Corporate Sustainability Performance of the Readymade Garments Industry in Bangladesh: Impact of Organisational Pressures and Sustainability Management Control System

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Thesis Summary

The Readymade Garment (RMG) industry of Bangladesh has been severely criticized for its negative environmental impact, frequent industrial accidents, inhuman working conditions and low wages. In response to these escalating criticisms, RMG companies in Bangladesh are sincerely trying to improve their Corporate Sustainability Performance (CSP) to pacify the concerns raised by various stakeholder groups. This study first developed and then tested a conceptual framework in order to understand relationships among the Organisational Pressures (i.e. external and internal), the Sustainability Management Control System (SMCS) and CSP, based on a large-scale questionnaire survey in Bangladesh. In total 255 responses were analysed using Structural Equation Modelling (SEM) to identify the major internal and external pressure behind CSP. In this study, International Retailers (IRs) and cost competitiveness emerged as the main triggers to improve CSP in Bangladesh. This is the first study which has investigated the mediating role of SMCS between organisational pressure and CSP. The results confirm the positive mediating effects of SMCS between external pressure and CSP. Drawing upon contingency theory, this study highlights the importance of having a dedicated SCMC as a strategic tool to improve CSP. This study has also utilised the Analytic Network Process (ANP) approach to develop a Multiple Criteria Decision Making (MCDM) model to assess the performance of the RMG companies, based on their sustainability criteria. This study also demonstrates the application of a benchmarking model based on RMG companies' CSP.

Keywords: Organisational Pressures, Corporate Sustainability Performance, Sustainability Management Control System, Benchmarking, Readymade Garment.

Dedication

This thesis is dedicated to:

My doctoral supervisor:

Prof. Prasanta Kumar Dey, *Aston University*

My husband, ***Dr. Md. Rezaul Kabir***

My daughter, ***Nashmia Shafana Kabir***

My son, ***Md. Shehraan Kabir***

&

My Parents, ***Dr. Abdur Rahman and Khaleda Rahman***

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List of Acronyms

ADB	Asian Development Bank
AGFI	Adjusted Goodness-of-Fit Index
AHP	Analytic Hierarchy Process
ANN	Artificial Neural Network
ANP	Analytic Network Process
ANP	Analytic Network Process
ASF	Acid Survivors Foundation
ATP	Air Treatment Plant
BAPPG	Bangladesh All Party Parliamentary Group
BBS	Bangladesh Bureau of Statistics
BCI	Better Cotton Initiative
BDT	Bangladeshi Taka
BGMEA	Bangladesh Garment Manufacturers and Exporters Association
BSC	Balanced Scorecard
BSCI	Business Social Compliance Initiative
CASE	Clean Air and Sustainable Environment
CCC	Clean Cloth Campaigns
CEO	Chief Executive Officer
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CPOs	Chief Purchasing Officers
CSP	Corporate Sustainability Performance
CSR	Corporate Social Responsibility
CT	Contingency Theory
DEA	Data Envelopment Analysis
DoE	Department of Environment
ECOP	Economic Performance
EFA	Exploratory Factor Analysis
EM	Expectation Maximization
EMS	Environmental Management Systems
ENVP	Environmental Performance
EP	External Pressure
ETP	Effluent Treatment Plant
EU	European Union
GFI	Goodness-of-Fit Index

GRA	Grey Relational Analysis
GRI	Global Reporting Initiative
GSP	Generalized System of Preferences
GTA	Graph-Theoretic Approach
IBM	International Business Machines
IISD	International Institute for Sustainable Development
ILO	Labour Organisation
IMF	International Monetary Fund
IP	Internal Pressure
IR	International Retailer
ISM	Interpretive Structural Modelling
ISO	International Organization for Standardization
IWM	Institute of Water Modelling
LCA	Life Cycle Analysis
LDC	Least Developed Country
LEED	Leadership in Energy and Environmental Design
LOC	Levers of Control
MAR	Missing at Random
MCDM	Multiple Criteria Decision Making Model
MCS	Management Control System
MFB	Mini Fire Brigade
ML	Maximum Likelihood
MNAR	Missing not at Random
NAP	National Action Plan
NFI	Normed-Fit Index
NGO	Non-Governmental Organization
OHASIS	Occupational Health and Safety Assessment Series
PaCT	Partnership with Cleaner Textile
PAF	Principal Axis Factoring PAF
PCA	Principal Component Analysis
PwC	PricewaterhouseCoopers
REC	Research Ethics committee's
RMG	Readymade Garment
RMSEA	Root Mean Square Error of Approximation
ROA	Return on assets
RoHS	Restriction of Hazardous Substances
ROI	Return on Investment

SA	Social Accountability
SBP	Sustainable Business Practice
SCOP	Social Performance
SCOR	Supply Chain Operations Reference
SCS	Sustainability Control Systems
SD	Sustainable Development
SDGs	Sustainable Development Goals
SEM	Structural Equation Modelling
SMC	Squared Multiple Correlation
SMCS	Sustainability Management Control System
SPSS	Statistical Package for the Social Sciences
TBL	Triple Bottom Line
TLI	Tucker-Lewis index
TOPSIS	Technique for Order of Preference by Similarity to Ideal Solution
TPP	Trans-Pacific Partnership
UK	United Kingdom
UN	United Nations
UNGC	UN Global Compact
US	United States
USGBC	U.S. Green Building Council
VIF	Variance Inflation Factor
WCED	World Commission on Environment and Development
WEEE	Waste Electrical and Electronic Equipment
WRAP	Worldwide Responsible Accredited Production

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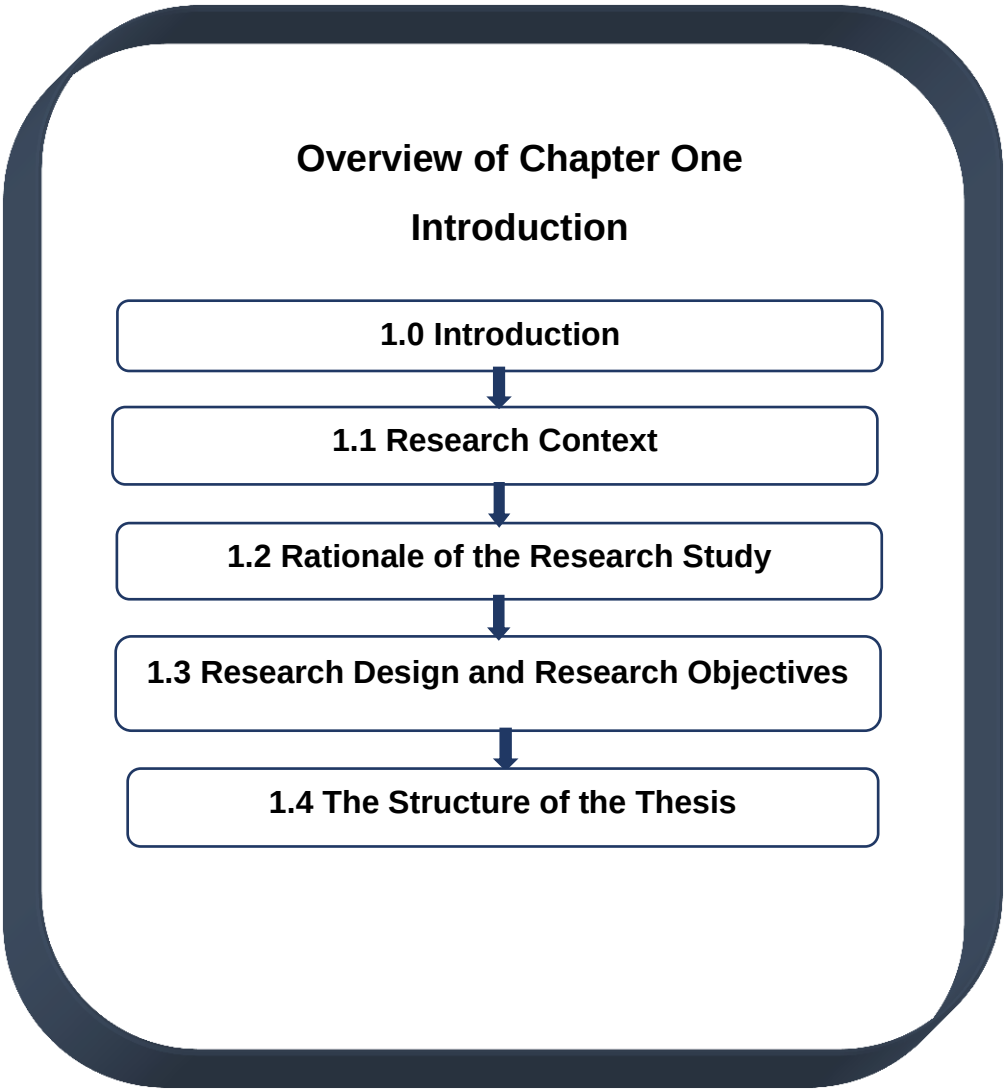
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Chapter 1: Introduction

1.0 Introduction

This introductory chapter outlines the research context, provides a rationale of the research study and addresses the research objectives. The research context section provides an overview of the importance of the Readymade (RMG) industry in the Bangladeshi economy and the key role of sustainable business practices in this global industry. Following this, the rationale of the research study is discussed in the next section. The subsequent sections then briefly describe the overall research design and the intended research objectives. Finally, the chapter closes by providing a structural overview of the thesis that summarises the content of the following chapters.

1.1 Research Context

Bangladesh is a densely-populated country situated in South Asia which was liberated from Pakistan in 1971. It covers an area of 147,610 square kilometres (56,990 sq. mi), and has in the year 2018-19, according to the 2019 World Population Review, an estimated population of 168.07 million (World Population Review, 2019). According to the International Monetary Fund (IMF), Bangladesh is one of the three fastest-growing economies in the world (The Daily Star, 2019a). For the fiscal year 2017-18, its GDP growth was around 7.86% (BBS, 2019). After analysing the data for the current year 2018-19, the Bangladesh Bureau of Statistics (BBS) has estimated that Bangladesh's GDP growth is set to hit 8.13%, based on a strong export performance and the general expansion of its industries (BBS, 2019). The PwC Report (2017) has concluded that Bangladesh has the potential, along with India and Vietnam, to be one of the fastest-growing economies over the period up to 2050.

Recently, Bangladesh has satisfied the eligibility requirements to upgrade from 'Least Developed Country' (LDC) to 'Developing Country' status and is expected to leave that LDC category by 2024 (UN, 2018). The growth of the Bangladeshi economy has been widely recognised by various financial institutions and investment banks, such as Goldman Sachs and JP Morgan. Bangladesh is also included by Goldman Sachs and JP Morgan in their 'Next 11' emerging countries to watch after BRIC (Brazil, Russia, India and China). They also included Bangladesh in the 'Fortier Five' emerging economies lists that were recommended as best future investment destinations (McKinsey Report, 2011). The Asian Development Bank (ADB) also listed Bangladesh

as achieving the fastest economic growth in the Asia-Pacific region for the fiscal year 2018-19 (The Daily Star, 2019a).

The Readymade Garment (RMG) industry of Bangladesh was launched in the 1970s; it has, within 30 years, become the second-largest garment-exporting country in the world (BGMEA, 2019). Currently, there are 4,500 garments factories operating in Bangladesh, and the contribution of this sector to the economy in the year 2017-18 (BGMEA, 2019) totals around USD 30.61 billion. More than 80% of the country's total exports are provided by the RMG industry (Bangladesh Economic Review, 2018). The "Made in Bangladesh" tag has brought prestige to the country by making it a prominent brand in the international market (BGMEA, 2019). The RMG sector has made a considerable contribution to maintaining Bangladesh's consistent GDP growth in the past few years (BBS, 2018). Currently, there are five million workers in the RMG sector, of which 80% are women (Bangladesh Economic Review, 2018). The RMG sector plays a vital role in the Bangladeshi economy because of its huge contribution to women's empowerment, employment generation and foreign currency reserves. The RMG sector has a major impact on all the other major sectors with which it is interlinked, such as banking, insurance, shipping and transportation. As stated in the McKinsey Report (2011), the Bangladeshi RMG industry offers two clear advantages: price and capacity. This key industry attracts international retailers through its long-term experience of providing a compatible price range, a large capacity, a variety of product portfolios and favourable duty-free trade agreements. The McKinsey report (2011) forecast that the Bangladeshi garment sector could have doubled by 2015, and nearly tripled by 2020, employing six million people directly.

Bangladesh is the world's second-largest readymade garments exporter after China, exporting mainly to the European Union (59%) and USA (29%), with other parts of the world contributing 12% (BGMEA, 2019). In 2010, China was the leading exporter of readymade garments to Europe and the US, accounting for approximately 40% of its economy's total exports (McKinsey report, 2011). Recently, because of a labour shortage, an increase in labour wages and capacity pressure, there has been a decline in the export of readymade garments in China, and as a result, its market share in 2018 dropped from 39.3% to 36.4% (Selim, 2018). This shifting of business away from China can be considered a major future business prospect for the Bangladeshi RMG industry. Inspired by these future market opportunities, the Bangladesh Garments Manufacturers Association (BGMEA) has set an aspirational target of USD 50 billion by 2021, when the country will celebrate its 50th year of independence (The Daily Star, 2016).

However, the Bangladeshi RMG industry has also been strongly criticised for their notorious practices concerning alleged violations of health and safety regulations as well as their apparent failure to implement labour rights. In November 2012, 112 workers lost their lives in a tragic industrial accident in 'Tazreen Fashions' in the suburbs of Dhaka (ILO, 2019). Five months later, a building in the capital city of Dhaka called 'Rana Plaza', which housed five garment factories collapsed, killing at least 1,132 people and injuring more than 2,500 (ILO, 2019). These catastrophic incidents projected a highly negative image of the Bangladeshi RMG in the international market. Several labour rights organisations such as the International Labour Organisation (ILO), and the Clean Cloth Campaigns (CCC), along with international retailers, all called for reassurance from the Bangladeshi RMG sector that they would adopt appropriate health and safety practices. Recently, a number of workers' protest demonstrations took place in the Bangladeshi RMG sector, demanding workers' rights and welfare in terms of fair wages and a safe working environment. To tackle these challenges, the garments industry owners, along with the Bangladesh government and industry associations, have started to work jointly to resolve these environmental and social problems in order to make the RMG industry a safe and sustainable business destination. The owners of this industry, along with the Bangladeshi government, have taken several ground-breaking steps to ensure more sustainable solutions to those problems. National and international reform platforms, such as the National Action Plan (NAP), 'Accord[1]' and 'Alliance[2]', started collaboration programs with the Bangladeshi government, designed to implement reasonable health and safety measures to ensure a safe Bangladeshi RMG industry. Moreover, the relevant Labour Law has been amended, ensuring noticeable improvements in workers' rights and welfare. Also, decisions have been taken during the past five years to increase the entry-level wages of RMG workers (BGMEA, 2019). BGMEA, in collaboration with the ILO, are also implementing extensive training programs on worker-management relations, occupational health and safety and labour laws for both factory management and workers (BGMEA, 2019).

[1] The 'Accord' on Fire and Building Safety in Bangladesh is an independent, legally binding agreement between international brands, retailers and trade unions designed to build a safe and healthy Bangladeshi RMG Industry (Accord, 2019).

[2] The "Alliance", is a group of twenty eight major global retailers formed to develop and launch the Bangladesh Worker Safety Initiative undertaking, with the intention of improving workers' safety in Bangladeshi RMG companies (Alliance, 2019).

The RMG industry's production processes can have various adverse environmental impacts. Firstly, the industry requires, throughout its entire production process, massive amounts of clean water, dyes and chemicals for the washing, dyeing, and finishing of textiles. The leftover wastewater from this production process, a combination of toxic materials, chemicals, and water, is then discharged to nearby watersheds. The Institute of Water Modelling (IWM) conducted a pollution assessment recently and revealed that the RMG industry was one of the largest contributors watershed pollution in Dhaka (Selim, 2018). Although there is a regulatory requirement to install mandatory Effluent Treatment Plants (ETPs) for wastewater management, due to the lack of regulatory monitoring, factories are reluctant to comply with these regulatory requirements (Selim, 2018). Secondly, the RMG industry sector is highly energy-intensive, and the main contributor to greenhouse gas emissions. Moreover, the production process (i.e. steaming, heating, bleaching, fabric printing, and finishing) releases different types of toxic gases (nitrous oxide, sulphur dioxide, carbon monoxide, chlorine dioxide, hydrocarbons and ammonia), all of which contribute to air pollution.

The biggest challenge for this industry was to take the necessary steps to overcome these problems whilst retaining its positive image in the international market. Incorporation of environmentally and socially sustainable business practices can be considered a potential solution for dealing with these challenges. Recently, firms have started to address environmental and social issues, and often opting to pursue independent third-party certifications such as ISO 14001, OHSAS 18001, CarboNZero, SA 8000 and Business Social Compliance Initiative (BSCI). A total of ninety RMG factories have so far achieved the LEED certification (Leadership in Energy and Environmental Design) provided by the US Green Building Council (USGBC) for setting up green factories (USGBC, 2019). A growing number of RMG companies have adopted ISO 14001 to install environment management systems. In collaboration with the World Bank (Bangladesh Economic Review, 2018), the Bangladeshi Government's Department of the Environment (DoE) has started to monitor and manage air pollution through a scheme called 'Clean Air and Sustainable Environment (CASE)'. In order to meet the requirement of accountability to different stakeholder groups, several Bangladeshi RMG companies have started to publish stand-alone sustainability reports in accordance with the Global Reporting Initiative (GRI) guidelines (GRI, 2019).

As business is shifting from China, international retailers are searching for the 'next China'. Chief purchasing officers (CPOs) surveyed in the McKinsey report (2011) have claimed that shifting to Bangladesh is the only alternative, because of its price-

competitiveness and capacity. According to the McKinsey report (2017), 49% of the CPOs in their survey considers Bangladesh as their next preferred destination. To sustain performance in the current market, as well as to seize future market opportunities, Bangladeshi RMG factories are seeking to construct a conducive environment for international buyers by improving their corporate sustainability performances (CSP) in all three dimensions: economic, environmental and social.

1.2 Rationale of the Research Study

Frequent instances of environmental degradation and human rights violations in the RMG industry have caused the issue of sustainability to become an issue for discussion amongst several stakeholder groups. Given that the RMG sector is considered to be one of the main contributors to unsustainable business practice in Bangladesh (i.e. high carbon emission, extensive usage of chemicals and natural resources), it is that sector's responsibility to find innovative solutions to the challenge of achieving greater sustainability. The United Nations World Summit for Sustainable Development (2002) voiced the need back then for business organisations to achieve the goal of a sustainable society through sustainable business practices (SBPs) (Naeem and Welford, 2009): "A business practice that is economically viable, socially responsible and environmentally friendly is usually regarded as a sustainable business practice (SBPs)" (UNF, 2019). In 2015, the '2030 Agenda for Sustainable Development', was adopted by all United Nations Member States; it outlined seventeen Sustainable Development Goals (SDGs), which express a strict requirement to incorporate SBPs, in order to ensure that those SDGs are attained by both developed and developing countries (UN, 2019). The main aims of this agenda are to improve health and education, reduce inequality, and expedite economic growth, as well as tackle climate change (UN, 2019).

These SBPs will not be easily adopted by the RMG factories, as their successful implementation involves conflicting ethical and practical challenges (Kabir, 2017). The adverse after-effects of climate change, the exhaustion of natural resources and the growth in inequity owing to unsustainable business practices, make sustainability crucial in the RMG industry (Epstein and Roy, 2001; Montiel, 2008; Nixon et al., 2011; Lueg and Radlach, 2016). Following some recent catastrophic accidents, labour rights violations and destructive environmental practices, international retailers have also been demanding, alongside price competitiveness, the incorporation of SBPs. However, multidimensional and overlapping aspects of sustainability (economic development, social equity, and environmental protection), make it more challenging

for the RMG sector to incorporate and align SBPs into their core business activities. As discussed in the previous section, the RMG industry's contribution to the Bangladeshi economy is manifold and is regarded as the lifeline of the Bangladesh economy, with millions of workers and their families depending on it for their livelihood. Moreover, this sector is also one of the major contributors to Bangladesh's foreign currency reserves. Any declining trend in the RMG sector's share in the export market would have severe negative consequences for the Bangladeshi economy, as this sector is considered as a source income for around twenty million people. Although the RMG sector has had a massive impact in accelerating the economic growth of Bangladesh, several environmental and human right costs associated with this growth still remain to be addressed (BAPPG, 2013). Given the hazardous working conditions, gender discrimination, inadequate health and safety facilities, worsening labour conditions and lack of employee welfare practices in the Bangladeshi RMG sector, the implementation of sustainable business practices (SBPs) can be seen as having the potential to solve these major problems (Rahman, 2009). The SBPs can help this buyer-driven export-led sector to ensure equality, societal equity, accountability and transparency (Belal and Cooper, 2011).

The garment industry stands out as one of the most globalised industries in today's world. The RMG industry is a buyer-driven supply chain led by a coalition of retailers, contractors, subcontractors, merchandisers, buyers and suppliers. Bangladeshi RMG companies are mainly the first-tier suppliers of renowned international brands. Unsustainable business practices in any part of the supply chain affect all the affiliated partners. International Retailers (IRs) are also exerting heavy pressure on these suppliers to comply with environmental and social requirements. Suppliers' cooperation is crucial in incorporating SBPs throughout the supply chain, as IRs are largely dependent on those companies for manufacturing their products (Koplin, 2005; Jacobs, 2006). Furthermore, high expectations from government, NGOs, community and voluntary pressure-groups (i.e. ILO and the Clean Clothes Campaign), and from the public media to improve their corporate sustainability performance (Aboelmaged, 2018) have generated tremendous pressure on RMG companies to embed sustainability-related considerations into their organisational practices in accordance with the demands from different stakeholders (Schöggl et al., 2016; Delmas and Toffel, 2008; Sarkis et al., 2010; Yu et al., 2017). Traditionally, these RMG organisations have been reluctant to incorporate sustainability concerns into their corporate policies and processes, owing to concerns that meeting environmental and social welfare requirements would lead to increased costs, thereby jeopardising economic

sustainability (Kabir, 2017; Florida, 1996; Found, 2009; Khor, 2011). In the past few years, RMG factories have started to make strides in terms of environmental and social business practices. However, those RMG companies are struggling to invest in the SBPs owing to the continuous increases over the past few years in the price of land, utilities, energy and labour costs. The search for lower production costs has resulted in serious neglect of workplace safety practices and ferocious nullification of labour rights (Nova, 2012). All episodes of frequent labour unrest and environmental degradation highlight the crucial need for the RMG industry to improve their CSP effectively. It is becoming increasingly challenging for RMGs to survive in an intense market that involves fierce price competition for cheap labour alongside insistent demands for improved social and environmental performance.

Very few studies seek to identify the organisational pressures to improve corporate sustainability performance, either in the emerging economies' context in general or the RMG industry's in particular (Diabat et al., 2014; Wijethilake et al,. 2017; Awan et al., 2017). Most of them examine the impact of external pressure or various stakeholder pressures to improve environmental or economic performance (Eiadat et al., 2008; Sarkis et al., 2010 Wu et al., 2012; Cai and Zhou, 2014; Yu et al., 2017; Dubey et al., 2017). Only a few studies explore both internal and external pressures on this phenomenon (Abdalla and Siti-Nabiha, 2015; Emamisaleh and Rahmani, 2017). Up until now, a limited number of empirical studies have operationalised the CSP holistically by using the Triple Bottom Line (TBL) approach (Elkington, 1994), which includes all three dimensions of sustainability (Qu et al., 2015; Ye et al., 2015; Cegarra-Navarro et al., 2016; Ezzi and Jarboui, 2016; Rashid et al., 2016). This study responds to these gaps by identifying the major external and internal pressures which companies are facing to improve their corporate sustainability performance in all three dimensions, within the empirical setting of the Bangladeshi RMG industry. A detailed investigation of those pressures to improve corporate sustainability performance will have important implications for highlighting and understanding the multifaceted relationship between external and internal pressures, and its impact on economic, social and environmental performance.

In the extant literature, an increasing body of studies focus on the usage of Management Control Systems (MCS) in the coordination and implementation of business activities (Gond et al., 2012; Arjaliès and Mundy, 2013; Wijethilake, 2017; Delmas and Toffel, 2004; Durden, 2008; Pondeville et al., 2013). However, the concept of MCS in sustainability management known as the 'Sustainability Management Control System' (SMCS) is a relatively new area of research. There are several

studies on environment and social management systems (Durden 2008; Henri and Journeault, 2010; Pondeville et al. 2013), but a holistic method of analysing the internal management control system in relation to overall sustainability management and its impact on CSP is still missing (Wijethilake, 2017; Crutzen et al., 2017). This gap in the extant literature has provided strong motivation for the researcher to investigate the impact of this dedicated SMCS on corporate sustainability performance in a developing country's context. This study operationalises a mediating variable called the 'Sustainability Management Control System (SMCS)', which will be tested on the relationship between both internal and external pressures and all three dimensions of corporate sustainability performance.

Because of globalisation, many developing countries like Bangladesh are increasingly transforming themselves into manufacturing hubs for many popular industrial brands (Mani et al. 2014). Bangladesh is one such attractive spot for the IRs, due to its competitive rates as well as its satisfactory quality, and its short lead time. As sustainability-related awareness has increased in recent times, buyers are learning to purchase goods and services from suppliers who can not only guarantee low costs, high quality, and short lead times, but also provide the reassurance of a reliable image as a firm championing sustainability (Bai and Sarkis, 2010). As a result, IRs are periodically evaluating a firm's sustainability performance as part of their supplier selection and evaluation process. To ensure the embeddedness of sustainability throughout the supply chain, international buyers are not only considering a competitive price range when selecting their suppliers, but also including several environmental and social criteria in their evaluation process. Puma, a major international brand, select their suppliers based on the compliance and sustainability performance requirements according to their Handbooks for sustainability (Puma Sustainability Handbook, 2019). They also include quality, price, delivery performance and customer service in their supplier selection process. The third objective of this study is to address this phenomenon by developing a 'Multiple Criteria Decision Making (MCDM) model which will be used to evaluate best-practising RMG companies based on their corporate sustainability performance according to the TBL concept (Elkington, 2004, Elkington, 1994).

A few studies in the existing literature create in-depth case-study-based research designs for investigating the role of SMCS in improving CSP in response to the organisational pressure (Norris and O'Dwyer, 2004; Schaltegger and Wagner, 2006; Morsing and Oswald, 2009; Riccaboni and Leone, 2010; Crutzen et al., 2017; Ditillo and Lisi 2016; Durden, 2008). There are a very limited number of survey-based

research studies which statistically examine the conceptual frameworks and explore the direct and indirect role of different mediating variables and its effect on CSP improvement (Wijethilake, 2017; Henri and Journeault, 2010). As far as the researcher's knowledge is concerned, this is one of the first empirical studies to empirically investigate the mediating role of SMCS in the relationship between both internal and external pressures and CSP. The questionnaire survey method was chosen to test empirically the hypothetical relationships proposed by the conceptual framework, in order to generalise the findings of the study amongst the RMG companies of the emerging economies. This would not be achievable by case-study based research design alone.

1.3 Research Design and Research Objectives of the Study

Firstly, this study proposes a conceptual framework based on an extensive literature review with the aim of empirically investigating the direct effect of both internal and external pressures on corporate sustainability performance, as well as the mediating effects of SMCS. Secondly, this study develops an MCDM model for corporate-sustainability performance benchmarking based on the concept of TBL. To test the proposed conceptual framework, the constructs of the framework are operationalised through an extensive literature review, and then data are collected by means of a large-scale questionnaire-based survey conducted in the Bangladeshi RMG industry. Then Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) are performed to find out the factor loadings with statistically significant items. Next, Structural Equation Modelling (SEM) is employed to test the hypothetical relationships of the conceptual framework. Then, in the next stage of this study, the factor loadings for corporate sustainability performance (i.e. economic, environmental and social) that were examined in the previous stage of the SEM analysis are applied to construct the MCDM model using Analytic Network Process (ANP) that is used for benchmarking process of best-practising RMG companies. A pair-wise comparison questionnaire survey, document analysis and semi-structured interviews are used for the data collection process, in order to test the MCDM model.

The research objectives of this study are specified below:

1. To identify the major internal and external pressures behind the improvement in corporate sustainability performance, and to assess the relationship among those pressures and performance.

2. To investigate the mediating role of a 'Sustainability Management Control System' (SMCS) between organisational pressure (i.e. internal and external) and corporate sustainability performance.
3. To benchmark the best-practising companies based on their corporate sustainability performance through a multiple-criteria decision-making model.

In this study, the hypothesised relationships of the proposed conceptual framework are explained using the Contingency Theory (CT) approach. The CT approach posits that organisations adapt their structures and strategies (i.e. SMCS) in order to be able to adapt to fluctuating contextual factors (i.e. internal and external pressures) whilst still achieving high-performance parameters (i.e. economic, environmental and social performance) (Donaldson, 2001; Lawrence and Lorsch, 1967; Miles and Snow, 1978). A limited number of recent studies have applied the contingency theory to sustainability management control systems and performance literature. This is still an emerging area of research (Ganescu, 2012; Chan et al., 2016; Feng et al., 2016; Yu et al., 2017). Hence, this study contributes to the existing sustainability performance management related literature by proposing and empirically evaluating a conceptual framework based on contingency theory in an emerging economies context.

The findings of this study have substantial practical implications for the RMG companies of the developing countries. Firstly, it will provide practitioners and policymakers with a detailed understanding of the major external and internal pressures to improve CSP, as well as an appreciation of their relationship with all three dimensions of CSP (i.e. economic, environmental and social). This information will help them to prioritise SBPs based on their influence on CSP improvement. Secondly, a dedicated SMCS will provide a thorough guideline to corporate managers as well as policy-makers when determining how an integrated management control system can be designed to become more sustainable in the globally competitive market that is the RMG industry. Lastly, the developed MCDM model for corporate-sustainability performance- benchmarking can be utilised by corporate managers as an important strategic tool for evaluating their CSP and comparing it with their best-practising competitors. This information will assist those companies in their managerial decision-making process by prioritising SBPs to improve their economic, environmental and social performance. This benchmarking tool can also be a convenient device for preparing those companies for the supplier selection process based on the TBL criteria.

1.4 The Structure of the Thesis

The structure of the remaining thesis is given below:

Chapter two provides an extensive literature review of both theoretical and empirical studies relating to organisational pressures on corporate sustainability performance (CSP) improvement, as well as mechanisms to improve such performance. This chapter also discusses studies in the existing literature that focus on sustainability management control systems. The literature relating to the multiple criteria decision-making models used in corporate sustainability-performance benchmarking is also included in this chapter.

Chapter three discusses the proposed conceptual framework and development of the corresponding hypotheses based on an extensive literature review.

