

**T.C. KOCAELI UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES
DEPARTMENT OF BUSINESS ADMINISTRATION
ACCOUNTING AND FINANCE PROGRAM**

**THE IMPACT OF SUSTAINABILITY REPORTING ON
PROFITABILITY OF MANUFACTURING COMPANIES LISTED
IN BORSA ISTANBUL**

Master's Thesis

By

Abdirahman Abdinur AWALE

KOCAELI, 2020

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Institute of Social Sciences Board of Directors Decision Number and Date: 01.07.2020/15

KOCAELI, 2020

ACKNOWLEDGMENT

First of all, I should thank the Almighty Allah for his guidance and blessing on my success in writing and completing this thesis. Second, I would like to express my profound gratitude and deep regard to my supervisor, Associate Professor Ednan AYVAZ for his exemplary guidance, valuable feedback, and constant encouragement throughout the study. Third, I would also like to express my wholehearted thanks to my family and friends for their generous support through the process of writing this thesis; because of their unconditional love and prayers, I have the chance to complete this thesis. Finally, I would also like to acknowledge the contributions of members at my department for which their useful comments have enabled me to improve my study.

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ÖZET

BİST'e Kote Olan İmalat Şirketlerinin Sürdürülebilirlik Raporlamasının Kârlılıklarına Etkisi

Son zamanlarda, sürdürülebilirlik raporlaması şirketler arasında yaygın bir yönetsel uygulama haline gelmiştir ve artık sosyal ve çevresel raporlamanın artan bir eğilimine yol açan sosyal ve çevresel etkilerinin giderek daha fazla farkındadırlar. Araştırmacılar daha sonra sürdürülebilirlik raporlamasının kapsamını ve bunun üçlü kar hattı üzerindeki etkisini araştırmaya başlamışlardır. Ancak, sonuçlar birbiriyle çelişiyordu, bu da teorik ve ampirik bir bağlantı arasındaki farka yol açtı. Bu çalışma, sürdürülebilirlik raporlamasının kapsamını ve BORSA İstanbul'da (BİST) listelenen imalat firmalarının karlılığı üzerindeki etkisini araştırmak için daha ampirik kanıtlar sunarak Türkiye'deki durumu incelemektedir. Bu çalışmada, imalat şirketlerinin sürdürülebilirlik raporlarından ikincil veriler elde etmek için içerik analizi kullanılmıştır. Sürdürülebilirlik raporlamasının kapsamını ve karlılık üzerindeki etkisini incelemek için tanımlayıcı istatistikler ve regresyon analizleri kullanılmıştır. Daha ileri analizler için bu çalışma, hem sürdürülebilirliğin genel hem de üç boyutunun (ekonomik, çevresel ve sosyal) şirketin karlılığı üzerindeki etkisini firma büyüklüğünün etkisini kontrol ederken incelemiştir. İmalat şirketlerinin% 14'ünün GRI yönergelerine uygun olarak bağımsız sürdürülebilirlik raporları yayınladığı görülmüştür. Sonuçlar ayrıca şirketlerin GRI'ye özgü standartların ortalama% 50 ifşa seviyesine ulaştıklarını da göstermiştir. toplam analizde, bu çalışma genel sürdürülebilirlik raporlaması ile karlılık arasında pozitif fakat önemsiz bir ilişki bulmuştur. Diğer yandan, sürdürülebilirliğin üç boyutunun ayrıştırmış analizi çevresel performans açıklamaları ile kârlılık arasında anlamlı bir pozitif ilişki gösterirken, sosyal performans açıklamaları karlılık ile anlamlı bir negatif ilişkiye sahiptir. Bu çalışma, şirketlerin itibarlarını artırmak için çevresel faaliyetlerini açıklamaya öncelik vermeye devam etmelerini ve dolayısıyla kârlılıklarını artırmayı önermektedir.

Anahtar kelimeler: Sürdürülebilirlik Raporlaması, İmalat şirketleri, Kârlılık, BİST

ABSTRACT

The Impact of Sustainability Reporting on Profitability of Manufacturing Companies Listed In Borsa Istanbul

In recent times, sustainability reporting has become a widespread managerial practice across companies and they are now increasingly aware of their social and environmental impacts leading to a growing trend in social and environmental reporting. Researchers have subsequently started to study the extent of sustainability reporting and its impact on the triple bottom line. However, the results were conflicting, giving rise to the difference between theoretical and empirical connection. This study examines the situation in Turkey by providing more empirical evidence to investigate the extent of sustainability reporting and its impact on the profitability of listed manufacturing companies in BORSA Istanbul (BIST). This study utilized content analysis to extract secondary data from the sustainability reports of the manufacturing companies. Descriptive statistics and regression analysis were used to study the extent of sustainability practices and their impact on profitability. For further analysis, this study examined the effect both the overall sustainability and the three dimensions of sustainability (economic, environmental and social) on return on assets of the company while controlling the effect of firm size. It has been observed that 14% of manufacturing companies were published standalone sustainability reports following GRI guidelines. The results also indicated that companies achieved on average 50% disclosure level of GRI specific standards. This study also found a positive but insignificant relationship between overall sustainability reporting and profitability in the aggregate analysis. On the other hand, disaggregate analysis of the three dimensions of sustainability showed a significant positive relationship between environmental performance disclosures and return on assets while the social performance disclosures have a significant negative relationship with return on assets. This study suggests that companies should continue to prioritize disclosing their environmental activities to improve their reputation which consequently increases their profitability.

Keywords: Sustainability reporting, manufacturing companies, profitability, BIST

ABBREVIATIONS

BIST	: BORSA Istanbul
CERES	: Coalition for Environmentally Responsible Economies
CSR	: Corporate Social Responsibility
DJGI	: Dow Jones Global Index
DJSI	: Dow Jones Sustainability World Index
EPA	: Environmental Protection Agency
ESG	: Environmental, Social, and Corporate Governance Factors
GHGs	: Greenhouse Gases
GRI	: Global Reporting Initiative
IFAC	: International Federation of Accountants
IFRS	: International Financial Reporting Standard
IIRC	: International Integrated Reporting Council
ISO	: International Organization for Standardization
MDGs	: Millennium Development Goals
ROA	: Return on Assets
ROE	: Return on Equity
ROI	: Return on Investment
SD	: Sustainable Development
SP	: Sustainable Performance
SR	: Sustainability Reporting
TFRS	: Turkish Financial Reporting Standards
TİSK	: Turkish Confederation of Employer Associations
UNCBD	: United Nations Convention on Biological Diversity
UNCCD	: United Nations Convention to Combat Desertification
UNCED	: United Nations Conference on Environment and Development
UNCSD	: United Nations Commission on Sustainable Development
UNED	: United Nations Environment and Development
UNEP	: United Nations Environment Program
UNFCCC	: United Nations Framework Convention on Climate Change
UNGC	: United Nations Global Compact
UNPRI	: United Nations Principles for Responsible Investment
WBCSD	: World Business Council for Sustainable Development
WCED	: World Commission on Environment and Development

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INTRODUCTION

As a response to the growing pressure from stakeholders, sustainability reporting has become a widespread managerial practice across companies. Stakeholders have high expectations from corporations in terms of responsible behavior. They are interested in the company's strategy of managing the impact of its operations on workers, society, and the environment (Burhan & Rahmanti, 2012). Investors are looking for improved financial performance which incorporates social and environmental factors (Hohnen, 2007). Consumers demand products and services that are socially and environmentally responsible at competitive prices, employees want to work for companies that are accountable for their social and environmental obligations (Belal & Owen, 2007). These stakeholder expectations have compelled businesses to carry out their operations towards triple-bottom-line (social, environmental, and financial) and disclose their achievements in the form of sustainability reports (Lopez et al., 2007).

A survey carried out by KPMG (2017) reveals that, in addition to regular financial reports, the increase of the number of businesses releasing environmental, social, or sustainability reports have substantially increased. About three-quarters of the world's 250 biggest corporations provide at least some non-financial information in their regular financial reports. However, in developed economies such as Japan, the United States, the United Kingdom, and several European countries, the reporting levels are considered to be relatively high. In the context of developing economies, the sustainability reporting concept is relatively well developed in Malaysia and India, while in many other Asian countries including Turkey the reporting is lower than the global average of 72% (KPMG, 2017). Evidence also shows the number of businesses that issue sustainability reports based on the GRI system have substantially increased. Around two-thirds of reports analyzed in this survey apply the GRI Guidelines or Standards (KPMG, 2017).

Moreover, the adverse environmental effects of industrialization have become a matter of great public concern worldwide. Pollution, global warming, resource depletion, and other climate change issues are examples of these environmental

consequences. National and international level measures are being taken to reduce, prevent, and mitigate its social, economic, and political impacts (Global Reporting Initiative, 2006). A variety of global reporting frameworks have been established to promote sustainability reporting, such as the Global Reporting Initiative (GRI), the United Nations Principles for Responsible Investment, and the United Nations Global Compact. This encouraged businesses to consider the effect of the operations on environments. High profit is no longer the most critical element that determines the performance of companies. Burhan and Rahmanti (2012) argue providing goods or services should be accompanied by tackling social and environmental issues such as global warming, energy conservation, health and safety, corruption, and discriminations.

The success of businesses in a comprehensive way towards sustainability would enable them to develop and succeed in this constantly evolving, resource-constrained world economy (KPMG, 2008). Therefore, simple compliance of mandatory environmental reporting is inadequate to meet stakeholders' expectations of full disclosure. Mandatory reporting is nothing more than a minimum requirement for reporting (Makori & Jagongo, 2013). The effect of economic rationality is particularly apparent in the context of voluntary accounting disclosures and weak state regulation in developing economies (Che- Ahmad et al., 2015).

Businesses are expected from comprehensive sustainability strategies as multiple survey results suggest a theoretical link exists between corporate sustainability reporting and the performance of the firms. By releasing sustainability reports, companies can have broad beneficial implications to address the desires of various stakeholders, while still gaining potential financial and reputational perspectives benefits (Lopez et al., 2007). For example, sustainability reports promote a stable relationship between corporations and stakeholders, lowers expenses by effectively managing resources, affects the long-term market plan, increases productivity, and encourages investing ethically, thereby increasing the profitability of companies. Furthermore, Market analysts often reflect on the sustainability disclosures of a company in an attempt to assess management's quality and efficiency and reporting may provide firms with increased access to capital (Dhaliwal et al., 2011).

Companies are now increasingly aware of their social and environmental roles and responsibilities, leading to a growing trend in social and environmental reporting. Researchers have subsequently started to examine the extent of disclosures, including the types and nature, form, quality, and its effect on performance (Lopez et al., 2007; Rakiv et al., 2016). The results, however, are conflicting, giving rise to the difference between a theoretical and empirical connection. Some of the early work in this area found a significant positive relationship between Sustainability reporting and financial performance such as (Ngwakwe, 2009; Guidry and Patten, 2010; Schadewitz and Niskala, 2010; Robinson et al., 2011; Khaveh et al., 2012; Burhan and Rahmanti, 2012; Lys et al., 2015; Whetman, 2017). Some reported a negative relationship between Sustainability reporting and firm profitability such as (Lopez et al., 2007; Ho & Taylor, 2007; Detre & Gunderson , 2011) and some reported no relationship such as ((Van de Velde et al., 2005; Moneva & Ortas, 2008; Humphrey et al., 2012).). In the context of Turkey previous studies investigated the nature and extent of sustainability practices in Turkey (Aktaş, Kayalidere, Karğın, 2013 Yaz, 2015 Kocamiş & Yildirim, 2016), but none of them linked to the profitability of the company using GRI disclosure as predictor variable. Therefore, this study attempts to examine the situation in Turkey by providing more empirical evidence to investigate the extent of sustainability reporting and its impact on the profitability of listed manufacturing companies in BORSA Istanbul (BIST). Therefore, the specific objectives of this are:

1. To measure the sustainability reporting score for sample companies using the Global Reporting Initiative (GRI).
2. To examine the impact of sustainability reporting level on company profitability
3. To investigate the impact of economic performance on company profitability
4. To investigate the impact of social performance on company profitability
5. To investigate the impact of environmental performance on company profitability
6. To examine the differences related to profitability between companies that disclose sustainability reports and those that didn't.

This study is intended to investigate the extent of sustainability reporting and its impact on company profitability. It begins with a brief introduction and overview of sustainability reporting, followed by the objective of the study.

In the first chapter, the concept of sustainability reporting, historical and the theoretical perspective, benefits of sustainability reporting, and sustainability practices in Turkey are presented, followed by a discussion of the empirical literature of sustainability reporting and company performance.

The second chapter discusses the general research design, the research population, and the sample size, the data collection method and procedure, the sources of the data, the model of the study, and the techniques of data analysis.

The third chapter presents the results achieved and the findings of the study. In the final chapter, the conclusions and recommendations are displayed.

CHAPTER 1

1. LITERATURE REVIEW

1.1. Sustainability Reporting

Sustainability reporting is perceived to be identical with other concepts that describe disclosure of information on economic, environmental, and social impacts, such as corporate social responsibility (CSR) and triple bottom line reporting. CSR has been an important corporate practice over the last decade. Most organizations devoted a portion of their annual reports and company websites to their CSR programs to demonstrate the value of these practices. CSR is the process in which businesses incorporate social, environmental and economic issues clearly and responsibly into their culture, values, decision-making policy and activities, and thereby develop best practices within the business, create value for the firm and benefit society (Afrin, 2013: p.154). Environmental issues include pollution, global warming, resource depletion, and other climate change, while social issues involve occupational health and safety, discrimination, compulsory labor, child labor, human rights, and other social issues.

Sustainability ensures the protection and permanence of ecological, sociological, and economic systems at the possible level. According to Brundtland (1987) “sustainability is meeting the needs of the present generation without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development [WCED], 1987: p.16). The World Business Council for Sustainable Development [WBCSD] (2002) also defined Corporate Sustainability as "business commitment to contribute to sustainable economic development and work with employees, their families, the local community, and society as a whole to improve their quality of life". United States Environmental Protection Agency [EPA] (2020) Sustainability is founded on a common principle which is what we all require for our life and well-being relies on our natural world, either directly or indirectly. Pursuing sustainability requires establishing and preserving the conditions in which humans and nature will live in sustainable harmony to help present generations and potential ones.

The concept has emerged as a result of increased awareness of the relations between environmental issues, social and economic issues, poverty, inequality, and future health concerns. The concept establishes a strong link, especially between environmental, social, and economic issues. (Giddings et al., 2002: p.188)

High profit is no longer the most critical element that determines the performance of companies. Burhan and Rahmanti (2012) argue providing goods or services should be accompanied by tackling social and environmental issues such as global warming, energy conservation, health and safety, corruption, and discriminations. Therefore, businesses need to provide reports that include non-financial information instead of just presenting financial reports. As a result sustainability reporting has become a widespread managerial practice across companies.

According to Global Reporting Initiative (2006) defines Sustainability Reporting as – “the practice of measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development” (GRI, 2006: p.3). It is the potential to meet the rights and needs of societies that do not have equal conditions. Sustainability reports are released voluntarily by companies that want to provide their stakeholders with additional value and information about the impact their activities and operations have on society and the environment (Garg, 2015).

According to Schaltegger as cited by Jasch and Stasiskiene (2005) sustainability reporting as a sub-set of accounting and reporting activities, methods and systems for recording, analyzing and reporting on environmental and socially induced financial impacts and ecological impacts of a defined economic system (e.g., company, site of production, nation). Schaltegger also adds that sustainability reporting deals with the measurement, analysis, and communication of interactions and linkages between social, environmental, and economic issues.

