and learning improvement.  Furthermore, they

also found that various components used under the methodology of rankings such as reputation,

selectivity, post-graduate placements, faculty research and publications, research resources, and

class size are weakly correlated and measured using weak proxies.  In another study, Jamali,

(2010) found that the adoption of International Accounting Standards (IAS) by multinational

corporations are guided by symbolic conformity rather than efficiency or economic gains.

Bromley and Powel (2012) argue that, in general, when organizations adopt or integrate practices

that are not related to core activities such as production, accounting, personnel, management,

evaluation or monitoring will result in means- ends decoupling.

2.3. Why Decoupling

Building on Meyer and Rowan's (1977) work, Orton and Weick (1990) posited that

causal indeterminacy, fragmented external environment, and fragmented internal environment

cause decoupling.  Causal indeterminacy—the ambiguous relationship between means and ends-

is due to due to bounded rationality, selective perception, and uncertainty.  Fragmented external

environment is due to the dispersed stimuli or incompatible expectations whereas fragmented

internal environment is due to selective attention and information asymmetry.  Subsequent

research argues that firms can engage in decoupling to mitigate the conflict with stakeholders

that are developed due to the incompatible expectations of diverse stakeholders (Crilly, Zollo, &

Hansen, 2012).  Stakeholder complicity in decoupling can be further elaborated by looking at

stakeholder consensus (consistency of diverse stakeholders' expectations of firms) and

information asymmetry (discrepancy in the level of information between stakeholders and

managers) about firms' internal practices (Crilly et al., 2012).  The inability of managers to read

the complex environment that is created by the incompatible stakeholder expectations can cause

decoupling. Similarly, in a complex environment, managers may protect the internal

organization by engaging in decoupling (Crilly et al., 2012). Furthermore, the difficulty of

stakeholders to observe firms' internal practices, as well as the lack of adequate information

about internal practices, will provide an opportunity for managers and thereby for firms to

deviate from the stated policies. In essence, the complex interplay between the external

environment and internal organization will lead to decoupling (Crilly et al., 2012).

Means-ends decoupling is more prevalent in the context where there is a blurred link

between firms' action and outcomes, and often, outcomes are difficult to measure. Such

difficulty will lead to the development of rationalization pressure over a period of time.

Similarly, accountability to multiple stakeholders, greater societal pressure due to visibility, and

a weak traditional form of authority create a fragmented rationalized environment. Such

fragmentation of the external environment into various rationalized domains are instrumental in

shaping organizations. Means-ends decoupling can be an outcome of such shaping of

organizations by exogenously constructed rationalities (Bromley & Powell, 2012). Furthermore,

organizations being subjected to multiple institutional logics will result in goal conflicts that

subsequently create means-ends decoupling (Lounsbury, 2001, 2007; Thornton & Ocasio, 1999).

Institutional pluralism can create a complex internal environment that can force organizations to

engage in means-ends decoupling (Greenwood et al., 2011). In essence, highly rationalized and

increasingly fragmented external environment, conflicting institutional logics, and associated

complexities lead to means-ends decoupling (Bromley & Powell, 2012).

2.4. Decoupling in Corporate Sustainability

Even when there are effective socioenvironmental governance mechanisms, firms have

the latitude to deviate from the ideal socioenvironmental behavior. For instance, organizations

can adhere to the three three critical, interdependent, and mutually enforcing pillars of institutions, namely regulative, cognitive, and normative (Scott, 1995) and can engage in responsible businesses.  Similarly firms can commit sufficient resources and effort to achieve the socioenvironmental goals (Lyon & Maxwell, 2004).  Alternatively, organizations may engage in talk about socioenvironmental practices rather than actions.  Thus, Socioenvironmental governance is an organizational context rife with possibilities of decoupling (Wijen, 2014).

Corporations in the 1950s considered development as unidimensional and development was often equated with economic growth and followed Milton Friedman school of thought that "The Social Responsibility of Business is to Increase its Profits" (Friedman, 1970).   Events such as Rachel Carson's book *Silent Spring*  in 1962, the Santa Barbara oil spill in 1969, the Cuyahoga River Fire in 1969, the Seveso disaster in 1976, the Bhopal gas leakage tragedy of 1984, and the discovery of Artic ozone hole in 1985 triggered lot of activist movements against corporations (Hoffman & Georg, 2018).  United Nations published *'Our Common Future'* - a report of the World Commission on Environment and Development (WCED) (also known as Brundtland commission report) in 1987.  The report coined the term "sustainable development."

According to WCED (1987), sustainable development is 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'  The Brundtland report emphasizes the improvement of welfare or quality of life equally and fairly for all human beings, including future generations as well as balancing the extraction and utilization of natural resources within the carrying capacity.  Echoing this notion of sustainable development of the Brundtland report, practitioners and academicians put forth the idea that business should shift from traditional "technocentrism" that is subscribed by the business and "ecocentrism" that is endorsed by the ecologists to "sustaincentrism" to maintain natural life-support systems (Gladwin et al., 1995). Early sustainability researchers viewed firms

as systems that are embedded within other systems such as ecosystems or economic systems and hence they argued that firms should enhance natural environment protection as well as economic performance (Gladwin et al., 1995; Sharma & Vredenburg, 1998).

Researchers have expanded the scope of sustainability research by including the social environment (Bansal, 2002; Hart & Milstein, 2003; Elkington, 1997). Elkington (1997) proposed the triple-bottom-line of sustainability, which comprises of environmental integrity, social equity, and economic prosperity. Environmental integrity principle ensures that the human activities do not lead to the depletion of natural resources such as earth's land, air, and water whereas social equity principle calls for equal and fair distribution of resources and opportunities to all members of the society. Economic prosperity concentrates on the creation and distribution of goods and services, thereby improving the quality of life of the members of the society. Scholars have considered environmental integrity, social equity, and economic prosperity as the three principles that shape sustainable development.

Researchers have used various theories including sociology-based theories such as institutional theory and social movement theory and economic-based theories related to regulations and nonmarket strategies to explain the phenomena of corporate sustainability (Bansal & Song, 2017). For instance, Hart (1995) extended the resource-based view (RBV) by adding natural environment to natural-resource-based view (NRBV) - a theoretical argument predicting that environmental strategies can develop firm specific capabilities and can act as a potential source of competitive advantage. Various scholars have used NRBV in their subsequent research (Aragón-Correa & Sharma, 2003; Russo, 2003).

Another extensively used theory to explain corporate sustainability is stakeholder theory that reflects an ontological position that a firm is equally responsible to different stakeholders and not only to shareholders (Donaldson & Preston, 1995; Freeman, 1995). Stakeholder theory

explains why firms invest their resources in engaging in socially responsible practices such as to

promote local community, reduce carbon footprint, produce eco-friendly products and services,

protect the disadvantaged groups, and improve the working conditions of employees.  Such

socially responsible practices help firms to gain social legitimacy and positive stakeholder

perception, which in turn help firms to maximize the overall cooperation of all stakeholders

(Freeman,1984).  Scholars have used the lens of system theory (Kauffman, 1993) to study

corporate sustainability (Bansal & Song, 2017).  System theory extends the scope of

organizations beyond the internal complexities and looks at the relationship of organizational

systems with broader macrosystems such as planetary boundaries (Whiteman et al., 2013).

System theory perspective considers corporate sustainability practice and its intended outcome as

dynamic and non-linear (Whiteman et al., 2013).  More recently, scholars have used the paradox

perspective, especially to study inherent tensions in corporate sustainability (Hahn et al., 2014).

The paradox perspective argues that when organizations face multiple tensions, they should be

addressed as interrelated contradictions rather than either as simply interrelated (win-wins) or

contradictory (trade-offs) (Smith & Lewis, 2011).

 The exponentially growing population is placing significant demands on natural

resources and lead to a myriad of grand challenges such as climate change and global warming,

scarcity of fresh water, species extinction, localized pollution, energy and food insecurity (Lenox

& Chatterji, 2018).  To elaborate, the scientific community is of the agreement that atmospheric

concentration of greenhouse gases (GHG) such as carbon dioxide ($CO_2$) methane ($CH_4$) and

nitrous oxide ($N_2O$) that leads to a global average temperature increase of 3-5$^o$ C (Wright &

Nyberg, 2015).  Similarly, United Nations (UN) estimates that by 2025, 1.8 billion people living

in different parts of the world will not have access to water and two-thirds of the world

population could live under water stress conditions (Lenox & Chatterji, 2018).  Another grand

challenge, pollution, and environmental degradation is a persistent challenge in many parts of the world. The recent estimate by the Environmental Protection Agency (EPA) estimates that more than 100,000 miles of rivers and streams; 2.5 million acres of lakes, reservoirs, and ponds: and 800 square miles of bays and estuaries are contaminated due to nitrogen and phosphorous pollution reveals the gravity of one of the challenges, water pollution (EPA, 2016). Evidence suggests that species extinction and loss of biodiversity is another significant issue. For instance, the World Resource Institute (WRI) estimates that 75% of the coral reefs around the world are threatened due to human activities and the International Union for Conservation of Nature (IUCN) says that the current species extinction rate is estimated to be between one thousand and ten thousand times higher than what would occur naturally with the total number of threatened species reaching close to 17,000 (Lenox & Chatterji, 2018). All these point to the complex and diverse sustainable challenges that the entire world is experiencing.

International organizations, governments, and other regulatory agencies, business corporations, and non-governmental organizations figure prominently in tackling these grand challenges. Among these institutions, business corporations account for 40% of the revenues of the world economy, and their revenues dwarf the revenue of many national economies. For example, the revenues of the five largest energy corporations-Royal Dutch Shell, ExxonMobil, BP, Sinopec, added up to 3% of global gross domestic product (GDP) (Wright & Nyberg, 2015). In 2012 alone, the reported revenue of Royal Dutch Shell exceeded the GDP of 171 countries making it 26th largest economic entity in the world ahead of countries like Argentina and Taiwan (Keys et al., 2013). Thus, our contemporary economy is dominated by large business corporations who can play critical roles in dealing with sustainability challenges.

The UN adopted 17 Sustainable Development Goals (SDGs) that need to be achieved by 2030. The goals address growth, equality and justice, and sustainability. The first three goals

aimed at ending poverty and hunger (including nutrition deficiencies) and promote health and well-being.  The next nine goals seek to address inequality, injustice, and sustainability in: education, gender, water and sanitation, energy, economic growth and employment (including decent work), infrastructure, industrialization, and innovation, intra-country and inter-country inequality, human settlements, and consumption and production.  The remaining goals are concerned with climate change, marine conservation and sustainability, terrestrial ecosystem conservation, sustainability and biodiversity, peaceful and inclusive sustainable development including 'justice for all' and 'accountable and inclusive institutions at all levels', and global partnership for sustainable development (Windsor, 2018).

Business corporations demonstrate a prominent level of commitment to SDGs, and 9000 companies are part of the UN Global Compact that was established in 2000.  Furthermore, 74% of the world's largest companies now use the Global Reporting Initiative's process for tracking and reporting their sustainability performance (Kiron et al., 2017).  In recent years we have seen a proliferation of corporate sustainability initiatives such as adopting an inspiring value statement with respect to the environment (for example, Microsoft), creating the position of chief sustainability officer (for example- General Electric , DuPont, Nike, Google, AT & T, Walmart, and Coca-Cola), adopting environmental codes of conduct (Responsible Care in the Chemical Industry, Leadership in Energy and Environmental and Design (LEED) standard in the building industry, and the US Food and Drug Administration (FDA) Organic Food Standard in the food industry).  Around 81% of the S&P 500 Index companies are publishing sustainability reports, and 43% of Fortune 500 companies have set targets for greenhouse gas reduction, renewable energy, energy efficiency or combination of these goals.  (Lenox & Chatterji, 2018). Furthermore, large business corporations are designing and developing eco-friendly products and processes.  To illustrate, IBM's Design for Environment (DFE) practices and environmentally

conscious products (ECEP); 3M's "Pollution Prevention Pays" program; Body Shop's environmentally friendly beauty and health care products (Lenox & Chatterji, 2018); P & G's "Tide Coldwater" in U.S and "Ariel Cool Clean" in Europe; Clorox's household cleaning products, Toyota's hybrid gas-electric car-"Prius", FedEx's "Fuel Sense program" (reduced fuel consumption by 36 % and increased capacity by 20 % of their Fleet); HP's "European Recycling Platform" (recycled 20% of the equipment as per Europe's Waste Electrical and Equipment Regulations and helped to save more than $ 100 million); and GE's "Ecomagination" (accounted for more than ninety products and $18 billion revenue in 5 years) (Bower et al., 2011; Nidumolu et al., 2009). As per the research published by the Conference Board in 2015, revenues from green products for companies like GE, Philips, Siemens, Panasonic, and Toshiba had grown by 98% between 2010 to 2013 whereas the overall sales had grown only 15% for the same period (Lenox & Chatterji, 2018). In fact, Philips reported that green products accounted for 54% of their sales in 2016 (Lenox & Chatterji, 2018).

Despite the fact that corporations play a significant role in the paths to sustainability, some researchers argue that those initiatives are responses to the broader criticism of industrialization (Banerjee, 2001, 2008; Hart, 1997; Newton & Harte, 1997). These scholars consider sustainable practices of corporations as strategies to maintain positive public perceptions and often are outcomes of regulations rather than voluntary activities. Corporations portray themselves as interested in sustainability to avoid regulatory control, and sustainability initiatives are a new form of selling strategies (Banerjee, 2001; Newton & Harte, 1997). There is evidence in support of scholars' line of argument. For instance, despite the fact that large energy giants such as Chevron, ExxonMobil, Saudi Aramco, BP, Gazprom, and Royal Dutch shell invest in sustainability practices, these corporations are key emitters of GHG, and their emissions exceed many small nations (Patenaude, 2010). A substantial number of corporations enjoy

numerous benefits such as tax concessions, subsidies, flexible workforce, and many non-financial benefits, and yet their sustainability efforts are not adequate.  For example, corporations in the United States receive direct subsidies that ran over $75 billion (Hertz, 2002) and the irony is that the poorer states in the U.S. having greatest income equality offer the largest tax concessions (Banerjee, 2008).  In simple terms, these scholars are saying that companies are making loud public commitments to the principle of sustainability and using buzzwords such as "stakeholder engagement," "natural capital," "sustainable capital," "transparency," "accountability" and even the academic world is attracted to such captivating words. Nonetheless, the critical question to ask is whether there is real action behind this rhetoric.

The fact that corporate sustainability is a highly opaque field makes it so fertile for decoupling practices.  In an opaque field, it is difficult to identify the characteristics of the field, challenging to establish a causal relationship between policies and practices, and extremely difficult to measure the outcomes of implemented policies (Briscoe & Murphy, 2012; Bromley & Powell, 2012; Jiang & Bansal, 2003).  Corporate sustainability is a complex task that requires firms to address multiple desirable yet conflicting economic, environmental and social outcomes that operate in different time frames and different logics (Hahn et al., 2017).  Furthermore, firms can adopt heterogenous practices to achieve sustainability goals.  For instance, firms can mitigate their adverse effect on the environment by reducing $CO_2$ emissions, by recycling waste and water, and relying on renewable energies.  They can enhance their social contributions by employing more women, reducing workplace injuries and accidents, and improving work environments.  Thus, an element of equifinality exists in achieving the goals of the triple bottom line that leads to causal indeterminacy.  Furthermore, an element of uncertainty and ambiguity is related to achieving complex goals such as sustainability (Bromley & Powell, 2012).

Firms are attempting to balance social, economic, and environmental goals through corporate sustainability practices. Despite the fact that these goals are mutually reinforcing, there exist an inherent tension between these goals (Slawinski & Bansal, 2012). Under such circumstances, firms can engage either in decoupling (Elsbach & Sutton, 1992; Fiss & Zajac, 2006; Meyer & Rowan, 1977; Westphal & Zajac, 2001) or adopt compromise strategies (Oliver, 1991; Rowan, 1982). Nonetheless, firms resort to decoupling than compromise, as it may be difficult to adopt compromise strategies under conditions of competing logics (Pache & Santos, 2013).

Many firms engage in decoupling in the field of corporate sustainability practices. They often exaggerate their sustainability activities and claim high commitment to sustainability development principles. For instance, Shell claimed that they are striving to be a 'good neighbor' in Nigeria without cleaning up the oil spills that ruin villages and create health issues for communities living around oilfields. Similarly, British American Tobacco stresses the importance of high safety and health standards for workers and claims to provide local farmers with protective clothing and necessary training. However, the contract farmers in Kenya and Brazil are denied those protections, and they report chronic-ill health due to tobacco cultivation. In another case, Coca-Cola emphasizes the use of natural resources responsibly, but its Indian subsidiary is accused of depleting village wells in an area where water is scarce (Aid, 2004).

Greenwashing is decoupling in the context of the environmental realm (Lyon & Montgomery, 2015) in which firms mislead consumers regarding the environmental practices or the environmental benefits of its products and services (Delmas & Burbano, 2011). For instance, General Electric through its "Ecomagination " campaign widely advertised its environmental initiatives and simultaneously lobbied to fight the new clean air EPA requirements. Similarly, LG electronics mis-certified its refrigerators as 'Energy star' models without meeting the energy

efficient standards required to earn such certification (Delmas & Burbano, 2011).  Short and

Toffel, (2010), in their study of environmental policies of industrial facilities, demonstrate that

heavy regulatory surveillance encourages industrial facilities to comply with self-regulations

under the Clean Air Act Standards and such compliance is symbolic in nature.  Similarly, Lyon

and Maxwell, (2011) in their study, explained how BP had used its investments in renewable

energy to divert the attention from its environmentally harmful petroleum exploration.

In another review study, Blackman and Rivera (2011) found that benefits for producers

due to environmental certifications are limited, which signifies means-ends decoupling.  In

another study, Boiral (2007) found that adoption of ISO 14001 had an ambiguous effect on

environmental management performance, which implies that the adoption of such certifications

are symbolic implementations and are distinct from outcomes.  In the context of voluntary

disclosures, Kim and Lyon (2011) and Short and Toffel (2010) have shown that firms report

greenhouse reductions, whereas the emission increases over time.  They also found that firms'

participation in the Department of Energy's 'Voluntary Greenhouse Gas Registry' (section

1605(b) of the Energy Policy Act of 1992)  is ceremonial due to regulatory pressure.  Darnall and

Sides (2008) in their meta-analysis study comprising 30,000 firms found that the participation of

firms in voluntary environmental programs (VEPs) were not improving environmental

performance.  Actually, nonparticipants significantly improve their environmental performance.

Similarly, in another study related to the context of voluntary environmental agreements (VAs),

Delmas and Montes-Sancho (2010), show that the participation of firms in VAs have not

significantly reduced their emissions as compared to non-participating firms.

More recently, Graafland and Smid (2019) in their study found that high quality CSR

policies (measured by scope and level of details) reduce policy-practice decoupling, whereas

high quality CSR implementation programs (measured by scope, the use of targets, and the use of strict deadlines) reduce means-ends decoupling.  In another study, Tashman, Marano, and Kostova (2019) explored emerging market multinational CSR decoupling.  They found that institutional voids in the home country of emerging market multinationals increases CSR decoupling.  They also found that internationalization of Emerging market multinationals reduces CSR decoupling.  All these studies show that decoupling in the context of corporate sustainability is an area worth exploring.

Despite the fact that decoupling in the context of corporate sustainability is a promising avenue, there are only a limited number of studies on the predictors of organizational decoupling in corporate sustainability.  To name a few, Delmas Burbano (2011) proposed a framework that considered different level predictors of decoupling.  At the external level, they considered regulatory environment and presence of activist, NGO, and media.  They argue that lax and uncertain regulatory environment increases the chances of decoupling whereas presence of activists, NGOs and media pressure reduce decoupling.  At the organizational level, they looked at firm characteristics, incentive structure and ethical climate, effectiveness of intra-firm communication, and organizational inertia.  They propose that firms with high visible characteristics such as firm size, and profitability are subjected to diverse types of scrutiny which in turn reduce the chances of  decoupling.  Incentive pressure to achieve short-term goals and organizational inertia to implement sustainable practices can increase decoupling.  The presence of an ethical climate and effective intra-communication can reduce decoupling.  They proposed individual psychological characteristics such as optimum bias, narrow decision framing, and hyperbolic intertemporal discounting can increase decoupling.  In a recent study Sauerwald and Su (2019), examined the relationship between CEO overconfidence and CSR decoupling.  They

found that CEO overconfidence increases CSR decoupling. They also found that presence of outside directors with CSR expertise and outside directors with ownership mitigates the impact of CEO overconfidence on CSR decoupling.

Determining the predictors of corporate sustainability decoupling can contribute to the growing body of literature, especially predictors related to strategic leadership. A significant theoretical perspective that can be used to understand the role of strategic leadership in corporate sustainability decoupling is upper echelons theory.

2.5. Upper Echelons Theory

The central tenet of upper echelons theory is that executives' psychological characteristics (including values, cognition, and personality) and observable experience (including age, experience, formal education, and functional background) influence their firms' strategic choices and outcomes (Hambrick & Mason, 1984). Upper echelon theory posits that when executives are confronted with a myriad of events, trends, and conditions both from the internal and the external environments that are beyond their comprehension, they rely on their executive orientation. Executive orientation is shaped by their psychological characteristics and observable experience, which in turn serve as the basis for arriving at a highly personalized 'construed reality.' The construed reality is developed through a three-stage filtering process that comprises of a limited field of vision, selective perception, and interpretation. Construed reality, thus formed, will influence their firms' strategic choices and organizational performance. Subsequent research has shown significant evidence for the link between executive orientation and organizational strategies and outcomes. For instance, scholars have found that executives' values (Agle, Mitchell, & Sonnenfeld, 1999; Boivie, Lange, McDonald, & Westphal, 2011; Chin, Hambrick, & Treviño, 2013; Ritchie, Anthony, & Rubens, 2004; Thompson & Phua, 2005), their thinking style (McNamara, Luce, & Tompson, 2002), functional backgrounds

(Waller et al., 1995), and tenures (Finkelstein & Hambrick, 1990) influence executives' strategic choice and organizational performance.

In recent years, studies focusing on characteristics of chief executive officers (CEOs) has grown significantly. As a prominent member of the top management team, CEOs play a significant role in setting strategic direction as well as its implementation (Calori, Johnson, & Sarnin, 1994; Gioia & Chittipeddi, 1991). Furthermore, the power of CEOs, their control over the TMT composition, and their visbility makes them as interesting strategic leaders for research. Despite their importance for researches, there are many challenges associated with CEO research. One such challenge is obtaining valid measures of CEO charactersitics using surveys (Finkelstein et al., 2009). CEOs are often reluctant to participate in surveys (Cycyota & Harrison, 2002). Moreover, it is difficult to obtain secondary data on CEO characteristics. Following Hambrick and Mason's (1984), upper echelon theory, scholars have used observable demographic variables such as age, gender, education, and functional background in their research.

To name a few studies, Barker and Mueller's (2002) study on the relationship between CEOs' tenure and functional experience, and firms' R & D. The found that firms' R & D spending increases with CEOs' tenure and their science degrees. In another study, Carpenter, Sanders, and Gregersen (2001) found that CEOs' international experience enhances firm performance. Similarly, Hitt and Tyler (1991) found that age, education, and experince of CEOs infleunce firms' strategic decision models. Yang et al. (2011) found that experience, age ,and network of CEOs influence new ventures' time to initipal public offerings. In another study, Tihanyi et al., (2000) found that the average tenure of CEOs and their education background, and international experience affect firms' global strategic posture. In another study, Lewis and Walls

(2014) found that CEOs' educational background and tenure affect firms' environmental disclosure.

Several studies have explored various moderators and mediators that interact with CEOs' observable charactersitics and significantly impacts firms' strategic choices and outcomes. For instance, in an early study, Hambrick and Finkesltein (1987) introduced managerial discretion as a key moderator that governs the relationship between CEO characteristics and firm's choices. In a later study, Finkelstein and Hambrick (1990) empirically tested the moderating effect of managerial discretion and found that the impact of executive-team on firms' strategy and performance depends on the level of managerial discretion. Hambrick (2007) stressed that the assumptions of upper echelon theory are more valid in the context of high managerial discretion.

