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The Relationship Between Sustainable Supply Chain Management, Stakeholder Pressure, and Financial Performance

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Abstract

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BS, MS, Orenburg State Pedagogical University, 1995

Doctoral Study Submitted in Partial Fulfillment

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Abstract

Corporate sustainability confronts significant challenges when supply chain managers pursue short-term financial performance to meet stakeholders' expectations. To achieve sustainable economic success, organizational managers need to understand the relationship between corporate sustainability and long-term financial performance. Based on the resource dependence theory, the purpose of this correlational study was to examine the relationship between sustainable supply chain management (SCM), stakeholder pressure, and corporate sustainability performance. The population consisted of worldwide public organizations from Newsweek Global Green Ranking 2016 list engaged in sustainable SCM. The secondary data for the study were collected from databases hosted by Sustainalytics and Standard & Poor's. The hierarchical multiple regression analyses indicated statistically significant relationships between sustainable SCM and corporate sustainability performance, $F(5, 158) = 3{,}981$, $p = .002$, $R^2[.112]$, and between stakeholder pressure and corporate sustainability performance, $F(5, 158) = 2{,}552$ $p = .030$, $R^2[.075]$. Analysis of the relationship between sustainable SCM and corporate sustainability performance with stakeholder pressure as a moderator showed non-significant interaction effect, $F(5, 158) = 5.54$, $p < .001$, $R^2 = .11$. R^2-chng $= .0007$, p-int $= .669$. With stakeholder pressure as a mediator, the relationship showed non-significant indirect effect, $b = .024$, $z = 0.97$, $p = .329$. The findings of this study could contribute to the social change given that sustainable development of supply chains support the conservation of natural resources and living standards of stakeholders.

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Section 1: Foundation of the Study

Despite rising awareness of the environmental and social aspects of doing business, financial performance continues to be the core objective of managers within organizations, and the primary expectation of stakeholders (Torugsa, O'Donohue, & Hecker, 2013; Zhu, Sarkis, & Lai, 2013). Though sustainability initiatives are increasingly encouraged by governments, investors, and customers, the economics of sustainable decisions remains in question (Singal, 2013). Many managers in organizations are still tempted to focus on short-term tactics rather than long-term sustainability initiatives. Business managers lack understanding of the relationship between corporate sustainability and long-term financial performance even as sustainable economic success is becoming a strategic issue in the competitive market (Myung, McClaren, & Li, 2012). However, there is an increasing number of corporations engaging in sustainable supply chain management (SCM) by integrating environmental, social, and economic aspects of business operations (Kurapatskie & Darnall, 2013; Myung et al., 2012; Tseng & Chiu, 2013). Eccles, Ioannou, and Serafeim (2014), Eccles and Serafeim (2013), Singal (2013), and Wang and Sarkis (2013) have explained the connection between an individual firm's financial performance and its investment in sustainability initiatives. Other researchers have shown that a strong focus on the integration of the social, economic, and environmental dimensions of business could support a sustainable future (Gopalakrishnan, Yusuf, Musa, Abubakar, & Ambursa, 2012; Tseng & Chiu, 2013; Tseng, Lim, & Wong, 2015).

Background of the Problem

Managers within organizations adopt sustainable SCM to address rising concern regarding resource depletion and the related decline of social well-being (Shamsuddoha, 2015; Tseng et al., 2015). However, organization managers face many challenges in the process of implementing sustainable SCM because of the complex and multifaceted nature of SCM issues (Camilleri, 2016; Elliot, 2013). Organization managers strive to address sustainability through SCM with the goal of ameliorating stakeholder pressure (Wolf, 2014). The well-documented impact of stakeholders upon an organization managers' adoption of better environmental and social practices gives an impression that stakeholder pressure is the only driver of sustainable SCM. A better understanding of the relationship between the constructs of sustainable SCM and stakeholder pressure will allow supply chain decision makers to consider more appropriate strategies for supply chain sustainability, to integrate stakeholder expectations into the design of those strategies effectively, and to address the rising concern for the environment (Shamsuddoha, 2015; Wolf, 2014). Wolf (2014) combined insights from research on both sustainable SCM and stakeholder pressure, and found that sustainable SCM has more to offer an organization when not implemented as a reaction to stakeholder pressure. In measuring corporate sustainability performance, Wolf captured two dimensions of sustainability, environmental and social. In this study, I built upon Wolf's suggestion for further research and tested whether corporate sustainability performance, as measured by an economic dimension of sustainability, is affected by sustainable SCM and stakeholder pressure.

Problem Statement

Short-term financial performance to meet stakeholders' expectations no longer guarantees an organization's long-term survival (Sezen & Cankaya, 2013). Proactively sustainable organizations outperform their counterparts in terms of accounting performance, with average annual abnormal performance 4.8% higher on a value-weighted base, and 2.3% higher on an equally-weighted base (Eccles et al., 2014). The general business problem was that supply chain managers in organizations are negatively affected by stakeholder pressures for short-term profitability rather than sustainable profitability, which results in a decrease in long-term performance for the business. The specific business problem was that some global supply chain managers in different industries and organizational sizes lack understanding of the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance.

Purpose Statement

The purpose of this quantitative correlation study was to examine the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance while controlling for industry and organizational size. The first independent composite variable was sustainable SCM, as measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement. The second independent composite variable was stakeholder pressure, as measured by Sustainalytics dimensions of: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies. Stakeholder pressure also took the roles of

moderator and mediator. The dependent variable was corporate sustainability performance, as measured by Standard and Poor's credit rating. The control variables were industry and organizational size, measured by the number of employees. For this study, I obtained secondary data on organizations located in North America, South America, and Eurasia, identified in a Newsweek Green Rankings Global 2016 list. This study's implications for positive social change include the potential to provide a better understanding of the correlates of corporate sustainability performance by organization managers, which encourage long-term sustainable profitability that improves environmental, social, and economic standards of living.

Nature of the Study

I chose a quantitative methodology for this study. Researchers conduct quantitative studies to statistically confirm causal linkages among sets of accounting information, business factors and financial success, management systems and performance, and strategy and performance (Field, 2013; Leedy & Ormrod, 2015; Makrakis & Kostoulas-Makrakis, 2016; Yilmaz, 2013). The quantitative method was appropriate for this study because the purpose of the study was to statistically confirm causal linkages among sustainable SCM, stakeholder pressure, and corporate sustainability performance while controlling for industry and organizational size. A qualitative method provides answers to *how* and *why*, bringing meaning and understanding to the research question, which comes from the human judgment of context (Kaivo-oja, 2016; Makrakis & Kostoulas-Makrakis, 2016; Yilmaz, 2013). The qualitative method was not applicable to this study since the variables in the study were

numerical in nature. Mixed method studies combine qualitative and quantitative methods to address a range of complex research questions demanding inductive and deductive research logic in a more flexible, integrative, and holistic manner to create divergent views and findings (Kaivo-oja, 2016; Mayoh & Onwuegbuzie, 2013; Makrakis & Kostoulas-Makrakis, 2016; Venkatesh, Brown, & Bala, 2013). The mixed method approach was not applicable to this study because a mixed study requires the collection of both qualitative and quantitative data, while in this research I only sought to investigate if causal linkages among the numerical variables could be statistically confirmed.

I selected a correlational design for this study. Researchers use correlation design to examine the relationship between variables by characterizing the nature and magnitude of the relationship between two quantitatively coded variables (Field, 2013; Grange, Lewis, & Carslaw, 2016; Leedy & Ormrod, 2015). Correlation does not prove causation, while the absence of correlation implies the absence of the existence of a causal relationship (Field, 2013; Cohen, Cohen, West, & Aiken, 2013; Leedy & Ormrod, 2015). The correlation design was appropriate for this study because my aim was to determine the relationship between a set of predictor composite variables (sustainable SCM and stakeholder pressure), a moderator and a mediator (stakeholder pressure), and a dependent variable (corporate sustainability performance). Experimental and quasi-experimental designs are applicable when the researcher's aim is to assess uncontrollable environmental events or certain conditions when randomization is not possible (Field, 2013; Leedy & Ormrod, 2015; Rideout & Gray, 2013). The experimental and quasi-

experimental designs were not applicable to this study because the research was focused on identifying a predictive model.

Research Question

A research question is an issue of interest to the researcher presented in the form of a clear statement of what the researcher wants to know (Bryman & Bell, 2015; Field, 2013). The main research question in this study was: What is the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance while controlling for industry and organizational size? From the main research question, I developed the following research sub-questions:

Research Question 1: What is the relationship between sustainable SCM and corporate sustainability performance, while controlling for industry and organizational size?

Research Question 2: What is the relationship between stakeholder pressure and corporate sustainability performance, while controlling for industry and organizational size?

Research Question 3: What is the relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance, while controlling for industry and organizational size?

Research Question 4: What is the relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance, while controlling for industry and organizational size?

Hypotheses

Hypotheses are formal statements of logical suppositions, reasonable guesses, or educated conjectures that propose some form of relationship between one or more factors of interest (independent variables) and an outcome (dependent) variable (Cohen et al., 2013; Field, 2013; Leedy & Ormrod, 2015). I formulated the following hypotheses based on the research questions posed above:

$H_0$1: There is no statistically significant relationship between sustainable SCM and corporate sustainability performance while controlling for industry and organizational size.

$H_1$1: There is a statistically significant relationship between sustainable SCM and corporate sustainability performance while controlling for industry and organizational size.

$H_0$2: There is no statistically significant relationship between stakeholder pressure and corporate sustainability performance while controlling for industry and organizational size.

$H_1$2: There is a statistically significant relationship between stakeholder pressure and corporate sustainability performance while controlling for industry and organizational size.

$H_0$3: There is no statistically significant relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance while controlling for industry and organizational size.

$H_1$3: There is a statistically significant relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance while controlling for industry and organizational size.

$H_0$4: There is no statistically significant relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance while controlling for industry and organizational size.

$H_1$4: There is a statistically significant relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance while controlling for industry and organizational size.

Theoretical Framework

I used resource dependence theory (RDT) as the theoretical framework for this study. RDT has its roots in Emerson's classic "Power-Dependence Relations" (1962) article, and Pfeffer and Salancik's *The External Control of Organizations: A Resource Dependence Perspective* (1978). Davis and Cobb (2010) used the RDT to seek an explanation of the behavior of an organization in terms of its context. Key constructs underlying the theory are that resources are anything that is valuable to an organization, and that an organization depends on others to gain access to valuable resources (Emerson, 1962; Pfeffer & Salancik, 1978). Resource dependency directions are valuable for understanding the complexity of external dependencies, which is fundamental for supply chains (Malatesta & Smith, 2014; Pfeffer & Salancik, 1978; Wry, Cobb, & Aldrich, 2013). RDT is a central theory in scholarly and applied understandings of the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability

performance. RDT lends support to the concept that organizations should proactively engage in sustainable SCM because sustainable SCM resolves a resource dependency problem, ameliorates stakeholder pressure, and ensures sustainable profitability.

Operational Definitions

Corporate sustainability performance: The strategies, practices, and tactics employed by an organization with the objective of improving its relationships with the social and natural environment (Wolf, 2014).

Credit ratings: A forward-looking opinion about credit risk such as the capacity and willingness of an entity to meet its financial commitments as they come due (Standard & Poor's, 2015).

Issuer credit ratings: The forward-looking opinions concerning an obligor's overall creditworthiness (Standard & Poor's, 2015).

Stakeholder pressure: The situation in which an organization is held accountable by stakeholders for its actions and decisions regarding product design, sourcing, production, or distribution (Parmigiani, Klassen, & Russo, 2011).

Supply chain management: The management of physical, logical, and financial flows within the organization and supply chain (Taticchi, Tonelli, & Pasqualino, 2013).

Sustainable supply chain management: The strategic integration and achievement of the long-term economic, social, and environmental objectives of the individual organization and its supply chains (Carter & Rogers, 2008).

Sustainability: Sustainable development by meeting the needs of the present generation without compromising the needs of the future generation (World Commission on Environment and Development, 1987).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are beliefs that are taken as given and are usually not subject to empirical testing (Field, 2013; Leedy & Ormrod, 2015). My first assumption in this study was that the archival data I collected from Sustainalytics and Standard and Poor's (S&P) databases had been obtained by Sustainalytics and S&P from valid and reliable sources. Another assumption was that the data from analysis providers with substantial experience and expertise in evaluating publicly traded organizations were based on financial accounts, organizational documentation, databases, media reports, and stakeholder interviews. My third assumption was that organizations I examined in the study had reported accurate data in their corporate annual reports.

Limitations

Limitations are weaknesses of a study related to the proposed sample, data collection environment, measurement techniques, and personal biases that may affect the quality of the results and credibility of the conclusions (Field, 2013; Leedy & Ormrod, 2015). I identified two limitations to this study. The first limitation was that the measure of corporate sustainability performance captured only the economic dimension of sustainability. The second limitation of the study was that there could be a lagged effect

of stakeholder pressure on sustainable SCM-corporate sustainability performance relationship, which is outside of the focus of the study.

Delimitations

Delimitations mark how far the research effort extended, into what relevant areas the researcher did not inquire, and what the researcher never intended to do (Field, 2013; Leedy & Ormrod, 2015). In this research, my focus was on the contribution of sustainable SCM to an organization's corporate sustainability performance. Thus study was delimited to only the economic dimension of sustainability, and did not include social and environmental dimensions of sustainability.

Significance of the Study

The purpose of this study was to examine the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance, while controlling for industry and organizational size. Considering the complexity and the insufficient theoretical development of an original approach to sustainability, the findings of this study could be a significant contribution to academic literature related to corporate sustainability performance. The results of the study could be of value both to business organizations and society because corporate sustainability integrates corporate financial performance, social performance, and environmental performance. Effective decision-making requires the manager-researcher relationship. Thus, this study could be a significant contribution both to business practice and to social change.

Contribution to Business Practice

The results of this study could be of benefit to business organizations—and particularly to supply chains—because there is insufficient theoretical development or empirical analysis of the integrative sustainability logic. The findings of the study could prove critical for supply chains managers' understandings of the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance. The results of the study could be of value to practitioners considering that the primary objective of organizations is sustainable financial performance. The outcome of the study may assist business decision-makers to become more effective in integrating corporate financial performance, social performance, and environmental performance as a part of a system. Thus, the findings of the study might assist organizational leaders in the decision-making process in pursuit of long-term business sustainability.

Implications for Social Change

The findings of this study might further challenge managerial decision makers to rethink management approaches to corporate sustainability. The results of the study might also help organization managers acknowledge potential benefits of deploying sustainability in supply chains in an integrated manner, and understand how companies contribute individually and collectively to sustainability, which incorporates people, planet, and profit. A deep understanding of the very nature of sustainable development could lead supply chain managers across the world to manage economic, social, and environmental dimensions of business operations by considering the needs of the present generation without compromising the needs of future generations. Sustainable

development of supply chains supports the conservation of natural resources, the improvement of working conditions and living standards of stakeholders, and corporations' involvement in philanthropic activities in an integrated manner.

A Review of the Professional and Academic Literature

In this study, I attempted to extend Davis and Cobb's (2010) RDT, which holds that sustainable SCM and stakeholder pressure influence the strategies that organizations employ to improve their corporate sustainability performance. The purpose of this literature review was to identify the existing research to provide a substantial basis for investigating the primary research question: What is the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance, while controlling for industry and organizational size? I formulated the following four research sub-questions and associated hypotheses:

Research Question 1: What is the relationship between sustainable SCM and corporate sustainability performance, while controlling for industry and organizational size?

$H_0$1: There is no statistically significant relationship between sustainable SCM and corporate sustainability performance while controlling for industry and organizational size.

$H_1$1: There is a statistically significant relationship between sustainable SCM and corporate sustainability performance while controlling for industry and organizational size.

Research Question 2: What is the relationship between stakeholder pressure and corporate sustainability performance, while controlling for industry and organizational size?

$H_0$2: There is no statistically significant relationship between stakeholder pressure and corporate sustainability performance while controlling for industry and organizational size.

$H_1$2: There is a statistically significant relationship between stakeholder pressure and corporate sustainability performance while controlling for industry and organizational size.

Research Question 3: What is the relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance, while controlling for industry and organizational size?

$H_0$3: There is no statistically significant relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance while controlling for industry and organizational size.

$H_1$3: There is a statistically significant relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance while controlling for industry and organizational size.

Research Question 4*:* What is the relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance, while controlling for industry and organizational size?

$H_0$4: There is no statistically significant relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance while controlling for industry and organizational size.

$H_1$4: There is a statistically significant relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance while controlling for industry and organizational size.

In this literature review section, I provide a synthesis of ideas and concepts from the perspective of RDT concerning reactive and proactive approaches to sustainable SCM, the effect of stakeholder pressure on sustainable practices, and corporate sustainability performance. To ensure validity and credibility of the information, I reviewed peer-reviewed journal articles that I retrieved from online journal databases such as Emerald, ProQuest, and SAGE. The keywords I used to filter results that were more relevant to the research topic were: *supply chain management, sustainable supply chain management, impact of sustainable SCM, stakeholder pressure, economic sustainability,* and *corporate sustainability performance.* The literature review included 136 peer-reviewed journal articles. One hundred and twenty-two of these 136 peer-reviewed journal articles were published in the last 5 years, representing 90% of the total sources used in the study.

Communities and governments around the world demand environmentally friendly businesses, quality products and services, and organizational compliance with regulations concerning the socio-environmental impact of the supply chain (Ding, Liu, & Zheng, 2016; Gopalakrishnan et al., 2012; Sebastianelli, Tamimi, & Iacocca, 2015). The

evolutionary nature of supply chains requires continuous improvement of practices for sustaining the business operations (Gopalakrishnan et al., 2012). More organization managers are striving to embrace and transcend contradictions in operational and organizational activities regardless of the challenges in the process of implementing sustainability due to the complexity of issues, difficulties in capturing this complexity, and continuously emerging new areas of concern (Gopalakrishnan et al., 2012; Schaltegger & Burritt, 2014). Often organizational leaders attempt to develop creative solutions to not only build a competitive advantage, but also to do so in harmony with the planet and society (Elliot, 2013; Gao & Bansal, 2013). The implementation of any sustainability agenda in supply chains requires formulation and operationalization of an integrated approach that addresses the relevant social, economic, and environmental issues (Hahn, Pinkse, Preuss, & Figge, 2015; Whiteman, Walker, & Perego, 2013).

Resource Dependence Theory

RDT was the basis for this study's theoretical framework. The strong principles of RDT present a premier framework for understanding the relationship between the organization and the environment (Drees & Heugens, 2013; Esfahbodi, Zhang, & Watson, 2016). Davis and Cobb (2010) claimed that there is evidence of the need for more attention to RDT. RDT facilitates understanding of the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance. In this study, I attempted to extend Davis and Cobb's (2010) RDT, which holds that sustainable SCM and stakeholder pressure influence the strategies that organizations employ to improve their economic sustainability.

One of the fundamental assumptions of RDT is that organizations are not self-sufficient, but rely on their environment and its resources for survival and achievement of long-term objectives (Brettel & Voss, 2013; Kisaka & Anthony, 2014; Parastuty, Schwarz, Breitenecker, & Harms, 2015; Pfeffer & Salancik, 1978). Organizations obtain critical resources by looking outside their boundaries (Malatesta & Smith, 2014; Nuruzzaman, 2015). Interdependence over needed resources produces inter-organizational power that drives organizational behavior and buyer-supplier relationships (Gaffney, Kedia, & Clampit, 2013; Pfeffer, 1987 as cited in Gaffney et al., 2013). Organizations with a power advantage gain a dominant position in the network and often exploit their power of resources, which results in a competitive advantage (Green, Toms, & Clark, 2015; Nuruzzaman, 2015; Tachizawa & Yew Wong, 2014). Distribution of power and the ability to influence the activities of other members of the network influences the depth of collaboration between buyers and suppliers in networks (Kähkönen, 2014; Tachizawa & Yew Wong, 2014). Organizations employ different strategies to acquire needed resources that require different levels of coordination (Malatesta & Smith, 2014).

Another fundamental assumption of RDT is that uncertainty in the internal and external environment of the organization is responsible for the internal power distribution within the organization and the external power distribution between organizations (Brettel & Voss, 2013; Kisaka & Anthony, 2014; Parastuty et al., 2015; Pfeffer & Salancik, 1978). The difficulty any organization faces creates the uncertainty and dependence of an organization (Vecchiato, 2015). A lack of autonomy also creates the

dependence of the organization and the external power (Brettel & Voss, 2013; Kisaka & Anthony, 2014; Parastuty et al., 2015; Pfeffer & Salancik, 1978).

Power relationships are intrinsic to global supply networks (Tachizawa & Yew Wong, 2014). Competition and innovation are no longer just between single organizations, but between supply chain networks. Supply chain systems of interdependencies make inter-organizational relationships increasingly challenging (Malatesta & Smith, 2014). Dependency on suppliers for critical resources directly affects the adoption of environmentally and socially responsible practices (Hoejmose, Grosvold, & Millington, 2013; Tachizawa & Yew Wong, 2014). Organizations' application of RDT to supply chains is evident as organizations consistently purchase strategically critical resources (e.g. standards, procedures, technologies, material sources, distribution channels) and depend on contingencies in the external environment (Malatesta & Smith, 2014; Pfeffer & Salancik, 1978; Tachizawa & Yew Wong, 2014). A few strong principles of RDT apply to sustainable SCM. The theory's directions are valuable for understanding the complexity of external dependencies, which is characteristic of supply chains, by emphasizing that every organization in the network pursue a different strategy and objectives (Malatesta & Smith, 2014; Pfeffer & Salancik, 1978; Wry et al., 2013).

Managers use RDT to guide organizational strategy from short-term survival to long-term organizational growth (Malatesta & Smith, 2014). RDT is highly relevant to the study of contemporary organizations, and specifically to the study of the supply chain relations (Tachizawa & Yew Wong, 2014). Wry et al. (2013) argued that resource

dependency's unique insights on the complexity of an organization's external environment are the keys to unlocking its contemporary relevance. Thus, the resource dependence perspective has the potential to become a strongly developed theoretical perspective (Wry et al., 2013). A few researchers have already applied the insights of RDT in the supply chain management field. Paulraj and Chen (2007) developed a strategic supply management model based on uncertainty and concluded that the relationship between environmental uncertainty and strategic supply management supports the claims of RDT. Wolf (2014) applied RDT to a sustainable SCM context, broadening the range of theories currently employed in the field. Ramanathan, Poomkaew, and Nath (2014) conducted a holistic analysis considering a variety of stakeholder pressures in a single framework, and extended the application of the RDT. Esfahbodi et al. (2016) applied RDT to examine relationships between the implementation of sustainable SCM practices and organizational performance.

Opponents of RDT argue that resource dependence key principles are near obvious and accepted, but at the same time lacking (Malatesta & Smith, 2014). Additionally, according to Malatesta and Smith (2014), empirical researchers largely support the RDT's main assumptions and principles but often report that it is difficult to rule out alternative explanations and compare findings across studies. According to Hillman, Withers, and Collins (2009), basic arguments of RDT and inter-organizational relations are not sufficient on their own. Integration of RDT with other theoretical frameworks may prove to be more productive in researching the relationship between an

organization and its environment. RDT has been integrated with other theoretical perspectives in examining the phenomenon of interest (Hillman et al., 2009).

The resource-based view of the organization, stakeholder theory, real options theory, population ecology perspective, niche theory, and institutional theory are several concepts related to RDT (Hillman et al., 2009). The integration of the resource-based view of the organization with RDT has enhanced organizational understanding in the area of organizational resource endowment. RDT merged with stakeholder theory may offer greater insights for managing dependencies (Hillman et al., 2009). The application of RDT and real options theory may show resource dependence-reducing strategies and approaches to reducing uncertainty. The combination of RDT with the population ecology perspective may help to address the role of the external environment more effectively, which in turn may help to develop a meta-theoretical perspective for organizations (Hillman et al., 2009). The niche theory offers a combination of resources needed for survival and insights into resource dependence relationships. Integration of RDT with institutional theory may also offer solutions for issues concerning uncertainty and dependency by taking into consideration the country's institutional environment (Hillman et al., 2009). Thus, comparing and integrating RDT with other complementary perspectives or competing theories may guide a better understanding of environmental interdependence and uncertainty. These identified theories are relevant to sustainable SCM. Examining such perspectives can help identify the drivers for sustainability initiative and provide insights on how organizations can benefit from internal and

external factors to develop sustainable supply chains (Varsei, Soosay, Fahimnia, & Sarkis, 2014).

Institutional theory and population ecology are the rival theories of RDT. The institutional theory indicates that the institutional environment can influence the development of a structure in an organization more than the market pressures (Bradly, 2015; Fuenfschilling & Truffer, 2014; Rottig, 2016). Moreover, organizational managers will adopt these structures if they improve the efficiency of the organization. Applying this theory to the study would mean that the internal structure of the organization would decide to implement sustainable SCM in the organization if it improves their efficiency.

For population ecology for organizations, Hannan and Freeman (1977) stated that organizations exist within a population of similar organizations, and the survival of the organization would depend on how the organization responds to their environment. Two kinds of environment can influence the survival of the organization; external and internal. In this study, I apply this theory on how organizations respond to the internal and external environment concerning sustainability. The strengths of population ecology are that it shows a holistic approach to understanding the structure of organizations, and it shows an explanation on how organizations survive (Hannan & Freeman, 1977). However, there are limitations of the theory as well such as having a deterministic view of human beings (Daft, 2012). A deterministic view indicates that human beings or organizations respond in a mechanical way to the experiences they have encountered. As such, individuals or organizations that hold the population ecology are not proactive and are only reactive to the situation. One of the weaknesses of the population ecology is its dependence on the

reaction of the organization towards what is happening in its external environment. However, Daft (2012) explained that companies have the capability to define and redefine their external environment. Bozeman and Moulton (2011) supported the sentiments of Daft with the fact that organizations especially large ones have the capability to modify the conditions of their environment.

Population ecology theory for organizations is a major rival theory of RDT because they have similarities such that both theories acknowledge the influence of the internal and external environment to the organization. However, population ecology theory does not align with the purpose of this study. This study is more aligned with RDT because at the core of the concept of sustainability is the issue of resources. Population ecology theory focuses on the reaction of the individuals or organizations about the situation at hand while RDT focuses on how to ensure that the organization has sufficient resources now and in the future to ensure survival and progress.