Riley and Gadonniex (2009) stated sustainability reporting as an organization-specific document that measures the performance of an organization through key performance indicators in terms of economic, social, and environmental presented by

adopting specific standards. These definitions suggest that organizations should contribute to global sustainable development through reports as well as reporting to a wider stakeholder group on three aspects of economic, environmental, and social issues. Furthermore, it is widely agreed in the literature that triple bottom line and sustainability reports are integrated reports that provide details regarding the business performance of environmental, social, and economic aspects to internal and external stakeholders. Sustainability reporting may be viewed as the most advanced level of social and environmental responsibility (Lamberton, 2005)

1.2. Historical Perspective of Sustainability Reporting

The sustainability reporting history can be dated back to the 1960s and 1970s when companies realized that high profit is no longer the most critical element that determines the performance of companies (Brockett & Rezaee, 2012 p.27). Sustainability reporting started as early as the '60s of the 20th century to disclose non-financial information regarding the performance of the business in terms of social, environmental, and economic aspects to internal and external stakeholders (Hyrslava et al., 2015).

The first wave of corporate responsibility published in the 1970s by large multinational companies in the U.S. and Western Europe in the form of social reports (Kolk, 2010 p.368). As social reporting practices increased, the tensions between external and internal use of social reporting emerged. Although many companies provided stand-alone non-financial information, many organizations kept this information for internal use only (Hess, 2008: p.19). Responding to this, external stakeholders created their social auditing mechanisms to identify those who are socially irresponsible. The demand for external sustainability monitoring increased and the expectation at the time was that policymakers should get active early and implement new public social reporting legislation. However, that was not the case (Hess, 2008 p.19).

The Stockholm conference, in Sweden, in 1972, was also considered one of the first steps towards sustainability (Elena & Giacomo, 2014 p.24). The Stockholm

Conference was the largest platform that brings the whole world together for the first time around a common goal. At the conference, 26 principles were determined mostly related to environmental issues particularly the concept of "carrying capacity". This conference led to the formation of the United Nations Environment Program (UNEP) and many environmental protection organizations. One of the most significant goals of UNEP creation in 1972 was to foster cooperation and effective leadership in environmental protection (Elena & Giacomo, 2014 p.24).

Social reporting started to decline in 1980 (Hess, 2008 p. 19; Kolk, 2010 p. 368). This is attributed partly to the economic recession, and Corporations had been increasingly hesitant to disclose their social reports publicly to avoid external pressure and criticisms (Hess, 2008 p.19). At the same time, the notion of negative screening also emerged in Great Britain and the United States of America. Investment funds used this approach as part of investment decision-making in which, aside from economic considerations, an organization's social and environmental performance and its compliance to ethical principles were taken into consideration (Hyrsova et al., 2015). Furthermore, the introduction of the Clean Air, Clean Water, and Endangered Species Act legislation and the formation of The U.S. Environmental protection Agency (EPA) in the early 1980s were also significant steps towards the growth of sustainability reporting.

In 1987, the Brundtland Report was published by the United Nations under the name of "Our Common Future". The concept of sustainability emerged for the first time in the report, which included environmental protection and economic development. In this report, sustainability is defined as "meeting the needs of today's generations without endangering the opportunities of future generations to meet their own needs" This report advocated sustainability as a way to address both economic and environmental challenges and acknowledging the trade-off between short-term economic gains and long-term effects on future generations (Brockett & Rezaee, 2012 p.28).

The natural disasters in the late 1980s (e.g. Exxon Valdez and Chernobyl,) also increased interest in environmental reporting because global environmental problems were caused by corporate activities (Krivacic & Jankovic, 2017). Because of these

environmental issues, the Coalition for Environmentally Responsible Economies (CERES) introduced the “Valdez Principles”. These are set of 10 principles intended to regulate and monitor corporate actions in environmental matters (Brockett & Rezaee, 2012 p.28). These principles promote investment decisions that reduce environmental risks and encourage the efficient usage of natural resources.

A few years later, in 1992, the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil. 178 countries gathered to adopt the United Nations Framework Convention on Climate Change (UNFCCC), at the “Rio Summit” with the name of the city in which it was held. The main purpose was to promote sustainable development (Dilling, 2010 p.20). Agenda 21 is a product of this summit. Agenda 21 is a detailed action plan to be implemented internationally, nationally, and locally by UN Systems, Governments, and Major Groups in any field where human influences on the environment (UNEP, 1992). Nevertheless, the slow success in meeting Agenda 21 targets appeared following the 1997 Kyoto Conference on Climate Change (Elena & Giacomo, 2014 p.25). Moreover, accessing environmental information has been globally recognized as a right of people. Internationally signed agreements such as the Rio Summit and Agenda 21, both accepted in 1992 Rio de Janeiro at Earth Summit, call for governments and companies to provide details regarding the condition of economic and environmental effects of their operations.

On 11 December 1997, the Kyoto Protocol was adopted. It came into effect on 16 February 2005, because of a complicated approval procedure. Today the Kyoto Protocol has 192 Parties. The Kyoto Protocol operationalizes the UN Framework Convention on Climate Change by pledging industrialized countries to restrict and reduce emissions of greenhouse gases (GHGs) in line with negotiated individual targets (UNCC, 2020). From a UN viewpoint, after the 1997 Kyoto Conference on Climate Change, the Millennium Development Goals (MDGs) set in 2000 for the period 2000–2015 marked a crucial landmark in resolving social issues.

In 1997, a significant landmark in the history of sustainability reporting was achieved when the Global Reporting Initiative (GRI) was founded by the Coalition for Environmentally Responsible Economies (CERES) along with the United Nations

Environment Program (UNEP) (Brockett & Rezaee, 2012 p.28). GRI was created to encourage the reporting of sustainability efforts to increase corporate sustainability and sustainable development. This guide aimed to report the economic, environmental, and social activities of businesses in a transparent and comparable way. The guide was an important step towards the importance of sustainability reporting (Hyrslava et al., 2015).

In 2000, the first GRI Sustainability Reporting Standards were released and using these standards, approximately 50 organizations published sustainability reports. (Brockett & Rezaee, 2012 p.28). The GRI became an independent organization after one year and eventually moved to the Netherlands. GRI was introduced to set out criteria for reporting on the triple bottom line: financial, social, and environmental results. Voluntary CSR reports received attention during this time because of the requests from responsible creditors as well as support from policymakers, regulators, and standard setters and also strategic efforts on creating a brand reputation.

It was officially mentioned by the United Nations Commission on Sustainable Development (UNCSD) in 2001 and the International Federation of Accountants (IFAC) in 2005 in the guidelines on environmental accounting, and implemented in many companies in developed countries since the 1990s (Nguyen, Tran, Hong Nguyen, & Le, 2017).

Many efforts have been made over the last 2 decades of the 21st century regarding sustainability reporting. For example, GRI introduced a set of series standards for sustainability reporting, the Securities and Exchange Commission (SEC) released “Commission Guidance Regarding Disclosure Related to Climate Change” report, and The International Integrated Reporting Council (IIRC) was also established in 2010 to promote generally accepted integrated reporting framework. Furthermore, The International Organization for Standardization (ISO) also introduced ISO 26000 for social reporting practices (Brockett & Rezaee, 2012 p.29). These reporting guidelines standards and guidelines advocated sustainability reporting as a way of disclosing both economic and environmental challenges and informing internal and external stakeholders for organizational performance towards the goals of sustainable development.

1.3. Theoretical Perspective of Sustainability Reporting

Organizations may disclose sustainability information for a variety of reasons. Ethical concerns, economic and reputational benefits, external pressures, desire for innovation, and employee motivation can be considered among these reasons. In this part of the study, the reasons that push organizations to explain sustainability information are classified under the titles of stakeholder theory, legitimacy theory, and voluntary disclosure theory, and each theory is explained below.

1.3.1. Stakeholder Theory

The theory of stakeholders is one of the different approaches that attempt to explain or rationalize the organizational strategy. According to the theory of stakeholders, the company's main objective is to balance all stakeholders' expectations through its operational activities (Mitchell et al., 1997 p.866). In stakeholder theory, sustainability reports are considered as an ethical accountability tool or as a strategic management tool to respond to requests from other organizations, groups, or interested parties. King (2002) stated the role of sustainability reporting in improving the business between the company and its environment. He argues that ignoring the desires of stakeholders would damage the reputation of the company, which would adversely affect its financial results. Pressure from the stakeholders also described as one of the main factors that contributed to the spread of sustainability reporting (KPMG, 2013 p.23). The originator of this concept, Freeman defined the term "stakeholder" to any group or person that may affect or be affected by the organization's goals and activities (Freeman, 1984 p.46). Figure 1.1 shows the role of the corporation in society. In contrast to this, Friedman (1970) narrowly defined the responsibility of business enterprises as only making economic gains for shareholders and seeing social responsibilities as a deviation from the objective of maximizing profit. He argues that socially responsible companies have a competitive disadvantage, as they incur costs that directly fall at the bottom and reduce profits. In contrast to this narrowly defined responsibility of the business, stakeholder theory extended the responsibility of businesses.

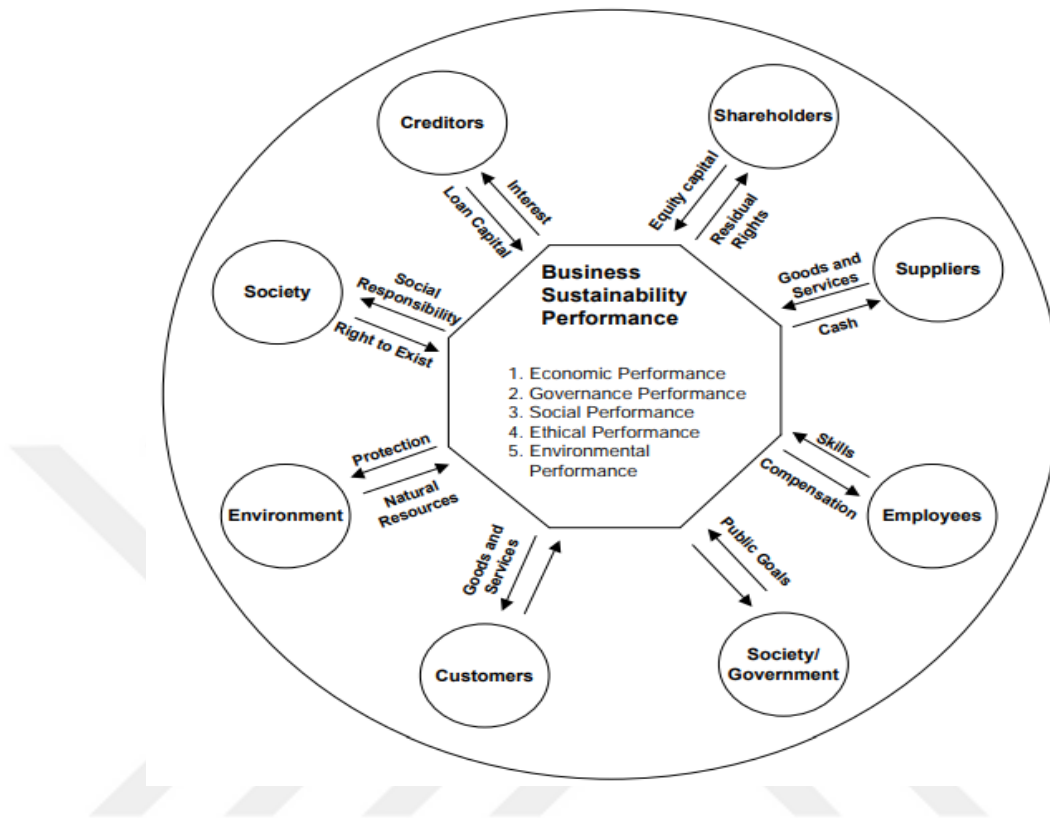


Figure 1.1. Role of corporation in Society [Source: adopted from Brockett & Rezaee (2012)].

1.3.2. Voluntary Disclosure Theory

The word voluntary disclosure applies to any extra information that a corporation includes in its annual report that goes beyond the compulsory reporting mandated by law, regulations or guidelines, and/or certain government and securities rulings. (Barako, Hancock, & Izan, 2006). Since information plays a key role in engaging with customers, it supports the producers contributing to the companies' long-term development and sustainability (Deegan, 2002). The theory of voluntary disclosure promotes the notion even in the absence of regulation; managers often tend to share additional information. Voluntary disclosures in annual reports have been used as a communication mechanism to encourage innovations and business strategies that position stakeholder's potential place on the companies (Abeysekera & Guthrie, 2005).

1.3.3. Legitimacy Theory

The theory of legitimacy is perhaps one of the most commonly known theories to justify the disclosure in the areas of social and environmental reporting of corporations. This theory is based on the idea that a social contract occurs between the organization and society. According to Suchman (1995), legitimacy theory is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate with some socially constructed system of norms, values, beliefs, and definitions. Therefore, legitimacy theorists argue that the behavior of the organization must be accepted by society (Suchman, 1995 p.574). Legitimacy theory implies that environmental disclosure is a function of a company's social and political pressure on environmental performance (Cho & Patten, 2007). It is also argued that sustainability reporting emerged due to the desire to demonstrate corporate compliance with social expectations (Owen, 2008 p.247). Legitimacy theorists argue that organizations have a "social contract" and they should try to "harmonize" their value systems and society. The information disclosed in the sustainability reports plays a strategic role as an important aspect for the organization is to receive direct support and approval from its stakeholders. In addition, this information helps the organization to legitimize its activities (Gray, Owen, & Adams, 1996 p.45)

1.3.4. Institutional Theory

According to institutional theory, external societal, political, and economic forces affect firms' policies and internal decisions as companies try to follow acceptable activities or legitimize their activities from certain stakeholders' points of view (Jennings & Zandbergen, 1995 p.1024). The traditional management approach views business managers' responsibility limited to shareholders of the firm; but the corporate sustainability approach, the scope of accountability has been extended. Sustainability reports are seen as an important tool in corporate sustainability which provides an assessment of management strategy, approach, promises, and the effects of business activities on social and environmental aspects. While some companies provide information on their sustainability activities on their websites, some companies prepare a stand-alone "sustainability report" and present this information to all their stakeholders

in these reports (Owen, 2008 p.248). Although the corporate sustainability approach creates additional costs related to research, education activities, and risk management in the short term, it increases the performance of the company with the use of new technologies and changes in the corporate culture in the long term. Furthermore, According to this theory, stakeholders of the organization are expected to bring criticism and suggestions to the activities of the organization. At this point, sustainability reports are accepted as an effective communication tool in bringing these criticisms and suggestions (Maas et al., 2016 p.7).

1.4. Benefits of Sustainability Reporting

Sustainability reporting is a type of value reporting where the company makes publicly available its economic, environmental, and social impacts. Sustainability reporting offers a fair and objective reflection of the firms both positive and negative sustainability results (Garg, 2015 p.39). The widespread focus on sustainable performance and its long-term value-added among businesses has enabled businesses to adopt new reporting and accountability structures by supporting their activities with all aspects of non-financial data beyond traditional financial statements. However, an increasing number of stakeholders have begun to request non-financial information related to governance, social, and environmental issues. Moreover, sustainability reporting can be seen as a business approach that creates long-term value for shareholders by embracing opportunities and managing risks from economic, environmental, and social developments. However, these approaches do not recognize the time aspect of the relations between the multiple aspects of sustainability (Lozano, 2011 p. 69).

Corporate sustainability executives build long-term shareholder profitability by integrating their approaches and strategy to utilize the market's sustainable goods and services while effectively reducing and minimizing environmental costs and threats (KPMG, 2008 p. 8). Sustainability reporting offers several advantages. Such advantages involve financial benefits such as reduced capital expenditures and equity market premiums; customer-related improvements such as greater market share, enhanced public image; and operational gains such as the development process and better resource

yields; organizational gains such as reduced risk and higher learning (Dembo, 2017). Sustainability reporting also helps companies ensuring compliance with laws, rules, regulations, and standards, and being used by all stakeholders, including investors, in their decision-making processes (Brockett & Rezaee, 2012 p.274).