The earlier approach in upper echelon research on focusing on observable demographic characterisitics and using surface level variables as proxies for deep psychological characteristics contributed to the progress of upper echelon theory. Nonetheless, such approach has drawn heavy criticism. In an early criticism, Lawrence (1997) argued that the use of demographic variables as a black box approach and emphasized that in order to draw meaningful theoretical conclusions by using multiple demographic variables, these variables need to have high realibility coefficient. Scholars argued that it is difficult to clearly ascribe the obseved effects to the proposed psycholigcal constructs with the use of proxies (Carpenter et al., 2004; Pettigrew, 1992). Scholars also raised concerns about the operational validity of demographic measures. They argued that the use of demographic proxies is a methodoligcal convenience and and demographic variables are not key drivers of strategic processes and choices instead, deep pyscholgical characteristics determine strategic processes and choices. In essence, scholars arued for a fine-grained approach for using measuring psychological constructs rather than demographic variables (Colbert et al., 2014; Priem et al., 1999). Such criticism against the use

of surface level proxies encouraged scholars to study CEO psychological characteristics such as personality, values,and cognition. In a recent review of CEO research, Busenbark et al.(2018) observed that research based on CEOs' psychological characteristics is becoming increasly popular.

2.6. CEO Psychological Characteristics

2.6.1. CEO Personality

An important psychological charactersitic of CEOs that has been examined is CEO personality. Among the various models used to study personality, the five factor model of personality (FFM) which has subsequently been labelled as "Big Five" (Goldberg, 1990) is prominent, and even all other models can be mapped to FFM (Judge et al., 1999). Tupes and Christal's (1961) reanalysis of data collected by Raymond and Cattell lead to the development of FFM, and they are typically credited with the discovery of FFM (Judge & Bono, 2000). FFM has been refined subsequently through extensive analysis of trait adjectives in various languages, factor analytic studies, and validation of its dimensions by expert judges (McCrae & John, 1992). Furthermore, the generalizability of FFM across cultures has been established through research in various countries (McCrae & Costa Jr, 1997) as well as research evidence that shows that FFM is stable over time (Costa & McCrae, 1988; Digman, 1989).

The dimensions comprising FFM are neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Neuroticism represents the tendency of an individual to exhibit poor emotional adjustment and experience negative affects, including anxiety, insecurity, and hostility. Extraversion represents the tendency of an individual to be assertive, active, sociable, and experience positive affects, including energy and zeal. Openness to experience shows the creative, imaginative, nonconforming, unconventional, and autonomous nature of the individual. Conscientiousness reflects the achievement orientation and dependability nature of

the individual.  Agreeableness shows the tendency of an individual to be altruistic (empathetic, kind, cooperative, gentle, and trustworthy) and compliant (modest and avoiding conflict) (Judge et al., 1999; Judge & Bono, 2000).

FFM is a valid instrument that has been used to understand CEO personality and its relationship with various organizational activities.  For instance, Peterson, Smith, Martorana, & Owens, (2003) in their study using FFM dimensions, found that CEO personality affects top management team processes which in turn impact firms' sales growth and return on investment and assets.  Another study using FFM dimensions found that CEO personality is related to strategic flexibility, which in turn mediates the relationship between CEO personality and firm performance (Nadkarni & Herrmann, 2010).  In a similar vein, the same authors found that among the FFM traits, extraversion and openness enhances initiation of strategic change, whereas conscientiousness hinders change initiation.  They also found that conscientiousness and emotional stability (opposite of neuroticism dimension)  improved performance effects of strategic change implementation whereas agreeableness hinders both initiation and performance effects of implementation (Herrmann & Nadkarni, 2014).

In a recent study, Malhotra etal., (2018) found that extraverted personality charactersitics influence growth strategies of their firms.  They found that extraverted CEOs are more prone to engage in large mergers and acquisitions.  In another recent study, Benischke, Martin, and Glaser (2019) found that CEO conscientiousness strengthens the negative relationship between CEO equity risk bearing and strategic risk taking whereas extraversion and openness weaken the strategic risk taking in response to equity risk bearing.

In addition to studying five factor traits of personality, scholars have studied various CEO personality traits such as locus of control, core self-evaluations, optimism, hubris, and narcissism.  The research found that CEO's locus of control had a significant impact on firms'

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strategies, structure, and performance (Miller & Toulouse, 1986).  Similarly, scholars found that

CEOs with an 'internal locus' of control perceive higher managerial discretion (Carpenter &

Golden, 1997) and perform better even in high stressful situations (Anderson, Hellriegel, &

Slocum Jr, 1977). CEOs having high core self-evaluations tend to persist with their initiated

strategies and deviate from industry standards (Hiller & Hambrick, 2005).  High core self-

evaluation of CEOs are strongly related to transformational leadership (Resick et al., 2009), and

entrepreneurial orientation of the firms (Simsek et al., 2010).  Scholars found that CEO hubris

(or extreme self-confidence) leads to high premiums for acquisitions (Hayward & Hambrick,

1997), launch of risky products (Simon & Houghton, 2003), overestimation of returns to their

investments (Malmendier & Tate, 2005) and less engagement in socially responsible activities

(Tang et al., 2015).

Scholars have also examined the charismatic leadership style of CEOs and found that

such a leadership style help to gather external support for their organizations (Flynn & Staw,

2004) as well as favorable recommendations from analysts (Fanelli et al., 2009).  CEO's

charismatic leadership style increases the social responsibilities of their firms (Wowak et al.,

2016) and often, charismatic CEOs are perceived as corporate saviors (Khurana, 2002).  In a

similar vein, scholars found that another personality trait- CEO narcissism is related to strategic

dynamism, grandiosity, size, and number of acquisitions and fluctuations in organizational

performance (Chatterjee & Hambrick, 2007) and narcissistic CEOs respond to success

differently and are in search for social praise (Chatterjee & Hambrick, 2011).  Petrenko, Aime,

Ridge, and Hill (2016) demonstrated that CEO narcissism is related to high CSR.

2.6.2. CEO Values

Another important CEO psychological characteristic that has been examined is CEO

values.  Scholars have examined how CEO values affect firms' outcomes such as performance,

sales growth, shareholderism, employee wages, and corporate social responsibility (Bromiley &

Rau, 2016). For example, in a breakthrough study, Chin, Hambrick, and Treviño (2013) found

that a liberal CEO who has a preference for egalitarianism, inclusiveness, and environmental

protection was associated with CSR. In this study, they considered CEO ideology as an

interconnected constellation of value systems (Jost et al., 2009) and developed a multi-item

index based on political donation behaviors to assess CEOs on a conservatism-liberalism

continuum. In subsequent studies, scholars used the same index and demonstrated that CEO

liberalism is related to egalitarian pay arrangements within TMTs (Chin & Semadeni, 2017),

higher evenhanded resource allocations within multibusiness firms (Gupta et al., 2018), and

formation of lesbian, gay, bisexual, and transgender employee activist groups within their firms

(Briscoe et al., 2014).

In another study, Adams, Licht, and Sagiv (2011) found that self-enhancement values are

positively associated with shareholder wealth maximization whereas self-transcendence is

negatively associated with shareholder wealth maximization. Another study by Berson, Oreg,

and Dvir (2008) showed that CEO self-directive values were associated with innovation-oriented

cultures, while security values were associated with bureaucratic cultures and benevolence

values were related to supportive cultures. Similarly, Ormiston and Wong (2013) found that the

relationship between corporate social responsibility and irresponsibility is moderated by CEO's

moral identity symbolization (the degree to which CEO expresses his morality outwardly to the

public through actions and behavior) such that a high moral identity symbolization enhanced the

relationship as compared to a low moral identity symbolization. In similar vein Ling, Zhao, and

Baron, (2007) found that firms' age and size moderated the relationship between new venture

performance and founder-CEOs' collectivism and novelty values. They found that collectivism

enhances performance in older and larger firms, whereas novelty enhances performance in

younger and smaller firms.  In another study Ng and Sears (2012) , found that high social values

lead to the implementation of diversity practices in their organizations.

### 2.6.3. CEO Cognition

The upper echelon theory postulates that the cognitive model of executives will be

reflected in their field of vision, selective perception of information, and interpretation of

information and thus will influence their strategic choices (Hambrick & Mason, 1984).  The

cognitive model comprises of cognitive content, cognitive structure, and cognitive style

(Finkelstein et al., 2009).  Cognitive content refers to the knowledge, assumptions, and beliefs

that stem from the professional and personal experiences of the executive (Finkelstein et al.,

2009).  The cognitive structure shows how the content is arranged, connected or situated in the

executive's mind (Finkelstein et al., 2009) which is also referred as 'casual map' (Axelrod, 1976;

Huff, 1990). or 'terrain structures' (Isenberg,1984).  Cognitive style describes how an executive

gather and process information (Finkelstein et al., 2009).

Scholars have examined how different aspects of CEO cognition affect various

organizational decision making and choices (Bromiley & Rau, 2016).  Under cognitive content,

scholars examined attention (Cho & Hambrick, 2006; Ocasio, 1997), selective perception

(Sutcliffe & Huber, 1998), cognitive maps (Reger & Huff, 1993), and blind spots (Zajac &

Bazerman, 1991).  Tripsas and Gavetti (2000) in their influential study found that if CEOs

beliefs are not aligned with available opportunity, firms will not be able to respond to those

opportunities even if they have technological capabilities.  In a similiar vein, Eggers and Kaplan

(2009) examined the interaction of managerial cognition with organizational capabilities and

found that such interactions influence the degree and direction of firm's strategic renewal.

Nadkarni and Barr (2008) found that industry velocity affects the structure of executives

cognitive representation of the environment and successively affects speed of response to

environmental events. In another study, Mitchell, Shepherd, and Sharfman (2011) found that CEOs with greater metacognitive experience (the ability to draw on similar experiences to handle different situations) make less erratic strategic decisions in different environments.

Plambeck and Weber (2009) found that CEO ambivalence (Evaluating an issue as simultaneously positive and negative) leads to more organizational actions that have greater scope, novelty, and riskiness. Similarly, Heavey, Simsek, Roche, and Kelly (2009) examined CEO information processing and found that CEOs' risk taking propensity weakens the relationship between decision comprehensiveness (the extent to which decision makers systematically consider information from the external environment in strategic decision making in the context of uncertainty) and corporate entrepreneurship whereas proactiveness strengthens the relationship. Scholars have also used cognitive complexity to represent CEO cognition and found that cognitive complexity is related to higher firm performance (McNamara, Luce, & Tompson, 2002), increased business diversity in terms of geography and product (Calori, Johnson, & Sarnin, 1994) and faster decision making (Wally & Baum, 1994).

2.7. Measuring CEO Psychological Characteristics

Scholars have used various methods to capture the CEOs' psychological characteristics such as survey measures, archival measures, and content analysis. Despite the challenge of low response rate from executives, survey measures help to capture important psychological characteristics. (Bednar & Westphal, 2006; Cycyota & Harrison, 2002). A limited number of scholars have used survey design and measures to study CEO psychological charactersitics (Herrmann & Nadkarni, 2014; McDonald & Westphal, 2003; Westphal, 1999). For example, Herrmann and Nadkarni (2014) used survey design and measure to capture CEOs' personalities. Another popular approach is the use of various archival measures. For instance, Chatterjee and

Hambrick (2007) developed an unobtrusive measure for CEO narcissism. Later Petrenko et al., (2016) improved the unobtrusive measure of CEO Narcissism.

Recently scholars started using new methods to develop various measures in management research.  New methods enable management scholars to adopt fresh approaches to existing theories and examine unsolved problems (Timmermans & Tavory, 2012), and hence new methods have profound impacts on management scholarship (Arora et al., 2016).  Despite the fact that content analysis has long been used by social science researchers (Krippendorff, 1980), it gained much popularity recently with the advent of new text analysis techniques and widespread availability of digitized textual data (Hannigan et al., 2019).  Content analysis is a research technique for the objective, systematic, and quantitative description of the manifest content of communication (Berelson, 1952, p.18).  In Content analysis, researchers create dictionaries or indices comprised of a mutually exclusive list of words and then they analyze those words to derive meanings and to systematically measure the specific constructs of interest (Krippendorff, 1980).  Scholars can rely on manual method and computer aided methods for content analysis.  There are two general approaches for conducting computer-based content analysis.  A rule-based (also called as "dictionary") approach in which computer reads the text and classifies words or phrases in text into different categories based on the pre-defined rules or categories.  The second approach is statistical approach in which the computer algorithm calculate the statistical correlations between keywords and the document type to classify the documents (Li, 2010a).

Textual analysis has been mainly used for developing grounded theories, interpretive analysis, and topic modeling (Hannigan et al., 2019).  In grounded theorizing with textual data, scholars start with a loosely defined research question and a phenomenon of interest. Subsequently, the researchers identify recurring patterns, deep structures, and ideas that emerge

from the data and then iteratively group them into higher-order categories to develop the theory. For interpretive analysis, scholars use the general natural language processing (NLP) of text. NLP combines dictionary-based data processing with semantic analysis for the interpretation of text. In management research, scholars use NLP tools for the semantic parsing of big data and then for the interpretation of emerging patterns of data. Topic modeling is a unique NLP approach in which a statistical association of words in a text are used to generate clusters of co-occurring words (topics) that combinedly represent higher order concepts.

Management researchers have been deploying textual analysis on various sources of corporate information such as corporate filings, financial disclosures, customer message, corporate emails, CEO diaries, and patents to understand and explore various phenomena during the last few decades. For example, in marketing, scholars have used it for studying customer relationship management (Struhl, 2015), customer loyalty analysis (Gans, Goldfarb, & Lederman, 2017), for market level analysis and segmentation (Chiu, Chen, Kuo, & Ku, 2009; Wang, 2009; Wedel & Kamakura, 2000), for finding trade rules, and competition (Allen & Karjalainen, 1999). In accounting, scholars have used it for studying the relationship between annual report readability and firm performance, and earnings persistence (Li, 2008), to understand the relationship between the tone of corporate disclosure and firm performance (Li, 2010b). In finance, scholars have used it for stock market prediction (Bollen, Mao, & Zeng, 2011; Lugmayr, 2013; Tan, Quek, & Ng, 2007), to understand investor sentiments (Tetlock, 2007), to assess the legal issues related to financial liabilities (Loughran & McDonald, 2011), credit worthiness prediction (Nikolic, Zarkic-Joksimovic, Stojanovski, & Joksimovic, 2013; Sohn & Kim, 2012), and business failure (Li & Sun, 2011). In operations management, scholars have used it for studying supply chain optimization models (Stock, Greis, & Kasarda, 2000) and for studying transportation management (Zhong & Ling, 2015). In knowledge management,

scholars have used it for disambiguating US patent database (Balsmeier et al., 2018), creating co-authorship network of US patent inventors (Li et al., 2014), and knowledge network characteristics (Williams & Lee, 2009).

Various studies have been conducted in strategic management research using textual analysis. For instance, in an early study, Abrahamson and Fairchild (1999) used content analysis to study management fashions and fads, its evolution and process of triggering of management fashion. In another study, Porac, Wade, and Pollock (1999), using content analysis found that board's peer definition for the firms centered around within the primary industry and boards selectively define peers in self protecting ways, such that peer definition are extended beyond industry boundaries when the firm performs badly. Similarly in another study, Pfarrer, Pollock, and Rindova (2010) developed a text based measure for firms' celebrity status and found that such firms are more likely to announce positive earnings surprise to investors which results in greater market rewards. In another study, Kaplan (2008) used textual analysis for developing a measure for CEO cognition and found that CEO cognition influences firms' technology strategy and even in the absence of organizational capabilities and incentives, CEO cognition leads to technology adoption.

Recent research in management is combining textual analysis with other novel methods such as machine learning. For instance, Gow, Kaplan, Larcker, and Zakolyukina, (2016) using text-based clustering created a measure for Big Five Personality traits of CEOs and found that those traits were related with their respective firms' financial choices, investment choices, and performance. In another study Gamache, McNamara, Mannor, and Johnson (2015) used text frequency analysis to measure the regulatory focus of the CEO and found that CEO promotion focus enhances scale and quantity of acquisitions whereas prevention focus reduces scale and quantity of acquisition. In a more recent study, Harrison, Thurgood, Boivie, and Pfarrer, (2019)

using machine learning algorithms created a training model for estimating each of the Big five traits of personality of CEOs from conference call transcripts and then they validated the model by comparing it with the personality scores derived from a psychometrically validated instrument. Similarly, in another study, Choudhury, Wang, Carlson, and Khanna (2019) used machine learning algorithm and convolutional neural network (a deep learning type of neural network) to identify the emotions associated with the facial images of the CEOs. They combine machine learning algorithms with textual analysis and sentiment analysis to understand the oral communication styles of CEOs.

2.8. Summary

The literature review shows that organizational decoupling has its intellectual roots in institutional theory. Decoupling was initially referred to as the gap between formal organizational strcuture and their ongoing acitivities. The puropose was to protect and buffer the core of the organizations from various pressures of external environment and organizations prefer to use it as strategy to enhance legitimacy. Subsequently organizations started adopting decoupling in various activities. Corporations' interest in sustainable development is increasing and corporations are investing into sustainable practices. However, corporations have lot of latitude in corporate sustainability which provides the opportunity for decoupling. Corporate sustainability is developing as an emerging academic field and studies on devaint practices in sustainability is essential for the progress of the field.

Over the last four decades upper echelon theory has developed as a mature academic field and a substantial body of knowledge has accumulated supporting its main premises. Among the various strands of upper echelon theory, studies on CEOs draw attention from a wide range of scholars and interest in CEO charactersitics continue to increase. Detractors of upper echelon theory have raised well-rounded concerns about the use of surface proxies to measure deep

psychological characterisitcs.  Studies adopting new methodies to measure deep psychological

charactersitics of executives are essential for the future development of upper echelon theory.

Chapter 3

THEORY AND HYPOTHESES DEVELOPMENT

3.1. Policy-Practice Decoupling and CEO Psychological Characteristics

A number of prior studies focus on the gap between what firms say and what they do. This is often framed as contrasting 'talks and actions' or 'rhetoric and reality,' or 'espoused value and enacted value' (Bowen, 2014). Institutional theory to refers the above gap as decoupling—the gap between organizational policies and enacted practices and routines decoupling (Meyer & Rowan, 1977; Orton & Weick, 1990). Institutional theorists have studied decoupling in diverse contexts such as judicial system (Hagan et al., 1979), firm's investment division (Schall, 1983), baseball teams (Keidel, 1984), "meta organizations" (Ahrne & Brunsson, 2008), investment coalitions (Bygrave, 1988), network of state agencies (Covaleski et al., 1985; R. E. Kaplan, 1982), and "quasi firms" in the hospital industry (Luke et al., 1989), CEOs long-term incentive plans (Westphal & Zajac, 1994), total quality management programs (Westphal et al., 1997), stock repurchases (Westphal & Zajac, 2001), human rights practices (Cole, 2005, 2012), law school rankings (Sauder & Espeland, 2009), and national stock exchanges (Weber et al., 2009). Recently Bromiley and Powell (2012) in their review paper on decoupling distinguished between two types of decoupling: policy-practice decoupling and means-ends decoupling. Policy-practice decoupling occurs "when rules are unimplemented or routinely violated and means-ends decoupling occurs when policies are implemented but the link between formal policies and intended outcome is opaque." (Bromiley & Powell,2012: 489).

Decoupling occurs when firms try to conform to societal expectations to gain legitimacy without enacting required actions (DiMaggio & Powell, 1983) and it can be more common in socially desirable organizational actions (King et al., 2005). Research evidence shows that

decoupling is more common in the corporate sustainability context (Boiral, 2007; Wijen, 2014).

Sustainable development is a broad concept that became popular after the watershed event of the world commission on Environment and Development report (WCED) of 1987 (Brundtland Commission Report). According to WCED (1987), sustainable development is 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.' Elkington (1997) gave an action oriented approach to sustianability and proposed the triple-bottom-line of sustainability, which comprises of environmental integrity, social equity, and economic prosperity. Environmental integrity principle ensures that human activities do not lead to the depletion of natural resources such as land, air, and water whereas social equity principle calls for equal and fair distribution of resources and opportunities to all members of the society. Economic prosperity concentrates on the creation and distribution of goods and services, thereby improving the quality of life of the members of the society.

Despite the fact that the Brundtland definition of sustainable development is broad and appealing, it does not provide any guide for action (Marshall & Brown, 2003). Similarly, Marshal and Brown (2003) gave a systemic account for a sustainable organization and described the sustainable organization as one that will not use natural resources faster than the rates of renewal, recycling, or regeneration of those resources. In another approach to incorporate sustainable development into the business world, Bansal (2005) defined "corporate sustainable development" as a tridimensional construct that comprises economic prosperity- (achieved through value creation), social equity-(achieved through corporate social responsibility), and environmental integrity-(achieved through corporate environmental management). There is an onging debate in the literature about the conceptualization of the corporate sustaianbility (Van der Byl & Slawinski, 2015). The approach of adding economic dimension and governance

dimension to corporate sustainability is less popular in empirical research. Many times the conceptualization of corporate sustainability reflects the epistemology of the scholars. Considering corporate sustainability as a bidimensional construct is a widely accepted approach in the literature. To that extent, corporate sustainability can be referred as "company's activities…demonstrating the inclusion of social and environmental concerns in business operations and in interactions with stakeholders" (van Marrewijk & Werre, 2003: 107).

Organizations have to meet a multitude of objectives and demands to meet inconsistent stakeholder expectations in order to achieve the goals of corporate sustainability (Crilly et al., 2012; Hahn et al., 2014). Such exposure reduces the pressure to adhere to the established policies and increases the flexiblities in practices (Purdy & Gray, 2009). Firms can tighlty link their words and actions and do what they said. Alternatively, there can be a gap between talks and actions (decoupling) about the corporate sustainability practices of the organization. An increasingly important question of decoupling in the context of corporate sustainability is why firms engage in decoupling. Although prior studies provide some insights into this questions, it has not been examined from an actors perspective.

A relevant and suitable theoretical lens that can be used to understand the relationship between CEO charactersitics and decoupling is upper echelon theory (Hambrick & Mason, 1984). Hambrick in his subsequent work argued that to completely understand what organizations do, we need to put top managers back in the strategy picture (Hambrick, 1989). A central argument in upper echelon theory is that executive orientation serves as the basis for executives strategic interpretaion of situations which in turn determines the course of action. Executive orientation comprises intelinked psychological charactersitics and observable experiences. Psychological characteristics include personality, values, and cognition whereas

observable experiences include functional background, education, age, experience or tenure. When managers encounter various strategic situations, they will distill and intepret the strategic situations through a filtration process. The filtration process involves three processes: field of vision, selective perception, and interpretation. Executives have limited and specific focus of attention (Simon, 1945) and they are selective in their direction which they look and listen. Another filtering process happens through selecitve perceptions. Executives focus only on to a limited number out of the many stimuli they are exposed to which is referred to as the process of noticing (Starbuck & Milliken, 1988). The third stage is interpretation in which executives attach meaning to what they see and listen which is referred to as the process of sensemaking (Starbuck & Milliken, 1988).

As a prominent member of the top management team, chief executive officers (CEOs) play a significant role in setting strategic direction as well as its implementation (Calori, Johnson, & Sarnin, 1994; Gioia & Chittipeddi, 1991) and research on CEOs on a wide array of topics is burgeoning. Early research using upper echelon theory focused on observable experiences as it was easy to measure the constructs. Subsequently scholars' attention shifted towards psychological characteristics especially studies of CEOs ((Busenbark et al., 2016). CEOs are powerful actors and often make decisions regarding various strategic directions including corporate sustainability (Finkelstein et al., 1996; Hambrick & Mason, 1984).

3.2. Policy-Practice Decoupling and CEO Personality

Personality traits are viewed as the "patterns of thoughts, feelings, and behavior that reflect the tendency to respond in certain ways in certain circumstances" (Roberts, 2009:140). Various studies found that CEOs' personality traits determine various organizational outcomes such as firm performance (Nadkarni & Herrmann, 2010; Peterson et al., 2003), dynamism and

"grandiosity"(Chatterjee & Hambrick, 2007), suboptimal technology investing (Gerstner et al., 2013), risk taking (Chatterjee & Hambrick, 2011; Li & Tang, 2010), CSR (Petrenko et al., 2016), firm's socially responsible activities (Tang et al., 2015), and strategic change (Herrman & Nadkarni,2014),  Among the various frameworks used to study personality, the five factor model (FFM) has emerged as the most comprehensive and robust approach (McCrae & Costa, 1987). FFM encompasses most prominent personality traits— conscientiousness, neuroticism (versus emotional stability), extraversion (versus introversion), agreeableness, and openness to experience.  Management scholars have used FFM in various studies and demonstrated its validity (Benischke et al., 2019; Harrison et al., 2019; Herrmann & Nadkarni, 2014; Nadkarni & Herrmann, 2010; Peterson et al., 2003).