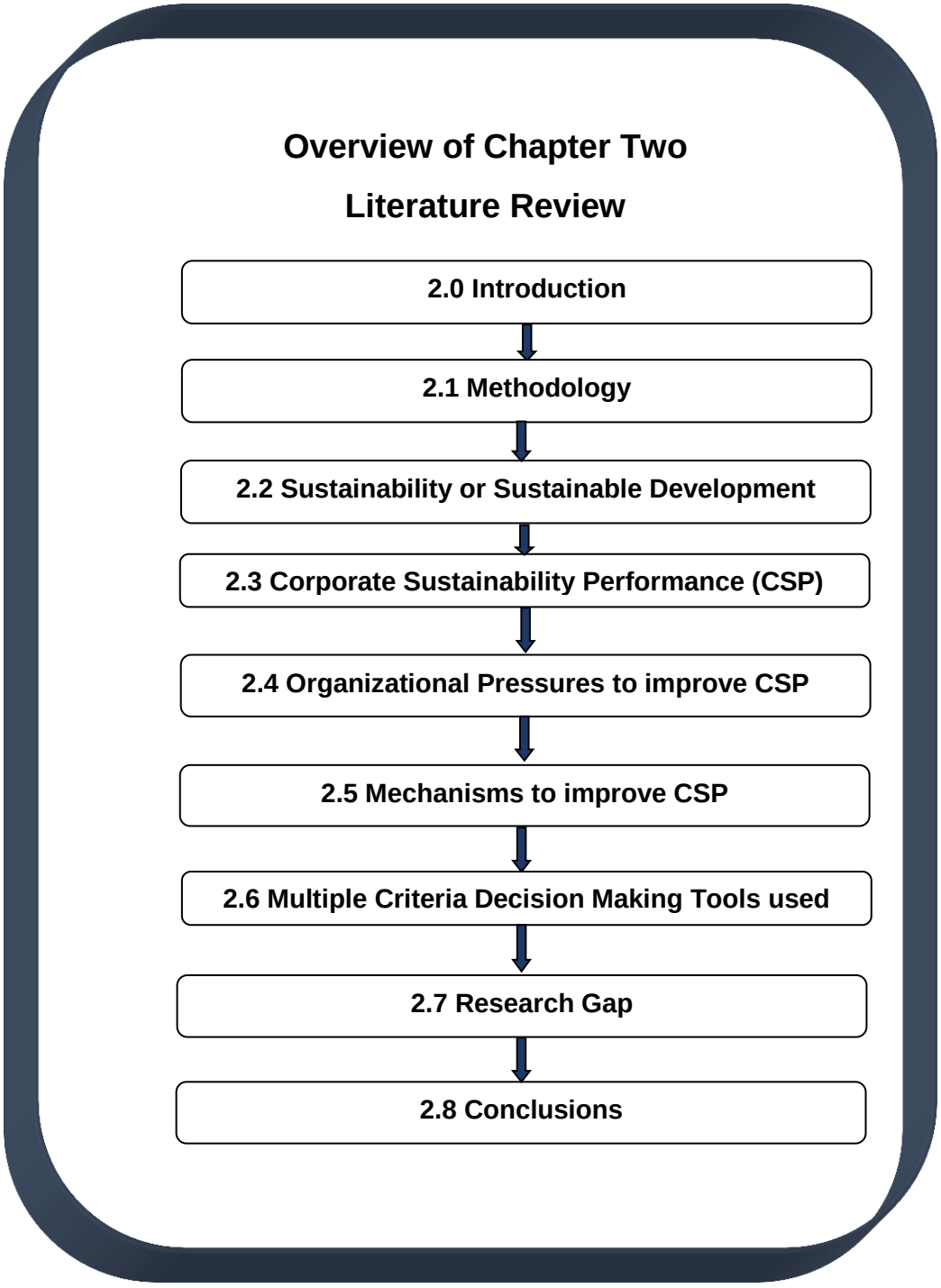
Chapter four discusses the research design and research methodology of the proposed study.

Chapter five reports the results of the exploratory and confirmatory factor analysis.

Chapter six reports the results of the hypothesis testing, using Structural Equation Modeling (SEM).

Chapter seven discusses the development of a Multiple Criteria Decision Making (MCDM) model using Analytical Network Process (ANP).

Chapter eight provides a comprehensive discussion of the findings drawn from this thesis. This chapter also addresses the theoretical contributions as well as the practical implications of this research study. Next, the limitations and future directions of this study are discussed in this chapter. Finally, this chapter concludes by providing a summary of the overall research work.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Chapter 2 Literature Review

2.0 Introduction

The purpose of this chapter is to review both theoretical and empirical studies related to organisational pressures on corporate sustainability performance (CSP) improvement, and mechanisms to improve such performance. This chapter also discusses studies in the existing literature that focus on sustainability management control systems. The literature relating to the multiple criteria decision-making models used in corporate sustainability performance benchmarking were discussed in the successive sections. The main aim of this chapter is to provide an extensive literature review in order to highlight the research gap addressed by the intended study, so as to formulate the research objectives.

2.1 Literature Search Process

This study conducts an extensive literature search that focuses on peer-reviewed journal papers, books, reports, online resources and company reports. It is not possible to capture all relevant sources using only one database; therefore, this study included several popular databases such as Elsevier Scopus, ScienceDirect, ProQuest, Web of Science and Google Scholar. The primary search keys were ‘Sustainability’, ‘Corporate Social Responsibility’, ‘Triple Bottom Line (TBL)’, ‘Internal', 'External', 'Pressure’, ‘Sustainability Management Control System’, ‘Economic’, ‘Environmental’, ‘Social’ ‘Performance’, 'benchmarking', 'Analytical Network Process' ‘Readymade Garments’, ‘developing country’ and ‘emerging economy’. Additional relevant papers which were not related directly to the search keys, but which were relevant to the proposed research interest, were also considered. Only sources written in the English language were considered, and both qualitative and quantitative studies were included. Boolean operators such as AND, OR were used to improve search accuracy. The time-frame set up for the search procedure is from 1994 to the present, as the concept of TBL was first coined in 1994 by Elkington. Afterwards, partial screening was done by reviewing only the abstracts of the shortlisted paper to ascertain their relevance to the proposed research objectives. Sources which were found to be relevant to the intended research interests of the study were shortlisted for a thorough review. After an in-depth examination of the qualified papers, valuable information was extracted by annotating, coding and categorising the relevant data following Merriam and Tisdell (2015). Lastly, based on the extracted essential information, relevant sources were categorised based on their shared interests in different folders and tables.

2.2 'Sustainability' or 'Sustainable Development'

Sustainability is a multi-dimensional concept which itself is often contentious and has been the subject of much debate in the management literature (Bebbington, 1997). Over the years, the term ‘sustainability’ entails different perceptions depending on who uses it and in which context. There exist various terms which are used synonymously for sustainability, such as sustainable development (SD), sustainable business, and Corporate Social Responsibility (CSR) (Ebner and Baumgartner, 2006; Naudé et al., 2012). For the past two decades, the concept of SD has attracted several areas of literature (Dyllick and Hockerts, 2002; Hopwood et al., 2005; Moon, 2007; Redclift, 2005; Bansal, 2005; Daily and Huang, 2001; Melville, 2010; Walker et al., 2014), but has not been appropriately defined (Bell and Morse, 2012). The most widely accepted definition of sustainability is provided by the WCED Report (1987). This postulates that the moral imperative behind the ‘sustainability’ concept implies an inclusive process where natural and other resources at present are supposed to be shared in such a way that both present and future generations can meet their needs without exceeding current and future ecological capacity. In other words, Elkington (1994) defines sustainability in terms of Triple Bottom Line (TBL), also known as "people, planet, profit", a formulation which helps organisations to expand their focus from a single bottom line of financial performance to include social and environmental performance (Isaksson et al., 2015). This study will adopt an approach to sustainability from the ‘Triple Bottom Line’ (TBL) perspective.

Whilst the concept of ‘sustainability’ calls for a convergence between the three overlapping aspects: economic development, social equity, and environmental protection, over the past twenty years it has often been compartmentalised as an environmental issue (IISD, 2010). Kearins and Springett (2003) criticised business front-groups for mitigating the radical edge of the notion of ‘sustainability’ to make it acceptable for corporate adoption (Levy, 1997; Beder, 2002). Along with business front-groups, some academic disciplines are also responsible for compartmentalising the concept of ‘sustainability’ within environmentally-friendly business practices. Perhaps as a result of this compartmentalisation, the business sector seems to have perceived eco-efficiency as the guiding principle for achieving sustainability. In this study, the concept of sustainability is viewed beyond its ecological dimension. It is viewed as a means of progressing towards the creation of a just and fair society for both human and ecological life by remaining accountable to them for all its policies and actions.

2.3 Corporate Sustainability Performance (CSP)

Corporate sustainability performance (CSP) measures the extent to which a firm incorporates economic, environmental and social business practices into its operations, and hence the impact of these practices on business and society (Artiach et al., 2010). According to the TBL approach proposed by Elkington in 1994, there are three dimensions of CSP: economic, environmental and social. The economic performance, also known as the financial performance, of the firm is usually measured in terms of its profit margin, sales volume, Return on Investment (ROI), Return on assets (ROA) and market share. Environmental performances are measured using an amount of waste reduction, adoption of resource efficiency practices (e.g. re-use, recycle), reduction in consumption of hazardous materials, pollution prevention, and adoption of Environmental Management Systems (EMS). Ensuring the health and safety of employees, community development practices, ensuring employee wellbeing, and adoption of social certifications, are generally used to evaluate an organisation's social performances.

There are several studies in the literature that relates to corporate sustainability performance (e.g., Gimenez and Tachizawa, 2012; Hervani et al., 2005; Bai and Sarkis, 2014; Srivastava, 20072; Fortes, 2009; Sarkis et al., 2011). Seuring and Müller (2008) reviewed 191 papers published from1994 to 2007 and classified the corporate sustainability performance literature into six categories: sustainable, environmental, ecological, green, social, and ethical. Traditionally research has focused primarily on measuring sustainability performance in terms of the economic dimension of the TBL, such as competitiveness, and in particular cost, quality, speed, flexibility and reliability of performance objectives (Gunasekaran and Kobu, 2007; Akyuz and Erkan, 2010; Taticchi et al., 2013). However, environmental performance has gradually attracted academic researchers' attention (Holt and Ghobadian, 2009; Testa and Iraldo, 2010; Veleva et al., 2003; Mintcheva, 2005; Hervani et al. 2005; Baboulet and Lenzen, 2010; Björklund et al., 2012), although only a limited number of publications focus exclusively on social performance measures (Perry and Towers, 2013; Nollet et al., 2016). Recently, a limited number of studies have started to contribute explicitly to the essentially holistic view of sustainability evident in the existing literature (Hassini et al., 2012; Qu et al., 2015; Chang et al., 2018; Afzal et al., 2017; Ye et al., 2015; Cantele and Zardini, 2018; Wijethilake, 2017).

There exist mixed findings of the relationships between the three dimensions of sustainability performance parameters. In the mid-90s, Porter and Van der Linde (1995) predicted that the implementation of an environmental management system

(EMS) would improve an enterprise's competitive advantage as well as improve its market share by promoting a positive company image, For this reason, the area of environmental management has attracted substantial attention from both academics and practitioners (Ambec and Lanoie, 2008; McGuire et al., 1988; Orlitzky et al., 2003; Amores-Salvadó et al., 2015; Wagner, 2015). Multiple studies have empirically revealed that EMS can enhance a firm's reputation, brand and trust to attract customers and employees and ultimately increase profitability (Porter and Kramer, 2011; Flammer, 2015; Song et al., 2017). Waddock and Graves (1997) found a significant positive correlation between EMS and organisational financial performance regarding the return on assets (ROA). On the same note, according to Klassen and McLaughlin (1996), environmental disclosure and management improve a company's financial performance by either increasing operating income or reducing product expenditure. Several empirical studies established a positive relationship between environmental practices and company performance (Yu et al., 2017; Henri and Journeault, 2010; Wagner, 2015; Chan et al., 2016; Eiadat et al., 2008; Hojnik and Ruzzier, 2017; Severo et al., 2017; Amores-Salvadó et al., 2015; Feng et al., 2016; Nishitani et al., 2017). In their recent study, Yu et al. (2017) established that an environmental innovation strategy fully mediates the relationship between stakeholder pressures and environmental performance, and partially mediates the effect of environmental regulation on financial performance in UK firms. Similar studies in this research area found that the stronger the environmental innovation strategy, the better the firms' business performance (Eiadat et al. 2008; Hojnik and Ruzzier, 2017). In their study, Qu et al. (2015) argued that managers' environmental awareness is helpful in driving and transforming environmental practices into sustainable development performance in Chinese eco-industrial parks. Numerous studies in the current literature recommend companies to combine cleaner production and environmental management in order to improve financial gain, return on assets and market performance (Severo et al., 2017; Amores-Salvadó et al., 2015; Lo et al., 2012).

However, several recent studies also reveal negative impacts within these relationships (Lucato et al., 2017; Hojnik and Ruzzier, 2017; Thornton et al., 2003). Lucato et al. (2017) argue that their research is in line with those authors who failed to establish a positive correlation between companies' environmental and financial performances. Hojnik and Ruzzier (2017) also argued that their study revealed the statistically non-significant relationship between ISO 14001 and firm performance. Similarly, the results of a survey conducted with Indonesian firms have shown that even though better environmental performance enhances their financial performance

to some extent, their effect on economic performance is not significant (Nishitani et al., 2017). Whereas Thornton et al. (2003) reveal inconsistent relationships between environmental performance and profitability, Wagner et al. (2002) suggest that the relationship between environmental and economic performance is uniformly negative.

On the other hand, socially responsible practices, if strategically managed, can also add value and competitiveness to the company (Neubaum and Zahra, 2006; Porter and Kramer, 2002) and foster its financial performance (Bohas and Poussing, 2016; Boesso et al., 2013; Carroll and Shabana, 2010; Freeman, 1984; Feng et al., 2016; Lo et al., 2012). The findings of the study conducted by Rodriguez Fernandez (2016) demonstrate positive relationships between social business practices and a firm's profitability. They carried out an empirical study on the companies registered on the Madrid Stock Exchange and concluded that there exists a positive relationship between social and financial performance. In their research, Nollet et al. (2016) proposed a linear model, and results suggest a significant negative relationship between social performance and Return on Capital. These authors argue that this negative relationship resulted from the cost of long-term planning and the considerable sum of resources dedicated to improving social performance.

In recent times, Corporate Social Responsibility (CSR) has equally become a significant challenge for firms to sustain in this highly competitive global market (Jamali, 2008; Kolk and Pinkse, 2006; Smith, 2003; Wagner, 2015). CSR consists of a set of social and environmental business practices that companies implement voluntarily in order to address both the social and environmental impact of their business and the expectations of their stakeholders (European Commission, 2001). Mainly, there are two types of companies that engage in CSR strategies. Some progressive organisations are adopting strict and rigorous approaches to incorporating CSR practices in order to generate significant CSR outcomes (Clarkson et al., 2011). On the other hand, some firms are reluctant to dedicate the resources required for CSR activities and instead engage in symbolic and opportunistic CSR governance to improve their corporate image (Wang and Sarkis, 2017).

Similarly, the literature also reports mixed relationships between CSR and a firm's financial performance (Seifert et al., 2003; Luo and Bhattacharya, 2006). Some previous studies reveal that CSR is positively associated with companies' financial performance, thus, companies are rewarded for good CSR performance but punished for violations (Brown, 1998; Seifert et al., 2003; Reverte et al., 2016; Wang and Sarkis, 2017; Ezzi and Jarboui, 2016). However, other studies report a negative association

between CSR and companies' market performance (Becchetti and Ciciretti, 2009; Brammer et al., 2006), as well as mixed or insignificant relationships (e.g. Barnett and Salomon, 2012; Wang and Sarkis, 2017). Margolis et al. (2009) reviewed 251 published papers, books, and dissertations on the relationship between CSR and financial performance. They concluded that there is a small positive relationship between CSR and financial performance and that the extent of this relationship has decreased in recent years.

A limited number of previous studies address all three dimensions of CSP (Qu et al., 2015; Chang et al., 2018; Afzal et al., 2017; Ye et al., 2015; Cantele and Zardini, 2018; Rashid et al., 2016; Wijethilake, 2017). The results of an empirical study performed by Cegarra-Navarro et al. (2016) found that the social, environmental and economic dimensions of sustainability positively affect the firm's competitive advantage, mediated by corporate reputation, customer satisfaction and organisational commitment. The conclusions of a similar study conducted in Australia illustrate that social performance consistently leads to improved economic performance, and furthermore, that environmental performance also had a positive effect on financial performance (Sila and Cek, 2017). Rashid et al. (2016) established in their study that the sustainable manufacturing process and end-of-life management approaches have a significant positive influence on all three dimensions of CSP. Similarly, Wijethilake (2017) revealed that the implementation of an integrated system such as 'Sustainability Control System' had a partial mediating effect on the relationship between proactive sustainability strategy and corporate sustainability performance. In contrast, the results of another study argued that although companies are using sustainable innovation strategies to support all three dimensions of CSP, in reality, they are more concerned about economic achievement, i.e. improved financial performance (Cegarra-Navarro et al., 2016).

Previous literature reviews on sustainability performance have brought interesting insights for both theory and practice (Morioka and de Carvalho, 2016). Plenty of studies in the current literature develop different conceptual models based on prevailing theories in order to test the mediating and moderating role of various sustainability-related strategies and systems on corporate sustainability performance (Yu et al., 2017; Song et al., 2017). There are two key themes in the existing sustainability performance literature. The first body of research emphasizes the importance of defining and developing sustainability performance indicators, systems and methods for measuring, monitoring and controlling sustainability performance (Epstein and Roy, 2001; Shaw et al., 2010; Hubbard, 2009; Hervani et al., 2005). The

second, increasing body of the literature proposes different conceptual frameworks and models which empirically investigate the moderating and mediating role of different management control systems and innovation strategies on sustainability performance improvement (Qu et al., 2015; Eiadat et al., 2008; Severo et al., 2017; Amores-Salvadó et al., 2015).

In summary, the results of this review of previous literature indicate that financial performance is still the primary target of most organisations (Afzal et al., 2017). Although companies are using innovative strategies and systems to support economic, environmental and social achievements, in reality, they are only aiming to improve financial outcomes in order to achieve a higher level of economic performance (Cegarra-Navarro et al., 2016). The literature review of the area of corporate sustainability performance is summarised in the following Table 2.1. The next section will discuss the organisational pressures behind corporate sustainability performance improvement.

Table 2.1 Corporate Sustainability Performance Literature Review

References	Methodology	Industry	Country	Sustainability Performance	Results
Chen et al. 2015	Questionnaire survey	Electronics	Taiwan	Economic	Firm's green business practices have positive effects on a firm's economic performance
Paulraj, 2011	Questionnaire survey	Mixed	US	Economic Environmental Social	Internal resources and capabilities can play a vital role in improving the sustainability performance of the organisation.
Yu et al. 2017	Questionnaire survey	Manufacturing	UK	Economic Environmental	Environmental innovation strategy fully/partially mediates the relationship between environmental pressures and environmental performance and has a partial mediating the financial performance.
Hojnik and Ruzzier, 2017	Questionnaire survey	Mixed	Slovenia	Economic	There exist no statistically significant relationship between ISO14001 and the firm's economic performance.
Eiadat et al. 2008	Questionnaire survey	Chemical	Jordan	Economic	The environmental innovation strategy fully mediates the relationship between environmental pressure and firms' financial performance.
Qu et al. 2015	Questionnaire survey	Eco-industrial parks (EIP)	China	Economic Environmental Social	Introduction of environmental standards and building industrial association play essential roles in improving CSP.
Chan et al. 2016	Questionnaire survey	Mixed	China	Economic	Environmental dynamism has a relatively strong moderation effect on the relationship between green product innovation and firm profitability.
Severo et al. 2017	Questionnaire survey	Metal-mechanic sector	Brazil	Economic	Both cleaner production and EMS has a positive direct relationship with the firm's financial gain.
Amores-Salvadó et al. 2015	Questionnaire survey	Metal production and transformation industry	Spain	Economic	EMS positively moderates the relationship between environmental product innovation and firm's market performance.
Feng et al. 2016	Questionnaire survey	Manufacturing	China	Economic	There is a positive relationship between EMS and financial performance.
Awan et al. 2017	Questionnaire survey SEM	Manufacturing	Pakistan	Environmental Social	Sustainable supply chain production can play a vital role in achieving social and environmental performance.

References	Methodology	Industry	Country	Sustainability Performance	Results
Chang et al. 2018	Questionnaire survey	Construction	China	Economic Environmental Social	Sustainability attitude has a positive direct correlation with firm's performance, and larger firms tend to have better sustainability performance compared to small ones.
Afzal et al. 2017	Questionnaire survey and content analysis	Construction	Australia	Economic Environmental Social	The financial performance is the primary target of most organisations rather than environmental and social performance
Huang et al. 2016	Questionnaire survey	Manufacturing	China	Economic Environmental	Regulatory and customer pressure promotes green organisational responses and enhances environmental performance.
Lo et al. 2012	Secondary data	Fashion and textiles	U.S.	Economic	The adoption of ISO 14000 improves a firm's profitability regarding return-on-assets (ROA).
Zhu et al. 2005	Questionnaire survey	Manufacturing and processing industries	China	Economic Environmental	The adoption of the green practice in Chinese enterprises has improved their environmental performance but not their economic performance.
Ye et al. 2015	Questionnaire survey	Construction	China	Economic Environmental Social	The market competition positive effects on the economic and social dimension and adverse effects on environmental performance.
Cantele and Zardini, 2018	Questionnaire survey	Manufacturing	Italy	Economic Environmental Social	The social, environmental and economic dimensions of corporate sustainability positively affect competitive advantage, which also mediates to financial performance.
Cegarra-Navarro et al. 2016	Questionnaire survey	Spanish Social Environmental Agreement	Spain	Economic Social Environmental	Innovation outcomes support both economic and social achievements, but the primary concern of the firm is the financial performance
Sila and Cek, 2017	Content Analysis	ESG annual reports 2010-16	Australia	Economic Environmental Social	Social performance consistently improves economic performance. Moreover, environmental performance also had a positive effect on economic performance.
Nishitani et al. 2017	Questionnaire survey	Mixed	Indonesia	Economic Environmental	Indonesian firms enhance their financial performance slightly through better environmental performance.
Lucato et al. 2017	Questionnaire survey	Textile	Brazil	Economic Environmental	The large companies have low environmental performance regarding their eco-efficiency level compared to smaller ones.

References	Methodology	Industry	Country	Sustainability Performance	Results
Ezzi and Jarboui, 2016	Questionnaire survey	Mixed	Tunisia	Economic Social Environmental	There is a positive relationship between R&D and social performance and negative relationship with environmental performance.
Wagner, 2015	Questionnaire survey	Manufacturing	Dutch and German	Economic Environmental	There exist statistically significant direct links between economic and environmental performance.
Song et al. 2017	Questionnaire survey	Mixed	China	Economic Environmental	Environmental management has a significant positive relationship with financial performance.
Rodriguez Fernandez, 2016	Multivariate regression models	Mixed	Spain	Economic Social	There exist a positive relationship between social performance and profitability.
Nollet et al. 2016	Content Analysis	Mixed	Mixed	Economic Social	There is a significant negative relationship between corporate social performance and Return on Capital.
Adebanjo et al. 2016	Questionnaire survey	Manufacturing	Mixed	Environmental	There exists both significant direct and mediating relationship between external pressures, adoption of formal sustainability programs and environmental performances.
Rashid et al. 2016	Questionnaire survey	Manufacturing	Malaysia	Economic Environmental Social	The sustainable manufacturing process and sustainable end-of-life management have a positive and significant influence CSP
Wijethilake, 2017	Questionnaire survey	Manufacturing and Services	Sri Lanka	Economic Environmental Social	Sustainability Control System was partially mediated the relationship between proactive sustainability strategy and corporate sustainability performance.
Henri and Journeault, 2010	Questionnaire survey	Manufacturing	Canada	Economic Environmental	The results show that eco-control indirectly influences economic performance.
Gimenez et al. 2012	Questionnaire survey	Manufacturing	Mixed	Economic Environmental Social	Internal environmental programmes have a positive impact on the three components of the triple bottom line.

2.4 Organisational Pressures behind Corporate Sustainability Performance Improvement

Given the gradual contamination of natural resources and widening income inequality, the issue of sustainability has come to the forefront of discussion amongst several stakeholder groups, as well as various sectors of government, non-government organisations (NGOs) and business. The literature has identified some potential groups that exert pressures on companies to adopt environmental and social practices to improve their corporate sustainability performance (Marshall et al., 2005; Chahal and Sharma, 2006). Most of the researchers have contributed to this particular aspect, mainly focusing on the pressure and drivers of adopting environmental practices like eco-innovation, environment management systems, recycling and green purchasing (Cai and Zhou 2014; Eiadat et al., 2008). Some studies in the literature empirically investigated the primary factors that influence the adoption of eco-innovation (Cai and Zhou, 2014; Eiadat et al., 2008). The results of such studies reveal that eco-innovation is mainly triggered by a mixture of internal and external drivers, such as environmental regulations, customers' green demands, competitors, perceived importance of stakeholder pressures, and managerial environmental concerns. In addition to these pressures, there is much discussion in the existing literature of perceived competitive advantage, pressure from investors, employees, NGOs, trade bodies, international retailers and top management to implement such environmental practices (Giunipero et al., 2012; Garce´s-Ayerbe et al., 2012; Awan et al., 2017). Previous research also identified motives for corporate 'greening', such as regulatory compliance, competitive advantage, stakeholder pressures, ethical concerns, events and top management initiatives (Bansal and Roth, 2000; Lampe et al., 1991; Lawrence and Morell, 1995; Giunipero et al., 2012).

On the other hand, the number of studies that investigate the drivers of corporate sustainability performance improvement in the existing literature is limited (Haigh and Jones, 2006). Such pressures include stakeholder pressure, an organisation's competitive dynamics, pressures from institutional investors, end-consumers, government regulators and NGOs (Yu and Choi, 2016; Haigh and Jones, 2006). In their study**,** Yu and Choi (2016) argued that organisational culture has a fully mediating role in the relationship between stakeholder pressure (e.g. customer, shareholder, competitors, Government, NGO and employees) and the adoption of SBPs to improve performance. Some researchers also explored the financial drivers for SBPs to determine the cost-benefit analysis of adopting such practices (Scholtens, 2006). Several internal and external pressures underpin the adoption of sustainability practices to improve performance in all three dimensions. A number of the main internal and external pressures to improve corporate sustainability performance are discussed in the subsequent sections.

2.4.1 Internal Pressures

In previous studies, commonly listed internal pressures to improve CSP include pressure from internal stakeholders (e.g. employees, investors, shareholders, top-level management), pressures due to organizational moral or ethical concerns, pressure to enhance a firm's or brand's image, and environmental and social advocacy (Haigh and Jones, 2006; Sarkis 2001; Roberts 2003; Darnall et al. 2008; Seuring and Muller 2008; Björklund, 2011). Three additional main drivers from an economic perspective are cost reduction, better efficiency and increased profits (Berry and Rondinelli, 1998; Bhaskaran, 2006). In previous research, a limited number of studies have investigated the relationships between internal drivers and sustainability performances (Lee and Klassen, 2008; Walker et al., 2008; Zhu and Sarkis, 2006; Zhu et al., 2008).

Top management is a strong internal force that can foster corporate sustainability within an organisation (Banerjee et al., 2003). Several empirical examples are discussed in the literature that provide evidence of pressure from top management to adopt SBPs (Miras-Rodriguez et al., 2018; Zhu and Zhang, 2015; Wijethilake et al., 2017; Giunipero et al., 2012; Renukappa et al., 2013; Abdalla and Siti-Nabiha, 2015; Hamann et al., 2017). In their study, Dai et al. (2015) examine the mediating role of top management in enabling the firm to react to competitive pressures by implementing green management practices. The results from that study show that environmental pressure from rivals and stakeholders influences the firm to implement green management practices to improve environmental performance and in this case show that top management support has a mediating role behind such environmental initiatives. In a similar study, Vinodh et al. (2016) identified top management's commitment to sustainable business practices as one of the most influential factors driving the implementation of a lean, sustainable manufacturing system in Indian automotive companies.

Moreover, top managers have the power and authority to influence the firm to adopt sustainable strategies to avoid the penalties and business opportunities of non-compliance with local and global regulations (Hoffman, 2002). Furthermore, the empirical study by Hamann et al. (2017) confirmed that top managers' environmental responsibility is a vital driver for environmental practices in wine-producing firms in South Africa. In this study, Bhardwaj (2016) developed a sustainability strategy model using resource-based theory and value-chain analysis, and results showed that top management support is a key success for executing sustainable strategies in Indian organisations. In addition, top managers can stimulate their employees, spread a positive attitude and provide financial support for employing sustainable initiatives (Agan et al., 2013). It would be difficult to initiate and implement those sustainable actions successfully without support from top management (Schneider and Wallenburg, 2012). A firm's top management team has the

status necessary to influence an organisation's strategic programs and initiatives (Finkelstein and Hambrick, 1990; Mintzberg, 1979). Top management must be highly committed to implement this sustainability practice successfully and with excellence to improve overall CSP (Zsidisin and Siferd, 2001). In reality, the lack of top management support is a significant reason for the failure of environmental management practices (Hillary, 2004). However, it would be difficult for an organisation to initiate a sustainability project without the support of the top management (Berry and Rondinelli, 1998; Menguc et al., 2010). In contrast, if senior management is supportive and enthusiastic about implementing their firm's environmental and social activities, they may help the organisation to build a positive image and promote good relations with international retailers and other government and regulatory agencies (Colwell and Joshi, 2013; Huang et al., 2016).

Managers' moral values and their ethical commitment play an influential role in implementing environmental and social practices. Plenty of existing literature highlights managerial attitudes and views (Cordano and Frieze, 2000), managerial interpretations (Sharma, 2000), and environmental values (Egri and Herman, 2000); all influence management decisions regarding their environmental and social activities to enhance both environmental and social performance (Sharma, 2000). In order to investigate these phenomena, several recent studies have theoretically and empirically explored the relevance of managers' beliefs, assumptions, attitudes and motivations for environmental and social protection decisions (Marshall et al., 2005; Gonza´lez-Benito and Gonza´lez-Benito, 2006; Lee and Rhee, 2007; Gadenne et al., 2009; Garce´s-Ayerbe et al., 2012). In a qualitative study of UK businesses, Fineman and Clarke (1996) concluded that managers' moral values and beliefs act as a crucial mediator of stakeholder influence in enhancing environmental performance. In a different study, Cordano and Frieze (2000) presented empirical evidence supporting the view that managers' optimistic attitudes towards pollution prevention are positively related to their preference for source reduction activities. In a similar study, Bansal and Hunter (2003) investigated the critical factors which are necessary for firms' responses to environmental pressures and discovered that an organisation's values and managers' concerns for such matters play a vital role in formulating such a response. Moreover, besides external commercial drivers, managers' moral values and ethical commitment also play a critical role in the adoption of CSR practices (Hemingway and Maclagan, 2004; Duarte, 2010; Jin and Drozdenko, 2010). According to Haigh and Jones (2006), senior management must have an appropriate level of awareness regarding the content and potential instrumental value of CSR practices. Thus, the manager's moral values are considered an imperative pressure in underpinning SBP's adoption, such that they will eventually improve corporate sustainability performance.