Sustainability activities are divided into two activities which are low and high in sustainability. High-level sustainability practices focus on the creation of innovative products and processes while low-level sustainability practices address improvements to current products and processes. Sustainability activities focus especially on new product and process development to make a positive contribution to the financial performance of businesses. These businesses can receive higher amounts of financial aid from government agencies. In that context, developing a sustainable strategy and providing sustainability reporting is important for the financial performance of the firm (Kurapatskie and Darnall 2013 p.59).

Sustainability reporting is part of green marketing. Businesses can use green marketing as a strategic tool by supporting their sustainability activities. In green marketing, business managers convey their sustainability initiatives to their stakeholders through sustainability reports. Thus, green product and green distribution practices positively affect the product-market performance of enterprises (Leonidou, Katsikeas, & Morgan p.168).

Sustainability reporting is also important for businesses with strong economic growth. Managers of these companies use sustainability reporting while presenting their high earnings, operational strength, growth data, and activities on corporate social responsibility to the outside world. The tendencies of successful companies in sustainability reporting cause them to perceive that the companies reporting sustainability are more successful in their customers (Persie & Markie, 2013 p.35).

It is widely agreed that corporate sustainability is likely to affect company competitiveness and economic efficiency in today's diverse and complex market climate (Aggarwal, 2013 p.61). As a result of integrating efficiency in their key plans, the

companies gain plenty of financial benefits. These various organizational sustainability advantages are illustrated in Figure 1.2 below.

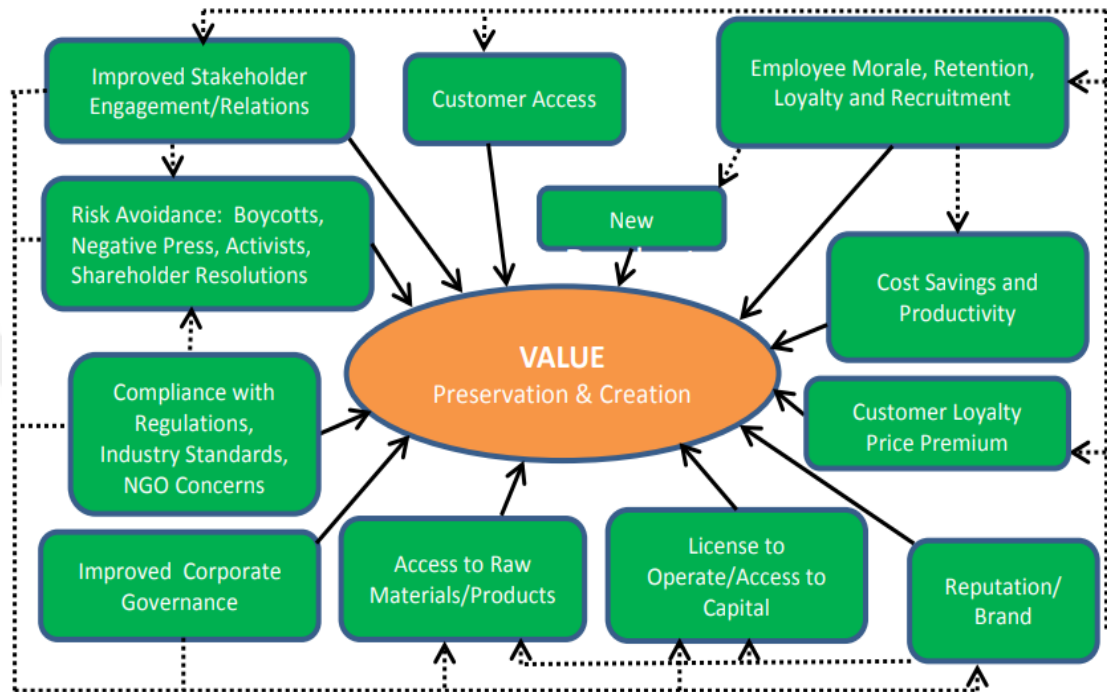


Figure 1.2. Advantages of SR [Source: adopted from Warren & Thomsen (2012)].

1.5. Components of Corporate Sustainability

The concept of sustainability involves economic, environmental, and social aspects. It can be expressed in different ways. One simple and straightforward model of presenting these components is by overlapping the circles (Barton, 2000). Sustainable development is framed in a manner that creates a balance between the three and reconciles conflict (Giddings et al., 2002 p.189). The layout typically portrays rings of similar size in a spherical interconnection as illustrated in Figure 1.3 below, but there is no explanation why this would be the case. One major limitation of this model is that it assumes that the economy, society, and environment are independent from each other. This perspective prevents sustainability issues to be addressed in an integrated way.

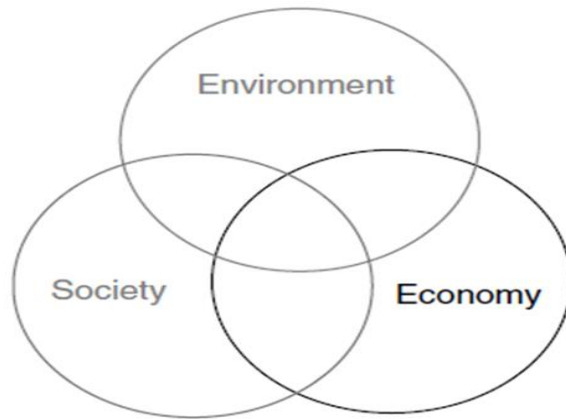


Figure 1.3. Three-ring sector view of SD [Source: Adapted from (Giddings et al., 2002 p.189)].

In contrast to the above figure, Giddings et al. (2002) proposed another demonstration where the economy located within society is a more realistic representation of the interaction between society, economy, and environment than the normal three circles, which in turn society is located within the environment as shown in Figure 1.4 below. They argue that the economy relies on the environment and society and society existed for many people and still do without the economy. Therefore, the integration of these different sectors and taking a comprehensive view and overcoming obstacles between sectors are a key problem for sustainable growth.

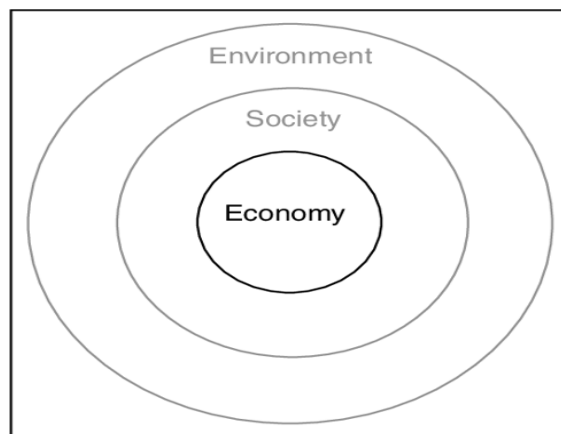


Figure 1.4. Nested view of SD [Source: Adapted from (Giddings et al., 2002 p.189)].

According to Brockett & Rezaee (2012). An organization's corporate sustainability and transparency structure are comprised of results in five overarching dimensions: economic, governance, social, ethical, and environmental as shown in Figure 1.5.

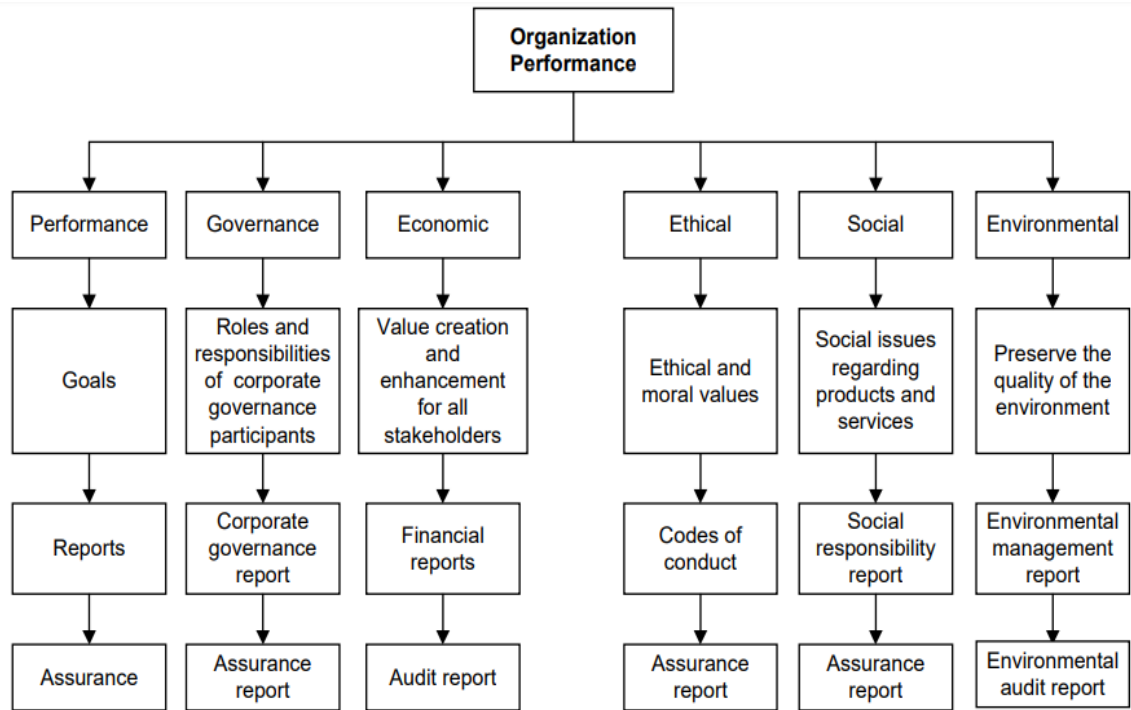


Figure 1.5. SP Framework [Source: Adapted from (Brockett & Rezaee, 2012 p.15)].

1.6. Sustainability Reporting Practices in Turkey

The sustainability reporting practices in Turkey is closely associated with the introduction of the concept of sustainability into the policy agenda of the country. According to the Turkish Confederation of Employer Associations [TİSK] (2016), Turkey was one of the first nations to join, at the 1992 Rio Declaration by the United Nations Convention on Biological Diversity (UNCBD). It has also signed the United Nations Convention to Combat Desertification's (UNCCD) Agenda 21 and Turkey were selected as the best application for its Local Agenda 21 plan in 2001, and presented at the Johannesburg Summit in 2002 as a "good example."

The BIST Sustainability Index was introduced on 4th November 2014. This introduction has played a significant role in promoting sustainability efforts in turkey

(Çalışkan, & Esen, 2019 p 70). The goal of the BIST Sustainability Index is to provide a benchmark for high-performance sustainability companies in Borsa as well as to improve awareness, knowledge, and sustainability practice in Turkey (BIST, 2019).

Sustainability reporting is not mandatory in Turkey, but the number of Turkish companies publishing sustainability reporting has been growing due to increasing awareness of sustainability concerns (Çalışkan, & Esen, 2019 p 70). Uyar et al. (2013) attributed the increase of reporting in Turkey to the following factors. First, the expansion that the Turkish economy has displayed over the recent years and becoming one of the world's fastest-growing economies. Second, fiscal policy reforms to integrate the Turkish economy into the global economy and significant structural changes driven by the accession process of Turkey into the European Union. Finally, Financial markets regulations and accounting harmonization processes that have been implemented throughout the country, for example, the harmonization efforts among Turkish Financial Reporting Standards (TFRS) and International Financial Reporting Standard (IFRS).

Several studies investigated the nature and extent of sustainability practices in Turkey. Başar and Başar (2006) studied the situation of social responsibility reporting in Turkey. They found that social responsibility reporting is not much above the starting level. Most of the companies' human resources departments make statements in the areas falling within the scope of health and safety. They also found the least disclosed section is energy. In terms of sectors, it is determined that the firms in the manufacturing sector make the most explanation on the issues of health, safety, and human resources, and the firms in the service sector make the most explanation about the human resources. They also tested whether there are significant statistical differences among the sectors using the Chi-Square test. They determined that there was a difference between the sectors only in the indicators related to the environment, and there were no statistical differences among the sectors in terms of other criteria.

Another study by Uyar and Kılıç (2012) investigated the value relevance of voluntary disclosures of Turkish companies listed on the former Istanbul Stock Exchange using sample comprises of 129 manufacturing firms for the year 2010. They concluded that voluntary disclosure affects company value. This implies the more

information companies willingly share, the greater the interest of the investors. Another study examined the factors influencing the degree of voluntary disclosure of information by Turkish manufacturing firms listed in the Borsa Istanbul (BIST) using content analysis of annual reports. Results indicated that the degree of voluntary disclosure can be explained by company size, audit firm size, the proportion of independent board members, corporate governance, and leverage (Uyar et al., 2013).

By using content analysis based on GRI version 3, Aktaş et al. (2013) studied the sustainability reports of 9 non-financial companies. The findings revealed that sustainability reports of selected companies simply follow the minimum criteria of the GRI guidelines depending on their degree of application. Few companies disclose more information than others, but in general, companies will not willingly share several indicators. Similarly, Yaz and Utku (2015) evaluated the sustainability reporting practices in Turkey from 2005 to 2015. Although sustainability reporting is gradually increasing, the number of firms disclosed stand-alone sustainability reports were low. These results are consistent with the estimation made by TISK of non-financial reports published under various titles throughout Turkey as shown in the following figure.

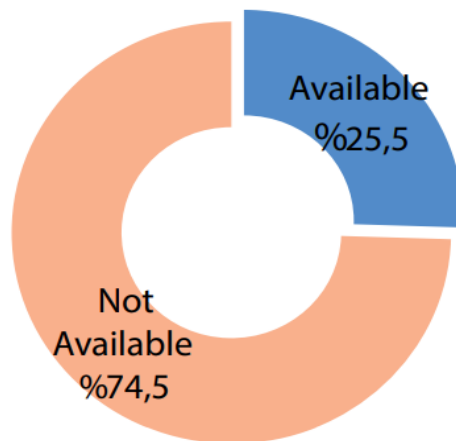


Figure 1.6. The rate of SR [Source: Adapted from (TISK, 2016 p.26)].

Based on the above chart, the non-financial reporting rate in Turkey is 25.5 percent. 38 percent of the companies of these reports issued with the activity reports. Almost 43 percent of them issue sustainability reports. Approximately 65 percent of publishing organizations released their first report in 2009 and later (TISK, 2016 p.16).

1.7. Guiding Organizations of Sustainability Reporting Initiatives

1.7.1. Global Reporting Initiative

Global Reporting Initiative (GRI), one of the most important organizations for global sustainability reporting, was founded in 1997 by the Coalition for Environmentally Responsible Economies (CERES) along with Tellus Institute and the United Nations Environment Program (UNEP). The motivating factor behind the GRI was frustration from the inconsistencies arising from the number of coexisting guidelines (White, 1999 p.18). More specifically, different reporting standards and guidelines have been combined to develop a generic sustainability reporting framework. This partnership of CERES and UNEP paved the way for GRI to become a global regulator for sustainability reporting (Brown et al., 2009 p.184).

The GRI Guidelines provide a framework for reporting on the economic, environmental, and social performance of an organization. According to GRI (2002), the guidelines: (1) present reporting principles and specific content to guide the preparation of sustainability reports at the organizational level; (2) enable organizations in communicating their economic, environmental, and social performance in a balanced and reasonable way; (3) foster comparability of sustainability reports; (4) enable benchmarking and sustainability performance evaluation regarding performance standards and voluntary initiatives; and (5) serve as an instrument for facilitating engagement with stakeholders.

Furthermore, GRI has established 11 reporting principles that are important for providing a balanced and objective report on the economic, environmental, and social performance of a company. These principles also allow comparisons of companies over time and among them and address concerns of stakeholders with credibility. The figure below illustrates these principles.