### 3.2.1. Conscientiousness

Achievement orientation, dependability, and orderliness are three important facets that describe the conscientiousness of an individual (Judge et al., 1999).  An achievement oriented individual works hard to accomplish the set goals, they persist with the goals, and they have performance motivation to achieve the goals (Bono & Judge, 2004; Costa & McCrae, 1992; Goldberg, 1990).  The dependability facet shows a strong sense of direction, ability to follow the rules and obey norms, and showing reliability and responsibility (Costa & McCrae, 1992; Fong & Tosi Jr, 2007).  The orderliness facet shows planfulness, detail-orientation, and deliberation in decision-making (Costa & McCrae, 1992; Judge et al., 1999).  Furthermore, conscientious leaders show high integrity (Hogan & Ones, 1997), and they closely and continuously monitor deviations from set standards (Judge & Bono, 2000).  Conscientious leaders also clearly and consistently define employee role expectations (Bass, 1985) and create a fair and just organizational climate (Mayer, Nishii, Schneider, & Goldstein, 2007).

I argue that these attributes that define conscientiousness are likely to reduce policy-practice decoupling and means-ends decoupling in the context of environmental and social dimensions of corporate sustainability. A prerequisite for acheiving sustainable development goals is the incorporation of such goals into organizational policies (Hart, 1995; Johnson, 1998; Shrivastava, 1995). I expect that a conscientious CEO is likely to have a broad sense of business purpose and they may add broader goals such as "improving lives," "reducing harm" or tackling 'grand challenges'' along with shareholder value maximization which leads to the development of comprehensive and high-quality policies. Research shows that the absence of high-quality policies can lead to implementation challenges, and eventually, firms can resort to decoupling (Graafland & Smid, 2019). After setting broad policies, CEOs need to exhibit tenacity and persistence to implement such policies, and a conscientious CEO who is achievement orientation will enable the implementation

I argue that a conscientious CEO will consider expectations of all stakeholders in their decision-making process, and such a decision-making frame is essential for enacting an ecocentric organization (Egri & Herman, 2000). A conscientious CEO will be acknowledging the interdependency between business objectives and society objectives. In essence, a conscientious CEO is free from narrow decision framing, which is considered as a critical individual-level psychological driver of decoupling (Delmas & Burbano, 2011). The dependability attribute of conscientious CEO will encourage him/her to obey the norms and rules, which in turn reduces the chances of decoupling. Moreover, they monitor their organizations and their employees against deviation from standards, which in turn can reduce decoupling.

Organizational inertia is another driving force that leads decoupling (Delmas & Burbano, 2011). I expect that the ability of a conscientious CEO to motivate their employees and engage in polite interpersonal interactions (Costa & McCrae, 1992; Hogan & Hogan, 2001) will help them to overcome organizational inertia. The orderliness attribute of conscientiousness will encourage a CEO to develop a detailed plan of actions for the policies that the organization has laid down. Moreover, conscientious CEOs are more likely to pronounce what they expect from their employees. Such a clear role clarity and expectations set for employees may reduce organizational inertia. Conscientiousness will encourage CEOs to create a fair and transparent environment, which in turn motivates employees and thus helps to overcome organizational inertia. Furthermore, conscientiousness is highly correlated with leadership effectiveness (Judge et al., 2002), and effective leaders are essential in reducing decoupling (Delmas & Burbano, 2011). Thus:

*Hypothesis 1a: CEO conscientiousness will be negatively related to policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 1b: CEO conscientiousness will be negatively related to policy-practice decoupling in the social dimension of corporate sustainability.*

3.2.2. Neuroticism (versus Emotional Stability)

Neurotic Individuals are emotionally less stable and less adaptable to new situations (McCrae & Costa Jr, 1997). They are less stable, not calm and relaxed, and are likely to experience negative emotions such as stress, anxiety, or jealousy (Judge & LePine, 2007). They are more worried about pessimistic outcomes and downsides and are obsessed with what could go wrong (Carver, 1989). The negative frame of mind of a neurotic individual limits their information processing ability and problem solving ability (Judge, Erez, & Bono, 1998). Neurotic individuals are less effective as leaders (Northouse, 2018).

In order to effectively implement socio-environmental policies, a CEO needs to have high information processing ability and problem-solving capability. Many times, for the effective implementation of socio-environmental policies, CEOs need to identify complex problems and have to incorporate difficult and complex criteria for decision making (Hart, 1995; Johnson, 1998; Shrivastava, 1995). For effective implementation of such policies, CEOs need to set high performance standards and have to convince and persuade their employees. It is possible that the adoption of such policies may have downside risk and pay-offs in the long run. A neurotic CEO may exhibit hyperbolic intertemporal discounting – a behavior that is characterized by a relatively a high discount rate (impatient) over a short period and a relatively low discount rate over a long period (Ainslie & Haslam, 1992). Delmas and Burbano (2011) suggest that intertemporal hyperbolic discounting can lead to decoupling.

Corporate sustainability practices are characterized by ambiguity, uncertainty, and multiple conflicting expectations (Graafland & Smid, 2019), which make it very complex. In such a context, positive frame of mind is essential for CEOs and they need to approach socio-environmental practices with more conviction. Furthermore, they need to constantly motivate and persuade employees to effectively implement policies governing corporate sustainability practices. The effectiveness of corporate sustainability practices depend on persistence of efforts and learning acquired through experience. Thus, CEOs need to show a high degree of self-confidence and moral conviction to effectively implement the policies. Furthermore, research shows that neuroticism is negatively related to leadership effectiveness (Judge et al., 2002). Thus:

*Hypothesis 2a: CEO neuroticism will be positively related to policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 2b: CEO neuroticism will be positively related to policy-practice decoupling in the social dimension of corporate sustainability.*

3.2.3. Extraversion (versus introversion)

Extraverts are overconfident (Schaefer et al., 2004) and share some features of narcissistic personalities such as boldness, self-confidence, and desire for social attention (Wilt & Revelle, 2009). Extraverts are promotion focused individuals (Gorman et al., 2012). Extravert leaders prefer obedience and submissiveness from their employees (Anderson, John, Keltner, & Kring, 2001; Barrick, Stewart, & Piotrowski, 2002). Extravert leaders are not open to suggestions and initiatives from lower level employees and feel threatened by upward influence from employees that will lead to conflicts and unconstructive behaviors. (Ames & Flynn, 2007; Grant et al., 2011).

An extraverted CEO may use corporate sustainability as an opportunity to be in the spotlight as well as for showing their boldness. Such motives as well as the focus to gain social approval may encourage CEOs to come up with policies that are difficult to implement. The overconfident charactersitics of an extraverted CEO will lead to overestimation of the resources and capabilities of the firms that are essential for successful implementation of sustainable policies, which in turn can lead to decoupling. Recent research shows that decoupling has proven costly (loss of legitimacy, negative reactions from stock markets, penalties) for many firms (Bromley & Powell, 2012; Kim & Lyon, 2014; Marquis & Qian, 2013). I argue that an overconfident CEO is not free from optimal bias—a tendency to underestimate the potential risk associated with decoupling and overestimate the positive benefits of decoupling. Prior literature has identified optimistic bias as an important individual predictor of decoupling(Delmas & Burbano, 2011).

A promotion focused CEO may prefer gains and growth, and such preferences can lead to hyperbolic temporal discounting that is identified as a driver of decoupling (Delmas & Burbano, 2011). Furthermore, an extraverted CEO who is highly ambitious may set higher aspirations for their firms and will engage in activities that require huge resources commitments.. For instance, in a recent research, Malhotra, Reus, Zhu, and Roelofsen (2018) found that extraverted CEOs are more likely to engage in large mergers and acquisitions more frequently that demands huge organizational resources. Under such circumstances, an extraverted CEO may compromise on sustainability initiatives by only adopting attractive policies for social acceptance rather actions. Feedback from employees is essential for identifying hurdles as well as preventing delays in implementation (Floyd & Wooldridge, 1997; Wooldridge et al., 2008). Nonetheless, an extraverted CEO who has an aversion towards upward influence from employees may ignore the relevance of feedbacks which in turn can increase the chances of decoupling.

*Hypothesis 3a: CEO extraversion will be positively related to policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 3b: CEO extraversion will be positively related to policy-practice decoupling in the social dimension of corporate sustainability.*

3.2.4. Agreeableness

Agreeable individuals demonstrate modesty, altruism, and trustworthiness in their behavior (Costa Jr & McCrae, 1992). They prefer to help others and facilitate interpersonal relationship (Hurtz & Donovan, 2000). Agreeable leaders are kind, cooperative, gentle (Graziano & Eisenberg, 1997), and value social affiliations with others (Bono & Judge, 2004). They have an inclusive style of leadership and prefer affiliation over conflict (Graziano et al., 1996). Agreeable leaders are good at giving feedback and strive to develop a pleasant, friendly, and fair work environment (Mayer, Nishii, Schneider, & Goldstein, 2007). They have a genuine

concern for the well-being of others and are interested in the professional development of employees (Judge, Piccolo, & Kosalka, 2009). Agreeable leaders are high in idealized influence (Bass, 1985) and are seen as attractive role models (Judge et al., 2009) and discourage deviant and counterproductive work behavior (Salgado, 2002).

I argue that an agreeable CEO having interest in social welfare for others may commit his/her organizational resources for the achievement of sustainable development goals. I assume that an agreeable CEO believes in social affiliation and think that bad reputation of his/her firms can hamper his social affiliations. Moreover, they will be concerned about the bad reputation associated with decoupling and thus, prevent the deviation of their organizations from established sustainability policies. The ability of an agreeable CEO to discourage deviant and counterproductive work behavior of his/her employees may help to prevent decoupling. Furthermore, an agreeable CEO may be perceived as an ideal leader and role model, and he can influence his/her employees to work for the achievement of sustainable goals. Agreeable CEOs with an inclusive style of leadership may be able to monitor their employees effectively that will help to implement the laid down policies effectively. Agreeable CEOs possess traits such as gentleness, kindness, and trustworthiness, and such traits may foster a positive work environment which can encourage employees to work for the established sustainability policies. The preference of an agreeable CEO for a fair and pleasant work environment can boost the morale and ethical concern of employees. Such employees will be inclined to work for broader social goals such as community development, hazard free environmental practices, and reducing wastages. Agreeable CEOs engage in giving and receiving feedback from employees that are essential for the proper implementation of sustainable policies. Thus:

*Hypothesis 4a: CEO agreeableness will be negatively related to policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 4b: CEO agreeableness will be negatively related to policy-practice decoupling in the social dimension of corporate sustainability.*

3.2.5. Openness to Experience

Openness to experience is characterized by intellectual curiosity (McCrae, 1996), creativity, imagination, introspection, resourcefulness, and insightfulness (John & Srivastava, 1999). Open individuals have broad interests and are receptive to new experiences, thoughts, perspectives and ideas (George & Zhou, 2001). Open individuals search for more information and look for creative and integrated solutions to problems (Tetlock, 1983; Tetlock et al., 1993). Open individuals take quality decisions about dynamic tasks and are good at anticipating unforeseen situations (LePine et al., 2000). Openness is also related to leadership effectiveness (Judge et al., 2002) and the motivational component of transformation leadership (Judge et al., 2009). Research also shows that openness is related to intellectual flexibility in the TMT (Peterson et al., 2003) and strategic flexibility (Nadkarni & Herrmann, 2010).

I argue that an open CEO with broader interest will show his eagerness towards the implementaton of sustainable development policies. Similarly, as discussed earlier, many times socio-environmental governance can be complex that demands creativity and openness to a new experience. To effectively implement corporate sustainability, CEOs need to unite the diverse interests, preferences, and criteria of multiple stakeholders. An open CEO who is looking for broad information will be able to gather such preferences of multiple stakeholders and his/her ability to take quality decisions will help to implement socio-environmental policies and thereby prevent decoupling. Furthermore, for the effective implementation of such policies, CEOs need

to identify integrated solutions to many challenging problems. Open CEOs are effective leaders, and they could stimulate and inspire their employees to work for the achievement of sustainability goals. Moreover, an open CEO can influence TMT to think differently and foster intellectual flexibility that is essential for the implementation of socio-environmental goals. To effectively implement sustainability, firms need to be flexible with structures, routines, and systems, and CEO openness may facilitate such flexibility. Thus:

*Hypothesis 5a: CEO openness to experience will be negatively related to policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 5b: CEO openness to experience will be negatively related to policy-practice decoupling in the social dimension of corporate sustainability.*

3.3. Policy-Practice Decoupling and CEO Values

Research grounded in upper echelon theory has suggested that firm strategies and outcomes reflect the personality, cognition, and values of their CEOs (Hambrick & Mason, 1984). Rokeach defined value as follows: "To say that a person has a value is to say that he has an enduring belief that a specified mode of conduct or end-state of existence is personally and socially preferable to alternative modes of conduct or end state of existence"Rokeach (1973, 159-160). Hofstede also gave a similar definition: "a broad tendency to prefer certain states of affairs over others" (Hofstede, 1980, P.19). Hambrick and Brandon defined value as "a broad and relatively enduring preferences for some state of affairs" (Hambrick & Brandon, 1988, P.4).

Rokeach(1973), broadly classified values into two types-terminal value and instrumental value. Terminal values are the desirable end-states of existence, whereas instrumental values are the modes of behavior or means of achieving the desirable end-states. Terminal values can be further divided into social or personal values, and instrumental values can be divided into morality-based and competency-based values. Personal values are conceptions of what the

individual aspires to and include factors such as self-respect, broadmindedness, and courage. Social values are what the person finds desirable in others or the broader social system and include factors such as freedom, equality, and world peace. Morality-based value is the moral righteousness of one's belief and includes factors such as politeness, helpfulness, affection, and forgiveness. Competence-based values include logic and competence.

Among the various personal value frameworks that have been proposed (England, 1967; Meglino, Ravlin, & Adkins, 1989; Rokeach, 1973), Schwartz's model (Schwartz, 1992, 2007) is widely acknowledged, and its value dimensions have found to be universally meaningful. Schwartz's individual-level values comprise of security, conformity, tradition, benevolence, universalism, self-direction, stimulation, hedonism, achievement, and power that he grouped into four higher order value types: self-enhancement, self-transcendence, openness to change, and conservation. Individuals having self-enhancement value will focus on power and achievement and tend to emphasize the individual goals of personal success and happiness. On the contrary, individuals having self-transcendence will focus on universalism and benevolence (preservation and enhancement of the welfare of people in all settings) (Schwartz, 1992, 1994).

Research shows that values affect the way how people perceive situations and events (Gandal, Rocca, Sagiv, & Wrzesniewski, 2005) and subsequently influence their choices, decisions, and behavior (Meglino & Ravlin, 1998; Rokeach, 1973; Verplanken & Holland, 2002) For instance, evidence suggests that values are related to conflict resolution style (Morris et al., 1998) in general and in social dilemmas (Sagiv, Sverdlik, & Schwarz, 2011), creativity (Dollinger, Burke, & Gump, 2007; Kasof, Chen, Himsel, & Greenberger, 2007), and response to organizational change (Sverdlik & Oreg, 2009). Management scholars have examined the

relationship between different types of values and firms' outcomes (Adams et al., 2011; Berson et al., 2008; Ormiston & Wong, 2013)..

I consider the relationship between self-transcendence and decoupling. CEOs having self-transcendence may care for others and environment and believe in humanity. They may have concern for multiple stakeholders which will motivate them to commit organizational resources to corporate sustainability goals. Under the context of conflicting organizational goals, a self-transcendent CEO may not compromise his commitment to the welfare goals, which will reduce the chances of decoupling. A self-transcendence CEO may consider organizational decoupling as unethical behavior and a question on their integrity. Self transcendent CEO having a long-term orientation may consider the negative consequences associated with decoupling. Furthermore CEOs having self transcendence may be more likely to adopt egalitarianism perspective and less likely to exploit or harm others (Morris, Brotheridge, & Urbanski, 2005). Moreover, a self-transcendent CEO may have a high level of socialized power and will use power to achieve organizational goals rather than promoting self-interest and may believe in participatory leadership (Morris et al., 2005). Such style of leadership will encourage employee motivation and overall work climate of the organization, and subsequently, employees will strive to achieve the set socio-environmental goals, and hence, the chances of decoupling will be reduced. Thus:

*Hypothesis 6a: CEO self-transcendence will be negatively related to policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 6b: CEO self-transcendence will be negatively related to policy-practice decoupling in the social dimension of corporate sustainability.*

3.4. Policy-Practice Decoupling and CEO Cognition

Ever since the classical work on bounded rationality (Cyert & March, 1963;March & Simon, 1958) research on managerial cognition has a central position in management research (Huff, 1990).  Scholars have explored the relationship between managerial cognition and various aspects such as organizational renewal (Barr et al., 1992), adoption of new market positions (Greve, 1998), competitive actions (Marcel et al., 2011), strategic responses to environmental changes (Nadkarni & Barr, 2008), adoption of new technology (Eggers & Kaplan, 2009; . Kaplan, 2008), and strategic change (Cho & Hambrick, 2006).  Upper echelon theory explained that  cognition is an important characterisitc of executive orientation that influences construed reality which in turn affects organizational outcomes.

CEOs need to attend to economic, environmental and social goals  when it comes to corporate sustainability that makes the decision-making highly complex (Bansal, 2002; Gladwin et al., 1995).  Under such context, the cognitive frame that managers use to make sense from the organizational context will govern the choice of firms' corporate sustainability initiatives. Managers can use different cognitive frames for corporate sustainability decision-making.  For instance, managers can adopt a business case frame or a paradoxical frame (Hahn et al., 2014). Business case frame (Hafenbrädl & Waeger, n.d.; Hahn et al., 2014)is based on an alignment logic in which managers believe that economic, social, and environmental goals are incompatible and cannot coexist (Smith & Tushman, 2005).  In paradoxical frame, managers take a perspective that inconsistencies and tensions are salient characteristics of organizations. (Smith & Lewis, 2011; Smith & Tushman, 2005).  CEOs adopting a business case frame focus more on economic goals and result in low differentiation and integration.  CEOs' high interest ineconomic goals forces them to limit their attention to economic oreinted stimuli that leads to

low differentiation. Similarly, their inclination to look at the alignment of economic, environmental, and social goals will result in low integration.  On the other hand, adopting a paradoxical frame results in high degree of differentiation and integration.  CEOs focus their attention to a wide array of stimuli that leads to high differentiation and they also focus their attention to widely divergent but interconnected goals that leads to high integration (Hahn et al., 2014).

According to upper echelon theory, CEO's executive orientation undergoes a three-stage filtration process—limited field of vision, selective perception, and intepretation.  CEOs have a limited and specific focus of attention that leads to limited information gathering.  Corporate sustainability requires CEOs to collect deeper and broader information and to have such an information gathering which demands differentiation and integration.  CEOs with high differentiation and integration cognitive frame will gather diverse information on economic, environmental, and social issues irrespective of short-term financial gains (Byrch et al., 2007). Selective perception is a complex process of noticing  and decision makers can be sensitive to familiar stimuli as well as unfamiliar stimuli (Starbuck & Milliken, 1988).  Corporate sustainability demands CEOs to pay attention to both familiar and unfamiliar stimuli and focus on economic, environmental , and social goals will reduce selective perception.  "Interpretation is the act of carving out meaning from ambiguous cues and is the very core of the sensemaking process"(Porac & Thomas, 2002:178).  CEOs usually intrepret strategic issues over two dimensions—sense of control, which is related to the ability of CEOs to implement an action in the direction he/she wants (Greenberger & Strasser, 1986) and valency, which is the evaluation of the issue (Dutton & Jackson, 1987; Plambeck & Weber, 2009).  CEOs can be univalent in their valency, where they attach positive or negative evaluation to an issue or ambivalent, where

they attach competing positive and negative evaluation to various aspects of an issue. Corporate sustainability requires CEOs to have a high perceived sense of control and ambivalent evaluation (Hahn et al., 2014). Based on the above logic, I argue that CEO cognitive complexity is related to organizational decoupling in the corporate sustainability context.

Cognitive complexity represents the cognitive style-the way in which individuals gather and process information (Bieri, 1961). In the management literature, scholars have used cognitive complexity to represent CEO cognition and found that cognitive complexity is related to higher firm performance (McNamara, Luce, & Tompson, 2002), increased business diversity in terms of geography and product (Calori, Johnson, & Sarnin, 1994) and faster decision making (Wally & Baum, 1994). In the context of corporate sustainability, Crilly et al. ,(2012) using a cognitive-linguistic perspective explained that firms engaging in decoupling may use a simple style of language whereas firms that implement what they talk will use a complex style of language.

CEOs with high cognitive complexity may be able to observe and interpret diverse and complex situations. They may be able to see the link between different components of sustainable development. Cognitive complexity may enable a CEO to see the positive and negative valency associated with a strategic choice. Looking at the positive and negative valence of an issue may reduce optimistic bias that is identified as a psychological driver of decoupling. Furthermore, cognitive complexity enables a broad frame of decision making, which in turn can reduce decoupling (Delmas & Burbano, 2011). Similarly, a broad frame may lead to the search for divergent strategies for implementation as well as emotional arousal. Both will enhance implementation commitment (Cacioppo et al., 1999; Plambeck & Weber, 2009) and thereby reduce decoupling. Thus:

*Hypothesis 7a: CEO cognitive complexity will be negatively related to policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 7b: CEO cognitive complexity will be negatively related to policy-practice decoupling in the social dimension of corporate sustainability.*

3.5. Moderating Role of Board Power

Strategic decision making comprises of four steps-strategy initiations, ratification, implementation and monitoring and as per agency theory the board is primarily responsible for ratification and monitoring (Fama & Jensen, 1983; Forbes & Milliken, 1999). Despite the fact that there are various alternatives to board monitoring such as the competitive forces in the product and capital markets (Williamson, 1963), market for corporate control (Jensen & Ruback, 1983), corporate law (Baysinger & Butler, 1985), and managerial and direct labor markets (Fama, 1980), the board is regarded as central for monitoring the behaviors of executives (Fama & Jensen, 1983). Many times boards are not effective in monitoring (Finkelstein et al., 2009). Scholars identified various underlying reasons for the lack of effective monitoring including but not limited to outside job demand and its complexity, board size, board diversity, board meeting frequency, firm size and complexity (Boivie, Bednar, Aguilera, & Andrus, 2016).

An important characteristic that determines board effectiveness is board power such that a powerful board can effectively monitor its top management team (Boivie et al., 2016; Finkelstein et al., 2009). It is based on the assumption that a powerful board involves members that have sufficient incentive and can avoid or reduce CEO dominance and collusion, (Boyd, 1994; Conyon & Peck, 1998; Fama & Jensen, 1983). According to power research rooted in resource dependence theory, board members derive power in organizations due to their ability to provide various resources such as knowledge, capital, expertise, technology and other required resources (Finkelstein & Hambrick, 1990; Pfeffer, 1972; Salancik & Pfeffer, 1978). The existing

literature on corporate governance use different types of proxies to measure board power including CEO duality (Finkelstein & D'aveni, 1994; Mallette & Fowler, 1992), insider vs. outsider (Beatty & Zajac, 1994; R. A. Johnson et al., 1993), and director ownership equity (Hoskisson et al., 1994; Lambert et al., 1993).

I argue that a powerful board may effectively monitor and discipline the activities of a CEO, especially deviant behavior like decoupling. A powerful board may be more concerned about the downside risk of decoupling and may prevent decoupling. Such a board will be conscious that shareholders are carefully monitoring firms' corporate sustainability initiatives and any deviant behavior will be penalized (Flammer, 2013). Moreover, they may assume that they have a broader responsibility to society and will consider sustainable development as one of the core goals of the organizations. A powerful board will be able to overrule any political tactics of the CEO to influence the board. I propose that Board power moderates the relationship between CEO FFM traits, values, and cognition with organizational decoupling. The specific hypotheses are:

*Hypothesis 8a: Board power strengthens the negative relationship between CEO conscientiousness and policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 8b: Board power strengthens the negative relationship between CEO conscientiousness and policy-practice decoupling in the social dimension of corporate sustainability.*

*Hypothesis 9a: Board power attenuates the positive relationship between CEO neuroticism and policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 9b: Board power attenuates the positive relationship between CEO neuroticism and policy-practice decoupling in the social dimension of corporate sustainability.*

*Hypothesis 10a: Board power attenuates the positive relationship between CEO extraversion and policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 10b: Board power attenuates the positive relationship between CEO extraversion and policy-practice decoupling in the social dimension of corporate sustainability.*

*Hypothesis 11a: Board power strengthens the negative relationship between CEO agreeableness and policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 11b: Board power strengthens the negative relationship between CEO agreeableness and policy-practice decoupling in the social dimension of corporate sustainability.*

*Hypothesis 12a: Board power strengthens the negative relationship between CEO openness to experience and policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 12b: Board power strengthens the negative relationship between CEO openness to experience and policy-practice decoupling in the social dimension of corporate sustainability.*

*Hypothesis 13a: Board power strengthens the negative relationship between CEO self-transcendence and policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 13b: Board power strengthens the negative relationship between CEO self-transcendence and policy-practice decoupling in the social dimension of corporate sustainability.*

*Hypothesis 14a: Board power strengthens the negative relationship between CEO cognitive complexity and policy-practice decoupling in the environmental dimension of corporate sustainability.*

*Hypothesis 14b: Board power strengthens the negative relationship between CEO cognitive complexity and policy-practice decoupling in the social dimension of corporate sustainability.*

Chapter 4

METHODOLOGY

The focus of this chapter is on the methodology that I adopted for the study. I will discuss about the databases, sample, operationalization of dependent, independent variables, and the estimation methods that I used for the study.