Organisations have been traditionally hesitant to invest their resources in implementing SBPs, owing to the fear that implementation of environmental and social practices might result in increased costs, which in turn might have an adverse impact on their financial progression (Florida, 1996; Found, 2009; Khor and Udin, 2012). However, in recent times, organizations have become more optimistic with regard to the above issues, as they realize that adopting such practices not only reduces production costs but also enhances operational efficiency (Garza-Reyes, 2015; Corbett and Klassen, 2006; Hart, 1995; Porter and Van der Linde, 1995; Simboli et al., 2014). Moreover, it is clear from the existing literature that the perceived financial benefits of such sustainable practices will also increase the company's environmental and social responsiveness (Giunipero et al., 2012). Companies can reduce their environmental impact by planning their lean and green production processes in a way that will lower the costs of inputs and waste disposal, thus indirectly helping their economic bottom-line (Lampe et al., 1991; Porter and Van der Linde, 1995; Pullman et al., 2009). A good number of studies explore the role of green manufacturing practices in optimizing their resource and energy usage thereby increase the financial benefit to the firm (Dornfeld et al., 2013; Wu and Wirkkala, 2009; Searcy et al., 2012; Agan et al., 2013; Deif, 2011; Gabzdylova et al., 2009; Zhu and Sarkis, 2006). Alternatively, the socially responsible image of the company changes the perception of the customers and increases their willingness to buy specific brands and patronise certain international retailers, thereby helping profit maximisation (Ganesan et al. 2009; Luo and Bhattacharya, 2006). According to Waddock and Graves (1997), there is a significant positive relationship between corporate social performance and a firm's profitability. In summary, it is evident from the existing literature that cost reduction is an essential driver behind SBP's adoption, which will, in turn, improve CSP.

Employees are essential internal stakeholders who can initiate a firm's commitment to environmental and social activities (Hanna et al., 2000; Daily and Huang, 2001; Cantor et al., 2012). Employees are always encouraged to implement environmental and social practices as these will meet their demand for health and safety and fair wages, as well as a safe working environment. Some of the production operations may pollute the environment, thereby endangering the wellbeing of their employees; hence employees' calls for a firm to practise sustainable business practices (Searcy et al., 2012; Gabzdylova et al., 2009; Zhu and Sarkis, 2006; Dai et al., 2015; Govindan et al., 2015; Aboelmaged, 2018). Thus, workers as internal stakeholders play a significant role in the adoption of environmental and social operational practices (Sarkis et al., 2010).

2.4.2 External Pressures

Various external stakeholder groups, including international retailers, customers, local and global regulatory bodies, competitors, various pressure groups, media and community groups, pressurise firms to improve environmental and social performances by adopting various SBPs (Freeman, 1984; Backer, 2007; Zhu and Sarkis, 2007).

Christmann and Taylor (2001) argue that export and sales to international retailers are two significant motivating factors for improving the environmental performance of enterprises in China (Zhu et al., 2005). International retailers also require vendors to provide certifications of their environmental and social compliances with approved quality standards (Cai and Zhou, 2014). In the era of the fast-fashion industry and frequent changes in consumer behaviours and preferences, the trend of increased awareness of sustainability is one of the most important reasons by IRs pressurising to adopt SBP's adoption to improve CSP (Todeschini et al., 2017). Prothero (1990) portrays eco-consumerism as a valuable strategic tool for attracting new markets. Several studies establish empirically that customer awareness of environmental practices pressurises the IRs to make their product more green-sensitive (Dornfeld et al., 2013; Wu and Wirkkala 2009; Searcy et al., 2012; Pun et al., 2002; Agan et al., 2013; Massoud et al., 2010; Gabzdylova et al., 2009; Govindan et al., 2015).

The regulatory burden is most likely a key driving force to push firms towards sustainable development (de Brito et al., 2008; Chan et al., 2016). Both global and local regulatory agencies are introducing stringent environmental and social regulatory policies to ensure ethical environmental and social practices in the organisations (Bai and Imura, 2001; MacBean, 2007). In the early 90s, a well-known Professor from Harvard Business School challenged assumptions about the impact of environmental regulation on business by stating that: "Strict environmental regulations do not inevitably hinder competitive advantage against rivals; indeed, they often enhance it" (Porter 1991, 168). On the same note, according to Ambec et al. (2013), these regulations create pressure that encourages the organisation to practise innovation and make progress in CSP enhancement. Global regulations usually originate from international buyers worldwide. For example, Chinese exporters have faced environment-related export barriers erected by the EU and the US for not complying with international environmental and social regulations (Yu and Choi 2016).

On the other hand, local regulations, like government legislation, are also considered as an important driving force when adopting sustainable initiatives into a firm's operations (Aboelmaged, 2018). In this regard, Awan (2016) emphasises that regulatory governance should be one of the most important external pressures when seeking greater

effectiveness of sustainability initiatives. Government regulations impose direct pressure on organisations, reflecting local and international concerns regarding cleaner production, resource utilisation and social responsibilities (Awan et al., 2017). Therefore, it is clearly established in the sustainability research that the initial motivation for adopting sustainability practices has come from the significant influence of governmental regulations. Several studies in the existing literature show the importance of regulation as a driver for corporate ecological responsiveness (Lampe et al., 1991; Lawrence and Morell, 1995; Bansal and Roth, 2000). In their study, Roni et al. (2014) found that legislation and incentives imposed by the Malaysian government motivate their manufacturers to view sustainability manufacturing as a high priority. Some organisations comply with the regulations because of their ethical and moral commitments towards sustainability, and others meet the minimum legislative requirements, in order to avoid escalating penalties, fines, and expensive capital refits (Dai et al., 2015). According to Berns et al. (2009), government legislation relating to the sustainability issue has the most significant impact on businesses (Giunipero et al., 2012; Bonifant et al., 1995; Marshall et al., 2005).

In recent times, international buyers were pressurising their suppliers to secure certifications of environmental and social regulations (Delmas and Montiel, 2007). Pressures such as these arise because corporate customers wish to ensure that their purchases sufficiently meet appropriate environmental quality standards which will, in turn, reduce environmental liabilities associated with final product development (Handfield et al., 2002) These certifications have been proposed as a governance mechanism to control sustainable business practices. Many companies in developing countries that are the leading suppliers of popular brands in the US and EU have lost promising export opportunities because of their failure to meet environmental, human rights, and safety requirements. Many of those companies have now started to consider the adoption of CSR and green practices strategically by using third-party certifications to participate in international trade actively and gain a competitive advantage. Although showing some promise, some companies are acquiring the certification only in a symbolic manner, and do not embrace certifications in order to make substantive improvements (Castka and Prajogo, 2013). Montabon et al. (2007) revealed that environmental management practices are becoming increasingly popular due to voluntary and international environmental standards. Since the release of the ISO 14001 standard, there has been additional pressure on some industries like textiles to address environmental performance through the use of these EMS (Zuckerman, 2000; Gordon, 2001). Also, when conducting business with European retailers, it is a major requirement to comply with certifications like ISO 14001, WEEE and RoHS (Giunipero et al., 2012). Most of the current studies investigate the role of primary stakeholders, such as suppliers, multinationals, and

shareholders, in achieving these independent third-party certifications (Corbett and Klassen, 2006; Guler et al., 2002). Several studies have also considered secondary stakeholder groups who pressurise firms to comply with third-party certifications (Guler et al., 2002; Conroy, 2009; Balzarova and Castka, 2012). The recent awareness about greater environmental awareness and the escalating emphasis on corporate social responsibility are the results of consideration of third-party certifications like ISO 14001 (Giunipero et al., 2012; Handfield et al., 2002).

A company's market orientation includes continuous and close sensing of its competitors' activities and strategies to fully understand the market environment (Narver and Slater, 1990). Firms can attain a competitive advantage over time by taking action according to these sensed opportunities and threats (Jacobson, 1992). According to Hicks and Dietmar (2007), external competitive pressures to improve environmental performance and product quality are contributing to the growing demand for eco-innovation abilities. Similarly, firms also felt compelled to react to their rivals' popular CSR strategies in order to maintain a better position in the global competitive market. Best-practising companies in CSR gain positive publicity, which acts as a competitive advantage for them in the market. Companies facing a problem with their ambiguous goals, uncertain environments or unclear objectives, usually look at competing firms to perceive their successful strategies (DiMaggio and Powell, 1983). Since the underlying concept behind the term 'Sustainability' is sometimes multifaceted and not easy to comprehend fully, firms' try to mimic the best-practising companies' sustainable business practices in the industry in which they are operating. Hence, there exists substantial evidence in recent literature about the role of mimetic pressure in implementing SBPs, and several authors have used institutional theory to conceptualise this phenomenon (Dubey et al., 2017; Zhu, 2016; Wijethilake et al., 2017; Emamisaleh and Rahmani, 2017). In summary, companies feel constant intense pressure from their competitors in the market where they are operating. To compensate for this pressure, they always seek to incorporate innovative environmental and social strategies which will help them gain a competitive advantage regarding qualifying for new orders, as well as new markets in new geographical areas worldwide. There is considerable evidence in the literature that suggests that competitors are one of the key driving forces behind SBPs adoption to improve CSP (Dornfeld et al., 2013; Wu and Wirkkala, 2009; Searcy et al., 2012; Pun et al., 2002; Agan et al., 2013; Tseng et al., 2013; Deif, 2011; Gabzdylova et al., 2009; Govindan et al., 2015; Huang et al., 2016; Vejvar et al., 2018).

There are pressures from other sources, besides those discussed above. These include groups such as NGOs, labour rights organisations (e.g. ILO), environmental groups and media to improve the company's environmental and social image (Eesley and Lenox,

2006; Hoffman, 2000). The high death-toll from industrial accidents, issues of child labour, unsafe working environment, and usage of hazardous chemicals; all these factors reflect an unsustainable degree of industrial expansion in different sectors worldwide, especially in the emerging economies (Labowitz and Baumann-Pauly, 2014). Such pressure groups sometimes mobilise these adverse impacts in the media in a negative way that results in endangering many popular brands' image, sometimes resulting in public protests worldwide (Roome and Wijen, 2006; Hoffman, 2000). Moreover, such negative publicity can convince consumers to favour the products of those brands' competitors who have established a positive image towards environmental and social issues (Haigh and Jones, 2006; Awan et al. 2017). The extensive literature review on organisational pressure to improve CSP is summarised in the following Table 2.2.

Table.2.2 Literature review on pressures to improve CSP						
References	**Pressures**	**Methodology**	**Industry**	**Country**	**Sustainability Dimension**	**Findings**
Sarkis et al. 2010	• Clients • Government • Shareholders • Workers' • Society	Questionnaire survey	Automobile	Spain	Environmental	The stakeholder pressure behind the adoption of environmental practice is mediated by the level of training conducted.
Cai and Zhou, 2014	• Customers' demands • Competitive pressures • Environmental regulations	Questionnaire survey	Manufacturing	China	Environmental	The external pressures from environmental regulations, customers' green demands, and competitors improve environmental performance.
Eiadat et al. 2008	• Government regulation • Environmental standards Stakeholder pressures • Customers • Employees • Suppliers • Public agencies • Managerial concern	Questionnaire survey	Chemical	Jordan	Economic Environmental	Environmental pressure like regulations, managerial concern and stakeholders' forces to adopt environmental innovation strategy to improve firm's economic and environmental performance
Yu et al. 2017	• Environmental regulation • Stakeholder pressures	Questionnaire survey	Manufacturing	UK	Economic Environmental	The environmental innovation strategy fully/partially mediates the relationship between environmental regulation/stakeholder pressures and financial performance.
Garce´s-Ayerbe et al. 2012	• Stakeholders Pressure	Questionnaire survey	Mixed	Spain	Environmental	Managers' competitive advantage expectations moderate the relationship between environmental proactivity and stakeholder pressure
Wu et al. 2012	• Market Pressure • Regulatory Pressure • Competitive Pressure	Questionnaire survey	Textile	Taiwan	Environmental	The market pressure has no moderating effects on the relationships between environmental drivers and green practices, and competitive pressure has moderating effects on that relationship.

References	Pressures	Methodology	Industry	Country	Sustainability Dimension	Findings
Dubey et al. 2017	Coercive Pressures • Legislations • Pressure to avoid fines and penalties • Regulations Normative Pressures • Trade unions • To become more social and environment friendly Mimetic Pressures • Best practising companies	Questionnaire survey	Manufacturing	India	Economic Environmental Social	Coercive and normative are positively related to the sustainability performance measurement system (PMS), but mimetic pressures do not affect PMS.
Marshall et al. 2005	Individual Drivers (Managerial Attitudes, Subjective Norms) Institutional Drivers (Local Institutional Networks, Associations, Suppliers, Community Groups, Customers) Regulations	Interviews and Focus groups	Wine Industry	U.S.	Environmental	Managerial attitudes and norms, existing regulations, employee welfare and competitive pressures are all strong drivers of proactive environmental behaviour.
Diabat et al. 2014	• Employment stability • Health and safety issues • Community welfare • Safety standards • Government regulations • Hazard management • Customer satisfaction • Environmental cost	Questionnaire survey	Textile	India	Economic Environmental Social	Pressure from the adoption of safety standards, green practices, Community and welfare practices, health and safety issues, and employment stability motivate firms to implement SBPs.
Aboelmaged 2018	Environmental Regulations Environmental Pressures • Customers • Press and media • Competitors	Questionnaire survey	Mixed	Egypt	Environmental	The environmental pressures from stakeholders, internal management and the involvement of employees positively influence the sustainable manufacturing process.

References	Pressures	Methodology	Industry	Country	Sustainability Dimension	Findings
Awan et al. 2017	Market Stakeholders • International Customers • International Supplier • International Agreement • Domestic suppliers Non-Market Stakeholders • Media Pressure • International Laws and Regulators • Environmental NGOs	Questionnaire survey	Manufacturing	Pakistan	Environmental Social	The pressure from the market stakeholder to adopt green manufacturing (GM) had a significant positive effect on safety practices, but non-market stakeholders do not have a significant influence on the GM.
Yu and Choi, 2016	Stakeholder pressure • Customer • Shareholder • Competitors • Government/NGO • Employee	Questionnaire survey	Mixed	China	Environmental Social	The CSR-oriented organisational culture has a fully mediating role in the relationship between stakeholder pressure and the adoption of CSR practices
Castka and Prajogo, 2013	Stakeholders' pressure • Communities/social groups/consumer groups • Government • Non-governmental organisations (NGOs) • Media pressures	Questionnaire survey	Mixed	Australia and New Zealand	Environmental	The pressure from secondary stakeholders is not contributing to the internalisation of ISO 14001.
Dai et al. 2015	Stakeholder pressure (customers, government, shareholders, environmental organization/society, employees) Competitive Pressure	Questionnaire survey	Mixed	US	Environmental	The environmental pressure from rivals and stakeholders influences the implementation of green supply management practices to improve environmental performance.
Miras-Rodríguez et al. 2018	• Top Management • Customers • Employees • Regulation, Government • Cost Savings	Questionnaire survey	Manufacturing	Multiple developed countries	Environmental	Cost Savings were the primary driver behind environmental practices while top management support was revealed to be the primary motivation behind environmental practices adoption.

References	Pressures	Methodology	Industry	Country	Sustainability Dimension	Findings
Zhu, 2016	• Environmental Law International retailers • Customers demand • Customers' awareness • Media consideration • Public (communities, NGO)	Questionnaire survey	Mixed	China	Environmental	The results reveal that normative pressure mostly motivates sustainability production (SP) practices, whereas coercive pressure influence SP practices related to resources saving and mimetic force only provide motivations behind such adoption.
Zhu and Zhang, 2015	• Governmental legislation • Marketing competitiveness • Shareholders requirements • Laws and regulations • Competitive brand Image • Top management • Society and public' Media • Improved competitiveness • Competitors	Questionnaire survey	Mixed	China	Social	Normative drivers motivate most CSR practices, while competitive drivers only motivate consumer issues-related CSR practices.
Giunipero et al. 2012	• Top management • Government regulation • Financial benefits • Competitive advantage • ISO certification • Customer demand	Interview	Mixed	US	Economic Environmental Social	The top management initiatives and government regulations drive the adoption of sustainability practices to improve performance.
Walker et al. 2008	• Regulation • Customers • Competitors • Society • Suppliers	Interviews	Public and Private sector	UK	Environmental	Organisations are more influenced by external drivers like regulations, customers competitors rather than internal drivers
Moktadir et al. 2018	• Circular Economy • Customer Awareness • Top Management • Governmental Support	Case Study	Leather	Bangladesh	Environmental	The understanding of the circular economy is dominant in implementing sustainable manufacturing practices in the leather industry of Bangladesh.

References	Pressures	Methodology	Industry	Country	Sustainability Dimension	Findings
Wijethilake et al. 2017	• **Coercive pressures** (regulators, customers, the board of directors) • **Mimetic pressures** (competitors, multinationals, best practices, forums, industry experts) • **Normative pressures** (top management organisational policies, professional bodies)	Case Study	Apparel Manufacturing	Sri Lanka	Economic Environmental Social	The use of Management Control Systems as a medium to respond strategically to institutional pressure for Sustainability.
Zhu et al. 2005	• Central governmental regulations • Regional regulations • Export • International retailers • Supplier's requirement • Competitors' • Industrial professional group activities • Enterprise's environmental mission	Questionnaire survey	Mixed	China	Environmental	Regulatory, competitive, and marketing pressures and drivers motivate Chinese enterprises to improve their environmental awareness.
Zhu and Sarkis, 2006	• Regulations • Marketing • Suppliers • Competitors • Internal fact (firm's environmental mission, policies, cost reduction)	Questionnaire survey	Automobile, the thermal power plants and the electronic/electrical industry	China	Environmental	Most common drivers are regulations, competitors and marketing in adopting green practices to improve environmental performance.
Renukappa et al. 2013	• Cost-saving • Organisational reputation • Stakeholders' pressure • Government regulation/ • Top management	Interview	Mixed	UK	Economic Environmental Social	The drivers for implementing sustainability initiatives varied across the four sectors, which makes the concept of sustainability issues are highly industry-specific.

References	Pressures	Methodology	Industry	Country	Sustainability Dimension	Findings
Babiak and Trendafilova 2011	**Institutional Pressures (Legitimacy)** • Societal norms, values, and expectations • Mimetic forces • Regulation (government directives, media) **Strategic Motives** • To become a leader • To develop partner networks • Financial/market opportunity • Image enhancement • Customer demand • Enhance existing partner relationships	Interview and Questionnaire survey	Sports	USA	Environmental Social	The strategic motives were the primary reason for adopting environmental and CSR practices.
Emamisaleh and Rahmani, 2017	**External Drivers** Mimetic pressures (Competitors) Coercive (Govt. provisions, Customer demand, Parent company demand) Normative (Labor union, associations, local community and environmental groups) **Internal Drivers** Managerial Attitude Top Management Support Employee Motivation	Questionnaire survey	Food	Iran	Economic Environmental Social	The external drivers to adopt sustainability affect internal drivers, which have a more important role in creating sustainable orientation inside an organisation.
Eltayeb et al. 2010	• Regulations • Customer pressure • Social responsibility • Expected business benefits	Questionnaire survey	Manufacturing	Malaysia	Environmental Social	Regulations, customer pressure, and expected business benefits are the main drivers behind The Green Purchasing practices.

References	Pressures	Methodology	Industry	Country	Sustainability Dimension	Findings
Abdalla and Siti-Nabiha, 2015	**External Pressures** • Governmental laws and regulations • NGOs • Local communities **Internal pressures** • Firm's reputation • Top-level management	Case study	Gas and Oil	Sudan	Economic Environmental Social	The drivers to adopt Sustainable business practices mainly come from the foreign partner's audit pressure and the NGOs.
Adebanjo et al. 2016	• Stakeholders pressure for environmentally friendly products and processes • Stakeholders pay attention to companies' commitment to ethical issues, human rights respect, labour conditions	Questionnaire survey	Manufacturing	Multiple	Environmental Social	There exists a significant direct and mediating relationship between external pressure, adoption of formal sustainability programs and environmental outcomes
Wolf, 2014	Stakeholder Pressure	Content analysis and interviews	Mixed	Multiple	Economic Environmental Social	Results revealed that both stakeholder pressure and Sustainable Supply Chain Management contribute to the organisation's corporate sustainability performance.
Shubham et al. 2018	• Primary Stakeholder Pressure • Secondary Stakeholder Pressure	Questionnaire survey	Automobile	India	Environmental	The primary stakeholders directly influence an organisation's environmental policies, and the secondary stakeholders try to influence organisations indirectly via primary stakeholders.
Zailani et al. 2012	• Regulations and incentives • Customer Pressure	Questionnaire survey	Manufacturing	Malaysia	Environmental	Internal proactive environmental strategy is influenced by both direct and indirect external institutional drivers which influence the firm's environmental performance

2.5 Mechanisms to improve Corporate Sustainability Performance

As businesses have a significant responsibility in the process of transition to a more sustainable form of development, they are under enormous pressure to address their corporate sustainability performance. Sustainable business practices must be incorporated into a company's core business practices and strategies to improve sustainability performance (Crittenden et al., 2011; Savitz and Weber, 2006; Figge et al., 2002). In recent times, increased awareness of sustainable development has encouraged organisations to develop policies and procedures for managing the social, environmental and economic impacts of their business activities. A survey about sustainability conducted by Accenture and UN Global Compact discovered that more than eighty per cent of CEOs considered that it is now crucial that sustainability issues are fully embedded into the strategy and operations of their companies (Mertins and Orth, 2012). However, because of the unavailability of proper guidelines, the organisations are facing several challenges in developing such strategies when seeking to integrate sustainability into their management and operations. In this context, organisations need an appropriate management control system (MCS) capable of highlighting the critical guidelines to be implemented around sustainability standards and related management functions in order to cope with these challenges efficiently (Panagiotakopoulos et al., 2016).

Key issues that have been explored in the literature on mechanisms to improve CSP include the measuring and monitoring processes, sustainability management control systems, the reporting of sustainability performance, the promotion of enhanced process understanding, the discovery of critical success factors and the setting of priorities (e.g., Akyuz and Erkan, 2010; Beamon, 1999; Gopal and Thakkar, 2012; Gunasekaran and Kobu, 2007; Ahi and Searcy, 2013). Some studies have investigated the use of management systems to integrate sustainability goals into organisational strategy (Figge et al., 2002; Schaltegger and Wagner, 2006). Such systems include the performance prism model (Neely et al., 2002), a sustainability-balanced scorecard (Epstein and Wisner, 2001; Hubbard, 2009), life-cycle assessment (Labuschagne and Brent, 2005; Tyteca, 1996), dartboards and clovers of sustainability (Bonacchi and Rinaldi, 2007), and the sustainability performance pyramid (Epstein and Wisner, 2001). Different types of sustainability management tools are available for performance measurement and management. Examples include sustainability benchmarking, indicators, Life Cycle Analysis (LCA), and reporting and stakeholder disclosure. Such tools are often correlated to international standards, such as quality management (e.g. ISO 9001), environmental management systems (e.g. ISO 14001), the

Occupational Health and Safety Assessment Specification (OHSAS 18001), product LCA standard (e.g. ISO 14030) and international reporting standards (e.g. Global Reporting Initiative GRI) (Beske-Janssen et al., 2015). Although there are various studies on environmental and social management (e.g. ISO 50001, ISO14001, SA 8000), what is still lacking is a holistic method for the internal management of overall sustainability in an organisational context (Mustapha et al., 2017). The following subsections will discuss the basic concept behind the management control system and its implications for sustainability performance enhancement in the organisations.

2.5.1 Management Control System (MCS)

MCS has been defined in the literature as the process of governing the organisation's decision support system to successfully achieve both short-term and longer-term goals in the environment in which they are operating (Otley and Soin, 2014; Malmi and Brown, 2008; Bedford et al., 2016). MCS principally comprise all the devices and systems that managers deploy to ensure that the behaviour and decisions of their employees are consistent with their organisations' objectives, mission, vision and strategies (Malmi and Brown, 2008; Simons, 1995). MCS literature generally considers two types of control: formal and informal. Formal controls are comprised of rules, performance evaluation indicators, rewarding criteria, and budgeting systems, as well as feedback and forward loops to control outcomes (Norris and O'Dwyer, 2004). In contrast, informal controls include beliefs, norms, cultures, shared values and tradition, factors which are invisible and might not be purposely designed to direct employees' attention to organisational objectives (Flamholtz et al., 1985; Ouchi, 1977; Lueg and Radlach, 2016). In their review of the literature on MCS, Berry et al. (2009) describe three evolving areas, namely strategic performance measurement systems such as the balanced scorecard (Kaplan and Norton, 1992), management control framework (Malmi and Brown, 2008), Simons' (1995, 2000) levers of control (LOC) framework and an integrative performance management and control framework (Ferreira and Otley, 2009; Crutzen et al., 2017).

Practically, there are a number of on-going sustainability strategies and practices within organisations, such as the efficient use of resources, reduction of consumption waste, water energy and hazardous materials, sustainability performance measurement and monitoring, reporting, promotion of social reputation and generation of the new innovative capabilities to improve their CSP (Bhupendra and Sangle, 2015; Christmann, 2000; Judge and Douglas, 1998). However, firms are sometimes unsuccessful in achieving their targeted performances

due to the absence of a proper internal management control system required to manage and control these interrelated activities. The literature is relatively silent about which internal management processes should be deployed to translate proactive sustainability business practices and strategies into required corporate sustainability performance (Arjalies and Mundy, 2013; Lisi, 2015; Wijethilake, 2017). The subsequent section will discuss the studies that discuss sustainability management control systems in order to identify the research gap in that area that this study intends to address.

2.5.2 Sustainability Control Management System (SMCS)

Recently, a growing body of academic literature on MCS for sustainability has emerged. This is due to the mounting interest in managing corporate sustainability at the organizational level and to the need to address recent calls in the literature for more empirical research when investigating the role of MCS in relation to social and environmental sustainability (e.g. Henri and Journault, 2010; Riccaboni and Leone, 2010; Schaltegger, 2011; Gond et al., 2012; Crutzen and Herzig, 2013; Marrewijk, 2003; Schaltegger and Burritt, 2005). A rising number of scholars consider MCS to be a vital strategic tool for fostering the integration of social, environmental, and economic dimensions into the firm's sustainable development process (e.g., Covaleski et al., 2003; Durden, 2008; Gond et al., 2012; Lueg and Radlach, 2016). Most existing publications related to SMCS are based primarily on definitions and theoretical perspectives (Lueg and Radlach, 2016). Substantial attention has focused on the emergence of new forms of control systems dedicated to managing and formulating environmental and social practices to support the strategic integration of sustainability into organisations (Gond et al., 2012). Ball and Milne (2005, p. 324) confirm this view: "new ideas and tools for management control are essential in the context of a shift towards sustainability". Because of the ambiguous and multidimensional goals of sustainability, it is sometimes difficult to conceptualise SMCS by the traditional approach of adopting existing MCS theories. However, it is evident from the literature review that an appropriately designed SMCS plays a vital role in supporting, implementing and formulating the strategies and policies orientated towards sustainability (e.g. Epstein and Roy, 2001; Durden, 2008; Perego and Hartmann, 2009; Gond et al., 2012; Crutzen et al., 2017). According to Bennett and James (1984), such dedicated control systems deal with the interaction between business, society and the environment, an approach which is essential for achieving an organisation's long-term goals. Moreover, organisations can utilise the controls of MCS effectively by embedding sustainability issues into organisational strategy (Baker and Schaltegger, 2015; Schaltegger and Burritt, 2010).

Previously a limited number of studies in the literature have addressed the term "sustainability management control system" (e.g. Lueg and Radlach, 2016; Wijethilake 2017) and very few publications argue that management control is essential for promoting sustainability at the organizational level (e.g. Norris and O'Dwyer, 2004; Henri and Journault, 2010; Gond et al., 2012; Crutzen et al., 2017; Arjaliès and Mundy, 2013; Ditillo and Lisi 2016; Henri and Journeault, 2010; Pondeville et al., 2013). Limited number of publications have primarily focused on producing conceptual frameworks (Epstein and Wisner, 2001; Figge et al., 2002; Schaltegger and Wagner, 2006: Schaltegger, 2011; Wijethilake, 2017); majority of those studies were based on the in-depth analysis of case-study investigated corporate sustainability management control practices (Norris and O'Dwyer, 2004; Schaltegger and Wagner, 2006; Morsing and Oswald, 2009; Riccaboni and Leone, 2010; Crutzen et al., 2017; Ditillo and Lisi, 2016; Durden, 2008). Norris and O'Dwyer (2004) conducted an in-depth case study of UK firms to explore the perceived influence of formal and informal control systems on socially conscious managerial decision-making. On the other hand, Schaltegger and Wagner (2006) demonstrate how management developed top-down formal controls of sustainability issues through a balanced scorecard approach. In a similar case-study-based analysis, Morsing and Oswald (2009) consider the perspective of organisational culture when exploring which contemporary MCS can help to influence sustainability at the operational level. In their study of Procter & Gamble, Riccaboni and Leone (2010) investigated how MCS work to translate sustainability strategies into action and how they should be modified to incorporate strategic sustainability goals when they emerge. In a multiple case study in Italy, Ditillo and Lisi (2016) investigated the process of integrating Sustainability Control Systems (SCSs) with the traditional Management Control Systems (MCSs); their results revealed that the variations in SCSs' integration depend mostly on the firm's perception of sustainability orientation. In his New Zealand case study, Durden (2008) proposed a framework for the integration of the MCS with social responsibility and concluded that both formal measurement and informal control are key aspects in developing an MCS with social responsibility concerns. In a recent empirical study in the textile industry of Thailand, the authors argued that MCS positively impact on organisational renewal and firm sustainability (Ussahawanitchakit, 2017).