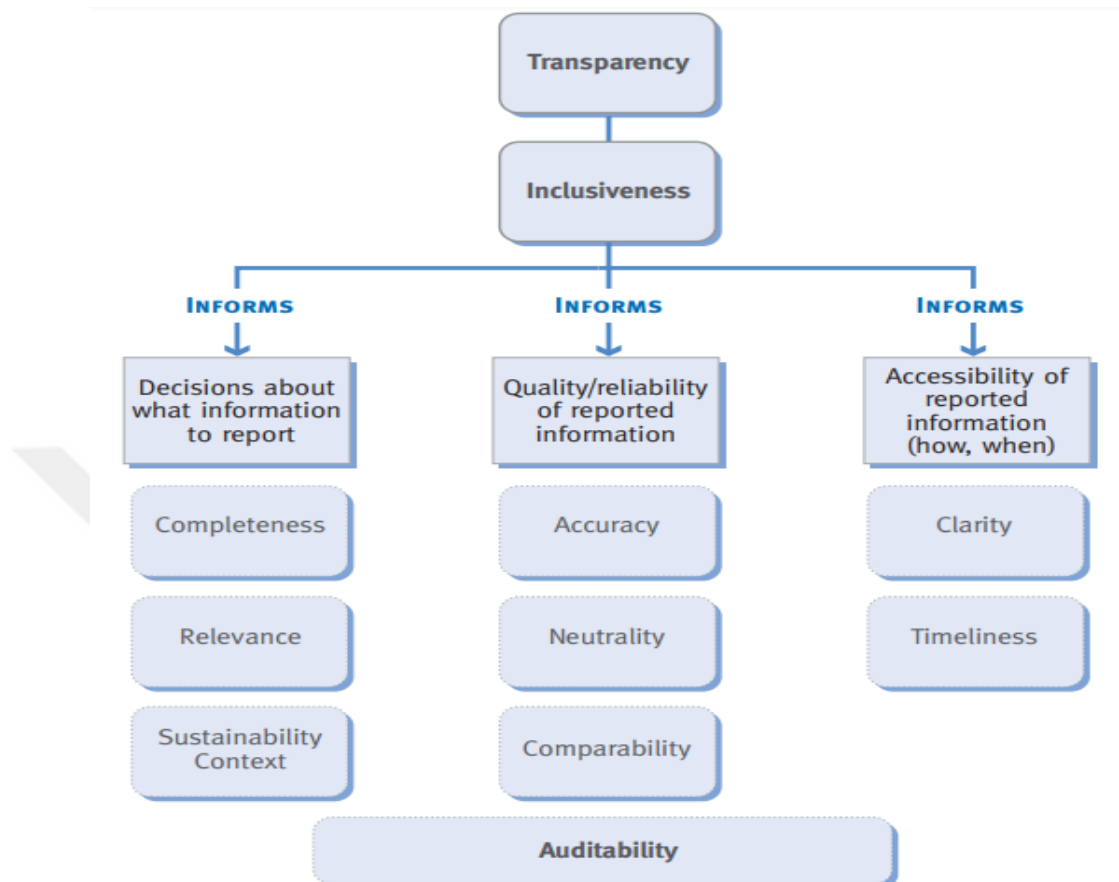


Figure 1.6. GRI Reporting Principles [Source: Adapted from (GRI, 20002 p.24)].

1.7.2. UN Global Compact

United Nations Global Compact (UNGC) also played significant role development of appropriate guidance and global reporting initiatives. It was launched in 1999 where world leaders and businesses gathered at the World Economic Summit under the framework of "Millennium Development Goals" to promote a universal environment and social values. UN Global Compact is comprised of 10 principles that businesses are expected to accept and abide by these values. Principles of the UN Global Compact have been extracted from values that have been widely agreed on human rights, labor rights, the climate, and the combat against corruption. The 10 principles are presented in the following table.

Table 1.1. 10 Principles of the UN Global Compact

Area	Principle
Human Rights	Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and
	Principle 2: make sure that they are not complicit in human rights abuses.
Labor	Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
	Principle 4: the elimination of all forms of forced and compulsory labor;
	Principle 5: the effective abolition of child labor; and
	Principle 6: the elimination of discrimination in respect of employment and occupation.
Environment	Principle 7: Businesses should support a precautionary approach to environmental challenges;
	Principle 8: undertake initiatives to promote greater environmental responsibility; and
	Principle 9: encourage the development and diffusion of environmentally friendly technologies.
Anti-Corruption	Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery

Source: UN Global Compact Website

1.7.3. International Integrated Reporting Council

The International Integrated Reporting Council (IIRC) was established in 2010 to promote a generally accepted integrated reporting framework. The IIRC is a global coalition of regulators, investors, companies, accounting professionals, academics, and non-governmental organizations. The IIRC proposed a framework by which the value creation of an entity would be published over time in a concise report, called an integrated report, which conveys the strategy, governance, performance, and expectations of the company in the context of the external environment to demonstrate value creation in the short, medium and long term (IIRC, 2013 p.7). The framework identifies information to be disclosed in the integrated report for use in appraising the value-creating ability of an entity; it does not set benchmarks for issues like the quality of the company’s strategy or the level of its performance.

1.8. Sustainability Reporting and Company Profitability

Previous studies that attempt to relate sustainability reporting to financial performance over time have reported conflicting results. This section presents the empirical results of prior studies based on the direction of the relationship between sustainability reporting and company profitability.

1.8.1. Empirical Studies Reported Positive Relationship

Ngwakwe (2009) examined the possible relationship between sustainable business practice and firm performance using a sample of 60 manufacturing companies in Nigeria from the period of 1997 to 2006. Empirical results showed that the sustainability practices of the responsible firms were strongly associated with firm performance. He also found that sustainable practices are inversely related to fines and penalties. The study suggested that sustainability impacts organizational performance in the Nigerian context, and sustainability may be a potential mechanism for organizational dispute settlement, as demonstrated by the lowering of sanctions, punishments, and rewards.

A prior study by Guidry and Patten (2010) tried to determine how market participants see the corporate choice of starting to issue a separate sustainability report. They also attempted to examine how variations in market reactions are related to the sustainability report's quality using the standard market model method. In a cross-sectional analysis, the results showed that firms with the highest quality reports received significantly more positive market returns than those lower reporting businesses. Therefore, Companies expecting value from their sustainability reports should assess carefully the quality of their presentations.

Another study by Schadewitz and Niskala (2010) on a sample of all listed Finnish firms that have adopted GRI during 2002-2005 using the conventional Ohlson valuation model. They concluded that Sustainability reports based on GRI are a significant predictive factor for a firm's market value. It reduces the asymmetry of information between managers and other stakeholders.

Ameer and Othman (2011) examined the relationship between sustainability practices and corporate performance of the top 100 sustainable global companies in 2008 which have been selected from the developed countries and emerging markets. They developed 4 Sustainability Indices that includes items from the environment, Diversity, community, and ethical standards. Earnings before tax, Sales growth, cash flows from operating activities, and return on assets have been used as performance measurement variables. Results showed that companies with higher sustainability disclosure have significantly greater mean increases in sales, net profits, ROA, and cash flows from operating activities over the 2006-2010 study period. The research suggested a bidirectional relationship between sustainability practice and financial performance.

Robinson et al. (2011) studied the association between sustainability, reputation, and firm value of some selected North American companies which are included or removed from the Dow Jones Sustainability World Index (DJSI) during the period under consideration (2003-2007). Their analysis showed that the change in investor awareness and the sustained impact associated with being included on the DJSI does not happen when the change is announced but happens slowly during the first few months after the inclusion. The value increase is due to the reputational effect rather than being part of a major stock index.

Using a mixed research design, Bayoud et al. (2012) explored the relationship between CSR and company reputation. The quantitative data used to calculate corporate social responsibility disclosure level is made up of 110 annual reports of 40 Libyan firms and 149 questionnaires obtained from managers and workers to assess the reputation of the company. Thirty-one financial managers and information managers expressed their perspective on the relationship between CSR disclosure and company reputation. The findings showed that there is a strong correlation between a high degree of CSR reporting and company reputation for stakeholder categories. The findings also revealed that most businesses (60 percent) disclose all four CSR disclosure sections, while few businesses (5 percent) don't disclose CSR information in their annual reports.

Similarly, de Klerk and de Villiers also examined whether CSR disclosure is correlated to firm value using the modified Ohlson model. The data was extracted from

KPMG's corporate responsibility reporting of the top 100 South African firms and the McGregor BFA Financial Database. The results showed that the share prices of firms with higher levels of corporate responsibility reporting is likely to be higher (de Klerk & de Villiers, 2012).

Eccles et al. (2012) examined the impact corporate culture of sustainability on various aspects of corporate behavior and company performance tracking the performance of 180 US firms from 1993 to 2010. Sustainability data were collected from The Thomson Reuters Asset4 Database, Bloomberg (Environmental, Social, and Governance) ESG scores, and Sustainable Asset Management (SAM) Corporate Sustainability Assessment. The results indicated that high Sustainability index firms outperformed their counterparts substantially both in terms of share price and financial performance metrics in the long term.

In Singapore, Khaveh et al. (2012) examined to find the relationship between sustainability reporting level and revenue level, the dividend paid, and share price among Singaporean companies. The researchers selected fifteen companies from each sector and analyzed three consecutive fiscal years from 2008 to 2010. The average share price is calculated based on the minimum and maximum levels. The sustainability index is determined based on the amount of disclosed indicators and the degree of disclosure considering both quantitative and qualitative. The results showed a positive correlation between the sustainability index and sales. The results also revealed a significant positive connection between sustainability reporting index and the share price.

Burhan and Rahmanti (2012) investigated the association between sustainability reporting and firm performance of 32 companies listed on the Indonesian stock exchange during 2006-2009 Sustainability Reporting Standards from the Global Reporting Initiative (GRI) are used as the basis for the index score calculations. Return on Asset (ROA) was the dependent variable as an indicator of economic performance. The result indicated that reporting on sustainability, only in terms of social performance indicators, affects company performance.

With comprehensive CSR data for firms in the Russell 1000 beginning in 2002 that covers 5928 firm years, Lys et al. (2015) assumed that causality is directed from CSR expenditure to firm performance, they ignore the notion that CSR expenditure may be undertaken by firms expecting strong future performance. They developed CSR scores from Thomson Reuters ASSET4 database and dummy variables-whether the company publishes a separate CSR report, or the company utilizes the GRI structure and or the report has been verified. They measured the performance by using future changes in return on assets, future changes in operating cash flow scaled by total assets, and size-adjusted stock returns for the 12 months beginning on the first day of the fiscal year. The results showed the positive association between CSR expenditure and profitability is more likely to be due to the signaling value of CSR expenditure than to the positive return on those investments.

Using a sample of 95 publicly traded American firms from different sectors collected during 2015-2016, Whetman (2017) examined how reporting on corporate sustainability affects corporate financial performance. He found that sustainability reporting had a significant effect positive on a company's ROE, ROA, and profit margin in the following year. These findings indicate that sustainability reporting will be a beneficial use of company resources within this subset of businesses. In addition, corporate sustainability reporting is an important alternative for monitoring institutional investors.

Nnaemeka et al. (2017) assessed the relationship between sustainability accounting and financial performance of listed Nigerian manufacturing companies in the brewing industry. Ordinary least squares regression methods were used to analyze the data. The study showed that sustainability reporting has a positive significant impact on the financial performance of the companies studied. The recommended that companies in Nigeria should invest a sufficient amount of their profits in sustainability activities and the professional accounting regulatory bodies should formulate clear accounting models to guide the reporting of businesses' sustainability activities.

Bodhanwala and Bodhanwala (2018) investigated the effect of corporate sustainability on the performance of 58 Indian companies in the Thomson Reuters Asset

4 ESG database. To analyze the impact of sustainability on firm profitability, an empirical multivariate panel data model was used. In addition, the study attempted to understand whether firms with a high ranking on sustainability disclosure perform better than low-level firms using parametric t-tests. The study showed a significant positive relationship between sustainability and firm performance indicators (ROI, ROA, ROE, and profit per share).

1.8.2. Empirical Studies Reported Negative Relationship

Lopez et al. (2007) divided 110 European firms of similar size and capital structure into two groups to investigate how corporate social responsibility practices influence company performance. The first group comprises of 55 European companies that have been included in the Dow Jones Sustainability Index (DJSI) since the period this index was created. The second group also comprises of 55 European companies who have belonged to the Dow Jones Global Index (DJGI) for the same time but are not listed in the DJSI. They employed a series of variables commonly used to measure a firm's performance such as profit before tax, growth in revenue, return on earnings, return on assets, and cost of capital. This study reported a negative effect of sustainable practices on performance in the short term after controlling variables such as the size, industry, and risk. Control factors also found not significant and there was no significant difference between the two groups' cost of capital.

By developing 21 TBL disclosures related to areas of economic, social, and environmental. Ho and Taylor (2007) examined the triple-bottom-line reporting of 50 of the leading corporations in the US and Japan. The regression analysis has been used to empirically test the factors that contribute to the triple-bottom-line reporting. They found high triple-bottom-line disclosures including economic, social, and environmental categories, are associated with lower profitability and liquidity. They also found big companies and manufacturing sector companies tend to score high triple-bottom-line disclosures. Japanese companies also score high triple-bottom-line scores than American companies, especially environmental-related disclosures. They associated these differences in the regulatory environment, culture, and other institutional factors.

Using event study methodology, Detre and Gunderson (2011) assessed whether the share value of publicly traded agribusiness in the US is determined by corporate social responsibility practices. Using the Dow Jones Sustainability Index and share price of these companies from 1999 to 2008, they concluded that share negatively responded on the day the companies the company joined the sustainability index. This result probably indicates a short-term perspective of investors, where they were expecting a short-term fall in the agribusiness firm's valuation due to the higher costs associated with sustainability reporting practices.

1.8.3. Empirical Studies Reported Mixed Relationship

Ziegler et al. (2002) investigated the impact of sustainability performance on shareholder value using an average monthly stock return from 1996 to 2001. Environmental and social data of 300 European corporations quoted on the stock exchange were collected and scored to evaluate the Sustainability performance. The results showed high environmental performance has a significant positive effect on the average monthly stock returns. Conversely, the results showed high social performance has a negative effect on the average monthly stock returns.

In the UK, Brammer et al. (2006) investigated both the short-run and long-run relationships between the social performance of firms and market returns. Comparing corporate social responsibility scores and the share prices of The Financial Times Stock Exchange 100 Index. Performing cross-sectional regression of the stock return, the result indicated that companies with higher social performance scores appeared to produce lower returns, whereas corporations with the lowest possible social performance scores outperformed the market considerably. Analyzing the social responsibility components separately, they found that the indicators of the environment and employment are negatively associated with returns while the community-related indicators have a weak positive correlation with the stock prices.

Bassen et al. (2006) studied the effect of corporate responsibility on the cost of capital. They used existing assessment questionnaires from 11 respected rating agencies and the Global Reporting Initiative framework together to develop corporate social

responsibility disclosure. Both accounting and market-based measures are used as dependent variables. Annual data from 2000 to 2005 have been collected to analyze the nature of the relationship. Results indicated that there was no obvious correlation between corporate social responsibility and financial performance, but there was an indirect correlation between corporate social responsibility and financial performance throughout the company risk. This study also found that firms with strong results in corporate social responsibility have lower risk exposure. Assuming risk is a major cost factor, companies with strong corporate social responsibility results can reduce their capital cost.