4.1. Data

4.1.1. Sustainalytics

Socially responsible investing (SRI) is gaining much interest from investing communities and analysts, and it is an indispensable part of the global financial market (Ioannou & Serafeim, 2015). The evidence of SRI is compelling and widespread. According to the US forum for Sustainable and Responsible Investment (SIF) trend report, SRI was 12 trillion dollars at the beginning of 2018. The growth of SRI has led to the emergence of various sustainability indices in different stock markets of the world. The indices define standards for sustainability practices as well as provide a system for organizations to communicate their sustainability efforts (Hawn et al., 2018). A representative sample includes Dow Jones Global Total Stock Market Index, the FTSE4 GOOD Index, ETHIBEL, Domini 400 Social Index, Vanguard Calvert Social Index Fund, and the Corporate Governance Quotient and Sustainalytics.

Sustainalytics is one of the leading independent corporate governance research, ratings, and analytics firms. Sustainalytics measure how companies manage environmental, social, and governance issues and provide ESG ratings for companies. They analyze companies based on key ESG issues that vary across different industries. The key ESG issues are analyzed by comparing it with 42 different peer groups value chains. Sustainalytics develop a weighted

matrix based on the relative importance of key ESG issues per industry. Performance against ESG issues is evaluated by looking at a comprehensive set of core and sector-specific metrics that are scored and weighted to determine firms' overall ESG performance. Under the broad category of ESG dimensions, there are three sub-dimensions—preparedness, disclosure, and performance. 'Preparedness' involves the evaluation of policies and programs that are designed to manage ESG issues. 'Disclosure' consists of the evaluation of companies' various sustainability reporting standards such as GRI, CDP, and self-reporting. 'Performance' involves the quantitative assessment of companies' ESG performance based on quantitative metrics and qualitative assessment of companies' involvement in controversial incidents. The sub dimensions of preparedness, disclosure, and performance are again further divided into different indicators. In the first step, Sustainalytics start collecting data from various public sources such as corporate publications (annual reports, corporate sustainability reports), news and other media, and NGO reports/websites. In the next step, companies are analyzed based on different indicators. After that, a draft report is sent to the corresponding companies for feedback and the correctness of the information. In the final step, ESG ratings and reports are published.

Sustainalytics ESG rating is of interest for academic research. In one of the earlier papers, Surroca, Tribo, and Waddock (2010) used it to measure corporate social performance. More recently, Graafland and Smid (2019) used the Sustainalytics database in their study to measure corporate social performance. Graafland and Smid, in their study, examined the validity of Sustainalytics ESG ratings by comparing it with Morgan Stanley's ESG ratings (formerly known as KLD) and Refinitiv's ASSET 4 database and found strong validity. In comparison with other ESG ratings systems, Sustainalytics has fine-grained measures on various aspects of sustainability performance such as policy, practice, disclosure, and performance. The database is

appropriate for a study of decoupling. It is consistent with the approach that I have used to operationalize policy-practice decoupling, and hence I used Sustainalytics indicators to measure my dependent variable.

### 4.1.2. ASSET4 Database

Another popular database used in recent studies on corporate sustainability and corporate social responsibility is the ASSET4 database. Thomson Reuters ASSET4 is a Swiss-based company that specializes in providing objective, relevant, auditable, and systematic ESG information and investment analysis tools to professional investors who build their portfolios by integrating ESG data into their traditional investment analysis. It is estimated that investors representing more than $ 2.5 trillion in assets under management use the ASSET4 data, including prominent investment houses such as BlackRock. Specially trained content research analysts collect over 400 ESG measures for each company within the ESG. Typical data sources include stock exchange filings, CSR and annual reports, non-governmental organizations' websites, and various news sources. After gathering the ESG data (which lacks fully accepted reporting standards worldwide) every year, the analysts transform it into consistent units to enable quantitative analysis of this qualitative data. In 2009, Thomson Reuters acquired ASSET 4 and integrated it as a Financial and Risk business (now called as Refinitiv).

According to Thomson Reuters ASSET4, every data point question goes through a multi-step verification and process control, which includes a series of data entry checks, automated quality rules and historical comparisons to ensure a high level of accuracy, timeliness, and quality. Based on these data points, Thomson Reuters ASSET4 offers a comprehensive platform for establishing customizable benchmarks for the assessment of corporate performance. Subsequently, these 400 data points are grouped into ten categories, weighted proportionately to

the count of measures within each category, which in turn is formulated into three pillars and the final ESG score. (Please see appendix C for the details of ESG pillars). I used the ASSET 4 database for supplementary analysis.

4.2. Sample

4.2.1. Firms

I started my data collection with the S&P 1500 companies. I considered companies that appeared consistently in the S&P 1500 for a period of 10 years beginning in 2009 to 2018. All year-wise additions and deletions to S&P 500 were considered while preparing a unique list of S&P 1500 companies (reduced list of companies to 1476). The context of the study demands industries with managerial discretion. The impact of CEOs on firms' outcomes is highly pronounced in industries where top executives have high managerial discretion (Finkelstein & Hambrick, 1990; Hambrick & Finkelstein, 1987). Hambrick and Abrahamson (1995), developed a managerial discretion score of seventy industries. Manufacturing industries (based on two digits SIC code,20-39), have high discretion score. Thus the initial sample was reduced to 580 companies. In the next stage of filtering, I looked at the availability of conference call transcripts of companies for the period 2009-2018, which resulted in 344 companies. The fine-grained data for the policy and practice sub dimensions were available only for 206 companies from the Sustainalytics database, and my final sample size of the firms was restricted to 206 unique firms.

4.2.2. CEO-Firm-Year Observations

I identified 452 CEOs for 344 companies from using ExecuComp Database. Among the 344 companies, conference call transcripts text for CEOs was available only for 320 companies. I applied two filters for the selection of CEOs. First, I included only those CEOs who started their tenure during 2009 or after 2009. Second, I consider only those CEOs who had completed

four or more years of tenure.  These two filters generated 370 CEOs for 320 companies.  Then I

matched the CEOs with 206 unique firms having measures for policy-practice decoupling.  The

matching resulted in an elimination of 131 CEOs, and the final sample size of CEOs was 239.

Thus, the final sample contains 239 CEOs, 206 unique firms for ten years, starting from 2009 to

2018.

4.3. Measures

4.3.1. Dependent variables: policy-practice decoupling scores

Corporate sustainability is operationalized as a bi-dimensional construct that includes

environmental and social performance in many studies (Bansal & Song, 2017; Montiel &

Delgado-Ceballos, 2014).  I considered corporate sustainability as a bi-dimensional construct to

develop a fine-grained analysis without losing parsimony.  Sustainalytics database has separate

indicator scores for policy and programs.  I used these scores for computing policy-practice

scores for both environmental and social dimensions.

Policy-practice decoupling score in the environmental dimension

The environmental dimension of Sustainalytics ESG ratings has 28 unique indicators, of

which three are related to policy, and the remaining 25 are related to programs.  The data has the

limitation that corresponding program scores for items having policy scores are not available.

For instance, there are no corresponding scores for the three policy indicators—'environmental

policy,' 'green procurement policy,' and 'GMO policy.'  Despite the lack of corresponding

scores, both policy and program scores significantly capture various environmental issues.

Another limitation is that the indicators are scaled differently (Please see appendix C for

different scales used for measuring each indicator).  Similarly, for the selected sample, many

indicators are missing. I adopted the following approach to compute the policy-practice decoupling score:

1. I standardized the environment policy raw score and green procurement raw score (converted to z score) year wise to overcome the limitations of differences in the scales used. I computed the average of standardized environment policy score and green procurement score to create an aggregated policy score. To check whether environment policy raw score and green procurement raw score represents the environmental dimension policy score, I ran principal component factor analysis.

2. For computing program scores, I standardized environmental management certification program score, hazardous waste management program score, water management program score, and renewable energy program score (all of them converted to z score). I computed the average of standardized scores of the above-selected indicators. To check whether environmental management certification program score, hazardous waste management program score, water management program score, and renewable energy program score represent the environmental dimension program score, I ran a principal component factor analysis.

3. I took the absolute difference between policy score and program score to create a policy-practice decoupling score in the environmental dimension.

Policy-practice decoupling in the social dimension

The social dimension of Sustainalytics ESG ratings has 38 unique indicators, of which ten are related to policies, and the remaining ones are related to programs. The social dimension is also subjected to the limitations mentioned above of lack of corresponding scores, scale differences, and missing data. I adopted the following approach for creating the policy-practice decoupling score in the social dimension:

1. I standardized the freedom of association policy score, discrimination policy score, and scope of social supplier standard score (z score) year wise and computed the average to create policy score.  To check whether freedom of association policy score, discrimination policy score, and scope of social supplier standard score represents the social dimension policy score, I ran a principal component factor analysis.

2. For computing program scores, I standardized the diversity program score, health safety program score, and supply chain monitoring program score (all of them to z scores) and computed the average to create program scores.  To check whether diversity program score, health safety program score, and supply chain monitoring program score measure the social dimension program score, I ran a principal component factor analysis.

3. I took the absolute difference between policy score and program score to create a policy-practice decoupling score in the social dimension.

4.3.2. Dependent variables: policy-practice decoupling scores using Textual Analysis.

I developed a textual analysis-based measure for policy-practice both for the environmental and social dimensions of corporate sustainability.  I followed the following steps for the development of textual standards.

1. I developed a corpus using the Global Reporting Initiative (GRI) Glossary standards 2018, and 10Ks of the unique 206 companies.   Firms use GRI reports communicating their sustainability initiatives.  GRI is a non-profit organization that started in 1997 in Boston by the Coalition for Environmentally Responsible Economies (CERES) with the support of the United Nations Environment Programme (UNEP) (Moerman & Van Der Laan, 2005).  GRI provides methods and metrics for evaluating various dimensions of corporate sustainability so that companies will have a standardized approach for sustainability reporting.  The GRI framework

includes two categories of standard disclosures: General and Specific disclosures. The general

standard consists of seven areas, including ethics and integrity, governance, identified material

aspects and boundaries, organizational profile, stakeholder engagement, report profile, and

strategy, and analysis. The specific standard disclosure provides information regarding the

social, environmental, and economic impact of an organization's activities. The specific

standard disclosure is based on the triple bottom line dimensions of corporate sustainability

(Jamali, 2006). The economic category consists of economic performance, market presence,

indirect economic impacts, and procurement practices. The environmental category consists of

materials, energy, water, biodiversity, emissions, effluence and waste, products and services,

compliance, transport, supplier environmental assessment, and environmental grievances

mechanisms. The social category consists of labor practices and decent work, human rights,

society, and product responsibility. From its inception, a large number of firms (approximately

13,942 firms) adopted GRI reporting standards and submitted sustainability reports. 10ks are

comprehensive reports that companies submit to the Security Exchange Commission (SEC).

2. In the next step, I created a 'Term Frequency-Inverse Document Frequency (TF-IDF)

Vectorizer' and 'Count Vectorizer' to develop document term matrices (DTM) both for

environmental and social dimensions. TF-IDF considers the number of documents in which the

word appears through a separate measure called Inverse Document Frequency (IDF). IDF is

calculated as IDF [i] = log2 (D/Di ), where D represents the number of documents containing the

i[th] word in the alphabetically ordered vocabulary vector Di. TF-IDF is the method of choice in

problems where textual analysis is conducted to identify the uniqueness or rare features in a

document (Manning et al., 1999; Salton & Buckley, 1988). Count vectorizer counts the

frequencies of the words. I combined both methods to create DTM matrices. In the next step,

cosine similarities between the GRI standard glossaries and 10ks are computed. Cosine

similarity is calculated as the cosine of the angle of the pair of word vectors representing the two

text documents vectors -w1 and w2 (Manning et al., 1999).

$$\cos(\overrightarrow{w_1}, \overrightarrow{w_2}) = \frac{\sum_i w_{1i} \cdot w_{2i}}{\sqrt{\sum_i w_{1i}^2} \cdot \sqrt{\sum_i w_{2i}^2}}$$

3. In the next step, I took the absolute difference between environment cosine similarity

score of each firm for each year and ASSET 4 environmental score for each firm for each year to

develop the policy-practice decoupling score for the environmental dimension. Asset 4

environmental scores are computed by averaging the resource reduction score, emission, and

product innovation score. Similarly, I took the absolute difference between social cosine

similarity scores of each firm for each and Asset 4 social score to develop the policy-practice

decoupling score for the social dimension. Asset 4 social scores are computed by averaging the

workforce score, human rights score, community score, and product responsibility score. I

standardized both the environmental and social policy-practice decoupling score by converting to

z scores.

### 4.3.3. Independent variables

Text data for measuring CEOs psychological characteristics

Research shows that individuals' preferences, perceptions, cognitions, and personalities

are manifested in their written and verbal communication, and hence linguistic analysis is a

common approach to measure such characteristics (Eugene et al., 1966; Pennebaker et al., 2014;

Sanford, 1942). Studies across various domains and topics show linguistic analysis is a reliable

method to capture individual psychological characteristics (Chung & Pennebaker, 2007;

Pennebaker et al., 2003; Pennebaker & King, 1999). Management scholars have adopted

linguistic analysis to measure various psychological characteristics such as entrepreneurial

orientation (Cho & Hambrick, 2006), attention (Eggers & Kaplan, 2009), commitment to status

quo (McClelland et al., 2010), and regulatory focus (Gamache et al., 2015). (For a detailed

review on research on public language usage see Gao, Yu, & Cannella (2016)).

Research evidence suggests that the use of letters to shareholders can be a reasonable

source for deriving CEO characteristics (Barr, 1998; Barr et al., 1992; Osborne et al., 2001).

Nonetheless, scholars criticize the use of letters to shareholders by arguing that the letters can be

outcomes of public relations work and would not represent actual actions and characteristics of

CEOs (Fiss & Zajac, 2006). However, evidence substantiates that the letters to shareholders are

written or carefully reviewed and edited by the CEOs (Kohut & Segars, 1992). To address the

limitations of the use of letters to shareholders, scholars suggested the use of text from

conference call transcripts (Matsumoto et al., 2011). The conference call transcripts have two

sections: the presentation segment and the Q&A section. The Q&A section of conference call

transcripts is particularly appropriate for assessing CEOs' psychological characteristics.

Conference call responses are unanticipated and often consequential responses to the analysts'

questions (Malhotra et al., 2018). They are often revealed under different contextual settings and

are held quarterly over multiple years that allow us to capture long-term stable traits (Li, 2010).

I used both letters to shareholders and conference call transcripts to extract texts. I

obtained conference call transcripts for 320 companies for all the quarters for ten years from the

Bloomberg database. Then I separated CEOs' text from the rest of the conference call transcripts

of each quarter and combined it as a single text file, which resulted in a larger text corpus for

each CEO. Letters to shareholders were separated from annual reports. I downloaded annual

reports of the final sample of 206 companies from company websites and annual reports.com

website.  239 CEO letters to shareholders were extracted for 206 unique companies.

FFM Personality Traits and Values

To measure FFM personality traits and values,  I used the 'The IBM Watson™

Personality Insights service.  The service uses linguistic analysis to infer personality

characteristics and values.  The service infers personality and value characteristics from different

forms of communications such as email, text messages, tweets, blogs, forums posts, and

newsletters.  It uses an open vocabulary approach to infer personality characteristics, which is the

latest trend in personality research (Arnoux et al., 2017; Plank & Hovy, 2015; Schwartz et al.,

2013).  IBM Watson first tokenizes the input text to develop representation in an *n*-dimensional

space and then uses an open-source word-embedding technique, 'Global Vectors for Word

Representation (GloVe), to obtain a vector representation for the words in the input text

(Pennington et al., 2014).  The GloVe is an unsupervised learning algorithm for obtaining vector

representations for words.  Training is performed on aggregated global word-word co-occurrence

statistics from a corpus, and the resulting representations showcase interesting linear

substructures of the word vector space.  It then feeds this representation to a machine-learning

algorithm that infers a personality profile with Big Five, Needs, and Values characteristics.  To

train the algorithm, the service uses scores from surveys that were conducted among thousands

of users, along with data from their Twitter feeds.  IBM conducted a validation study to

understand the accuracy of the service's approach to inferring a personality profile.  IBM

collected survey responses and Twitter feeds from between 1500 and 2000 participants for all

characteristics and languages.  IBM then compared the scores that were derived by its models

with the survey-based scores for Twitter users. Based on these results, IBM determined

the average Mean Absolute Error (MAE) and the average correlation between the inferred and actual scores for the different categories of personality characteristics.   The average MAE is 0.12, and the average correlation is 0.33.

Another major approach to assess CEO personality is by using an open-language approach.  Mairesse, Walker, Mehl, & Moore, (2007) created a machine learning algorithm referred as "The Personality Recognizer" using Linguistic Inquiry and Word Count (LIWC) (Pennebaker et al., 2001; Pennebaker & King, 1999)  and MRC Psycholinguistic database (Coltheart, 1981).  "The Personality Recognizer" which is is available through a Java command-line application reads text files and estimates personality scores.  To ensure the robustness of personality scores and values generated from IBM Insights service, I used personality scores generated by "The Personality Recognizer."

CEO's cognitive complexity

The measure for cognitive complexity was derived from the automated text -analysis of Newsletters and conference call transcripts using LIWC.  LIWC uses a validated database of over 2,000 words and word stems to code text in terms of 72 different dimensions of language. These words and word stems are categorized into four main categories, such as language composition (negations, pronouns), psychological processes (inhibition, optimism-energy), relativity (temporal references), and current concerns (physical states).  LIWC calculates the ratio of words in a given text that matches the four categories.  Cognitive complexity includes two components of an individual's reasoning: the extent to which one can distinguish between multiple and divergent solutions and the extent to which one can integrate those solutions (Tetlock, 1981).  Based on this definition Abe (2011; 2012) developed an index that combines words that are used for making distinctions and conjoining multiple thoughts together.  The

index comprises four function-word-categories that represent exclusion (but, without), negation (never, no, not), tentativeness (maybe, perhaps), and conjunctions (and, also, although). Individuals in their communication can use exclusion words for distinguishing divergent thoughts, while conjunctions can be used to integrate divergent thoughts (Graesser, McNamara, Louwerse, & Cai, 2004).

I extracted scores for functional word categories-conjunction, negation, tentativeness, and exclusion–from conference call transcripts and letters to shareholders using LIWC. LIWC computed scores are a ratio of functional words to total words. I ran a principal component analysis and computed the reliability coefficient of all the four functional category words. Based on factor analysis and the reliability coefficient, I took the average of negation, tentativeness, and differentiation to develop a score for cognitive complexity.

4.3.4. Moderating variable

I used three indicators to measure board power: CEO non-duality, the proportion of outside directors, and the equity holding of outside directors (Hayward & Hambrick, 1997). I verified whether the CEO holds the title of chairman for each firm for each year. If the CEO holds the chairman position of the board (presence of CEO duality), I coded it as 0 otherwise as 1. The ratio of CEO duality (No of years of CEO duality to the total number of years, which is 10) was computed. I used a combination of ISS database, ExecuComp, and annual reports of the company to verify CEO duality. The number of outside directors divided by the total number of directors gave the proportion of outside directors. I used the ISS database for computing the proportion of outside directors. I also used BoardEx data to verify the computation, and the ratio was consistent. The number of shares owned by all outside directors divided by the total number of ordinary shares of the firm will give the equity holding of outside directors. The number of

shares owned by the outside directors were extracted from the ISS database and the total number of ordinary shares of the firm from Compustat. I took the average of the three indicators year-wise to create a single composite measure of board power that is considered as a formative construct.

### 4.3.5. Control variables

Larger firms have more visibility and are more likely to be scrutinized by external stakeholders and hence, less prone to engage in decoupling (Christmann & Taylor, 2006). Furthermore, prior research shows that smaller companies are often organized on an informal basis due to a lack of experience and knowledge to implement sustainability-related policies (Graafland & Smid, 2019). I computed firm size as the natural logarithm of the annual sales (Marquis et al., 2016). The age of the firm reflects its experience and knowledge to implement policies effectively, and hence, older firms may be less vulnerable to decoupling (Graafland & Smid, 2019). Firm age was measured as the number of years from the firm's founding date. I used company annual reports and company website to identify the founding year of each firm. Firms having better financial performance may invest in sustainability practices and may not engage in decoupling (Marquis, Toffel, & Zhou, 2016). Alternatively, profitable firms can minimize the negative impact of decoupling and may engage in decoupling (Delmas & Burbano, 2011). I used two measures for firms' performance-ROA and Tobin's Q. ROA was calculated as the ratio od net income to total assets. Tobin's Q was calculated as the ratio of market value of assets to book value of assets (total assets+ market value -common equity shares total- deferred taxes and investment tax credit/total assets where market value is the product of common shares outstanding and closing price of the share for the fiscal year).

Slack resources provide extra liquidity, and firms may invest in sustainability and thus reduce decoupling (Bansal, 2005; Waddock & Graves, 1997). Slack resources were computed as the ratio of current assets to current liabilities. I controlled for R&D intensity because innovative firms may effectively implement sustainability initiatives and have fewer reasons for engaging in decoupling (McWilliams & Siegel, 2000; Tashman, Marano, & Kostova, 2019). R & D intensity was calculated as the total R & D expenditure to total sales. Capital intensity shows how firms deploy their assets to various activities. Firms having capital intensity are not constrained by resources. Such firms may invest their resources towards sustainability initiatives. The firms with high capital intensity may not engage in decoupling (Russo & Fouts, 1997). The Capital intensity was calculated as the ratio of net property, plant, and equipment to total assets. I also controlled for industry using both three-digit and two-digit SIC codes. Firm size, ROA, Tobin's Q, slack resources, R&D intensity, and Captial Intensity were computed using Compustat North American Database.

4.4. Analysis

To examine the relationships between CEOs' Psychological characteristics and two dimensions of decoupling, I used generalized estimation equations (GEE) (Liang & Zeger, 1986), which is an extension of generalized linear models (GLM). GLM models are mathematical extensions of linear models that do not force data into unnatural scales and hence allowing nonlinearity and nonconstant variance structures in the data. GLM models derive maximum likelihood estimates and control for non-independent observations. Moreover, GLM models have the advantage of obtaining robust standard errors that are corrected for over dispersion (McCullagh & Nelder, 1989). GEE models are an extension of GLM that allows

repeated response measures of the same subject. GEE allows non-independence among the observations of a single subject.

The data in my sample is a pooled time series where firm-year represents the observations, and therefore the appropriate estimation approach is GLM. Since I included time-invariant variables (personality score and values), I used a random-effects model using 'xtgee' command in Stata. I winsorized all continuous variables at the 1 percent level to control for extreme outliers

Chapter 5

ANALYSES AND RESULTS

This chapter gives an account of various analyses that I have conducted for the
dissertation. The chapter begins with summary statistics, followed by description of the
measures of the variables, econometric analyses, and supplemental analyses.

5.1. Descriptive Statistics and Correlation Matrix

I ran separate analyses for the environmental dimension and social dimension of
corporate sustainability. Table 5.1 reports the descriptive statistics, and table 5.2 shows bivariate
correlations and variance inflation factors for policy-practice decoupling in the environmental
dimension of corporate sustainability. As shown in table 5.2, the variance inflation factors are
within limits (below 10), and hence there is no multicollinearity among variables. The
correlation between dependent variable (policy-practice decoupling) and independent variables
(openness to experience, conscientiousness, extraversion, agreeableness, self-transcendence) is
significant at a 5% level of significance. Neuroticism and cognitive complexity are not
significantly correlated with policy-practice decoupling. The control variables-firm size, R&D
intensity, capital intensity, ROA, and firm age, are associated with the dependent variable. In
contrast, slack resources and Tobin's Q s are not significantly correlated with policy-practice
decoupling. The correlation between the moderating variable and the dependent variable is not
significant.