Sustainable SCM

International business environment challenges organizations to concentrate on SCM to gain a competitive advantage (Nuruzzaman, 2015; Shen, Olfat, Govindan, Khodaverdi, & Diabat, 2013). General pressures of the environment on organizations hypothesized by Pfeffer and Salancik (1978) are almost the same as they were during the 1970s (Davis & Cobb, 2010). According to the principles of RDT, resources and their acquisition is the core of decision-making process of organizations (Davis & Cobb, 2010). The scarcity of resources pressures organizations to seek sustainable supply chain

strategies essential for an organization's survival, long-term sustainability of resource supply, and sustainable economic performance (Karimi & Rahim, 2015).

The scope of the components included in supply chain management range from operations management, resource and distribution management, logistics and transportation, marketing, purchasing, and information technology (Chan, Nayak, Raj, Chong, & Manoj, 2014; Roh, Hong, & Min, 2014). All of these key inter-organizational business processes are integrated for an effective supply chain strategy that influences and improves the performance of the organization (Carter & Rogers, 2008; De Marchi, Di Maria, & Micelli, 2013; Roh et al., 2014; Winter & Knemeyer, 2013). Because of the advancement in technology of global supply chain, organization managers can benefit from real-time data about demand and supply of products that are helpful for decision-makers in the supply chain (O' Rourke, 2014).

SCM is central to achieving sustainability through changing buying practices and impacts on the natural environment as it deals with the resources needed for the production (Glover, Champion, Daniels, & Dainty, 2014). RDT supports the notion that the lack of strategic resources may incentivize focal organizations to establish direct links with third parties (Nuruzzaman, 2015). Focal organization managers can use non-governmental organization-built environmental and social databases to monitor their lower-tier suppliers (Tachizawa & Yew Wong, 2014). The global flow of goods, information, labor, and capital that extends from raw materials to final products provide an excellent context to understand sustainable supply chain and to test the concept of

sustainability (Miller, 2013). Both supply chain and sustainability focus on system dynamics (Beske, Land, & Seuring, 2014).

As opposed to the traditional perspective of supply chain management that emphasizes on the economic aspect of an organization, sustainable SCM is described as the explicit incorporation of environmental and social goals that extends the economic dimension of the triple bottom line (Brandenburg, Govindan, Sarkis, & Seuring, 2014; Seuring & Müller, 2008). To reflect the principles of business sustainability, organization managers integrate social and environmental issues with core strategic issues at the supply chain level (Gao & Bansal, 2013). The main objective of sustainable SCM is to make the supply chain more sustainable with the end goal of producing an effective sustainable supply chain (O' Rourke, 2014). As such, sustainable supply chain refers to the outcome of a specific supply chain. Sustainable SCM is also a strategic integration of the social, environmental, and economic objectives of an organization with collaboration within and with other organizations to develop term economic, social, and environmental performance of the organizations and its supply chains (Seuring & Müller, 2008). Thus, the innovative supply chain contains the components of the traditional supply chain and also integrates sustainability issues withing the traditional areas of expertise by focusing on the long-term survival of the organization (Carter & Easton, 2011; Taticchi et al., 2013).

In sustainable supply chains, the environmental and social dimensions are addressed by the members of the supply chain through corporate social responsibility (CSR) initiatives while competitiveness is maintained through meeting the demands and

needs of consumers that satisfy the economic aspect of sustainability (Diabat, Kannan, & Mathiyazhagan, 2014; Seuring & Müller, 2008). Sustainable SCM is often understood as ensuring that supply chain practices are environmentally friendly (Diabat et al., 2014; Govindan, Kaliyan, Kannan, & Haq, 2014). Sustainable SCM is also sometimes called green supply chain, focusing on the environmental component of sustainability (Lee, Klassen, Furlan, & Vinelli, 2014; Turker & Altuntas, 2014).

Technology has boosted the lean manufacturing of organizations to meet the demands of the consumers; however, some organization managers failed to understand more about the environment and social consequences of the production aspect of the supply chain (O' Rourke, 2014). A number of organization managers have pursued sustainable practices. However, these practices should not be limited to environmental and social responsibilities of the organization but also include the economic benefits of sustainability for the organization (Galpin, Whittington, & Bell, 2015). At the same time, certain organization managers applying the triple bottom line approach still tend to focus strongly on the economic dimension (Beske & Seuring, 2014). Organizations need to work with one another in promoting sustainable SCM practices as a way to achieve organizational success rather than merely as a moral obligation (Alexander, Walker, & Naim, 2014; Wang, Rodrigues, & Evans, 2015). Sustainable SCM practices should promote to organizational success (Green et al., 2015). A strong focus of organizations on the integration of social, economic, and environmental dimensions needed to ensure corporate sustainability and a sustainable future (Gopalakrishnan et al., 2012; Tseng & Chiu, 2013; Tseng et al., 2015). There is little theoretical development or empirical

analysis of the integrative sustainability logic while it is critical for supply chain managers to gain an absolute understanding of the complex correlation and interplay of factors that foster sustainability and company competitiveness (Gopalakrishnan et al., 2012).

The adoption of sustainable SCM practices has a positive effect on three categories of outcomes such as economic, social, and operational (Tseng et al., 2015). For instance, sustainable packaging in organizations has resulted in a positive impact regarding environmental, economic, and social outcomes (Bealt, Barrera, & Mansouri, 2016). The results have shown evidence that sustainable SCM practices have a positive effect on the economic and social aspects of an organization (Albertini, 2013). Golicic and Smith (2013) examined 77 studies published from 2000 to 2011. Golicic and Smith used meta-analysis to determine whether specific practices of sustainability would influence the performance of an organization. The results showed that there is a significant positive relationship between environmental supply chain practices and the organizational performance. This finding indicates support that sustainable SCM results in positive firm performance. The study contributed to extending the understanding of the relationship between environmental supply chain practices and a firm performance (Mitra & Datta, 2014).

Given that sustainable SCM can have a positive influence on the financial performance of an organization, sustainable SCM researchers still focus on the environmental issues while social aspects of sustainable SCM are not examined enough (Golicic & Smith, 2013; Wolf, 2014). Environmental factors in quantitative studies

mainly include the utilization of natural resources as well as emission of waste by the organization rather than the social (consumers, suppliers, producers, stakeholders) and financial (financial performance and economic sustainability) components of sustainable SCM (Golicic & Smith, 2013; Seuring & Müller, 2008; Seuring, 2013). For instance, Seuring and Müller (2008) examined 191 papers published from 1994 to 2007. Seuring and Müller provided a conceptual framework that summarized the findings of sustainable SCM. Two strategies included in the sustainable SCM framework were the management of the supply chain to address risks and performance and the management of the supply chain to address sustainability. Seuring and Müller concluded that the literature on sustainable SCM still mostly around environmental issues. Social aspects and the integration of the three dimensions of sustainability are still rare (Seuring & Müller, 2008). Seuring and Müller extended the review of the literature on sustainable SCM up to 308 papers by 2010 and found that only 36 papers were quantitative studies (Seuring, 2013). Seuring (2013) reviewed 36 quantitative studies published from 1990 to 2010 and found that the social side of sustainability is usually not taken into account.

Studies on sustainable SCM are often pursued in a standalone fashion, which means that the economic, environmental, and social aspects of the triple bottom line attended independently without deliberating the existence of interrelationships (Gao & Bansal, 2013; Lozano, 2015). Also, empirical studies about supply chain management often focus on single organizations and do not examine the interrelationships of organizations (Carter & Easton, 2011). The conflict in the supply chain management perspectives of organizations also leads to the question on whether model-based research

considers the intercompany perspective and whether the perspective of the government authorities or stakeholders other than the investors reflected in the quantitative studies of sustainable SCM. The studies of Brandenburg et al., (2014) and Carter and Rogers (2008) were crucial in the integration of many dimensions within the relationship of sustainability and supply chains.

Carter and Rogers (2008) conducted a comprehensive literature review and structured a conceptual framework with the goal of introducing sustainability within the supply chain management. One of the objectives was to demonstrate the relationship between environmental, social, and economic performance in the context of the supply chain. Conceptual theory building was used as a methodology to represent sustainable SCM. The framework of sustainable SCM was based on RDT and the resource-based view of a firm. Carter and Rogers (2008) expanded the concept of sustainability to SCM and suggested major facets that are prerequisites for the implementation of sustainable SCM practices.

Brandenburg et al., (2014) conducted a content analysis of 134 studies on formal quantitative models that address sustainability aspects in the forward supply chains. Brandenburg et al. concluded that expanding the types of tools and factors considered in the formal modeling efforts offer numerous possibilities and insights. Brandenburg et al. (2014) also suggested that the sustainable SCM modeling field is on the research upswing and significantly more modeling based research needs to be completed to fully understand and integrate sustainable SCM into business thought and practice. Pagell and Shevchenko (2014) identified that previous researchers have focused on the synergistic

and familiar while overlooking trade-offs and radical innovation. Current knowledge about sustainable SCM is not sufficient to develop and implement an efficient and effective sustainable SCM. Pagell and Shevchenko (2014) highlighted five main issues compounded by measures that do not truly capture a supply chain's impacts and suggested to address these issues to help in the development of truly sustainable supply chains.

Therefore, studies associated with a holistic approach of sustainable SCM that reflect all three sustainability dimensions are relatively rare (Brandenburg et al., 2014; Lozano, 2015; Roh et al., 2014; Seuring & Müller, 2008). The holistic approach of sustainable SCM involves interactions between the environmental, social, and economic dimensions in the short and long term, and also between internal and external stakeholders (Lozano, 2015; Seuring & Müller, 2008). Lozano (2015) proposed corporate sustainability driver model that offers a holistic perspective on how companies can be more proactive in their effort to becoming more sustainability-oriented. In proposing the corporate sustainability model, Lozano (2015) considered both internal and external drivers and the drivers that connect them. Based on the review of the literature on corporate sustainability and the empirical research, Lozano (2015) drew together a large number of recognized drivers that affect corporate sustainability.

Overall, researchers in the initial studies regarding sustainable SCM focused on green products and green operations management; however, these researchers did not include the social and financial aspects of sustainable SCM. Even though these researchers paved the way for more studies about sustainable SCM, researchers were not

able to inform on current developments as well as provide recommendations for future studies. The subject of sustainability has moved from the borders of supply chain management research to the mainstream. The increase in acceptance of sustainability has led to a greater understanding of sustainability; however, the present knowledge about sustainability is not sufficient in creating a truly sustainable supply chain (Pagell & Shevchenko, 2014; Schrettle, Hinz, Scherrer-Rathje, & Friedli, 2014). Thus, when it comes to empirical studies, there is the growing relevance that there should be multiple perspectives on sustainability.

Sustainable SCM and Stakeholder Pressure

Increasing awareness of the need for sustainable future is prompting governments, customers, and various stakeholders to pressure organizations to incorporate sustainability issues into their SCM (Tseng & Hung, 2014). Stakeholder pressures or drivers are factors that motivate leaders of organizations to adopt sustainability in supply chain management. Within an organization, stakeholder pressure can be categorized as either internal or external (Brindley & Oxborrow, 2014; Glover et al., 2014; Tseng & Hung, 2014). The driving force for the adoption of sustainable practice is usually reactive as opposed to proactive, underscoring the role of internal or external pressure in sustainable SCM (Mathiyazhagan, Govindan, & Noorul Haq, 2014). Organizations more visible to institutional pressure and final customers tend to adopt a proactive approach to sustainability. Less visible organizations tend to be more reactive in implementing sustainable practices and waiting longer to establish links with other agents in the supply chain (Tachizawa & Yew Wong, 2014).

The adoption of environmental practices can stem from both internal pressures such as an organizational strategy and external pressures (Pålsson & Kovács, 2013; Seles, de Sousa Jabbour, Jabbour, & Dangelico, 2016). Pålsson and Kovács examined the intention of freight transportation-intensive industries to reduce CO_2 emission. By combining the resource-based view and stakeholder theory, Pålsson and Kovács found that organizational strategy outweighs stakeholder pressure in determining whether an organization intends to green its transportation. Stakeholder pressure sets the minimal levels that elevate the performance (Pålsson & Kovács, 2013). Internal motives differ between organizations. External drivers lead to a reduction of transportation emissions to a predetermined point that is an actual requirement for organizations (Pålsson & Kovács, 2013).

When organizations adopt sustainable supply chain management, stakeholders are likely to be more concerned with the environmental and social components of sustainability while organizations are likely to focus on maintaining the economic benefits while practicing sustainability (Diabat et al., 2014; Ramanathan et al., 2014). Lee, Singal, and Kang (2013) examined the relationship between corporate social responsibility and corporate financial performance. Lee et al. found that organizations in the hospitality industry often reduce social and environmental investments when economic conditions are unfavorable whereas they continue investments in operations related programs.

Sustainable SCM is an important area of focus for researchers because of stakeholders' demands for organizations' commitment to adopt sustainability practices

(Taticchi et al., 2013). Meixell and Luoma (2015) conducted a quantitative systematic review of the stakeholder-focused sustainable SCM literature, and specifically literature on the pressure and influence of stakeholders on sustainable SCM. Different types of stakeholders have a different influence on corporate sustainability performance depending on whether the sustainability issue is environmental or social. Additionally, certain stakeholders play a larger role in social vs. environmental sustainability (Meixell & Luoma, 2015). Corporate sustainability involves various and often conflicting demands of a wide set of stakeholders, who tend to apply different decision logics than managers (Hahn et al., 2015).

Internal pressures such as the need to develop risk management drive sustainable SCM within the organization (Brindley & Oxborrow, 2014; Glover et al., 2014; Tseng & Hung, 2014). Internal pressure to adopt sustainable SCM often originates from leaders and managers (Brindley & Oxborrow, 2014; Glover et al., 2014; Tseng & Hung, 2014). Reducing costs and increasing profits are also the main drivers of the implementation of sustainable SCM (Bealt et al., 2016). Every organization has the goal of cost reduction to increase profits (Glover et al., 2014). The incorporation of sustainability in supply chain management is a way for an organization to cut down expenses by improving efficiency (Brindley & Oxborrow, 2014). The need to improve quality is also one of the internal pressures that can influence the adoption of sustainable SCM (Carter & Easton, 2011). Such sustainable approach as the decrease of waste and pollution improves quality (Albertini, 2013). Organizations with environmentally friendly practices produce superior quality products (Carter & Easton, 2011). Increased pressure from investors can also lead

to the development of sustainable policies in organizations (Diabat et al., 2014). The increased awareness is also related to the understanding of the raw materials of the organizations in making the products or the services (Long, Tallontire, & Young, 2015).

The growing awareness of the original approach to sustainability, which recognizes the three dimensions of sustainability (corporate financial performance, social performance, and environmental performance) as a part of a system, drive organizational leaders to proactively pursue sustainable SCM (Esfahbodi et al., 2016; Gao & Bansal, 2013; Hahn et al., 2015; Jamali, 2014). Organizational leaders recognize their roles and responsibilities towards the environment and society not just for the present but for the future, which foster a proactive development of initiatives to address sustainability (Lozano, 2013; Walls & Triandis, 2014). Organizations understand their dependence upon the long-term sustainability of their resource supply (Esfahbodi et al., 2016; Wolf, 2014). Thus, organizations gain long-term benefit from the adoption of sustainable SCM strategies. By promoting environmental and social sustainability and proactively engaging in the sustainable supply chain, organizations build a good citizen reputation. The good reputation improves legitimacy and access to critical resources (Wolf, 2014).

Based on RDT, Wolf (2014) conducted a quantitative analysis of ESG data to assess the idea that proactive sustainable practices increase organizational legitimacy. The sample of the study included data of organizations from different industries and both highly polluting and less polluting industries (Wolf, 2014). Wolf proposed three competing models of the potential relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance. The objective was to examine, which

of the three models best represent information on 1,621 organizations. Multiple regression analysis was used to estimate the corporate sustainability performance impact of the two independent constructs (sustainable SCM and stakeholder pressure) (Wolf, 2014). Corporate sustainability performance was measured by two dimensions of sustainability, environmental and social, but did not include the economic dimension of sustainability. Wolf found that the first model, which assumed that sustainable SCM and stakeholder pressure have a direct and separate effect on corporate sustainability performance, represents the data best. Based on the finding, proactive sustainable SCM directly benefits an organization beyond reducing stakeholder pressure. Thus, proactive sustainable SCM positively related to corporate sustainability performance (Wolf, 2014).

External pressures, such as consumers, suppliers, competitors, and governments, influence organizations to assimilate sustainable SCM (Cantor, Blackhurst, Pan, & Crum, 2014). The external pressures that drive the assimilation of sustainable SCM are aspects outside the internal processes of the organization but still have a significant influence on the internal activities of the organization (Nuruzzaman, 2015). More than internal pressures, external pressures obligate organizations to include sustainable environmental and social practices in the supply chain management (Nuruzzaman, 2015). The findings of empirical research supporting the benefits of green and environmentally friendly practices in organizations further encourage stakeholders pressure (Kumar, Luthra, & Haleem, 2013).

Legislative and regulatory policies drive organizations to deliver products and services through environmental or sustainable practices. California Transparency in

Supply Chains Act is one of the examples of how regulations affect the sustainable practices of organizations. Some countries also approved tax deductions to organizations that are practicing environmental or sustainable practices (Fahimnia, Sarkis, Choudhary, & Eshragh, 2015; Osmani & Zhang, 2014; Rezaee, Dehghanian, Fahimnia, & Beamon, 2015). Customers are one of the most influential external drivers that can pressure organizations to adopt sustainable SCM (Brindley & Oxborrow, 2014; Ting, Tse, Ho, Chung, & Pang, 2014). While the customers regularly stress small and medium-sized companies by the demands, the stakeholders and investors manipulate the large organizations by the demands (Beske et al., 2014; Brindley & Oxborrow, 2014; Ting et al., 2014). Organizations must always be alert to the needs of their customers to gain competitive advantage. Competitors of organizations also serve as an external pressure that can drive the adoption of sustainable SCM (Beske & Seuring, 2014). The integration of sustainable practices in organizations was formed to improve competition among rivals in the same industry (Aguilera-Caracuel & Ortiz-Mandojana, 2013; Wolf, 2014). The society is also an external pressure that can drive organizations to become more conscious of environmental issues (Coombs & Holladay, 2015). Organizations are under pressure to adopt sustainability practices to show the public that they have a sense of social responsibility (Hsueh, 2015).

External pressures and sustainability demands often come from secondary stakeholders, such as social activists, non-governmental organizations, and local communities (Coombs & Holladay, 2015; Hahn et al., 2015). Helmig, Spraul, and Ingenhoff (2016) found that secondary stakeholders influence primary stakeholders but

do not have a direct impact on the implementation of environmental and social practices. The finding is in alignment with RDT. Stakeholders in relationships with low interdependence will choose an indirectly influencing strategy (Helmig et al., 2016).

Activities and behaviors outside of an organization's control are relationships outside of its boundaries and part of the environment with many other organizations and/or stakeholders. The relationships outside of an organization's boundaries recognized for dispersed authority and power within the environment, scarcity of critical resources, and interconnectedness of organizations (Malatesta & Smith, 2014). RDT indicates that organizations as open systems depend on the external environment and helps to understand strategies that organizations employ to reduce environmental interdependence and uncertainty (Gaffney et al., 2013; Pfeffer & Salancik, 1978). The more dependent the organization is on external resources, the more demands the external stakeholders would have in the control of these resources (Xia, Ma, Lu, & Yiu, 2014).

Managing various demands of suppliers is challenging for organizations (Kam-Sing Wong, 2014). The objective of any organization is to maximize independence and certainty especially in resources (Pfeffer & Salancik, 1978). Organizations significantly depending on the external environment will struggle to lessen this dependence in various manners (Pfeffer & Salancik, 1978). Often organizations engage in sustainable practices when they fear or faced with reduced access to resources due to stakeholder pressure (Wolf, 2014). Sustainable SCM becomes critical to organizations vulnerable to internal and external stakeholder pressures (Wolf, 2014). Through sustainable SCM, organizations address environmental, social, and economic aspects of their supply chains

to reduce stakeholder pressure (Wolf, 2014). Stakeholder pressure is often one of the main reasons why organizations will pursue sustainable SCM (Brindley & Oxborrow, 2014; Glover et al., 2014; Tseng & Hung, 2014). Wolf (2014), upon conducting a multiple linear regression analysis of the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance, found that stakeholder pressure directly affects corporate sustainability performance.

Organizational managers may have a reason for proactively pursuing sustainable practices other than stakeholder pressure since sustainable SCM contributes to corporate sustainability performance but the effect can be greater when stakeholder pressure occur (Wolf, 2014). The stakeholders' expectations, whether they are internal or external, need to be incorporated into the sustainable supply chain operations if the pressure is present (Cantor et al., 2014; Wolf, 2014). The integration of stakeholder expectations into the organizational strategy improves corporate sustainability performance (Cantor et al., 2014; Wolf, 2014). Wolf conducted a multiple linear regression analysis of three competing models of the potential relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance by employing RDT. Wolf (2014) found that the information on 1,621 organizations based on the ESG data did not support the second model, which assumed the moderating effect of stakeholder pressure on the sustainable SCM-corporate sustainability performance relationship. It is possible that factors not examined in the study determined the importance of stakeholder pressure in a sustainable SCM context (Wolf, 204). Adebambo, Abdulkadir, Mat, and Alkafaagi (2013) also investigated the sustainable environmental manufacturing, the direct

influence of its drivers, and financial performance by employing a survey approach and structural equation modeling. Adebambo et al. found that stakeholder pressure, legislation, and perceived benefits directly influence the implementation of sustainable environmental manufacturing practices and financial performance.

Despite the internal and external pressures to adopt sustainable SCM, there are challenges and obstacles to the integration of sustainability and supply chain processes (Al Zaabi, Al Dhaheri, & Diabat, 2013). The challenges of sustainable SCM implementation are (a) cost increase, (b) change of culture, (c) operationalization of sustainable development, (d) uncertainties among the employees and the organization, and (e) the complexity of the issues of the organization (Alexander et al., 2015; Galpin et al., 2015). While sustainable SCM is also supposed to reduce costs of the organization, the integration of sustainability to supply chain processes can also be expensive to accomplish (Zhang, Shah, Wassick, Helling, & Van Egerschot, 2014). The adoption of sustainable SCM would require a significant capital for small to medium-sized companies (Zhang et al., 2014).

Lack of knowledge of the organizations is also one of the most common obstacles to the integration of sustainable SCM practices in an organization (Al Zaabi et al., 2013). Lack of training of the employees is also an obstacle to sustainable SCM, as it leads to a lack of environmental awareness for employees (Dashore & Sohani, 2013; Myung et al., 2012; Sisson & Elshennawy, 2015). The lack of integration of IT system was also identified by Dashore and Sohani (2013) as an obstacle to the implementation of sustainable SCM practices in an organization. The integration of IT is essential for

information exchange processes and successful sustainable SCM (Brandenburg et al., 2014; Dashore & Sohani, 2013). Regulations also tend to be an obstacle for the implementation of sustainable SCM if the regulation does not facilitate the environment needed for implementing the sustainable supply chain (Dashore & Sohani, 2013). Thus, corporate sustainability challenges managers in organizations with complex issues full of tensions as it requires managers to simultaneously address concerns for the environment, social welfare, and economic prosperity (Hahn, Preuss, Pinkse, & Figge, 2014; Hahn et al., 2015).

Many organization managers fail to recognize the potential benefits of sustainable practices for overall organizational performance unless they yield short-term profits (Alexander et al., 2014; Bradly, 2015). Organizations are not recognizing sustainable SCM as beneficial to strategic objectives also due to the challenges engage in sustainable practices only if there is pressure upon the resource dependence relationship with one or more stakeholders (Pfeffer & Salancik, 1978; Wolf, 2014). Stakeholder pressure determines the extent to which an organization engages in sustainable SCM. The extent of engagement in sustainable SCM will affect corporate sustainability performance (Wolf, 2014). Thus, stakeholder pressure mediates sustainable SCM, and in turn, sustainable SCM shapes corporate sustainability performance (Cantor et al., 2014; Wolf, 2014).

For instance, risk management is one of the drivers of sustainable SCM within the organization (Brindley & Oxborrow, 2014; Glover et al., 2014; Tseng & Hung, 2014). Organizations may not recognize the benefits of risk management programs, such as

managing the long-term sustainability of resources by fostering innovation, unless there is pressure from external and internal forces to develop an effective supply chain risk mitigation strategy (Cantor et al., 2014; Lozano, 2013). Cantor et al. (2014) empirically tested how stakeholders place pressure on organizations to engage in risk management activities. Cantor et al. (2014) utilized a survey approach to test the nomological model by employing structural equation modeling techniques. Stakeholders pressure on organizations to mitigate risk, and joint planning activities with suppliers serve as a mediating role in the model (Cantor et al., 2014; Lozano, 2013). The Cantor et al. (2014) study is one of the first papers to test empirically how stakeholders' pressure mediate the relationship between sustainable SCM and corporate sustainability.

Wolf (2014) revealed that the mediating effect of stakeholder pressures on sustainable SCM is not significant. Wolf conducted a multiple linear regression analysis of three competing models of the potential relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance by employing RDT. Wolf (2014) found that the information on 1,621 organizations based on the ESG data did not support the third model, which assumed the mediating effect of stakeholder pressure on the sustainable SCM-corporate sustainability performance relationship. It is possible that factors not examined in the study determined the importance of stakeholder pressure in a sustainable SCM context (Wolf, 2014).

Stakeholder pressure has contributed to the sustainability practices and performance of organizations (Ramanathan et al., 2014; Wolf, 2014). Ramanathan et al. (2014) analyzed the impacts of various organizational pressures on the environmental

performance of manufacturing firms and found that all five analyzed pressures exert significant influence on environmental performance. Ramanathan et al. used a structural equation modeling techniques to consider the impact of all five pressures simultaneously. Ramanathan et al. also provided evidence that an internal stakeholder such as marketing department and economic pressure provide the highest influence on the environmental and economic performance of an organization. Ramanathan et al. (2014) provided a holistic analysis considering a variety of stakeholder pressures in a single framework and extended the application of RDT. The theory is one of the theoretical frameworks to understand the role of organizational pressures on the sustainability performance (Ramanathan et al., 2014). Organizations are not self-sufficient but rely on their environment and its resources for survival and achievement of long-term objectives. Organizations should strive to manage the dependency on the external environment to gain sustainable development (Pfeffer & Salancik, 1978; Ramanathan et al., 2014).