Jones et al. (2007) explored the relationship between sustainability reporting engagement and company performance. The sample studied was limited to the top 100 firms listed on the Australian Securities Exchange. Monthly stock returns data of 2003/2004 were compiled from Aspect Huntley Pty Ltd and sustainability reports of sampled companies during 2004 were obtained company website. The results indicated a negative relationship between stock returns and sustainability reporting. That means a high level of sustainability disclosure is associated with low returns. In contrast, further analysis indicates the sustainability reporting index positively correlated with some performance measures (operating cash flow performance, retained earnings to total assets, asset backing per share, interest cover, capital expenditure, and working capital levels).

In Sweden, Semenova et al. (2009) investigated the impact of social and environmental performance on company performance of 300 companies listed on Sweden Stock Market (OMX Stockholm). They collected annual environmental, social, and governance data from 2005 to 2008 of 300 companies from the GES Investment Services Risk Rating database and financial performance variables obtained from the Thomson Datastream. The results suggested firms with higher social and environmental performance have higher market value using Ohlson model. Analysis of the sub aggregated levels indicated employee relations have a significant negative relationship with market value; while environment, community, and suppliers dimensions have a significant positive relationship with equity market value.

Using panel data from 1992 to 2008 of publically traded US firms, Manescu (2011) studied how stock returns relate to environmental, social, and governance factors. He noticed that only community relationships have a significant positive impact on stock returns. He stated that this is due to mispricing which means the rewards of maintaining strong ties with the community outweighed their costs, but this was not fully reflected in stock prices. The results also suggested the negative impact of human rights and product safety on stock return; while employee relations had a negative impact on stock returns. The negative effect of human rights and product safety indicates that their benefits were lower than their costs, but again this was not properly reflected in the stock prices.

Using a comprehensive disclosure index of 125 companies from different 24 countries, Faisal et al. (2012) investigated sustainability reporting practices at a global level. The sustainability practices of the companies were measured based on GRI and were obtained from companies' websites. Firm size, return on assets, leverage, and board independence data were extracted from the annual reports of the companies. The results indicated an average sustainability disclosure score of 69% has been achieved by the sampled companies. The results also indicated high profile companies achieved high sustainability score compared to low profile companies. Other variables of firm size, return on assets, leverage, and board independence were statistically significant for the sustainability disclosure index.

Mohd Taib and Ameer (2012) assess the relationship between corporate sustainability practices and financial performance, utilizing a cross-sectional sample of companies listed in the UK and US. They extensively analyzed the firms' sustainability reports prepared based on GRI sustainability reporting standards and evaluated how these approached dimensions related to society, diversity, environmental performance, and ethical principles from 2005-2009. The results showed that the disclosures of UK firms are greater than those of US firms. Results also indicated that disclosures related to community, ethics, and environment have no impact on performance, but those related to diversity have a significant positive effect on financial performance.

Aggarwal (2013) attempted is to find out the impact of sustainability on profitability. Secondary data of annual reports of companies listed in the National Stock

Exchange (NSE) in India have been collected. Multiple regression, correlation, f-test, and t-tests have been carried out to analyze the data collected. The results of this suggest that corporate sustainability in aggregate level insignificantly relates to financial performance. This study also reported return on assets, profit before tax, and growth in total assets are positively correlated to the sustainability, while return on equity and return on capital employed negatively affects sustainability.

In Indonesia, Kusuma and Koesrindartoto (2014) studied how sustainability practices of 58 companies listed in Indonesia Stock Exchange impact financial performance. Sustainability reports of these listed companies from 2010 to 2012 have analyzed. Using only sustainability scores, they have predicted several financial metrics namely, return on invested capital, return on assets, return on equity, operating profit, net operating profit less adjusted tax. The results indicated the majority of Indonesian have good sustainability disclosure. Similarly, the results indicated that there are variations in profitability ratios, except return on assets, between firms preparing their sustainability reports and those that didn't prepare. The results also didn't state the existence of a significant impact of sustainability practices on financial performance in the context of Indonesia.

Similarly, Garg (2016) tried to examine the association between sustainability reporting and the financial performance of Indian companies. This research includes all firms during fiscal years 2008-2012 that are listed in the Bombay Stock Exchange BSE GREENEX index of the Bombay Stock Exchange. The company's sustainability reporting score was calculated using GRI criteria which consists of a total of 121 metrics. Return on assets and Tobin's q was used as firm performance measures. The findings of the analysis shown that company sustainability reporting practices have improved during the five-year sample span. The findings also have shown that sustainability reporting activities have a negative impact on firm performance in the short term, while positive results were found in the long run.

Another study carried out by Uwuigbe et al. (2018) to investigate the bi-directional relationship between sustainability reporting and firm performance in Nigeria's quoted Deposit Money Banks (DMBs). The annual report and the selected

banks' stand-alone sustainability reports were analyzed and coded using content analysis to obtain the sustainability disclosure index, taking into account the period 2014-2016. The technique of panel regression was used to analyze the data. The results indicated that the relationship between sustainability reporting and firm performance in Nigeria is bi-directional. These findings were consistent with the legitimacy theory's proposal. The results indicated that sample firms' market price per share had a significant negative impact on sustainability reporting. Moreover, the results also revealed that sustainability reporting had a significant positive impact on the sampled firms' revenue generation.

1.8.4. Empirical Studies Reported No Significant Relationship

By adopting the Fama and French model, Van de Velde et al. (2005) examined the relationship between sustainability and financial performance of some selected eurozone companies. Vigeo sustainability scores to measure the sustainability of a company and market capitalization and book values data obtained from DataStream were used to measure stock prices. The findings of this study suggested that high sustainability-rated portfolios have outperformed than low-rated portfolios on a style-adjusted basis but not significant enough probably due to the limited short period.

Using the FTSE4Good Index as a measure of corporate social responsibility, Curran and Moran (2007) examined the impact of corporate social responsibility on firm value. Analyzing the share prices of The Financial Times Stock Exchange 50 Index in the UK, they found that the stock return reacted positively with the positive announcement and stock returns also reacted negatively with a negative announcement. But the results were statistically insignificant. They concluded that companies neither rewarded nor penalized for being part of the FTSE4Good Index.

Moneva and Ortas (2008) also explored the impact of sustainability reporting on share values of 142 European listed firms from different sectors and countries. Financial returns from 2004 to 2005 and sustainability data from 2003 to 2005 were obtained. The sample has been balanced to ensure the sample represents the same amount of firms included and not included in the Dow Jones Sustainability Index (DJSI). They found that

there is no significant relationship (positive or negative) between sustainability reporting and share values of sampled companies. The equality test of variances demonstrates that there are no variations between firms participating in the DJSI and those not included in terms of returns. Similarly, the results indicated that there are no variations between firms preparing their sustainability reports according to GRI and those that didn't prepare based on GRI guidelines. They finally concluded that the stock market is less sensitive to the sustainability of European companies.

In South Africa, Buys et al. (2011) investigated whether the financial performance of companies that voluntarily submitted sustainability reports is higher than those that don't provide sustainability reports. They collected annual performance data from 2002 to 2009 of the two groups of companies from the McGregor BFA database. The results suggested firms that voluntarily submitted sustainability reports based GRI have greater economic performance (economic value added and market value-added, return on assets) but not statistically significant than those who do not report according to GRI guidelines.

By analyzing the sustainability of the largest 600 North American companies using Dow Jones Sustainability North America Index data from 57 sectors, Adams et al. (2012) investigated the impact of sustainability on financial performance. They found that there is no significant difference in stock prices between companies and sustainability has no statistically significant effect on financial performance. But they believe that sustainability practices can be used to create long-term brand loyalty and reputations which can positively be associated with the maximization of long-term shareholder value.

Humphrey et al. (2012) examined the impact of economic, social, and governance aspects on UK firms' financial performance. Sustainability Asset Management Group GmbH (SAM)' ESG rating data from 2002 to 2007 were used. Stock returns, size, and industry data were obtained from Datastream. The results indicated that there is no difference in financial performance between those scores high or low in economic, social, and governance aspects. The results also indicated those

scored high in social indicators underperformed than others, although this was inconsistent across sectors.

Cross-country and cross-industry analysis study by Venanzi (2013) attempts to investigate the impact of stakeholder rating on firm performance. Sample data were collected from 250 listed European industrial companies from 10 European countries during the period 2001-2003. They found that the company's social responsibility practices towards stakeholders are selective. Firms tend to focus on key stakeholders that have more business influence and have a more valuable impact on the financial performance of the firm.

In this research, Asuquo et al. (2018) looked at the effect of sustainability reporting on the corporate performance of selected quoted brewery firms in Nigeria. Five years span of data from 2012-2016 were collected from the three brewing firms' annual reports to assess the correlation between sustainability reporting and corporate performance. The results indicated that the disclosure from economic performance, environment, and social performance indicators has an insignificant impact return on Assets.

1.8.5. Conceptual Framework of the Study

Based on the results from the empirical studies that investigated the relationship between sustainability reporting and company profitability, this study adopts the following conceptual framework to operationalize how sustainability reporting variables used in this study influence profitability variables.

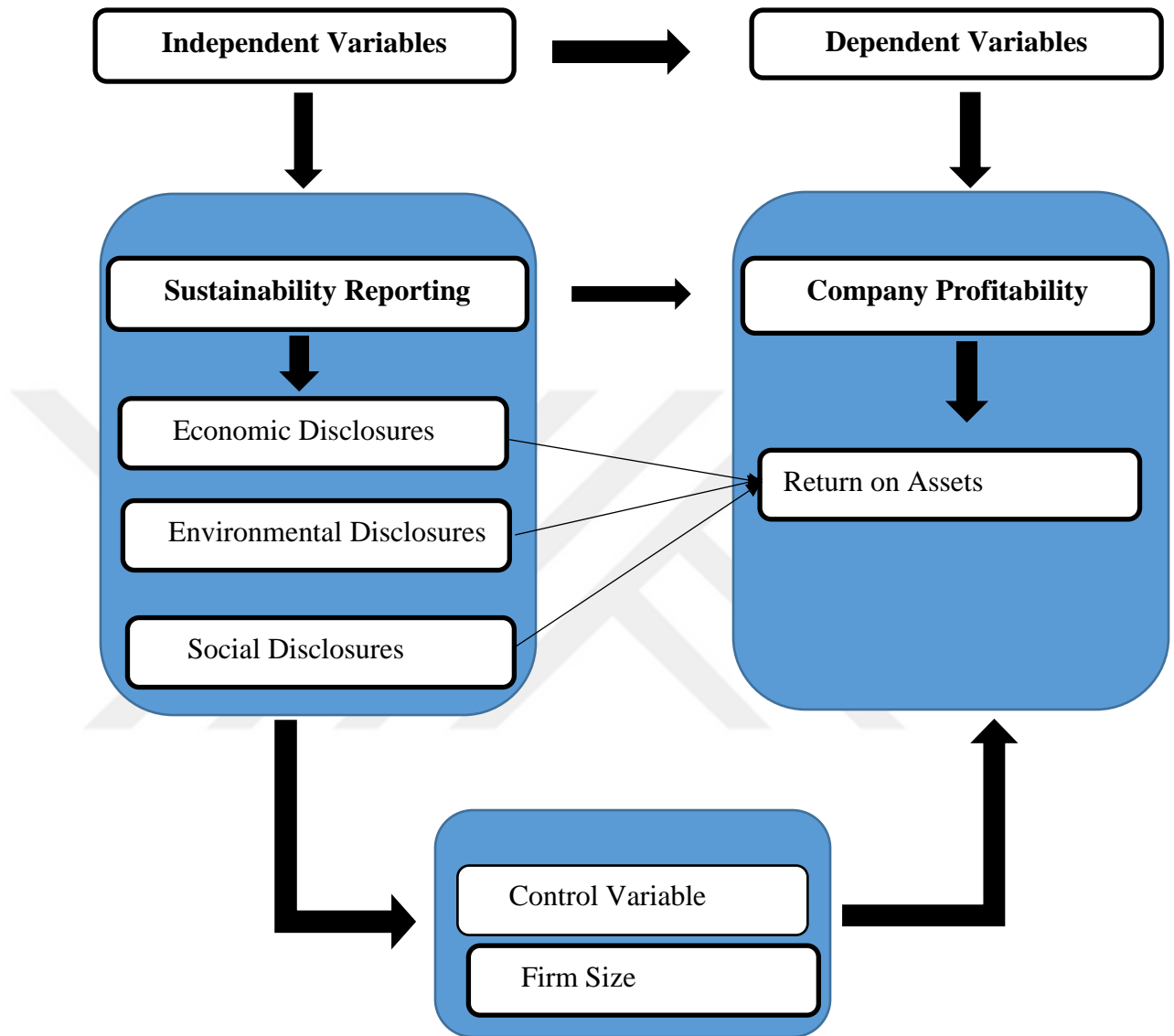


Figure 1.7. Conceptual Framework of the Study [Source: (Researcher, 2020)].

1.8.6. Hypothesis Development

Based on the results from the previous studies, the main hypothesis that this study proposes is good sustainability practices affect the profitability of the company. Previous studies reported conflicting results regarding the nature of the relationship between sustainability reporting and the profitability of the company. Majority of them reported a positive relationship between sustainability reporting and profitability of the company (Ngwakwe, 2009; Guidry and Patten, 2010; Schadewitz and Niskala, 2010;

Robinson et al., 2011; Bayoud et al., 2012; Khaveh et al., 2012; Burhan and Rahmanti, 2012; Lys et al., 2015; Whetman, 2017; Bodhanwala and Bodhanwala, 2018) some other studies reported a negative relationship between sustainability reporting and profitability of the company (Lopez et al., 2007; Ho and Taylor, 2007; Detre and Gunderson , 2011) while other found no relationship sustainability reporting and company profitability (Van de Velde et al., 2005; Moneva & Ortas, 2008; Humphrey et al., 2012). As a result, this study attempts to test the following alternate hypothesis developed based on the conceptual framework of the study (Figure 1.7):

H1: There is a significant relationship between sustainability reporting disclosures and return on assets while the firm size is controlled.

H2: There is a significant relationship between economic, environmental, and social disclosures and return on assets.

H3: There is a significant relationship between economic, environmental, and social disclosures and return on assets when firm size is controlled.

H4: There is a difference in profitability between firms preparing sustainability reports and those that didn't prepare sustainability reports.

CHAPTER 2

2. DATA AND METHODOLOGY

2.1. General Research Design

This section focuses on the research techniques adopted to achieve the research objectives of this study. The main purpose of the study was the impact of sustainability reporting on profitability and the extent of Turkish manufacturing companies listed in Borsa Istanbul practice sustainability reporting. In order to achieve these stated objectives, both qualitative and quantitative research designs have been used. Qualitative analysis was used in the content analysis technique. An index was constructed using the qualitative secondary information from the sustainability reports of the companies. Using the developed index, these qualitative data was transformed into the quantitative figures. For statistical analysis purposes, quantitative techniques were employed. To achieve the research objectives of this study, this study follows a deductive method based on the instrumental stakeholder theory.

2.2. Research Population and Sample Size

The current study is based on secondary data gathered from the annual reports and sustainability reports published on the website of the firm. The target population in this research includes all manufacturing firms listed in Borsa Istanbul as of December 2019. A total of 178 manufacturing companies listed in Borsa Istanbul at that date. The following criteria were used to identify companies that are suitable to be included in this study:

1. Companies must publish a stand-alone sustainability report on its website.
2. The report should comply with the GRI sustainability reporting framework.
3. The company must publish its sustainability report for the year under consideration. In this case, sustainability reports of 2018. The Sustainability Report of the year 2019 wasn't available when the coding process started since most companies publish their sustainability reports at the end of the first or second quarter of the year following the reporting year.

After removal, a total of 25 companies were eligible to be included in this study as shown in Table 2.1 with their respective industry. This implies 153 companies didn't disclose stand-alone sustainability reports based on the GRI framework. For further analysis, 25 companies were selected randomly to examine the variations in profitability between firms preparing SR and those that didn't prepare sustainability reports.