Various types of literature related to SMCS in practice, but most of them address the more minor aspects of the concept of sustainability, such as environmental issues, and very few studies have been conducted on either social responsibility or a holistic view of sustainable development (Pondeville et al., 2013; Henri and Journeault, 2010; Journeault, 2016). Henri

and Journeault (2010) adopt a survey-based approach to investigate the influence of environmental control systems in Canadian manufacturing firms on both environmental and economic performance. Their results reveal that such control systems have no direct effect on economic performance and therefore indirectly influence economic performance in the context of higher environmental exposure, public visibility and environmental concern (Henri and Journeault, 2010). In another study, Journeault (2016) investigates the extent to which the environmental control package supports environmental capabilities and contributes to an organisation's environmental and economic performance. Her results confirm that environmental control package fosters the development of environmental skills and also improves corporate performance. Pondeville et al. (2013) have inspected the role of contextual and strategic factors in the development of environmental management control systems (EMCS) in manufacturing companies in Belgium. Their results suggest that the market, the community mainly motivate companies, and organisational stakeholders to incorporate EMCS.

Current literature categorises different frameworks to examine the role of SMCS (Gond et al., 2012; Wijethilake et al., 2017; Lueg and Radlach, 2015; Journeault, 2016). Most of the indicators revolve around traditional concepts of management control system literature, such as Simons' lever-of-control framework (Simon, 1995), Malmi and Brown's (2008) control-package framework or the concept of a balanced scoreboard (Morsing and Oswald, 2009). In their study, Wijethilake (2017) employ Simon's levers-control (LOC) framework to investigate a moderating role of enabling and controlling uses of MCS on the relationship between environmental innovation strategy and organisational performance. A handful of studies refer to the same framework to inspect the use and role of MCS in the formulation and implementation of corporate social responsibility strategy (Arjalies and Mundy, 2013; Fauzi and Rahman, 2008; Wijethilake et al., 2018; Kerr et al., 2015). In their study, Gond et al. (2012) utilise two core dimensions of Simon's LOC framework - diagnostic and interactive control systems to identify eight organisational configurations that reflect the modes of integration of SCS and MCS. Battaglia et al. (2016) and George et al. (2016) adopt the model proposed by Gond et al. (2012) to analyse the technical, organisational and cognitive integration of SCMSs and MCSs.

In recent times, several studies have investigated the role of MCS in sustainable development using cultural controls, planning, cybernetic controls, reward and compensation, and administrative controls, by applying Malmi and Brown's (2008) control

package framework (Lueg and Radlach, 2015; Journeault, 2016; Sundin and Brown, 2017). Likewise, based on the same framework, Crutzen et al. (2017) explore empirically the extent to which large companies have developed a control package of formal and informal management control mechanisms. They then theorise on the observed sustainability control patterns. Several studies have investigated the role of formal and informal controls in incorporating environmental and social aspects of sustainability (Durden, 2008; Hosoda, 2018; Riccaboni and Leone, 2010; Pondeville et al., 2013; Ussahawanitchakit, 2017). In his study, Schaltegger (2011) presents sustainability management controls, referring to the Sustainability Balanced Scorecard, which shows how corporations use key-performance-indicators in their sustainability performance evaluation. In their study, Wijethilake et al. (2017) investigate the use of a sustainability control system in strategic responses to institutional pressures for sustainability, and propose three sustainability control systems: specifying and communicating objectives; performance monitoring; and performance measurement systems. To examine the practice of MCS in sustainability at the organisational level, existing studies also discuss planning, budgeting, cost accounting systems, performance measurement systems, Balanced Scorecard, socio-eco-efficiency analysis, and investment appraisal (e.g., Epstein and Wisner, 2001; Figge et al., 2002). The following Table 2.3 lists the literature review on Sustainability Management Control System.

Table. 2.3 Literature review on Sustainability Management Control System			
References	**Management Control System**	**Methodology**	**Results**
Wijethilake, 2017	**Simon's Lever of Control** Belief System Boundary System Diagnostic control systems Interactive control systems	Questionnaire Survey	Sustainability Control System (SCS) partially mediated the relationship between proactive sustainability strategy and corporate sustainability performance.
Arjaliès and Mundy, 2013	**Simon's Lever of Control** Belief System Boundary System Diagnostic control systems Interactive control systems	Questionnaire Survey Interview	The MCS has the potential to contribute to society's broader sustainability agenda regarding processes like innovation, communication, reporting, and identification of threats and opportunities.
Gond et al. 2012	**Simon's Lever of Control** Diagnostic control systems Interactive control systems	Literature Review	This study utilised diagnostic and interactive control to identify eight organisational configurations of integration of SCS and MCS.
Crutzen et al. 2017	**Malmi and Brown (2008)** • Planning • Cybernetic Controls • Reward and compensation • Administrative controls • Cultural controls	Interview, Document analysis Case study	The study identifies two approaches in management control for sustainability: formal and informal.
Wijethilake et al. 2017	• Communicating Objectives • Monitoring performance • Motivating to accomplish goals	Interview	The organisations strategically used MCS as a medium to respond to institutional pressure for sustainability, and it has significant implications for organisational change and improvement.
Fauzi and Rahman, 2008	Simon's Lever of Control Belief System Boundary System Diagnostic control systems Interactive control systems	Literature Review	The LOC plays a vital role in employee socialisation and supports the development of an organisation's culture, the system of shared beliefs, values, and norms.
Battaglia et al. 2016	Simon's Lever of Control Diagnostic control systems Interactive control systems	longitudinal analysis (2006-2014)	Sustainability and CSR practices integration remains a fragile concept in the co-operative sector.
Durden, 2008	Formal Control Informal Control	Case study	Both formal and informal control are key aspects in developing an MCS that incorporates social responsibility considerations.

References	Management Control System	Methodology	Results
Hosoda, 2018	Formal Control Informal Control	Case Study	An informal control system is evident and reflected in the CEO's emphasis on creating shared value by implementing CSR.
Norris and O'Dwyer, 2004	Formal Control Informal Control	Case Study	The dominant influence of informal controls such as social and self-control in instilling socially responsible decision making among the managers
Guenther et al. 2016	Malmi and Brown (2008) • Planning • Cybernetic Controls • Reward and compensation • Administrative controls • Cultural controls	Literature Review	This study proposed the concept of the Environmental management control system (EMCS) based on the general MCS framework of Malmi and Brown (2008)
Henri and Journeault, 2010	• Use of performance measures • Budgeting • Incentives	Questionnaire Survey	There exists no direct relationship between Eco-control and economic performance, but it indirectly mediates the relationship between eco-control and economic performance
Riccaboni and Leone, 2010	Formal Control Informal Control	Case Study	The paper finds that integration with the traditional planning and monitoring systems, a combination of both formal and informal controls, are critical factors for the successful implementation of sustainability-oriented strategies.
Pondeville et al. 2013	Formal Control Informal Control	Questionnaire Survey	Market, community and organisational stakeholders motivate environmental proactivity, as well as the development of different environmental management control systems.
Ussahawanitc-hakit, 2017	Formal Control Informal Control	Questionnaire Survey	The results show that management control systems positively impact organisational renewal and firm sustainability.
Wijethilake et al. 2018	Simon's Lever of Control • Belief System • Boundary System • Diagnostic control systems • Interactive control systems	Questionnaire Survey	The enabling use of MCS positively moderates the relationship between environmental innovation strategy and organisational performance; in contrast, the controlling use of MCS negatively moderates the relationship.
Kerr et al. 2015	**Simon's Lever of Control** • Belief System • Boundary System • Diagnostic control systems • Interactive control	Multiple case study	The integration of sustainability MCS holds advantages for organisations to operationalise sustainability objectives.

References	Management Control System	Methodology	Results
de Villiers et al. 2016	**Balanced Scoreboard**	Case Study	The results of this study suggest an essential role for external stakeholders to influence balanced scorecard measures, sustainability report measures, and management focus supporting a drive towards sustainability.
Schaltegger, 2011	**Sustainability Balanced Scorecard** Finance-oriented SMCS Market-oriented SMCS Process-oriented SMCS Knowledge and SMCS	Literature Review	This study discusses the drivers to design a business case for sustainability, and the core logic behind the Sustainability Balanced Scorecard (SBSC) perspectives and also a structure for sustainability management control is addressed.
George et al. 2016	**Simon's Lever of Control** Diagnostic control systems Interactive control	Case Study	The study illustrates that sustainability integration in performance management systems could play a vital role in managing and controlling CSP.

2.6 Multiple Criteria Decision Making Models for Evaluating CSP

In response to the alarming concerns about the environmental and social impacts of various business activities, different stakeholders groups such as government, regulators, consumers, buyers, NGOs, media, and community activists are putting pressure on organizations to reduce their detrimental impacts throughout the supply chain (Delai and Takahashi, 2011; Hassini et al., 2012; Qorri et al., 2018). Nowadays, buyers are considering the incorporation of TBL approach all through the supply chain as a firm's long-term profitability can only be achieved by balancing the economic purposes with the social and environmental aspects (Dao et al., 2011; Elkington, 1994, Elkington, 2004; Azimifard et al., 2018). Many organisations have considered this TBL concerns and have measured their suppliers' sustainability performance during their evaluation process (Bai and Sarkis, 2010; Buyukozkan and Çifçi, 2011; Seuring and Müller, 2008). However, supplier evaluation problems in real-world settings involve both quantitative and qualitative criteria which can be considered as a complex multiple criteria decision-making problem (Baskaran et al., 2012). In this context, formal decision-making methods can be utilised to help improve the overall sustainability of industries and organisations. Recently, there has been a significant proliferation of studies aggregating sustainability criteria by using diverse multiple criteria decision-making (MCDM) techniques (Zavadskas et al., 2016). MCDM models have evolved as a part of operation research, combining mathematical and computational tools to provide a subjective evaluation of performance criteria by decision-makers (Zavadskas et al. 2016).

A number of approaches were proposed for evaluating the sustainability performance of the suppliers include Balanced Scorecard (BSC) (Shafiee et al., 2014; Thanki and Thakkar, 2018), Fuzzy set approaches (Sabaghi et al., 2016; Uygun and Dede, 2016); Life Cycle Assessment (LCA) (Arcese et al., 2017), Data Envelopment Analysis (DEA) (Mirhedayatian et al., 2014; Tajbakhsh and Hassini, 2015), Analytic Hierarchy/Network Process (AHP/ANP) (Agrawal et al., 2014; Büyüközkan and Çifçi, 2012), Supply Chain Operations Reference (SCOR) model (Bai et al., 2012; Taticchi et al., 2013), and some conceptual frameworks (Hassini et al., 2012; Schöggl et al., 2016; Qorri et al. 2018).

A supplier evaluation problem is a real-world problem which involves both tangible and intangible criteria. In such cases, methods, for instance, analytic hierarchy process (AHP) (Saaty, 1980) is generally most popular which reflects the natural tendency of the human brain to arrange the elements in a system into different hierarchical levels and group similar elements in each level (Baskaran et al. 2012). There exist several studies in the literature which used AHP application in the supplier evaluation process (Chan, 2003; Liu and Hai, 2005). AHP is a flexible and straightforward MCDM technique that combines subjective managerial inputs and objective factors in multiple criteria decision-making (Qorri et al. 2018). AHP can be considered as a useful tool in selecting and prioritising performance metrics, which helps managers to understand the trade-offs between sustainability aspects and allow the decision-makers in making rational decisions (Schaltegger and Burritt, 2014). However, the main drawback of AHP is that, in many cases, it is failed to include the interdependency required in the decision-making process. The analytic network process (ANP) is an extension of the AHP which is introduced to solve this problem of independence. ANP is capable of handling dependency within a cluster (inner dependence) and among different clusters (outer dependence) (de Boer et al., 2001). Because of this unique feature of ANP, it has been applied successfully in many supplier evaluation problems (Chan, 2003; Baskaran et al., 2012). In many organisations, these decision-making tools play a vital role in the critical decision-making process (i.e. supplier evaluation, benchmarking with the competitors) and became a standard part of their operations management (Azimifard et al., 2018). Both AHP and ANP are versatile MCDM methodologies that can be applied to facilitate the implementation of a wide range of decision-making frameworks (Leung et al., 2008). Advantageously ANP considers the interdependencies among criteria and sub-criteria, thus being more realistic in certain situations where criteria are inter-dependent (Hashemi et al., 2015).

There exist several studies in the existing literature which utilised AHP or ANP in supplier selection or benchmarking process based on their sustainability performance (Dey and Cheffi, 2013; Hashemi et al., 2015; Farias et al., 2019). The majority of these publications are extensively environment-focused and ignoring economic and social dimensions. Lee et al. (2009) proposed an analytical model using AHP for evaluating suppliers based on their environmental performance. In a similar study, an integrative model was proposed by Shaw et al. (2010) to select suppliers considering their carbon emissions. Dey and Cheffi (2013) developed an innovative green supply chain performance measurement framework employing AHP. Bhattacharya et al. (2014) developed a green supply-chain performance measurement framework using an intra-organisational Collaborative Decision-Making (CDM) approach along with a fuzzy- ANP based Green Balanced Scorecard (GrBSc). In a recent study, Farias et al. (2019) proposed an integrated approach using ANP to evaluate the impacts of lean and green practices on operational and environmental performance and prioritise improvements in the system. Hashemi et al. (2015) carried out a study on the automotive industry and proposed a comprehensive green supplier selection model, which includes both economic and environmental criteria. They employ the ANP to weight the criteria and Grey relational analysis (GRA) for supplier ranking process. In their study, Lam and Lai (2015) aim to develop a decision-support model using QFD and ANP with systematic metrics for shipping companies to attain environmental sustainability in their operations. Kuo et al. (2010) develop a green supplier's selection using a hybrid MCDM models that integrate artificial neural network (ANN), data envelopment analysis (DEA) and analytic network process (ANP). On the other hand, Mani et al. (2014) utilised AHP to develop an MCDM model, which primarily focuses on socially sustainable supplier selection through social parameters.

A limited number of studies developed an integrated analytical MCDM model which includes all three dimensions of TLB (Büyüközkan and Çifçi 2011; Govindan et al. 2015; Hussain et al. 2016; Luthra et al. 2017). In their study, Luthra et al. (2017) proposed a sustainable supplier selection model which included all three dimensions (i.e. economic, social, and environmental) of sustainability. Then they weighted the criteria using AHP and VIKOR was used to evaluate and select the suppliers. Ugwu and Haupt (2007) proposed an AHP-based sustainability index for the South African industry and Dinh et al. (2009) used the same method for evaluating the sustainability of feedstock used for biodiesel manufacturing. Sivakumar et al. (2014) developed a supplier evaluation tool using AHP to evaluate and select sustainable vendors in the mining industry. Similarly, Chen and Ren (2018) develop a

multi-attribute sustainability evaluation model using Fuzzy ANP and Fuzzy GRA for assessing the sustainability of various alternatives. Hussain et al. (2016) proposed an integrated framework based on interpretive structural modelling (ISM) and ANP to evaluate possible alternatives for the sustainable supply chain management. Several studies applied an ANP approach to select the suppliers based on their Triple Bottom Line (TBL) criteria (Erol et al., 2011; Büyüközkan and Çifçi, 2011; Govindan et al., 2015; Abdel-Basset et al., 2019). Handfield et al. (2002) used AHP to evaluate the relative importance of various environmental traits and to assess the relative performance of several suppliers. Humphreys et al. (2003) identified the environmental criteria which influenced a firm's purchasing decision and categorised the criteria into two groups: quantitative environmental criteria and qualitative environmental criteria. Lee et al. (2009) and Hsu and Hu (2009) present an analytic network process (ANP) approach to incorporate the issue of hazardous substance management (HSM) into supplier selection. Table 2.4 shows the literature review of AHP and ANP tools applied in the sustainable supplier evaluation process.

Table 2.4 Literature Review of AHP and ANP techniques used for CSP benchmarking process

References	MCDM used	TBL Dimension	Findings
Farias et al. 2019	ANP	Environmental	• Developed an integrated approach to evaluate the impacts of lean and green practices on operational and environmental performance and prioritise improvements in the system.
Lam 2015	QFD and ANP	Economic Environmental Social	• Designed a sustainable naval supply chain by taking customer requirements as the focus.
Bhattacharya et al. 2014	Fuzzy-ANP	Economic Environmental	• Explained a green supply-chain performance measurement framework using an intra-organisational Collaborative Decision-Making (CDM) approach.
Hashemi et al. 2015	ANP and GRA	Economic Environmental	• Proposed a comprehensive green supplier selection model which included both economic and environmental criteria.
Chen and Ren 2018	Fuzzy ANP moreover, Fuzzy GRA	Economic Environmental Social	• Developed a multi-attribute sustainability evaluation model for assessing the sustainability of various alternatives.
Hussain et al. 2016	ISM and ANP	Economic Environmental Social	• Proposed an integrated framework based on interpretive structural modelling (ISM) and ANP to evaluate potential alternatives for the sustainable supply chain management.
Lam and Lai 2015	QFD and ANP	Environmental	• Developed a decision-support model to attain environmental sustainability in their operations.

References	MCDM used	TBL Dimension	Findings
Kusi-Sarpong et al. 2016	Fuzzy DEMATEL and ANP	Economic Environmental Social	• Proposed comprehensive and integrative Green Supply Chain Model, including major practices and sub-practices, and identifies the perceived impact of the GSCM framework on organisational sustainability performance.
Lin et al 2015	ANP	Economic Environmental Social	• Applied an ANP approach to supplier selection based on the Triple Bottom Line (TBL) criteria.
Abdel-Base et al 2019	ANP and VIKOR	Economic Environmental Social	• Developed a supplier selection model in sustainable supplier chain management (SSCM) using ANP and VIKTOR.
Govindan et al. 2015	fuzzy TOPSIS	Economic Environmental Social	• Proposed an effective model based on the TBL approach for supplier selection operations in supply chains by presenting a fuzzy multi-criteria approach.
Guarnieri and Trojan 2019	AHP and ELECTRE-TRI	Economic Environmental Social	• Proposed a multi-criteria model to support supplier selection process, whereby suppliers are allocated to classes based on sustainability.
Azimifard et al. 2018	AHP and TOPSIS	Environmental	• Proposed an MCDM model to determine the weights of sustainability criteria by using AHP and this model is used to evaluate suppliers based on four main sustainability performance criteria.
Vinodh et al. 2012	ANP	Environmental	• Proposed a model to select the best alternative from the perspective of environmental sustainability.
Kannan et al. 2014	Fuzzy TOPSIS	Environmental	• This paper proposes a framework to select green suppliers based on the criteria of green supply chain management (GSCM) practices.
Lee et al. 2009	Fuzzy, AHP e Fuzzy expanded AHP	Environmental	• Propose a model for evaluating green suppliers and also defined a hierarchy to evaluate the importance of the criteria for selection of green suppliers.
Kuo et al. 2010	ANN, DEA, ANP	Environmental	• Develop green suppliers selection model using hybrid MCDM models.
Büyüközkan and Çifçi 2011	Fuzzy ANP	Economic Environmental Social	• Identified a model based on principles of sustainability to select suppliers for supply chains.
Dobos and Vörösmarty, 2014	DEA	Environmental	• Developed a model to determine the weights of the environmental factors.
Büyükozkan and Çifçi 2011	Fuzzy ANP, Fuzzy TOPSIS	Environmental	• Evaluate the selection of green suppliers for qualitative and quantitative factors

References	MCDM used	TBL Dimension	Findings
Shaw et al. 2010	Fuzzy-AHP, Fuzzy linear programming	Environmental	• Propose an integrative model to select suppliers for the supply chain considering carbon emissions
Mani et al. 2014	AHP	Social	• This research mainly focuses on socially sustainable supplier selection through social parameters.
Sivakumar et al., 2014	AHP	Economic Environmental Social	• Proposed a model to evaluate and select sustainable vendors in the mining industry.
Bai and Sarkis 2010	Grey system and rough set theory	Economic Environmental Social	• They proposed a model in which they combined the supplier selection problem with sustainability factors.
Amindoust et al. 2012	Fuzzy inference system	Economic Environmental Social	• This study focused on evaluating and selecting the supplier concerning their sustainability criteria.
Sarkis and Dhavale 2015	Bayesian framework and Monte Carlo Markov Chain	Economic Environmental Social	• Proposed a model to evaluate and select the supplier based on the triple bottom line by using a Bayesian framework.
Luthra et al. 2017	AHP and VIKTOR	Economic Environmental Social	• Proposed a sustainable supplier selection model including, three general economic, social, and environmental categories.
Dey and Cheffi 2013	AHP	Environmental	• Developed an innovative green supply chain performance measurement framework for organisational decision making
Thanki et al. 2016	AHP	Economic Environmental	• Proposed a model which allows identifying the effect of lean and green practices on different performance criteria.
Ugwu and Haupt 2007	AHP	Economic Environmental Social	• Proposed an AHP-based sustainability index for the South African industry •
Dinh et al. 2009	AHP	Economic Environmental Social	• Evaluated a sustainability index of feedstock used for biodiesel manufacturing
Erol et al. 2011	AHP	Economic Environmental Social	• Proposed a model to select appropriate Sustainability Performance Evaluation indicators and used AHP to rank sustainability indicators.
Jia et al. 2015	TOPSIS	Economic Environmental Social	• Proposed MCDM model employed for ranking potential suppliers based on their TBL performance.

2.7 Research Gap

There are several research gaps in the literature, and this study will seek to explore them. Majority of the studies (Sarkis et al., 2010; Yu et al., 2017; Dubey et al., 2017) in the corporate sustainability performance literature examined the impact of various external pressures on CSP. Only two studies (Abdalla and A.K., 2015; Emamisaleh and Rahmani, 2017) explored the impact of both internal and external pressures on CSP in a different context. To explore this gap, this study seeks to investigate the major internal and external pressures which organisations of the developing countries are facing to improve their CSPs in the RMG industry of Bangladesh. Most of the studies explored the impact of organisational pressures on economic and environmental performances (Zhu et al., 2005; Wagner, 2015; Huang et al., 2016; Song et al., 2017), ignoring the social performance (Rodriguez-Fernandez, 2016). A limited number of studies (Ye et al., 2015; Wijethilake, 2017) have operationalised the CSP holistically by using the Triple Bottom Line (TBL) approach. To address this research gap, this study operationalised the CSP construct using all three dimensions (i.e. economic, environmental and social) of the TBL approach.

Most of the studies explored the direct relationship between organisational pressure and CSP, ignoring the role of mediators (Giunipero et al., 2012; Diabat et al., 2014; Cai and Zhou, 2014). Although there exist few studies which investigated the impact of environment and social management systems (e.g. ISO14001, SA 8000) on firm's performance, a holistic method for the internal management system for overall sustainability at an organisational level is still missing (Mustapha et al., 2017). To explore this gap, this study contributes to the existing literature by proposing a dedicated sustainability management control system (SMCS) based on Simons' (1995) Levers of control (LOC) framework. No previous studies investigated the mediating role of SMCS between organisational pressure and CSP. To explore this gap, this study developed a conceptual model including SMCS as a mediator to investigate its indirect effects on the relationship between both internal and external pressures and all three dimensions of CSP. Furthermore, there exist no studies in the existing literature, which examined the mediating role of internal pressure on the relationship between external pressure and SMCS. To explore this gap, this study also empirically investigated the influence of external pressures on internal pressures in case of incorporating the SMCS within the organisation.

Most of the previous studies developed a Multiple Criteria Decision Making Model (MCDM) for evaluating environmental and economic performance (Kannan et al., 2014; Kuo et al.,

2010; Thanki et al., 2016). A limited number of studies developed MCDM for CSP benchmarking based on TBL approach (Bai and Sarkis, 2010; Büyüközkan and Çifçi, 2011; Luthra et al., 2017). No studies have developed an MCDM model for Bangladesh RMG industry for their CSP benchmarking. To address this research gap, this study develops an MCDM model using ANP, which will be used to benchmark five best-practising RMG companies in Bangladesh.

In their recent literature review paper, Büyüközkan and Karabulu (2018) argued that operation research studies on sustainability performance management and assessment used both conceptual and analytical methods, but those are quite dispersed. Their study suggested combining both conceptual and analytical methods in examining the relationship between the sustainability performance indicators as well as assessing those measure quantitively using benchmarking tools. To address this gap, this study will propose and test a conceptual framework for relationship testing as well as develop an MCDM model for performance benchmarking.

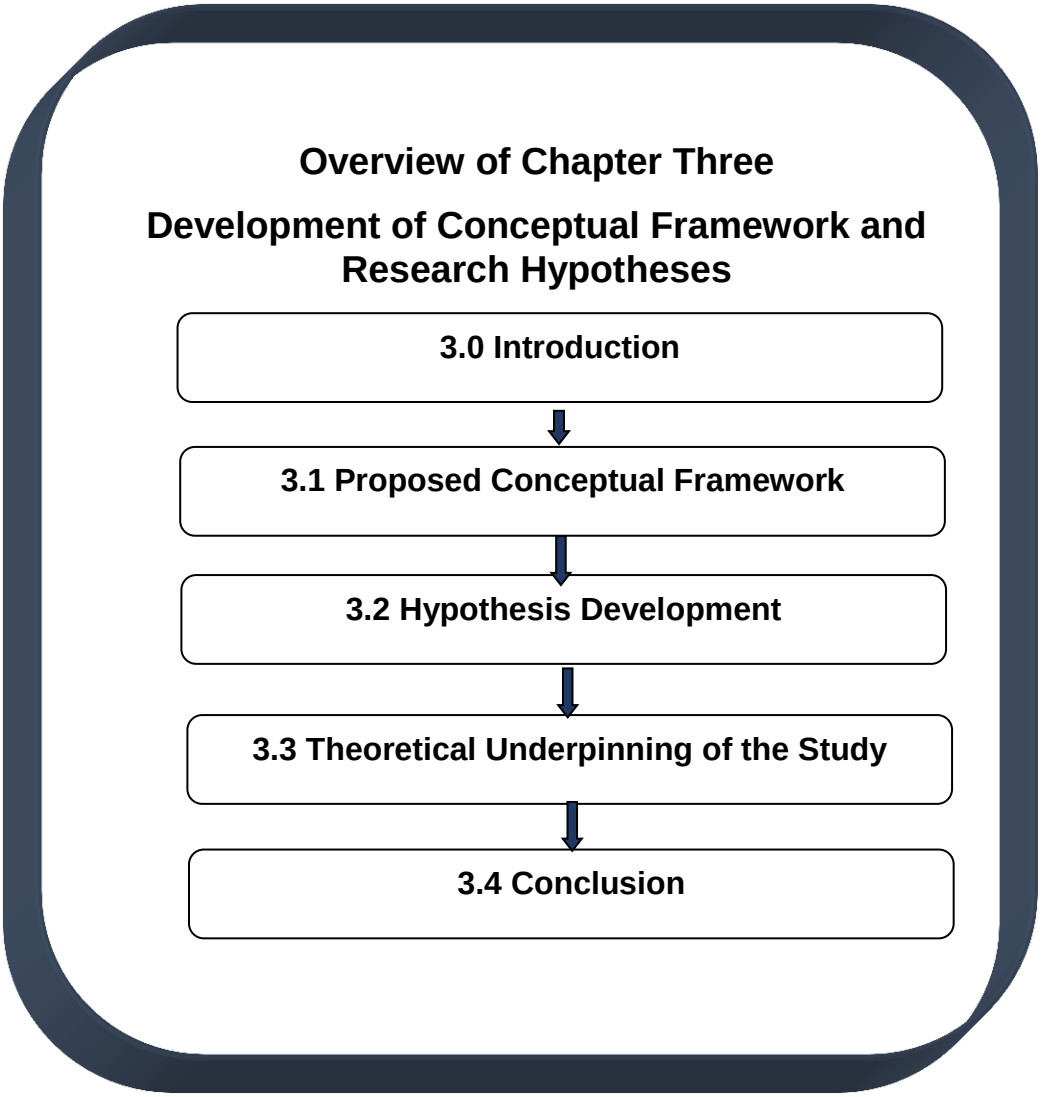
Lastly, most of the studies in this area carried out their data collection from industries like manufacturing, construction, mining and services (Zhu et al., 2005; Yu et al.. 2017; Feng et al., 2016; Awan et al., 2017; Chang et al., 2018; Afzal et al., 2017; Huang et al., 2016; Cantele and Zardini, 2018), ignoring other vital industries such as textiles, electronics, and chemicals (Lo et al., 2012; Chen et al., 2015; Lucato et al., 2017). The results of studies conducted in one sector will not be reasonably generalisable to other industries as the impact of business practices on sustainability hugely varies industry to industry. The proposed conceptual model will be tested within the RMG industry of Bangladesh because a review of previous studies shows that RMG companies have been mostly excluded from the sustainability-performance-related research field. This lack of research takes on special significance because of the RMG sector's distinct social, environmental and economic influence on developing countries. Bangladesh, which is the second-largest readymade garments exporter worldwide, can be considered as an interesting context for investigating organisational pressure behind their SBPs adoption and its impact on their CSP.

Precisely, the research objectives of this study are:

1. To identify the major internal and external pressures behind the improvement in corporate sustainability performance, and to assess the relationship among those pressures and performance.
2. To investigate the mediating role of a 'Sustainability Management Control System' (SMCS) between organisational pressure (i.e. internal and external) and corporate sustainability performance.
3. To benchmark, the best-practising companies based on their corporate sustainability performance through a multiple-criteria decision-making model.

2.8 Conclusion

This chapter provides an extensive overview of prior literature relating to the organisational pressures underpinning corporate sustainability performance improvement and the mechanisms required to improve such performance. The previous literature related to the broader concept of sustainability and dimensions of corporate sustainability performance is discussed in the first few sections. Then the studies related to organisational pressure were categorised into two types depending on the source from where pressure is originating from: external and internal. Afterwards, an extensive literature review which focused on mechanisms to improve CSP, as well as SMCS, has been thoroughly discussed. The literature relating to the existing MCDM models used in benchmarking CSP is also addressed in the subsequent sections. Finally, this chapter highlights the research gaps which this study intended to address, in order to formulate the research objectives. After reviewing the existing literature, it is argued that there is still a scarcity of research regarding the exploration of both external and internal pressure behind CSP in the emerging economies' context. It is also argued here that previous studies have not paid adequate attention to the operationalisation of the SMCS concept and investigating its mediating role in the relationship between organisational pressures and CSP. Furthermore, there is no such study which examined the effects of external pressures on internal pressures to incorporate SMCS in the organisational level. The next chapter will discuss the proposed conceptual framework and develop corresponding hypotheses to address the research gaps identified in this chapter. The next chapter will also discuss the theoretical underpinning of the newly developed conceptual model.