The adoption of both proactive sustainable SCM and sustainable SCM due to stakeholder pressure is associated with positive outcomes such as improved environmental concerns, competitive advantage, cost and risk reduction, revenue increase, and positive effects on company image and employee motivation (Bradly, 2015; Kumar et al., 2013). Thus, sustainable SCM and stakeholder pressure directly influence the strategies organizations employ to enhance corporate sustainability performance because doing so resolves elements of a resource dependence problem, ameliorates stakeholder pressure, and ensures sustainable profitability (Wolf, 2014). The moderating and mediating effect of stakeholder pressures on the sustainable SCM-corporate

sustainability performance relationship requires additional research. Research in the field of sustainable SCM receives considerable attention. However, the research field is still very young but is growing very fast (Taticchi et al., 2013).

Sustainable SCM and Corporate Sustainability Performance

During the 1990s, concerns about the environment and social sustainability emerged such as global warming, climate change, and corporate social responsibility (Govindan, Khodaverdi, & Jafarian, 2013). Well-known examples of business practices related to substantial resource depletion have led stakeholders to apply pressure on organizations to restrict their purchasing activities to sustainable resources not only within their premises but also across supply chains (Govindan et al., 2013; Wolf, 2014). Focal organizations are pressured to manage sustainability standards actively beyond their organizational boundaries due to the reputational and economic risk (Leppelt, Foerstl, Reuter, & Hartmann, 2013). Even though a focal organization may have little control over its suppliers' unsustainable behavior, stakeholders are still likely to point responsibility to the focal organizations (Hartmann & Moeller, 2014; Tachizawa & Yew Wong, 2014). The awareness and acceptance of society regarding the importance of sustainability have led to a political momentum of implementing sustainable projects and policies (Bason & Anagnostopoulos, 2015; Kolk & Lenfant, 2013; Macagno, 2013). However, despite the rising human awareness of environmental and social aspects of doing business, financial performance continues to be the core objective of organizations (Bateh, Heaton, Arbogast, & Broadbent, 2013; Torugsa et al., 2013; Varsei et al., 2014;

Zhu et al., 2013). The most important linkage between business and society tends to stem from economic and corporate interests (Varsei et al., 2014).

The concept of sustainability often evolves over time to reflect the changes in the society (Bateh et al., 2013; Milne & Gray, 2013). Corporate sustainability has been conceptualized using different theoretical approaches, mainly stakeholder pressure, institutional theory, and the resource-based view (Milne & Gray, 2013; Montiel & Delgado-Ceballos, 2014). The topic of sustainability had expanded in public since 1987 when the Brundtland Commission initiated by the United Nations (UN) published its report titled *Our Common Future* (World Commission on Environment and Development, 1987; McManus, 2014). Corporations gradually integrate corporate sustainability into organizational activities (Bealt et al., 2016; Lozano, 2015).

Bansal and DesJardine (2014) and Montiel and Delgado-Ceballos (2014) concluded that there is no single understanding of sustainability in businesses as the interpretations range from reverse logistics to strategic sustainability. The number of interpretations of sustainability and the broad definition makes it difficult to create operational tools to contextualize sustainability in the macro context of businesses (Carter & Rogers, 2008; Milne & Gray, 2013). Sustainability research is highly diverse and unsystematic as different types of organizations face different sustainability needs (Bateh et al., 2013). Regardless of the numerous definitions provided about sustainability, Bateh et al. (2013) asserted that three elements such as longevity, maintenance of purposes, and responsibility to external needs are essential in the definition of sustainability.

Montiel and Delgado-Ceballos (2014) reviewed the literature on corporate sustainability from 1995 through 2013. After summarizing the different definitions, organizational theories, and adopted measures of corporate sustainability, Montiel and Delgado-Ceballos provided recommendations on how to advance the corporate sustainability field. Montiel and Delgado-Ceballos concluded that the corporate sustainability field is still evolving. Thus, sustainability is a complex process that is multi-dimensional in nature, which makes studies about sustainability very difficult when combined with the complex nature of supply chain management (Bradly, 2015; Whiteman et al., 2013).

Despite fewer studies about sustainable supply chain in the early 1990s, the researchers of initial studies have defined sustainability concept as well as its association with supply chains that focuses on the importance and benefits of the relationship between sustainability and supply chains (Green et al., 2015; Winter & Knemeyer, 2013). However, the researchers of earlier studies about sustainable SCM focused more on the environmental dimension of sustainability; lacking a perspective of integration among different concepts (Alexander et al., 2015; Qi, Zeng, Yin, & Lin, 2013; Signori, Flint, & Golicic, 2015). A limited number of authors have considered a holistic view of sustainability where there are interactions between the environmental, social, and economic dimensions (Lozano, 2015). The economic sustainability dimension emerged as a result of the three-dimensional concept of Elkington's (1998) Triple bottom line (Elliot, 2013; Goyal, Rahman, & Kazmi, 2013; Ralston et al., 2014).

The triple bottom line concept introduced by Elkington (1998) incorporates profit, people, and the planet and evokes the necessity to attend to all three aspects of sustainability, which has become a framework for sustainability (Gopalakrishnan et al., 2012; Singal, 2013). The economic dimension of the triple bottom line is the profit portion of the triple bottom line and refers to economics-sustaining profit and competitive advantage. The environmental aspect of the triple bottom line relates to resource depletion. The social aspect involves an organization's behavior in relation to employees and community. The profit portion of the triple bottom line - economics remains a major concern of socially responsible business (Gopalakrishnan et al., 2012; Singal, 2013; Reefke, & Sundaram, 2017).

Bateh et al. (2013) stressed the need to shift emphasis away from a purely profit-driven economic perspective to considering the organization as part of a system that is currently unsustainable. The scarcity of resources, globalization, and the competitive market along with stakeholders force supply chains to look beyond pure economic gain, which is becoming an issue of strategic importance (Goyal et al., 2013; Seuring, 2013). Financial performance no longer guarantees an organization's long-term survival (Sezen & Cankaya, 2013). Socio-environmental and economic performance relationships offer win-win opportunities (Fahimnia et al., 2015). Organizations incorporating sustainability will succeed, and the organizations that do not will be challenged (Green et al., 2015). Eccles et al. (2014) investigated the effect of corporate sustainability on organizational processes and performance and found that high sustainability organizations significantly outperform their counterparts over the long-term, both regarding stock market as well as

accounting performance (Eccles et al., 2014). To have a sustainable future for all organization, the integration of the social, economic, and environmental facets of business operations should be explored (Dixon-Fowler, Slater, Johnson, Ellstrand & Romi, 2013; Gopalakrishnan et al., 2012; Wan Ahmad, Rezaei, Tavasszy, & de Brito, 2016).

According to the integrative view on corporate sustainability, organizations need to pursue all three aspects of sustainability simultaneously and embrace the tensions between different conflicting sustainability aspects rather than dismissing them. Hahn et al. (2015) recognized that such a strategy goes beyond the triple bottom line because it addresses the conflicting relationships between these various aspects. Hahn et al. (2015) developed a systematic framework that allows to identify and characterize tensions in corporate sustainability. The integrative view on corporate sustainability is the basis of the framework.

Integration of the three dimensions of sustainability represents a fundamental mechanism of business sustainability (Reefke & Sundaram, 2017; Windolph, 2013). Gao and Bansal (2013) tested the presence of instrumental and integrative logic using data of 738 organizations over 13 years and found evidence of integrative logic applied by organizations. The sample of the study included data of organizations rated by Kinder, Lydenberg, and Domini & Co. (KLD), Compustat, and the Center for Research in Security Prices (CRSP). Forty-six percent of the sampled organizations were manufacturing companies (Gao & Bansal, 2013). Gao and Bansal employed a generalized estimating equation (GEE) to test the causal effects. Gao and Bansal

articulated that the integrative logic is at the foundation of sustainability, and the instrumental logic is the facilitator. Gao and Bansal concluded that the result of the analysis is a business model that aims to integrate business, society, and nature.

Wang and Sarkis's (2013) investigated whether organization's environmental and social supply chain activities associated with their financial performance. Wang and Sarkis employed multivariate regression analysis to empirically test the relationship. The sample of the study included data of organizations from the top 500 US companies based on Newsweek's green ranking report, Bloomberg ESG database, and Compustat financial database (Wang & Sarkis, 2013). Wang and Sarkis found evidence of a positive relationship between corporate financial performance and simultaneous implementation of both environmental and social SCM. The study is the first research to investigate the direct relationship between organizational environmental and social practices and financial performance. By being the first to use publically available Bloomberg ESG database to investigate the financial performance related to individual and joint environmental and social supply chain management activities, Wang and Sarkis made a significant contribution to sustainability management literature (Wang & Sarkis, 2013).

Singal (2013) examined the link between sustainability and economic performance for the hospitality industry using MSCI's ESG database and Standard and Poor's credit ratings. Historical long-term issuer ratings assigned to an organization by S&P represented the financial performance of organizations. ESG indicators represented the environmental and social performance of organizations. Singal employed multiple regression analysis and t-tests to evaluate the proposed relationships. One of the several

findings of the study is evidence supporting an integrative logic rather than an instrumental logic for the relationship between corporate social, environmental, and financial performance. Singal also suggested that organizations should continue to invest in sustainability initiatives for strategic reasons even in times of low financial performance.

Wolf (2014) employed Sustainalytics ESG database and extended existing research by conceptualizing corporate sustainability with environmental and social dimensions of sustainability. By applying RDT to a sustainable SCM context, Wolf empirically assessed the relationship between sustainable SCM and corporate sustainability performance, with that of stakeholder pressure and corporate sustainability performance, and the effect of stakeholder pressure on the sustainable SCM and corporate sustainability performance. Wolf provided valuable insights for managerial decision makers by illustrating the positive relation between sustainable SCM and corporate sustainability performance (Wolf, 2014).

A discussion of sustainability impacts on organizational performance, including discussion of the competitive and cost-effectiveness potentials of sustainability, is one of the most recent trends (Bateh et al., 2013; Linnenluecke & Griffiths, 2013). In existing studies, Singal (2013), Wang and Sarkis (2013), and Wolf (2014) have examined the combined effect of sustainability parameters on firm performance. Lee et al. (2013) and Fujii, Iwata, Kaneko, and Managi (2013) addressed the effect of individual dimensions of sustainability on firm performance.

Lee et al. (2013) examined the relationship between corporate social responsibility and corporate financial performance by employing Pearson's correlation analysis. The sample of the study included data of organizations from KLD STATS, Compustat, and U.S. Bureau of Economic Analysis. Lee et al. found that organizations in the hospitality industry often reduce social and environmental investments when economic conditions are unfavorable whereas they continue investments in operations related programs. Fujii et al. (2013) examined the relationship between environmental performance and economic performance in Japanese manufacturing firms. Fujii et al. employed a multiple regression analysis to examine the relationship. Fujii et al. found that there is a significant positive relationship between financial and environmental performance due to savings on intermediate energy costs. Fujii et al. also stated that reduction of CO_2 emissions might not improve capital productivity in the short term (Fujii et al., 2013). Kurapatskie and Darnall (2013) extended prior research on the broader connections between sustainable practices and financial performance. Kurapatskie and Darnall found that while lower and higher order sustainability activities are in alignment with organizations' financial performance, financial benefits related to higher sustainability activities are greater. Thus, organizations actively integrating sustainability are more likely to reap greater financial benefits (Kurapatskie & Darnall, 2013).

The best predictors of an organization's economic and market-based performance are social and environmental performance (Klettner, Clarke, & Boersma, 2014). The effects of both social and environmental performance on organizations' economic and market-based performance are particularly significant (Green et al., 2015; Klettner et al.,

2014). Positive links widely established between organizations' sustainable and economic performance (Klettner et al., 2014; Shamsuddoha, 2015). Investors are becoming aware of the importance of ESG factors in the estimation of corporate value as ESG performance indicators reflect the future cash flows (Klettner et al., 2014; Kosmanova & Docekalova, 2013). Investors and owners of organizations employ ESG performance indicators to evaluate the economic performance to determine whether the organization can increase its value and provide adequate returns on their investments over a longer period (Kosmanova & Docekalova, 2013). ESG factors are becoming the core of business and presenting long-term consequences on a corporation's financial performance (Klettner et al., 2014). ESG reporting forces companies to manage environmental, social, and economic aspects of business operations effectively to avoid the disclosure of negative ESG performance to their stakeholders (Ioannou & Serafeim, 2016). National governments and stock exchange authorities have promoted sustainability reporting further by adopting laws and regulations that mandate sustainability reporting (Ioannou & Serafeim, 2016; Milne & Gray, 2013). The regulators are also reviewing the governance arrangements of corporations to ensure that companies maintain a healthy long-term focused organizational culture (Ioannou & Serafeim, 2016). ESG performance leads to higher economic performance as it provides competitive advantage (Ioannou & Serafeim, 2016).

Even though sustainability is encouraged by governments, investors, and customers, the economics of sustainable decisions are still uncertain (Singal, 2013). Financial costs and benefits alone cannot create the full picture of sustainability impacts

on organizations (Bateh et al., 2013; Milne & Gray, 2013). Often organizations lack effective instruments and adequate knowledge to measure financial outcomes of sustainability measures (Alexander et al., 2015; Milne & Gray, 2013; Windolph, 2013). Thus, the dominant instrumental logic still establishes a hierarchy of financial outcomes over sustainability concerns (Hahn et al., 2015).

Economic principles of rationality and accountability mainly govern societal thinking and decision making (Bateh et al., 2013). Economic interests are still the main principle in determining attitudes and policies of corporate sustainability (Gupta & Kumar, 2013; Rahardjo, Idrus, Hadiwidjojo, & Aisjah, 2013). Economic stakeholders such as employees, shareholders, suppliers, and customers remain very concerned about the economic benefits as a primary consideration in providing support to the company's survival. Customers encourage sustainable practices, but they also do not approve price increase if it caused by the burden of philanthropic activity (Rahardjo et al., 2013).

The long-term investments that most sustainability improvements require make them unattractive to organizations that apply high discount rates in estimating projects' net present values (Eccles & Serafeim, 2013). The sustainable strategy has to increase shareholder value while at the same time has to improve the organization's performance on ESG dimensions. Sustainability requires trade-offs in strategic decision making so that both the short and long term are considered (Alexander et al., 2015; Bansal & DesJardine, 2014; Eccles et al., 2014). Often organizational managers fail to understand trade-offs that exist between financial and ESG performance. The capital market does not reward organizations for ESG programs that fail to enhance financial performance

(Eccles & Serafeim, 2013). Therefore, organizations still prioritize financial over ESG performance.

Overall, corporate sustainability is a concept to achieve long-term economic benefits through the integration of environmental, social, and economic criteria (Carter & Rogers, 2008). The economic impact of corporate sustainability efforts is the main research concern. Research propositions have been developed based on RDT, transaction cost economics, and population ecology, all based upon a view of the industries (Al Zaabi et al., 2013). The review of the literature from the viewpoint of RDT led to the following conclusions: (a) organizations take a proactive approach to the sustainable supply chain and corporate sustainability in an effort to ensure the long-term resource supply and sustainable corporate performance, (b) organizations take reactive approach to sustainable practices when they fear or faced with reduced access to resources due to stakeholder pressure, (c) proactive sustainable supply chain practices contribute to corporate sustainability performance, but the effect is greater when stakeholder pressure occurs, and (d) stakeholder pressure determines the extent to which an organization engages in sustainable supply chain practices. These conclusions guided this research to address a business problem concerning the understanding and effective practice of corporate sustainability performance. The complexity and the little theoretical development of an original approach to sustainability suggest that findings of this study is not an end in itself, but the next-to-last step in a scientific process that culminates in providing information about the corporate sustainability performance (see Cohen et al., 2013). The results of the study indicated that there is a significant positive relationship

between sustainable practices and financial performance. The findings of the study might assist organizational leaders in the decision-making process in pursued of the long-term corporate sustainability.

Transition

In Section 1, I presented an introduction and the brief background of the sustainability agenda. Sustainability issue initiated by the rising concern regarding resource depletion and the related decline of social well-being, which demands a strong focus on the integration of social, environmental, and economic aspects of business operations in supply chains is discussed. The need to understand the connection between a firm's financial performance and its investment in sustainability initiatives and the complex correlation and interplay of factors that foster sustainability and company competitiveness are highlighted in this section as well.

In this section, I also presented research questions of the study and the appropriate methodology for addressing the research questions and for testing the hypotheses. The main research question was what is the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance while controlling for industry and organizational size? The chosen theory to seek an explanation of the behavior of an organization in terms of its context was RDT. The chosen methodology for this study was quantitative, as the purpose of the study was to analyze the relationships between the constructs. Specifically, to appropriately address the aim of this study, which is to predict the relationship between a set of predictor variables (sustainable

SCM and stakeholder pressure) and a dependent variable (corporate sustainability performance), the chosen research design was correlational.

Additionally, in this section, there was also a review of the related literature to provide context for the study. In an attempt to extend Davis and Cobb's (2010) RDT, which holds that sustainable SCM and stakeholder pressure influence the strategies that organizations employ to improve their economic sustainability, the focus was on the review of literature related to the theoretical framework and the composite variables of the study. The several keywords used to filter the studies that are more relevant to the research topic are: *supply chain management, sustainable supply chain management, impact of SSCM, stakeholder pressure, economic sustainability,* and *corporate sustainability performance.*

First, in the literature review section, there was a review of RDT and its application within supply chains as organizations consistently purchase scarce resources and depend on contingencies in the external environment (Pfeffer & Salancik, 1978; Malatesta & Smith, 2014). RDT helps to shift an organizational strategy from short-term survival to long-term organizational growth (Malatesta & Smith, 2014). RDT is a central argument and highly relevant to the study of contemporary organizations and specifically to the study of the supply chain relations (Tachizawa & Yew Wong, 2014). RDT facilitates understanding of the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance.

Second, in the literature review section, there was a review of sustainable SCM practices. The scarcity of resources pressures organizations to seek sustainable supply

chain strategies that are essential for their survival, long-term sustainability of their resource supply, and sustainable economic performance. The increase in acceptance of sustainability has led to a greater understanding of sustainability; however, the present knowledge about sustainability is not sufficient in creating a truly sustainable supply chain (Pagell & Shevchenko, 2014; Schrettle et al., 2014). Sustainable SCM is a complex process that is multi-dimensional in nature, which makes studies about sustainable SCM very difficult when combined with the complex nature of supply chain management (Whiteman et al., 2013). Thus, when it comes to empirical studies, there is the growing relevance that there should be multiple perspectives on sustainability.

Third, in the literature review section, there was a review on the role of stakeholder pressure in sustainable SCM, including both internal and external pressure, and its effect on corporate sustainability performance. Internal pressures encourage organizations to take a proactive approach to the sustainable supply chain considering the overconsumption and rising resource scarcity phenomenon to ensure the long-term sustainability of their resource supply. External pressures are also the main reason why organizations will pursue sustainable SCM. The driving force for the adoption of sustainable practice is usually reactive as opposed to proactive, underscoring the role of internal or external pressure in SSCM (Mathiyazhagan et al., 2014). Stakeholders' demands for organizations' commitment to adopt sustainability practices makes sustainable SCM is an important area of focus for researchers (Taticchi et al., 2013).

Finally, in the literature review section, there was a review of the relationship between the sustainable SCM and corporate sustainability performance. The need for the

holistic approach of sustainable SCM that incorporates environmental, social, and economic facets of business operations, especially given that sustainable SCM can have a positive influence on the financial performance of an organization, was stressed. In the literature review section, it was also recognized that current knowledge about corporate sustainability performance is not sufficient as there are only a few studies that focused on the relationship between the sustainable practices and corporate sustainability performance (Schrettle et al., 2014).

In Section 2, the selected methodology and its appropriateness for this study elaborated. Specifically, a detailed discussion of the participants in the study, research method and design, population and sampling, data collection instruments and techniques, data analysis, and as well as ethical research and study validity presented. In section 3, the findings of the study related to each of the research questions and the hypotheses presented. Application of the findings to professional practice and implications for change and the recommendations for further research also discussed.

Section 2: The Project

This section includes a review of the methodology and research design I used to conduct the study. The section also includes a review of the study participants, population and sampling technique, data collection instruments, and specific statistical techniques I used to investigate the relationships in the study. Finally, this section includes a review of my data analysis ethical research practices, and concludes with a discussion of the study's validity.

Purpose Statement

The purpose of this quantitative correlation study was to examine the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance while controlling for industry and organizational size. The first independent composite variable was sustainable SCM, as measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement. The second independent composite variable was stakeholder pressure, as measured by Sustainalytics dimensions of: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies. Stakeholder pressure also took the roles of moderator and mediator. The dependent variable was corporate sustainability performance, as measured by Standard and Poor's credit rating. The control variables were industry and organizational size, measured by the number of employees. For this study, I obtained secondary data on organizations located in North America, South America, and Eurasia, identified in a Newsweek Green Rankings Global 2016 list. This

study's implications for positive social change include the potential to provide a better understanding of the correlates of corporate sustainability performance by organization managers, which encourage long-term sustainable profitability that improves environmental, social, and economic standards of living.

Role of the Researcher

I have professional experience in a semiconductor manufacturing organization, and I am presently studying supply chain management—specifically sustainable SCM—in the organization. In planning a research project, it is essential for the researcher not only to choose a feasible research problem, but also to consider the kinds of data that a study of the problem will require, as well as reasonable means of collecting and interpreting those data (Leedy & Ormrod, 2015). Thus, my role as researcher in this study was to choose appropriate data needed for investigation of the particular research problem. I collected the data pertaining to the variables of interest using convenience sampling to select participants from archival databases hosted by Sustainalytics and Standard & Poor's. The Environmental, Social, and Governance (ESG) and Standard & Poor's (S&P) data sets with historical data have been used extensively for quantitative analysis and effectively applied in sustainability and finance research (Singal, 2013; Wang & Sarkis, 2013; Wolf, 2014).

However, data contains sources of bias. Outliers can bias estimates of parameters and affect the sum of squared errors. The biased sum of squared errors will affect most test statistics (Field, 2013). I used graphs such as histograms and boxplots to spot unusual scores. Also, the potential sources of bias come in the form of violations of assumptions

relevant to statistical procedures. My main assumptions were (a) linearity, (b) normality, (c) homogeneity of variance, and (d) independence (Green & Salkind, 2013; Hopkins & Ferguson, 2014). A violation of the assumptions leads to an inaccurate test statistic and *p*-value, and wrong conclusions such as Type I (falsely rejecting the null hypothesis) or Type II (incorrectly failing to reject the null hypothesis) errors (Field, 2013; Green & Salkind, 2013; Hopkins & Ferguson, 2014). The violation of assumptions is preventable by conducting a test of statistical model assumption (Field, 2013; Green & Salkind, 2013; Hopkins & Ferguson, 2014). I employed SPSS features that allow assessing the assumptions of regression and the consequences of violating these assumptions.

In order to conduct ethical research, I followed the ethical principles outlined in The Belmont Report (U.S. Department of Health & Human Services, 1979). When conducting research using archival data, informed consent forms are unnecessary. The data for the research are archival and available publicly and upon request. Thus, I did not provide informed consent because this research, according to the principles of The Belmont Report, did not adversely affect the rights and welfare of the research participants and involved no more than minimal risk (see U.S. Department of Health & Human Services, 2015, CFR 46.116). However, the data gathered for the study should still be ensured by the researcher to be kept confidential or anonymous, however (Field, 2013; Ippoliti, 2015; Leedy & Ormrod, 2015; see U.S. Department of Health & Human Services, 2015, CFR 46.116). Therefore, I was solely responsible for collecting data from Sustainalytics and Standard & Poor's, entering the data into a spreadsheet software, and analyzing the data using SPSS v 21 software.

Participants

No primary data were collected for this study. I used archival (secondary) data provided by Sustainalytics and S&P. These databases include data of publicly traded worldwide organizations that are becoming increasingly sensitive to sustainability concerns regarding environmental and social issues. Publicly traded organizations are corporations issuing stocks traded on a stock exchange market (Hannah, 2015). Publicly traded organizations are more likely to implement socially responsible programs and consequently perform better in sustainability than small organizations because sustainable practices require considerable investments that often prove challenging for small organizations (Gopalakrishnan et al., 2012; Wang & Sarkis, 2013; Wolf, 2014). Moreover, publicly traded organizations tend to have extensive supply chains that are sensitive to stakeholder pressures and that are more likely to report sustainability information (Reilly & Hynan, 2014; Wang & Sarkis, 2013). In similar studies, Singal (2013), Wang and Sarkis (2013), and Wolf (2014) also used publicly listed worldwide organizations as participants. Analyzing organizations in countries and industries with less sustainability reporting would be less useful. The purpose of this study was to test the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance while controlling for industry and organizational size. Thus, it was appropriate to choose the participants for the study from a population that consists of publicly traded global corporations engaged in sustainable SCM.

Newsweek Green Rankings 2016 Global 500 List included organizations with the most sustainable practices. The green ranking list was comprised of the 500 largest

publicly traded companies globally by market capitalization, as determined by Bloomberg as of March 4, 2015 (Newsweek, 2016). The green ranking list is the most comprehensive rankings available on this subject; eight indicators of environmental performance contribute to the ranking (Wang & Sarkis, 2013; Newsweek, 2016). Blazovich, Smith, and Smith (2013) employed Newsweek's green ranking list to examine financial performance and risk of environmentally friendly green companies. Wang and Sarkis (2013) obtained a sample from the top 500 U.S. companies based on Newsweek's green ranking to investigate the relationship between organizations' environmental and social supply chain activities and their financial performance. Jackson and Singh (2015) also selected a sample from Newsweek's green ranking to examine the financial-environmental performance of organizations in the U.S. food and beverage supply chain.