Table 5.3 shows the descriptive statistics, and Table 5.4 shows the bivariate correlations
and variance inflation factor of policy-practice decoupling in the social dimension. As reported
in Table 5.4, the relationship between policy-practice decoupling in the social dimension is

significantly correlated with conscientiousness and cognitive complexity. In contrast, extraversion, agreeableness, neuroticism, openness to experience, and self-transcendence are not significantly associated with policy-practice decoupling in the social dimension. Among the control variables, firm size, firm age, slack resources, capital intensity, and Tobin's Q are significantly correlated with policy-practice decoupling. The correlation between the moderator, board power, and policy-practice decoupling is significant.

5.2 Factor Analysis

5.2.1. Decoupling Variables

I conducted Principal Component Factor Analysis (PCA) to develop policy scores and program scores using various indicators of environment and social dimension of Sustainalytics. Table 5.5 shows the results of PCA. The eigenvalue for factor 1 is higher than the threshold value (1). In the rotated factor matrix, both environment policy and green procurement policy have a factor loading of 0.848. Similarly, Table 5.6 shows the results of program indicators. The results show that there is only one factor having eigenvalue greater than the 1 ( the threshold value). In the rotated factor matrix, environmental certification program has a factor loading of 0.663, hazardous waste management program has a factor loading of 0.734, water management program has a factor loading of 0.827, and renewable energy program has a factor loading of 0.768.

Table 5.7 shows the PCA results of the social dimension of policy indicators. The results show that there is only one factor having eigenvalue greater than 1 ( the threshold value). In the rotated factor matrix, the freedom of association policy has a factor loading of 0.881, the discrimination policy has a factor loading of 0.806, and the scope of supplier policy has a factor loading of 0.727. Similarly, Table 5.8 shows the PCA results of program indicators. The results

show that there is only one factor having eigenvalue greater than 1 ( the threshold value).  In the rotated factor matrix, the diversity program has a factor loading of 0.832, the health certification program has a factor loading of 0.84, and supply chain monitoring program has a factor loading of 0.773.

### 5.2.2. Independent Variable: Cognitive Complexity

I ran a factor analysis of four function word categories–conjunction, negation, tentativeness, and differentiation-to see the validity of the cognitive complexity construct.  As shown in Table 5.9, the eigenvalue is greater than 1 for 2 factors and functional word–conjunction is not highly correlated with cognitive complexity and hence I dropped conjunction from the cognitive complexity indicator and conducted PCA with the remaining three functional words.  Table 5.10 shows the result of PCA with three indicators.  The results show that the factor loading of negation, tentativeness, and differentiation are 0.903,0.889, and 0.943, respectively.  I used cognitive complexity with three indicators for further analysis.

### 5.3. Econometric Analyses

I started the econometric analysis with Ordinary Least Square Regression followed by GEE estimations.  I ran a separate analysis for the environmental dimension and social dimensions of corporate sustainability.  All the independent variables are developed using conference call transcripts.  I winsorized all variables at the 1 percent level to control for extreme outliers and also used a robust variance estimator (White, 1980).  The control variables–firm size, slack resources, R&D intensity, capital intensity, ROA, firm age, and Tobin's Q were lagged by one year.

5.3.1. Hypotheses testing: Policy-Practice decoupling in the Environmental Dimension (OLS)

i) Main effect

Table 5.11 shows the regression model for policy-practice decoupling in the environmental dimension of corporate sustainability. In Table 5.11, Model 1 is a control model. Model 2 adds FFM traits (conscientiousness, extraversion, agreeableness, neuroticism, openness to experience), CEO value (Self-transcendence), and CEO cognition (cognitive complexity). Model 3 adds the moderating variable–board power. Hypothesis 1a stated that there is a negative relationship between CEO conscientiousness and policy-practice decoupling in the environmental dimension. Model 2 shows that the above relationship is not significant. Hypothesis 2a stated that neuroticism is positively related to decoupling. As shown in Model 2, neuroticism is not significantly related to policy-practice decoupling. Hypothesis 3a stated that CEO extraversion is positively related to policy-practice decoupling. The hypothesis is not supported as the relationship is significant ($\beta = 4.234$, $p<0.05$) but the effect is positive. Hypothesis 4a predicted a negative relationship between CEO agreeableness and policy-practice decoupling, which is supported ($\beta = -6.329$, $p<0.01$). Hypothesis 5a stated that openness to experience is negatively related to policy-practice decoupling, which is not supported. Hypothesis 6a stated a negative relationship between CEO-self transcendence and policy-practice decoupling. Model 2 shows that the above relationship is not significant. Hypothesis 7a predicted a negative relationship between CEO cognitive complexity and policy-practice decoupling. I did not find support for this relationship. Model 2 is significant ( the change in $R^2$ is 0.073, $p<.01$).

<u>ii. Interaction effects</u>

Model 3 shows the interaction effect of board power with FFM traits, self-transcendence, and cognitive complexity with policy-practice decoupling. Hypothesis 8a stated that board power strengthens the negative relationship between CEO conscientiousness and policy-practice decoupling. This hypothesis did not find support. Hypothesis 9a predicted that board power weakens the positive relationship between CEO neuroticism and policy-practice decoupling. The result is not significant. Hypothesis 10a stated that board power weakens the positive relationship between extraversion and policy-practice decoupling, which is not supported. Hypothesis 11a stated that the board power strengthens the negative relationship between CEO agreeableness and policy-practice decoupling. The above relationship is not significant. Hypotheses 12a stated that board power strengthens the negative relationship between CEO openness to experience and policy-practice decoupling, which is not supported. Hypothesis 13a stated that board power strengthens the negative relationship between CEO self–transcendence and policy–practice decoupling. The result shows that the above relationship is not significant. Hypothesis 14a stated that board power strengthens the negative relationship between CEO cognitive complexity and policy–practice decoupling, which is not supported.

iii. Control variables effect

Among the control variables (firm size, slack resources, R&D intensity, capital intensity, firm age) only ROA is significant ($\beta = 0.45$ $p<0.05$).

5.3.2. Hypotheses testing: Policy-Practice Decoupling in the Social Dimension (OLS)

i.    Main effect

Table 5.12 shows the regression model for policy-practice decoupling in the social dimension of corporate sustainability.  In Table 5.12, Model 1 is a control model.  Model 2 adds FFM traits (conscientiousness, extraversion, agreeableness, neuroticism, openness to experience), CEO value (Self-transcendence), and CEO cognition (cognitive complexity). Model 3 adds the moderating variable–board power.  Hypothesis 1b stated that there is a negative relationship between CEO conscientiousness and policy-practice decoupling.  Model 2 shows that the above relationship is not significant.  Hypothesis 2b stated that neuroticism is positively related to decoupling, which is not supported.  Hypothesis 3b stated that CEO extraversion is positively related to policy-practice decoupling.  Model 2 shows that the above relationship is not significant.  Hypothesis 4b predicted a negative relationship between CEO agreeableness and policy-practice decoupling.  As expected, CEO agreeableness is negatively ($\beta$= -2.215, p<0.01) related to policy-practice decoupling.  Hypothesis 5b stated that openness to experience is negatively related to policy-practice decoupling.  Hypothesis 5b is not supported because the relationship is significant ($\beta$= 4.203, p<0.1) but the effect is positive.  Hypothesis 6b stated a negative relationship between CEO-self transcendence and policy-practice decoupling. Model 2 shows that the above relationship is not significant.  Hypothesis 7b predicted a negative relationship between CEO cognitive complexity and policy-practice.

ii.    Interaction effect

Model 3 shows the interaction effect of board power with FFM traits, self-transcendence, and cognitive complexity with policy-practice decoupling.  Hypothesis 8b stated that the board

power strengthened the negative relationship between CEO conscientiousness and policy-practice decoupling, but I did not find the relationship significant. Hypothesis 9b predicted that board power weakened the positive relationship between CEO neuroticism and policy-practice decoupling. The result is not significant. Hypothesis 10b stated that board power weakened the positive relationship between extraversion and policy-practice decoupling, which is not supported. Hypothesis 11b stated that board power strengthened the negative relationship between CEO agreeableness and policy-practice decoupling. The above relationship is not significant. Hypotheses 12b stated that board power strengthened the negative relationship between CEO openness to experience and policy-practice decoupling, which is not supported. Hypothesis 13b stated that board power strengthens the negative relationship between CEO self–transcendence and policy–practice decoupling. The result shows that the above relationship is not significant. Hypothesis 14b stated that board power strengthens the negative relationship between CEO cognitive complexity and policy–practice decoupling, which is not supported.

iii.    Control variables effect

Among the control variables (firm size, slack resources, R&D intensity, capital intensity, firm age, ROA, Tobin's Q) firm size is significant (0.054, $p<0.01$). Similarly, R&D intensity is significant ($\beta$= -0.396, $p<.01$).

Despite OLS's obvious popularity, OLS results are sensitive to outliers, non-normality, and assumption violations, including heteroskedasticity, autocorrelation (Semadeni et al., 2014). Furthermore, OLS regression produces biased results and is inappropriate in analyzing panel data in which the dependent variable, independent variable, and control variable are measured at multiple points in time (Certo & Semadeni, 2006). A better approach for panel data is to use fixed-effects models or random-effects models (Wooldridge, 2013). An appropriate estimation

technique after considering the nature of data (as mentioned in Chapter 4) is GEE models. GEE

models are used as an estimation technique in many studies using CEO psychological

characteristics as an independent variable (Benischke et al., 2019; Chatterjee & Hambrick, 2007,

2011; Petrenko et al., 2016). Thus, I use GEE as the estimation procedure in all the remaining

analyses.

5.3.3. Hypotheses testing: Policy-practice decoupling in the Environmental Dimension (GEE

Analyses)

i) <u>Main effect</u>

Table 5.13 shows the regression model for policy-practice decoupling in the

environmental dimension of corporate sustainability. In Table 5.13, Model 1 is a control model.

Model 2 adds FFM traits(conscientiousness, extraversion, agreeableness, neuroticism, openness

to experience, CEO value(Self-transcendence), and CEO cognition(cognitive complexity).

Model 3 adds the moderating variable–board power. Hypothesis 1a stated that there is a negative

relationship between CEO conscientiousness and policy-practice decoupling in the

environmental dimension. Model 2 shows that the above relationship is not significant.

Hypothesis 2a stated that neuroticism is positively related to decoupling. As expected,

neuroticism is positively associated ($\beta$ = 6.299, p<0.05) with policy-practice decoupling.

Hypothesis 3a stated that CEO extraversion is positively related to policy-practice decoupling.

Model 2 shows that the above relationship is significant ($\beta$ = 4.234, p<0.01). Hypothesis 4a

predicted a negative relationship between CEO agreeableness and policy-practice decoupling,

which is supported ($\beta$ = -10.639, p<0.01). Hypothesis 5a stated that openness to experience is

negatively related to policy-practice decoupling, which is not supported. Hypothesis 6a stated a

negative relationship between CEO-self transcendence and policy-practice decoupling. Model 2

shows that the above relationship is not significant.  Hypothesis 7a predicted a negative

relationship between CEO cognitive complexity and policy-practice decoupling.  I did not find

support for this relationship.  Model 2 is significant ( change in Wald χ2 is 26.07, p<0.1).

     ii. Interaction effects

     Model 3 shows the interaction effect of board power with FFM traits, self-transcendence,

and cognitive complexity with policy-practice decoupling.  Hypothesis 8a stated that board

power strengthens the negative relationship between CEO conscientiousness and policy-practice

decoupling.  This hypothesis did not find support.  Hypothesis 9a predicted that board power

weakens the positive relationship between CEO neuroticism and policy-practice decoupling.

The result is not significant.  Hypothesis 10a stated that board power weakens the positive

relationship between extraversion and policy-practice decoupling, which is not supported.

Hypothesis 11a stated that board power strengthens the negative relationship between CEO

agreeableness and policy-practice decoupling.  The above relationship is not significant.

Hypotheses 12a stated that board power strengthens the negative relationship between CEO

openness to experience and policy-practice decoupling, which is not supported.  Hypothesis 13a

stated that board power strengthens the negative relationship between CEO self–transcendence

and policy–practice decoupling.  The result shows that the above relationship is not significant.

Hypothesis 14a stated that board power strengthens the negative relationship between CEO

cognitive complexity and policy–practice decoupling, which is not supported.

    iii. Control variables effect

     Among the control variables (firm size, slack resources, R&D intensity, capital intensity,

firm age, ROA, Tobin's Q) firm size is significant (β = 0.040, p<0.1).

5.3.4. Hypotheses testing: Policy-Practice Decoupling in the Social dimension (GEE Analyses)

i. Main effect

Table 5.14 shows the regression model for policy-practice decoupling in the social dimension of corporate sustainability.  In Table 5.14, Model 1 is a control model.  Model 2 adds FFM traits (conscientiousness, extraversion, agreeableness, neuroticism, openness to experience), CEO value (Self-transcendence), and CEO cognition (cognitive complexity).  Model 3 adds the moderating variable–board power.  Hypothesis 1b stated that there is a negative relationship between CEO conscientiousness and policy-practice decoupling.  Model 2 shows that the above relationship is not significant.  Hypothesis 2b stated that neuroticism is positively related to decoupling, which is not supported.  Hypothesis 3b stated that CEO extraversion is positively related to policy-practice decoupling.  Model 2 shows that the above relationship is not significant.  Hypothesis 4b predicted a negative relationship between CEO agreeableness and policy-practice decoupling, which is not supported.  Hypothesis 5b stated that openness to experience is negatively related to policy-practice decoupling.  Model 2 shows support for the above relationship ($\beta$ = -13.493, p<0.05).  Hypothesis 6b stated a negative relationship between CEO-self transcendence and policy-practice decoupling.  Model 2 shows that the above relationship is not significant.  Hypothesis 7b predicted a negative relationship between CEO cognitive complexity and policy-practice decoupling.  As expected, cognitive complexity is ($\beta$= -0.247, p<0.05) is negatively associated to policy-practice decoupling.  Model 2 is significant ( change in Wald $\chi 2$ is 42, p<0.1).

ii. Interaction effects

Model 3 shows the interaction effect of board power with FFM traits, self-transcendence, and cognitive complexity with policy-practice decoupling.  Hypothesis 8b stated that board power strengthened the negative relationship between CEO conscientiousness and policy-practice decoupling that is not significant.  Hypothesis 9b predicted that board power weakened the positive relationship between CEO neuroticism and policy-practice decoupling.  The result is not significant.  Hypothesis 10b stated that board power weakened the positive relationship between extraversion and policy-practice decoupling, which is not supported.  Hypothesis 11b stated that board power strengthened the negative relationship between CEO agreeableness and policy-practice decoupling.  The above relationship is not significant.  Hypotheses 12b stated that board power strengthened the negative relationship between CEO openness to experience and policy-practice decoupling, which is not supported.  Hypothesis 13b stated that board power strengthens the negative relationship between CEO self–transcendence and policy–practice decoupling.  The result shows that the above relationship is not significant.  Hypothesis 14b stated that board power strengthens the negative relationship between CEO cognitive complexity and policy–practice decoupling, which is not supported.

iii. Control variables effect

Among the control variables (firm size, slack resources, R&D intensity, capital intensity, firm age, ROA, Tobin's Q) only firm size is significant ($\beta = 0.092$, $p<0.01$).

5.4. Supplemental Analyses

    5.4.1. Hypothesis Testing using FFM traits derived from "Personality Recognizer"

As mentioned in chapter 2, the two common approaches for linguistic analyses are closed vocabulary approach and open vocabulary approach. In closed approach, the given text is compared with a pre-defined lexicon or dictionaries and tabulates the word frequencies of the given text after comparing it with pre-defined lexicon. In an open approach, a given text is characterized by using a comprehensive features of the language such as words, sentences and other features (Harrison et al., 2019; Kern et al., 2016). "Personality Recognizer" uses a closed approach to measure personality by combining LIWC and MRC Psycholinguistic database. I test the relationship between policy-practice decoupling and FFM traits developed using "Personality Recognizer" scores both in the environmental and social dimension. Personality Recognizer does not provide scores for self-transcendence and hence I only considered FFM traits. To understand completely the main effect of FFM traits, I only tested the relationship between FFM traits and policy-practice decoupling.

Table 5.15 shows the results of GEE estimation of policy-practice decoupling with FFM traits in the environmental dimension. Model 1 includes the control variable. In model 2, I added FFM traits, and cognitive complexity, and in model 3, I added the moderator, board power. Hypothesis 1a stated that there is a negative relationship between CEO conscientiousness and policy-practice decoupling in the environmental dimension. Model 2 shows that the above relationship is not significant. Hypothesis 2a stated that neuroticism is positively related to decoupling. Personality Recognizer measures neuroticism as emotional stability (opposite of neuroticism) and emotional stability is negatively associated ($\beta = -0.140$, $p<0.01$) with policy-practice decoupling. Hypothesis 3a stated that CEO extraversion is positively related to policy-

practice decoupling. Model 2 shows that the above relationship is not significant. Hypothesis 4a predicted a negative relationship between CEO agreeableness and policy-practice decoupling. The hypothesis is not supported because the relationship is significant ($\beta = 0.184$, $p<0.05$) but the effect is positive. Hypothesis 5a stated that openness to experience is negatively related to policy-practice decoupling. I did not find support for this relationship. Hypothesis 7a predicted a negative relationship between CEO cognitive complexity and policy-practice decoupling. As expected, cognitive complexity is ($\beta= -0.155$, $p<0.01$) is negatively associated with policy-practice decoupling.

Model 3 shows the interaction effect of board power with FFM traits, self-transcendence, and cognitive complexity with policy-practice decoupling. Hypothesis 8a stated that board power strengthened the negative relationship between CEO conscientiousness and policy-practice decoupling. The relationship is not significant. Hypothesis 9a predicted that board power weakened the positive relationship between CEO neuroticism and policy-practice decoupling. The result is not significant. Hypothesis 10a stated that the board power weakened the positive relationship between extraversion and policy-practice decoupling. But I did not find support for the relationship. Hypothesis 11a stated that board power strengthened the negative relationship between CEO agreeableness and policy-practice decoupling. The above relationship is not significant. Hypotheses 12a stated that board power strengthened the negative relationship between CEO openness to experience and policy-practice decoupling. I did not find support for the above relationship. Hypothesis 14a stated that board power strengthens the negative relationship between CEO cognitive complexity and policy–practice decoupling. The relationship is not significant.

Table 5.16 shows the regression model for policy-practice decoupling in the social dimension of corporate sustainability. In Table 5.16, Model 1 is a control model. Model 2 adds FFM traits (conscientiousness, extraversion, agreeableness, neuroticism, openness to experience), and CEO cognition (cognitive complexity). Model 3 adds the moderating variable, board power. Hypothesis 1b stated that there is a negative relationship between CEO conscientiousness and policy-practice decoupling. Model 2 shows that the above relationship is not significant. Hypothesis 2b stated that neuroticism is positively related to decoupling. The result shows that emotional stability (as compared to neuroticism) is not supported. Hypothesis 3b stated that CEO extraversion is positively related to policy-practice decoupling. The hypothesis is not supported because the relationship is significant ($\beta$=-0.089,p<.05) but the effect is positive. Hypothesis 4b predicted a negative relationship between CEO agreeableness and policy-practice decoupling. This hypothesis is not supported. Hypothesis 5b stated that openness to experience is negatively related to policy-practice decoupling. Model 2 shows support for the above relationship ($\beta$ = -13.493, p<0.05). Hypothesis 7b predicted a negative relationship between CEO cognitive complexity and policy-practice decoupling which is not supported. Model 2 is significant (change in Wald $\chi2$ is 92.1, p<0.01).

Model 3 shows the interaction effect of board power with FFM traits, self-transcendence, and cognitive complexity with policy-practice decoupling. Hypothesis 8b stated that board power strengthened the negative relationship between CEO conscientiousness and policy-practice decoupling. The result shows that the interaction effect is significant ($\beta$ = -0.188, p<0.05). Hypothesis 9b predicted that board power weakened the positive relationship between CEO neuroticism and policy-practice decoupling. The result is not significant. Hypothesis 10b stated that board power weakened the positive relationship between extraversion and policy-

practice decoupling. But I did not find support for relationship. Hypothesis 11b stated that board power strengthened the negative relationship between CEO agreeableness and policy-practice decoupling. The above relationship is not significant. Hypotheses 12b stated that board power strengthened the negative relationship between CEO openness to experience and policy-practice decoupling, which is not supported. Hypothesis 14b stated that board power strengthens the negative relationship between CEO cognitive complexity and policy–practice decoupling. The relationship is not significant. Among the control variables firm size is significant ($\beta$ = 0.092, p<0.01).

The analysis shows consistency of results between open-language (IBM Personality Insights) derived measures of FFM traits and closed-language (Personality Recognizer) derived measure of FFM traits for agreeableness and neuroticism in the environmental dimension. However, using an open-language approach to validate a closed-language approach is not appropriate at least in the context of my study. An open-language method that uses a wide array of language features is more appropriate to extract stable traits such as personality. Thus, I use IBM derived FFM traits for the remaining analyses.

5.4.2. Hypothesis testing using independent variables derived from Letters to Shareholders

Research evidence suggests that the use of letters to shareholders can be a reasonable source for deriving CEO characteristics (Barr, 1998; Barr et al., 1992; Osborne et al., 2001). I have used letters to shareholders separated from annual report to derive measures for FFM traits, self-transcendence, and cognitive complexity.

Table 5.17 shows the results of GEE estimation of policy-practice decoupling with FFM traits in the environmental dimension. Model 1 includes the control variable. In model 2, I added FFM traits, and cognitive complexity, and in model 3, I added moderator board power.

Hypothesis 1a stated that there is a negative relationship between CEO conscientiousness and policy-practice decoupling in the environmental dimension. Model 2 shows that the above relationship is not significant. Hypothesis 2a stated that neuroticism is positively related to decoupling. The relationship is not significant. Hypothesis 3a stated that CEO extraversion is positively related to policy-practice decoupling. Model 2 shows that the above relationship is significant ($\beta = 14.453$, p<0.01). Hypothesis 4a predicted a negative relationship between CEO agreeableness and policy-practice decoupling. The result does not show support for the above relationship. Hypothesis 5a stated that openness to experience is negatively related to policy-practice decoupling. But I did not find support for this relationship. Hypothesis 7a predicted a negative relationship between CEO cognitive complexity and policy-practice decoupling. The relationship is not significant.

Model 3 shows the interaction effect of board power with FFM traits, self-transcendence, and cognitive complexity with policy-practice decoupling. Hypothesis 8a stated that board power strengthened the negative relationship between CEO conscientiousness and policy-practice decoupling. The coefficient for hypothesis 8a is significant ($\beta = -26.364$, p<.01). Hypothesis 9a predicted that board power weakened the positive relationship between CEO neuroticism and policy-practice decoupling. The result shows that the relationship is significant ($\beta = -26.364$, p<.01). Hypothesis 10a stated that board power weakened the positive relationship between extraversion and policy-practice decoupling. I did not find support for this relationship. Hypothesis 11a stated that board power strengthened the negative relationship between CEO agreeableness and policy-practice decoupling. The above relationship is significant ($\beta = 22.101$, P<0.05). Hypotheses 12a stated that board power strengthened the negative relationship between CEO openness to experience and policy-practice decoupling. The

relationship is not significant.  Hypothesis 13a stated that board power strengthens the negative relationship between CEO self–transcendence and policy–practice decoupling.  But I did not find the relationship significant.  Hypothesis 14a stated that board power strengthens the negative relationship between CEO cognitive complexity and policy–practice decoupling.  This relationship is not supported.

Table 5.18 shows the regression model for policy-practice decoupling in the social dimension of corporate sustainability.  In Table 5.18, Model 1 is a control model.  Model 2 adds FFM traits (conscientiousness, extraversion, agreeableness, neuroticism, openness to experience), and CEO cognition (cognitive complexity).  Model 3 adds the moderating variable, board power.  Hypothesis 1b stated that there is a negative relationship between CEO conscientiousness and policy-practice decoupling.  Model 2 shows that the above relationship is not significant.  Hypothesis 2b stated that neuroticism is positively related to decoupling.  The result shows that the relationship is not supported.  Hypothesis 3b stated that CEO extraversion is positively related to policy-practice decoupling.  This relationship is not supported.  Hypothesis 4b predicted a negative relationship between CEO agreeableness and policy-practice decoupling.  But I did not find the relationship significant.  Hypothesis 5b stated that openness to experience is negatively related to policy-practice decoupling.  The relationship is significant ($\beta = 12.062$, $p<0.05$), but the effect is positive and hypothesis 5b is not supported.  Hypothesis 6b stated a negative relationship between CEO-self transcendence and policy-practice decoupling.  Model 2 shows that the above relationship is not significant.  Hypothesis 7b predicted a negative relationship between CEO cognitive complexity and policy-practice decoupling.  This relationship is not supported.