Overview of Chapter Three
Development of Conceptual Framework and Research Hypotheses
3.0 Introduction
3.1 Proposed Conceptual Framework
3.2 Hypothesis Development
3.3 Theoretical Underpinning of the Study
3.4 Conclusion

Chapter 3 Development of Conceptual Framework and Research Hypotheses

3.0 Introduction

An extensive literature review was conducted in chapter two to highlight the research gap and to formulate the research objectives. In this chapter, constructs are identified and defined through literature support based on the intended research objectives. Next, a conceptual framework is proposed, which shows the direct and indirect relationships between the constructs. In the subsequent sections, the corresponding hypotheses pertaining to the relationship between the constructs are developed. Hypotheses relating to the direct effects of independent variables on dependent variables are presented first, and then the role of the mediating variable is described in successive subsections. The next sections then address the theoretical underpinning behind the proposed conceptual model, with Contingency Theory (CT) used to explain the relationships of the proposed conceptual framework.

3.1 Proposed Conceptual Framework

It is widely evident from the existing literature that corporate responsiveness toward sustainable business practices is influenced by a growing number of internal and external sustainability concerns, for example, regulatory pressures, the rising awareness of top management's social and ethical accountability, new business opportunities, and cost factors (Aragón-Correa and Rubio-Lopez, 2007; Wijethilake, 2017). Researchers have argued that in response to those growing sustainability concerns, corporations are increasingly motivated to incorporate various management structures and strategies to improve their CSP. To investigate this phenomenon empirically, this study proposes a conceptual framework based on and developed from an extensive literature review shown in Figure 3.1 which encapsulates the impact of both internal and external pressures on the firm’s corporate sustainability performance. There are two independent variables: internal pressure and external pressure, and three dependent variables: economic performance; environmental performance; and social performance. Furthermore, the conceptual framework takes into account the mediating effects of SMCS on the relationships between the independent and dependent variables. The mediating variable SMCS has four underlying second-order constructs that are defined using Simon's Lever of Control (LOC) framework of management control systems, discussed in detail in section 3.2.2. To define and operationalise the variables of the newly developed conceptual framework, an extensive

literature review was conducted, and a list of frequently used underlying constructs to define each variable was shortlisted. Then ten interviews were conducted with the corporate managers of the RMG industry, academicians and industry experts to make the operationalisation of the variables more appropriate for that industry. In this stage of model development, few constructs were excluded from the model as those were not applicable for the context of RMG industry of Bangladesh where the proposed model was planned to be tested. For example, pressure from the suppliers, which was external pressure, excluded from the model after the interviews as the RMG companies which were surveyed were mainly the suppliers of readymade garments to the international retailers. On the other hand, pressure from the industry associations was also excluded as according to the interviewees, the trade associations do not give them pressure instead help them to deal with the pressures. The interviewees have no issues with other constructs of the model, so those were retained in the final model. As shown in the framework, an organisation's size and its annual turnover are used as control variables. These constructs of the conceptual model are defined in Table 3.1, with corresponding literature support.

Table 3.1 Definition of the Constructs

Constructs	Definition	Reference
Internal Pressures (IP)	Pressure to improve employee wellbeing (e.g. safe working environment, health services, fair wage)	Yu and Choi, 2016
	Pressure to reduce production costs	Miras-Rodríguez et al. 2018
	Pressure to meet the expectations of top-level management (e.g. owners, board of directors) to implement sustainable business practices	Giunipero et al., 2012; Zhu and Zhang, 2015
	Pressure to comply with an organisation's moral and ethical commitment to sustainability issues and practices	Marshall et al., 2005
External Pressures (EP)	Pressure to satisfy the requirements of the regulatory bodies (e.g. Ministry of Environment and Climate Change, Ministry of Labour and Employment, Ministry of Social Welfare).	Wijethilake et al., 2017
	Pressure to comply with the mandatory requirements of international retailers' (i.e. codes of conducts).	Zhu, 2016
	Pressure to retain a competitive advantage in the operating market (e.g. pressure from the best-practising competitors in adopting SBPs)	Zhu and Zhang, 2015
	Pressure to comply with various environmental and social certifications (e.g. WRAP, BSCI, ISO 14001, SA 8000 and OHSAS 18001)	Eiadat et al., 2008; Giunipero et al. 2012
	Pressure from activist groups (i.e. NGOs. labour rights organisations, media) in order to avoid potential criticism relating to possible human, labour and environmental violations.	Zhu, 2016

Sustainability Management Control System (SMCS)	**Belief systems**	
	Integration of sustainability dimensions into the strategic planning system of the organisation (as reflected in vision and mission statements, core values).	Wijethilake, 2017
	Communication of sustainability policy amongst internal and external stakeholder groups.	Wijethilake et al., 2018
	Boundary systems	
	Development of well-defined guidelines to operationalise the strategic plan by addressing internal sustainability policies, structures, and activities	Wijethilake et al., 2018
	Setting of measurable targets for sustainability performance (i.e. economic, environmental and social) indicators (e.g. raw materials, energy, and water, waste).	Arjaliès and Mundy, 2013
	Delegation of responsibilities and authorities to attain those targets (by forming/appointing a sustainability team/manager).	Pondevillea et al 2013
	Compliance with international and industry-specific agreements, guidelines and management systems (e.g. UN Global Compact, GRI guidelines, ISO 14001).	Wijethilake, 2017
Constructs	**Definition**	**Reference**
	Diagnostic control systems	
	Regular assessments (e.g. environmental and social audits) of various sustainability risks (e.g. workplace injuries, hazardous chemical discharge)	Widener, 2007
	Periodic review of sustainability performance indicators to track progress.	Bedford, 2015
	Benchmarking of sustainability performance with competitors	Wijethilake, 2017
	Giving rewards and benefits to employees for achieving targets and for suggesting innovative sustainable business practices.	Wijethilake et al., 2018
	Interactive control systems	
	Regular reporting of progress to top management during formal and informal meetings.	Wijethilake, 2017
	Sharing of sustainability information through newsletters, workshops and sustainability reports.	Wijethilake et al., 2018
Economic Performance (ECOP)	Increase in sales volume	Hojnik and Ruzzier, 2017
	Increase in existing market share	Chen et al., 2015
	Increase in profit margin	Chan et al., 2016
	Increase in new market share	Yu et al., 2017
Environmental Performance (ENVP)	Reduction in the consumption of hazardous and toxic materials	Zhu et al., 2005; Paulraj, 2011
	Reduction in waste and consumption of energy and water	Qu et al., 2015; Wijethilake et al., 2017
	Implementation of an environment management system (e.g. ISO 14001 certification).	Yu et al., 2017

Social Performance (SOCP)	Attainment of important social compliance certificates (e.g. WRAP, BSCI, Fair trade, SA 8000.).	Diabat et al. 2014
	Participation in community development programs (e.g. health and education-related programs, donations to charitable organizations	Chang et al., 2018; Wijethilake et al., 2017
	Participation in employee welfare programs (e.g. food and transportation allowances, pension plan; maternity benefits, medical facilities).	Paulraj, 2011
	Improvement in occupational health and safety practices (e.g. fire, building, chemical and electrical).	Chang et al., 2018

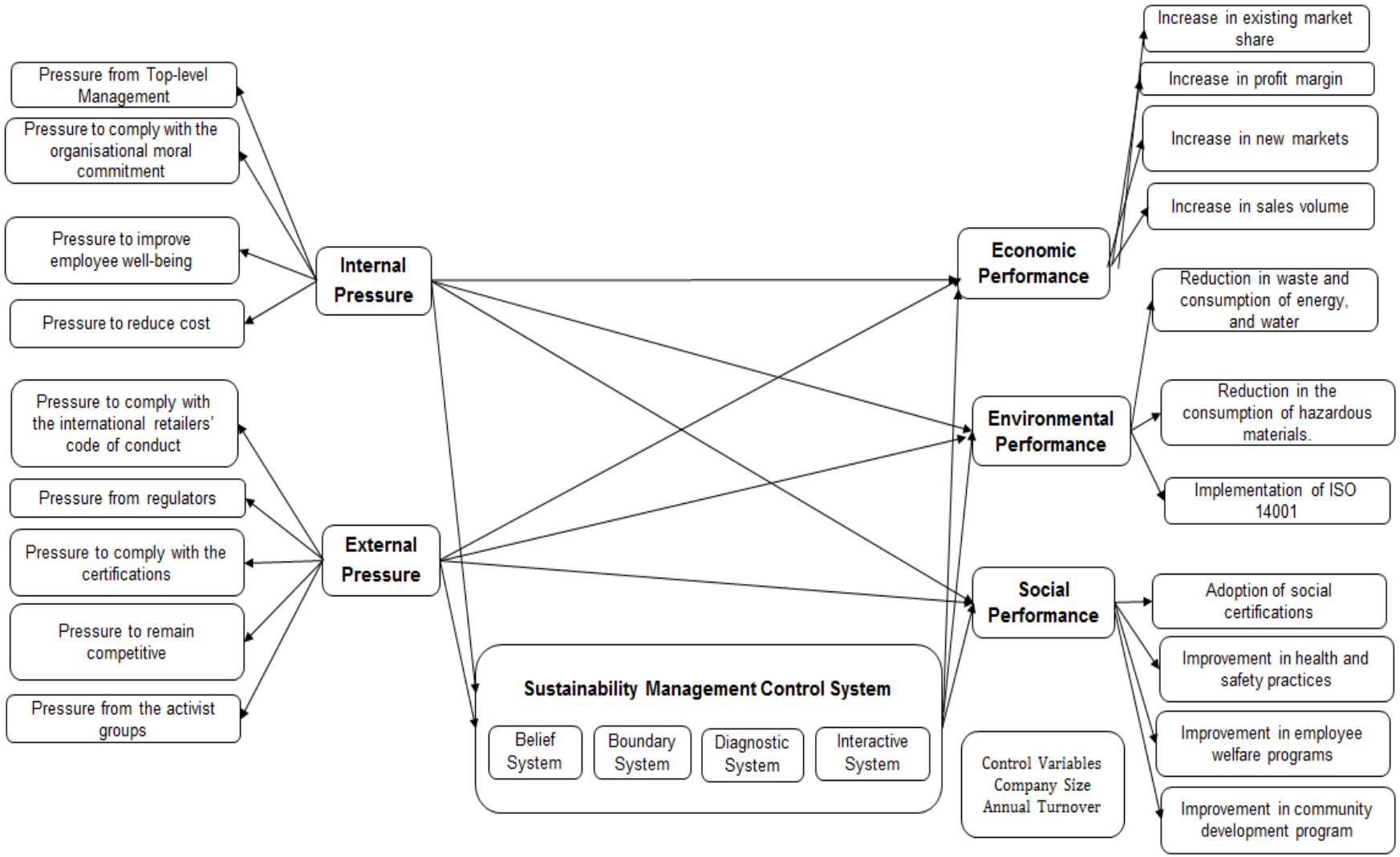


Figure 3.1 Conceptual Framework

3.2 Hypotheses Development

Based on an extensive literature review, the following hypotheses were proposed. Hypotheses related to the direct effects were developed first; then, the effects of mediating variables were addressed in the subsequent sections.

3.2.1 Hypothesis relating to the Impact of both Internal and External Pressure on Corporate Sustainability Performance

In recent times, organisations have been facing tremendous pressures from both internal and external sources to improve their corporate sustainability performance in order to survive in the highly competitive global market. These accelerating demands for incorporating SBPs act as a motivating factor for firms to improve their CSP. It is apparent from the literature review that firms are facing a diverse set of internal and external pressures to improve their economic, environmental and social performance parameters. Accordingly, this study presumes that both internal and external pressures have a positive impact on organisations' CSP improvement. Figure 3.2 shows the direct effects of both external and internal pressures on corporate sustainability performance. The hypotheses related to these direct effects are discussed in the following subsections.

Hypothesis 1: Impact of internal pressure on three dimensions of CSP

Internal pressures from diverse sources, such as pressure from top-level management, due to organisational moral and ethical commitment, the need for cost reduction, and for improvement in employee well-being, are all requiring organisations to make substantial progress in their CSP enhancement. Several examples of empirical evidence in the extant literature confirm the existence of pressure from top-level management to incorporate SBPs in order to enhance overall CSP (Miras-Rodriguez et al., 2018; Zhu and Zhang, 2015; Wijethilake et al., 2017; Giunipero et al., 2012; Renukappa et al., 2013; Abdalla and Siti-Nabiha, 2015; Banerjee et al., 2003). Top management's valuable decisions relating to improvement in sustainability performance seek to encourage the firm to initiate and implement various innovative environmental and social business practices (Dai et al., 2015). On the other hand, several studies have both theoretically and empirically explored the relevance of a firm's ethical and moral dedication to sustainability as a dominant force in improving CSP (Marshall et al., 2005; González-Benito and González-Benito, 2005; Lee and Rhee, 2007; Gadenne et al., 2009; Vazquez and Liston-Heyes, 2010; Garce´s-Ayerbe et al.,

2012). However, several other studies argue that the main motive behind the adoption of sustainable business practices is to improve financial performance in terms of cost reduction and profit maximisation (Cordano, 1993; Lampe et al., 1991; Porter and Van der Linde, 1995; Pullman et al., 2009). Finally, employees, who are considered as the primary internal stakeholder of the organisation, also pressurise management to improve both environmental and social performance by meeting their demands for reduction of consumption of toxic materials, improvement in employee welfare and securing a safe working environment (Aboelmaged, 2018; Searcy et al., 2012). Based on the literature review of the previous chapter (section 2.4.1) and above discussion, we can hypothesise that internal pressures have a positive impact on improving the firm's CSP in all three dimensions:

$H1_a$: Internal pressures have a positive impact on economic performance.

$H1_b$: Internal pressures have a positive impact on environmental performance.

$H1_c$: Internal pressures have a positive impact on social performance.

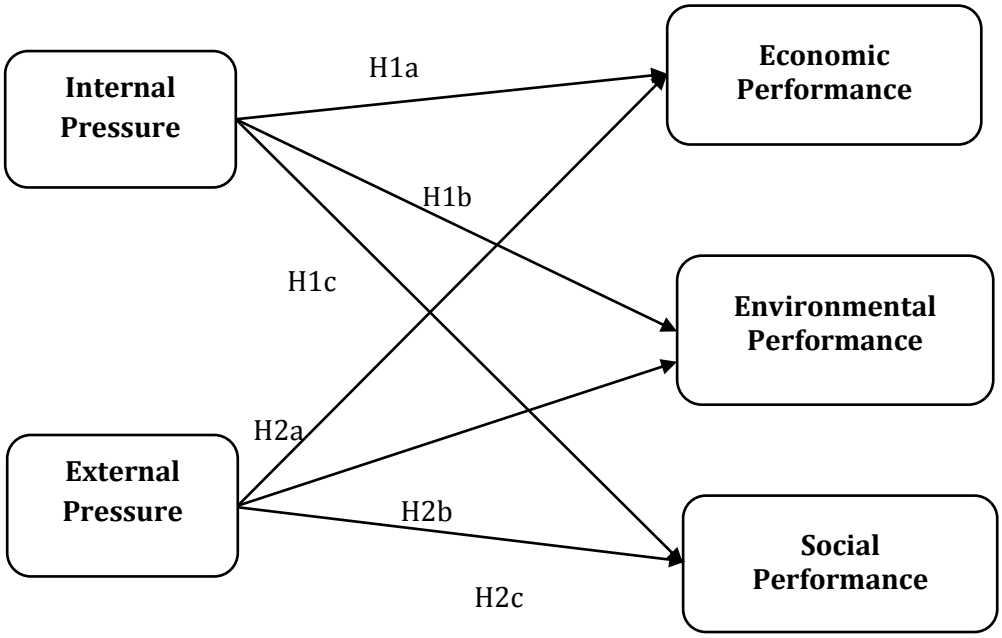


Figure 3.2 Direct Effects of both internal and external pressures on CSP

Hypothesis 2: Impact of external pressure on three dimensions of CSP

External pressure to improve CSP originates from various diverse sources. These include: the pressure to fulfil the requirements stipulated by the IRs' sustainability-related codes of

conduct; the pressure to gain competitive advantages in the operating market; the pressure to comply with the requirements of social and environmental certifications; the pressure from local and global regulatory bodies, and from different activist groups (i.e. media, labour rights organisations, NGOs) (Freeman, 1984; Backer, 2007; Zhu and Sarkis, 2007). It is evident from the existing literature that pressure from the IRs derives from end-customers' demands and frequent changes in consumer preferences (Dornfeld et al., 2013; Govindan et al., 2015). In addition to such direct pressures, the IRs also exercise indirect pressure through certifications (e.g. ISO 14001, SA 8000) (Delmas and Montiel, 2007; Castka and Prajogo, 2013), compliance requirements or via collaboration campaigns, e.g. with the trade associations or government (e.g. Accord and Alliance), designed to enforce SBPs. To fulfil the requirements of these certifications and the third-party audit process, firms have to incorporate, manage and monitor various environmental and social business activities into their operations. On the other hand, local and global regulations relating to sustainability also drive the organisations to improve their CSP so as to avoid costly penalties and fines relevant to these legislation requirements (de Brito et al., 2008; Chan et al., 2016).

According to de Brito et al. (2008) and Sarkis et al. (2010), organisations initially became involved in the sustainability because of pressures from legislation and regulations. However, they subsequently realised that sustainability could provide them with an advantage in the competitive market in which they operate. To obtain advantages, some organisations mimic other industry-leading best-practising competitors' sustainable business practices to achieve superior financial, environmental and social performance (DiMaggio and Powell, 1983). Pressure from NGOs, labour-rights organisations, press and social media to implement environmental and social practices is becoming very important for international brands seeking to protect their reputation in the global market. Stakeholders, such as NGOs and industry watchdogs, use the media to pursue negative campaigns about firms and supply chains responsible for unsustainable business practices, which may result in boycotts of those companies by the international market (Conroy, 2009). In summary, it is evident from the literature that firms are facing tremendous pressure from outside sources to improve their CSP, and that these pressures might play a decisive role in such performance improvement in all three dimensions. Hence, it is hypothesised that:

$H2_a$: External pressures have a positive impact on economic performance.

$H2_b$: External pressures have a positive impact on environmental performance.

$H2_c$: External pressures have a positive impact on social performance.

Hypothesis 3: Impact of both environmental and social performance on economic performance

The existing literature produces mixed results regarding the relationship between all three dimensions of corporate sustainability performance. Some researchers argue that superior environmental performance can lead to a better financial performance by improving firms' market share, brand image and profit margins (Klassen and McLaughlin, 1996; Jacobs et al., 2010; Amores-Salvadó et al., 2015). According to Heal (2005), superior environmental performance (i.e. better resource management, cleaner production, waste reduction, recycling, reuse of materials, reduction in consumption of hazardous materials, and adoption of ISO 14001) provides benefits, including improved financial performance through greater operational efficiency, enhanced reputation and competitiveness. Multiple studies have demonstrated empirically that those environmental practices can also enhance a firm's profitability (Porter and Kramer, 2011; Flammer, 2015; Song et al., 2017; Waddock and Graves, 1997; Klassen and McLaughlin, 1996). Furthermore, a firm's green image can reduce business risk by decreasing the threat of penalties and litigation associated with not complying with environmental rules and regulations (Song et al., 2017).

Several empirical studies established a positive relationship between environmental performance and economic performance (Yu et al., 2017; Henri and Journeault, 2010; Wagner, 2015; Chan et al., 2016; Eiadat et al., 2008; Hojnik and Ruzzier, 2017; Severo et al., 2017; Amores-Salvadó et al., 2015; Feng et al., 2016; Nishitani et al., 2017). Numerous studies in the current literature recommend companies to combine resource-efficiency practices along with ISO 14001 in order to improve financial performance (Severo et al., 2017; Amores-Salvadó et al., 2015; Lo et al., 2012). However, several studies also revealed negative impacts of environmental performance on economic performance resulting from massive investment in the implementation of the environmental practices and training, as well as infrastructure development (i.e. construction of green buildings) and technology advancement (Lucato et al., 2017; Hojnik and Ruzzier, 2017; Thornton et al., 2003; Wagner et al., 2002).

Implementation of socially responsible practices, can help a firm in its profit maximisation (Neubaum and Zahra, 2006; Porter and Kramer, 2002) and enhance its economic performance (Bohas and Poussing, 2016; Carroll and Shabana, 2010; Feng et al., 2016; Lo et al., 2012; Rodriguez-Fernandez, 2016). On the other hand, several studies have also recorded contradictory results by revealing a significant negative relationship between social

performance and financial outcomes (Nollet et al., 2016; Sila and Cek, 2017). Sila and Cek (2017) claim that social performance consistently improves economic performance in contrast to environmental performance. To investigate this phenomenon in a developing country's context, this study investigated the impact of both environmental and social performance on economic performance. Hence it was hypothesised that:

$H3_a$: There exists a positive impact of environmental performance on economic performance.

$H3_b$: There exists a positive impact of social performance on economic performance.

3.2.2 Hypothesis relating to the mediating effect of Sustainability Management Control System (SMCS)

In recent times, increased awareness of sustainable development has encouraged organisations to develop policies and strategies for managing the social, environmental and economic impact on their business activities. A survey conducted by Accenture and UN Global Compact discovered that more than 80% of CEOs considered that it is now crucial to fully embed sustainability concerns in their companies' operations (Mertins and Orth, 2012). However, some organisations are facing several challenges when seeking to integrate SBPs into their management and operations, owing to the unavailability of proper MCS. Panagiotakopoulos et al. (2016) argue that an appropriate management control system (MCS) should be capable of highlighting and managing the critical issues around sustainability standards and related management functions, so as to cope with these challenges efficiently. Section 2.5 of the previous chapter presented an extensive literature review regarding the role of a dedicated MCS in improving CSP (Perego and Hartmann, 2009; Henri and Journault, 2010; Riccaboni and Leone, 2010; Schaltegger, 2011; Gond et al., 2012; Crutzen and Herzig, 2013). Recently, several studies have started to explore the role of dedicated MCS for sustainability, known as SMCS, by improving CSP and using traditional management control system frameworks such as Simon's (1995) Levers of Control (LOC) approach, and Malmi and Brown's (2008) control package model and balanced scoreboard approach for performance measurement (Fauzi and Rahman, 2008; Morsing and Oswald, 2009; Schaltegger, 2011; Arjalies and Mundy, 2013; Kerr et al., 2015; Lueg and Radlach, 2015; Journeault, 2016; Guenther et al., 2016; Crutzen et al., 2017; Wijethilake, 2017; Wijethilake et al., 2018).

Recently, a limited number of studies have utilised Simons' LOC approach in order to design an MCS customised for sustainable business practices and for testing their mediating or moderating roles in improving CSP (Wijethilake et al., 2018; Wijethilake, 2017; Arjaliès and Mundy, 2013). Using the LOC framework, Wijethilake (2017) tested the mediating role of MCS in the relationship between proactive sustainability strategy and corporate sustainability performance. In their study, Wijethilake et al. (2018) employ the LOC framework to investigate the feasibility of a moderating role for SMCS when exploring the relationship between environmental innovation strategy and organisational performance. This study will also use the Levers of Control (LOC) (Simons, 1995) approach to investigate the mediating role of SMCS in the relationship between both internal and external pressure and corporate sustainability performance (i.e. economic, environmental and social).

This study has adopted Simons' (1995 and 2000) lever of control (LOC) topology which is the most comprehensive conceptual framework among all the proposed management control systems discussed in the extant literature (Fauzi and Rahman, 2008; Arjaliès and Mundy, 2013; Wijethilake et al., 2017). Figure 3.3 shows the four control systems of Simons' LOC framework. It is well-established in the existing literature that the MCS generally consists of multiple control systems, which are interdependent and work together to benefit a firm (Otley, 1980). Simons' (2000), levers of control (LOC) framework also consists of four control systems: beliefs (e.g. core values); boundary (e.g. behavioural constraints): diagnostic (e.g. monitoring): and interactive (e.g. progressive management involvement). Simons (2000) argues that a LOC-based MCS helps firms to use these four control systems to deal with strategic uncertainty and risk through organisational learning and the efficient use of management control. The remainder of this section briefly discusses the role of each control systems.

Belief System

The beliefs system is "the explicit set of organisational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose and direction for the organisation" (Simons, 1995, p. 34). The role of belief systems is to assist organisations in developing vision and mission statements, credos, and statements of purpose which communicate corporations' values, purposes, and future directions (Simons, 1995, 2000). Corporations' capability to integrate sustainability-related core values into its mission and vision statements benefit them by helping them to respond strategically to the

tremendous pressure of incorporating SBPs (Porter and Kramer, 2006). Therefore, formal belief systems have a critical role in disseminating core sustainability values by implementing sustainability strategies proactively and effectively (Arjaliès and Mundy, 2013; Kerr et al., 2015). Belief systems dedicated to sustainability strategy developed by top management will guide, encourage, and inspire employees' commitment to sustainability goals. There is empirical evidence confirming the positive role of belief systems in achieving long and short-term sustainability goals (Jollands et al., 2015; Aragón-Correa and Rubio-Lopez, 2007; Wijethilake, 2017). Jollands et al. (2015) find that core sustainability values help corporations to step forward and take effective decisions to attain sustainability objectives. Communicating a sustainability vision among the broader stakeholder group helps to provide a consistent picture of stakeholders' interests and intentions concerning a corporation's commitment to sustainability (Epstein and Buhovac, 2014; Hart, 1995).

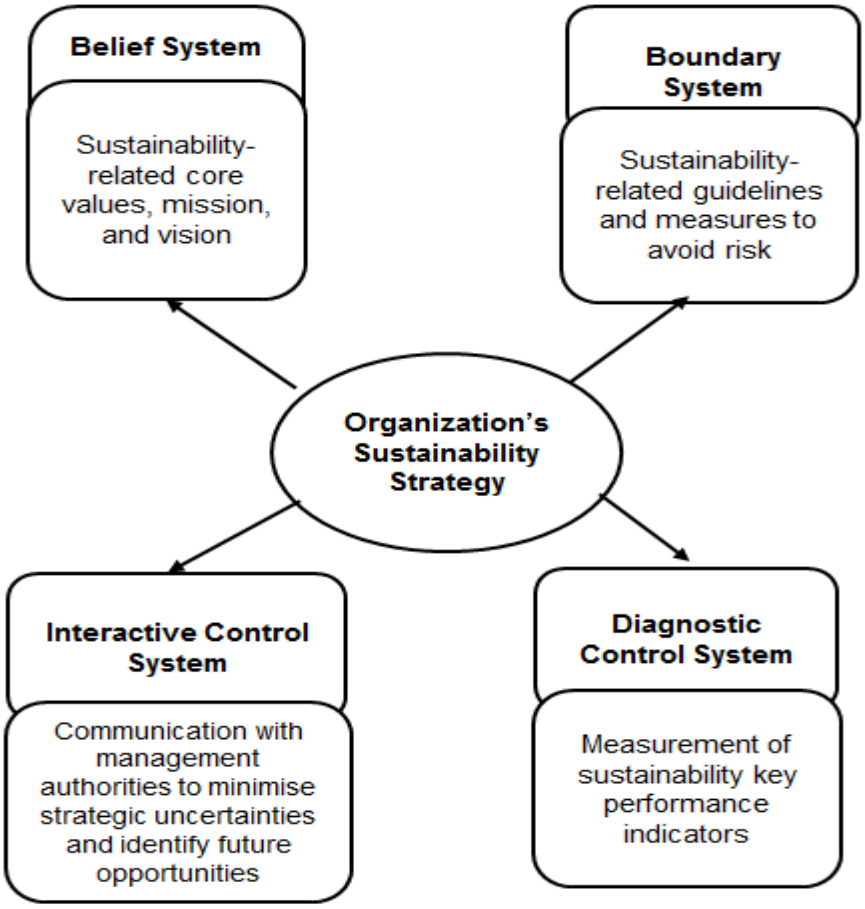


Figure 3.3 Levers of Control Framework (Adopted from Simons, 1995)

Boundary systems

A *boundary* system "delineates the acceptable domain of strategic activity for organisational participants" (Simons, 1995, p. 39). While belief systems develop the vision and mission statements of the strategy, boundary systems draw a 'box' around those strategies where employees have the freedom to innovate and achieve objectives within that particular predefined domain (Widener, 2007; Simon, 2000). This particular control system develops well-defined guidelines to operationalise the strategic plan developed by the belief system. The implementation of SBPs entails numerous internal and external risks, such as an unsafe working environment, usage of hazardous materials and non-compliance with environmental, social, health and safety standards. To cope with these challenges, top management should formulate specific guidelines to be adhered to by employees within the strategic process, and should delegate responsibilities and authorities by forming a dedicated team, or personnel, which will help them to avoid those risks (Epstein and Roy, 2001; Haugh and Talwar, 2010). The boundary control system is also responsible for setting measurable targets for different sustainability performance indicators (e.g. raw materials, energy, water, waste). Another important task of the boundary system is to comply with the stipulations of international and industry-specific agreements, guidelines and management systems (e.g. UN Global Compact, Global Reporting Initiative (GRI) guidelines, ISO 14001) (Arjaliès and Mundy, 2013; Bansal, 2005). Thus, this boundary system can avoid potential environmental and social risks and can improve the CSP, if implemented, by maintaining proper guidelines (Fauzi and Rahman, 2008).

Diagnostic Control Systems

According to Simons (1995), diagnostic control systems are employed by top management as a formal process of gaining feedback about a developed strategy through a performance-evaluation, monitoring and rewarding system. This system will help an organisation to understand the success and failure of that strategy by analysing the outcomes of the performance evaluation. It can also suggest the areas for improvement. According to literature, Balanced Scorecard and triple-bottom-line reporting, (such as sustainability reporting using GRI standard CSR reporting, as well as life cycle assessment, environmental and social audits, CSP benchmarking for self-assessment, and comparison with competitors using different decision-making tools), can be viewed as a diagnostic control system for measuring sustainability performance (Kerr et al., 2015; Epstein and Roy,

2001). These diagnostic control systems, dedicated to measuring and monitoring sustainability performance evaluation include not only financial measures but also environmental and social performance indicators. Moreover, regular incentive and rewarding systems for suggesting and developing innovative and profit-enhancing sustainable business practices are included in the diagnostic control systems designed to achieve a firm's long-term sustainability goals (Epstein and Roy, 2001).

Interactive Control Systems

The interactive control system is the process of communication and collaboration amongst top-management and other management authorities' intent on enhancing the dialogue among the employees to minimise strategic uncertainties and identify future opportunities and threats (Simons, 1995). According to Gond et al. (2012), corporations should utilise interactive control systems to trigger sustainability learning, as well as to stimulate strategic sustainability revitalisation. Periodic meetings with top management to review the progress of the SBPs in achieving the predefined targets will help the firm to increase their awareness of their position, growth and shortcomings in sustainability issues and practices. Accordingly, based on the feedback of those joint meetings, sustainability-related training courses and workshops can be suggested and designed to overcome the inadequacies. Sustainability-related booklets, the intranet and the internet, can also be utilised to deliver the firm's policy on sustainability to internal and external stakeholder groups (Haugh and Talwar, 2010). This type of productive interaction can be viewed as an essential determinant in developing successful sustainability strategies which will help a firm to improve CSP in the long run.