Because the ESG and S&P's financial data were archival, there was no need for me to use any survey instrument. The most extensively used and validated databases for studying corporate sustainability performance are the ESG and S&P's financial performance databases (Singal, 2013). The ESG archival data are available upon request from the ESG database hosted by Sustainalytics. The financial performance data are available publicly from the database hosted by Compustat S&P. Sustainalytics is a research firm that specializes in ESG research and analysis assisting organizations in global responsible investment (Sustainalytics, 2016). Sustainalytics data are less vulnerable to social desirability bias than survey data (Wolf, 2014). S&P's rating services, with a 150 year history, provide high-quality market intelligence in the form of credit ratings and research (Standard & Poor's, 2016).

Wang and Sarkis (2013) employed the Bloomberg ESG database and the Compustat financial database to investigate the relationship between organizations' environmental and social supply chain activities and their financial performance. Singal (2013) used data from MSCI's ESG database and credit ratings from S&P to examine the link between investment in sustainability initiatives and firm financial performance. Jackson and Singh (2015) used the Compustat financial database to examine the financial-environmental performance of organizations. Surroca, Tribo, and Zahra (2013) utilized Sustainalytics and COMPUSTAT Global Vantage databases to investigate stakeholder pressure on MNEs and the transfer of socially irresponsible practices to subsidiaries. Wolf (2014) also effectively employed the Sustainalytics ESG database in investigating the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance. Singal (2013) suggested that researchers should consider using the ESG and S&P rating databases for studies in the future. Thus, I employed the Sustainalytics ESG database and the S&P financial database to conduct this study.

The ESG scores of organizations based on the wide range of issues related to corporate social and environmental performance are the key source of this study's environmental and social data corresponding to the independent composite variables *sustainable SCM* and *stakeholder pressure* (Gao & Bansal, 2013). The Sustainalytics ESG database is the only dataset that presents ESG scores for a wide range of global firms over an extensive period. Using the Sustainalytics ESG data set allowed me to bridge this research with Wolf's (2014) study, given that I built this study on Wolf's

suggestion to test further whether corporate sustainability performance measured by the economic dimension of sustainability is affected by sustainable SCM and stakeholder pressure.

The long-term issuer rating assigned to a firm by S&P allow for a measurement of the firm's financial performance that represents the economic dimension of corporate sustainability performance, which is the dependent variable in this study (Singal, 2013). The credit rating of an organization is a better measure of a firm's performance because it is calculated based on both publicly available and non-publicly available data, and is easily compared with the ratings of other organizations (Singal, 2013). Accounting and market-based flow variables such as stock returns, return on assets, sales growth, and return on equity suffer from their transitory nature in measuring the impact of sustainable practices on financial performance (Gregory & Whittaker 2013; Singal, 2013). Before gathering data, I gained approval from the Walden Institutional Review Board (IRB) that performs an ethical review of proposed research to ensure proper ethical procedures and that the research meets ethical standards (Ippoliti, 2015; Protecting Human Research Participants, 2015; U.S. Department of Health & Human Services, 2015). The approval number is 12-22-16-0442285.

Research Method and Design

For this research study, I used a quantitative method and non-experimental correlational design. In this section, I discuss my selection of the design and methodology and elaborate on the appropriateness of the selected methodology and design.

Research Method

I chose a quantitative methodology for this study. The three research methodologies are quantitative, qualitative, and mixed methods, which combine both quantitative and qualitative methods (Field, 2013; Leedy & Ormrod, 2015; Makrakis & Kostoulas-Makrakis, 2016). While the quantitative-qualitative distinction is one of philosophy rather than of method as any research method can provide both types of data (Kaivo-oja, 2016; Makrakis & Kostoulas-Makrakis, 2016). The quantitative researchers tend to support the logical positivist view of science, while qualitative researchers lean towards the humanistic view (Bryman & Bell, 2015; Lunde, Heggen, & Strand, 2013; Yilmaz, 2013). Methodological processes are numerous, diverse, and vulnerable to methodological trade-offs and practical constraints (Kaivo-oja, 2016; Rosenthal, 2016). Thus, various research questions with various levels of uncertainty require different methods and lead to different results (Kaivo-oja, 2016; Yilmaz, 2013).

Researchers use the quantitative methodology to explain or describe a phenomenon by using numerical information and statistical analysis; they specifically emphasize quantification in the collection and analysis of data (Bryman & Bell, 2015; Field, 2013; Makrakis & Kostoulas-Makrakis, 2016; Yilmaz, 2013). Quantitative method is appropriate for the statistical confirmation of causal linkages among sets of accounting information, business factors and financial success, management systems and performance, and strategy and performance (Field, 2013; Makrakis & Kostoulas-Makrakis, 2016). Wang and Sarkis (2013) effectively employed a quantitative methodology to investigate the relationship between organizations' environmental and

social supply chain activities and their financial performance. Jackson and Singh (2015) conducted quantitative research to examine the financial-environmental performance of organizations. Christoffersen, Frampton, and Granitz (2013) used a quantitative method to investigate environmental sustainability's impact on earnings. Wolf (2014) also used the quantitative methodology to examine the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance.

Qualitative research would involve the exploration of human experience to understand how people undergo and interpret phenomenon by emphasizing words rather than quantification in the collection and analysis of data (Bryman & Bell, 2015; Field, 2013; Makrakis & Kostoulas-Makrakis, 2016; Yilmaz, 2013). A qualitative research methodology allows the researcher an in-depth examination of the phenomenon through non-numeric information, such as descriptions of behavior or the content of people's responses to interview questions (Field, 2013; Leedy & Ormrod, 2015; Makrakis & Kostoulas-Makrakis, 2016; Yilmaz, 2013). Qualitative methodology is more suited for answering *how* and *why* questions and for bringing meaning and understanding to the research question, which comes from the context of human judgment (Makrakis & Kostoulas-Makrakis, 2016; Rosenthal, 2016; Yilmaz, 2013). My research questions and the associated hypotheses did not warrant such inquiry since the variables I examined are numerical in nature.

A mixed methods approach also was not appropriate for this study. A mixed study requires the collection of both qualitative and quantitative data. Researchers use it to address a range of complex research questions demanding inductive and deductive

research logic in a more flexible, integrative, and holistic manner to create divergent views and findings (Kaivo-oja, 2016; Mayoh & Onwuegbuzie, 2013; Makrakis & Kostoulas-Makrakis, 2016; Venkatesh et al., 2013). I thus determined that the quantitative method was the appropriate method for this study because the purpose of the study was to analyze the relationship between the constructs-sustainable SCM, stakeholder pressure, and corporate sustainability performance.

Research Design

A choice of research design reflects the priority given to a range of dimensions such as expressing causal connections between variables, generalizing to larger groups, and understanding of behaviors (Bryman & Bell, 2015). I followed a non-experimental, correlational design for this study. Quantitative research methods are either experimental or non-experimental (Imai, Tingley, & Yamamoto, 2013). Non-experimental research predicts the relationship between variables and does not infer causation (Field, 2013). Experimental designs involve the manipulation of treatments or intervention mechanisms on one or more groups of subjects (Imai et al., 2013; Leedy & Ormrod, 2015). Experimental and quasi-experimental designs are applicable when the research aim is to assess uncontrollable environmental events or certain conditions when randomization is not possible (Leedy & Ormrod, 2015; Rideout & Gray, 2013). Because I collected and analyzed archival data, which did not involve intervention mechanisms, a non-experimental design was appropriate for this research.

Correlation researchers examine the relationship between variables by characterizing the nature and magnitude of the relationship between two quantitatively

coded variables (Cohen et al., 2013; Field, 2013). Correlation does not prove causation while the absence of correlation implies the absence of the existence of a causal relationship (Cohen et al., 2013; Field, 2013). The end goal of using correlational research is to measure two or more variables and then to determine whether there are statistically significant relationships between them (Leedy & Ormrod, 2015). The correlation design was appropriate for this study because my aim was to predict the relationship between the predictor constructs (sustainable SCM and stakeholder pressure) and the dependent construct (corporate sustainability performance) and between the predictor construct (sustainable SCM), the moderator and the mediator construct (stakeholder pressure), and the dependent construct (corporate sustainability performance).

Wang and Sarkis (2013) effectively used non-experimental design, specifically multivariate regression analysis, to investigate the relationship between organizations' environmental and social supply chain activities and their financial performance. Christoffersen et al. (2013) used non-experimental multiple regression analysis to investigate environmental sustainability's impact on earnings. Mitra and Data (2014) employed structural equation modeling analysis to examine the impact of green SCM practices on corporate performance. Wolf (2014) also effectively employed non-experimental design and conducted multiple linear regression analysis of the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance. Similarly, I employed non-experimental, correlational design for this study.

Population and Sampling

The population for this study consisted of publicly listed global organizations from different regions and a range of industries included in the Newsweek Green Ranking 2016 Global 500 List (Newsweek, 2016). The publicly listed organizations around the world are more likely to have extensive supply chains susceptible to resource dependency and stakeholder pressure, incline to invest in sustainable initiatives, and tend to have more established norms on social and environmental reporting (Mathiyazhagan et al., 2014; Reilly & Hynan, 2014; Singal, 2013; Wang & Sarkis, 2013). Blazovich et al. (2013) employed Newsweek's green ranking list to examine financial performance and risk of environmentally friendly green companies. Wang and Sarkis (2013) obtained a sample from the top 500 US companies based on Newsweek's green ranking to investigate the relationship between organizations' environmental and social supply chain activities and their financial performance. Jackson and Singh (2015) also selected a sample from Newsweek's green ranking to examine the financial-environmental performance of organizations in the US food and beverage supply chain. Because the purpose of this study was to test the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance, it was appropriate to choose a sample for the study from a population that consists of publicly listed global organizations engaged in sustainable SCM.

Sampling is an important stage of an investigation, and often business research involves convenience sampling to make use of the data collection opportunities that are available (Bryman & Bell, 2015; Olsen, Orr, Bell, & Stuart, 2013). However, the

sampling principles employed in this study based on the concept that samples chosen based on their appropriateness to the purpose of the research. For this study, I employed a convenience sampling technique to collect the data. The convenience sampling, which provides readily available and easily selected sample, was appropriate for this study considering the research question and the needed data to fulfill the purpose of the investigation (Field, 2013; Bryman & Bell, 2015; Leedy & Ormrod, 2015).

The convenience sampling allowed bridging this research with Wolf's (2014) study since this research built on Wolf's study. Wolf also employed readily available and easily selected sample from Sustainalytics database to examine the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance. Golini, Longoni, and Cagliano (2014) employed the convenience sampling in investigating the role of site competence on sustainability performance. Gao and Bansal (2013) examined the integration of social and environmental aspects of business operations with corporate financial performance. Gao and Bansal used convenience sampling in obtaining social and environmental performance data of organizations from Kinder, Lydenberg, and Domini & Co. (KLD) and matching financial data from Compustat and CRSP. However, a convenience sampling is a form of non-probability sampling where some members of the population have little or no chance of being sampled, which reduces the probability of presenting each element of the population (Leedy & Ormrod, 2015).

In selecting the sample, availability of the organizations' historical data was the focal criteria to eliminate a year- specific occurrence. Changes in organizations effects cannot be detected reliably over a short period to evaluate the true long-term benefits of

sustainable practices (Gao & Bansal, 2013; Wang & Sarkis, 2013). The use of historical data increases the probability of stable findings. Three-year data period is also a limitation for an extensive time study (Wang & Sarkis, 2013). Wang and Sarkis investigated the relationship between sustainable SCM and corporate financial performance. Wang and Sarkis (2013) used three-year data period in obtaining a sample from Bloomberg ESG and Compustat databases. Singal (2013) used historical data from 1991 through 2011 from MSCI's ESG database and S&P Compustat in investigating the link between firm financial performance and investment in sustainability initiatives. Gao and Bansal (2013) also obtained social and environmental performance data of organizations from KLD, which covers a wide period. Gao and Bansal examined the integration of social and environmental aspects of business operations with corporate financial performance. Thus, I also used historical data in this study. Sustainalytics ESG data set consist of historical data from 2009 through 2016 that provides ESG scores of 4500 analyzed global organizations (Sustainalytics, 2016). S&P Compustat provides historical and current credit ratings of organizations across the world (Singal, 2013).

Since the population is heterogeneous, a larger sample is necessary (Leedy & Ormrod, 2015; Wilson et al., 2014). In investigating the relationship between sustainable SCM and corporate financial performance, Wang and Sarkis (2013) analyzed 411 organizations that are cross-listed in three years' rankings in Bloomberg and Compustat databases, which also contain all elements of the social, environmental, and financial data. Singal (2013) analyzed 624 industry specific organizations identified through the intersection of KLD ESG data and S&P credit ratings in examining the link between firm

financial performance and investment in sustainability initiatives. Wolf (2014) analyzed the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance with the sample of 1,621 organizations included in the Sustainalytics database. While the sample was limited to the availability of data from Sustainalytics and S&P Compustat, where I collected the archival data, these databases allowed obtaining a significant sample size (Singal, 2013; Wang & Sarkis, 2013; Wolf, 2014). If the sample size is too large, the validity threat may occur (Hopkins & Ferguson, 2014). Too large sample may cause type III error that represents statistically significant result with no meaningful practical implication (Hopkins & Ferguson, 2014). G*Power software was employed to determine the appropriate sample size for the study.

To compute the minimum required sample size, I used the main statistical test along with four parameters: (a) effect size, (b) level of significance, (c) power, and (d) number of predictors. The basis for the sample size calculation is the effect size (Field, 2013; Hopkins & Ferguson, 2014; Leedy & Ormrod, 2015). Effect size is a quantitative reflection of the magnitude of a phenomenon, such as the relationship between independent variables, moderators and/or mediators, and a dependent variable that can be measured in terms of the strength of the relationship, which is used for the purpose of addressing a question of interest (Cohen et al., 2013; Leedy & Ormrod, 2015). For effect size, a medium effect size (0.15) was used as suggested by Cohen (1992) based on his experience. The level of significance is 0.05. With alpha level 0.05, it is easier to reject null hypothesis than when it is 0.01. The power is 0.80, which is appropriate in calculations of a suitable sample size to have a high probability of obtaining a statistically

significant result (Field, 2013). The maximum number of predictors is six, which includes three variables (three for both sustainable SCM composite variable and stakeholder pressure composite variable), two control variables (industry and organizational size), and a moderating or a mediating variable. Using the parameters above, the computed minimum required sample size necessary to achieve a given level of 0.80 power is 98 samples. Increasing the sample size to 194 increases the power of the statistical test to 0.99. Statistical power allows detecting an effect, to maximize the chances that a given test will find an effect if the effect is present, or to ensure that a negative finding is a strong ground for believing that there is no significant difference (Field, 2013; Heyvaert & Onghena, 2014; Hopkins & Ferguson, 2014). Statistical power increases the probability of correct conclusions about the null hypothesis (Field, 2013; Hopkins & Ferguson, 2014). As such, I obtained data from 164 organizations for the research. Larger samples have more power to detect effects (Field, 2013; Hopkins & Ferguson, 2014; Wilson et al., 2014).

Ethical Research

It is important to acknowledge that a researcher takes responsibility to the people and organizations that are the recipients of the research activities (Bryman & Bell, 2015; Field, 2013; Leedy & Ormrod, 2015; Wilburn & Wilburn, 2013). In order to conduct ethical research, I followed ethical principles of the Belmont Report to guide the research. The most applicable principle of the Belmont Report to this study is risk/benefit assessment principle to the conduct of research. Following the assessment of risks and benefits principle, I carefully managed the gathering of systematic and comprehensive

information about the proposed research. Also, I ensured that the proposed research was properly designed (see U.S. Department of Health & Human Services, 2015). In Appendix A presented my National Institutes of Health (NIH) certificate of completion of the Protecting Human Research Participants course. The data for the research were archival and available publicly and upon request. According to the Global Reporting Initiative, a non-profit organization that promotes economic, environmental, and social sustainability and regarded as the global standard, electronic or web-based reporting is appropriate and acceptable for reporting company information (Fernandez-Feijoo, Romero, & Ruiz, 2014; Hahn & Kühnen, 2013; Wilburn & Wilburn, 2013). Thus, I did not provide informed consent as this research according to the principles of The Belmont Report did not affect adversely the rights and welfare of the research participants and involved no more than minimal risk (see U.S. Department of Health & Human Services, 2015, CFR 46.116). However, as a researcher, I still ensured confidentiality and anonymity of the gathered data (Ippoliti, 2015; see U.S. Department of Health & Human Services, 2015, CFR 46.116; Wilburn & Wilburn, 2013). I obtained approval from the Institutional Review Board (IRB), which determines the acceptability of the proposed research in terms of institutional commitments and regulations, applicable law, and standards of professional conduct and practice, before gathering the data (Ippoliti, 2015; Leedy & Ormrod, 2015; U.S. Department of Health & Human Services, 2015, 45 CFR 46.107). The IRB approval number is 12-22-16-0442285.

After gaining approval from the IRB, I proceeded to access data from Sustainalytics and S&P's for the sustainable SCM, stakeholder pressure, and corporate

sustainability performance variables, as well as for the control variables of industry and number of employees. The Statistical Package for the Social Sciences (SPSS) v.21 software was appropriate for entering data for storage and data analysis after gathering the data. I employed combined IDs of the organizations assigned by Sustainalytics as the reference numbers for individual identification. The data were stored in a password-protected computer file with no paper copies of the data to maintain confidentiality. After the completion of the study, I stored the electronic data in secure personal files in my home office for five years and after which the data will be deleted from the USB flash drive.

Data Collection Instruments

The data collection involves gathering data from the sample to answer the research question (Bryman & Bell, 2015). To gather the needed data, I did not use any survey instrument as the data were archival and were obtained from databases hosted by Sustainalytics and S&P's. Relying on electronic or web-based nongovernmental reporting and/or corporate annual reports is appropriate and acceptable according to the Global Reporting Initiative (Wilburn & Wilburn, 2013).

Wang and Sarkis (2013) employed archival data, specifically Bloomberg ESG and Compustat financial databases, to investigate the relationship between organizations' environmental and social supply chain activities and their financial performance. Singal (2013) used archival data from MSCI's ESG database and credit ratings from S&P's to examine the link between investment in sustainability initiatives and firm financial performance. Jackson and Singh (2015) used Compustat financial database and

Newsweek's green ranking to examine the financial-environmental performance of organizations. Wolf (2014) also effectively employed Sustainalytics ESG database in investigating the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance. While S&P's Compustat is an archival database containing data on corporate financial performance, there are a few ESG archival databases providing data on corporate environmental and social performance. However, for this research, I obtained ESG data from Sustainalytics to bridge this research with Wolf's (2014) study, as this study built on Wolf's suggestion to test further whether corporate sustainability performance measured by the economic dimension of sustainability is affected by sustainable SCM and stakeholder pressure. Besides, Newsweek and Bloomberg ESG data scores are based on Sustainalytics ESG database since they are collaborating (Jackson & Singh, 2015).

The Sustainalytics ESG scores of organizations built on the wide range of issues related to corporate social and environmental performance, which are the key sources of this study's environmental and social data corresponding with independent, moderating, and mediating composite variables, sustainable SCM and stakeholder pressure (Gao & Bansal, 2013). Sustainalytics' analysts compile data of the organizations using various sources including financial accounts, organizational documentation, databases, media reports, as well as stakeholder interviews. Sustainalytics then sends the initial compilations to the organizations for revisions, corrections, and/or changes, after which, these changes verified again by Sustainalytics' analysts (Sustainalytics, 2016; Wolf, 2014). The data from Sustainalytics, an independent ESG research and analysis provider

with substantial experience and expertise in evaluating the ESG performance of publicly traded corporations, are not as susceptible to social desirability bias as compared to data gathered from surveys. Thus, the data assumed to be valid and reliable (Wolf, 2014).

A long-term issuer credit rating assigned to an organization by S&P's is the measure of the dependent variable, corporate sustainability performance. The long-term issuer credit rating built on the data beyond publicly available information. The issuer credit rating is a forward-looking opinion of obligor's overall creditworthiness considering the obligor's capacity and willingness to meet its financial commitments as they come due (Standard & Poor's, 2016). S&P's has obtained information from sources it believes to be reliable (Singal, 2013; Standard & Poor's, 2016).

The ESG and S&P's databases contain data necessary to test the employed theory and the set of hypotheses, including the addition of control, moderator, and mediator variables (Singal, 2013; Wang & Sarkis, 2013; Wolf, 2014). The raw data were archival. The credit ratings were available publicly from S&P's database, and ESG data were available upon request from Sustainalytics. Overall, several researchers such as Singal (2013), Wang & Sarkis (2013), Christoffersen et al. (2013), Gao and Bansal (2013), Gregory and Whittaker (2013), Wolf (2014), and Jackson and Singh (2015) effectively employed archival ESG and financial databases in quantitative analysis related to corporate sustainability performance.

The ESG and S&P's data measures accurately captured and defined the targeted variables increasing the validity and reliability properties (Singal, 2013; Wang & Sarkis, 2013; Wolf, 2014). The variables were sustainable SCM (composite variable),

stakeholder pressure (composite variable), and corporate sustainability performance. Each of these composite variables (sustainable SCM and stakeholder pressure) is a characteristic in the study that has three possible values (Leedy & Ormrod, 2015). The sustainable SCM variable was composed of three variables, which were: (a) social supply chain standards, (b) supply chain monitoring systems, (c) and green procurement (Sustainalytics, 2016; Wolf, 2014). The stakeholder pressure variable was composed of three variables, which were: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies (Sustainalytics, 2016; Wolf, 2014). The corporate sustainability performance represented by the economic dimension of corporate sustainability performance was measured by a long-term issuer credit rating (Goyal et al., 2013; Singal, 2013).

In studying the relationship between one or more factors of interest and an outcome variable, there are usually other variables such as control variables, whose effects also significant (Cohen et al., 2013; Sebastianelli et al., 2015). In the study, I considered industry and organizational size measured by a number of employees as control variables. Wang and Sarkis (2013) considered industry and a size of an organization as control variables in investigating the relationship between sustainable SCM and corporate financial performance. Ramanathan et al. (2014) acknowledged the effect of industry and an organizational size in examining the impact of organizational pressures on the environmental performance of firms. Wolf (2014) employed industry and an organizational size as control variables in examining the relationship between the

sustainable SCM, stakeholder pressure, and corporate sustainability performance. Powell and Eddleston (2013) also employed organizational size and industry among other control variables in the hierarchical regression analysis of entrepreneurial success assessed by economic measures.

The sustainable SCM composed of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement (Sustainalytics, 2016; Wolf, 2014). The three sustainable SCM variables are continuous variables, which are indicators of the respective issues (social supply chain standards, supply chain monitoring systems, and green procurement) (Sustainalytics, 2016; Wolf, 2014). The stakeholder pressure composed of: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies (Sustainalytics, 2016; Wolf, 2014). The three stakeholder pressure variables are continuous variables, which are indicators of the respective issues and controversies (social supply chain, operations and product, and environmental supply chain) that assess the degrees of control and the quality of preventive steps by the organization for their respective issues (Sustainalytics, 2016; Wolf, 2014). A long-term issuer credit rating was a measure of the economic dimension of sustainability, which is a continuous variable. The economic dimension of sustainability represented corporate sustainability performance.

A continuous variable offers a score and represents an unlimited number of possible values falling along a particular continuum (Field, 2013; Leedy & Ormrod, 2015). The control variables are a continuous variable-number of employees and a

categorical variable-industry. A categorical variable names distinct entities (Field, 2013). I collected the data for the control variables from corporate annual reports and Sustainalytics. Appendix B includes information on all items and their definitions.

Data Collection Technique

For this study, I collected data from existing sources such as secondary data gathered by Sustainalytics, S&P's, Newsweek, and corporate annual reports. Sustainalytics data were available upon request by visiting the company's website. S&P's, Newsweek, and corporate annual reports were publicly available to access through the Internet through their websites (Singal, 2013; Sustainalytics, 2016; Wolf, 2014).

Blazovich et al. (2013) employed Newsweek's green ranking list to examine financial performance and risk of environmentally friendly green companies. Wang and Sarkis (2013) obtained a sample from the top 500 US companies based on Newsweek's green ranking to investigate the relationship between organizations' environmental and social supply chain activities and their financial performance. Wang and Sarkis (2013) also employed Bloomberg ESG database and Compustat financial database to conduct the study. Jackson and Singh (2015) used Compustat financial database and Newsweek's green ranking to examine the financial-environmental performance of organizations. Singal (2013) used data from MSCI's ESG database and credit ratings from S&P's to examine the link between investment in sustainability initiatives and firm financial performance. Wolf (2014) also effectively employed Sustainalytics ESG database in

investigating the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance.

While S&P's Compustat is the widely used archival database containing data on corporate financial performance, there were a few ESG archival databases providing data on corporate environmental and social performance. However, for this research, I obtained ESG data from Sustainalytics to bridge this research with Wolf's (2014) study, as this study built on Wolf's suggestion to test further whether corporate sustainability performance measured by the economic dimension of sustainability is affected by sustainable SCM and stakeholder pressure. Besides, Newsweek and Bloomberg ESG data scores are based on Sustainalytics ESG database since they are collaborating (Jackson & Singh, 2015).

Strand (2014) in analyzing the strategic leadership of corporate sustainability used a combination of data that included publicly available information such as corporate websites and corporate annual reports. Peters and Romi (2014) gathered sustainability data of organizations from company websites and corporate annual reports. Kurapatskie and Darnall (2013) also collected data from corporate annual reports to investigate corporate sustainability activities associated with greater financial payoffs. Thus, I used corporate annual reports to collect data for the control variable, which is an organizational size measured by a number of employees.

Sustainalytics provides ESG data set for the independent composite variables, the moderating composite variable, and the mediating composite variable (sustainable SCM and stakeholder pressure) in the study (Sustainalytics, 2016). The preliminary step was

taken to gain access to ESG archival data by contacting Sustainalytics. A brief proposal submitted for review by gatekeepers was accepted. Sustainalytics assigned a Responsible Investment and Institutional and Relations advisor to assist in providing the data for the study. Sustainalytics made available an example of the data. After gaining IRB approval, which determines the acceptability of the proposed research regarding institutional commitments and regulations, applicable law, and standards of professional conduct and practice, I requested the data from Sustainalytics (see Ippoliti, 2015; see U.S. Department of Health & Human Services, 2015, 45 CFR 46.107). I transferred the data into the Statistical Package for the Social Sciences (SPSS) v.21 software for storage and data analysis (Field, 2013; Leedy & Ormrod, 2015).