Model 3 shows the interaction effect of board power with FFM traits, self-transcendence, and cognitive complexity with policy-practice decoupling. Hypothesis 8b stated that board power strengthened the negative relationship between CEO conscientiousness and policy-practice decoupling. The relationship is not significant. Hypothesis 9b predicted that board power weakened the positive relationship between CEO neuroticism and policy-practice decoupling. The result is not significant. Hypothesis 10b stated that board power weakened the positive relationship between extraversion and policy-practice decoupling. But I did not find support for this relationship. Hypothesis 11b stated that board power strengthened the negative relationship between CEO agreeableness and policy-practice decoupling. The above relationship is not significant. Hypotheses 12b stated that board power strengthened the negative relationship between CEO openness to experience and policy-practice decoupling. The relationship is not significant. Hypothesis 13b stated that board power strengthens the negative relationship between CEO self–transcendence and policy–practice decoupling. The hypothesis is not supported. Hypothesis 14b stated that board power strengthens the negative relationship between CEO cognitive complexity and policy–practice decoupling. The relationship is not significant Among the control variables, firm size is significant in model ($\beta = 0.059$ p<0.01), model 2 ($\beta = 0.073$, p<0.01), and model 3 ($\beta = 0.057$, p<0.01).

Even though letters to shareholders is widely used to develop unobtrusive measures of CEO psychological characteristics, scholars question its validity. Scholars argue that the letters to shareholders can be the outcomes of public relations work and would not represent actual actions and characteristics of CEOs (Fiss & Zajac, 2006). A better approach is to use conference call transcripts as mentioned in chapter 4.

5.4.3. Hypothesis testing using Alternate measure for Decoupling.

I tested the relationship between policy-practice decoupling and independent variables using the text-based measure of decoupling. To estimate the GEE models, I have used the IBM Personality Insights measures of FFM traits and self-transcendence. These measures are derived from conference call transcripts.

Table 5.19 shows the regression model for policy-practice decoupling in the environmental dimension of corporate sustainability. In Table 5.19, Model 1 is a control model. Model 2 adds FFM traits (conscientiousness, extraversion, agreeableness, neuroticism, openness to experience), CEO value (Self-transcendence), and CEO cognition (cognitive complexity). Model 3 adds the moderating variable, board power. Hypothesis 1a stated that there is a negative relationship between CEO conscientiousness and policy-practice decoupling in the environmental dimension. Model 2 shows that the above relationship is significant ($\beta$ = 6.467,p<0.1) and the effect is positive. Hypothesis 2a stated that neuroticism is positively related to decoupling. The relationship is significant ($\beta$ = 6.467,p<0.1) and the effect is positive. Hypothesis 3a stated that CEO extraversion is positively related to policy-practice decoupling. Model 2 shows that the above relationship is significant ($\beta$ = 11.982, p<0.01) and the effect is positive. Hypothesis 4a predicted a negative relationship between CEO agreeableness and policy-practice decoupling. I find support for this relationship ($\beta$ = -6.551, p<0.01) and effect is positive. Hypothesis 5a stated that openness to experience is negatively related to policy-practice decoupling. But I did not find the relationship significant. Hypothesis 6a stated a negative relationship between CEO-self transcendence and policy-practice decoupling. Model 2 shows that the above relationship is not significant. Hypothesis 7a predicted a negative

relationship between CEO cognitive complexity and policy-practice decoupling. I did not find support for this relationship. Model 2 is significant (change in Wald $\chi2$ is 49.58, p<0.01).

Model 3 shows the interaction effect of board power with FFM traits, self-transcendence, and cognitive complexity with policy-practice decoupling. Hypothesis 8a stated that board power strengthens the negative relationship between CEO conscientiousness and policy-practice decoupling that is not significant. Hypothesis 9a predicted that board power weakens the positive relationship between CEO neuroticism and policy-practice decoupling. The result is not significant. Hypothesis 10a stated that board power weakens the positive relationship between extraversion and policy-practice decoupling. The relationship is not supported. Hypothesis 11a stated that board power strengthens the negative relationship between CEO agreeableness and policy-practice decoupling. The above relationship is not significant. Hypotheses 12a stated that board power strengthens the negative relationship between CEO openness to experience and policy-practice decoupling. But I did not find support for this relationship. Hypothesis 13a stated that board power strengthens the negative relationship between CEO self–transcendence and policy–practice decoupling. The result shows that the above relationship is not significant. Hypothesis 14a stated that board power strengthens the negative relationship between CEO cognitive complexity and policy–practice decoupling. The relationship is not significant.

Among the control variables, firm size is significant ($\beta$ =0.41, p<0.01). Similarly, R&D intensity is significant ($\beta$ = 1.291, p<0.05).

Table 5.20 shows the regression model for policy-practice decoupling in the social dimension of corporate sustainability. In Table 5.20, Model 1 is a control model. Model 2 adds FFM traits (conscientiousness, extraversion, agreeableness, neuroticism, openness to experience), CEO value (Self-transcendence), and CEO cognition (cognitive complexity).

Model 3 adds the moderating variable, board power. Hypothesis 1b stated that there is a negative relationship between CEO conscientiousness and policy-practice decoupling in the social dimension. The hypothesis is not supported. Hypothesis 2b stated that neuroticism is positively related to decoupling. The relationship is not significant. Hypothesis 3b stated that CEO extraversion is positively related to policy-practice decoupling. The hypothesis is not supported because the relationship is significant ($\beta$ = -6.210, p<0.10) but the effect is negative. Hypothesis 4b predicted a negative relationship between CEO agreeableness and policy-practice decoupling. The relationship is significant ($\beta$ = 5.733, p<0.10) but the effect is positive and hence hypothesis is not supported. Hypothesis 5b stated that openness to experience is negatively related to policy-practice decoupling. But I did not find support for this relationship. Hypothesis 6b stated a negative relationship between CEO-self transcendence and policy-practice decoupling. Model 2 shows that the above relationship is not significant. Hypothesis 7b predicted a negative relationship between CEO cognitive complexity and policy-practice decoupling. I did not find support for this relationship.

Model 3 shows the interaction effect of board power with FFM traits, self-transcendence, and cognitive complexity with policy-practice decoupling. Hypothesis 8b stated that board power strengthens the negative relationship between CEO conscientiousness and policy-practice decoupling that is not significant. Hypothesis 9b predicted that board power weakens the positive relationship between CEO neuroticism and policy-practice decoupling. The result is not significant. Hypothesis 10b stated that the board power weakens the positive relationship between extraversion and policy-practice decoupling. I did not find support for this relationship. Hypothesis 11b stated that board power strengthens the negative relationship between CEO agreeableness and policy-practice decoupling. The above relationship is not significant.

Hypotheses 12b stated that the board power strengthens the negative relationship between CEO openness to experience and policy-practice decoupling. The relationship is not supported. Hypothesis 13b stated that board power strengthens the negative relationship between CEO self–transcendence and policy–practice decoupling. The result shows that the above relationship is not significant. Hypothesis 14b stated that board power strengthens the negative relationship between CEO cognitive complexity and policy–practice decoupling. The above relationship is not significant.

Among the control variables, firm size is significant (β =0.046, p<0.01). Firm age is significant in (β = -0.028, p<0.01). ROA is significant (β =0.046, p<0.01). Tobin's Q is significant (β = -0.26, p<0.01.

5.4.4. Correction for sample selection bias

I have limited the final sample of the study to companies where CEO psychological characteristics can be measured which can lead to sample selection bias. A commonly followed approach to correct sample selection bias is using Heckman's two-stage approach (Heckman, 1979) and I followed Heckman's approach to correct sample selection bias. I extracted all publicly listed U.S. firms from Compustat for the period 2009 to 2018. I compared the firm-year observations with all publicly listed firms extracted from Compustat. I created a dummy variable 1 for firms in our sample, if the firm-year observation is present in the large sample otherwise 0. I ran a probit model to regress on firm specific characteristics such as firm size, slack resources, R&D intensity, and ROA. I calculated inverse Mills ratio ( the probability of each sample observation based on the probit model estimate) and included it while estimating GEE model for the environmental and social dimension.

Table 5.21 shows the regression model for policy-practice decoupling in the environmental dimension of corporate sustainability with Inverse Mills Ratio.  In Table 5.21, Model 1 is a control model.  Model 2 adds FFM traits (conscientiousness, extraversion, agreeableness, neuroticism, openness to experience, CEO value(Self-transcendence), and CEO cognition(cognitive complexity).  Model 3 adds the moderating variable, board power. Hypothesis 1a stated that there is a negative relationship between CEO conscientiousness and policy-practice decoupling in the environmental dimension.  Model 2 shows that the above relationship is not significant.  Hypothesis 2a stated that neuroticism is positively related to decoupling.  This hypothesis did not find support.  Hypothesis 3a stated that CEO extraversion is positively related to policy-practice decoupling.  Model 2 shows that the above relationship is significant ($\beta = 5.049$, p<0.05) and the effect is positive.  Hypothesis 4a predicted a negative relationship between CEO agreeableness and policy-practice decoupling.  The relationship is significant ($\beta = -11.244$, p<0.01) and the effect is negative.  Hypothesis 5a stated that openness to experience is negatively related to policy-practice decoupling.  I did not find support for this relationship.  Hypothesis 6a stated a negative relationship between CEO-self transcendence and policy-practice decoupling.  Model 2 shows that the above relationship is not significant. Hypothesis 7a predicted a negative relationship between CEO cognitive complexity and policy-practice decoupling.  I did not find support for this relationship.  Model 2 is significant ( change in Wald $\chi 2$ is 31.57, p<0.01).

Model 3 shows the interaction effect of board power with FFM traits, self-transcendence, and cognitive complexity with policy-practice decoupling.  Hypothesis 8a stated that board power strengthens the negative relationship between CEO conscientiousness and policy-practice decoupling.  This hypothesis did not find support.  Hypothesis 9a predicted that board power

weakens the positive relationship between CEO neuroticism and policy-practice decoupling. The result is not significant. Hypothesis 10a stated that board power weakens the positive relationship between extraversion and policy-practice decoupling. The relationship is not significant. Hypothesis 11a stated that board power strengthens the negative relationship between CEO agreeableness and policy-practice decoupling. The above relationship is not significant. Hypotheses 12a stated that board power strengthens the negative relationship between CEO openness to experience and policy-practice decoupling. The relationship is not supported. Hypothesis 13a stated that board power strengthens the negative relationship between CEO self–transcendence and policy–practice decoupling. The result shows that the above relationship is not significant. Hypothesis 14a stated that board power strengthens the negative relationship between CEO cognitive complexity and policy–practice decoupling. But I did not find support for this relationship. Among the control variables, capital intensity is significant in model 1 ($\beta = 0.559$, p<0.05). I did not find support for other control variables.

Table 5.22 shows the regression model for policy-practice decoupling in the social dimension of corporate sustainability with Inverse Mills Ratio. In Table 5.22, Model 1 is a control model. Model 2 adds FFM traits (conscientiousness, extraversion, agreeableness, neuroticism, openness to experience, CEO value(Self-transcendence), and CEO cognition(cognitive complexity). Model 3 adds the moderating variable, board power. Hypothesis 1b stated that there is a negative relationship between CEO conscientiousness and policy-practice decoupling in the environmental dimension. Model 2 shows that the above relationship is not significant. Hypothesis 2b stated that neuroticism is positively related to decoupling. This hypothesis did not find support. Hypothesis 3b stated that CEO extraversion is positively related to policy-practice decoupling. Model 2 shows that the above relationship is

not significant.  Hypothesis 4b predicted a negative relationship between CEO agreeableness and policy-practice decoupling.  I did not find significance for the relationship.  Hypothesis 5b stated that openness to experience is negatively related to policy-practice decoupling.  The relationship is significant ($\beta$ = -13.482, p<0.05) and the effect is negative.  Hypothesis 6b stated a negative relationship between CEO-self transcendence and policy-practice decoupling.  Model 2 shows that the above relationship is not significant.  Hypothesis 7b predicted a negative relationship between CEO cognitive complexity and policy-practice decoupling.  I did not find support for this relationship.  Model 2 is significant (change in Wald $\chi$2 is 35.21, p<0.01).

Model 3 shows the interaction effect of board power with FFM traits, self-transcendence, and cognitive complexity with policy-practice decoupling.  Hypothesis 8b stated that board power strengthens the negative relationship between CEO conscientiousness and policy-practice decoupling.  This hypothesis did not find support.  Hypothesis 9b predicted that board power weakens the positive relationship between CEO neuroticism and policy-practice decoupling.  The result is not significant.  Hypothesis 10b stated that board power weakens the positive relationship between extraversion and policy-practice decoupling.  The relationship is not significant.  Hypothesis 11b stated that board power strengthens the negative relationship between CEO agreeableness and policy-practice decoupling.  The above relationship is not significant.  Hypotheses 12b stated that board power strengthens the negative relationship between CEO openness to experience and policy-practice decoupling.  The relationship is not supported.  Hypothesis 13b stated that board power strengthens the negative relationship between CEO self–transcendence and policy–practice decoupling.  The result shows that the above relationship is not significant.  Hypothesis 14b stated that board power strengthens the

negative relationship between CEO cognitive complexity and policy–practice decoupling. But I did not find support for this relationship.

Among the control variables, Firm size is significant in model ($\beta = 0.140$ p<0.05). Similarly, capital intensity is significant ($\beta = 0.559$ p<0.010).

Chapter 6

DISCUSSION AND CONCLUSION

6.1 Discussion of Results

I proposed and tested a complex set of relationships that described three aspects of CEO psychological characteristics- personality traits (FFM), values (Self-transcendence), and cognition (cognitive complexity)-and one aspect of board characteristics (board power) with policy-practice decoupling in the two dimensions of corporate sustainability–environmental dimension and social dimension. I found that extraversion and neuroticism are positively related to policy-practice decoupling in the environmental dimension. CEO agreeableness is negatively related to policy-practice decoupling in the environmental dimension. In the case of policy-practice decoupling in the social dimension, CEO's openness to experience is negatively associated with decoupling. Cognitive complexity that represents CEO cognition is negatively related to decoupling. My study did not find support for proposed the relationship between personality traits–conscientiousness and openness to experience–with policy-practice decoupling in the environmental dimension. Similarly, cognitive complexity was also not significant.

There was no support for the proposed relationship between conscientiousness, agreeableness, extraversion, and neuroticism with policy-practice decoupling in the social dimension of corporate sustainability. Self-transcendence that represents CEO value was not related to policy-practice decoupling both in the environmental and social dimensions. All these results point to the nuanced relationship between CEO psychological characteristics and decoupling, and below, I will discuss the implications of the above results.

6.2 Theoretical Implications

Prior studies on decoupling have predominantly examined decoupling in diverse settings (Bromley & Powell, 2012) but with limited studies in the context of corporate sustainability (Christmann & Taylor, 2006; Graafland & Smid, 2019; Sauerwald & Su,2019; Tashman et al., 2019 are few exceptions). Decoupling originated in institutional theory (Meyer & Rowan, 1977) and was initially related to the separation of structure from the rest of the organizational activities. Eventually, firms started adopting decoupling into various practices. My study presents that decoupling is prevalent in the context of corporate sustainability. There are two perspectives in the context of corporate sustainability, especially in the context of corporate environmentalism (Bowen, 2014). One approach focuses on how firms' approach towards natural environment offers competitive advantage ((Hart, 1995). The other approach argues that firms' sustainability efforts are merely rhetoric and often firms add prefix "sustainable" to their products and activities (Banerjee, 2008). The finding of the study that decoupling in some form is prevalent in the context of corporate sustainability adds to the existing discussion in the literature on the symbolic adoption of corporate sustainability.

Within the upper echelon stream, CEOs research has become the most dominant theme (Busenbark et al., 2016). CEOs significantly influence the activities of the firms. Most of the earlier studies focused on CEOs' observable characteristics. This has attracted considerable criticism for depending too much on inadequate proxies. Responding to this criticism, scholars have examined CEO psychological characteristics to a certain extent (McNamara et al., 2002; Nadkarni & Herrmann, 2010; Wowak et al., 2016). However, most of the studies looked at the influence of CEO characteristics on firm performance, strategic change, and other market-related

strategies.  By employing a comprehensive framework of CEO psychological characteristics, this study presents an understanding of predictors of decoupling.

The finding that the dark side of the CEO personality traits such as extraversion and neuroticism leads to policy-practice decoupling in the environmental dimension has important implications.  Overconfidence, desire for social attention, promotion focus, demand for submissiveness from the employees are some of the representative characteristics of an extraverted CEO.  The desire for social attention, promotion focus, and discounting the negative consequence encourages CEOs to engage in talking about corporate sustainability without actually adopting it.  It is also possible that the preference for submissiveness and unwillingness to listen to subordinates can increase organizational resistance for corporate sustainability.  Similarly, the neurotic CEO is less stable, not relaxed, have a negative frame of mind, and tend to engage in hyperbolic intertemporal discounting.  These traits affect information processing ability, decision-making, as well as problem-solving capabilities.  The three goals of environment, social, and governance under corporate sustainability are inextricable, which makes the achievement of corporate sustainability more challenging and demanding of long term commitment, high information processing capability, and a broader frame of decision making.  Neurotic characteristics make it difficult for CEOs to have these abilities on a consistent basis which leads to decoupling.  On the positive side, agreeableness reduces decoupling in the environmental dimension.  Some of the representative characteristics of an agreeable CEO are modesty, altruism, and trustworthiness.  These characteristics increase their interest in social welfare, and they will be motivated to achieve sustainable development goals.  Furthermore, they adopt an inclusive style of leadership, which will create a positive organizational climate. A

positive organizational climate will reduce the challenges of implementation of sustainability practices.

The CEO personality trait of openness to experience was significant in influencing the policy-practice decoupling in the context of the social dimension. Openness to experience trait makes a CEO creative, to have broad interests, and receptive to new initiatives. Corporate sustainability demands innovative solutions to sustainability challenges, and CEOs with openness to experience facilitate corporate sustainability. Similarly, openness to experience enhances transformational leadership, which reduces decoupling. As discussed earlier, CEO cognition was measured using cognitive complexity, and it was found that cognitive complexity reduces decoupling. A CEO with cognitive complexity possesses differentiation and integration cognitive frame, and they gather diverse information on all goals of corporate sustainability. Similarly, they have a high perceived sense of control and they are sensitive to sustainability-related challenges. These qualities of the CEO will influence the efforts of their organizations towards corporate sustainability, especially in the social dimension.

Integrating the findings of the study, it can be argued that different personality traits of CEOs have a distinct influence on decoupling. The positive traits facilitate a broader field of vision and perception towards corporate sustainability, which reduces decoupling. The positive traits also enhance leadership effectiveness, which reduces organizational resistance towards sustainability. CEOs need to pay attention to diverse information related to corporate sustainability, and positive traits improve the CEO's information processing. Positive traits and cognitive complexity help the CEO to have broader attention towards sustainability issues and integrate divergent and creative thinking to implement sustainability practices.

6.3. Methodological contribution

In management scholarship, there is a call for new methodological approaches (Arora et al., 2016; Hannigan et al., 2019). Paying attention to such calls, I have used CEO psychological characteristics that are developed using machine-learning algorithms. Similarly, most of the studies of decoupling in the context of corporate sustainability have used coarse-grained measures (Sauerwald & Su, 2019; Tashman et al., 2019). Using Sustainalytics, I have developed a fine-grained measure for decoupling both in the environmental and social dimensions of corporate sustainability. I also developed an additional measure for decoupling by combining GRI standards and 10Ks using textual analysis.

The two major approaches used to develop language-based measures are open-language approach and closed-language approach (Harrison et al., 2019). In my dissertation, I have used CEO FFM traits developed using both an open-language approach ('IBM Personality Insights') and a closed-language approach ('Personality Recognizer'). The scores derived from open-approach are significantly different from closed-approach in predicting policy-practice decoupling. This is an interesting finding. Scholars have used both approaches to developing CEO personality measures and examined its relationship with organizational outcomes. Some studies show that an Open-language approach is preferable for studies using psychological characteristics such as FFM traits (Benischke et al., 2019; Harrison et al., 2019). It is still an open question in the field as to which language approach is preferable in measuring CEOs' psychological characteristics.

I have used the Q& A section of conference call transcripts and letters to shareholders to develop FFM traits and self-transcendence measures of CEOs. I found that measures developed using conference call transcripts yielded consistent results. The findings underlie the existing

criticism in the literature about the use of letters to shareholders to extract psychological characteristics (Matsumoto et al., 2011). More interestingly, the fact that the measures of stable psychological traits like personality differ significantly across various sources such as conference call transcripts and letters to shareholders has two important implications. First, whether CEOs exhibit their actual personalities while writing letters to shareholders or participating in conference calls or use it to maintain legitimacy and impression management is an unanswered question. If it is impression management, we need alternate theories for such studies. Second, the approach of deriving personality requires more validation. In essence, we need more studies of similar fashion (using language approaches to derive psychological characteristics) to draw meaningful conclusions.

6.4. Practical Implications

In today's business world, corporations are paying attention to corporate sustainability. Nonetheless, many times corporations' commitment remains in talk rather than in actions. Such an act of ceremonial adoption is consequential to organizations. A relevant decision-maker in organizations' efforts to be sustainable is the CEO. While it may be inappropriate to draw implications based on the results of a single study, the results of my research suggest that firms need to pay attention to CEOs' psychological characteristics if they are serious in their approach towards corporate sustainability. Selecting CEOs with an appropriate personality profile can reduce the gap between corporate sustainability talks and actions of firms, which in turn are beneficial to organizations.

6.4. Limitations and directions for future research

There are several limitations in this dissertation that I hope may provide directions for future research. First, I developed a measure for decoupling both for the environmental and

social dimensions.  The measure could have been more precise if there are matching items to each indicator's policy and program.  Future research can look at developing more fine-grained measures of decoupling.  However, I have derived a textual analysis-based measure for decoupling.  The use of both approaches for measuring decoupling in future studies is a promising avenue.

I have used 'IBM Personality Insights Service'-an unobtrusive measure for CEO personality traits and values.  These measures are new to academic research and need validation with more studies that provide future opportunities.  There are differences in survey-based measures and unobtrusive measures of psychological traits.  However, research shows that unobtrusive measures are reliable measures of individual psychological characteristics (Benischke et al., 2019; Golbeck et al., 2011; Harrison et al., 2019; Herrmann & Nadkarni, 2014; Mairesse & Walker, 2007).  Moreover, survey-based measures are self-reported that can lead to biases.  Because it is difficult to get a survey response from CEOs, unobtrusive measures are the only practically feasible approach.  I have not validated the measures of psychological traits using other sources such as emails, tweets, videos, and other sources.  I have used a linguistic perspective as a rationale for inferring CEO psychological characteristics that may have inherent limitations.  Nonetheless, it is a widely accepted and popular approach in management research. It is a promising area to explore whether we can derive consistent measures of executives' psychological characteristics from various sources of their communications.

Another major limitation of the study is endogeneity.  The four different sources that can induce endogeneity are measurement errors, autoregression, omitted variable bias, and simultaneous causality (Kennedy, 2008).  I have attempted to triangulate the measures used in the study with alternate measures to reduce measurement errors.  Endogeneity is more common

in the context of OLS (Semadeni et al., 2014). Despite that, I have used GEE estimation techniques, lagged variables, but endogeneity is a potential limitation of the study due to omitted variable bias. I anticipate identifying a valid instrumental variable and estimating the relationships can resolve the issue of endogeneity to a certain extent.

Although I used accepted measures for CEO value, none of the hypotheses proposing the relationship between CEO value represented by self-transcendence were supported. Testing a relationship with alternative measures for CEO value may be an avenue for future research. Surprisingly, I did not find any support for the moderating effect of board power. This may be due to two reasons. First, board members are less powerful and not adequately monitoring the influence of the CEO on firm practices, especially in the context of corporate sustainability. Second, board members may not be paying much attention to the monitoring of CEO influence on corporate sustainability practices. The study found that the personality traits that influence decoupling in the environmental dimension are not influencing decoupling in the social dimension, which is an interesting theoretical puzzle. Examining the influence of CEO psychological characteristics on decoupling on different dimensions of corporate sustainability can open up new avenues for future research. In CSR literature (a literature that is closely related to sustainability literature), scholars decompose CSR into internal and external dimensions and have conducted many studies. A similar approach can be adopted, and such studies will add to the existing questions in the corporate sustainability literature about the operationalization of corporate sustainability. Recent literature on decoupling discusses means-ends decoupling, which is another type of decoupling (Bromiley & Powell, 2012). It will be interesting to examine how the CEO's psychological characteristics are related to means-ends

decoupling.  It will also be promising to explore the relationship between policy-practice

decoupling and means-ends decoupling.