Hypothesis related to the mediating effects of SMCS

Epstein and Roy (2001, p. 593) propose that "the alignment of strategy, structure, and management systems is essential for companies to both coordinate activities and motivate employees towards implementing a sustainability strategy". Researchers argue that if the SMCS is designed based on the four levers of control, it will play a vital role in responding to sustainability challenges by overcoming difficulties associated with the implementation of sustainability business practices, by supporting strategic decision making (Arjaliès and Mundy, 2013; Crutzen and Herzig, 2013; Epstein et al., 2015; Gond et al., 2012). The support from SMCS assists the organisations in strengthening the alignment of business strategy with sustainability strategy. It also benefits them by achieving improved corporate sustainability performance (Henri and Journeault, 2010). Given that the adoption of SMCS

emerged as an essential factor in improving CSP, based on the findings of the above literature review, this study hypothesises an indirect positive impact of SMCS on the relationship between both internal and external pressures and all three performances of sustainability. Before testing the mediating effects, the direct relationships among the independent variables (i.e. internal and external pressure) and mediating variables (i.e. SMCS) as well as mediating variable and dependent variables (i.e. economic, environmental and social performance) were also tested. The hypothetical relationships of the proposed model for testing the mediating effects were shown in the above Figure 3.4, and the related hypotheses were listed below:

H4: There exists a positive impact of internal pressures on the sustainability management control system.

H5: There exists a positive impact of external pressures on the sustainability management control system.

$H6_a$: There exists a positive impact of the sustainability management control system on economic performance.

$H6_b$: There exists a positive impact of the sustainability management control system on environmental performance.

$H6_c$: There exists a positive impact of the sustainability management control system on social performance.

$H7_a$: SMCS positively mediates the relationship between internal pressure and economic performance.

$H7_b$: SMCS positively mediates the relationship between internal pressure and environmental performance.

$H7_c$: SMCS positively mediates the relationship between internal pressure and social performance.

$H8_a$: SMCS positively mediates the relationship between external pressure and economic performance.

$H8_b$: SMCS positively mediates the relationship between external pressure and environmental performance.

$H8_c$: SMCS positively mediates the relationship between external pressure and social performance.

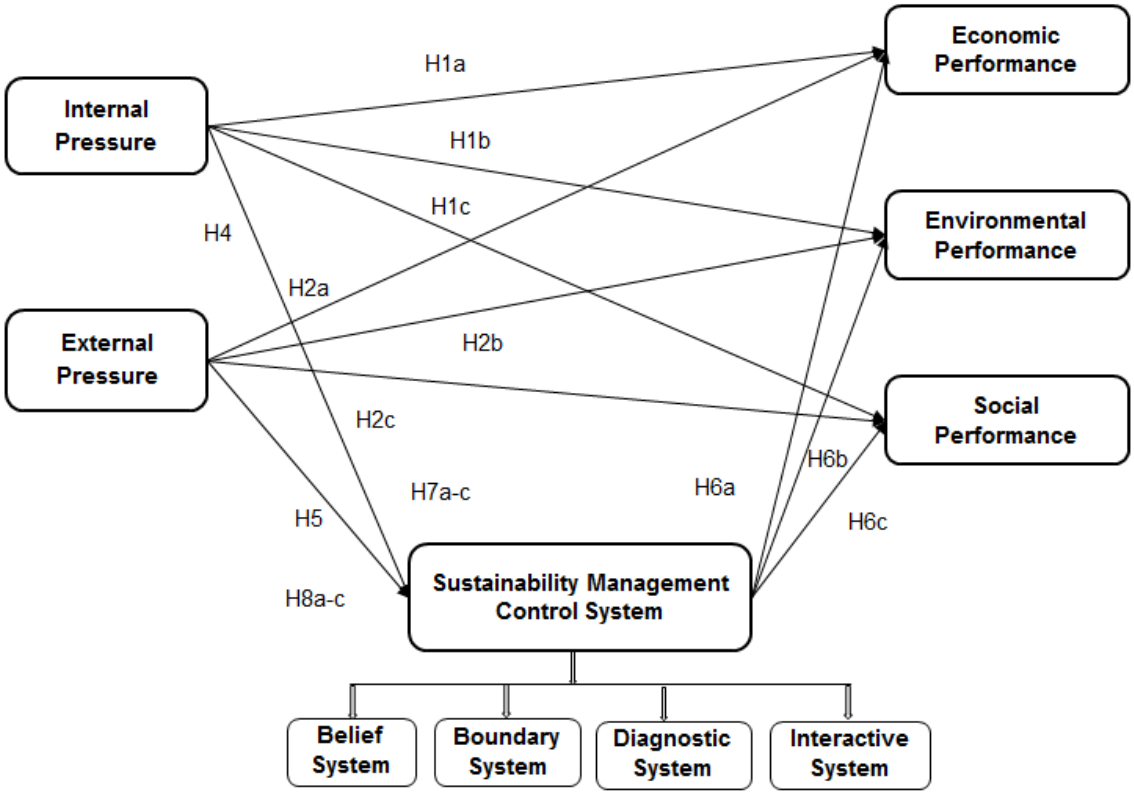


Figure 3.4 Mediating role of SMCS on the relationship between pressure and CSP

3.2.3 Hypothesis relating to the mediating effect of internal pressure

External pressure influences internal pressure to improve CSP in all three dimensions. External pressures from environmental regulations, customers' green demands, and competitive pressures, are directly pressurising firms' internal management to initiate innovative sustainable business practices (Cai and Zhou 2014; Freeman, 1984). Various internal pressures to improve CSP (e.g. pressure to improve employee welfare, pressure from top-level management, pressure to reduce cost) usually originates from the presence of external pressures from diverse sources which motivate firms to adopt SBPs. External pressures or stakeholders (i.e. international retailers; activist groups; media) do not have the direct authority and control over the organisational resources to initiate any sustainable activities within the organisations. Rather they act as an important driver in encouraging internal management to implement sustainability management systems such as SMCS. This

study assumes that internal pressure positively mediates the relationship between external pressure and SMCS. Hence, it is hypothesised that

H9: The internal pressure positively mediates the relationship between external pressure and SMCS.

3.3 Theories used in Sustainability Management Literature

In the broader literature on sustainability management and sustainable business, practices were analysed using a number of prevalent social-sciences theoretical frameworks , such as resource-based view theory (RBVT) (Sarkis et al., 2010; Qu et al., 2015; Feng et al., 2016; Huang et al., 2016; Hojnik and Ruzzier, 2017), institutional theory (Wagner, 2015; Adebanjo et al., 2016; Zhu, 2016; Dubey et al., 2017; Wijethilake et al., 2017), stakeholder theory (Eiadat et al., 2008; Castka and Prajogo, 2013; Dai et al., 2015; Ezzi and Jarboui, 2016; Afzal et al., 2017), dynamic capabilities view (DCV) (Yu et al., 2017; Foerstl et al., 2010), contingency theory (CT) (Aragón-Correa and Sharma, 2003; Feng et al., 2016; Yu et al., 2017) and agency theory (Rodriguez Fernandez, 2016; Ezzi and Jarboui, 2016). Stakeholder theory, resource-based view theory and institutional theory are the predominant theoretical lenses that have been applied in this research area when seeking to explain the adoption of sustainable business practices involving various institutional pressures and their impact on CSP (Eiadat et al., 2008; Babiak and Trendafilova, 2011; Dai et al., 2015; Zhu, 2016; Shubham et al., 2018; Wijethilake et al., 2017; Dubey et al., 2017; Cantele and Zardini, 2018).

As pressures from both internal (i.e. employees, top-level management, shareholders) and external stakeholders (i.e. government, customers, retailers, society) are considered a significant motivating factor behind the adoption of various sustainable business practices, several studies use stakeholder theory to describe this phenomenon (Eiadat et al., 2008; Sarkis et al., 2010; Dai et al., 2015; Yu and Choi, 2016; Awan et al., 2017; Cantele and Zardini, 2018). The above-mentioned stakeholders play a vital role in ensuring that organisations to become more sustainable. Several studies in the contemporary literature investigate the stakeholder pressure underpinning the implementation of such SBPs and in turn its impact on the firm's economic, environmental and social performance (Eiadat et al., 2008; Sarkis et al., 2010). Eiadat et al. (2008) used the stakeholder theory to investigate the influence of environmental pressures on the adoption of an environmental innovation strategy. Their study concludes that environmental pressures influence the adoption of an

environmental innovation strategy and that this strategy fully mediates the relationship between environmental pressures and a firm's business performance. Wagner (2015) examines the effects of stakeholder demands on the integration of management activities within the firm, and their impact on a firm's economic and environmental performance, by using stakeholder theory. The results reveal a direct link between economic and environmental performance. In a similar study, Sarkis et al. (2010) also used the stakeholder theory to test the mediating role of training in the relationship between stakeholder pressure and its impact on the adoption of sustainable business practices. Different types of stakeholder group inspire adoption of different types of sustainability practices, such as pollution prevention, waste minimisation, community development practices, adoption of third-party certification, the publication of sustainability reporting, the development of green buildings, material recycling and process redesign (Henriques and Sharma, 2005; Garce´s-Ayerbe et al., 2012).

Institutional theory has been used by several researchers to help explain how firms adopt sustainable practices as a result of potential coercive, normative, or mimetic pressures (Delmas and Toffel, 2004; Sarkis et al., 2010; Huang et al., 2016; Dubey et al., 2017; Zhu and Zhang, 2015; Wijethilake et al., 2017). The institutional theory has been used to explain the influence of various stakeholders under these differing institutional conditions. In this scenario, pressures from legislation, regulations, and customers exemplified some common coercive pressures to adopt SBPs that organisations were facing. Pressures from their competitors, industry-level best-practising companies and industry experts were the primary source of mimetic pressure. On the other hand, normative pressures originated from top management, organisational policies and professional bodies.

Another popular theory which generally has been used in sustainability management literature is RBVT. According to RBVT, by accumulating and integrating a valuable, rare, inimitable, and non-substitutable (VRIN) set of resources, firms can create sustainable competitive advantages (Barney, 1991; Sirmon et al., 2011). These resources include "all assets, capabilities, organisational processes, firm attributes, information and knowledge, controlled by a firm that enables the firm to conceive of and implement strategies that improve its efficiency and effectiveness" (Barney,1991, p.101). Moreover, RBVT also predicts that appropriate deployment of these VRIN resources will have a positive impact on a firm's performance, if effectively managed (Ray et al., 2004). Several studies grounded in RBVT explore how firms have been implementing innovative value-creating strategies by

using these VRIN resources to achieve improved sustainability performance (Wiklund and Shepherd, 2003; Darnall and Edwards, 2006; Bowen, 2007; Hojnik and Ruzzier, 2017; Qu et al., 2015). Therefore, the RBVT view of performance improvement helps to understand how firms achieve effective performance outcomes with high efficiency by adequately managing and utilising these VRIN resources (Hitt et al., 2016). RBVT has been applied in conjunction with institutional theory or stakeholder theory to understand how firms utilize their VRIN resources to gain competitive advantage when dealing with different types of stakeholder pressures (Wu et al., 2012; Awan et al., 2017; Huang et al., 2016; Wagner, 2015; Adebanjo et al., 2016; Yu and Choi, 2016). Some researchers apply Dynamic Capability View (DCV), which is an extension of RBVT applicable to dynamic or highly unpredictable markets (Eisenhardt and Martin, 2000; Teece et al., 1997). The DCV suggests that a firm needs to develop new dynamic capabilities to identify and respond to opportunities in increasingly volatile markets for pursuing long-term competitive advantage (Jarvenpaa and Leidner, 1998). A limited number of studies use DCV in the sustainability management literature (Yu et al. 2017; Foerstl et al., 2010). Several studies also used the Contingency Theory (CT) as a theoretical basis for explaining their conceptual framework. CT claims that performance is a function of an organisation, its structure, strategy, and environment (Lawrence and Lorsch, 1967; Venkatraman, 1989; Venkatraman and Prescott, 1990). Several existing studies have applied CT as a theoretical context to help explain the conceptual frameworks which investigate the impact of various sustainability strategies on improving sustainability performance in the dynamic market environment (Aragón-Correa and Sharma, 2003; Feng et al., 2016; Yu et al., 2017).

In the sustainability management literature, several studies use multiple theories to explain the proposed conceptual frameworks (Wagner 2015; Feng et al. 2016; Huang et al., 2016; Ezzi and Jarboui, 2016; Awan et al., 2017; Yu et al., 2017). On the other hand, various studies apply a single theory to describe the phenomenon (Eiadat et al., 2008; Qu et al., 2015; Hojnik and Ruzzier, 2017). A majority of the studies explore the economic and environmental dimensions of sustainability based on popular social science theories (Eiadat et al., 2008; Wagner, 2015; Dai et al., 2015; Huang et al., 2016; Shubham et al., 2018; Yu et al., 2017), whereas a limited number of recent studies use popular theories when examining the conceptual models with all three dimensions of TBL (Qu et al., 2015; Afzal et al., 2017; Wijethilake, 2017; Emamisaleh and Rahmani, 2017; Cantele and Zardini, 2018).

3.3.1 Theoretical Underpinning of this Study

The proposed conceptual model was developed based on the underlying concept of Contingency Theory (CT). The CT theory involves three types of variables (Sousa and Voss, 2008): contextual variables; response variables; and performance variables. Contextual variables refer to the exogenous operating environmental characteristics such as internal and external pressures (i.e. pressure to comply with the international retailer's code of conducts, regulations, top-management interference, requirements of the certifications, pressure from the press and media). In addition to these contextual factors, a significant developmental aspect of a dedicated sustainability-management control system is the response variable in the contingency theory paradigm, namely the actions taken by organisations in response to the contextual factors. Organisations incorporate the SMCS to manage and monitor sustainable SBPs to meet the sustainability-related requirements that originate from various external and internal pressures. The performance variables, which are the dependent variables, measure the effectiveness of the response variables (i.e. the actions), subject to the contextual variables. In this study, these performance variables are represented by economic, environmental and social performance in the proposed conceptual framework.

This study investigates the mediating roles of value-creating strategies, such as dedicated SMCS between both internal and external pressures and corporate sustainability performances. The hypothesised relationships of the proposed conceptual framework between the constructs can be explained by adopting the contingency theory (CT) approach. The basic principle of CT claims that organisations adapt their structures and strategies in order to be able to adapt to fluctuating contextual factors whilst still achieving high-performance parameters (Donaldson, 2001). Miles and Snow (1978) suggest that organisations should align and realign their structures and processes according to the dynamic environment in which they are operating in order to maximise performance (Donaldson, 2001; Lawrence and Lorsch, 1967). In the case of corporate sustainability performance, examples of these contextual factors could include growing environmental pressures, demands from different stakeholder groups and rapid changes in retailers' preferences (Delmas and Toffel, 2008; Kassinis and Vafeas, 2006). CT posits that the relationship between the relevant dependent variable (i.e. corporate sustainability performance) and the independent variables (i.e. internal and external pressures) will not be

merely linear but will be influenced by the adopted organisational strategy or system (i.e. SMCS) as shown in figure 3.5.

This study suggests that the development of an integrated system like SMCS will help organisations to plan, implement, manage and monitor their sustainability performance parameters as a response to both internal and external pressures. These will not only enhance their firm's sustainability image in the market but also improve sustainability performance indicators in all three dimensions. While recent research has confirmed the importance of SMCS in gaining a firm's competitive advantage (Mustapha et al., 2017; Panagiotakopoulos et al., 2016; Sealy et al., 2010; Mousavi and Bossink, 2017; Hong et al. 2018; Yu et al., 2017), no studies has been done to examine such strategies' mediating effects on CSP grounded in CT. This study argues that a firm needs to develop an internal management system like SMCS to identify and respond to opportunities for maximising CSP in the increasingly unpredictable markets of the RMG industry. Internal and external pressures itself cannot by themselves lead to better corporate sustainability performance, but successful incorporation of each SMCS control system can be considered a proper medium to convert such pressures to improve performance which can be appropriately explained using the basic concepts of CT.

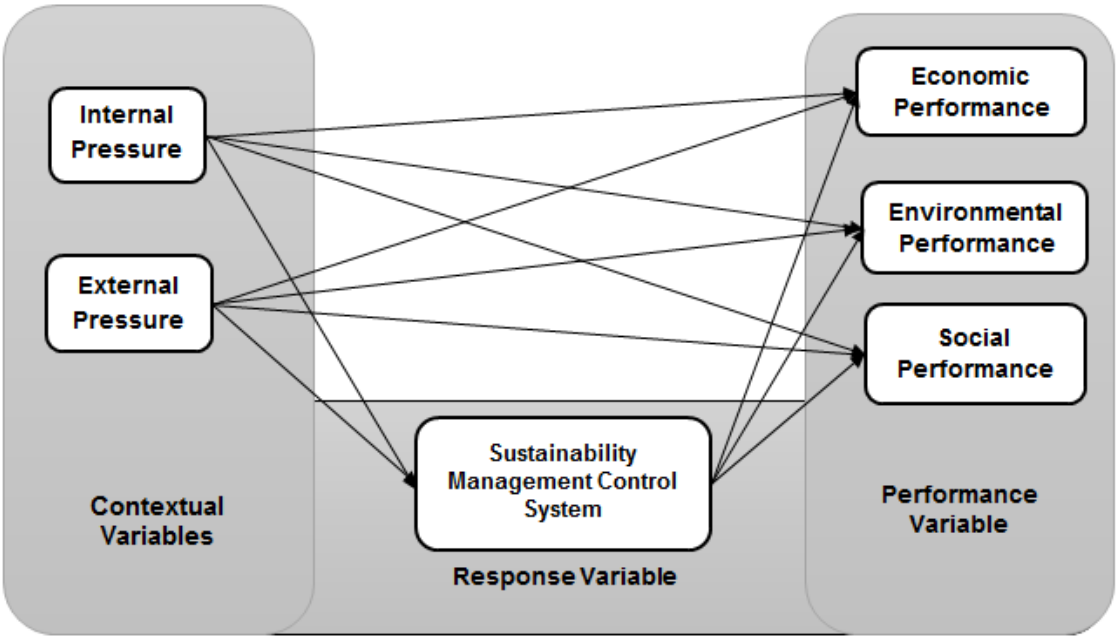


Figure 3.5 Conceptual framework explained using Contingency Theory

3.4 Conclusion

The proposed conceptual framework and corresponding hypotheses have been outlined in this chapter, based on an extensive literature review. Hypotheses related to both direct effects and mediating effects had also been developed in separate subsections which reflect the underlying direct and indirect relationships among the variables in the conceptual framework which will be empirically tested in the subsequent chapters. Finally, the justification for using the Contingency Theory has been discussed in order to explain how the proposed conceptual framework was designed using the basic concepts of that theory. The next chapter will address the philosophical assumptions underpinning this study, as well as the detailed research design and research methodology employed to test the proposed conceptual framework. The next chapter will also provide a detailed discussion of the measures taken to ensure the content validity of the newly developed instrument, sampling techniques and the questionnaire design and administration process.


Overview of Chapter Four
Methodology
4.0 Introduction
4.1 Research Paradigm
4.2 Research Design
4.3 Construct Operationalisation
4.4 Stage One: Questionnaire Survey
4.5 Stage Two: Multiple Criteria Decision-Making Model
4.6 Ethical Consideration
4.7 Conclusion

Chapter 4 Methodology

4.0 Introduction

The previous chapter outlined a conceptual framework, and a set of hypotheses about the relationship between the organisational pressures and corporate sustainability performance and is also considered the mediating effects of SCMS. This chapter discusses the research design and research methodology of the proposed study. At the beginning of this chapter, the philosophical assumptions behind this study are addressed in order to justify the proposed research methods. The next section then discusses the operationalisation of the constructs as well as the measures taken to ensure the content validity of the newly developed instrument. The proposed research design is divided into two major stages. The subsequent sections outline each stage of the research design in detail, including sampling techniques, the data collection process, and ethical considerations.

4.1 Research Paradigm

The term ‘paradigm’, first coined by Thomas Kuhn (1962) in his book “The Structure of Scientific Revolutions”, refers to an overall theoretical research framework. According to Kuhn (1962, p.175), a paradigm is defined as "a set of values and techniques which is shared by members of a scientific community, which acts as a guide or map, dictating the kinds of problems scientists should address and the types of explanations that are acceptable to them". Bogdan and Biklen (1998, p.22) describe a paradigm as “a loose collection of logically related assumptions, concepts or propositions that orient thinking and research.” According to Morgan (1980), the term ‘paradigm’ implies a set of ideas and interlinked concepts which are used at the philosophical level to reflect fundamental beliefs about the world. Hence, a paradigm implies a pattern, structure and framework of scientific and academic ideas, values and assumptions (Olsen et al., 1992).

There are four key concepts of research paradigms which can differ according to how the researcher perceives the world and what he/she can know about it (Lee and Lings, 2008). These four concepts of knowledge generation are ontology (what is real); epistemology (what is knowledge or knowable); axiology (what values underpin research); and methodology (how to acquire the knowledge) (Lee and Lings, 2008). Therefore, a paradigm leads a researcher to ask specific research questions and use appropriate tools and techniques to get the answer to the question through systematic inquiry known as a

methodology (Lee and Lings, 2008). A researcher's ontological and epistemological assumptions will inevitably inform the choice of methodology and methods of the research (Dammak, 2015). There are two most commonly used underlying epistemologies in social science research: positivism and interpretivism (Mingers, 2003; Orlikowski and Baroudi, 1991). The following subsections briefly described these underlying concepts.

4.1.1 Positivism Paradigm

The term 'Positivism' was first invented by Auguste Comte, the French philosopher who believed that reality could be observed by using strict empirical approaches. These empirical methods make claims about knowledge based on experience and gather this knowledge using precise observations and measurements which are verifiable (Bogdan and Biklen, 1998; Chilisa and Kawulich, 2012). By the same token, according to Henning et al. (2004), positivism is concerned with unveiling the truth and presenting it by empirical means to discover laws that are generalizable (Chilisa and Kawulich, 2012). The purpose of research in this positivist paradigm is to prove or disprove a set of hypotheses by using the scientific method and statistical analysis to obtain generalizable findings (Mack, 2010).The positivists embrace an objectivist view of the world (Dammak, 2015). Positivists also assume that an objective reality with its cause-and-effect relationships exists outside personal experience (Remenyi et al., 1998; Riege, 2003; Babbie and Mouton, 2008; Saunders et al., 2009). The positivist researcher maintains a distant, neutral, isolated and non-interactive position vis-à-vis the participants of the study (Morris, 2006). Positivist epistemology uses quantitative data collection techniques such as questionnaire surveys, online content analyses, and systematic observations.

4.1.2 Interpretive Paradigm

In the interpretive paradigm, the researcher seeks to, "understand, explain, and demystify social reality through the eyes of different participants" (Cohen et al., 2007, p. 19). Interpretive researchers believe in multiple realities (Crotty, 1998; Pring, 2000) and that reality is socially constructed (Dammak, 2015). Interpretive researchers think that reality consists of people's subjective understandings of the external world. They attempt to collect data from the field by an in-depth examination of the phenomenon of interest. Interpretivists assume that social reality is subjective and nuanced because it is formed by the perceptions of the participants, as well as the values and aims of the researcher (Lee and Lings, 2008). Moreover, interpretivist epistemology employs qualitative data collection such as semi-

structured interviews, focus groups and participant observations, ethnography, which generally includes fewer participants in comparison to quantitative methods (Straub et al., 2005). Thus, interpretivists aim to understand subjective realities using qualitative methods to offer explanations, which are meaningful for the participants in the research (Lee and Lings, 2008).

4.1.3 Philosophical Assumptions of this Study

Most research studies make implicit or explicit assumptions regarding the nature of the world based on the objectives of their research projects (Burrell and Morgan, 1979). These assumptions are crucial for an understanding of the overall perspective from which the study is designed and carried out (Krauss, 2005). According to Bryman and Bell (2007), philosophical assumptions drive the formulation of research objectives, which in turn drive the collection and analysis of data. The philosophical underpinning of this research is grounded in the 'Realist' approach. 'Realism' is a branch of 'Positivism'- which shares positivism's belief in an objective world which can be observed and measured (Lee and Lings, 2008). Positivist philosophy of science only considers things to exist if they are directly observable and verifiable (Lee and Lings, 2008), whereas researchers who believe in realist approaches tend to assume that they can measure unobservable factors (such as internal and external pressures in the case of the proposed study). The assumptions made regarding the nature of science, along with the research objectives, indicate that the main data collection method of the research would be quantitative (i.e. questionnaire survey) in nature. The next section outlines the research methods and design for data collection and analysis of the study.

4.2 Research Design

A research design is viewed as the detailed plan in which certain research methods and procedures are linked together to obtain a reliable and valid body of empirical data. Bless et al. (2006, p.71) define research design as "operations to be performed, in order to test a specific hypothesis under a given condition". The research problem of any study will determine the types of research methods and procedures to be used. These include the types of measurement, the sampling methods, the data collection processes and the data analysis methods to be employed (Zikmund et al., 2010). Babbie and Mouton (2008) described the research design as a blueprint for conducting any research study.

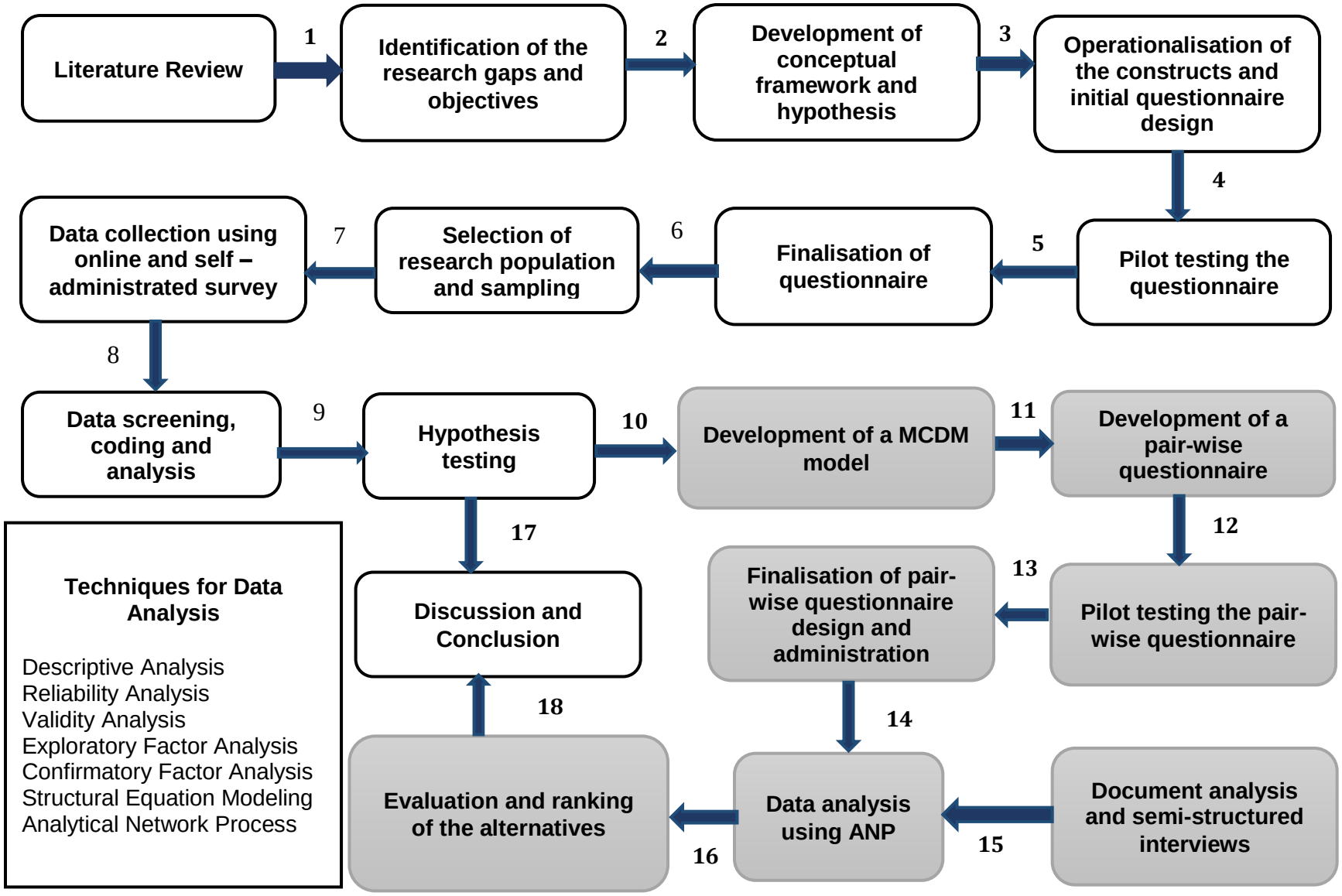


Figure 4.1 Overall research design of the study

There are two main purposes of this study which lead to two main stages of the research design. The first purpose is to empirically test a proposed conceptual framework among the RMG companies of Bangladesh. For this stage of research design, the overall plan was to conduct a large-scale questionnaire survey and then to test the proposed hypotheses using Structural Equation Modelling (SEM). The second purpose is to develop a multiple criteria decision-making (MCDM) model using ANP to evaluate the best practising RMG companies based on their corporate sustainability performance. In this case, a structured questionnaire survey for pair-wise comparison, document analysis and semi-structured interviews were used to test the MCDM model. The functional plan of the overall research design was illustrated in the above figure 4.1. Stage one of the research designs were from step one to ten and steps eleven to seventeen were for stage two.

4.3 Research Methods

Methods are the "range of approaches used in educational research to gather data which are to be used as a basis for inference and interpretation" (Cohen et al., 2003, p. 44). There are two types of research methods - qualitative and quantitative. Qualitative research is designed to help researchers to understand the social, behavioural, and cultural phenomena within which they exist. Qualitative research is most appropriate when the researcher aims to acquire in-depth knowledge in a detailed manner about the phenomenon of interest and perceptions of the participants (Lee and Lings, 2008). Unstructured or semi-structured interviews, focus groups and participant observations, and ethnography techniques are generally employed in qualitative research. On the other hand, the research methods employed for quantitative research include survey methods, laboratory experiments and mathematical modelling (Myers and Avison, 2002). Data collected using these methods are revised and tabulated in terms of numbers, which allows this data to be easily applicable to a wide variety of statistical analysis (Hittleman and Simon, 1997). Quantitative methods are specially used for hypothesis testing, and data is drawn from a wide range of respondents from the population of interest. For this reason, a result generated by the data analysis based on quantitative research design is very commonly generalizable and replicable. Table 4.1 shows a comparison between qualitative and quantitative research methods (Gall et al., 1996; Lee and Lings, 2008).