A long-term issuer credit rating of an organization (a variable representing the economic dimension of corporate sustainability performance) gathered through publically available S&P's Rating Services website, which provides credit ratings of thousands of global companies organized by industry (Singal, 2013; Standard & Poor's, 2016; Wang & Sarkis, 2013). The data for the control variables were archival as well. I collected the data for the industry variable from Sustainalytics ESG dataset along with ESG data and the number of employees from the publicly available corporate annual reports, which are accessible through the Internet browser. The collected data for dependent and control variables were also entered into the Statistical Package for the Social Sciences (SPSS) v.21 software for storage and data analysis (Field, 2013; Leedy & Ormrod, 2015). Global manufacturing organizations with the most sustainable practices were identified through the Newsweek Green Rankings 2016 Global 500 List, which was the publicly available

information and accessible through the Newsweek website (Newsweek, 2015; Wang & Sarkis, 2013).

Relying on electronic or web-based nongovernmental reporting and/or corporate annual reports was appropriate and acceptable according to the Global Reporting Initiative (Wilburn & Wilburn, 2013). The advantages of utilizing secondary data services are saving time and costs of acquiring information. However, a disadvantage of using the secondary data as the sole source of information is that the data may not meet the specific needs of the research. In this study, despite the data being archival, it was the most appropriate and reliable data for investigating the particular problem in the study. The data obtained from Sustainalytics and S&P's accurately captured and defined the targeted variables increasing the validity and reliability properties (Singal, 2013; Wang & Sarkis, 2013; Wolf, 2014). Collecting such specific valid data would have been beyond the grasp of an individual researcher (Wolf, 2014).

Data Analysis

The data analysis stage incorporates several elements such as the management, analysis, and interpretation of the data, which requires the application of statistical techniques to the collected data to reduce the large corpus of gathered information by producing tables or averages so the researcher can make sense of it (Bryman & Bell, 2015). The research questions and formulated hypotheses were:

Research Question 1: What is the relationship between sustainable SCM and corporate sustainability performance, while controlling for industry and organizational size?

Research Question 2: What is the relationship between stakeholder pressure and corporate sustainability performance, while controlling for industry and organizational size?

Research Question 3: What is the relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance, while controlling for industry and organizational size?

Research Question 4: What is the relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance, while controlling for industry and organizational size?

$H_0$1: There is no statistically significant relationship between sustainable SCM and corporate sustainability performance while controlling for industry and organizational size.

$H_1$1: There is a statistically significant relationship between sustainable SCM and corporate sustainability performance while controlling for industry and organizational size.

$H_0$2: There is no statistically significant relationship between stakeholder pressure and corporate sustainability performance while controlling for industry and organizational size.

$H_1$2: There is a statistically significant relationship between stakeholder pressure and corporate sustainability performance while controlling for industry and organizational size.

$H_0$3: There is no statistically significant relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance while controlling for industry and organizational size.

$H_1$3: There is a statistically significant relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance while controlling for industry and organizational size.

$H_0$4: There is no statistically significant relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance while controlling for industry and organizational size.

$H_1$4: There is a statistically significant relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance while controlling for industry and organizational size.

Each of these hypotheses proposes some form of relationship between the independent composite variables, the moderating and the mediating composite variable, and the dependent variable, where testing of the hypotheses involved building statistical models of the phenomenon of interest (Cohen et al., 2013; Field, 2013). A researcher's task is to develop a statistical model based on the data that will accurately estimate how the variables of interest are related to one another and then conduct inference-making procedures (Cohen et al., 2013; Field, 2013; Grange et al., 2016). Many statistical techniques are available suitable for addressing different purposes, different questions, and particular sets of data; however, it is essential for a researcher to understand the foundational requirements (Grange et al., 2016; Hopkins & Ferguson, 2014; Leedy &

Ormrod, 2015). In this study, I relied on the purpose of the research and on the types of variables under the investigation in choosing the appropriate technique.

Nonparametric techniques designed for simple statistical analyses of problems that include one or more variables measured on a nominal or an ordinal scale (Green & Salkind, 2014; Leedy & Ormrod, 2015). Because research question calls for a sophisticated analysis with underlying assumptions about the nature of the data, parametric statistical procedures were the only viable option (Leedy & Ormrod, 2015). The parametric statistical techniques also vary in their purpose. For instance, t-Test techniques are applied to address research problems that involve a single sample, paired samples, or two independent samples to compare whether statistical differences exist between two groups. Univariate and multivariate analyses of variance techniques such as ANOVA are designed to assess the relationship of one or more factors with a dependent variable or with multiple dependent variables in experimental, quasi-experimental, longitudinal, and field studies (Green & Salkind, 2014). The purpose of this study was to determine the relationships between the constructs, rather than compare differences between groups. Consequently, the use of analysis of variance was unlikely to produce unbiased estimates.

Among the most sophisticated parametric statistical techniques are such analyses as regression and structural equation modeling (SEM). SEM technique allows to examine the correlations among a number of variables and often with different variables measured for a single group of people at different points in time. Regression analyses allow examining how accurately one or more variables enable predictions regarding the values

of another variable (Field, 2013; Leedy & Ormrod, 2015). Thus, among the many commonly used parametric and nonparametric statistical techniques for testing hypotheses, the most suitable technique for this study that allows to estimate unbiased effects was a multivariable technique-multiple regression analysis concerned with the statistical analysis of the relationships when at least three variables are involved (Field, 2013; Khademi, Jamal, Deshpande, & Londhe, 2016; Leedy & Ormrod, 2015; Silhavy, Silhavy, & Prokopova, 2016).

Christoffersen et al. (2013) employed multiple regression analysis in investigating the environmental sustainability's impact on earnings. Singal (2013) used multivariate regression analysis in examining the link between investment in sustainability initiatives and firm financial performance. Golini et al. (2014) employed multiple linear regression analysis in investigating the role of site competence on sustainability performance. Golini et al. adopted three regression models, including a mediating model to measure the effect of the variables. Wolf (2014) also used multiple regression analysis in examining the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance. Wolf conducted three sets of regression analysis corresponding to three competing research models (direct effects model, moderation model, and mediation model). Powell and Eddleston (2013) employed hierarchical regression analysis in studying entrepreneurial success assessed by economic measures.

Hierarchical multiple regression analysis, which I used to address all the hypotheses, most appropriately addressed the purpose of the study and the types of data for which the problem called (Hopkins & Ferguson, 2014; Leedy & Ormrod, 2015).

Regression analysis is a highly general and flexible data analytics system with the capabilities to assist in invalidating causal alternatives, choosing between competing theories, and disentangling multiple influences (Cohen et al., 2013; Field, 2013; Hopkins & Ferguson, 2014; Leedy & Ormrod, 2015). The generality, capacity, and flexibility of the regression analysis allow to use information in almost any form and to mix forms as necessary (Cohen et al., 2013; Field, 2013; Hopkins & Ferguson, 2014). Regression analysis applies to hypotheses generated by researchers in various disciplines, including business, and from a variety of research areas including previous research (Cohen et al., 2013). Multiple regression techniques appropriately address the complexity of the relationships between sustainable SCM, stakeholder pressure, and corporate sustainability performance. The technique allows developing statistical models to test the hypotheses, to rule out competing explanations, and to detect relationships that may be present in the data (Cohen et al., 2013; Hopkins & Ferguson, 2014). Multiple regression analyses allow determining if one or more variables are statistically significant predictors of a criterion variable (Field, 2013; Green & Salking, 2014). Linear regression techniques in particularly have wide applicability, can be the most straightforward to implement, and offer complex statistical procedures (Hopkins & Ferguson, 2014).

Multiple regression analysis, specifically hierarchical regression analysis, was the appropriate statistical technique to address all four research questions and their respective hypotheses since each of the four research questions involved determining the relationship between the independent composite variables with the continuous variables, the moderating and mediating composite variables with the continuous variables, and the

dependent continuous variable, while controlling for industry and organizational size (Hopkins & Ferguson, 2014). Industry and organizational size are control variables. Control variables are variables that may affect the relationship but have no major interest in the study (Hopkins & Ferguson, 2014). Hierarchical regression analysis is an advanced approach in which the researcher enters the predictors into the model in a specific order based on the theoretical explanations, which allows determining the predictive power of each variable (Field, 2013; Hopkins & Ferguson, 2014; Wilson et al., 2014). Hierarchical regression technique commonly used to evaluate the impact of moderating, mediating, and control variables in predictive models (Hopkins & Ferguson, 2014). Hierarchical analysis can be used for business research topics (Hopkins & Ferguson, 2014).

To address the first and second hypotheses, I used a hierarchical multiple linear regression analysis. The independent variables of sustainable SCM, which is a composite variable, were: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement (Hypothesis 1). The dependent variable was a long-term issuer credit rating, and the control variables were industry and organizational size measured by a number of employees. The independent variables of stakeholder pressure, which is composite variable, were: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies (Hypothesis 2). The dependent variable was a long-term issuer credit rating, and the control variables were industry and organizational size measured by a number of employees.

To address the third hypothesis, I used a moderated multiple linear regression analysis. The independent composite variable of hypothesis 3 was sustainable SCM, which represented the composite assessment of sustainable SCM measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement. The moderation variable of hypothesis 3 was stakeholder pressure, which represented the composite assessment of stakeholder pressure measured by Sustainalytics dimensions of: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies. The dependent variable was corporate sustainability performance measured by S&P a long-term issuer credit rating. The control variables were industry and organizational size measured by a number of employees.

To address the fourth hypothesis, I used mediated multiple linear regression analysis. The independent composite variable of hypothesis 4 was sustainable SCM, which represented the composite assessment of sustainable SCM measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement. The mediation variable of hypothesis 4 was stakeholder pressure, which represented the composite assessment of stakeholder pressure measured by Sustainalytics dimensions of: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies. The dependent variable was corporate sustainability performance measured by S&P a long-term issuer credit rating.

The control variables were industry and organizational size measured by a number of employees.

Multiple regression models effectively address the complexity and variety of relationships where independent variables may be expected to influence the dependent variable, independent variables themselves may be related, and the independent variables may take different forms; therefore allowing to assess unique or partial relationships (Cohen et al., 2013; Hopkins & Ferguson, 2014). According to the hypotheses 3 and 4, the independent composite variable, stakeholder pressure, takes a form of a moderating and a mediating variable. A moderating variable influences the nature and strength of a correlational relationship between an independent variable and a dependent variable (Field, 2013; Leedy & Ormrod, 2015). A mediating variable, known as an intervening variable, comes between two other variables in a casual chain and might help explain why a certain independent variable has the effect that it does on a dependent variable (Field, 2013; Leedy & Ormrod, 2015). Including such factors in the study as mediators, moderators or control variables would help improve the confidence in the results (Hopkins & Ferguson, 2014).

I employed SPSS v.21 software to perform all statistical analysis. SPSS statistical software package is available for use on a personal computer, extremely efficient as data can be downloaded directly into the software package, and includes a wide variety of statistical procedures that can handle large data sets, multiple variables, and missing data points (Field, 2013; Leedy & Ormrod, 2015; Wilson et al., 2014). After obtaining the data required, I transferred the data to the SPSS v.21 program. Before conducting any

statistical tests, filtering out entries that have missing data/responses (information not available for a participant) on at least one variable cleans the data (Field, 2013). Cleaning the data using this method ensured that all statistical analyses received the same sample size without missing data. Sustainalytics and S&P extensive data sets allow choosing a sample from organizations with no missing data. Sustainalytics ESG data set consist of historical data from 2009 through 2016 that provides ESG scores of 4,500 analyzed global organizations (Sustainalytics, 2016). S&P's Compustat provides historical and current credit ratings of organizations across the world (Singal, 2013). Based on the computation of the minimum required sample size, the minimum sample size was 98 organizations. Taking the mean of the non-missing items for computing total scores also was a possible option to address the missing data points (Green & Salkind, 2013).

For instance, Jackson and Singh (2015), Kam-Sing Wong (2014), Roh et al. (2014), Shokri et al. (2016), and Tlapa, Limon, García-Alcaraz, Baez, and Sánchez (2016) employed SPSS application to conduct a variety of statistical procedures related to the processing large data sets, multiple variables, missing data points, statistical model tests, assumption violation tests, and data analysis. Jackson and Singh (2015) employed SPSS in examining the financial-environmental performance of organizations. Kam-Sing Wong (2014) employed SPSS to examine the relationship between the innovativeness, proactiveness, and risk-taking and new product success. Roh et al. (2014) used SPSS in analyzing the key variables relevant to the implementation of a successful responsive

supply chain. In following earlier works, Shokri et al. (2016) and Tlapa et al. (2016) also used SPSS to investigate relationships among constructs in the manufacturing sector.

In SPSS, if data collected using nonexperimental methods, independent and dependent variables in a regression analysis are frequently called a predictor and a criterion, which I used in the data analysis and the presentation of the findings (Green & Salkind, 2013). Considering the nonexperimental design of the study and quantitative nature of both independent and dependent variables certain assumptions pertaining to the statistical analyses were applicable (Field, 2013; Green & Salkind, 2013). The violation of assumptions, which is the source of bias, is preventable by conducting a test of statistical model assumption (Field, 2013; Hopkins & Ferguson, 2014). SPSS features allow assessing the assumptions of regression and the consequences of violating these assumptions. A violation of the assumptions lead to inaccurate test statistic and *p*-value and wrong conclusions such as Type I (falsely rejecting the null hypothesis) or Type II (incorrectly failing to reject the null hypothesis) errors (Becker, Rai, Ringle, & Völckner, 2013; Field, 2013; Hopkins & Ferguson, 2014).

The statistical assumptions underlying the significance test for the multiple correlation coefficients are:

Assumption 1: The variables are multivariatly normally distributed in the population (Green & Salkind, 2013; Hopkins & Ferguson, 2014). According to the assumption, normally distributed variables are ignoring the other variables at every combination of values of the other variables (Green & Salkind, 2013). The assumption of normality is important in small samples when constructing confidence intervals around

parameters of a statistical model or computing significant tests related to the parameters (Field, 2013; Lomax & Hahs-Vaughn, 2013). I conducted a test for normality of residuals using SPSS v.21 software to determine if the residuals appear to conform to the assumption of being normally distributed. If the multivariate normality assumption met, the only type of statistical relationship that can exist between the variables is a linear one. The non-linear relationship might be present if the assumption of multivariate normality violated (Lomax & Hahs-Vaughn, 2013).

Accordingly, it is important to assess whether non-linear relationships exist between the predictors and the criterion. Histograms and scatterplots between the each predictor and the criterion and as well partial regression plots were analyzed to diagnose problems of non-linearity (Green & Salkind, 2013; Hopkins & Ferguson, 2014; Lomax & Hahs-Vaughn, 2013). A moderate violation of the assumption may cause minimal effect, and a severe violation may reduce the power of statistical tests (Green & Salkind, 2013; Lomax & Hahs-Vaughn, 2013). The violation of the normality assumption requires the elimination of outlying cases and data transformation (Field, 2013; Hopkins & Ferguson, 2014; Lomax & Hahs-Vaughn, 2013).

Assumption 2: The cases represent a random sample from the population, and the scores on variables are independent of other scores on the same variables (Green & Salkind, 2013; Hopkins & Ferguson, 2014). If the independence assumption violated, ignoring the dependency of the scores on variables can lead to invalid statistical conclusions as the *F* ratio is very sensitive to violation of the independence assumption in terms of increased likelihood of Type I and/or Type II error in the *F*-statistic, which is

likely to increase with larger samples (Green & Salkind, 2013; Hopkins & Ferguson, 2014; Lomax & Hahs-Vaughn, 2013). Consequently, the *F* test regression analyses yield inaccurate *p*-values (Green & Salkind, 2013). Thus, the violation of the independence assumption leads to invalid confidence intervals and significant tests (Fields, 2013). The independence assumption was assessed by conducting the Durbin-Watson statistic and by examining residual plots (Hopkins & Ferguson, 2014; Lomax & Hahs-Vaughn, 2013). If the assumption is not satisfied, special methods, such as generalized estimating equations (GEE) approach for analyzing correlated response data, can be used to find the best-fitting model and to make valid statistical inferences. The method chosen depends on the response variable, the type of dependence, and the complexity of the problem (Field, 2013).

A confidence interval of 95% was selected, as it usually set, where a predictor considered statistically significant if the significance value (*p*-value) is 0.05 or lower, and thus is the criteria for rejecting or accepting the null hypothesis (Hopkins & Ferguson, 2014). The confidence interval is a range of values that represents the population parameter (Field, 2013; Hopkins & Ferguson, 2014). A *p*-value describes the statistical significance of the data and statistical significance provides information about whether the relationship exists at all (Cohen et al., 2013). I investigated the beta coefficient of the regressions (where it was applicable) to determine the strength of the predicting power of the independent composite variables on the dependent variable (see Hopkins & Ferguson, 2014).

Study Validity

The most important step in a study is an assessment of validity to ensure the integrity of the conclusions generated from the research (Bryman & Bell, 2015; Field, 2013; Hopkins & Ferguson, 2014; Yilmaz, 2013). Validity, which takes on many different forms, is the extent to which an outcome accurately answers the research question (Field, 2013; Neall & Tuckey, 2014; Yilmaz, 2013). Any condition that compromises the validity of the research is known as a threat (Neall & Tuckey, 2014). While the assessment of the validity represents a continuous, iterative, holistic, and synergistic process, in nonexperimental quantitative research, it is especially important to be aware of statistical conclusion validity (SCV) and external validity (Becker et al., 2013; Bryman & Bell, 2015).

SCV, which applies to all research within quantitative methods, is the extent to which the statistical relationship between the variables is accurate (Becker et al., 2013; Brutus, Aguinis, & Wassmer, 2013; Neall & Tuckey, 2014). A violation of SCV occurs if the data not subjected to adequate statistical analyses or when the researcher loses control of Type I or Type II errors (Becker et al., 2013; Field, 2013; Leedy & Ormrod, 2015). In nonexperimental research, violating a threat to SCV results in the overestimation or underestimation of the relationship between variables (Becker et al., 2013; Neall & Tuckey, 2014). The threats to SCV of the study were assumption violation of statistical tests, low statistical power, and unreliability of the measures (Becker et al., 2013; Field, 2013; Hopkins & Ferguson, 2014; Neall & Tuckey, 2014).

The assumption violation of statistical tests, depending on the extent of the violation, can lead to overestimation or underestimation of the practical and statistical significance of an outcome (Becker et al., 2013). I tested the assumptions underlying statistical tests to guide the choice of suitable statistical analysis for the null hypotheses of interest. However, the testing of assumptions first to control Type I error and subsequently testing the null hypotheses of interest may cause severe effects on Type I and Type II error rates and a breach of SCV (Field, 2013; Leedy & Ormrod, 2015). Whether to test assumptions and face the challenge of losing control of Type I and Type II errors or not to test assumptions and to threaten SCV as a result of uncontrolled Type I and Type II error rates needs to be decided by the researcher (Field, 2013; Leedy & Ormrod, 2015). I employed SPSS to address the threats to assumption violation of statistical tests to ensure the validity of the results and protection from undesirable outcomes such as Type I and Type II errors (see Field, 2013; Karpinski, Kirschner, Ozer, Mellott, & Ochwo, 2013). The violation of the normality assumption requires the elimination of outlying cases and data transformation (Hopkins & Ferguson, 2014; Lomax & Hahs-Vaughn, 2013). The violation of independence assumption requires special methods, such as generalized estimating equations (GEE) approach for analyzing correlated response data, to find the best-fitting model and to make valid statistical inferences. The method chosen depends on the response variable, the type of dependence, and the complexity of the problem (Field, 2013).

For instance, Jackson and Singh (2015), Kam-Sing Wong (2014), and Roh et al., (2014) employed SPSS application to conduct a variety of statistical procedures related to

the processing large data sets, multiple variables, missing data points, statistical model tests, assumption violation tests, and data analysis. Jackson and Singh (2015) employed SPSS to conduct the necessary tests in the process of examining the financial-environmental performance of organizations. Kam-Sing Wong (2014) employed SPSS to address effectively the validity and the reliability of the measurements and findings in examining the relationship between the innovativeness, proactiveness, and risk-taking and new product success. Roh et al. (2014) used SPSS in investigating the key variables relevant to the implementation of a successful responsive supply chain and ensuring the validity and reliability of the measurements. Similarly, I employed SPSS features to ensure an accurate statistical relationship between the variables and to prevent the violation of SCV.

Both small and large sample sizes may present threats to SCV (Becker et al., 2013; Hopkins & Ferguson, 2014). To achieve a given level of power the sample size must be appropriately calculated (Field, 2013; Heyvaert & Onghena, 2014; Hopkins & Ferguson, 2014). To ensure the extent of the statistical power to which the results of an analysis accurately reveal a statistically significant difference between the cases when a statistical difference exists, I employed the G*Power software to determine the appropriate sample size for the study (see Becker et al., 2013; Field, 2013; Hopkins & Ferguson, 2014). To compute the minimum required size that the sample must have according to planned power, I considerd the main statistical test, along with four parameters: (a) effect size, (b) level of significance, (c) power, and (d) number of predictors (Hopkins & Ferguson, 2014). Using the parameters above, the computed

minimum required sample size for a power of 0.80 was 98 samples. Increasing the sample size to 194 increases the power of the statistical test to 0.99.

Measurement validity is an application set to test if the measures measure what they are set out to measure (Becker et al., 2013; Bryman & Bell, 2015; Field, 2013). Measures maintain certain levels of transparency, reliability, and validity lack of which causes inconsistency in measurement (Hopkins & Ferguson, 2014; Venkatesh et al., 2013). The measures used to assess key constructs may be contaminated (a measure includes a domain outside of the construct) or deficient (part of the construct domain is not measured) (Hopkins & Ferguson, 2014; Tlapa et al., 2016). To ensure the validity of the constructs' measure, this study adhered to the tested and reliable measurements utilized in previous research. Wolf's (2014) applied sustainable SCM and stakeholder pressure items in the research. Wolf employed a confirmatory factor analysis using MPlus software used to assess scale reliability and validity of the overall measurement scheme. This study was built on Wolf's study by considering the same constructs and the measurement items. Jackson and Singh (2015) applied confirmatory factor analysis in investigating the environmental-financial performance of organizations. Mitra and Datta (2014) applied confirmatory factor analysis in examining the impact of green supply chain management practices on organizational performance.

An issue of validity that may arise for this particular research would be for external validity. External validity deals with the question of whether the result of a particular study generalizable beyond the specific research context and applicable in the real world to other similar programs and approaches (Brutus et al., 2013; Bryman & Bell,

2015; Kaivo-oja, 2016; Neall & Tuckey, 2014). Lack of generalizability is one of the most pervasive methodological challenges (Kaivo-oja, 2016). Over-generalizing the conclusions across populations, settings or contexts, and time, which would affect population validity, ecological validity, and temporal validity will compromise overall external validity (Becker et al., 2013). Reflection on the limitations of the data and sample size can prevent the researcher from over-generalizing findings (Becker et al., 2013). While I considered the target population organizations across the world and of different organization sizes, this was limited to the list provided by the Newsweek Green Rankings 2015 Global 500 List and the data available from Sustainalytics and Standard & Poor's. The available data limited to specific regions and sizes of organizations may result in biased conclusions concerning generalizability (Becker et al., 2013; Neall & Tuckey, 2014). Also, the availability of data may pertain only to specific types of industries. The generalizability of the findings of this research may depend on the final form of data collected. To partially account for external validity, I considered organization size and industry by controlling the number of employees and the type of industry as the measure (Cohen et al., 2013; Hopkins & Ferguson, 2014).

In investigating the relationship between sustainable SCM and corporate financial performance, Wang and Sarkis (2013) analyzed 411 organizations that are cross-listed in three years' rankings in Bloomberg and Compustat databases, which also contain all elements of the social, environmental, and financial data. Singal (2013) analyzed 624 industry specific organizations identified through the intersection of KLD ESG data and S&P credit ratings in examining the link between firm financial performance and

investment in sustainability initiatives. Wolf (2014) analyzed the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance with the sample of 1,621 organizations included in the Sustainalytics database. While the sample in this study was limited to the availability of data from Sustainalytics and S&P Compustat, where I collected the archival data, these databases allow obtaining a significant sample size (Singal, 2013; Wang & Sarkis, 2013; Wolf, 2014). However, I employed G*Power software to determine the appropriate sample size for the study as the validity threat may occur if the sample size is too large (Becker et al., 2013; Hopkins & Ferguson, 2014). Type III error (statistically significant result with no meaningful practical implication) may occur if the sample size is too large (Hopkins & Ferguson, 2014).

Transition and Summary

In Section 2, I presented an expanded discussion of the selected research design and methodology and elaborated their appropriateness for this study compared to the other forms of research design and methodology. In this section, there was also a discussion of data collection and analysis. The section included a discussion of ethical concerns and possible validity issues as well.

The purpose of this quantitative correlational study was to examine the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance, while controlling for industry and organizational size. My role in this study was to consider the kinds of data that the study of the problem requires and reasonable

means of collecting and interpreting those data by conducting the ethical research without compromising the study validity. I used the Belmont Report to guide this research.

I chose quantitative methodology and non-experimental correlational research design for this research. The quantitative method was appropriate for this study because the purpose of the study was to analyze the relationship between the variables. The correlation design was appropriate for this study because the aim of this study was to predict the relationships between a set of predictor variables (sustainable SCM and stakeholder pressure), a moderating and a mediating variable (stakeholder pressure), and a dependent variable (corporate sustainability performance).

The population for this study consisted of publicly traded worldwide organizations with extensive supply chains sensitive to stakeholder pressure that are more likely to report sustainability information. Newsweek Green Rankings 2016 Global 500 List presents a list of global organizations with the most sustainable practices. I used G*Power software to determine the appropriate sample size for the study, which is 98 samples. The data collected from existing secondary sources such as Sustainalytics, S&P's, and corporate annual reports that are publicly available and upon request.