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# Appendix A

## List of Tables

Table 5. 1. Descriptive Statistics–Policy–Practice Decoupling Environmental Dimension

|  | Variables | Observations | Mean | S.D. | Min | Max |
|---|---|---|---|---|---|---|
| 1 | Policy-practice decoupling | 1499 | 0.583 | 0.454 | 0.001 | 2.382 |
| 2 | Conscientiousness | 1493 | 0.814 | 0.009 | 0.784 | 0.842 |
| 3 | Extraversion | 1493 | 0.662 | 0.015 | 0.624 | 0.707 |
| 4 | Agreeableness | 1493 | 0.559 | 0.019 | 0.501 | 0.615 |
| 5 | Neuroticism | 1493 | 0.685 | 0.017 | 0.639 | 0.743 |
| 6 | Openness to Change | 1493 | 0.607 | 0.017 | 0.562 | 0.653 |
| 7 | Self-transcendence | 1493 | 0.809 | 0.004 | 0.799 | 0.823 |
| 8 | Cognitive Complexity | 1487 | 1.969 | 0.488 | 0.740 | 3.730 |
| 9 | Firm Size | 1788 | 8.509 | 1.391 | 2.226 | 12.373 |
| 10 | Slack Resources | 1758 | 2.384 | 1.518 | 0.434 | 17.257 |
| 11 | R&D Intensity | 1583 | 0.080 | 0.364 | 0.000 | 12.892 |
| 12 | Capital Intensity | 1789 | 0.199 | 0.139 | 0.001 | 0.867 |
| 13 | ROA | 1789 | 0.064 | 0.085 | -0.567 | 0.902 |
| 14 | Firm Age | 1789 | 80.487 | 145 | 0.000 | 228 |
| 15 | Tobin's Q | 1821 | 2.098 | 1.280 | 0.475 | 16.125 |
| 16 | Board Power | 1940 | 0.620 | 1.201 | 0.100 | 28.791 |

Table 5. 2. VIF and Correlation Matrix for Policy-Practice Decoupling in the Environmental Dimension

| Variables | VIF | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 Policy-practice decoupling | | 1 | | | | | | | |
| 2 Conscientiousness | 3.41 | -0.096* | 1 | | | | | | |
| 3 Extraversion | 2.75 | 0.111* | 0.132* | 1 | | | | | |
| 4 Agreeableness | 3.05 | -0.093* | 0.574* | 0.022 | 1 | | | | |
| 5 Neuroticism | 4.03 | -0.02 | 0.271* | -0.276* | 0.664* | 1 | | | |
| 6 Openness to Change | 4.30 | 0.096* | -0.164* | 0.527* | -0.231* | -0.159* | 1 | | |
| 7 Self-transcendence | 3.86 | -0.069* | 0.293* | -0.019 | 0.399* | 0.555* | 0.281* | 1 | |
| 8 Cognitive Complexity | 3.15 | -0.021 | -0.309* | -0.575* | 0.078* | 0.332* | -0.507* | -0.163* | 1 |

*

Table  5.2 . (Contd.)

| Variables | VIF | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|
| 9 Firm Size | 2.17 | 1 | | | | | | | |
| 10 Slack Resources | 2.56 | -0.525* | 1 | | | | | | |
| 11 R&D Intensity | 2.61 | -0.195* | 0.349* | 1 | | | | | |
| 12 Capital Intensity | 2.13 | 0.070* | -0.113* | -0.243* | 1 | | | | |
| 13 ROA | 1.50 | 0.089* | 0.096* | -0.153* | -0.038 | 1 | | | |
| 14 Firm Age | 1.71 | 0.345* | -0.368* | -0.315* | 0.068* | 0.032 | 1 | | |
| 15 Tobin's Q | 1.96 | -0.180* | 0.173* | 0.405* | -0.164* | 0.348* | -0.114* | 1 | |
| 16 Board Power | | -0.203* | 0.037 | -0.013 | -0.004 | -0.077* | -0.049 | -0.039 | 1 |

* shows significance at the .05 level

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Table 5. 3. Descriptive Statistics–Policy–Practice Decoupling–Social Dimension

| | Variable | Observations | Mean | S.D. | Min | Max |
|---|---|---|---|---|---|---|
| 1 | Policy-practice decoupling | 1504 | 0.631 | 0.514 | 0.000 | 2.530 |
| 2 | Conscientiousness | 1144 | 0.662 | 0.016 | 0.629 | 0.705 |
| 3 | Extraversion | 1144 | 0.558 | 0.018 | 0.512 | 0.597 |
| 4 | Agreeableness | 1144 | 0.685 | 0.016 | 0.646 | 0.725 |
| 5 | Neuroticism | 1144 | 0.609 | 0.015 | 0.571 | 0.646 |
| 6 | Openness to Change | 1144 | 0.789 | 0.010 | 0.764 | 0.811 |
| 7 | Self-transcendence | 1144 | 0.809 | 0.004 | 0.801 | 0.819 |
| 8 | Cognitive Complexity | 1144 | 2.010 | 0.481 | 0.867 | 3.270 |
| 9 | Firm Size | 1371 | 8.797 | 1.305 | 5.694 | 11.899 |
| 10 | Slack Resources | 1348 | 2.256 | 1.349 | 0.747 | 9.135 |
| 11 | R&D Intensity | 1210 | 0.068 | 0.096 | 0.001 | 0.636 |
| 12 | Capital Intensity | 1372 | 0.193 | 0.135 | 0.025 | 0.638 |
| 13 | ROA | 1372 | 0.065 | 0.071 | -0.237 | 0.264 |
| 14 | Firm Age | 1373 | 75.228 | 47 | 7.000 | 181 |
| 15 | Tobin's Q | 1372 | 2.112 | 1.191 | 0.840 | 8.140 |
| 16 | Board Power | 1481 | 0.528 | 0.455 | 0.239 | 3.781 |

Table 5. 4. VIF and correlation matrix of Policy-Practice Decoupling in the Social Dimension

| | Variables | VIF | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Policy-practice decoupling | | 1 | | | | | | | |
| 2 | Conscientiousness | 2.531 | 0.138* | 1 | | | | | | |
| 3 | Extraversion | 2.192 | 0.06 | 0.139* | 1 | | | | | |
| 4 | Agreeableness | 3.294 | -0.004 | 0.591* | 0.036 | 1 | | | | |
| 5 | Neuroticism | 3.378 | -0.046 | 0.281* | -0.207* | 0.662* | 1 | | | |
| 6 | Openness to change | 2.586 | 0.015 | -0.130* | 0.513* | -0.205* | -0.086* | 1 | | |
| 7 | Self-transcendence | 3.221 | 0.015 | 0.285* | 0.014 | 0.370* | 0.521* | 0.362* | 1 | |
| 8 | Cognitive Complexity | 2.562 | -0.093* | -0.345* | -0.529* | 0.009 | 0.228* | -0.503* | -0.269* | 1 |

Table 5.4. (Contd.)

| Variables | VIF | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|
| Firm Size | 2.17 | 1 | | | | | | | |
| Slack Resources | 2.56 | -0.525* | 1 | | | | | | |
| R&D Intensity | 2.61 | -0.195* | 0.349* | 1 | | | | | |
| Capital Intensity | 2.13 | 0.070* | -0.113* | -0.243* | 1 | | | | |
| ROA | 1.50 | 0.089* | 0.096* | -0.153* | -0.038 | 1 | | | |
| Firm Age | 1.71 | 0.345* | -0.368* | -0.315* | 0.068* | 0.032 | 1 | | |
| Tobin's Q | 1.96 | -0.180* | 0.173* | 0.405* | -0.164* | 0.348* | -0.114* | 1 | |
| Board Power | | -0.203* | 0.037 | -0.013 | -0.004 | -0.077* | -0.049 | -0.039 | 1 |

* shows significance at the .05 level

Table 5. 5. Principal Component Factor Analysis–Environmental Dimension Policy Indicators

(obs=2,052)

| Factor analysis/correlation | Number of obs = 2,052 |
| Method: principal-component factors | Retained factors = 1 |
| Rotation: (unrotated) | Number of params = 1 |

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
| --- | --- | --- | --- | --- |
| Factor1 | 1.439 | 0.879 | 0.720 | 0.720 |
| Factor2 | 0.561 | | 0.280 | 1.000 |

LR test: independent vs. saturated: chi2(1) = 439.67 Prob>chi2 = 0.0000
Factor loadings (pattern matrix) and unique variances

| Variable | Factor1 | Uniqueness |
| --- | --- | --- |
| Environment Policy | 0.848 | 0.280 |
| Green Procurement Policy | 0.848 | 0.280 |

Table 5. 6. Principal Component Factor Analysis–Environmental Dimension Program Indicators

(obs=1538)

| | | | | |
|---|---|---|---|---|
| Factor analysis/correlation | | Number of obs    =    1538 | | |
| Method: principal-component factors | | Retained factors =    1 | | |
| Rotation: (unrotated) | | Number of params =    4 | | |
| Factor | Eigenvalue | Difference | Proportion | Cumulative |
| Factor1 | 2.253 | 1.500 | 0.563 | 0.563 |
| Factor2 | 0.752 | 0.076 | 0.188 | 0.751 |
| Factor3 | 0.677 | 0.358 | 0.169 | 0.920 |
| Factor4 | 0.318 | . | 0.080 | 1.000 |

LR test: independent vs. saturated:  chi2(6)  =  540.12 Prob>chi2 = 0.0000

Factor loadings (pattern matrix) and unique variances

| Variable | Factor1 | Uniqueness |
|---|---|---|
| Environmental certification Prgm | 0.663 | 0.561 |
| Hazardous waste management  Prgm | 0.734 | 0.461 |
| Water management Prgm | 0.827 | 0.316 |
| Renewable energy Program Prgm | 0.768 | 0.410 |

## Table 5. 7. Principal Component Factor Analysis–Social Dimension Policy Indicators

(obs=1,676)

Factor analysis/correlation      Number of obs  =  1,676

Method: principal-component factors    Retained factors =   1

Rotation: (unrotated)      Number of params =   3

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.955 | 1.272 | 0.652 | 0.652 |
| Factor2 | 0.684 | 0.322 | 0.228 | 0.880 |
| Factor3 | 0.361 | . | 0.120 | 1.000 |

LR test: independent vs. saturated: chi2(3) = 1219.46 Prob>chi2 = 0.0000

Factor loadings (pattern matrix) and unique variances

| Variable | Factor1 | Uniqueness |
|---|---|---|
| Freedom of Association Policy | 0.881 | 0.223 |
| Discrimination Policy | 0.806 | 0.350 |
| Scope of Social Supplier Policy | 0.727 | 0.472 |

Table 5. 8. Principal Component Factor Analysis–Social Dimension Program Indicators

(obs=958)

| Factor analysis/correlation | Number of obs = 958 |
| Method: principal-component factors | Retained factors = 1 |
| Rotation: (unrotated) | Number of params = 3 |

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|--------|-----------|-----------|-----------|-----------|
| Factor1 | 1.759 | 1.013 | 0.586 | 0.586 |
| Factor2 | 0.746 | 0.250 | 0.248 | 0.835 |
| Factor3 | 0.496 | . | 0.165 | 1.000 |

LR test: independent vs. saturated: chi2(3) = 412.09 Prob>chi2 = 0.0000

Factor loadings (pattern matrix) and unique variances

| Variable | Factor1 | Uniqueness |
|----------|---------|-----------|
| Diversity Program | 0.832 | 0.307 |
| Health Certification Program | 0.684 | 0.532 |
| Supply Chain Monitoring Program | 0.773 | 0.402 |

## Table 5. 9. Principal Component Factor Analysis Cognitive Complexity Indicators

(Obs= 241)

| Factor analysis/correlation | Number of obs = 241 |
| Method: principal-component factors | Retained factors = 2 |
| Rotation: (unrotated) | Number of params = 6 |

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
| --- | --- | --- | --- | --- |
| Factor1 | 2.514 | 2.158 | 0.831 | 0.831 |
| Factor2 | 1.037 | 0.167 | 0.112 | 0.944 |
| Factor3 | 0.169 | . | 0.057 | 1 |
| Factor 4 | 0.128 | | 0.032 | 1 |

LR test: independent vs. saturated:  chi2(6)  =  533.27 Prob>chi2 = 0.0000

Factor loadings (pattern matrix) and unique variances

| Variable | Factor 1 | Factor 2 | Uniqueness |
| --- | --- | --- | --- |
| Conjunction | 0.18 | 0.98 | 0.01 |
| Negation | 0.887 | -0.27 | 0.14 |
| Tentativeness | 0.889 | -0.011 | 0.210 |
| Differentiation | 0.951 | 0.080 | 0.089 |

Table 5. 10. Principal Component Factor Analysis Cognitive Complexity(with Three Indicators)

(obs=241)

Factor analysis/correlation        Number of obs    =     241

Method: principal-component factors     Retained factors =     1

Rotation: (unrotated)                  Number of params =     3

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|--------|-----------|-----------|-----------|-----------|
| Factor1 | 2.494 | 2.158 | 0.831 | 0.831 |
| Factor2 | 0.337 | 0.167 | 0.112 | 0.944 |
| Factor3 | 0.169 | . | 0.057 | 1.000 |

LR test: independent vs. saturated: chi2(3) = 466.58 Prob>chi2 = 0.0000

Factor loadings (pattern matrix) and unique variances

| Variable | Factor1 | Uniqueness |
|----------|---------|-----------|
| Negation | 0.903 | 0.185 |
| Tentativeness | 0.889 | 0.210 |
| Differentiation | 0.943 | 0.110 |

Table 5. 11. Results for Policy-Practice Decoupling   Environmental Dimension (OLS)

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Firm size | 0.012 | 0.013 | -0.003 |
| | (0.019) | (0.024) | (0.026) |
| Firm age | 0.001 | 0.001 | 0.001** |
| | (0.000) | (0.001) | (0.001) |
| Slack resources | -0.004 | -0.019 | -0.017 |
| | (0.015) | (0.016) | (0.018) |
| R&D intensity | 0.223 | 0.308 | 0.401 |
| | (0.247) | (0.358) | (0.388) |
| Capital intensity | 0.032 | -0.128 | -0.194 |
| | (0.221) | (0.264) | (0.262) |
| ROA | 0.450** | 0.327 | 0.332 |
| | (0.227) | (0.287) | (0.299) |
| Tobin's Q | 0.004 | 0.008 | -0.000 |
| | (0.014) | (0.018) | (0.019) |
| Sic | controlled | controlled | controlled |
| Conscientiousness | | -0.685 | -1.557 |
| | | (2.330) | (3.056) |
| Neuroticism | | 3.666 | 0.811 |
| | | (2.248) | (3.616) |
| Extraversion | | 5.210*** | 1.584 |
| | | (1.964) | (3.414) |
| Agreeableness | | -6.334*** | -4.024 |
| | | (2.385) | (4.047) |
| Openness to experience | | 6.769 | 6.257 |
| | | (3.739) | (4.050) |
| Self-transcendence | | -5.279 | -1.414 |
| | | (9.461) | (9.979) |
| Cognitive complexity | | 0.063 | -0.047 |
| | | (0.076) | (0.109) |
| Conscientiousness × Board power | | | -0.097 |
| | | | (3.544) |
| Extraversion × Board power | | | 4.125 |
| | | | (4.400) |
| Agreeableness× Board power | | | -2.502 |
| | | | (5.757) |
| Emotionality× Board power | | | 3.798 |
| | | | (5.346) |

| Variables | | Model 2 | Model 3 |
|---|---|---|---|
| Openness to change $\times$ Board power | | | -2.063 |
| | | | (3.833) |
| Self-transcendence $\times$ Board power | | | -2.321 |
| | | | (6.412) |
| Cognitive complexity $\times$ Board power | | | 0.130 |
| | | | (0.106) |
| | | | |
| Constant | | 0.278 | -1.061 | -0.725 |
| | | (0.201) | (5.756) | (6.423) |
| Observations | | 893 | 650 | 627 |
| R-squared | | 0.161 | 0.234 | 0.217 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5. 12. Results for Policy-Practice Decoupling  Social Dimension (OLS)

| Variables | Models 1 | Model 2 | Model 3 |
|---|---|---|---|
| Firm size | 0.054*** | 0.061*** | 0.048*** |
|  | (0.011) | (0.016) | (0.017) |
| Firm age | 0.164 | 0.004 | -0.076 |
|  | (0.154) | (0.206) | (0.211) |
| Slack resources | -0.000 | -0.000 | 0.000 |
|  | (0.000) | (0.000) | (0.001) |
| R&D intensity | -0.396*** | -0.468** | -0.451* |
|  | (0.147) | (0.236) | (0.266) |
| Capital intensity | -0.005 | 0.004 | 0.006 |
|  | (0.009) | (0.012) | (0.014) |
| ROA | 0.036 | -0.013 | -0.033 |
|  | (0.127) | (0.166) | (0.166) |
| Tobin's Q | 0.004 | 0.003 | -0.010 |
|  | (0.010) | (0.013) | (0.013) |
| Sic3 | controlled | controlled | controlled |
| Conscientiousness |  | 2.036 | 1.457 |
|  |  | (1.383) | (2.194) |
| Neuroticism |  | -1.344 | 1.116 |
|  |  | (1.590) | (2.795) |
| Extraversion |  | -2.581 | 0.474 |
|  |  | (2.140) | (3.855) |
| Agreeableness |  | -2.215* | -3.607 |
|  |  | (1.232) | (2.202) |
| Openness to experience |  | 4.203* | 2.286 |
|  |  | (2.486) | (3.949) |
| Self-transcendence |  | -12.221* | -7.504 |
|  |  | (7.172) | (7.669) |
| Cognitive complexity |  | -0.018 | -0.065 |
|  |  | (0.044) | (0.067) |
| Conscientiousness × Board power |  |  | -0.931 |
|  |  |  | (3.609) |
| Neuroticism × Board power |  |  | 2.029 |
|  |  |  | (8.547) |

Table 5.12. (Contd.)

| Variables | Models 1 | Model 2 | Model 3 |
|---|---|---|---|
| Extraversion × Board power | | | -7.203 |
| | | | (5.742) |
| Agreeableness× Board power | | | 1.681 |
| | | | (3.149) |
| Openness to experience × Board power | | | 0.173 |
| | | | (6.451) |
| Self-transcendence × Board power | | | -0.191 |
| | | | (7.624) |
| Cognitive complexity × Board power | | | 0.054 |
| | | | (0.074) |
| Constant | -0.429*** | 6.172 | 4.883 |
| | (0.103) | (4.474) | (4.538) |
| Observations | 932 | 639 | 621 |
| R-squared | 0.198 | 0.268 | 0.264 |

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5. 13. Results of Policy-Practice Decoupling Environmental Dimension (GEE)

| Variables | Models 1 | Models 2 | Models 3 |
|---|---|---|---|
| Firm size | 0.040* | 0.067** | 0.052* |
| | (0.022) | (0.026) | (0.027) |
| Firm age | 0.000 | 0.000 | 0.000 |
| | (0.001) | (0.001) | (0.001) |
| Slack resources | 0.013 | 0.030 | 0.028 |
| | (0.019) | (0.022) | (0.022) |
| R&D intensity | -0.196 | -0.081 | 0.025 |
| | (0.315) | (0.391) | (0.405) |
| Capital intensity | 0.115 | 0.246 | 0.198 |
| | (0.220) | (0.266) | (0.264) |
| ROA | 0.063 | 0.051 | 0.264 |
| | (0.242) | (0.314) | (0.334) |
| Tobin's Q | 0.020 | 0.029 | 0.027 |
| | (0.018) | (0.022) | (0.023) |
| Sic | controlled | controlled | controlled |
| Conscientiousness | | 3.177 | 2.798 |
| | | (2.374) | (2.471) |
| Neuroticism | | 6.299** | 5.763* |
| | | (3.022) | (3.129) |
| Extraversion | | 4.234* | 4.031* |
| | | (2.389) | (2.412) |
| Agreeableness | | -10.639*** | -9.530*** |
| | | (2.699) | (2.789) |
| Openness to experience | | -0.197 | -0.375 |
| | | (4.347) | (4.356) |
| Self-transcendence | | -9.568 | -7.774 |
| | | (11.685) | (11.759) |
| Cognitive complexity | | -0.005 | 0.016 |
| | | (0.084) | (0.085) |
| Conscientiousness × Board power | | | -2.247 |
| | | | (5.230) |
| Neuroticism × Board power | | | 2.003 |
| | | | (9.212) |
| Extraversion × Board power | | | 4.021 |
| | | | (6.074) |

Table 5.13. (Contd.)

| Variables | Models 1 | Models 2 | Models 3 |
|---|---|---|---|
| Agreeableness× Board power | | | 1.511 |
| | | | (9.949) |
| Openness to experience × Board power | | | -3.921 |
| | | | (4.299) |
| Self-transcendence × Board power | | | -0.676 |
| | | | (1.600) |
| Cognitive complexity × Board power | | | 0.252 |
| Constant | 0.175 | 0.548 | 5.501 |
| | (0.303) | (7.473) | (7.480) |
| Observations | 912 | 614 | 594 |
| Number of GvKey | 139 | 122 | 119 |
| Wald Chi2 | 22.39 | 48.46* | 49.4* |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5. 14. Results of Policy-Practice Decoupling Social Dimension (GEE)

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Firm size | 0.092*** | 0.144*** | 0.120*** |
| | (0.027) | (0.032) | (0.033) |
| Firm age | -0.000 | -0.001 | -0.000 |
| | (0.001) | (0.001) | (0.001) |
| Slack resources | -0.021 | -0.026 | -0.032 |
| | (0.021) | (0.024) | (0.024) |
| R&D intensity | -0.006 | -0.396 | -0.300 |
| | (0.365) | (0.466) | (0.478) |
| Capital intensity | 0.384 | 0.886** | 0.948*** |
| | (0.287) | (0.350) | (0.348) |
| ROA | 0.146 | 0.347 | 0.336 |
| | (0.252) | (0.334) | (0.367) |
| Tobin's Q | 0.020 | 0.037 | 0.013 |
| | (0.020) | (0.025) | (0.026) |
| Sic | controlled | controlled | controlled |
| Conscientiousness | | 0.196 | -2.441 |
| | | (2.903) | (3.804) |
| Neuroticism | | -1.140 | -2.949 |
| | | (3.351) | (5.287) |
| Extraversion | | 0.030 | 1.711 |
| | | (2.676) | (3.884) |
| Agreeableness | | -2.969 | -2.833 |
| | | (3.140) | (4.955) |
| Openness to experience | | -13.493** | -22.081*** |
| | | (5.317) | (7.119) |
| Self-transcendence | | -0.498 | 13.378 |
| | | (13.398) | (14.200) |
| Cognitive complexity | | -0.247** | -0.308** |
| | | (0.106) | (0.127) |
| Conscientiousness × Board power | | | 4.286 |
| | | | (4.976) |

Table 5.14. (Contd.)

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Neuroticism × Board power | | | 2.684 |
| | | | (7.950) |
| Extraversion × Board power | | | -5.198 |
| | | | (5.355) |
| Agreeableness× Board power | | | 1.551 |
| | | | (6.873) |
| Openness to experience × Board power | | | 14.017 |
| | | | (9.737) |
| Self-transcendence × Board power | | | -17.138 |
| | | | (11.852) |
| Cognitive complexity × Board power | | | 0.047 |
| | | | (0.118) |
| Constant | -0.430 | 13.366 | 11.068 |
| | (0.353) | (8.596) | (8.451) |
| Observations | 930 | 636 | 614 |
| Number of GvKey | 131 | 120 | 117 |
| Wald Chi2 | 125*** | 167*** | 168*** |

Standard errors in parenthesis
*** p< 0.01, **p< 0.05, *p<0.1

Table 5. 15. Result of  Policy-Practice Decoupling  Environmental
Dimension (GEE) using Personality Recognizer

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Firm size | 0.030 | 0.037 | 0.022 |
| | (0.022) | (0.029) | (0.029) |
| Firm age | 0.001 | 0.001 | 0.001* |
| | (0.001) | (0.001) | (0.001) |
| Slack resources | 0.006 | 0.016 | 0.013 |
| | (0.018) | (0.022) | (0.022) |
| R&D intensity | 0.007 | -0.347 | -0.252 |
| | (0.331) | (0.423) | (0.426) |
| Capital intensity | 0.127 | 0.210 | 0.112 |
| | (0.246) | (0.308) | (0.305) |
| ROA | 0.096 | 0.065 | 0.191 |
| | (0.239) | (0.312) | (0.331) |
| Tobin's Q | 0.018 | 0.021 | 0.019 |
| | (0.018) | (0.022) | (0.023) |
| Sic | controlled | controlled | controlled |
| Conscientiousness | | -0.004 | -0.000 |
| | | (0.059) | (0.072) |
| Emotional stability | | -0.138*** | -0.149* |
| | | (0.049) | (0.083) |
| Extraversion | | -0.001 | -0.001 |
| | | (0.035) | (0.048) |
| Agreeableness | | 0.238*** | 0.232** |
| | | (0.088) | (0.116) |
| Openness to experience | | -0.073 | -0.046 |
| | | (0.063) | (0.089) |
| Cognitive complexity | | -0.155*** | -0.188** |
| | | (0.059) | (0.088) |
| Conscientiousness × Board power | | | -0.058 |
| | | | (0.079) |
| Emotional stability × Board power | | | 0.042 |
| | | | (0.134) |
| Extraversion × Board power | | | 0.003 |
| | | | (0.071) |

Table 5.15.(Contd.)