Table 4.1 Comparison of Qualitative and Quantitative Research Methods		
Criteria	**Qualitative**	**Quantitative**
Type	Exploratory	Non-exploratory
Nature	Subjective	Objective
Types of questions	Seeks to explain 'how' and 'why' questions	Seeks to explain 'what' questions
Sample Size	Relatively small sample size	Large sample size
Sampling Technique	Purposive Sampling	Random Sampling
Data collection methods	Unstructured or semi-structured techniques such as in-depth interviews focus groups and participant observations and ethnography	Structured techniques such as – online surveys, paper surveys, structured interviews, online content analysis
Generalisation	Theoretical	Statistical
Data Type	Text	Numerical
Questions	Open-ended questions	Closed questions
Data Analysis	Content analysis, grounded theory, thematic analysis or discourse analysis	Descriptive analysis, regression, multilevel modelling, structural equation modelling.
Theory	The theory is data-driven	Used to test a theory
The time frame required for data collection, analysis and interpretation	A relatively lengthy process due to qualitative data transcription, interpretation and thematic analysis	Relatively less time required by this method because of the usage of structured data collection and sophisticated statistical analysis software such as SPSS, AMOS, MPLUS
Results reporting	Qualitative research uses a descriptive, narrative style to present the results.	The results reported using tables, graphs, and block diagrams.
Replication	Replication of the exploratory study is not easy	Replication is relatively easy

4.4 First Stage of the Research Study

The primary data collection method for the first stage of the research design was the large-scale questionnaire survey. The data collected was used to test the causal relationships and hypotheses of the proposed conceptual model. Firstly, a draft questionnaire was developed based on the construct operationalised based on an extensive literature review. This was then pilot tested to ensure the validity of the instrument. Subsequently, the questionnaire was distributed to the chosen sample from a target population using snowball sampling. Both online and self-administered survey

methods were employed to carry out a large-scale survey. The planning and design for conducting the entire survey are described in the subsection sections in a detailed manner.

4.4.1 Questionnaire Design

In the design of the cross-sectional survey, data are collected at a single point in time from a sample drawn from a specified population. Relationships and differences between the measured variables within the population are assessed using the cross-sectional surveys. Thus, it is imperative that the researcher choose this research population sensibly, so as to obtain the desired answer to the research questions. The research questions are usually used to establish or predict a relationship between one or more independent variables and a dependent variable of research interest (Totten, 1999). In the survey research design, the questionnaires are therefore vital instrument by which statements can be made about specific groups or entire populations.

4.4.1.1 Advantages of a questionnaire survey

Using a questionnaire survey as a data collection tool has various advantages. Some of the main ones are listed below (Totten 1999; Visser et al., 2010):

- The questionnaire survey is relatively cost-effective in comparison to other research methods. Online surveys, in particular, are generally low-cost, and a generous number of respondents can be reached within a wide geographic area.
- It is easier to acquire responses from a large sample of a given population through a questionnaire survey and this, in turn, will make the results of the analysis more generalizable.
- The data collected using a questionnaire survey are highly structured and efficiently coded. This helps the researcher to administer and analyse the data with less difficulty.
- Questionnaire survey ensures a high level of anonymity for respondents.
- Questionnaire surveys are easily replicable and can be used in later studies in a different context or different research settings.
- Respondents are not pressurised to complete the survey instantly. They can take their time filling out the questionnaire within a given time frame and answer the sensitive topics in private.

4.4.1.2 Disadvantages of a questionnaire survey

There are various disadvantages of using a questionnaire survey as the main research method. Some of them are outlined below (Totten 1999; Visser et al., 2010):

- Designing a simple and easily understood questionnaire is a complex task. If the questions are not designed carefully, then there exists a risk of misunderstanding and misinterpretation of the questions by the respondents, which may result in confusing results.
- Sometimes it is difficult to get the required number of responses from a reasonable sample size due to the lack of research access. Hence, it may be challenging to obtain a statistically significant result with this low response rate.
- There is a risk of errors in data collected by using a questionnaire survey owing to non-response bias. Respondents may engage less, e.g. by not filling in the question accurately; they may also have less knowledge about the subject area of the questions. Moreover, some respondents may ignore specific questions, resulting in a missing data scenario which may cause a problem in the real data analysis.
- The questionnaire contains a close-ended question limiting the opportunity of collecting additional data about the research topic. Moreover, adding new questions after the final design and distribution of the questionnaire is not an option.
- There is limited scope for the researcher to obtain explanations and clarification of misunderstandings after the distribution of the questionnaire. Some respondents may intentionally provide incorrect and dishonest answers.

4.4.2 Construct Operationalization

In this study, a survey-based approach has been employed to test the proposed research hypotheses. A draft questionnaire was prepared based on the following theoretical constructs: organisational pressures (both internal and external); sustainability management control system (SMCS); and corporate sustainability performances (economic, environmental and social). The items of these theoretical constructs were developed based on an extensive literature review. Table 4.2 outlines the constructs operationalised for this study.

Table 4.2 Operationalisation of Constructs			
Constructs	**Item**	**Measurement**	**Reference**
Internal Pressures (IP)	**IP1**	Pressure to improve employee wellbeing	Yu and Choi 2016
	IP2	Pressure to reduce cost	Renukappa et al., 2013
	IP3	Pressure from top-level management	Giunipero et al., 2012; Zhu and Zhang 2015
	IP4	Pressure to comply with an organisational moral and ethical commitment	Marshall et al., 2005
External Pressures (EP)	**EP1**	Pressure to comply with the requirements of the regulatory bodies	Wijethilake et al., 2017
	EP2	Pressure to comply with mandatory requirements of the international retailers' (i.e. code of conducts)	Zhu 2016
	EP3	Pressure to retain competitive advantage	Zhu and Zhang 2015
	EP4	Pressure to comply with various environmental and social certifications (e.g. WRAP, BSCI, ISO 14001, SA 8000 and OHSAS 18001)	Eiadat et al., 2008; Giunipero et al. 2012
	EP5	Pressure from the activist groups (i.e. NGOs, labour rights organisations, media).	Zhu 2016
Sustainability Management Control System (SMCS)	**Belief systems**		
	SMCS1	Integration of sustainability dimensions into the strategic planning system of the organisation (as reflected in vision and mission statements, core values).	Wijethilake 2017
	SMCS2	Communication of sustainability policy amongst internal and external stakeholder groups.	Wijethilake et al., 2018
	Boundary systems		
	SMCS3	Development of well-defined guidelines to operationalise the strategic plan by addressing internal sustainability policies, structures, and activities	Wijethilake et al., 2018
	SMCS4	Setting of measurable targets for sustainability performance indicators (e.g. raw materials, energy, and water, waste).	Arjaliès and Mundy 2013
	SMCS5	Delegation of responsibilities and authorities by forming/appointing a sustainability team/manager.	Pondevillea et al 2013
	SMCS6	Compliance with international and industry-specific agreements, guidelines and management systems (e.g. UN Global Compact, GRI guidelines, ISO 14001).	Wijethilake 2017
	Diagnostic control systems		
	SMCS7	Regular assessments (e.g. environmental and social audits) of various sustainability risks.	Widener 2007
	SMCS8	Periodic review of sustainability performance indicators to track progress.	Bedford 2015

Constructs	Item	Measurement	Reference
	SMCS9	Benchmarking of sustainability performance with competitors.	Wijethilake 2017
	SMCS10	Giving rewards and benefits to employees for achieving targets and for suggesting innovative sustainable business practices.	Wijethilake et al., 2018
	Interactive control systems		
	SMCS11	Regular reporting of progress to top management during formal and informal meetings.	Wijethilake 2017
	SMCS12	Sharing of sustainability information through newsletters, workshops and sustainability reports.	Wijethilake et al., 2018
Economic Performance (ECOP)	**ECOP1**	Increase in sales volume	Hojnik and Ruzzier 2017
	ECOP2	Increase in existing market share.	Chen et al., 2015
	ECOP3	Increase in profit margin.	Chan et al., 2016
	ECOP4	Increase in new market share.	Yu et al., 2017
Environmental Performance (ENVP)	**ENVP1**	Reduction in the consumption of hazardous and toxic materials.	Zhu et al., 2005; Paulraj, 2011
	ENVP2	Reduction in waste and consumption of energy and water.	Qu et al., 2015
	ENVP3	Implementation of environment management system (e.g. ISO 14001).	Yu et al., 2017
Social Performance (SOCP)	**SOCP1**	Attainment of social certifications (i.e. SA 8000, OHASIS)	Diabat et al. 2014
	SCOP2	Improvement in community development programs (e.g. health and education-related programs, donations to charitable organizations)	Chang et al., 2018
	SOCP3	Improvement in employee welfare programs (e.g. food and transportation allowances, maternity benefits, medical facilities).	Paulraj 2011
	SOCP4	Improvement in occupational health and safety practices (e.g. fire, building, chemical and electrical).	Chang et al., 2018

4.4.3 Questionnaire Design and Development Process

One of the major challenges for the researcher in the initial stage of questionnaire design is to compose a simple questionnaire which will enable the researcher to acquire the required knowledge to address the main research questions. The researcher needs to choose the wording of the questions very carefully by avoiding technical jargon as well as double-barrelled questions and designing a short and

simple questionnaire (De Vaus, 2002). A short well-designed questionnaire is easily understandable and reliable and reduces the chances of non-response bias. Excessive non-response biases result in the loss of information due to missing data, which in turn leads to difficulties in data analysis (De Vaus, 2002). Another critical issue in designing the questionnaire is its length. If it is too long and contains sensitive, repetitive and irrelevant questions, then it may decrease the level of engagement of the respondent in completing it accurately.

For this study, all these criteria were taken into account when designing and constructing the questionnaire, so as to develop a clear, unambiguous and useful document. The draft questionnaire was prepared based on the constructs of the conceptual framework which were operationalised using extensive literature review and pilot semi-structured interviews. The theoretical constructs which were included in the questionnaire were: organisational pressures (both internal and external); sustainability management control system; and sustainability performances (economic, environmental and social). There is an additional section in the last part of the questionnaire which contains demographic information such as the participating company's annual turnover, and the organisation's size. Most of the questions are close-ended, which allows the researcher to collect standardised data that can be efficiently coded and statistically analysed. Explicit instructions on completing the questionnaire were provided at the beginning of the questionnaire.

All items except the demographic information were measured using a Likert scale. Since the main aim of this study is to test a set of hypotheses, the Likert scale for measurement which is most widely applied in this area of research was chosen (Bagozzi and Heatherton, 1994). In this research study, a five-point Likert scale was employed ranging from 1 "Strongly Disagree" to 5 "Strongly Agree" for the survey questions, which is a very widely accepted scale level of agreement or disagreement designed to measure attitudes or opinions (Bowling et al., 1997). According to Hair et al. (2006), Likert scales are the most appropriate designs for self-administered surveys or online survey methods for data collection. Data collected using the Likert scale can be easily quantifiable and is suitable for computation of various sophisticated statistical analyses.

4.4.3.1 Testing Content Validity

In any questionnaire survey, the content validity refers to how much a designed instrument thoroughly assesses the subject matter. The main aim of the content

validity test is to ensure that the questions are clear, meaningful, relevant and easy to interpret. In this study, the validity of the survey instrument was examined by conducting ten unstructured semi-structured interviews among the top and mid-level corporate managers of the Bangladeshi RMG industry. Moreover, three experienced academicians with proven research expertise in sustainable business practices also reviewed the draft questionnaire. Purposive (or judgemental) sampling techniques were used to select the interviewees. In this study, as suggested by Day and Nedungadi (1994), knowledge of the respondents in the subject area (i.e. pressures to improve sustainability performance, sustainability management control systems, corporate sustainability performance) acts as the most influential factor in selecting the interviewees. Semi-structured interviews were used to obtain more specific information about the variables of interest related to the proposed conceptual model. The aim of these semi-structured interviews was to revise the draft questionnaire and make it more applicable before administering the final large-scale survey in the Bangladeshi RMG industry. Participants were asked to review the questionnaire based on its clarity, contents, layout, length, the time required to fill up the questionnaire, and grammatical errors. They were also requested to provide feedback on any inconsistencies they observed in the issues mentioned above. Based on the comments received from corporate managers and academicians, some questions were modified to make them more transparent and relevant for the Bangladeshi RMG managers.

4.3.2.2 Pilot testing of the Questionnaire

Piloting is necessary with a questionnaire survey in order to observe, validate and determine the effectiveness of the questionnaire. The results of the pilot study also warn the researcher about the possible problems and complications related to the initial design of the questionnaire. A pilot study helps the researcher to solve many of the problems related to the survey questionnaire, such as adequacy of research instruments, the feasibility of the large-scale surveys and effectiveness of the sampling technique (VanTeijlingen and Hundley, 2001). Therefore, it is considered a crucial step to properly perform a pilot test of the questionnaire before conducting the final large-scale survey. Several studies recommended for conducting the pilot survey among the respondents drawn from the actual population (Malhotra and Grover, 1998).

After revising and finalising the questionnaire, it was pre-tested through a pilot survey. According to Fink (2003), researchers should choose respondents of the pilot survey from the real participants of the main large-scale survey to make it more effective. For

this reason, the researcher delivered sixty questionnaires to corporate managers of the Bangladeshi RMG industry drawn from the snowball sample frame. Only twenty-eight questionnaires were collected, giving a response rate of 46.6%. The data obtained from the pilot study was examined for reliability through the use of SPSS version 23.0. The time taken for the respondent to complete the questionnaire was approximately 15-20 minutes. The feedback obtained from the pilot study was positive, and only minor changes were made to the questionnaire. After several revisions, the final questionnaire (Appendix 3) was developed and became ready for a large-scale survey.

4.4.3.3 The Research Population

One of the major requirements of the quantitative research design is that the investigated sample should reflect the attributes of the actual population. These attributes of social science research are referred to as representativeness (Sarantakos, 1998). If representativeness is ensured, then the findings and the conclusions drawn through the study can be generalizable to the whole population. Since the issue of generalizability is the main concern of any quantitative study, the main aim of any researcher is to guarantee this representativeness so that the findings are also applicable to the whole population of the targeted sample. According to Sarantakos (1998), the quality of any quantitative study depends on the degree of the representativeness. Blair et al. (2013) defined the population of a study the group that the researcher wishes to study, and from whom they want to derive some inferences, and from which they also wish to generalise the results of the intended study. In any research study, it is imperative to decide whom and what to address to answer the proposed research objectives. Sometimes it is impossible and impractical to study the whole population because of the time and resource constraints. Thus a sample is chosen carefully by the researcher based on some predefined attributes which must ensure representativeness.

This research project aims to study the organisational pressure on the RMG industry of Bangladesh to improve corporate sustainability performance. It also aims to test the mediating effects of SMCS between pressure and CSP in the Bangladeshi RMG industry. The population of interest to this study were the listed RMG companies in the Bangladesh Garment Manufacturers and Exporters Association (BGMEA)**,** which is one of the largest trade associations in Bangladesh, representing the readymade garment industry. BGMEA presently has around 4,500 member companies who are

mainly the suppliers of the readymade garments to the international market (BGMEA, 2019).

4.4.3.4 Sampling Method

To the best of the researcher's knowledge, the concept of sustainability is still considered an emerging phenomenon in the Bangladeshi RMG sector. For this reason, it is not rational to use the random sampling technique to choose the respondents. In this situation, a snowball sampling technique (also known as chain-referral sampling) was considered appropriate by the researcher to examine the proposed framework of RMG companies.

The target respondents of this study were the top and mid-level corporate managers, compliance managers or sustainability managers chosen from the large and medium-sized Bangladeshi RMG industry. Initially, the researcher nominated a group of respondents from reputable large RMG companies based on some set predefined criteria as listed below:

(a) Publication of standalone sustainability or UNGC reports
(b) Achievement of international and national level sustainability-related award
(c) Adoption of sustainable business practices (e.g. construction of LEED-certified green factories),
(d) Achievement of social and environmental certifications such as SA 8000 and ISO 14001
(e) Presence of a formal sustainability committee or dedicated sustainability managers

This study used exponential 'snowball sampling' where the nominated respondents will provide multiple referrals first. Then each new referral will suggest another set of new referrals and this process continues until primary data from a sufficient amount of samples have been collected. In other words, the snowball sampling method is based on referrals from initial subjects to generate additional subjects which result in a sample group who are recruited via chain referral (Dudovskiy, 2016). Snowball sampling has several advantages, such as cost-effectiveness and less time-consuming. Snowball sampling is useful for the web-based survey since it helps the researcher to reach a hidden population very quickly. On the other hand, the main disadvantage of this process is that respondents may be reluctant to identify and share their contact information.

4.4.3.5 Sample Size

Selecting a suitable sample size is one of the main challenges in the planning phase of any empirical study. Most of the time the choice of the sample size depends entirely on the requirement of statistical procedures involved in the research. The reliability and validity of this statistical analysis vary hugely with the differences in sample size. The statistical procedures involved in this study include exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and structural equation modelling (SEM). Initially, both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used to merge individual items into multi-item groups. Then correlation testing was conducted to establish the significance. The medications tested using a structural equation model (SEM) and maximum likelihood estimation in AMOS (Arbuckle and Wothke, 2006).

In the literature, there are several well-known rules of thumb for selecting the sample size of factor analysis. Gorsuch (1990) and Kline (2014) suggest that minimum sample size should be at least 100 subjects. Comrey and Lee (1992) recommend scale of sample size adequacy as follows: 50 – very poor, 100 – poor, 200 – fair, 300 – good, 500 – very good, and 1,000 or more – excellent. Other studies have also proposed minimum ratios of sample size (n) to the number of variables (p) is (n:p). Cattell (1978) suggests three to six subjects per variable, Gorsuch (1990) suggests this ratio should be at least five, and both Everitt (1975) and Nunnally (1978) recommend sampling at least ten times as many subjects as variables. A total of 650 questionnaires were sent to the RMG companies who were listed in BGMEA, using snowball sampling. A total of 255 responses to 650 questionnaires were received, which corresponds to an overall response rate of 39.23%. The proposed conceptual model consists of 6 latent variables and 32 corresponding measurement variables. A minimum ratio of a sample size to the number of variables is 7.97 which are adequate according to most of the recommendations provided in the literature (Gorsuch, 1990; Comrey and Lee, 1992; Kline, 2014). The survey was carried out in Bangladesh from December 2017 to May 2018.

4.4.3.6 Data Collection Process

Initially, a set of questionnaires was sent to this previously nominated group of respondents who were chosen from the Bangladeshi RMG industry based on the

criteria discussed in section 4.4.2.4.They were then requested to identify and provide information about their contacts via email or phone calls whom he or she thought to be a possible respondent. These contacts were used by the researcher to obtain access to more respondents for the questionnaire survey. The researcher carried on this process until the pre-specified sample size was reached.

Both self-administered and web-based questionnaire survey methods were employed for the required data collection to increase the response rate. Follow-up calls were made, and emails were sent to encourage the completion and return of the questionnaires and to clarify any questions or concerns that potentially had arisen. Initially, the researcher started the data collection employing an online questionnaire survey. At this stage, thirty-eight responses had been obtained from this online questionnaire survey method. However, because of the prolonged response rate, the researcher then decided to visit Bangladesh in order to conduct the self-administered survey.

Most of the RMG companies participating in the survey were based in Dhaka, the capital city of Bangladesh, and Chittagong, which is a major coastal city and financial centre in south-eastern Bangladesh. Since the majority of the garments factories reside in the suburban areas far from the centre of Dhaka and Chittagong, it was challenging for the researcher to carry out the data collection process. It is worth mentioning that due to the challenging security and traffic situation in Bangladesh, this female researcher felt vulnerable when conducting the research in such peripheral areas of the two cities. In the end, a total of 650 questionnaires were distributed either online or self-administered.

4.4.3.7 Demographic Information

Demographic information is a key characteristic of the study of population. It can be used by the researcher to divide the overall survey data into meaningful sub-groups of respondents. These sub-groups can then be compared and assessed to determine how these responses differ among the sub-groups. The demographic information collected for this study included: organisation's age, size, annual turnover and geographical location. The characteristics of the sample are shown in Table 4.3.

4.4.3.8 Control Variables

To fully justify the statistical diversity amongst organisations, this study included three control variables: the organisation's size, its annual turnover. The number of

employees was used to measure the size of the organisation. Annual turnover is the total sales generated by a business in one year. It can be argued that the larger the size of the organisation and the higher the annual turnover, the greater the tendency of the organisation to implement sustainable business practices. On the other hand, the greater the amount of business conducted by the organisation the higher the possibility of developing SMCS to improve sustainability performance. This study investigated the impact of these control variables on the internal and external pressures to improve corporate sustainability performance.

Table 4.3 Demographic Information

Organizational Age	**Frequency**	**Percentage**
5-10 Years	109	42.7
More than 10 Years	146	57.3
Organisation's Size (number of employees)	**Frequency**	**Percentage**
5000 to 10000	144	56.5
More than 10000	111	43.5
Annual Turnover (in million US$)	**Frequency**	**Percentage**
20 m to 50m	162	63.5
More than 50m	93	36.4
Geographical Region	**Frequency**	**Percentage**
Dhaka	167	65.2
Chittagong	88	34.4

4.5 Second Stage of the Research Study

In the second stage of the research, a multiple criteria decision-making model was developed using Analytic Network Process (ANP) which was designed to evaluate the five best-practising RMG companies based on their corporate sustainability performance. The 'SuperDecision' software was used to develop the model. In this phase, a questionnaire developed for pair-wise comparison, document analysis and semi-structured interviews were conducted for data collection. The factor loadings in the previous stage of the SEM analysis for CSP (i.e. economic, environmental and social) were used here for constructing the ANP model.

The applicability of the ANP-based model was tested on five best-practising Bangladeshi RMG companies in terms of their sustainable business practices. The

concept of adopting sustainable business practices is an emerging phenomenon in this RMG industry. For example, only three RMG companies published stand-alone sustainability reports according to the Global Reporting Initiative (GRI) guidelines in Bangladesh (GRI, 2019).Likewise, only six companies achieved SA 8000 accreditation to improve their social sustainability practices. A total of ninety RMG factories have so far achieved LEED (Leadership in Energy and Environmental Design) certification provided by the US Green Building Council (USGBC) for setting up green factories (USGBC, 2019). Recently, a growing number of RMG companies started to adopt ISO 14001, an environment management system. In this study, best-practising large companies were chosen based on their commitment to sustainable business practices as evident from the one or multiple criteria listed below:

- Publication of standalone sustainability reports according to the GRI guideline or publication of UNGC reports
- Construction of green factories.
- Achievement of voluntary certifications such as Social Accountability (SA) 8000, and ISO 14001, Occupational Health and Safety Assessment Series (OHSAS) 18001
- The existence of a formal sustainability department or team or dedicated sustainability managers to manage and control sustainability business practices
- Accredited by ACCORD and Alliance
- Recipient of different global and local sustainability-related awards

Five companies are selected to conduct the corporate sustainability performance benchmarking using ANP.

4.5.1 Pairwise Comparison Questionnaire Survey

After the ANP model was developed using ‘Super-decision' software, the next step was to conduct the pair-wise comparison. There are several stages of data collection in this phase of pair-wise comparison. At first, semi-structured interviews were conducted with several top-level and mid-level corporate managers from each organisation who were responsible for managing and controlling sustainable business practices. This process helps the researcher to obtain in-depth knowledge about the existing environmental and social practices adopted by the selected organisation and its impact on their sustainability performance. Sustainability-related information from each company published on its website, sustainability reports, UNGC reports and other publically available resources were also used in the pair-wise comparison.

As agreed in the interviews, a pair-wise comparison questionnaire was given to key personnel whose responsibility is to complete the questionnaire as a group on behalf of the organisation. Each member of that group should have a contributing role concerning SBPs within that organisation. A group member was chosen carefully, who may be a top or mid-level corporate manager (i.e. CEO, Chief Purchasing Officer, Head of Sustainability, General Manager, Head of Compliance or Head of Operations) with the degree of comprehensive knowledge required to fill up the questionnaire. This study uses a 1–9 scale measurement proposed by Saaty and Varges (2006) to pairwise compare elements reciprocally, as shown in Table 4.4. Pair-wise comparison is used to determine which element is more important, and to what extent, among the elements of a cluster. Each organisation was given one week to complete the questionnaire. Data collected from the pairwise questionnaire survey was analysed using Super Decision 2.8 software. The pair-wise questionnaire designed for the study is attached in Appendix 4.

Table 4.4. Saaty's Fundamental Scale (Source: Adopted from Saaty, 1990)

The intensity of the importance	Definition
1	Equal importance/preference
3	Moderate importance/preference
5	Strong importance/preference
7	Very strong importance/preference
9	Extreme importance/preference
2,4,6,8	When compromise is needed

4.5.2 Document Analysis

A wide range of documentary sources was analysed, including participating best-practising company's CSR or sustainability reports, annual reports, UNGC Communication on Progress reports, codes of conduct, websites, operational manuals, handbooks, and newsletters. This research method provided accompanying evidence to the researcher in pair-wise comparing and assessing the sustainability performance variables of the evaluated companies (Lee and Lings, 2008). Data extracted from CSR or sustainability reports and websites enriched to a great extent the researcher's understanding in determining the current state, and on-going sustainability activities, of the selected companies.

4.5.3 Semi-structured Interviews

Semi-structured interviews were used in this stage to obtain more specific information about the variables of interest related to carrying out the pairwise comparison. Purposive (or judgemental) sampling techniques were used to select the interviewees from the participating best-practising RMG companies. According to the concept of Purposive Sampling, interviewees were selected based on their experience and knowledge of the subject areas (i.e. sustainable business practices). The semi-structured interviews were conducted mainly with senior-level corporate managers, operations managers and sustainability managers, in order to get the required information to provide input in the 'SuperDecision' software to test the ANP model.

4.6 Ethical Considerations

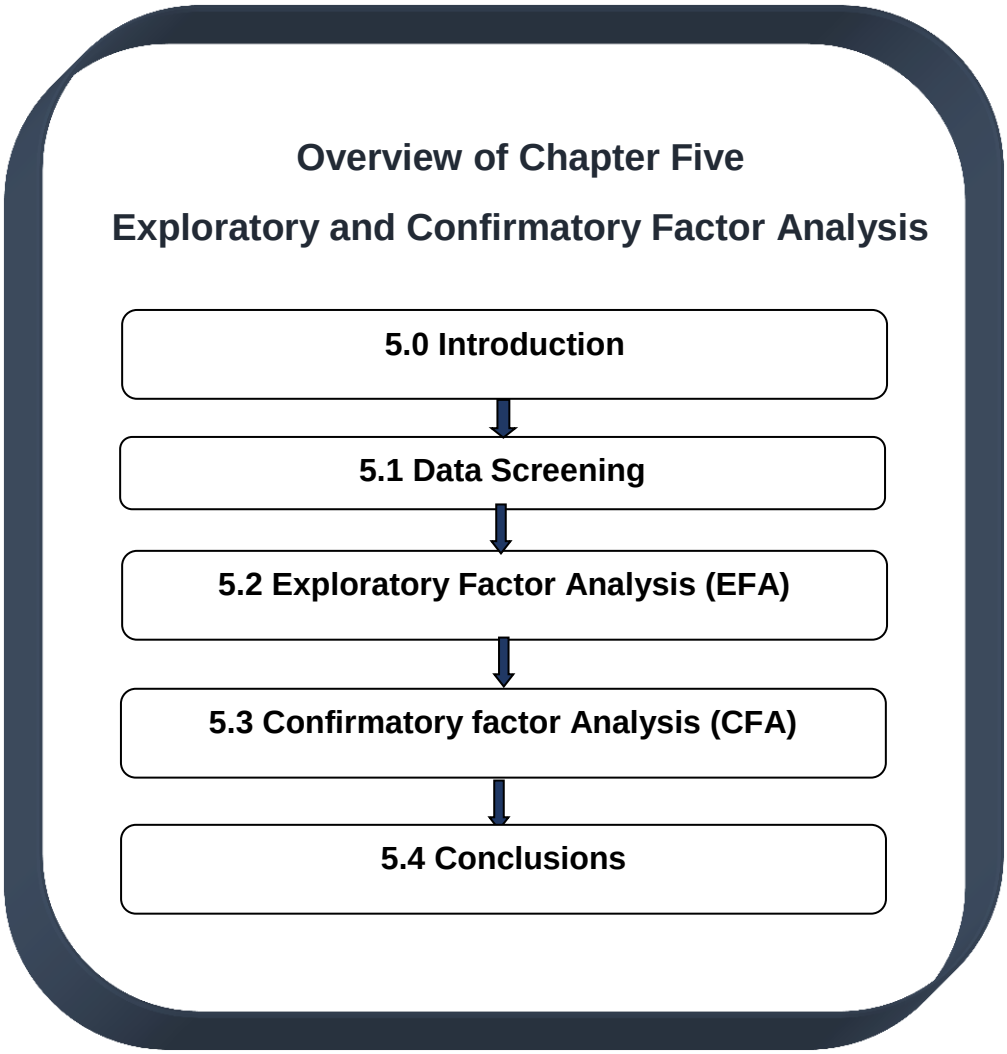
Maintaining high ethical standards is very important for any doctoral study undertaken in the broader area of social science. Before conducting the questionnaire survey or interview, each respondent was given full and transparent disclosure about the purpose, nature and possible outcomes of the research through a detailed 'Participant Information Leaflet' which was attached in Appendix 1. This leaflet also informs them about what their participation in the research entails, confidentiality and anonymity issues, and the possible risks they may face so that they can make a fully informed decision on their possible involvement. The leaflet also briefly describes who is involved in this research, how the data will be collected, processed, stored, shared and used.

It was also made clear to the participants that participation was entirely voluntary; no financial incentive was offered for their time. Additionally, the contact details of the researcher, supervisors and university were provided in the leaflet for their further queries. All participants were contacted through phone calls and emails, and if they agreed to participate, the final survey questionnaire with the follow-up letter was sent outlining the main points of the 'Participant Information Leaflet'. If they agreed to participate then a written consent form summarising main aspects of the research project was provided to obtain their signature to complete the process. The consent form was attached in Appendix 2. In the case of the online survey, the webpage of the questionnaire contains a consent form on the first page. After giving consent on that page, the respondent was allowed to proceed to fill up the main questionnaire.

Aston University Research Ethics committee's (REC) recommendation will be followed in storing and disposing of data. Electronic copies of the data collected using the survey and hard copies of questionnaires and informed consent agreement were stored securely and confidentially: access to these will be limited to the researcher only. After conducting the survey, data was transferred to the researcher's computer. The password-protected computer file will be kept up to five years, and then will be destroyed.