A convenience sampling technique was employed to collect data from Sustainalytics ESG and S&P's, databases using the Newsweek Green Rankings 2016 Global 500 List as the inclusion criteria. The ESG dataset provided the data for the independent composite variables (sustainable SCM and stakeholder pressure) and the moderating and mediating composite variable (stakeholder pressure). S&P's database provided the data for the dependent variable (corporate sustainability performance).

Sustainalytics database and corporate annual reports provided the data for control variables (industry and organizational size).

I chose hierarchical multiple linear regression analysis to address all the hypotheses, including moderated and mediated multiple linear regression as appropriate. Multiple linear regression analysis was the appropriate technique to examine the direct relationships proposed by the hypothesis 1 and hypothesis 2 between the independent composite variables (sustainable SCM and stakeholder pressure) and the dependent variable (corporate sustainability performance). Moderated and mediated multiple linear regressions wee the appropriate techniques to examine the moderating and mediating relationships proposed by the hypothesis 3 and hypothesis 4 between the independent composite variable-sustainable SCM, the independent composite variable-stakeholder pressure that took a form of the moderator and a mediator, and the dependent variable-corporate sustainability performance. The two control variables in the statistical analysis were industry and organizational size. Hierarchical multiple linear regression appropriately addressed the purpose of the study and the types of data for which the problem called. SPSS v.21 software was appropriate to perform all statistical analysis. The assessment of the validity of the statistical analysis, which takes on many different forms, also considered for ensuring the integrity of the conclusions generated from the research.

In section 3, I include presentation and analysis of the findings of the study related to each of the research questions and hypotheses. In this section I also provide a detailed discussion on the applicability of the findings with respect to the professional

practice of business. Additionally, in this section I discus implications that the findings might initiate regarding social change. My recommendations for actions and further research I also included in this section. There I also discus reflections on the experience within the DBA Doctoral Study process.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this quantitative correlation study was to examine the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance, while controlling for industry and organizational size. I developed hypotheses regarding whether significant relationships exist between sustainable SCM, stakeholder pressure, and corporate sustainability performance while controlling for industry an organizational size. The first independent composite variable was *sustainable SCM*, and the second independent composite variable was *stakeholder pressure*. The moderating composite variable was *stakeholder pressure*, and the mediating composite variable was *stakeholder pressure*. The dependent variable was *corporate sustainability performance.* The control variables were *industry* and *organizational size*.

As discussed in Section 2, I employed multiple measures possibly affecting corporate sustainability performance, and generated four regression models. Based on the regression results, I rejected null Hypothesis 1 stating that there is no significant relationship between Sustainable SCM and corporate sustainability performance, and null Hypothesis 2 stating that there is no relationship between stakeholder pressure and corporate sustainability performance. I accepted null Hypothesis 3 stating that there is no significant relationship between sustainable SCM, stakeholder as a moderator, and corporate sustainability performance, and rejected null Hypothesis 4 stating that there is no significant relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance.

Presentation of the Findings

This presentation of the findings includes the relevant descriptive statistics, provides an evaluation of statistical assumptions, and reports inferential statistical analyses results supported by appropriate tables and figures. The participants of the study were publicly traded global companies from 2014 to 2016 identified in Newsweek Green Rankings Global 2016 list. I obtained corporate ESG and industry data from Sustainalytics, financial data from S&P Global Ratings, and data on organizational size from corporate annual reports. The first independent composite variable was sustainable SCM, as measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement. The second independent composite variable was stakeholder pressure, as measured by Sustainalytics dimensions of: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies, which also took a form of a moderator and a mediator. The dependent variable was corporate sustainability performance, as measured by S&P credit rating. The control variables were industry and organizational size measured by the number of employees.

In this study, I built upon Wolf's suggestion to further research the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance. Wolf (2014) combined insights from research on both sustainable SCM and stakeholder pressure, and found that sustainable SCM has more to offer an organization when not implemented as a reaction to stakeholder pressure. In measuring corporate

sustainability performance, Wolf captured two dimensions of sustainability, environmental and social. I designed this study to test whether corporate sustainability performance measured by the economic dimension of sustainability is affected by sustainable SCM and stakeholder pressure.

I employed quantitative correlational design with hierarchical multiple regression analysis to examine the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance while controlling for industry and organizational size. To test the relationships between the variables, I formulated four hypotheses:

$H_0$1: There is no statistically significant relationship between sustainable SCM and corporate sustainability performance while controlling for industry and organizational size.

$H_1$1: There is a statistically significant relationship between sustainable SCM and corporate sustainability performance while controlling for industry and organizational size.

$H_0$2: There is no statistically significant relationship between stakeholder pressure and corporate sustainability performance while controlling for industry and organizational size.

$H_1$2: There is a statistically significant relationship between stakeholder pressure and corporate sustainability performance while controlling for industry and organizational size.

$H_0$3: There is no statistically significant relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance while controlling for industry and organizational size.

$H_1$3: There is a statistically significant relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance while controlling for industry and organizational size.

$H_0$4: There is no statistically significant relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance while controlling for industry and organizational size.

$H_1$4: There is a statistically significant relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance while controlling for industry and organizational size.

Each of the hypotheses proposes some form of relationship. To test these hypotheses, I generated four competing research models. The first model was a direct effect model that represented the direct relationship between sustainable SCM and corporate sustainability performance. The independent composite variable of Hypothesis 1 was sustainable SCM measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement. The dependent variable was corporate sustainability performance measured by S&P long-term issuer credit rating. The control variables were industry and organizational size measured by number of employees. To test the first model, I employed hierarchical multiple regression analysis.

The second model was also a direct effect model that represented the direct relationship between stakeholder pressure and corporate sustainability performance. The independent composite variable of Hypothesis 2 was stakeholder pressure measured by Sustainalytics dimensions of: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies. The dependent variable was corporate sustainability performance measured by the S&P long-term issuer credit rating. The control variables were industry and organizational size measured by number of employees. To test the second model, I used hierarchical multiple regression analysis.

The third model was a moderation model that represented the relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance. The independent composite variable of Hypothesis 3 was sustainable SCM, which represented the composite assessment of sustainable SCM measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement. The moderation composite variable of Hypothesis 3 was stakeholder pressure, which represented the composite assessment of stakeholder pressure measured by Sustainalytics dimensions of: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies. The dependent variable was corporate sustainability performance measured by S&P long-term issuer credit rating. The control variables were industry and organizational size

measured by number of employees. To test the third model, I used a moderation regression analysis.

The fourth model was a mediation model that represented the relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance. The independent composite variable of Hypothesis 4 was sustainable SCM, which represented the composite assessment of sustainable SCM measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement. The mediation composite variable of Hypothesis 4 was stakeholder pressure, which represented the composite assessment of stakeholder pressure measured by Sustainalytics dimensions of: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies. The dependent variable was corporate sustainability performance measured by S&P long-term issuer credit rating. The control variables were industry and organizational size measured by number of employees. To test the fourth model, I employed a mediation regression analysis.

SPSS v.21 software was used to perform all statistical analyses. Additionally, I employed Process Procedure for SPSS, written by Andrew F. Hayes, to test Moderation Model 3 and Mediation Model 4. Before conducting statistical analyses, entries with missing data were filtered out, thus ensuring that all statistical analyses received the same sample size without missing data. Sustainalytics and S&P's extensive data sets allowed me to choose a sample from organizations with no missing data. The sample size

consisted of 164 organizations (based on the computation of the minimum required sample size, I determined that the minimum required sample size was 98 participants). Also, I analyzed the data for the presence of outliers by visually examining the scatter and normal probability plots. No obvious outliers were detected in the data.

I used SPSS to assess the assumptions of regression underlying the significance test for the multiple correlation coefficients. Preliminary analyses of whether assumptions of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals were met indicated no obvious violations. I employed bootstrapping (2,000 samples for two direct models and 5,000 samples for the mediating model) and 95% bias-corrected confidence intervals to gain an accurate estimate of the true population value of correlation coefficient for each predictor. Bootstrapping 95% confidence intervals are presented where appropriate.

Tests of Assumptions

I evaluated the assumptions of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals. Bootstrapping using 2,000 samples enabled preventing the influence of assumption violation. The results of the tests of assumptions described next.

The assumption of multicollinearity. The results of the collinearity diagnostics, specifically the variance inflation factor (VIF) values, were all well below 10, and the tolerance statistics were all well above 0.2. The average VIF was close to 1, which confirmed that collinearity was not an issue. Also, upon analysis of the correlation matrix, the violation of the assumption of multicollinearity was not evident as there were

no substantial correlations between the predictors (r > .9). Thus, there was no collinearity within the data.

The assumption of independence of residuals. I used a Durbin-Watson test to assess the assumption of independent errors, specifically whether the residuals in the models were independent. The Durbin-Watson test statistics value was very close to 2. Therefore, there was no violation of the independence assumption.

The assumption of homoscedasticity and linearity. To evaluate the assumptions of homoscedasticity and linearity, I visually examined the plots of standardized residuals against standardized predicted values. The points were randomly and evenly dispersed throughout the plot. The pattern indicated that the assumptions of linearity and homoscedasticity had been met.

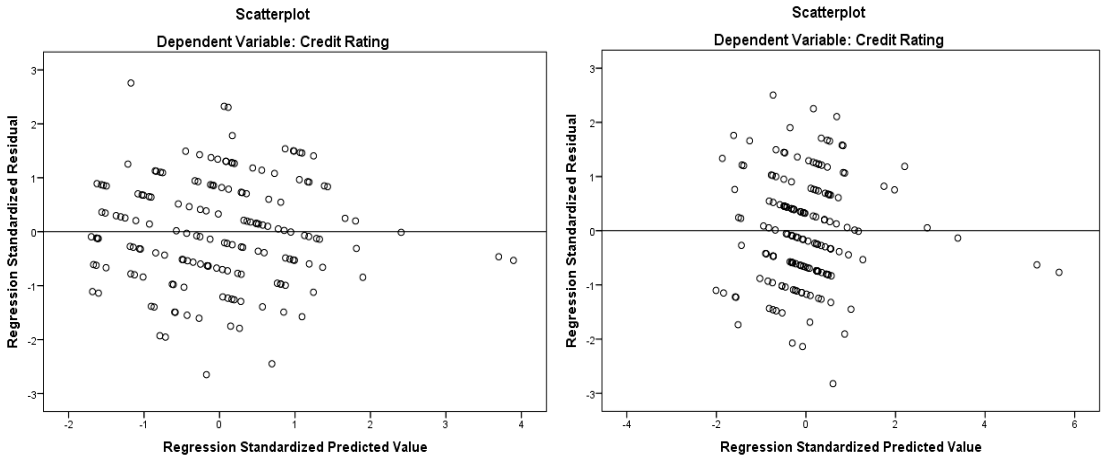

Figure 1. Plot of standardized predicted values against standardized residuals. The left figure represents sustainable SCM, while the right figure represents stakeholder pressure).

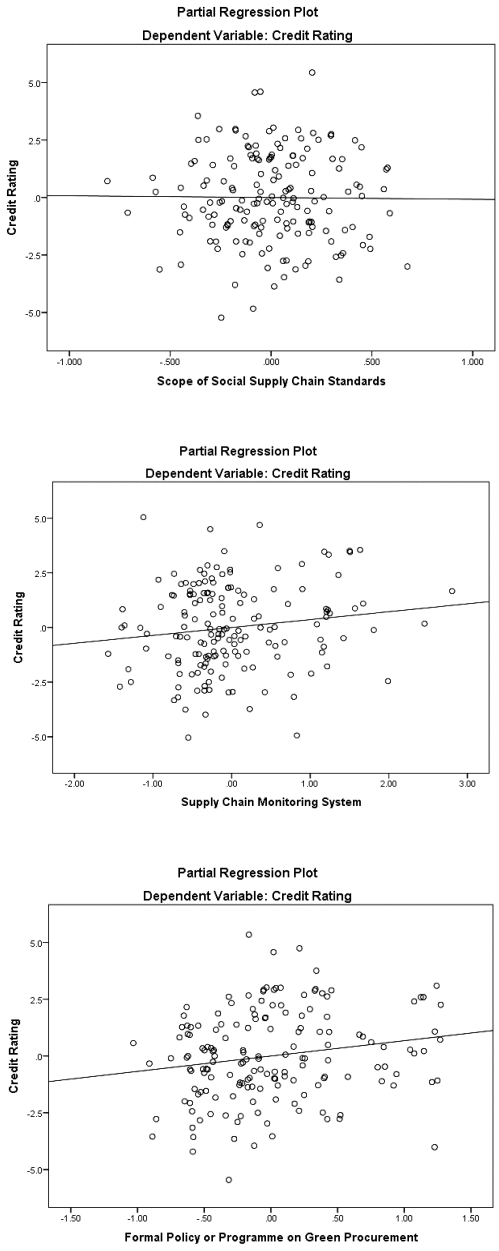

Figure 2. Partial plots of corporate sustainability performance (measured by credit rating) against sustainable SCM (measured by scope of social supply chain standards, supply chain monitoring system, and formal policy or program on green procurement).

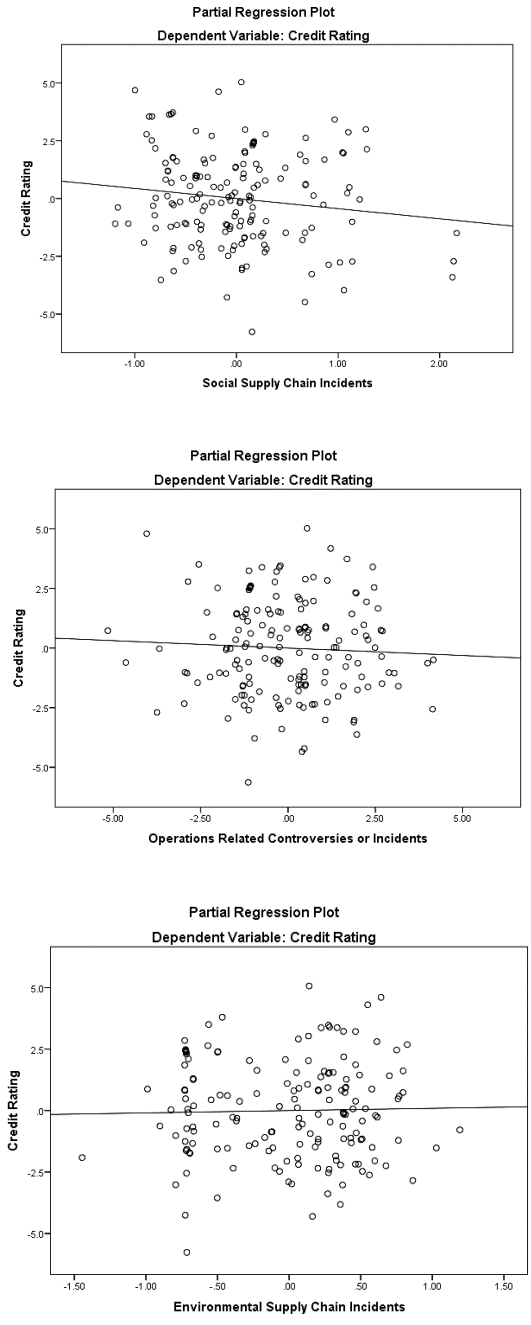

Figure 3. Partial plots of corporate sustainability performance (measured by credit rating) against stakeholder pressure (measured by social supply chain related issues and controversies, operations and product related issues and controversies, and environmental supply chain related issues and controversies).

Outliers. The partial plots, which are scatterplots of the residuals of the outcome variable and each of the predictors when both variables are regressed separately, had no obvious outliers. In *Figure 3*, the partial plots indicated the strong positive relationship between sustainable SCM and corporate sustainability performance. Sustainable SCM was measured by (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement. Corporate sustainability performance was measured by credit rating. In *Figure 4*, the partial plots indicated the strong positive relationship between stakeholder pressure and corporate sustainability performance. Stakeholder pressure was measured by (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies. Corporate sustainability performance was measured by credit rating.

The assumption of normality of residuals. To test the normality of residuals, I examined the histograms and normal probability plots (P-P) of regression standardized residual. The distribution of the data was normal. The histograms were approximately symmetrical and bell-shaped. The normal probability plots also confirmed that the residuals were normally distributed.

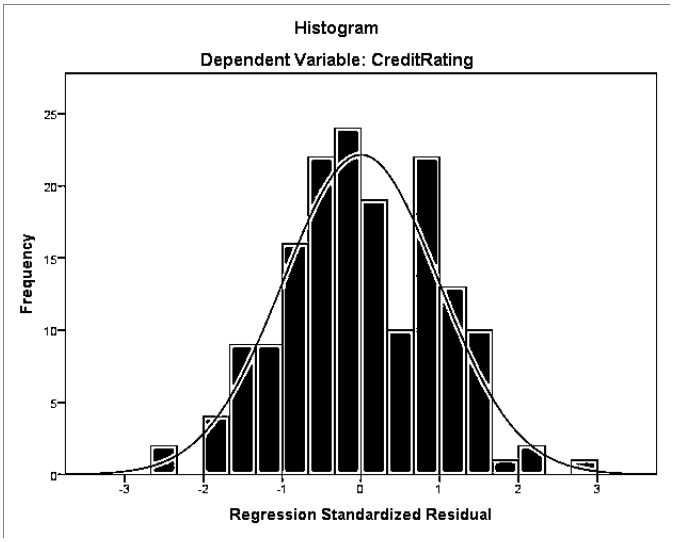

Figure 4. Normality histogram for variables predicting Credit Rating (sustainable SCM as measured by scope of social supply chain standards, supply chain monitoring system, and formal policy or program on green procurement).

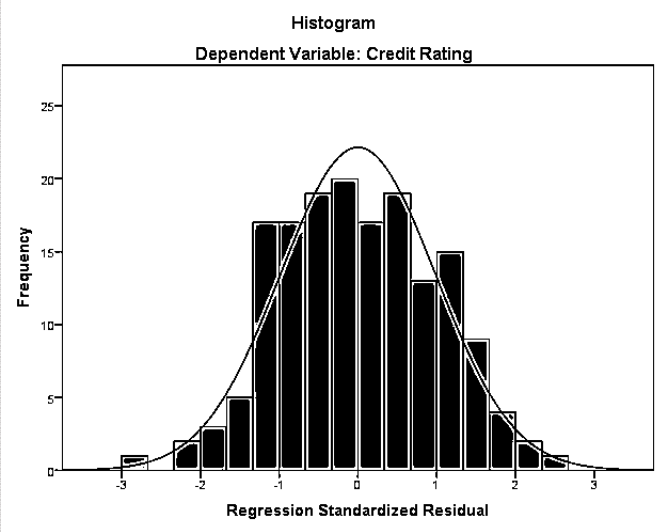

Figure 5. Normality histogram for variables predicting Credit Rating (stakeholder pressure as measured by social supply chain related issues and controversies, operations and product related issues and controversies, and environmental supply chain related issues and controversies).

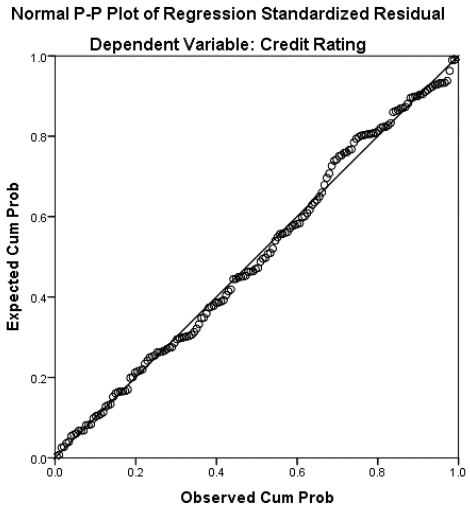

Figure 6. Normality P-P plot for variables predicting Credit Rating (sustainable SCM as measured by scope of social supply chain standards, supply chain monitoring system, and formal policy or program on green procurement).

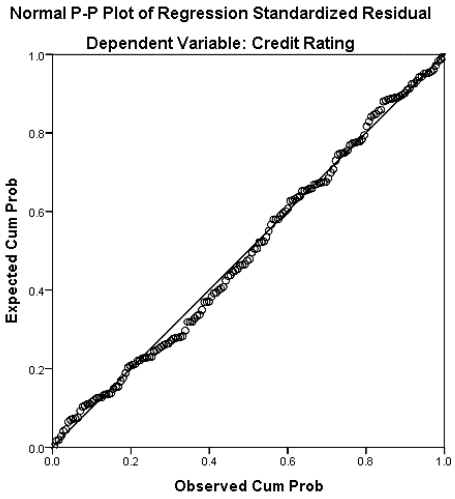

Figure 7. Normality P-P plot for variables predicting Credit Rating (stakeholder pressure as measured by social supply chain related issues and controversies, operations and product related issues and controversies, and environmental supply chain related issues and controversies).

Thus, preliminary analyses whether assumptions of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals were met indicated no obvious violations or bias. Initial regression analyses also indicated that the models could be generalized. The results of hierarchical regression analyses for the four competing models supported by appropriate tables and figures presented next.

Direct Effect Model (Model 1)

Direct Effect Model 1 represented the Hypothesis 1.

$H_0$1: There is no statistically significant relationship between sustainable SCM and corporate sustainability performance while controlling for industry and organizational size.

$H_1$1: There is a statistically significant relationship between sustainable SCM and corporate sustainability performance while controlling for industry and organizational size.

Hierarchical multiple regression analysis was used to examine the efficacy of sustainable SCM in predicting corporate sustainability performance. The independent composite variable was sustainable SCM (as measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement). The dependent variable was corporate sustainability performance (as measured by S&P's credit rating). The control variables were industry and organizational size measured by the number of employees. The null hypothesis was that sustainable SCM would not significantly predict corporate sustainability performance, while controlling for industry and organizational size. The alternative hypothesis was that sustainable SCM would

significantly predict corporate sustainability performance, while controlling for industry and organizational size. Preliminary analyses were conducted to assess whether the assumptions of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals were met; no serious violations were noted (Test of Assumptions).

The descriptive statistics (Table 1) is a summary of the data. It presents the mean (*M*) and standard deviations (*SD*) of each variable in the dataset. The number of participants contributing to each correlation is 164 (*N* = 164).

Table 1

*Descriptive Statistics for Direct Effect Model 1 (*N *= 164)*

Variables	*M*	*SD*	*N*
Credit rating	17.36	2.066	164
Industry	17.84	10.47	164
Organizational size	9.16	13.17	164
Scope of social supply chain standards	.67	.35	164
Supply chain monitoring system	1.12	.97	164
Formal policy or programme on green Procurement	.78	.56	164

The Direct Effect Model 1 as a whole was able to significantly predict corporate sustainability performance, $F(5, 158) = 3{,}981$, $p = .002$. The R^2[.112] value indicated that 11% of variations in corporate sustainability performance measured by credit rating is accounted for by the linear combination of the predictor variable (sustainable SCM

measured by (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement) and covariates (industry and organizational size). Organizational size and Formal Policy or Programme on Green Procurement were statistically significant with organizational size (*beta*=.197, *p*= .012) accounting for a higher contribution to the model than Formal Policy or Programme on Green Procurement (*beta*=.183, *p*= .022). Supply Chain Monitoring Systems (*beta*=.170, *p*=.072), Scope of Social Supply Chain Standards (*beta*= -.013, *p*=.894), and Industry (*beta*= -.014, *p*=.852) did not provide a statistically significant contribution to the model (Appendix C). Thus, I rejected the null hypothesis stating that there is no statistically significant relationship between sustainable SCM and corporate sustainability performance while controlling for industry and organizational size.

Direct Effect Model (Model 2)

Direct Effect Model 2 represented the Hypothesis 2.

$H_0$2: There is no statistically significant relationship between stakeholder pressure and corporate sustainability performance while controlling for industry and organizational size.

$H_1$2: There is a statistically significant relationship between stakeholder pressure and corporate sustainability performance while controlling for industry and organizational size.

Hierarchical multiple regression analysis was used to examine the efficacy of stakeholder pressure in predicting corporate sustainability performance. The independent composite variable was stakeholder pressure (measured by Sustainalytics dimensions of: (a) social

supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies). The dependent variable was corporate sustainability performance (measured by S&P's credit rating). The control variables were industry and organizational size measured by the number of employees. The null hypothesis was that stakeholder pressure would not significantly predict corporate sustainability performance while controlling for industry and organizational size. The alternative hypothesis was that stakeholder pressure would significantly predict corporate sustainability performance while controlling for industry and organizational size. Upon preliminary analyses assessing the assumptions of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals no serious violations were noted (Test of Assumptions).

The descriptive statistics (Table 2) is a summary of the data. It presents the mean (*M*) and standard deviations (*SD*) of each variable in the dataset. The number of participants contributing to each correlation is 164 ($N = 164$).

Table 2

*Descriptive Statistics for Direct Effect Model 2 (*N = *164)*

Variables	*M*	*SD*	*N*
Credit rating	17.36	2.07	164
Industry	17.84	10.47	164
Organizational size	9.16	13.17	164
Social supply chain incidents	2.59	.85	164
Operations related controversies or incidents	6.46	1.87	164
Environmental supply chain incidents	2.55	.73	164

The Direct Effect Model 2 as a whole was able to significantly predict corporate sustainability performance, $F(5, 158) = 2{,}552$ $p = .030$. The R^2[.075] value indicated that 7,5% of variations in corporate sustainability performance measured by credit rating is accounted for by the linear combination of the predictor variable (stakeholder pressure measured by (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies) and covariates (industry and organizational size). The organizational size was the only statistically significant contributor to the model (*beta*=.227, *p*= .004). Environmental Supply Chain Incidents (*beta*=.033, *p*= .760), Industry (*beta*=.063, *p*=.433), Operations Related Controversies and Incidents (*beta*= -.056, *p*=.506), and Social Supply Chain Incidents (*beta*= -.179, *p*=.084) did not provide statistically significant contribution to the model (Appendix D). Thus, I rejected the null hypothesis stating that there is no statistically significant relationship between

stakeholder pressure and corporate sustainability performance while controlling for industry and organizational size.

Moderation Model (Model 3)

Direct Effect Model 3 represented the Hypothesis 3.