Table 2.1. Distribution of companies according to Industrial Sectors

	PDP Based on industry Sectors*	Total Number of Firms	Selected Number of Firms
1	Industrial Goods & Services	33	5
2	Chemicals, Petroleum Rubber and Plastic	31	5
3	Food, Beverage, and Tobacco	28	7
4	Non-Metallic Mineral Products	26	3
5	Textile, Wearing Apparel, and Leather	23	2
6	Basic Metal	18	2
7	Paper, Printing, and Publishing	13	1
8	Wood Products Including Furniture	5	0
9	Other Manufacturing Industry	1	0
		178	25

*This industry classification of the manufacturing sector was adopted from Public Disclosure Platform (PDP) except the first industry (Industrial Goods & Services) which is a combination of Fabricated Metal Products, Machinery, Electrical Equipment, and Transportation Vehicles.

2.3. Data Source and Collection

The study uses secondary data gathered from the audited financial statements and stand-alone sustainability reports published on the website of the selected companies and the Public Disclosure Platform (PDP) database. This study is concerned with the information disclosed in these reports. The law states the requirement to publish this information, and compliance with such professional and legal requirements depend on the government and other regulatory authorities. The data generated for the sustainability reporting aspects (economic and social environment) used in this study were measured using the sustainability reporting index built based on topic-specific GRI standards. The data on profitability used in this study have been measured using ROA.

2.4. Measurement of Variables

2.4.1. Dependent Variables

The dependent variable of the study is the profitability of the company measured by return on assets (ROA). This accounting-based measure is one of the most important measures of company profitability. Following the previous studies (Ameer & Othman, 2011; Burhan & Rahmanti, 2012; Kusuma and Koesrindartoto, 2014), this study uses this accounting ratio. Market measures provide the perception of a differentiating effect that the market can have, such as the implementation of CSR activities, but certain macroeconomic variables, such as speculation, can also have an impact. Accounting-based metrics are deemed less distracting because they show what is really going on in the business. Further, the assumption that CSR activities affect corporate performance would be impossible to explain if there were no differences in the most important profitability measures (Lopez et al., 2007 p.290). Theoretically, sustainability is likely to affect company competitiveness and performance in today's complex environment (Aggarwal, 2013 p.61). As a result of integrating efficiency in their key plans, the companies gain plenty of financial benefits. Executives can build long-term shareholder profitability by integrating their approaches and strategies to utilize the market's sustainable goods and services while effectively minimizing environmental costs and threats (KPMG, 2008 p. 8).

2.4.2. Independent Variables

The independent variable of the study is the sustainability reporting level of the company measured by the Sustainability Reporting Index (SRI). According to GRI (2006), a sustainability report is a report that a company or organization discloses impacts caused by its daily activities on the economic, environmental, and social. In this study, the sustainability reporting index of selected companies was assessed using GRI criteria consisting of a total of 77 topic-specific disclosures. These disclosures consist of 13 economic disclosures, 30 environmental-related disclosures, and 34 social aspects related to disclosures as shown in Table 2.2.

Table 2.2. Aspects of the GRI Topic Specific Standards

Topic Specific Standards		Number of Disclosures
GRI 101	Economic Performance	4
GRI 102	Market Presence	2
GRI 103	Indirect Economic Impacts	2
GRI 104	Procurement Practices	1
GRI 105	Anti-corruption	3
GRI 106	Anti-competitive Behavior	1
	Economic Disclosures	13
GRI 201	Materials	3
GRI 202	Energy	5
GRI 203	Water	3
GRI 204	Biodiversity	4
GRI 205	Emissions	7
GRI 206	Effluents and Waste	5
GRI 207	Environmental Compliance	1
GRI 208	Supplier Environmental Assessment	2
	Environmental Disclosures	30
GRI 301	Employment	3
GRI 302	Labor/Management Relations	1
GRI 303	Occupational Health and Safety	4
GRI 304	Training and Education	3
GRI 305	Diversity and Equal Opportunity	2
GRI 306	Non-discrimination	1
GRI 307	Freedom of Association and Collective Bargaining	1
GRI 308	Child Labor	1
GRI 309	Forced /Compulsory Labor	1
GRI 310	Security Practices	1
GRI 311	Rights of Indigenous Peoples	1
GRI 312	Human Rights Assessment	3
GRI 313	Local Communities	2
GRI 314	Supplier Social Assessment	2
GRI 315	Public Policy	1
GRI 316	Customer Health and Safety	2
GRI 317	Marketing and Labeling	3
GRI 318	Customer Privacy	1
GRI 319	Socioeconomic Compliance	1
	Social Disclosures	34
	Total Disclosure	77

Many studies have attempted to evaluate business sustainability reporting by utilizing various methodologies, such as content analysis (Ameer & Othman, 2012; Burhan & Rahmanti, 2012; Garg, 2016; Uwuigbe et al., 2018), others used mixed research design combining questionnaire and interview (Amran & Haniffa, 2011; Bayoud et al., 2012), and several other researchers used various scoring indices developed by rating agencies. Among the most commonly used indices are, for example, Dow Jones Sustainability World Index, DJSI (Lopez et al., 2007; Moneva & Ortas, 2008; Robinson et al., 2011; Adams et al., 2012) Thomson Reuters ASSET4 rating (e.g. Lys et al., 2015; Bodhanwala & Bodhanwala, 2018), FTSE4Good Index (e.g. Curran & Moran, 2007), and Sustainability Asset Management, SAM' ESG score (Humphrey et al., 2012).

These indices are created based on a set of sustainability metrics which third-party analysts evaluate by using surveys, interviews, and content analysis of public company information data (Chatterji & Levine, 2006). However, these rating scores subject to certain limitations including the subjectivity of the interpretation of the results and the different methodologies adopted which may affect the results (Chatterji & Levine, 2006; Soana, 2011 p.8). This study uses content analysis to Sustainability Reporting Index (SRI) using GRI topic-specific disclosure.

2.4.3. Content Analysis Technique

Content analysis is one of the most widely used techniques to evaluate and analyze disclosed business responsibility reports and published annual reports in an objective, systematic and reliable way (Guthrie et al., 2004 p.285). It involves evaluation of the areas in company reports devoted to social responsibility related materials (Soana, 2011 p.4). For example, the number of words, lines, or sentences, measuring the amount of "social" information provided, or assessing the quality of the information as a basis of coding. In this study, a list is developed based on the GRI reporting framework and used as a basis of coding (Burhan & Rahmanti, 2012; Faisal et al., 2012). In Appendix 1, a list of all specific indicators covering economic, environmental, and social disclosures is presented. To calculate the unweighted sustainability reporting index (SRI) of the firm, the total 77 topic-specific disclosures a numerical scoring system was signed. The values

assigned to each one changes between zero and two. This numerical scoring system was used by (Skouloudis et al. 2009; Yadava & Sinha, 2015), and slight modification has been made. This scoring system, 0 scores were assigned if the analyzed entity hasn't mentioned the practice in question at all, the value of 1 was given the analyzed entity has developed the practice in question in brief, and 2 was assigned if the practice in question mentioned in detail. Therefore, the maximum score that an organization can achieve is 154 points as shown in figure 1.8. The score achieved by each company was determined using $SRI = \sum C_j / C$. Where SRI is Sustainability Reporting Index; C_j is the score achieved by assigning 0 if not mentioned at all, 1 if mentioned in brief, and 2 if mentioned in detail.

C is the maximum score that an organization can achieve

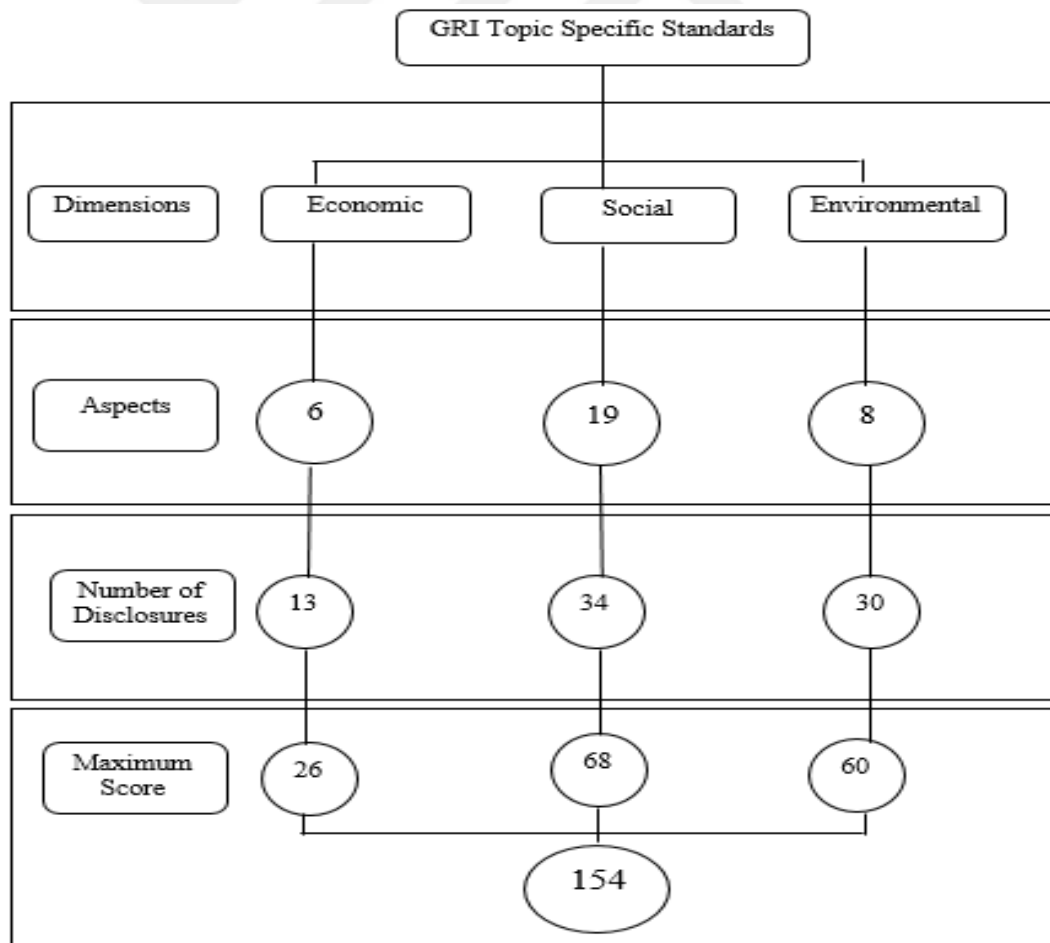


Figure 2.1. Schematic presentation of GRI standards [Source: (Yadava & Sinha, 2015)].

2.4.4. Control Variable

To examine the relationship between sustainability reporting and business profitability, it is important to consider the other variables which can affect the company's profitability. Failure to do so may result in biased findings (Saunders et al., 2012). Firm size is one of the common control variables used in previous studies (Lopez et al., 2007; Faisal et al., 2012; Bodhanwala & Bodhanwala, 2018). Therefore, this study uses firm size as a control variable. Firm size can be considered for several reasons. It has been found that bigger businesses adopt sustainability practices more frequently than smaller firms (Clarkson et al., 2008). Moreover, empirical studies also indicate larger firms are more profitable than smaller ones due to the scope and specialization, economies of scale, and strong bargaining power (Jonsson, 2007).

2.5. Model Identification

To test the hypothesized relationship between sustainability reporting and profitability, the following regression models were formulated:

$$ROA = \beta_0 + \beta_1 SRI + \beta_2 Size + \varepsilon \quad (1)$$

$$ROA = \beta_0 + \beta_1 ECO + \beta_2 ENV + \beta_3 SOC + \varepsilon \quad (2)$$

$$ROA = \beta_0 + \beta_1 ECO + \beta_2 ENV + \beta_3 SOC + \beta_4 Size + \varepsilon \quad (3)$$

Where β_0 is Intercept of the equation; β_1 to β_4 are the regression coefficients; ε is the error term.

Table 2.3. The operationalization of independent and dependent variables

Variable	Type	Operational Definition
ROA	Dependent	Calculated by dividing net income by total assets.
SRI	Independent	Overall Sustainability Reporting Index achieved by the Company. Calculated if: 0 isn't mentioned at all; 1 mentioned in brief; 2 mentioned in detail.
ECO	Independent	Economic Disclosure Index
ENV	Independent	Environmental Disclosure Index
SOC	Independent	Social Disclosure Index
Size	Control	Firm Size is a numerical variable measured by the logarithm of total assets.

2.6. Techniques of Data Analysis

To achieve the main purpose of the study which was to investigate the extent of sustainability practices of Turkish manufacturing companies listed in Borsa Istanbul and the impact of sustainability reporting on profitability, several statistical data analysis techniques were utilized using IBM SPSS statistics software. The study used descriptive statistics to the extent of sustainability practices. This study also employed the tolerance value and the variance inflation factor (VIF; the inverse of the tolerance value) for identifying multicollinearity within variables. In order to analyze the association between sustainability reporting and business profitability, multivariate regression analysis was conducted by using the overall sustainability reporting index as an independent variable and ROA as a dependent variable while controlling other potentially influential variables. For further analysis, the impact of three dimensions of sustainability (economic, environmental, and social) on profitability was analyzed while controlling the effect of firm size. This allows for further analysis of the relationship between the profitability of the company and the different aspects of sustainability reporting. Finally, an independent sample t-test was used to test whether companies that disclose a standalone sustainability report have a significant difference in profitability from companies that didn't disclose sustainability.

CHAPTER 3

3. ANALYSIS AND DISCUSSION OF THE RESULTS

3.1. Descriptive Analysis

3.1.1. Sustainability Reporting State of Manufacturing Companies

The first objective of the study was to investigate the extent of sustainability practices of Turkish manufacturing companies listed in Borsa Istanbul. A total of 25 companies out of 178 manufacturing companies listed in Borsa Istanbul as of December 2019 published stand-alone sustainability reports that comply GRI reporting framework on their websites as shown in Table 3.1. This makes the rate of manufacturing companies listed that publish sustainability reports at 14%. Although the number of companies publishing standalone sustainability reports has been increasing, this number is low compared to the developed countries and some emerging markets. The page length of these reports varies from 35 to 232 pages. There are two ways to prepare a report according to the GRI Standards: Core and Comprehensive. The core option contains limited but essential information needed to understand the nature of the company and its material impacts and how these are managed. Comprehensive option reports contain additional and extensive information about companies 'strategy, ethics, and integrity. The preferred adherence level of the companies mostly was a core option. The total assets of the companies that disclosed separate sustainability reports were 271.5 billion liras.

Table 3.1. Sustainability Reporting State of Manufacturing Companies

<i>Sustainability Reporting State of Manufacturing Companies as of December 2019</i>	
Number of manufacturing companies listed in Borsa Istanbul	178
Number of manufacturing companies published sustainability report	25
Rate of manufacturing companies published sustainability report	14%
Total Assets of Companies that publish SR (2018)	271,521,954,307 TL
Type of GRI adherence level: Core option	90%
The page length of the sustainability reports (Min-Max)	35 to 232

(Source: *Author's calculation, 2020*)

3.1.2. Descriptive Statistics for Aggregate Variables (N=25)

Table 3.2 indicates the descriptive statistics of the dependent and independent variables used in this study. It shows the sustainability reporting index as a proxy for sustainability reporting, the dimensions of sustainability reporting (economic, environmental, and social disclosure scores), return on assets as a proxy for company profitability, and the firm size (the natural logarithm of the total assets) as control variable of the study.