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Agreeableness× Board power | | | 0.021 |
| | | | (0.148) |
| Openness to experience × Board power | | | -0.063 |
| | | | (0.119) |
| Cognitive complexity × Board power | | | 0.076 |
| | | | (0.136) |
| Constant | 0.175 | 0.228 | 0.345 |
| | (0.303) | (0.497) | (0.493) |
| Observations | 912 | 614 | 594 |
| Number of GvKey | 139 | 122 | 119 |
| Wald Chi2 | 92.84** | 86.91** | 90.03** |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5. 16. Result of Policy-Practice Decoupling Social Dimension (GEE) using Personality Recognizer

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Firm size | 0.092*** | 0.128*** | 0.108*** |
| | (0.027) | (0.033) | (0.034) |
| Firm age | -0.000 | -0.001 | -0.000 |
| | (0.001) | (0.001) | (0.001) |
| Slack resources | -0.021 | -0.024 | -0.027 |
| | (0.021) | (0.024) | (0.024) |
| R&D intensity | -0.006 | -0.200 | 0.007 |
| | (0.365) | (0.461) | (0.470) |
| Capital intensity | 0.384 | 0.853** | 0.991*** |
| | (0.287) | (0.352) | (0.350) |
| ROA | 0.146 | 0.305 | 0.390 |
| | (0.252) | (0.334) | (0.365) |
| Tobin's Q | 0.020 | 0.033 | 0.015 |
| | (0.020) | (0.025) | (0.026) |
| Sic | controlled | controlled | controlled |
| Conscientiousness | | 0.042 | 0.094 |
| | | (0.063) | (0.074) |
| Emotional stability | | 0.019 | 0.029 |
| | | (0.050) | (0.074) |
| Extraversion | | -0.089** | -0.103* |
| | | (0.038) | (0.052) |
| Agreeableness | | -0.061 | -0.161 |
| | | (0.094) | (0.125) |
| Openness to experience | | 0.007 | -0.014 |
| | | (0.067) | (0.084) |
| Cognitive complexity | | -0.086 | 0.048 |
| | | (0.065) | (0.096) |
| Conscientiousness × Board power | | | -0.188** |
| | | | (0.076) |
| Emotional stability × Board power | | | -0.011 |
| | | | (0.110) |
| Extraversion × Board power | | | 0.059 |
| | | | (0.076) |
| Agreeableness× Board power | | | 0.236 |
| | | | (0.165) |

Table 5.16 (Contd.)

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Openness to experience | | | 0.065 |
| | | | (0.103) |
| Cognitive complexity × Board power | | | -0.287** |
| | | | (0.146) |
| Constant | -0.430 | -0.035 | 0.002 |
| | (0.353) | (0.567) | (0.571) |
| Observations | 930 | 636 | 614 |
| Number of GvKey | 131 | 120 | 117 |
| Wald Chi2 | 59.18*** | 151.28*** | 168.93*** |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5. 17. Result of  Policy-Practice Decoupling
Environmental Dimension (GEE) using Letters to Shareholders

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Firm size | 0.025 | -0.003 | -0.000 |
| | (0.035) | (0.054) | (0.055) |
| Firm age | -0.001 | -0.003* | -0.002 |
| | (0.001) | (0.002) | (0.002) |
| Slack resources | 0.039 | 0.021 | 0.024 |
| | (0.026) | (0.039) | (0.039) |
| R&D intensity | -0.290 | -0.397 | -0.080 |
| | (0.562) | (0.942) | (0.941) |
| Capital intensity | -0.267 | 0.548 | 0.415 |
| | (0.353) | (0.634) | (0.629) |
| ROA | -0.051 | 0.052 | 0.114 |
| | (0.333) | (0.590) | (0.597) |
| Tobin's Q | -0.017 | -0.019 | -0.029 |
| | (0.026) | (0.043) | (0.044) |
| Sic | controlled | controlled | controlled |
| Conscientiousness | | -0.605 | 12.263 |
| | | (5.619) | (7.474) |
| Neuroticism | | 0.794 | -1.958 |
| | | (1.273) | (1.641) |
| Extraversion | | 14.453*** | 10.384 |
| | | (5.477) | (6.514) |
| Agreeableness | | -4.068 | -11.820 |
| | | (5.635) | (7.464) |
| Openness to experience | | -5.860 | 0.240 |
| | | (10.160) | (12.054) |
| Self-transcendence | | 12.804 | -0.497 |
| | | (13.268) | (16.783) |
| Cognitive complexity | | -0.003 | 0.115 |
| | | (0.288) | (0.341) |
| Conscientiousness × Board power | | 12.263 | -26.364*** |
| | | (7.474) | (9.681) |
| Neuroticism × Board power | | -1.958 | 4.267** |
| | | (1.641) | (2.156) |

Table 5.17. (Contd.)

| Variables | Models 1 | Models 2 | Models 3 |
|---|---|---|---|
| Extraversion × Board power | | 10.384 | 1.270 |
| | | (6.514) | (6.706) |
| Agreeableness× Board power | | -11.820 | 22.101** |
| | | (7.464) | (9.165) |
| Openness to experience × Board power | | 0.240 | -8.365 |
| | | (12.054) | (11.223) |
| Self-transcendence× Board power | | -0.497 | 7.837 |
| | | (16.783) | (14.083) |
| Cognitive complexity × Board power | | 0.115 | -0.082 |
| | | | (0.349) |
| Constant | 0.247 | -11.385 | -5.352 |
| | (0.524) | (8.647) | (8.986) |
| Observations | 1,058 | 482 | 465 |
| Number of GvKey | 157 | 96 | 94 |
| Wald Chi2 | 105.76*** | 101.47*** | 108.68*** |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5. 18. Result of  Policy-Practice Decoupling
Social Dimension (GEE) using Letters to Shareholders

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Firm size | 0.059*** | 0.073*** | 0.057*** |
| | (0.015) | (0.022) | (0.021) |
| Firm age | -0.001* | 0.000 | 0.001* |
| | (0.000) | (0.001) | (0.001) |
| Slack resources | 0.004 | -0.013 | -0.022 |
| | (0.011) | (0.018) | (0.018) |
| R&D intensity | -0.266 | -0.347 | -0.446 |
| | (0.192) | (0.329) | (0.333) |
| Capital intensity | 0.113 | -0.017 | 0.084 |
| | (0.153) | (0.269) | (0.254) |
| ROA | 0.172 | 0.137 | -0.064 |
| | (0.140) | (0.272) | (0.274) |
| Tobin's Q | -0.004 | 0.007 | -0.008 |
| | (0.011) | (0.019) | (0.019) |
| Sic | controlled | controlled | controlled |
| Conscientiousness | | -0.570 | -2.150 |
| | | (2.616) | (3.211) |
| Neuroticism | | 0.025 | -0.073 |
| | | (0.529) | (0.699) |
| Extraversion | | -1.271 | -3.349 |
| | | (2.264) | (2.938) |
| Agreeableness | | -0.946 | 0.418 |
| | | (2.463) | (3.085) |
| Openness to experience | | 12.062*** | 12.119** |
| | | (4.143) | (5.593) |
| Self-transcendence | | -5.101 | -5.941 |
| | | (6.860) | (8.041) |
| Cognitive complexity | | -0.075 | 0.173 |
| | | (0.130) | (0.169) |
| Conscientiousness × Board power | | | -0.206 |
| | | | (4.165) |
| Neuroticism × Board power | | | -0.631 |
| | | | (1.128) |

<div align="center">Table 5.18. (Contd.)</div>

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Extraversion × Board power | | | -0.105 |
| | | | (4.510) |
| Agreeableness× Board power | | | -4.044 |
| | | | (4.396) |
| Openness to experience × Board power | | | -0.358 |
| | | | (7.378) |
| Self-transcendence× Board power | | | 4.411 |
| | | | (9.250) |
| Cognitive complexity × Board power | | | -0.281 |
| | | | (0.253) |
| Constant | -0.049 | -3.980 | -2.042 |
| | (0.187) | (3.768) | (3.628) |
| Observations | 932 | 438 | 429 |
| Number of GvKey | 133 | 85 | 84 |
| Wald Chi2 | 103.19 *** | 123.78*** | 153.58*** |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5. 19. Result of  Policy-Practice Decoupling
Environmental Dimension (GEE) using Textual Measure of Decoupling

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Firm size | 0.410*** | 0.409*** | 0.426*** |
|  | (0.038) | (0.040) | (0.040) |
| Firm age | 0.003*** | 0.003** | 0.003** |
|  | (0.001) | (0.001) | (0.001) |
| Slack resources | -0.013 | -0.004 | -0.003 |
|  | (0.025) | (0.027) | (0.027) |
| R&D intensity | 1.291** | 1.717** | 2.031*** |
|  | (0.625) | (0.672) | (0.670) |
| Capital intensity | 0.191 | 0.335 | 0.289 |
|  | (0.376) | (0.424) | (0.417) |
| ROA | 0.490* | 0.308 | 0.248 |
|  | (0.286) | (0.358) | (0.386) |
| Tobin's Q | 0.035 | 0.033 | 0.025 |
|  | (0.027) | (0.031) | (0.032) |
| Sic | controlled | controlled | controlled |
| Conscientiousness |  | 6.467* | 7.035* |
|  |  | (3.449) | (3.846) |
| Neuroticism |  | 8.068* | 6.626 |
|  |  | (4.149) | (4.515) |
| Extraversion |  | 11.982*** | 12.532*** |
|  |  | (3.105) | (3.709) |
| Agreeableness |  | -6.551* | -6.566 |
|  |  | (3.668) | (4.645) |
| Openness to Experience |  | 0.092 | -0.233 |
|  |  | (0.128) | (0.114) |
| Self-transcendence |  | 7.422 | 8.731 |
|  |  | (13.641) | (13.684) |
| Cognitive complexity |  | 0.092 | 0.068 |
|  |  | (0.128) | (0.148) |
| Conscientiousness × Board power |  |  | -1.246 |
|  |  |  | (3.456) |
| Neuroticism × Board power |  |  | 0.071 |
|  |  |  | (3.276) |

Table 5.19. (Contd.)

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Extraversion × Board power | | | -2.076 |
| | | | (4.409) |
| Agreeableness× Board power | | | 1.979 |
| | | | (6.031) |
| Openness to experience × Board power | | | -0.436 |
| | | | (4.487) |
| Self-transcendence× Board power | | | 1.426 |
| | | | (3.525) |
| Cognitive complexity × Board power | | | 0.014 |
| | | | (0.125) |
| Constant | -4.263*** | -21.930** | -22.925** |
| | (0.589) | (10.124) | (10.075) |
| Observations | 983 | 771 | 747 |
| Number of GvKey | 167 | 158 | 154 |
| Wald Chi2 | 410.03*** | 459.61*** | 512*** |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5. 20. Result of  Policy-Practice Decoupling
Social Dimension (GEE) using Textual Measure of Decoupling

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Firm size | 0.046** | 0.118*** | 0.154*** |
| | (0.023) | (0.046) | (0.050) |
| Firm age | -0.028*** | -0.001 | -0.000 |
| | (0.002) | (0.002) | (0.002) |
| Slack resources | 0.003 | -0.002 | -0.002 |
| | (0.008) | (0.019) | (0.021) |
| R&D intensity | -0.331 | -0.270 | -0.083 |
| | (0.318) | (0.643) | (0.688) |
| Capital intensity | 0.230 | 1.315*** | 1.381*** |
| | (0.161) | (0.370) | (0.412) |
| ROA | 0.300*** | 0.439** | 0.451* |
| | (0.089) | (0.216) | (0.263) |
| Tobin's Q | -0.026*** | -0.069*** | -0.073*** |
| | (0.009) | (0.019) | (0.022) |
| Sic | controlled | controlled | controlled |
| Conscientiousness | | -1.117 | -0.157 |
| | | (3.361) | (3.962) |
| Neuroticism | | 3.394 | 5.408 |
| | | (4.276) | (5.350) |
| Extraversion | | -6.210* | -7.541* |
| | | (3.308) | (4.000) |
| Agreeableness | | 5.733* | 5.918 |
| | | (3.383) | (4.340) |
| Openness to experience | | 5.279 | 9.085 |
| | | (8.968) | (9.934) |
| Self-transcendence | | -23.638 | -32.014 |
| | | (19.032) | (20.580) |
| Cognitive complexity | | -0.178 | -0.180 |
| | | (0.131) | (0.142) |
| Conscientiousness × Board power | | | -0.712 |
| | | | (3.293) |
| Neuroticism × Board power | | | -2.508 |
| | | | (4.724) |
| Extraversion × Board power | | | 1.474 |
| | | | (4.009) |

Table 5.20. (Contd.)

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Agreeableness× Board power | | | -0.740 |
| | | | (4.731) |
| Openness to experience × Board power | | | -4.993 |
| | | | (6.862) |
| Self-transcendence× Board power | | | 6.961 |
| | | | (8.676) |
| Cognitive complexity × Board power | | | 0.014 |
| | | | (0.125) |
| Constant | 3.510** | 13.520 | 15.681 |
| | (1.378) | (9.662) | (10.500) |
| Observations | 725 | 565 | 547 |
| Number of GvKey | 109 | 106 | 104 |
| Wald Chi2 | 346.87*** | 106.36*** | 113.99*** |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5. 21. Result of  Policy-Practice Decoupling
Environmental Dimension (GEE) with Inverse Mills Ratio

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Firm size | 0.058 | 0.077 | 0.075 |
| | (0.043) | (0.057) | (0.059) |
| Firm age | 0.001 | 0.000 | 0.001 |
| | (0.001) | (0.001) | (0.001) |
| Slack resources | 0.012 | 0.016 | 0.016 |
| | (0.020) | (0.022) | (0.022) |
| R&D intensity | -0.164 | -0.344 | -0.299 |
| | (0.364) | (0.420) | (0.435) |
| Capital intensity | 0.477* | 0.118 | 0.034 |
| | (0.263) | (0.298) | (0.297) |
| ROA | 0.064 | 0.015 | 0.187 |
| | (0.256) | (0.311) | (0.332) |
| Tobin's Q | 0.032 | 0.028 | 0.026 |
| | (0.020) | (0.022) | (0.023) |
| Sic | controlled | controlled | controlled |
| Inverse Mills Ratio | 0.139 | 0.211 | 0.291 |
| | (0.174) | (0.255) | (0.259) |
| Conscientiousness | | 3.026 | 2.180 |
| | | (2.649) | (3.397) |
| Neuroticism | | 4.485 | 1.354 |
| | | (2.956) | (4.865) |
| Extraversion | | 5.049** | 1.835 |
| | | (2.404) | (3.700) |
| Agreeableness | | -11.244*** | -8.569* |
| | | (2.707) | (5.119) |
| Openness to experience | | 3.515 | 4.603 |
| | | (4.663) | (5.096) |
| Self-transcendence | | -3.815 | -2.247 |
| | | (11.544) | (11.649) |
| Cognitive complexity | | 0.086 | -0.044 |
| | | (0.094) | (0.122) |
| Conscientiousness $\times$ Board power | | | -0.480 |
| | | | (4.239) |
| Neuroticism $\times$ Board power | | | 4.830 |
| | | | (7.483) |

Table 5.20. (Contd.)

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Extraversion × Board power | | | 4.515 |
| | | | (5.041) |
| Agreeableness× Board power | | | -3.523 |
| | | | (8.072) |
| Openness to experience × Board power | | | -2.282 |
| | | | (4.964) |
| Self-transcendence× Board power | | | -2.120 |
| | | | (3.471) |
| Cognitive complexity × Board power | | | 0.184 |
| | | | (0.146) |
| Observations | 793 | 613 | 593 |
| Number of GvKey | 130 | 122 | 119 |
| Wald Chi2 | 82.25** | 113.82*** | 112.54*** |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5. 22. Result of  Policy-Practice Decoupling
Social Dimension (GEE) with Inverse Mills Ratio

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Firm size | 0.140*** | 0.155** | 0.142** |
| | (0.048) | (0.064) | (0.066) |
| Firm age | -0.001 | -0.001 | -0.000 |
| | (0.001) | (0.001) | (0.001) |
| Slack resources | -0.022 | -0.025 | -0.028 |
| | (0.022) | (0.024) | (0.025) |
| R&D intensity | -0.110 | -0.410 | -0.330 |
| | (0.395) | (0.472) | (0.485) |
| Capital intensity | 0.559* | 0.886** | 0.931*** |
| | (0.301) | (0.350) | (0.349) |
| ROA | 0.323 | 0.351 | 0.366 |
| | (0.273) | (0.335) | (0.370) |
| Tobin's Q | 0.034 | 0.037 | 0.016 |
| | (0.023) | (0.025) | (0.026) |
| Sic | controlled | controlled | controlled |
| IMR | 0.181 | 0.056 | 0.094 |
| | (0.191) | (0.279) | (0.287) |
| Conscientiousness | | 0.142 | -0.145 |
| | | (2.917) | (3.449) |
| Neuroticism | | -1.117 | -1.844 |
| | | (3.356) | (5.246) |
| Extraversion | | -0.055 | 0.087 |
| | | (2.714) | (3.751) |
| Agreeableness | | -2.968 | -2.504 |
| | | (3.142) | (4.982) |
| Openness to experience | | -13.482** | -15.801*** |
| | | (5.325) | (5.635) |
| Self-transcendence | | -0.392 | 6.144 |
| | | (13.419) | (13.312) |
| Cognitive complexity | | -0.249** | -0.275** |
| | | (0.106) | (0.125) |
| Conscientiousness × Board power | | | -0.610 |
| | | | (3.593) |
| Neuroticism × Board power | | | 0.178 |
| | | | (7.764) |

Table 5.22. (Contd.)

| Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Extraversion × Board power | | | -1.570 |
| | | | (4.717) |
| Agreeableness× Board power | | | 0.376 |
| | | | (6.889) |
| Openness to experience × Board power | | | 1.059 |
| | | | (3.727) |
| Self-transcendence× Board power | | | -17.095 |
| | | | -11.867 |
| Cognitive complexity × Board power | | | 0.008 |
| | | | (0.115) |
| Constant | -1.116 | 13.147 | 10.018 |
| | (0.783) | (8.678) | (8.578) |
| Observations | 818 | 635 | 613 |
| Number of GvKey | 125 | 120 | 117 |
| Wald Chi2 | 132.32*** | 167.53*** | 184.97*** |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix B

Sustainalytics Indicators

| Environmental Indicators | Description | Answer category description and scores |
|---|---|---|
| Environmental Policy | This indicator provides an assessment of the quality of the company's commitment to protect the environment. | The company has a very strong policy - 100<br>The company has a strong policy - 75<br>The company has an adequate policy - 50<br>The company has a weak policy - 25<br>Based on available evidence, the company does not have a policy - 0 |
| Green Procurement Policy | This indicator provides an assessment of the quality of a company's green procurement's commitment and initiatives. | The company's green procurement initiatives are strong - 100<br>The company's green procurement initiatives are adequate - 60<br>The company's green procurement initiatives are weak - 40<br>The company has a general statement on green procurement - 30<br>The company does not have a policy on green procurement - 0 |

| EMS Certification | This indicator provides an assessment of the percentage of ISO 14001 certified (or similarly certified) sites. | 90% or more of the company's activities have received external certification - 100<br>Between 75% and 90% of the company's activities have received external certification - 75<br>Between 50% and 75% of the company's activities have received external certification - 50<br>Between 25% and 50% of the company's activities have received external certification - 30<br>Some but less than 25% of the company's activities have received external certification - 25<br>None of the company's activities have received external certification - 0 |
|---|---|---|
| Hazardous Waste Management | This indicator assesses the strength of the company's initiatives to reduce hazardous waste from its own operations. It does not track mineral waste management (which is covered under E.1.2.6.2), non-hazardous solid waste management (which is covered under E.1.2.6.1), nuclear waste management (which is covered under E.1.2.6.5) or the management of waste at the end of the company's products' lifecycle (which is covered under E.3.1.7). | The company has a strong programme - 100<br>The company has an adequate programme - 50<br>The company has a weak programme - 25<br>The company has no programmes to reduce hazardous waste generation - 0 |

| Water Management Programmes | This indicator provides an assessment of the quality of programmes to reduce freshwater use. | The company has a strong programme - 100<br>The company has an adequate programme - 50<br>The company has a weak programme - 25<br>The company has no programmes to reduce water use - 0 |
| --- | --- | --- |

| Social Indicators | Description | Answer category description and scores |
| --- | --- | --- |
| Freedom of Association Policy | This indicator provides an assessment of the quality of a company's freedom of association and collective bargaining policy. | The company has a strong policy on freedom of association - 100<br>The company has an adequate policy on freedom of association - 75<br>The company has a weak policy on freedom of association - 25<br>There is no evidence of a formal policy but the company has a general statement addressing this issue - 20<br>The company does not have a policy on freedom of association -0 |
| Diversity Programmes | This indicator assesses the strength of the company's initiatives to increase the diversity of its workforce. | The company has a strong programme - 100<br>The company has an adequate programme - 50<br>The company has a weak programme - 25<br>The company does not have programmes to increase workforce diversity - 0 |

| | | The company has a very strong management system - 100 |
|---|---|---|
| Health and Safety Management System | This indicator assesses the strength of the company's initiatives to manage employee health and safety and prevent accidents and occupational illnesses. | The company has a very strong management system - 100<br>The company has a strong management system - 75<br>The company has an adequate management system - 50<br>The company has a weak management system - 25<br>Based on available evidence, the company does not have a management system - 0 |
| Supply Chain Monitoring | This indicator provides an assessment of whether the company has a supply chain monitoring system and/or whether there are other supply chain monitoring activities. | The company has a system to monitor supplier compliance with social standards - 100<br>Over the last 3 years, there have been supplier monitoring activities but the company does not have a formal monitoring system -50<br>The company does not monitor supplier compliance with social standards - 0 |

Appendix C

Asset 4 ES Pillars

| Dimension | Subcategories | Description |
|---|---|---|
| Environment | Resource Reduction | It measures a company's management commitment and effectiveness towards achieving efficient use of natural resources in the production process. It reflects a company's capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management. It measures a company's management commitment and effectiveness towards achieving efficient use of natural resources in the production process. It reflects a company's capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management. |
| | Emission Reduction | It measures a company's management commitment and effectiveness towards reducing environmental emission in the production and operational processes. It reflects a company's capacity to reduce air emissions (greenhouse gases, F-gases, ozone-depleting substances, NOx and SOx, etc.), waste, hazardous waste, water discharges, spills or its impacts on biodiversity, and to partner with environmental organizations to reduce the environmental impact of the company in the local or broader community. |
| | Product Innovation | It measures a company's management commitment and effectiveness in supporting the R&D of eco-efficient products or services. It reflects a company's capacity to reduce the environmental costs and burdens for its customers, thereby creating new market opportunities through new environmental technologies and processes or eco-designed, dematerialized products with extended durability. |

| Pillar | Subcategories | Description |
|---|---|---|
| Social | Workforce | It measures a company's effectiveness towards job satisfaction, healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce. |
| | Human Rights | It measures a company's management commitment and effectiveness towards respecting the fundamental human rights conventions. It reflects a company's capacity to maintain its license to operate by guaranteeing the freedom of association and excluding child, forced or compulsory labor. |
| | Community | It measures a company's management commitment and effectiveness towards maintaining the company's reputation within the general community (local, national and global). It reflects a company's capacity to maintain its license to operate by being a good citizen (donations of cash, goods or staff time, etc.), protecting public health (avoidance of industrial accidents, etc.) and respecting business ethics (avoiding bribery and corruption, etc.). |
| | Product Responsibility | It measures a company's management commitment and effectiveness towards creating value-added products and services upholding the customer's security.  It reflects a company's capacity to maintain its license to operate by producing quality goods and services integrating the customer's health and safety and preserving its integrity and privacy also through accurate product information and labeling. |