$H_0$3: There is no statistically significant relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance while controlling for industry and organizational size.

$H_1$3: There is a statistically significant relationship between sustainable SCM, stakeholder pressure as a moderator, and corporate sustainability performance while controlling for industry and organizational size.

Hierarchical moderation multiple regression analysis was used to examine the efficacy of sustainable SCM, with stakeholder pressure as a moderator, in predicting corporate sustainability performance. The independent composite variable was sustainable SCM (as measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement). The moderating composite variable was stakeholder pressure (as measured by (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies). The dependent variable was corporate sustainability performance (as measured by S&P's credit rating). The control variables were industry and organizational size measured by the number of employees. The null hypothesis was that sustainable SCM, with stakeholder pressure as a moderator, would not significantly predict corporate sustainability performance, while

controlling for industry and organizational size. The alternative hypothesis was that sustainable SCM, with stakeholder pressure as a moderator, would significantly predict corporate sustainability performance, while controlling for industry and organizational size. Preliminary analyses were conducted to assess whether the assumptions of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals were met; no serious violations were noted (Test of Assumptions). Model 1 of the Process Procedure for SPSS written by Andrew F. Hayes was used to test the model. The level of confidence for all confidence intervals in output was 95.00. The descriptive statistics (Table 3) is a summary of the data. It presents each variable in the data set. The number of participants contributing to each correlation is 164 (*N = 164*).

Table 3

*Descriptive Statistics for Moderating Model 3 (*N = *164)*

Variables	*N*
Credit rating (dependent variable)	164
Industry (covariate)	164
Organizational size (covariate)	164
Sustainable SCM (SSCMStr) (independent composite variable)	164
Stakeholder pressure (SPCon) (moderating composite variable)	164

The Moderation Model 3 as a whole was able to significantly predict corporate sustainability performance. F (5, 158) = 5.54, $p < .001$, R^2 =.11 (Table 4). However, interaction effect of the moderator was not significant. R^2 -chng =.0007, p-int = .669 (Table 5). Statistically significant contributors to the model were covariate -

organizational size (b = .033, t(158) = 3.63, p <.001) and predictor - sustainable SCM (b =.32, t(158) = 3.20, p = .002). The moderation variable - stakeholder pressure (b = -. 072, t(158) = -1.14, p = .255), interaction effect (b = -.012, t(158) = -. 429, p = .669), and covariate – industry (b = .004, t(158) = .015, p = .813) did not make significant contribution to the model (Table 6). The changed R^2[.0007] value due to the interaction indicated that 0 % of variations in corporate sustainability performence is accounted for by the linear combination of the predictor (sustainable SCM), with the moderator (stakeholder pressure) and the covariates (industry and organizational size).

Table 4

Moderation Effect Model Summary

R	*R-sq*	*MSE*	*F*	*df1*	*df2*	*p*
.33	.11	3.91	5.54	5.00	158.00	.00

Note. a. Dependent variable: Corporate sustainability performance

Table 5

R-square Increase due to the Interaction (Moderation Model)

	R^2-chng	*F*	*df1*	*df2*	*P*
Int_1	.00	.18	1.00	158.00	.67

Simple slops equations of the regression of corporate sustainability performance on sustainable SCM at three levels of stakeholder pressure indicated that there is no significant interaction of stakeholder pressure on the relationship between sustainable SCM and corporate sustainability performance (*Figure 8*).

Table 6

Coefficients of the Moderating Regression Model

Model	*Coff(b)*	*se*	*t*	*p*	*LLCI*	*ULCI*
constant	16.98	.31	54.97	.00	16.38	17.60
SPCon	-.07	.06	-1.14	.26	-.20	.05
SSCMStr	.32	.10	3.20	.00	.12	.52
Int_1	-.02	.04	-.43	.67	-.09	.06
Industry	.00	.02	.24	.81	-.03	.03
Organiza	.03	.01	3.63	.00	.01	.05

Note. Int_1: SSCMStr x SPCon

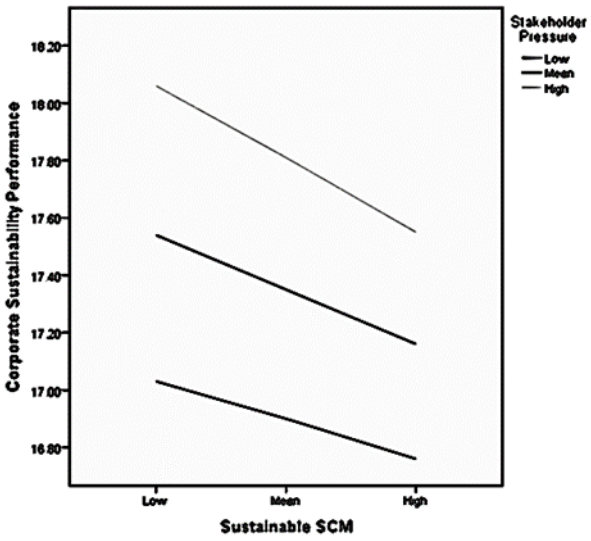

Figure 8. Simple slopes equations of the regression of credit rating on sustainable SCM at three levels of stakeholder pressure.

The three levels of regressions for sustainable SCM as a predictor of corporate sustainability performance are: (1) when stakeholder pressure is low (-2.677); (2) at the

mean value of stakeholder pressure (centered stakeholder pressure value is 0 as indicated in the output); and (3) when the value of stakeholder pressure is high (2.677) (Table 7).

Table 7

Conditional Effect of Sustainable SCM on Corporate Sustainability Performance at Values of the Moderator-Stakeholder Pressure

SPCon	Effect	se	t	p	LLCI	ULCI
-2.68	.36	.13	2.80	.00	.11	.62
.00	.32	.10	3.20	.00	.12	.52
2.68	.28	.15	1.86	.06	-.02	.57

Note. Values for quantitative moderators are mean and plus/minus one SD from the mean. Values for dichotomous moderators are the two values of the moderator.

When stakeholder pressure was low, there was a statistically significant negative relationship between sustainable SCM and corporate sustainability performance, b = .3616, 95%CI [.106, .617], t = 2.80, p = .006. As sustainable SCM increases, corporate sustainability performance declines (and vice versa). The contribution of the low stakeholder pressure as a moderator to the relationship between sustainable SCM and corporate sustainability performance was .36.

At the mean value of stakeholder pressure, there was a significant positive relationship between sustainable SCM and corporate sustainability performance, b = .3198, 95%CI [.123, .517], t = 3.20, p = .002. As sustainable SCM increases, corporate sustainability performance increases (and vice versa). The contribution of the average stakeholder pressure as a moderator to the relationship between sustainable SCM and corporate sustainability performance was .32.

When stakeholder pressure is high, there is a non-significant positive relationship between sustainable SCM and corporate sustainability performance, $b = .2780$, 95%CI [-.016, .573], $t = 1.86$, $p = .064$. Thus, the higher stakeholder pressure, the lesser moderating effect it has on the relationship between sustainable SCM and corporate sustainability performance. Thus, I accepted the null hypothesis stating that there is no statistically significant relationship between sustainable SCM, with stakeholder pressure as a moderator, and corporate sustainability performance, while controlling for industry and organizational size.

Mediation Model (Model 4)

Direct Effect Model 4 represented the Hypothesis 4.

$H_0$4: There is no statistically significant relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance while controlling for industry and organizational size.

$H_1$4: There is a statistically significant relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance while controlling for industry and organizational size.

Hierarchical mediating multiple regression analysis was used to examine the efficacy of sustainable SCM, with stakeholder pressure as a mediator, in predicting corporate sustainability performance. The independent composite variable was sustainable SCM (as measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement). The mediating composite variable was stakeholder pressure (as measured by (a) social supply chain related issues and

controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies). The dependent variable was corporate sustainability performance (as measured by S&P's credit rating). The control variables were industry and organizational size measured by the number of employees. The null hypothesis was that sustainable SCM, with stakeholder pressure as a mediator, would not significantly predict corporate sustainability performance, while controlling for industry and organizational size. The alternative hypothesis was that sustainable SCM, with stakeholder pressure as a mediator, would significantly predict corporate sustainability performance, while controlling for industry and organizational size. Preliminary analyses were conducted to assess whether the assumptions of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals were met; no serious violations were noted (Test of Assumptions). Model 4 of Process Procedure for SPSS written by Andrew F. Hayes was employed to test the Mediation Model 4. A number of bootstrap samples for bias-corrected bootstrap confidence intervals was 5000. The level of confidence for all confidence intervals in output was 95.00. The descriptive statistics (Table 8) is a summary of the data. It presents each variable in the dataset. The number of participants contributing to each correlation is 164 (*N = 164*).

Table 8

*Descriptive Statistics for Mediating Model 4 (*N = *164)*

Variables	*N*
Credit rating (dependent variable)	164
Industry (covariate)	164
Organizational size (covariate)	164
Sustainable SCM (SSCMStr) (independent composite variable)	164
Stakeholder pressure (SPCon) (mediating composite variable)	164

Regression of stakeholder pressure from sustainable SCM. Sustainable SCM significantly predicts stakeholder pressure while controling for industry and orgnaizational size, F (3, 160) = 5.30, b = -.34, t(160) = -2.37, p = .02. R^2 =.09 (Tables 9 and 10). The R^2 value indicates that the sustainable SCM explains 9% of the variance in stakeholder pressure and the negative b indicates that the relationship is negative: as sustainable SCM increases, stakeholder pressure declines (and vice versa). Industry made a significant contribution to the model b = .06, t(160) = 3.26, p = .001) while orgnaizational size did not make significant contribution to the model (b = .02, t(160) = 1.24, p = .22) (Tables 9 and 10).

Table 9

Mediation Effect Model Summary (Regression of Stakeholder Pressure from Sustainable SCM)

R	*R-sq*	*MSE*	*F*	*df1*	*df2*	*p*
.30	.09	6.64	5.30	3.00	160.00	.002

Note. Outcome: SPCon

Table 10

Coefficients of the Mediating Regression Model (Regression of Stakeholder Pressure from sustainable SCM)

Model	*Coff(b)*	*se*	*t*	*p*
Constant	11.17	.54	20.77	.00
SSCMStr	-.34	.14	-2.37	.02
Industry	.06	.02	3.26	.00
Organiza	.02	.02	1.24	.22

Note. Outcome: SPCon

Direct effect. The results of the direct effect of sustainable SCM on corporate sustainability performance when stakeholder pressure is included as a predictor while controlling for industry and organizational size indicated that sustainable SCM significantly predicts corporate sustainability performance with stakeholder pressure in the model while controlling for industry and organizational size, F (4, 159) = 4.94, b =.33, t(159) = 2.93, p = .004. R^2 =.11. Stakeholder pressure did not predict corporate sustainability performance (b = -. 07, t(159) = -1.16, p = .247) (Tables 11 and 12). The R^2 value indicated that the model explains 11% of the variance in corporate sustainability performance. The positive b for sustainable SCM indicated that as sustainable SCM increases, corporate sustainability performance increases also. The negative b for stakeholder pressure indicates that as stakeholder pressure increases, corporate sustainability declines (and vice versa). Covariate - organizational size made significant contribution to the relationship (b = .03, t(159) = 2.77, p = .006). Covariate - industry did

not make a significant contribution to the relationship ($b = .003$, $t(159) = .23$, $p = .821$) (Tables 11 and 12).

Table 11

Mediation Effect Model Summary (Direct Effect)

R	*R-sq*	*MSE*	*F*	*df1*	*df2*	*p*
.33	.11	3.89	4.94	4.00	159.00	.00

Note. Outcome: Credit Rating

Table 12

Coefficients of the Mediating Regression Model (Direct Effect)

Model	*Coff(b)*	*se*	*t*	*p*
constant	16.98	.79	21.45	.00
SPCon	-.07	.06	-1.16	.25
SSCMStr	.33	.11	2.93	.0039
Industry	.00	.02	.23	.82
Organiza	.03	.01	2.77	.01

Note. Outcome: Credit Rating

Total effect. The total effect is the effect of the predictor on the outcome when the mediator is not present in the model (Field, 2013). The results of sustainable SCM on corporate sustainability performance in isolation (total effect) indicated that when stakeholder pressure is not in the model, sustainable SCM significantly predicts corporate sustainability performance while controlling for industry and organizational size. F (3, 160) = 6.121, b =.35, $t(160) = 3.20$, $p = .002$. R^2 =.103 (Tables 13 and 14). The R^2 value indicated that the model explains 10% of the variance in corporate sustainability

performance. Similarly, as when the stakeholder pressure was included in the model, sustainable SCM has a positive relationship with corporate sustainability performance. The positive *b* for sustainable SCM indicated that as sustainable SCM increases, corporate sustainability performance increases also. Covariate - organizational size made a significant contribution to the model ($b = .03$, $t(160) = 2.67$, $p = .008$). Covariate - industry did not make significant contribution to the relationship ($b = -.0010$, $t(160) = -.067$, $p = .947$) (Tables 13 and 14) .

Table 13

Mediation Effect Model Summary (Total Effect Model)

R	*R-sq*	*MSE*	*F*	*df1*	*df2*	*p*
.32	.10	3.90	6.12	3.00	160.00	.00

Note. Outcome: Credit Rating

Table 14

Coefficients of the Mediating Regression Model (Total Effect Model)

Model	*Coff(b)*	*se*	*t*	*p*
Constant	16.19	.41	39.29	.00
SSCMStr	.35	.11	3.20	.00
Industry	-.00	.02	-.07	.95
Organiza	.03	.01	2.70	.09

Note. Outcome: Credit Rating

Indirect effect. The results of the indirect effect analysis of the relationship between sustainable SCM and corporate sustainability performance when stakeholder pressure is included as a mediator while controlling for industry and organizational size

indicated the presence of indirect effect of stakeholder pressure as *b*-value falls between bootstrapped CI [-.012, .089] (if *b*=0 then there is no effect). Analysis of the effect sizes also indicated the presence of indirect effect as all of the size measures have confidence intervals that are greater than 0 (greater than "no effect") (Field, 2013). The size of the indirect effect is $b = .024$, $z = 0.97$ (standard error-associated z-score), $p = .329$. Thus, there is a relatively small and non-statistically significant indirect effect. I accepted the null hypothesis stating that there is no statistically significant relationship between sustainable SCM, with stakeholder pressure as a mediator, and corporate sustainability performance while controlling for industry and organizational size (Tables 15 and 16).

Table 15

Indirect Effect of sustainable SCM on Corporate Sustainability Performance

	Effect	Boot SE	BoorLLCI	BootULCI
SPCon	.024	.025	-.012	.089

Table 16

Normal Theory Tests for Indirect Effect (Sobel Test)

Effect	*se*	*z*	*p*
.024	.024	.975	.329

Summary of the Analysis

The purpose of this study was to examine the efficacy of sustainable SCM and stakeholder pressure in predicting corporate sustainability performance while controlling for industry and organizational size. The participants of the study were publicly traded

global companies from 2014 to 2016 identified in Newsweek Green Rankings Global 2016 list. The gathered secondary data for the participants were ESG and industry data obtained from Sustainalytics, financial data from S&P's Global Ratings, data on organizational size from corporate annual reports. Hierarchical multiple regression was employed to conduct all the analyses. Preliminary analyses whether assumptions of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals were met indicated no obvious violations. I used bootstrapping and 95% bias-corrected confidence intervals to gain an accurate estimate of the true population value of correlation coefficient for each predictor. To test the relationships between the variables, four hypotheses were formulated. Each of the hypotheses proposed some form of relationship. To test these hypotheses, four competing research models were generated.

The first model was a Direct Effect Model that represented the direct relationship between sustainable SCM and corporate sustainability performance. The independent variable of hypothesis 1 was a composite variable - sustainable SCM measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement. The dependent variable was corporate sustainability performance measured by S&P a long-term issuer credit rating. The control variables were industry and organizational size measured by a number of employees. To test the Model1, I employed hierarchical multiple regression analysis. The Direct Effect Model 1 as a whole was able to significantly predict corporate sustainability performance, $F(5, 158) = 3{,}981$, $p = .002$. The R^2[.11] value indicated that 11% of variations in corporate sustainability performance measured by credit rating is accounted

for by the linear combination of the predictor (sustainable SCM measured by (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement) and covariates (industry and organizational size). Organizational size and Formal Policy or Programme on Green Procurement were statistically significant with organizational size (*beta*=.197, *p*= .012) accounting for a higher contribution to the model than Formal Policy or Programme on Green Procurement (*beta*=.183, *p*= .022). Supply Chain Monitoring Systems (*beta*=.170, *p*=.072), Scope of Social Supply Chain Standards (*beta*= -.013, *p*=.894), and Industry (*beta*= -.014, *p*=.852) did not provide a statistically significant contribution to the model. Thus, I rejected the null hypothesis stating that there is no statistically significant relationship between sustainable SCM and corporate sustainability performance while controlling for industry and organizational size.

The second model also was a Direct Effect Model that represented the direct relationship between stakeholder pressure and corporate sustainability performance. The independent variable of hypothesis 2 was a composite variable - stakeholder pressure measured by Sustainalytics dimensions of: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies. The dependent variable was corporate sustainability performance measured by S&P a long-term issuer credit rating. The control variables were industry and number of employees. To test the second model, I employed hierarchical multiple regression analysis. The Direct Effect Model 2 as a whole was able to significantly predict corporate sustainability performance, $F(5, 158) = 2{,}552$ $p = .030$. The R^2[.075] value indicated that 7.5% of variations in corporate

sustainability performance measured by credit rating is accounted for by the linear combination of the predictor (stakeholder pressure measured by (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies) and covariates (industry and organizational size). However, organizational size was the only statistically significant contributor to the model (*beta*=.227, *p*= .004). Environmental Supply Chain Incidents (*beta*=.033, *p*= .760), Industry (*beta*=.063, *p*=.433), Operations Related Controversies and Incidents (*beta*= -.056, *p*=.506), and Social Supply Chain Incidents (*beta*= -.179, *p*=.084) did not provide statistically significant contribution to the model. Thus, I rejected the null hypothesis stating that there is no statistically significant relationship between stakeholder pressure and corporate sustainability performance while controlling for industry and organizational size.

The third model was a moderation model that represented the relationship between sustainable SCM, stakeholder as a moderator, and corporate sustainability performance. The independent variable of hypothesis 3 was a composite variable - sustainable SCM, which represented the composite score of sustainable SCM measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement. The moderation variable of hypothesis 3 was composite variable - stakeholder pressure, which represented the composite score of stakeholder pressure measured by Sustainalytics dimensions of: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies. The

dependent variable was corporate sustainability performance measured by S&P's a long-term issuer credit rating. The control variables were industry and number of employees. To test the third model, I employed a moderation regression analysis. The Moderation Model 3 as a whole was able to significantly predict corporate sustainability performance. F (5, 158) = 5.54, $p < .001$, R^2 =.11. However, the interaction effect of the moderator was not significant. R^2 -chng =.0007, p-int = .669. The changed R^2[.0007] value due to the interaction indicated that 0 % of variations in corporate sustainability performance is accounted for by the linear combination of the predictor construct (sustainable SCM), with moderating construct (stakeholder pressure) and covariates (industry and organizational size). Statistically significant contributors to the model were covariate - organizational size (b = .033, t(158) = 3.63, p <.001) and predictor - sustainable SCM (b =.32, t(158) = 3.20, p = .002). The moderation variable - stakeholder pressure (b = -. 072, t(158) = -1.14, p = .255), interaction effect (b = -.012, t(158) = -. 429, p = .669), and covariate – industry (b = .004, t(158) = .015, p = .813) did not make significant contribution to the model. Thus, I accepted the null hypothesis stating that there is no statistically significant relationship between sustainable SCM, with stakeholder pressure as a moderator, and corporate sustainability performance, while controlling for industry and organizational size.

The fourth model was a mediation model that represented the relationship between sustainable SCM, stakeholder pressure as a mediator, and corporate sustainability performance. The independent variable of hypothesis 4 was a composite variable - sustainable SCM, which represented the composite score of sustainable SCM

measured by Sustainalytics dimensions of: (a) social supply chain standards, (b) supply chain monitoring systems, and (c) green procurement. The mediation variable of hypothesis 4 was composite variable - stakeholder pressure, which represented the composite score of stakeholder pressure measured by Sustainalytics dimensions of: (a) social supply chain related issues and controversies, (b) operations and product related issues and controversies, and (c) environmental supply chain related issues and controversies. The dependent variable was corporate sustainability performance as measured by S&P a long-term issuer credit rating. The control variables were industry and number of employees. To test the fourth model, I employed a mediation regression analysis.

The results of the effect of sustainable SCM on corporate sustainability performance in isolation (total effect) indicated that when stakeholder pressure is not in the model, sustainable SCM significantly predicts corporate sustainability performance while controling for industry and organizational size. F (3, 160) = 6.121, b =.35, t(160) = 3.20, p = .002. R^2 =.103. The R^2 value indicated that the model explains 10% of the variance in corporate sustainability performance. Sustainabe SCM has a positive relationship with corporate sustainability performance. Covariate - organizational size made a significant contribution to the model (b = .03, t(160) = 2.67, p = .008). Covariate - industry did not make significant contribution to the relationship (b = -.0010, t(160) = -.067, p = .947).

The results of the direct effect of sustainable SCM on corporate sustainability performance when stakeholder pressure included as a predictor while controlling for

industry and organizational size indicated that sustainable SCM significantly predicts corporate sustainability performance with stakeholder pressure in the model while controlling for industry and organizational size, F (4, 159) = 4.94, b =.33, t(159) = 2.93, p = .004. R^2 =.11. Stakeholder pressure did not predict corporate sustainability performance (b = -. 07, t(159) = -1.16, p = .247). The R^2 value indicated that the model explains 11% of the variance in corporate sustainability performance. The positive b for sustainable SCM indicates that as sustainable SCM increases, corporate sustainability performance increases also. The negative b for stakeholder pressure indicates that as stakeholder pressure increases, corporate sustainability declines (and vice versa). Covariate - organizational size made significant contribution to the relationship (b = .03, t(159) = 2.77, p = .006). Covariate - industry did not make significant contribution to the relationship (b = .003, t(159) = .23, p = .821).

The results of the indirect effect of sustainable SCM on corporate sustainability performance when stakeholder pressure is included as a mediator while controlling for industry and organizational size indicated the presence of the indirect effect of stakeholder pressure as b-value falls between bootstrapped CI [-.012, .089]. Analysis of the effect sizes also indicated the presence of indirect effect as all of the size measures had confidence intervals that are greater than 0. The size of the indirect effect is b = .024, z = 0.97 (standard error-associated z-score), p = .329. Thus, there is a relatively small and non-statistically significant indirect effect. I accepted the null hypothesis stating that there is no statistically significant relationship between sustainable SCM, with stakeholder

pressure as a mediator, and corporate sustainability performance while controlling for industry and organizational size.

Overall, the results of all four hierarchical regression analyses indicated that all four models were able to significantly predict corporate sustainability performance. In Direct Effect Model 1, the most significant contributors to the corporate sustainability performance were the organizational size and sustainable SCM. In Direct Effect Model 2, the only significant contributor to the corporate sustainability performance was organizational size, stakeholder pressure, however, was not a significant contributor to the model. In Moderating Model 3, the most significant contributors to the corporate sustainability performance were the organizational size and sustainable SCM. The interaction effect of stakeholder pressure on the relationship between sustainable SCM and corporate sustainability performance was not significant. In Mediating Model 4, the most significant contributors to the corporate sustainability performance were sustainable SCM organizational size. The indirect effect of stakeholder pressure on the relationship between sustainable SCM and corporate sustainability performance was not significant. Therefore, sustainable SCM and organizational size have significant effect on corporate sustainability performance, stakeholder pressure has a direct effect on corporate sustainability performance if the organizational size is significant, stakeholder pressure as a moderator and a mediator is not a significant predictor of corporate sustainability performance, and industry is also not a significant predictor of corporate sustainability performance.

Findings in the Context of the Theoretical Framework

The purpose of the study was to examine the efficacy of sustainable SCM and stakeholder pressure in predicting corporate sustainability performance while controlling for industry and organizational size. In this study, I built upon Wolf's suggestion for further research. Wolf (2014) combined insights from both sustainable SCM and stakeholder pressure and found that sustainable SCM has more to offer an organization when not implemented as a reaction to stakeholder pressure. In measuring corporate sustainability performance, Wolf captured two dimensions of sustainability, environmental and social. In this research, I tested whether corporate sustainability performance as measured by an economic dimension of sustainability is affected by sustainable SCM and stakeholder pressure.

Overall, corporate sustainability is a concept to achieve long-term economic benefits through the integration of environmental, social, and economic criteria (Carter & Rogers, 2008). The economic impact of corporate sustainability efforts is the main research concern. Research propositions have been developed based on various theories including RDT (Al Zaabi et al., 2013). RDT is one of the theoretical frameworks to understand the role of organizational pressures on the sustainability performance (Ramanathan et al., 2014). Organizations are not self-sufficient but rely on their environment and its resources for survival and achievement of long-term objectives. RDT is a central theory in the understanding of the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance. RDT shows support to the concept that organizations should proactively engage in sustainable SCM as it

resolves a resource dependency problem, ameliorates stakeholder pressure, and ensures sustainable profitability.

The review of the literature from the viewpoint of RDT led to the following conclusions: (a) organizations take a proactive approach to the sustainable supply chain and corporate sustainability in an effort to ensure the long-term resource supply and sustainable corporate performance, (b) organizations take reactive approach to sustainable practices when they fear or faced with reduced access to resources due to stakeholder pressure, (c) proactive sustainable supply chain practices contribute to corporate sustainability performance, but the effect is greater when stakeholder pressure occurs, and (d) stakeholder pressure determines the extent to which an organization engages in sustainable supply chain practices. These conclusions guided me to research a business problem concerning the understanding and effective practice of corporate sustainability performance. The results of the study indicated that there is a significant positive relationship between sustainable practices and financial performance. The results of the study are in alignment with the findings of Wolf (2014) as this study built on Wolf's study. In the analysis, I employed the same competing models of the potential relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance to examine which of the four models best predict the outcome. Hierarchical multiple regression analyses were used to estimate the corporate sustainability performance impact of the two independent composite variable (sustainable SCM and stakeholder pressure), with stakeholder taking moderating and mediating effect as well.