The sustainability reporting level mean of manufacturing companies listed in Borsa Istanbul is 50% with a variability of 9%. The table also shows that there is high variability in sustainability reporting among the selected companies. The highest company disclosed 64% of GRI's specific standard disclosure items while the lowest company disclosed 31% of the items. This also indicates that the manufacturing companies listed in Borsa Istanbul are still far behind in GRI-based sustainability reporting practices, and measures should be taken to strengthen sustainability reporting practices.

Considering the three dimensions of sustainability reporting, environmental-related disclosures were the most disclosed with a mean percentage of 53% and 10% standard deviation. The maximum value disclosed was 72% and the minimum value disclosed was 35%. In terms of social-related disclosures, companies disclosed an average of 48% with a standard deviation of 11%. The highest company disclosed 75% of GRI's specific standard disclosure items and the lowest company disclosed 29% of the items. The average disclosure of economic-related items was 47% with a minimum and maximum level of 23% and 65%. The average return on assets of the selected firms was around 6% with high variability of 8%.

Some companies reported a loss for the year under consideration that eroded their returns leading to a negative return on assets. The highest company achieved 24% of the return on assets. The average total assets of these companies were 10.8 billion liras.

Table 3.2. Descriptive Statistics for Aggregate Variables (N=25)

	<i>Mean</i>	<i>Std. Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
SRI Score	.50	.090	.31	.64
Eco_Score	.47	.13	.23	.65
Env_Score	.53	.10	.35	.72
Soc_Score	.48	.11	.29	.75
ROA	.06	.08	-.08	.24
Firm_Size (Log)	9.66	.66	8.43	10.62
Assets (TL)	10,860,878,172	13,050,199,707	267,114,393	41,782,110,000

(Source: *Author's calculation, 2020*)

3.1.3. Sustainability Reporting Practice: Industry-level Analysis

Table 3.3 indicates the extent of sustainability reporting practices of 25 companies out of 178 manufacturing companies that published a stand-alone sustainability report based on the GRI reporting framework. The percentage mean of sustainability reporting level across manufacturing industries in Borsa Istanbul is around 49%. The table also shows that there is variability in the sustainability reporting level among industries. Industrial Goods & Services industry disclosed the highest disclosure of GRI's specific standard disclosure items at 64% while the lowest industry (Textile and Leather) disclosed 31% of the items. Considering the dimensions of sustainability reporting, Paper, Printing, and Publishing industry disclosed most in economic-related disclosures at 62% where Non-Metallic Mineral Products disclosed the highest environmental-related disclosure items. Overall mean percentage of 53% indicates that the environmental-related disclosures were the most disclosed. This implies that more focus was given to environmental disclosures in the reports of the majority of companies covered by the study.

Table 3.3. Sustainability Reporting Practice: Industry-level Analysis

<i>Industries Analysis</i>	<i>Economic disclosures (%)</i>	<i>Environmental disclosures (%)</i>	<i>Social disclosures (%)</i>	<i>Total (%)</i>
Industrial Goods & Services	47	54	56	54
Paper, Printing, and Publishing	62	52	50	53
Non-Metallic Mineral Products	40	61	50	52
Food, Beverage, and Tobacco	51	52	47	49
Basic Metal	50	55	44	49
Chemicals, Petroleum and Plastic	46	50	43	46
Textile and Leather	33	51	38	42
<i>Mean (Total) (N=25)</i>	47	53	47	49

(Source: Author's calculation, 2020)

3.1.4. Sustainability Practice: Disclosure Analysis

In this study, the sustainability reporting index of selected companies was assessed using GRI criteria consisting of a total of 33 aspects. These aspects consist of 6 economic aspects, 8 environmental-related aspects, and 19 social aspects and each aspect in turn consist of certain topic-specific disclosure. According to Table 3.4, in terms of economic aspects, procurement practice and economic performance-related disclosures were the most disclosed at a rate of 64% and 53% respectively. Disclosures related to anti-competitive behavior and market presence were the least reported disclosure. The companies disclosed 14% and 24% of these disclosures respectively in their sustainability reports. These topic-specific standards require companies to disclose, for example, the number of legal actions pending or completed during the reporting period regarding anti-competitive behavior and violations of anti-trust and monopoly legislation in which the organization has been identified as a participant.

In relation to environmental disclosures, it has been observed that the companies mentioned most to the disclosures related to environmental compliance and water. They disclosed 82% and 78% respectively. In contrast, disclosures related to biodiversity (32%) and effluents and waste (44) were mentioned less in the sustainability reports of companies studied. These disclosures require companies to mention in their reports the matters related to the significant spill, hazardous waste transported, and water bodies and related habitats that are significantly affected by water discharges and/or runoff.

Regarding the disclosures related to the social impacts, companies provided most information related to training and education (83%), followed by non-discrimination policies, employment, occupational health and safety-related with more than 65% disclosure level. Conversely, customer privacy, rights of indigenous peoples, security practices, labor/management relations were the least disclosed information in sustainability reports of the companies with less than 20% disclosure. These standards require to provide information related to these matters such as a total number of identified incidents of violations involving the rights of indigenous peoples during the reporting period; the minimum number of weeks' notice typically provided to employees and their representatives prior to the implementation of significant operational changes that could substantially affect them; the percentage of security personnel who have received formal training in the organization's human rights policies or specific procedures and their application to security, and others.

Table 3.4. Sustainability Practice: Disclosure Analysis

Topic Specific Standards		Number of Disclosures	Disclosure rate (%)
<i>Economic Disclosures</i>	101: Economic Performance	4	53
	102: Market Presence	2	24
	103: Indirect Economic Impacts	2	53
	104: Procurement Practices	1	64
	105: Anti-corruption	3	54
	106: Anti-competitive Behavior	1	14
<i>Environmental Disclosures</i>	201: Materials	3	44
	202: Energy	5	62
	203: Water	3	78
	204: Biodiversity	4	32
	205: Emissions	7	56
	206: Effluents and Waste	5	42
	207: Environmental Compliance	1	82
	208: Supplier-Environmental Assessment	2	44
<i>Social Disclosures</i>	301: Employment	3	69
	302: Labor/Management Relations	1	18
	303: Occupational Health and	4	65

Safety		
304: Training and Education	3	83
305: Diversity and Equal Opportunity	2	40
306: Non-discrimination	1	78
307: Freedom of Association and Collective Bargaining	1	38
308: Child Labor	1	44
309: Forced /Compulsory Labor	1	50
310: Security Practices	1	10
311: Rights of Indigenous Peoples	1	16
312: Human Rights Assessment	3	39
313: Local Communities	2	38
314: Supplier Social Assessment	2	39
315: Public Policy	1	26
316: Customer Health and Safety	2	50
317: Marketing and Labeling	3	39
318: Customer Privacy	1	18
319: Socioeconomic Compliance	1	34
Mean (Total Disclosures)	77	50

(Source: Author's calculation, 2020)

3.2. Multicollinearity Test

Multicollinearity occurs when the independent variables within a regression model are correlated. Therefore, this study used the tolerance value and the variance inflation factor (VIF; the inverse of the tolerance value) for identifying multicollinearity within variables. These two measures show to what extent the effect of one independent variable explained by another independent variable. The results of multicollinearity analysis among variables are presented in Table 3.5. The suggested cut off for the tolerance value is 0.10 and the VIF is 10 (Hair et al., 2019 p.316). The results show that the independent variables did not present multi-collinearity problems and the tolerance values and the VIF values are within acceptable levels.

Table 3.5. Collinearity Statistics

	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
SRI_Score	1.000	1.000				
Eco_Score			.835	1.198	.814	1.228
Env_Score			.543	1.841	.524	1.908
Soc_Score			.476	2.102	.472	2.119
Firm_Size	1.000	1.000			.929	1.076
Dependent Variable: ROA						

(Source: Author's calculation, 2020)

3.3. Test of the Research Hypotheses

In order to analyze the association between sustainability reporting and business profitability, multivariate regression analysis was conducted by using the overall sustainability reporting index as an independent variable and ROA as dependent variables and firm size as a control variable to control the potential influence of firm size on profitability. For further analysis, the effect of the three dimensions of sustainability (economic, environmental, and social) on return on assets of the company was analyzed while controlling the effect of firm size. This allows for further analysis of the relationship between the profitability of the company and the different aspects of sustainability reporting.

3.3.1. Multivariate Analysis: Model 1

According to Table 3.6, the regression result shows that the sustainability reporting index has an insignificant positive effect (p-value > 0.715 level of significance) on the profitability of the selected firms. But, the firm size has significant positive effect profitability based on the fact that the significance level of 0.011 is less than 0.05 level of significance. Thus, the outcome rejects the first hypothesis that the sustainability reporting index has a significant impact on the companies' profitability.

Table 3.6. Multivariate Regression Analysis

	<i>Predicted sign</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-value</i>	<i>Sig.</i>
(Constant)		-.532	.216	-2.467	.022
SRI_Score	+	.057	.154	.371	.715
Firm_Size	+	.058	.021	2.782	.011
R	.514				
R Square	.264				
Adjusted R Square	.197				
F-value	3.947				
Sig (F)	.034				

Dependent Variable: ROA (Significance Level at 5%)

(Source: Author's calculation, 2020)

3.3.2. Multivariate Analysis: Model 2

For further analysis, the effect of the three dimensions of sustainability (economic, environmental, and social) on return on assets of the company was analyzed without the effect of firm size. According to Table 3.7, the result indicated that the environmental disclosures index has a significant and positive effect (p-value < 0.05 level of significance) on the profitability of the selected firms. This implies that a one-point increase in the environmental performance index will have an increase in the profitability of the selected firms by 1.437 points. In contrast, the social disclosures index has a significant negative effect with a significance level < 0.05 on the profitability of the selected firms. One unit change in social disclosures will decrease the profitability of the firms at 0.405. According to Table 3.7, economic performance was found positive but less significant. The correlation coefficient between the environmental and social performance and the return on assets is 58%. The coefficient of determination is 0.337. This implies that 33.7% of the variation of return of assets is explained by the variation of environmental and social reporting. Thus, the outcome supports the hypothesis that environmental and social disclosure have a significant impact on the companies' profitability.

Table 3.7. Multivariate Regression Analysis

	<i>Predicted sign</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-value</i>	<i>Sig.</i>
(Constant)		-.060	.084	-.722	.478
ECO_Score	+	.009	.116	.081	.936
ENV_Score	+	.578	.182	3.175	.005
SOC_Score	+	-.405	.170	-2.377	.027
<hr/>					
R	.580				
<hr/>					
R Square	.337				
<hr/>					
Adjusted R Square	.242				
<hr/>					
F-value	3.555				
<hr/>					
Sig (F)	.032				
<hr/>					
Dependent Variable: ROA (Significance Level at 5%)					
<hr/>					

(Source: Author's calculation, 2020)

3.3.3. Multivariate Analysis: Model 3

To test the third hypothesis, multivariate regression analysis of ordinary least squares (OLS) is conducted to examine the effect of the three dimensions of sustainability (economic, environmental, and social) on return on assets of the company while controlling the effect of firm size. This allows for further analysis of the relationship between the profitability of the company and the different aspects of sustainability reporting. According to the results presented in Table 3.8, environmental performance disclosures and firm size have a significant positive effect on return on assets while the social performance disclosure has a significant negative relationship with return on assets. The explanatory power of the model improves when the firm size effect added to the analysis. Economic performance disclosures had an insignificant relationship with return on assets. The correlation coefficient of determination between independent variables and the return on assets is 0.497. This implies that 33.7% of the variation of return of assets is explained by the variation of firm size, environmental, and social reporting. Thus, the outcome supports the hypothesis that environmental and social disclosure have a significant impact on the companies' profitability when the effect of firm size is controlled.

Table 3.8. Multivariate Regression Analysis

	<i>Predicted sign</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-value</i>	<i>Sig.</i>
<i>(Constant)</i>		-.513	.194	-2.638	.016
ECO_Score	+	.051	.105	.483	.634
ENV_Score	+	.499	.165	3.019	.007
SOC_Score	+	-.370	.153	-2.425	.025
Firm_Size	+	.047	.019	2.521	.020
<hr/>					
R	.705				
R Square	.497				
Adjusted R Square	.396				
F-value	4.935				
Sig (F)	.006				
<hr/>					
Dependent Variable: ROA (Significance Level at 5%)					

(Source: Author's calculation, 2020)

3.3.4. Independent Samples T-Test

To test whether companies that disclose standalone sustainability reports have a significant difference in profitability from companies that didn't disclose sustainability reports, independent samples t-test was used. Although Table 3.9 indicates noticeable differences in returns between companies that disclose sustainability reports (5.80%) and companies didn't disclose sustainability reports (2.36%), there is no statistically significant mean difference (t-value = 1.274 P= 0.209) in return on assets of both groups. Thus, the outcome rejects the hypothesis that there is a difference in profitability between companies that disclose a standalone sustainability report and companies that didn't disclose sustainability reports.

Table 3.9. Group Statistics

		<i>N</i>	<i>Mean (%)</i>	<i>Std. Deviation (%)</i>
ROA	Disclosed	25	5.80	7.58
	Group			
	Undisclosed	25	2.36	11.18
	Group			

(Source: Author's calculation, 2020)

Table 3.10. Independent Samples Test

<i>Levene's Test for Equality of Variances</i>		<i>t-test for Equality of Means</i>						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference (%)	Std. Error Difference (%)
ROA	Equal variances assumed	1.468	.232	1.274	48	.209	3.44	2.70
	Equal variances not assumed			1.274	42.23	.210	3.44	2.70

(Source: *Author's calculation, 2020*)

3.4. Discussion of the Findings

The first objective of the study was to investigate the extent of sustainability practices of Turkish manufacturing companies listed in Borsa Istanbul. It has been found that 14% of manufacturing companies were published stand-alone sustainability report that complies GRI reporting framework on their websites. A similar result also reported by Yaz and Utku (2015) that evaluated the sustainability reporting practices of all public companies listed in Borsa Istanbul. They found 6% of the companies declared sustainability reporting. Although sustainability reporting isn't mandatory in Turkey and the number of companies publishing has been increasing, these numbers are low compared to the developed countries and some emerging markets. A survey by KPMG (2017) noted that developed economies such as Japan, the United States, the United Kingdom, and several European countries, the reporting levels are considered to be relatively high. In the context of developing economies, the sustainability reporting concept is relatively well developed in Malaysia and India, while in many other Asian countries including Turkey the reporting is lower than the global average of 72%.

Considering the disclosure contents, it has been observed that companies disclose 50% of the GRI topic-specific standards where environmental-related disclosure items were the highest disclosed. Gumrah et al. (2018) also indicated that companies report

more information about environmental impacts compared to the social and economic impacts. This is either the companies perceive sustainability reports as a report to disclose the environmental impacts of the companies give more attention to past practices rather than disclosing their future strategies and targets.

The second objective was to examine the association between sustainability reporting and business profitability, multivariate regression analysis was conducted by using overall sustainability reporting index as an independent variable and ROA as dependent variables and firm size as a control variable to control other potentially influence of firm size on profitability. It has been found a positive, but insignificant association between sustainability reporting and business profitability. This is consistent with the previous empirical studies reported no significant relationship between sustainability reporting and profitability (Van de Velde et al., 2005; Moneva & Ortas, 2008; Curran & Moran, 2007; Adams et al., 2012; Asuquo et al., 2018). The results of this study also contradict with those reported positive relationship between sustainability reporting and profitability of the company (Ngwakwe, 2009; Guidry and Patten, 2010; Schadewitz and Niskala, 2010; Robinson et al., 2011; Bayoud et al., 2012; Khaveh et al., 2012; Burhan and Rahmanti, 2012; Lys et al., 2015; Whetman, 2017; Bodhanwala and Bodhanwala, 2018) and other studies that reported a negative relationship between sustainability reporting and profitability of the company (Lopez et al., 2007; Ho and Taylor, 2007; Detre and Gunderson, 2011). This implies disclosing sustainability reports neither increases nor decreases the profitability of the firm. In contrast, the profitability of the company is determined by other factors and the firm size as it has a significant positive relationship with profitability in all models. This result confirms the findings that bigger businesses adopt sustainability practices more frequently than smaller firms (Clarkson et al., 2008) and larger firms are more profitable than smaller ones due to the scope and specialization, economies of scale, and strong bargaining power (Jonsson, 2007).

Furthermore, Galema et al. (2008) stated the insignificance of the relationship between overall sustainability reporting and profitability may be due to the opposite effect of individual sustainability reporting components on profitability in the aggregate

analysis. Therefore, to understand the relationship clearer, multivariate regression analysis of ordinary least squares (OLS) is conducted to examine the effect of the three dimensions of sustainability (economic, environmental, and social) on return on assets of the company while controlling the effect of firm size. The results indicated environmental performance disclosures and firm size have a significant positive effect on return on assets while the social performance disclosure has a significant negative relationship with return on assets. However, this means that an increase in environmental disclosure efforts will be associated with an increase in profitability. Therefore, the findings were in line with the majority of early work in this area that found a significant positive relationship between environmental disclosure and firm profitability (Ziegler et al., 2002; Makori & Jagongo, 2013; Rakiv et al., 2016; Nnaemeka et al., 2017; Bodhanwala & Bodhanwala, 2018). This also supports the claim of the stakeholders' theory that satisfying the needs of the stakeholders will lead to enhanced firm performance. The result, however, was inconsistent with some other empirical studies which have reported a negative relationship between environmental accounting disclosure and firm profitability such as (Che- Ahmad et al., 2015; Vasanth et al., 2015). In terms of social performance, the results are consistent with the earlier findings that reported a negative significant relationship between social performance disclosures and profitability (Ziegler et al., 2002; Galema et al., 2008). The negative effects of social performance disclosures suggest that their benefits were generally smaller than their costs. Furthermore, results also suggested that economic performance disclosures had no statistically significant impact returns on assets in all models. The finding is in consonance with (Buys et al., 2011). This indicates that disclosure of this information was not relevant at all and the company's profitability relies on certain variables such as product quality, size, marketing policy, etc. besides the company's sustainability practices.

CONCLUSION AND RECOMMENDATION

This study examined the extent of sustainability practices and their impact on the profitability of Turkish manufacturing companies listed in Borsa Istanbul using both qualitative and quantitative research designs. Descriptive statistics were used to study the extent of sustainability practices and multivariate regression analysis was also conducted to investigate the association between sustainability reporting and business profitability. It has been observed that 14% of manufacturing companies were published standalone sustainability reports in accordance with GRI guidelines. The results also indicated that companies achieved on average 50% disclosure level of GRI specific standards. Based on the findings, this study concludes sustainability reporting level is low compared to the developed countries and some emerging markets where the concept of sustainability reporting is well developed. In addition, the companies didn't disclose economic, social, and environmental impacts adequately in their reports. Furthermore, to examine the association between sustainability reporting and business profitability, multivariate regression analysis was conducted by using overall sustainability reporting index as an independent variable and ROA as dependent variables and firm size as a control variable to control the potential influence of firm size on profitability. It has been found a positive, but insignificant association between sustainability reporting and business profitability. The results confirm that insignificance of the relationship between overall sustainability reporting and profitability may be due to the opposite effect of individual sustainability reporting components on profitability in the aggregate analysis. Disaggregate analysis of the three dimensions of sustainability shows a significant positive relationship between environmental performance disclosures and return on assets while the social performance disclosures have a significant negative relationship with return on assets. However, this means that an increase in environmental disclosure efforts will be associated with an increase in profitability. Companies disclosing more social disclosure were less profitable than those disclosing fewer disclosures.

In view of the findings made and conclusions drawn from the study, this study suggested that companies should continue to prioritize disclosing their environmental activities to improve their reputation, which consequently increases their profitability.

This study has some limitations that must be acknowledged; the small sample size of 25 companies to the study may undermine the generalizability of the results of the study. In addition to this, this study used a cross-sectional research design focusing on just the annual reports of 2018, this limiting additional contextual issues that could have been generated from panel study to provide more comprehensive evidence. The sustainability reporting was scored using a content analysis methodology based on the GRI guidelines. Although the GRI guidelines are commonly accepted, it might be difficult to compare companies belonging to various industries based on their sustainability disclosures since each industry's performance and activity level are different from each other. Therefore, future studies should use mixed methodologies such as interviews to narrate in-depth qualitative research. Future studies should also cover various sectors to provide more insight into the differences amongst them.

This research made a variety of original literature contributions. Previous studies investigated the nature and extent of sustainability practices in Turkey (Aktaş et al., 2013 Yaz & Utku, 2015 Kocamiş & Yildirim, 2016), but none of them linked to the profitability of the company using GRI disclosure as a predictor variable. Therefore, this study attempted to examine the situation in Turkey by providing more empirical evidence to investigate the extent of sustainability reporting and its impact on the profitability of listed manufacturing companies in BORSA Istanbul (BIST). This study is also the first that examined the impact of three dimensions of sustainability (economic, environmental, and social) on profitability.

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APPENDIX

Appendix 1: The list of manufacturing companies disclosed separate SR as of December 2019

NO	Company Name
1	Anadolu Cam Sanayii A.Ş.
2	Anadolu Efes Biracılık ve Malt Sanayii A.Ş.
3	Anadolu Isuzu Otomotiv Sanayi ve Ticaret A.Ş.
4	Arçelik A.Ş.
5	Aygaz A.Ş.
6	Brisa Bridgestone Sabancı Lastik Sanayi ve Ticaret A.Ş.
7	Çimsa Çimento Sanayi ve Ticaret A.Ş.
8	Coca-Cola İçecek A.Ş.
9	Dyo Boya Fabrikaları Sanayi ve Ticaret A.Ş.
10	Ereğli Demir ve Çelik Fabrikaları T.A.Ş.
11	Ford Otomotiv Sanayi A.Ş.
12	İskenderun Demir ve Çelik A.Ş.
13	Kereviş Gıda Sanayi ve Ticaret A.Ş.
14	Kordsa Teknik Tekstil A.Ş.
15	Otokar Otomotiv ve Savunma Sanayi A.Ş.
16	Pinar Entegre Et ve Un Sanayii A.Ş.
17	Pinar Su ve İçecek Sanayi Ve Ticaret A.Ş.
18	Pinar Süt Mamulleri Sanayii A.Ş.
19	Soda Sanayii A.Ş.
20	Tofaş Türk Otomobil Fabrikası A.Ş.
21	Trakya Cam Sanayii A.Ş.
22	Tüpraş-Türkiye Petrol Rafinerileri A.Ş.
23	Ülker Bisküvi Sanayi A.Ş.
24	Viking Kağıt ve Selüloz A.Ş.
25	Yünsa Yünlü Sanayi ve Ticaret A.Ş.

Appendix 2: Disclosure List

Economic Disclosures (13)
GRI 201: Economic Performance
Disclosure 201-1 Direct economic value generated and distributed
Disclosure 201-2 Financial implications and other risks and opportunities due to climate change
Disclosure 201-3 Defined benefit plan obligations and other retirement plans
Disclosure 201-4 Financial assistance received from the government
GRI 202: Market Presence
Disclosure 202-1 Ratios of standard entry-level wage by gender compared to local minimum wage
Disclosure 202-2 Proportion of senior management hired from the local community
GRI 203: Indirect Economic Impacts
Disclosure 203-1 Infrastructure investments and services supported
Disclosure 203-2 Significant indirect economic impacts
GRI 204: Procurement Practices
Disclosure 204-1 Proportion of spending on local suppliers
GRI 205: Anti-corruption
Disclosure 205-1 Operations assessed for risks related to corruption
Disclosure 205-2 Communication and training about anti-corruption policies and procedures
Disclosure 205-3 Confirmed incidents of corruption and actions taken
GRI 206: Anti-competitive Behavior
Disclosure 206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices
Environmental Disclosures (30)
GRI 301: Materials
Disclosure 301-1 Materials used by weight or volume
Disclosure 301-2 Recycled input materials used
Disclosure 301-3 Reclaimed products and their packaging materials
GRI 302: Energy
Disclosure 302-1 Energy consumption within the organization
Disclosure 302-2 Energy consumption outside of the organization
Disclosure 302-3 Energy intensity
Disclosure 302-4 Reduction of energy consumption
Disclosure 302-5 Reductions in energy requirements of products and services
GRI 303: Water
Disclosure 303-1 Water withdrawal by source
Disclosure 303-2 Water sources significantly affected by the withdrawal of water

Disclosure 303-3 Water recycled and reused
GRI 304: Biodiversity
Disclosure 304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas
Disclosure 304-2 Significant impacts of activities, products, and services on biodiversity
Disclosure 304-3 Habitats protected or restored
Disclosure 304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations
GRI 305: Emissions
Disclosure 305-1 Direct (Scope 1) GHG emissions
Disclosure 305-2 Energy indirect (Scope 2) GHG emissions
Disclosure 305-3 Other indirect (Scope 3) GHG emissions
Disclosure 305-4 GHG emissions intensity
Disclosure 305-5 Reduction of GHG emissions
Disclosure 305-6 Emissions of ozone-depleting substances (ODS)
Disclosure 305-7 Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions
GRI 306: Effluents and Waste
Disclosure 306-1 Water discharge by quality and destination
Disclosure 306-2 Waste by type and disposal method
Disclosure 306-3 Significant spills
Disclosure 306-4 Transport of hazardous waste
Disclosure 306-5 Water bodies affected by water discharges and/or runoff
GRI 307: Environmental Compliance
Disclosure 307-1 Non-compliance with environmental laws and regulations
GRI 308: Supplier Environmental Assessment
Disclosure 308-1 New suppliers that were screened using environmental criteria
Disclosure 308-2 Negative environmental impacts in the supply chain and actions taken
Social Disclosures (34)
GRI 401: Employment
Disclosure 401-1 New employee hires and employee turnover
Disclosure 401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees
Disclosure 401-3 Parental leave
GRI 402: Labor/Management Relations
Disclosure 402-1 Minimum notice periods regarding operational changes
GRI 403: Occupational Health and Safety
Disclosure 403-1 Workers representation in formal joint management–worker health and safety committees
Disclosure 403-2 Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities
Disclosure 403-3 Workers with high incidence or high risk of diseases related to their

occupation
Disclosure 403-4 Health and safety topics covered in formal agreements with trade unions
GRI 404: Training and Education
Disclosure 404-1 Average hours of training per year per employee
Disclosure 404-2 Programs for upgrading employee skills and transition assistance programs
Disclosure 404-3 Percentage of employees receiving regular performance and career development reviews
GRI 405: Diversity and Equal Opportunity
Disclosure 405-1 Diversity of governance bodies and employees
Disclosure 405-2 Ratio of basic salary and remuneration of women to men
GRI 406: Non-discrimination
Disclosure 406-1 Incidents of discrimination and corrective actions are taken
GRI 407: Freedom of Association and Collective Bargaining
Disclosure 407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk
GRI 408: Child Labor
Disclosure 408-1 Operations and suppliers at significant risk for incidents of child labor
GRI 409: Forced or Compulsory Labor
Disclosure 409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor
GRI 410: Security Practices
Disclosure 410-1 Security personnel trained in human rights policies or procedures
GRI 411: Rights of Indigenous Peoples
Disclosure 411-1 Incidents of violations involving rights of indigenous peoples
GRI 412: Human Rights Assessment
Disclosure 412-1 Operations that have been subject to human rights reviews or impact assessments
Disclosure 412-2 Employee training on human rights policies or procedures
Disclosure 412-3 Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening
GRI 413: Local Communities
Disclosure 413-1 Operations with local community engagement, impact assessments, and development programs
Disclosure 413-2 Operations with significant actual and potential negative impacts on local communities
GRI 414: Supplier Social Assessment
Disclosure 414-1 New suppliers that were screened using social criteria
Disclosure 414-2 Negative social impacts in the supply chain and actions taken
GRI 415: Public Policy
Disclosure 415-1 Political contributions
GRI 416: Customer Health and Safety

Disclosure 416-1 Assessment of the health and safety impacts of product and service categories
Disclosure 416-2 Incidents of non-compliance concerning the health and safety impacts of products and services
GRI 417: Marketing and Labeling
Disclosure 417-1 Requirements for product and service information and labeling
Disclosure 417-2 Incidents of non-compliance concerning product and service information and labeling
Disclosure 417-3 Incidents of non-compliance concerning marketing communications
GRI 418: Customer Privacy
Disclosure 418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data
GRI 419: Socioeconomic Compliance
Disclosure 419-1 Non-compliance with laws and regulations in the social and economic area

Appendix 3: Collinearity Diagnostics^a

Model One

Collinearity Diagnostics ^a						
Mode 1	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Firm_Size	SRI_score
1	1	2.976	1.000	.00	.00	.00
	2	.022	11.762	.02	.04	.96
	3	.002	36.964	.98	.96	.04

a. Dependent Variable: ROA

Model Two

Collinearity Diagnostics ^a							
Model 1	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	ECO_Score	ENV_Score	SOC_Score
1	1	3.913	1.000	.00	.00	.00	.00
	2	.051	8.802	.00	.77	.08	.04
	3	.026	12.166	.50	.02	.00	.43
	4	.010	19.334	.49	.20	.92	.53

a. Dependent Variable: ROA

Model Three

Collinearity Diagnostics^a

Model	Dimension	Eigen-value	Condition Index	Variance Proportions				
				(Constant)	ECO Score	ENV Score	SOC Score	Firm Size
1	1	4.895	1.000	.00	.00	.00	.00	.00
	2	.053	9.615	.00	.78	.04	.00	.01
	3	.039	11.239	.02	.01	.04	.32	.02
	4	.011	20.874	.01	.14	.92	.67	.01
	5	.002	49.098	.97	.07	.00	.01	.96

a. Dependent Variable: ROA

Appendix 4: Multivariate Analysis

Model One

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.514 ^a	.264	.197	.06794

a. Predictors: (Constant), Firm_Size, SRI_Score_Overall

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.036	2	.018	3.947	.034 ^b
Residual	.102	22	.005		
Total	.138	24			

a. Dependent Variable: ROA

b. Predictors: (Constant), Firm_Size, SRI_Score_Overall

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.532	.216		-2.467	.022
SRI_Score_Overall	.057	.154	.068	.371	.715
Firm_Size	.058	.021	.509	2.782	.011

a. Dependent Variable: ROA

Model two

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.580 ^a	.337	.242	.06602

a. Predictors: (Constant), SOC_Score, ECO_Score, ENV_Score

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.046	3	.015	3.555	.032 ^b
Residual	.092	21	.004		
Total	.138	24			

a. Dependent Variable: ROA

b. Predictors: (Constant), SOC_Score, ECO_Score, ENV_Score

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.060	.084		-.722	.478
ECO_Score	.009	.116	.016	.081	.936
ENV_Score	.578	.182	.765	3.175	.005
SOC_Score	-.405	.170	-.612	-2.377	.027

a. Dependent Variable: ROA

Model Three

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.705 ^a	.497	.396	.05893

a. Predictors: (Constant), SOC_Score, Firm_Size, ECO_Score, ENV_Score

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.069	4	.017	4.935	.006 ^b
Residual	.069	20	.003		
Total	.138	24			

a. Dependent Variable: ROA

b. Predictors: (Constant), SOC_Score, Firm_Size, ECO_Score, ENV_Score

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.513	.194		-2.638	.016
1 Firm_Size	.047	.019	.415	2.521	.020
ECO_Score	.051	.105	.085	.483	.634
ENV_Score	.499	.165	.662	3.019	.007
SOC_Score	-.370	.153	-.560	-2.425	.025

a. Dependent Variable: ROA