The direct effect of sustainable SCM on corporate sustainability performance. The growing awareness of the original approach to sustainability, which recognizes the three dimensions of sustainability (corporate financial performance, social performance, and environmental performance) as a part of a system, drive organizational leaders to proactively pursue sustainable SCM (Esfahbodi et al., 2016; Gao & Bansal, 2013; Hahn et al., 2015; Jamali, 2014). Organizational leaders recognize their roles and responsibilities towards the environment and society not just for the present but for the future, which foster a proactive development of initiatives to address sustainability (Lozano, 2013; Walls & Triandis, 2014). Organizations understand their dependence upon the long-term sustainability of their resource supply (Esfahbodi et al., 2016; Wolf, 2014). Thus, organizations gain long-term benefit from the adoption of sustainable SCM strategies. By promoting environmental and social sustainability and proactively engaging in the sustainable supply chain, organizations build a good citizen reputation. The good reputation improves legitimacy and access to critical resources (Wolf, 2014). Thus, organizations take a proactive approach to the sustainable supply chain and corporate sustainability to ensure the long-term resource supply and sustainable corporate performance.

This Direct Effect Model 1 represented the direct relationship between sustainable SCM and corporate sustainability performance. The model as a whole was able to significantly predict corporate sustainability performance. This finding is in alignment with Wolf's finding indicating that sustainable SCM has a direct and separate effect on corporate sustainability performance, which also represents the data best. Based on the

finding, proactive sustainable SCM directly benefits an organization beyond reducing stakeholder pressure. Thus, sustainable SCM positively related to corporate sustainability performance and specifically to corporate financial performance.

The direct effect of stakeholder pressure on corporate sustainability performance. Managing various demands of suppliers is challenging for organizations (Kam-Sing Wong, 2014). The objective of any organization is to maximize independence and certainty especially in resources (Pfeffer & Salancik, 1978). Organizations significantly depending on the external environment will struggle to lessen this dependence in various manners (Pfeffer & Salancik, 1978). Often organizations engage in sustainable practices when they fear or faced with reduced access to resources due to stakeholder pressure (Wolf, 2014). Sustainable SCM becomes critical to organizations vulnerable to internal and external stakeholder pressures (Wolf, 2014). Through sustainable SCM, organizations address environmental, social, and economic aspects of business operations to reduce stakeholder pressure (Wolf, 2014). Stakeholder pressure is often one of the main reasons why organizations will pursue sustainable SCM (Brindley & Oxborrow, 2014; Glover et al., 2014; Tseng & Hung, 2014). Thus, organizations take a reactive approach to sustainable practices when they fear or faced with reduced access to resources due to stakeholder pressure.

The Direct Effect Model 2 represented the direct relationship between stakeholder pressure and corporate sustainability performance. The model as a whole was able to significantly predict corporate sustainability performance. This finding is also in alignment with Wolf's finding indicating that stakeholder pressure has a direct and

separate effect on corporate sustainability performance, which also represents the data best. Thus, stakeholder pressure positively related to corporate sustainability performance and specifically to corporate financial performance. However, the main contributor in this model was an organizational size. Thus, the significance of the stakeholder pressure to directly predict the corporate sustainability performance depends on the size of an organization.

The moderating effect of stakeholder pressure. Organizational managers may have a reason for proactively pursuing sustainable practices other than stakeholder pressure since sustainable SCM contributes to corporate sustainability performance but the effect can be greater when stakeholder pressure occur (Wolf, 2014). The stakeholders' expectations, whether they are internal or external, need to be incorporated into the sustainable supply chain operations if the pressure is present (Cantor et al., 2014; Wolf, 2014). The integration of stakeholder expectations into the organizational strategy improves corporate sustainability performance (Cantor et al., 2014; Wolf, 2014). Thus, proactive sustainable supply chain practices contribute to corporate sustainability performance, but the effect is greater when stakeholder pressure occurs.

The Moderating Effect Model 3 represented the relationship between sustainable SCM, with stakeholder pressure as a moderator, and corporate sustainability performance. The results of the analysis indicated non-significant moderation effect of stakeholder pressure on the relationship between sustainable SCM and corporate sustainability performance. This finding is also in alignment with Wolf's finding

indicating the non-significant moderating effect of stakeholder pressure on sustainable SCM-corporate sustainability performance relationship.

The mediating effect of stakeholder pressure. Many organization managers fail to recognize the potential benefits of sustainable practices for overall organizational performance unless they yield short-term profits (Alexander et al., 2014; Bradly, 2015). Organizations are not recognizing sustainable SCM as beneficial to strategic objectives also due to the challenges engage in sustainable practices only if there is pressure upon the resource dependence relationship with one or more stakeholders (Pfeffer & Salancik, 1978; Wolf, 2014). Stakeholder pressure determines the extent to which an organization engages in sustainable SCM. The extent of engagement in sustainable SCM will affect corporate sustainability performance (Wolf, 2014). Thus, stakeholder pressure mediates sustainable SCM, and in turn, sustainable SCM shapes corporate sustainability performance (Cantor et al., 2014; Wolf, 2014). Thus, Stakeholder pressure determines the extent to which an organization engages in sustainable supply chain practices

The Mediating Effect Model 3 represented the relationship between sustainable SCM, with stakeholder pressure as a mediator, and corporate sustainability performance. The results of the analysis indicated non-significant mediation effect of the stakeholder pressure on the relationship between sustainable SCM and corporate sustainability performance. This finding is also in alignment with Wolf's (2014) findings indicating that the mediating effect of stakeholder pressures on sustainable SCM is not significant.

Overall, the findings of the study are in alignment with the results of Wolf's study. Wolf employed environmental and social dimensions of sustainability in

measuring corporate sustainability performance. In this study, I employed economic dimension of sustainability in measuring corporate sustainability performance to test whether corporate sustainability performance as measured by an economic dimension of sustainability is affected by sustainable SCM and stakeholder pressure. Wolf (2014) employed Sustainalytics ESG database and extended existing research by conceptualizing corporate sustainability with environmental and social dimensions of sustainability. By applying RDT to a sustainable SCM context, Wolf empirically assessed the relationship between sustainable SCM and corporate sustainability performance, stakeholder pressure and corporate sustainability performance, and the effect of stakeholder pressure on the sustainable SCM and corporate sustainability performance. Wolf provided valuable insights for managerial decision makers by illustrating the positive relation between sustainable SCM and corporate sustainability performance (Wolf, 2014). This study extended Wolf's study by testing if corporate sustainability performance as measured by an economic dimension of sustainability is affected by sustainable SCM and stakeholder pressure. Thus, hypothesized relationships apply equally to all three dimensions of corporate sustainability performance. Additionally, the results of the tests of the models indicated that the models were significant in predicting the outcome.

The adoption of both proactive sustainable SCM and sustainable SCM due to stakeholder pressure is associated with positive outcomes such as improved environmental concerns, competitive advantage, cost and risk reduction, revenue increase, and positive effects on company image and employee motivation (Bradly, 2015; Kumar et al., 2013). Sustainable SCM and stakeholder pressure directly influence the

strategies organizations employ to enhance corporate sustainability performance because doing so resolves elements of a resource dependence problem, ameliorates stakeholder pressure, and ensures sustainable profitability (Wolf, 2014). The moderating and mediating effect of stakeholder pressures on the sustainable SCM-corporate sustainability performance relationship requires additional research. Research in the field of sustainable SCM receives considerable attention. However, the research field is still very young but is growing very fast (Taticchi et al., 2013).

A discussion of sustainability impacts on organizational performance, including discussion of the competitive and cost-effectiveness potentials of sustainability, is one of the most recent trends (Bateh et al., 2013; Linnenluecke & Griffiths, 2013). In existing studies, Singal (2013), Wang and Sarkis (2013), and Wolf (2014) have examined the combined effect of sustainability parameters on firm performance. Lee et al. (2013) and Fujii, Iwata, Kaneko, and Managi (2013) addressed the effect of individual dimensions of sustainability on firm performance. Kurapatskie and Darnall (2013) extended prior research on the broader connections between sustainable practices and financial performance. Kurapatskie and Darnall found that while lower and higher order sustainability activities are in alignment with organizations' financial performance, financial benefits related to higher sustainability activities are greater. Thus, organizations actively integrating sustainability are more likely to reap greater financial benefits (Kurapatskie & Darnall, 2013).

Stakeholder pressure has contributed to the sustainability practices and performance of organizations (Ramanathan et al., 2014; Wolf, 2014). Stakeholders

pressure on organizations to mitigate risk and joint planning activities with suppliers serve as a mediating role in the model (Cantor et al., 2014; Lozano, 2013). The Cantor et al. (2014) study is one of the first papers to test empirically how stakeholders' pressure mediates the relationship between sustainable SCM and corporate sustainability. Ramanathan et al. (2014) analyzed the impacts of various organizational pressures on the environmental performance of manufacturing firms and found that all five analyzed pressures exert significant influence on environmental performance. Ramanathan et al. (2014) provided a holistic analysis considering a variety of stakeholder pressures in a single framework and extended the application of the RDT. Adebambo, Abdulkadir, Mat, and Alkafaagi (2013) also investigated the sustainable environmental manufacturing, the direct influence of its drivers, and financial performance by employing a survey approach and structural equation modeling. Adebambo et al. found that stakeholder pressure, legislation, and perceived benefits directly influence the implementation of sustainable environmental manufacturing practices and financial performance. However, this study findings as well Wolf's findings did not support moderating and mediating effect of stakeholder pressure on corporate financial performance. In the moderation model, while the model was significant in predicting the outcome, the interaction effect of stakeholder pressure was not significant. In the mediation model, there was small mediating effect of stakeholder pressure but non-significant. It is possible that factors not examined in the study determined the importance of stakeholder pressure in a sustainable SCM context (Wolf, 2014).

Applications to Professional Practice

Prior research on sustainability in business often assumed that decisions on social and environmental investments are made for instrumental reasons (Gao & Bansal, 2013). To be able to reflect the principles of business sustainability, organizations need to integrate social and environmental issues with core strategic issues at the supply chain level (Gao & Bansal, 2013). The growing awareness of the original approach to sustainability, which recognizes the three dimensions of sustainability (corporate financial performance, social performance, and environmental performance) as a part of a system, drive organizational leaders to proactively pursue an integrative logic to sustainability, especially within their supply chains (Gao & Bansal, 2013). Yet, there is little theoretical development or empirical analysis of the integrative sustainability logic while it is critical for supply chains to gain an absolute understanding of the complex correlation and interplay of factors that foster sustainability and company competitiveness (Gopalakrishnan et al., 2012). The complexity and the little theoretical development of an original approach to sustainability suggest that findings of this study is not an end in itself, but the next-to-last step in a scientific process that culminates in providing information about the phenomenon (Cohen et al., 2013). This study addressed a gap in the academic literature concerning the understanding and effective practice of corporate sustainability performance. The study, as a business research, gathered, analyzed, interpreted, and reported information so that business decision-makers become more effective in the desire to better understand the sustainability issue. The research could be of value to practitioners as it attends to the primary objective of organizations

such as sustainable financial performance. Thus, the findings of the study might assist organizational leaders in the decision-making process in pursued of the long-term sustainable business, as an effective decision-making requires the manager-researcher relationship where both the decision maker and the researcher perform their respective roles responsibly and ethically.

Implications for Social Change

Communities and governments around the world long for environmentally friendly businesses, quality products and services, and organizational compliance with regulations concerning the socio-environmental impact of the supply chain (Gopalakrishnan et al., 2012). More organizations strive to embrace and transcend contradictions in operational and organizational activities regardless of the challenges in the process of implementing sustainability due to the complexity of issues, difficulties in capturing this complexity, and continuously emerging new areas of concern. The evolutionary nature of supply chains requires continuous improvement of practices for sustaining the business operations (Gopalakrishnan et al., 2012). Often organizational leaders attempt to develop creative solutions to not only build a competitive advantage but also do so in harmony with the planet and society (Elliot, 2013; Gao & Bansal, 2013). The implementation of any sustainability agenda in supply chains requires formulation and operationalization of an integrated approach that addresses the relevant social, economic, and environmental issues (Whiteman, Walker, & Perego, 2013). The findings of this study might further challenge managerial decision makers to rethink management approaches to corporate sustainability, to acknowledge potential benefits of deploying

sustainability in supply chains in an integrated manner, and to understand how companies contribute individually and collectively to the sustainability, which incorporates people, planet, and profit (Gopalakrishnan et al., 2012). A deep understanding of the very nature of sustainable development could lead supply chains across the world to manage economic, social, and environmental dimensions of business operations by considering the needs of today without compromising the needs of future generations (Gao & Bansal, 2013; WCED, 1987). Sustainable development of supply chains support the conservation of natural resources, the improvement of working conditions and living standards of stakeholders, and their involvement in philanthropic activities in an integrated manner.

Recommendations for Action

Many supply chain managers fail to recognize the potential benefits of sustainable practices for overall organizational performance unless they yield short-term profits (Alexander et al., 2014; Bradly, 2015). Organizations are not recognizing sustainable SCM as beneficial to strategic objectives also due to the challenges engage in sustainable practices only if there is pressure upon the resource dependence relationship with one or more stakeholders (Pfeffer & Salancik, 1978; Wolf, 2014). Short-term financial performance to meet stakeholders' expectation no longer guarantees an organization's long-term survival (Sezen & Cankaya, 2013).

In this study, using Sustainalytics ESG data and S&P's long-term issuer credit ratings of 164 organizations form Newsweek 2016 Green Ranking list, I tested whether there is a significant relationship between sustainable SCM, stakeholder pressure, and corporate financial performance. The results of the study are in alignment with Wolf's

(2014) findings indicating that sustainable SCM has more to offer an organization when not implemented as a reaction to stakeholder pressure. While stakeholder pressure also has a direct effect on corporate sustainability performance, the best predictors of financial and market-based performance are the environmental and social performance of organizations. The effect of sustainable SCM on corporate financial performance is considerably significant than the effect of stakeholder pressure. Additionally, the analysis of the moderating and mediating effect of stakeholder pressure on the sustainable SCM-corporate financial performance relationship did not provide significant results. Thus, supply chain managers may consider results of this study in the decision-making process. To make the results of the study available for supply chain decision makers, I will offer the study for publication in peer-reviewed academic journals and professional organizations such global supply chain associations. The recommendations to supply chain managers upon the result of the study are:

First, supply chain managers must strive to better understand the relationship between sustainable SCM and stakeholder pressure to consider more appropriate strategies for supply chain sustainability, to integrate stakeholder expectations into the design of those strategies effectively, and to gain the long-term economic sustainability. Second, the integration of the environmental, social and economic dimensions of business operations should be explored by supply chain decision makers as there is a positive link between organizations' sustainable SCM and economic performance. Third, organizations must strive for a higher ESG performance as ESG factors are becoming the core of business. Investors are becoming aware of the importance of environmental, social, and

governance factors in the estimation of corporate value and whether the organization can increase its value and provide adequate returns on their investments over a longer period (Klettner et al., 2014; Kosmanova & Docekalova, 2013).

Organizations need to work with one another in promoting sustainable SCM practices as a way to achieve organizational success rather than merely as a moral obligation (Alexander, Walker, & Naim, 2014; Wang, Rodrigues, & Evans, 2015). Sustainable SCM practices should promote to organizational success (Green et al., 2015). A strong focus of organizations on the integration of the social, economic, and environmental dimensions needed to ensure corporate sustainability and a sustainable future (Gopalakrishnan et al., 2012; Tseng & Chiu, 2013; Tseng et al., 2015).

Recommendations for Further Research

This study had limitations that offer opportunities for future research. In this study, I built upon Wolf's suggestion for further research and tested whether corporate sustainability performance as measured by an economic dimension of sustainability is affected by sustainable SCM and stakeholder pressure. In measuring corporate sustainability performance, Wolf captured two dimensions of sustainability, environmental and social. In this research, I extended Wolf's study by employing the third economic dimension of sustainability in measuring corporate sustainability performance. S&P long-term issuer credit rating was used as a measure of corporate sustainability performance. Future research migh test the hypothesized relationships by using accounting and market-based flow variables as a measure of corporate financial performance. As in Wolf's study, the data were cross-sectional that might have created

lagged effect of stakeholder pressure on the relationship between sustainable SCM and corporate sustainability performance, which could affect the results of the analyses for models 3 and 4. This also provides an opportunity for the additional research. Future research might extend the research on moderating and mediating effect of stakeholder pressure on corporate sustainability performance by using different measures and larger sample size to test the hypothesized relationships.

Reflections

The doctoral study was another learning experience that extended my knowledge and experience in academic research and writing. Further research of an existing study, specifically, addressing a limitation of the existing study was a challenging process. The help of my committee members and the extensive academic literature available through the Walden library was very valuable. The textbooks on quantitative methodology and especially Andy Field's Discovering Statistics using IBM SPSS Statistics were most helpful in conducting the data analysis. Standards & Poor's publicly available data and the cooperation of Sustainalytics in providing the data for the research made this study possible.

Conclusion

Lack of understanding of the relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance causing many supply chain managers to fail to recognize the potential benefits of sustainable practices for overall organizational performance unless they yield short-term benefits. This gap was a driving force for examining the efficacy of sustainable SCM and stakeholder pressure in

predicting corporate sustainability performance. In this study, I built upon Wolf's suggestion for further research. By applying the RDT to a sustainable SCM context, Wolf examined the relationship between sustainable SCM and corporate sustainability performance, stakeholder pressure and corporate sustainability performance, and the effect of stakeholder pressure on the sustainable SCM and corporate sustainability performance. In measuring corporate sustainability performance, Wolf captured two dimensions of sustainability, environmental and social. In this study, I tested whether corporate sustainability performance as measured by an economic dimension of sustainability is affected by sustainable SCM and stakeholder pressure. Wolf's competing models of the potential relationship between sustainable SCM, stakeholder pressure, and corporate sustainability performance were employed to analyze which of the four models best predict the outcome. The participants of the study were 164 global public organizations with sustainable practices from the Newsweek 2016 Global Green Ranking list.

Hierarchical multiple regression analyses were employed to estimate the corporate sustainability performance impact of the independent composite variables (sustainable SCM and stakeholder pressure), and the moderating and mediating effect of stakeholder pressure. The results of the study indicated that there is a significant positive relationship between sustainable practices and financial performance and between stakeholder pressure and financial performance. The effect of sustainable SCM on corporate financial performance is considerably significant than the effect of stakeholder pressure. The analysis of the moderating and mediating effect of stakeholder pressure on

the sustainable SCM-corporate financial performance relationship did not provide significant results. The results of the study are in alignment with the findings of Wolf (2014) indicating that sustainable SCM and stakeholder pressure directly influence the strategies organizations employ to enhance corporate sustainability performance. This study extended Wolf's study by testing if corporate sustainability performance as measured by an economic dimension of sustainability is affected by sustainable SCM and stakeholder pressure. Thus, hypothesized relationships apply equally to all three dimensions of corporate sustainability performance. Additionally, the results of the tests of the models indicated that the models were significant in predicting the outcome. Thus, the integration of the environmental, social and economic dimensions of business operations should be explored by supply chain decision makers as there is a positive link between sustainable SCM and economic performance. This study had limitations that offer opportunities for future research. Future research might further test moderating and mediating effect of stakeholder pressure on corporate sustainability performance by using different measures and larger sample size to test the hypothesized relationships.

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Appendix A: Certificate of Completion of National Institute of Health Course

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Zulfiya Tchaikovsky** successfully completed the NIH Web-based training course "Protecting Human Research Participants."

Date of completion: 03/16/2014

Certification Number: 1429464

Appendix B: Measurement Items and Their Definitions

Measurement items and their definitions based on information from Sustainalytics

Measure	Definitions
Sustainable SCM	
Social supply chain standards	This indicator provides an assessment of whether social standards included in supply chain policies or codes of conduct and what the scope of these standards is. Organizations need to have a general policy statement defining their expectations for working conditions at contractors and suppliers. Such statement might deal with one of the following issues: (1) health and safety, (2) minimum living wages, (3) maximum working hours, (4) freedom of association/ right to collective bargaining, (5) child labor, (6) acceptable living conditions, (7) nondiscrimination, (8) corporate punishment/disciplinary practices and (9) forced labor
Supply chain monitoring systems	This indicator provides an assessment of whether the organization has implemented supply chain monitoring programs. Some organizations solicit third-party involvement to monitor compliance with social standards. Organizations are evaluated based on credible, consistent procedures for handling non-compliance through staged approaches emphasizing training and remediation (as opposed to cutting and running)

Measure	Definitions
Green procurement	The organization has a public policy to incorporate environmental aspects in its procurement decisions. The policy is publicly made known and in place for at least 50 % of operations. The policy should ideally cover the following two issues: (1) Process Related: The policy should require (main) suppliers to adhere to minimum environmental standards that go beyond compliance with applicable legislation or regulation. (2) Product Related: The policy should commit the organization to select organizations preferentially (or as part of minimum requirements) based on the lower environmental impact of products/services of the suppliers
Stakeholder Pressure	
Social supply chain related issues and controversies	This indicator looks at social supply related issues and controversies and assesses the organization's reputation among stakeholders to deal with them. The indicator examines the range to which an issue affects individuals. It assesses the degree of control the organization had to prevent the issue. It also rates the quality of preventive steps taken by the organization

Measure	Definitions
Operations and product related issues and controversies	This indicator looks at operations and product related issues and controversies and assesses the organization's reputation among stakeholders to deal with them. The indicator examines the range to which an issue affects individuals. It assesses the degree of control the organization had to prevent the issue. It also rates the quality of preventive steps taken by the organization
Environmental supply chain related issues and controversies	This indicator looks at environmental supply chain related issues and controversies and assesses the organization's reputation among stakeholders to deal with them. The indicator examines the range to which an issue affects individuals. It assesses the degree of control the organization had to prevent the issue. It also rates the quality of preventive steps taken by the organization
Corporate Sustainability Performance	
Economic performance of an organization	This indicator is an overall assessment and score of an organization's financial performance, measured by long-term issuer rating assigned to an organization by S&P

This table presents the measurement items and their definitions according to the codebook of Sustainalytics (Sustainalytics, 2016; Wolf, 2014).

Appendix C: Regression Output for Direct Effect Model 1

Model Summary[c]

Model	*R*	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	*df1*	*df2*	Sig. F Change	
Step 1										
	.214[a]	.046	.034	2.031	.046	3.855	2	161	.023	
Step 2										
	.334[b]	.112	.084	1.978	.066	3.925	3	158	.010	2.073

Note. a. Predictors: (Constant), Organizational Size, Industry

b. Predictors: (Constant), Organizational Size, Industry, Supply Chain Monitoring System, Formal Policy or Programme on Green Procurement, Scope of Social Supply Chain Standards

c. Dependent Variable: Credit Rating

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
Step 1						
	Regression	31.793	2	15.897	3.855	.023[b]
	Residual	663.981	161	4.124		
	Total	695.774	163			
Step 2						
	Regression	77.849	5	15.570	3.981	.002[c]
	Residual	617.926	158	3.911		
	Total	695.774	163			

Note. a. Dependent Variable: Credit Rating

b. Predictors: (Constant), Organizational Size, Industry

c. Predictors: (Constant), Organizational Size, Industry, Supply Chain Monitoring System, Formal Policy or Programme on Green Procurement, Scope of Social Supply Chain Standards

Coefficients[a]

Variable		Unstandardized Coef.		Stand. Coef.	*t*	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
Step 1								
	(Constant)	16.992	.336		50.520	.000		
	Industry	.003	.015	.017	.224	.823	.999	1.001
	Organizational Size	.034	.012	.214	2.774	.006	.999	1.001
Step 2								
	(Constant)	16.242	.454		35.784	.000		
	Industry	-.003	.015	-.014	-.187	.852	.962	1.040
	Organizational Size	.031	.012	.197	2.534	.012	.929	1.077
	Scope of Social Supply Chain Standards	-.076	.571	-.013	-.133	.894	.600	1.667
	Supply Chain Monitoring System	.361	.199	.170	1.814	.072	.637	1.570
	Formal Policy or Programme on Green Procurement	.675	.291	.183	2.322	.022	.903	1.108

Note. a. Dependent Variable: Credit Rating

Appendix D: Regression Output for Direct Effect Model 2

Model Summary[c]

Model	*R*	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	*df1*	*df2*	Sig. F Change	
Step 1	.214[a]	.046	.034	2.031	.046	3.855	2	161	.023	
Step 2	.273[b]	.075	.045	2.019	.029	1.652	3	158	.180	2.084

Note. a. Predictors: (Constant), Organizational Size, Industry

b. Predictors: (Constant), Organizational Size, Industry, Environmental Supply Chain Incidents, Operations Related Controversies or Incidents, Social Supply Chain Incidents

c. Dependent Variable: Credit Rating

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
Step 1						
	Regression	31.793	2	15.897	3.855	.023[b]
	Residual	663.981	161	4.124		
	Total	695.774	163			
Step 2						
	Regression	51.987	5	10.397	2.552	.030[c]
	Residual	643.788	158	4.075		
	Total	695.774	163			

Note. a. Dependent Variable: Credit Rating

b. Predictors: (Constant), Organizational Size, Industry

c. Predictors: (Constant), Organizational Size, Industry, Environmental Supply Chain Incidents, Operations Related Controversies or Incidents, Social Supply Chain Incidents

Coefficients[a]

Variable		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Tolerance	VIF
Step 1								
	(Constant)	16.992	.336		50.520	.000		
1	Industry	.003	.015	.017	.224	.823	.999	1.001
	Organizational Size	.034	.012	.214	2.774	.006	.999	1.001
Step 2								
	(Constant)	18.111	.721		25.123	.000		
	Industry	.012	.016	.063	.786	.433	.926	1.080
	Organizational Size	.036	.012	.227	2.953	.004	.989	1.011
	Social Supply Chain Incidents	-.438	.251	-.179	-1.741	.084	.552	1.811
2	Operations Related Controversies or Incidents	-.062	.093	-.056	-.667	.506	.825	1.212
	Environmental Supply Chain Incidents	.094	.306	.033	.307	.760	.508	1.969

Note. a. Dependent Variable: Credit Rating