4.7 Conclusions

The research was grounded in a realist perspective and employed quantitative research methods to test the proposed conceptual model and corresponding hypotheses empirically. This chapter discussed the steps involved in the research design of this study in details. This study is mainly quantitative in nature as it was designed to test a proposed conceptual framework through a large scale questionnaire survey. However, qualitative methods such as semi-structured interviews were also used to complement the quantitative methods and to increase the effectiveness of the research design. To maintain a substantial level of academic rigour and ethical issues, trustworthiness was preserved in the two stages of the data collection and analysis phase. The next chapter will discuss the data screening techniques and factor analysis employed for data analysis processes.


Overview of Chapter Five
Exploratory and Confirmatory Factor Analysis
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5.2 Exploratory Factor Analysis (EFA)
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Chapter 5: Exploratory and Confirmatory Factor Analysis

5.0 Introduction

The previous chapter discussed the research design and methods used to carry out the research. It also described the data collection process and the ethical issues of this study as well as highlighting how the dependent and independent variables were operationalised. The primary focus of this chapter is to report the results of the factor analysis, which is a requirement before conducting the hypothesis testing. Initially, this chapter aims to discuss the data-screening techniques employed for the data-cleaning process in ensuring and verifying the appropriateness of the numerical values of each variable. Next, the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) are conducted to merge individual items into multi-item groups. In the subsequent sections the validity and reliability of the newly developed instrument are checked. So that it can be used for hypothesis testing of the structural model in the next chapter.

5.1 Data Screening

In any multivariate analysis, it is imperative to conduct the initial data screening, in order to generate a clean and accurate data set for further statistical analysis. This study critically examines the quality of the data collected before running the sophisticated multivariate statistical analysis such as Structural Equation Modelling (SEM). After completion of data collection, the next step is screening the data which generally includes assessment of missing data, outliers, multicollinearity and normality. In this study, IBM SPSS 23.0 is used to conduct the data screening, and to delete or modify required data entry to avoid undesirable outcomes. Missing data, miscoded data and outliers were determined by using descriptive statistics that were calculated using SPSS. Moreover, skewness and kurtosis were calculated using SPSS to determine whether the data were normally distributed or not. Skewness was used because it determines the clustering of the data points at one end of the distribution process, while kurtosis reflects the extent to which the density of observation differs from the probability of the normal curve (DeCarlo, 1997). In the following subsections, the steps involved in the data screening are discussed in detail.

5.1.1 Treatment of Missing Data

After completion of the data collection process, the first step in the data-screening process is the treatment of missing data. Missing data is defined as a “statistical difficulty (i.e. partially incomplete data) resulting from the decision by one or more sampled individuals not to respond to a survey or a survey item” (Newman, 2009, p. 8). In the empirical research design of a questionnaire survey, missing data are a pervasive problem because the questionnaire typically involves a large number of questions along with a significant number of respondents (Kim and Curry, 1977; Raaijmakers, 1999). Excessive amounts of missing information in a data set may result in incorrect conclusions and fewer factual findings. Moreover, the generalizability of research results with missing data can seriously affect the authentication of the analysis owing to biased estimates and the negative impact of the statistical power (Davey, 2009; Little and Schenker, 1995). So it is essential to treat the missing data by using the appropriate algorithm before proceeding to further statistical analysis.

There are various causes for the existence of missing data in a data set. For example, respondents may lack the knowledge to answer a specific question, may avoid answering the question because inadequate information was provided, may have felt some questions are irrelevant to the concept of the questionnaire, felt uncomfortable answering specific sensitive questions or may have simply forgotten to answer the question (Tsikriktsis, 2005; Allison, 2001). Based on randomness, Little and Rubin (1987) distinguish between three types of missing data patterns. Firstly, missing completely at random (MCAR) is the case where data is missing at random. Secondly there are two types of missing data in non-random patterns: Missing at Random (MAR) and Missing not at Random (MNAR).

Various methods and strategies have been proposed for dealing with missing data, each of which has its strengths and limitations. However, only a few methods have gained widespread recognition in the extant literature (Allison, 2001). According to Little and Rubin (1987), the most popular techniques for handling the missing data can be categorised into the following groups: list-wise deletion; pairwise deletion; multiple imputations (Allison, 2001) and expectation maximisation (Hair et al., 2006). A comparison of techniques for treating the missing data is shown in Table 5.1The following section briefly discusses each procedure.

5.1.1.1 List-wise Deletion

In the list-wise deletion process, any observation with missing data is deleted in its entirety from the overall sample, and analyses are repeated on what remains (Allison, 2001). As analyses are conducted on the same cases, the main advantage of this simple technique is that it produces consistent estimates of the predicted covariance matrix (Bollen, 1989). On the other hand, it deletes the entire observation even if there is only a small number of missing items, thereby resulting in a massive loss of data. This loss of valuable information is undesirable and may introduce bias in parameter estimation (Donner and Rosner, 1982; Little and Rubin, 1987).

5.1.1.2 Pair-wise Deletion

In this method, summary estimates are calculated by means, standard deviations, and correlations, using all available observations for each estimate which is missing (Newman, 2009; Allison, 2001). Then final analyses are conducted by applying newly generated dataset, using those summary estimates. The main advantage of this method is that it preserves a considerable amount of data which might be lost if list-wise deletion were utilised (Roth, 1994). However, different calculations might be used based on different sample sizes in an analysis which results in problems associated with the interpretation of the chi-square statistics (Bollen, 1989; Malhotra and Birks, 2000). On the other hand, in the case of small sample size, results may produce a correlation matrix which is not positively defined, thereby causing problems in regression analysis (Allison, 2001).

5.1.1.3 Imputation Procedure

In the imputation procedure, the missing item on a variable is replaced by a value that is obtained from an estimate of the distribution of this variable in the data set (Donders et al., 2006). There are two types of imputation: single and multiple. Single imputation is used when data are MAR, while multiple imputations (MI) is used with MAR and MCAR data. Marginal-mean imputation is the simplest method of imputing a missing item (Allison, 2001). This particular method is suitable for a large data set, because it requires a large number of suitably similar cases for appropriate imputation purposes (Hair et al., 2006; Cohen et al., 2003).

5.1.1.4 Expectation Maximization

There are two steps in the Expectation-Maximization (EM) for calculating the missing data within a data set: ‘Expectation step’ and ‘Maximization step’ (Hair et al., 2006).

These steps are used to estimate sample items by using means, variances, and covariance (Hair et al., 2006). In the expectation step, missing items are restored with their expected values that are conditional on the other variables in the model (Dempster et al., 1977). In the next step, maximum likelihood (ML) estimates of covariance matrix and means are obtained just as if there were no missing data, by using statistics calculated during step one (Enders, 2001). Afterwards, these estimates (i.e. means and covariance) are then recycled through step one and step two until the difference between successive co-variance matrices falls below some specific convergence criterion (i.e. when the difference in estimates between successive iterations is sufficiently small).

The maximum amount of missing data allowed in a particular data set is subject to a threshold value. According to Kline (2011), the percentage of missing variables should not constitute more than 10% of the overall data, while Cohen and Cohen (1975) consider that 5% to 10% of missing data on a particular variable is acceptable. In this study, the percentage of missing data in the data set varies between 1% and 3%, which is considered within the desired level as suggested in the extant literature (Cohen et al., 2003; Kline, 2011).

Table 5.1 Comparison of techniques for treating the missing data

Technique	Basic Steps	Advantages	Disadvantages
List-wise Deletion	Any observation with missing data is completely deleted from the overall sample.	Produces consistent estimates of the predicted covariance matrix (Bollen, 1989)	Huge loss of data results in bias in parameter estimation.
Pair-wise Deletion	Summary estimates (e.g. means, SDs, correlations) are calculated using all available observations for each missing estimate.	This method preserves a massive amount of data compared to list-wise deletion.	Different calculations might be required based on different sample sizes. This results in problems of interpretation of the chi-square statistic and regression analysis (Malhotra and Birks, 2000).
Multiple Imputation	The missing item on observation is replaced by a value that is obtained from an estimate of the distribution of this variable in the data set	This method is conceptually simple and results in the sample having the same number of observations as the full data set.	This particular method is suitable for large data sets, but some imputation methods result in biased parameter estimates (e.g. means and correlations) unless the data are MCAR (Allison, 2001).

Technique	Basic Steps	Advantages	Disadvantages
Expectation Maximisation (EM)	In Expectation step, missing items are restored with their expected values conditional on the other variables in the model. In the next step, maximum likelihood (ML) estimates of covariance matrix and means are obtained just as if there were no missing data.	The EM algorithm is popular for its simplicity and ease of implementation,	EM works best when the fraction of missing information is relatively small, and the dimensionality of the data is not too large. EM can require many iterations, and higher dimensionality can dramatically slow down the first step

In this study, the Multiple Imputation technique was used to treat the missing data, as the concept underpinning this technique is simple and results in a sample with the same number of observations as the full data set. The imputation of missing data conducted in SPSS, together with each missing entry of each variable, was imputed by the median of all entries of that variable. The median was calculated for the imputation of missing entries because all the missing data were measured on a Likert scale, which is an ordinal scale. The information about the missing data per variable is summarised in Table 5.2.

5.1.2 Inspection of Outliers

According to Hair et al. (1995, p.23), "outliers are observations with a unique combination of characteristics identifiable as distinctly different from the other observations". Outliers may occur due to procedural errors, such as a mistake in the data entry or coding. Accordingly, to avoid possible outliers, the data set has been carefully checked for these careless mistakes in data entry and coding, in order to avoid any possible risk of outliers in this data set. In this study, the 5-point Likert scale was used to measure the variable, ranging from strongly agree to strongly disagree. If most of the respondents answered strongly agree or strongly disagree, these answers became outliers as they are the extreme points of the scale. There were no issues of outliers found in the data set.

Table 5.2 Statistics of missing data

		Missing Data		
Variable		**N**	**Count**	**Percent**
Internal Pressure (IP)	IP1	255	0	0
	IP2	254	1	1
	IP3	253	2	1
	IP4	255	0	0
External Pressure (EP)	EP1	252	3	2
	EP2	255	0	0
	EP3	253	2	1
	EP4	255	0	0
	EP5	254	1	1
Sustainability Management Control System (SMCS)				
Belief System	SMCS 1	255	0	0
	SMCS 2	255	0	0
Boundary System	SMCS 3	255	0	0
	SMCS 4	254	1	1
	SMCS 5	253	2	2
	SMCS 6	253	2	2
Diagnostic Control system	SMCS 7	255	0	0
	SMCS 8	253	2	2
	SMCS 9	255	0	0
	SMCS 10	254	1	1
Interactive Control System	SMCS 11	255	0	0
	SMCS 12	255	0	0
Corporate Sustainability Performance (CSP)				
Economic Performance (ECOP)	ECOP 1	255	0	0
	ECOP 2	255	0	0
	ECOP3	255	0	0
	ECOP 4	255	0	0
Environmental Performance (ENVP)	ENVP 1	253	2	2
	ENVP 2	255	0	0
	ENVP 3	252	3	2
Social Performance (SCOP)	SCOP 1	254	1	1
	SCOP 2	255	0	0
	SCOP 3	253	2	2
	SCOP 4	255	0	0
Demographic Information	ORG_SIZE	255	0	0
	ANU_TURNOVER	252	0	0

5.1.3 Non-Response Bias Test

Non-response bias is defined as "a failure to obtain information from some elements of the population that were selected and designated for the sample" (Churchill, 1999, p. 580). This is a type of non-sampling error which occurs due to the presence of eligible members in the sample who fails to respond to the survey questionnaire with sufficient information required. The non-response bias test was conducted by the researcher because it reflects the power of data validity. Various approaches are available to test the existence of non-response bias (Churchill and Iacobacci, 2006). This study has used the most popular approach of testing the non-response bias proposed by Armstrong and Overton's (1977), where the measurement items are divided into two groups to examine non-response biases: early respondents and late respondents, as shown in Table 5.3.

Table 5.3 Non Response bias test statistics from Mann-Whitney's U test

Measurement Constructs	Early and Late Responses	Sample (n)	Mean Rank	Mean difference	Asymptotic significance (2-tailed)
External Pressure (EP)	Early	127	124.19	7.59	0.409
	Late	128	131.78		
Internal Pressure (IP)	Early	127	119.10	7.03	0.302
	Late	128	136.83		
Sustainability Management Control System (SMCS)	Early	127	119.96	16.02	0.082
	Late	128	135.98		
Economic Performance (ECOP)	Early	127	130.13	4.25	0.643
	Late	128	125.88		
Environmental Performance (ENVP)	Early	127	126.49	3.01	0.742
	Late	128	129.50		
Social Performance (SOCP)	Early	127	132.26	8.41	0.202
	Late	128	113.85		

The total of 255 respondents were dividing into two groups for examining non-response bias. Then a Mann-Whitney U-test was conducted to identify whether or not the perception diverged significantly between early and late respondents. This study selected all constructs of the conceptual framework for examining non-response bias, as shown in table 5.3. As shown in the data reported in table 5.3, for those constructs there exists a non-significant difference between early and late respondents of only ($p>0.05$) . Thus it can be concluded that there is no non-response bias in the measurement items.

5.1.4 Assessing Multivariate Normality

In any multivariate analysis, assessing the normality of the variables is one of the vital steps in the initial data screening process (Tabachnick and Fidell, 2007). In this regard, Hair et al. (1995) stated that it is important to check the normality of the data in a multivariate analysis. If the variation from the normal distribution is very large, all resulting statistical tests are invalid. Both statistical and graphical methods are used to determine the normality of the variables. Two measures are used to determine the shape of the distribution: kurtosis and skewness. The 'peakedness' or 'flatness' of the distribution with a comparison to the normal distribution is called kurtosis (Hair et al., 1995). In other words, kurtosis is a measure of whether the distribution of the data is heavy-tailed or light-tailed compared to a normal distribution. The distribution with the higher peak is called 'leptokurtic', whereas flatter distributions are termed as 'platykurtic'. Skewness describes the degree of symmetry or balance in distribution between the numbers of observations concerning the mean value (Hardy and Bryman, 2004). If a distribution is unbalanced then it is skewed either positively or negatively (Tabachnick and Fidell, 2007). A positive skew indicates that majority of the cases are below the mean and skewed at the left, whereas negative skew is opposite (Kline, 2005; Tabachnich and Fidell, 2007; Hair et al., 1995).

There are several rules of thumb about the accepted values of kurtosis and skewness. According to Kline (2005) and West et al. (1995), variables with absolute values of the skew index greater than 3.0 are extremely skewed; whereas absolute values of the kurtosis index from 8.0 to over 20.0 indicate extreme kurtosis. This study follows the guidelines for detecting normality distribution where the absolute value of skewness should be less than 3.0 and the absolute value of kurtosis should be less than 10.0 (Kline, 2005; West et al., 1995). The results of skewness and kurtosis to test the normality were carried out and results are shown in Table 5.4.

As shown in table 5.4, with the absolute values of the scores for skewness ranging from 0.22 to 1.301, which is less than 3.0, and all the Kurtosis values scoring less than 10, hence the sample for this study contains no problem of multivariate normality.

Table 5.4 Assessment of Normality - Skewness and Kurtosis Statistics

Variable		**Skew**	**Kurtosis**
Internal Pressure (IP)	IP1	-.665	-.073
	IP2	-.696	.017
	IP3	-.961	1.030
	IP4	-.523	-.051
External Pressure (EP)	EP1	-.733	.415
	EP2	-.652	-.003
	EP3	-.598	-.511
	EP4	-.370	-.235
Sustainability Management Control System (SMCS)			
Belief System	SMCS 1	-.383	.221
	SMCS 2	-.208	-.360
Boundary System	SMCS 3	-.376	.000
	SMCS 4	-.668	.817
Diagnostic Control system	SMCS 7	-.976	1.731
	SMCS 8	-.422	.468
	SMCS 9	-1.085	1.473
	SMCS 10	-.896	.853
Interactive Control System	SMCS 11	-.886	1.053
	SMCS12	-.687	.317
Corporate Sustainability Performance (CSP)			
Economic Performance (ECOP)	ECOP1	-.556	.251
	ECOP 2	-.618	.130
	ECOP3	-.730	.159
	ECOP 4	-.952	.614
Environmental Performance (ENVP)	ENVP 1	-.660	.031
	ENVP 2	-.823	.560
	ENVP 3	-.636	.057
Social Performance (SCOP)	SCOP1	-.459	-.345
	SCOP 2	-.656	-.305
	SCOP 3	-.735	-.068
	SCOP 4	-1.084	1.422

5.1.5 Multicollinearity

Multicollinearity is used to determine whether there is any significant dependence or correlation between the independent variables (Pallant, 2005; Kleinbaum et al., 2013). The existence of multicollinearity can hamper the assessment of the relative importance of the independent variables in explaining the dependent variable. This leads to unstable statistical results (Kleinbaum et al., 2013; Cohen and Cohen, 1975). Thus, it is suggested that before conducting a multiple regression analysis, the presence of multicollinearity should be investigated. If the data correlates very highly in the correlation matrix (e.g. variables have correlation value more than 0.80), then there is a problem of multicollinearity (Malhotra et al., 2006). The results of the Pearson correlation coefficient matrix, shown in Table 5.5, reflect that the constructs were correlated, but that no values of correlation are greater than 0.80. Hence, there was no evidence of multicollinearity.

Table 5.5 Pearson Correlation Coefficient Matrix- multicollinearity diagnosis

	IP	**EP**	**SMCS**	**ECOP**	**ENVP**	**SOCP**
IP	1.00					
EP	0.44	1.00				
SMCS	0.26	0.54	1.00			
ECOP	0.37	0.22	0.55	1.00		
ENVP	0.39	0.22	0.67	0.52	1.00	
SOCP	0.18	0.30	0.55	0.37	0.40	1.00

Notes IP: Internal Pressure; EP: External Pressure; SMCS: Sustainability Management Control System; ECOP: Economic Performance ENVP: Environmental Performance; SOCP: Social Performance.

Another way to diagnose the presence of multicollinearity is to check the values of tolerance and Variance Inflation Factor (VIF) proportions (Kleinbaum et al., 2013). Tolerance is an indicator of how much of the variability of the specified independent variable is not explained by the other independent variable in the model An acceptable value of tolerance of less than 0.10 and a VIF value above 10 indicates that the multiple correlations with other variables are high, suggesting the presence of multicollinearity among the independent variables as a rule of thumb (Pallant, 2005). VIF is just the inverse of the Tolerance value.

A realistic approach was used to assess the multicollinearity among the independent variables. Specifically, the correlations between the independent variables were assessed using SPSS 23.0. Table 5.5 illustrates the correlation matrix. As shown in the

matrix, all the correlations between independent variables are below the threshold value of 0.80 and hence there is no evidence of multicollinearity in the sample. The potential for multicollinearity which may not be evident in the correlation matrix was further cross-checked by examining the values of tolerance and VIF. As shown in Tables 5.6 to 5.8, all the values of tolerance are greater than 0.20, and VIF is below 4.0, so there are no issues of multicollinearity.

Table 5.6 Results of the multicollinearity diagnostic test for External Pressure (EP)

Variables	Tolerance	VIF (1/ Tolerance)
IP	0.844	1.185
SMCS	0.629	1.590
ECOP	0.743	1.346
ENVP	0.657	1.523
SOCP	0.737	1.356

Table 5.7 Results of the multicollinearity diagnostic test for Internal Pressure (IP)

Variables	Tolerance	VIF (1/ Tolerance)
EP	0.832	1.201
SMCS	0.584	1.713
ECOP	0.750	1.333
ENVP	0.690	1.450
SOCP	0.742	1.348

Table 5.8 Results of the multicollinearity diagnostic test for Sustainability Management Control System (SMCS)

Variables	Tolerance	VIF (1/ Tolerance)
EP	0.865	1.156
IP	0.814	1.228
ECOP	0.748	1.338
ENVP	0.680	1.471
SOCP	0.774	1.292

5.2 Exploratory Factor Analysis

Factor analysis is a multivariate statistical procedure that is used to reduce a large number of variables into a smaller set, which is referred to as factors (Williams, 2010). Furthermore, it helps to establish underlying dimensions between measurement items and latent constructs, thus permitting the construction and refinement of theory (Williams, 2010). According to Nunnally (1978, p. 5), "Factor analysis is at the heart of the measurement of psychological constructs".

There are two major types of factor analysis: Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA). EFA is a heuristic approach defined by Hair et al. (2006) as an “analytical technique to find a way to condense (summarize) the information contained in a number of original variables into a smaller set of new composite factors (factors) with minimum loss of information”. In EFA, the investigator has no previous knowledge of the number or nature of the latent variables and their underlying constructs. Generally, it is utilised to discover the factor structure of a measure to generate a theory, or model from a comparatively large set of latent constructs (Williams, 2010). A block diagram illustrating the steps of EFA (Williams 2010; Osborne and Costello, 2008) is shown in Figure 5.1.

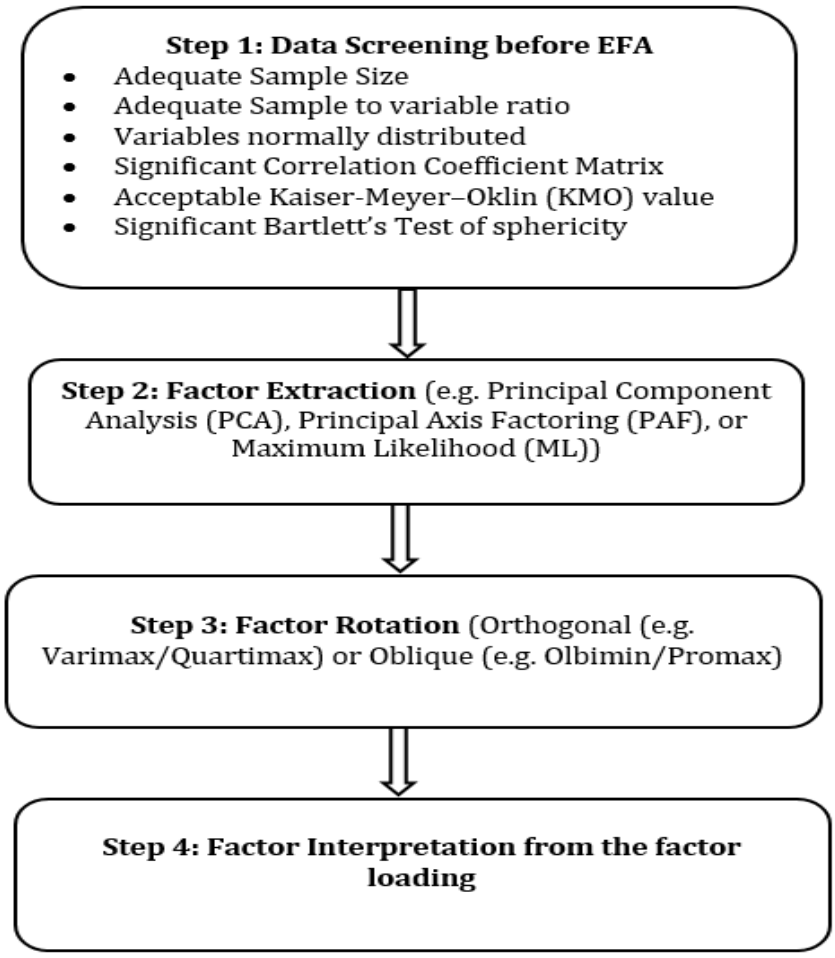


Figure 5.1 Overview of the steps involved an Exploratory Factor Analysis

Williams (2010) lists the following objectives for using an Exploratory Factor Analysis (Thompson, 2007; Anderson and Gerbing, 1988) -

- To identify new latent constructs in the initial stage

- To reduce the number of variables
- To discover the factor structure
- To detect and assess the unidimensionality of a theoretical construct
- To evaluate the construct validity of a scale or instrument
- To develop a parsimonious (simple) analysis and interpretation
- To address multicollinearity
- To develop theoretical constructs
- To prove or disprove the proposed theories
- To examine the internal reliability
- To be a useful technique for learning the underlying dimensions of the scale

5.2.1 Pre-testing before factor analysis

A total of 255 responses were received out of 650 questionnaires distributed, which corresponds to an overall response rate of 39.29%. The proposed conceptual framework consists of six latent variables and thirty-two corresponding measurement variables. A minimum ratio of a sample size to the number of variables is 7.97, which was adequate by most of the recommendations discussed in details in section 4.4.2.5 (Everitt 1975; Nunnally, 1978). During the data screening section it was ensured that the variables of the data set are normally distributed, and there exists no correlation between the variables greater than 0.80.

5.2.1.1 Kaiser-Meyer–Oklin (KMO) and Bartlett's Test

Kaiser-Meyer-Olkin (KMO) is used to check sampling adequacy and sphericity before conducting the factor analysis (Sharma, 1996). KMO values usually range from 0 to 1 and are used to determine the degree to which variables are identical in the data set (Sharma, 1996). Generally, if the KMO statistic is greater than 0.5, then it is suitable for further factor analysis (Hair et al., 1995; Sharma, 1996). Furthermore, the general rule of thumb for KMO values ranging between 0.5 and 0.7 is mediocre, values between 0.7 and 0.8 is good, values between 0.8 and 0.9 is great, and values above 0.9 are considered excellent (Hutcheson and Sofroniou, 1999). In this study the KMO value is 0.790, so there is no issue with sampling adequacy, and variables are appropriate to proceed for factor analysis.

In the next stage, Bartlett's test of sphericity is conducted to confirm the relationship between the variables. To conduct a factor analysis, it is a requirement to ensure that

some relationships exist among the variables. As a rule of thumb, in Bartlett's test of sphericity, a p-value<0.05 indicates that there exist some relationships among the variables. In this study, the results illustrated that the calculated p-value is <0.001, which means the set of variables is suitable for factor analysis.

5.2.2 Factor Extraction

There are several methods for factor extraction, such as Principal Component Analysis (PCA), Maximum Likelihood (ML), and Principal Axis Factoring (PAF). PCA is the default method of factor extraction in many popular statistical software packages, like SPSS and SAS. Nevertheless, several studies argue for the severely restricted use of PCA, in favour of an exact factor analysis method (Bentler and Kano, 1990; Floyd and Widaman, 1995; Gorsuch, 1990; Loehlin, 1990; MacCallum and Tucker, 1991; Mulaik, 1990; Snook and Gorsuch, 1989). PAF and ML factor analysis techniques are the two most popular estimation methods in EFA (Henson and Roberts, 2006; Tabachnick and Fidell, 2007; Thompson, 2007; Williams, 2010). Maximum Likelihood is the best choice if the data are relatively normally distributed and it allows for the computation of a wide range of indices of the goodness of fit of the model (Osborne and Costello, 2008).

The key difference between PCA and PAF is that PCA analysis typically is performed on an ordinary correlation matrix, and in contrast, in PAF, the correlation matrix is modified so that each item is replaced with its “communality”. Thus, with PCA the researcher is aiming to replicate all the information, including both variance and covariance associated with the set of variables, while PAF factor analysis is aimed at understanding only the covariance among variables (Ngure et al., 2015). Moreover, PAF was preferred also because it accounted for the co-variation, whereas PCA accounted for the total variance (Ngure et al., 2015). PCA is applied for factor analysis when the researchers did not have any previous knowledge about relationships between the variables. However, in social science, the researcher hardly ever collects and analyses data without a prior idea of how the variables are related (Floyd and Widaman, 1995). This study applies PAF because the researcher has prior knowledge about how the latent constructs are related to each other.

5.2.2.1 Determining the number of factors retained

After the factor extraction, it is crucial to determine the number of factors to retain for rotation, as both over- and under-extraction of factors can have undesirable effects on the results after rotation (Osborne and Costello, 2008). The extant literature notes various methods of determining the number of factors extracted, such as factors extraction depending on the Eigenvalues, 'Scree Plot' and Parallel Analysis (Hair et al., 2006; Pallant, 2005). The most popular method for extracting the factors depends on the eigenvalue of the factor which represents the amount of variation explained by a factor. An eigenvalue equal to one represents a substantial amount of variation, so eigenvalues greater than one are important criteria for determining the number of factors to retain (Field, 2009; Pallant, 2005). In this study, several factors are extracted based on their eigenvalues (greater than one) and Scree plot technique (Cattell and Jaspers, 1967). Table 5.15 summarises the factor loadings, Eigenvalues and explained total variance for the extracted factors. Since nine factors have eigenvalues greater than 1, only those nine factors are retained. The second method is the Scree plot, which plots the latent roots against the number of factors in their order of extraction, with the shape of the graph determining the cut-off point in the number of factors to extract. The Scree plot was also used to determine the optimum number of factors that can be extracted before the amount of unique variance begins to dominate the common variance structure (Cattell and Jaspers, 1967). Figure 5.2 shows the Scree plot of this study which also suggests keeping nine factors.

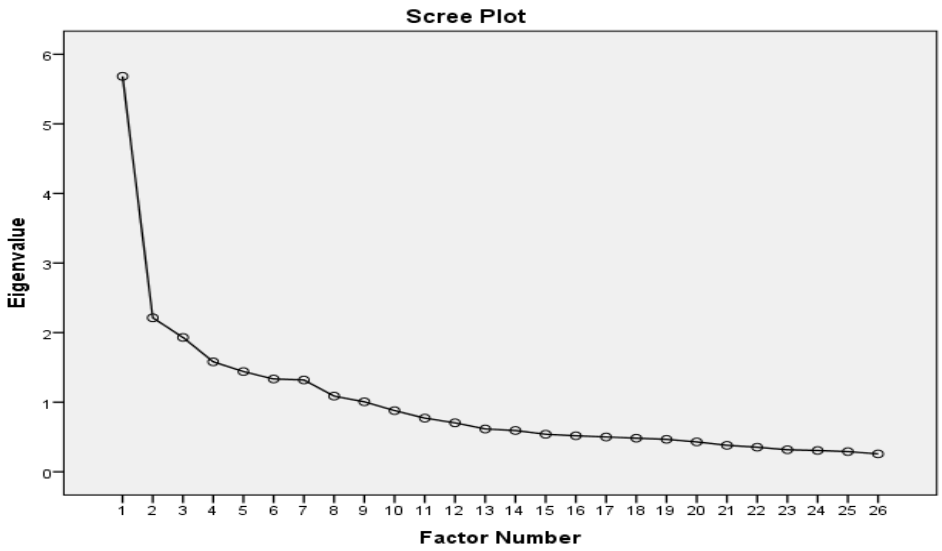


Figure 5.2 Scree plot of the factor loadings

5.2.3 Factor Rotation

The primary objective of the factor rotation method is to maximise high-item loadings to produce a more interpretable, transparent and simplified factor structure (Williams, 2010). There are two conventional rotation techniques: orthogonal rotation and oblique rotation. There are sub-categories of orthogonal rotation: Varimax and Quartimax, and two sub-categories of oblique rotation: Olbimin and Promax. The orthogonal rotation method is applied when constructs are unrelated, and for correlated constructs oblique is more suitable. Generally, in social science research underlying factors are expected to have some correlations between them, and hence the oblique rotation was more accurate for those studies. This study already ensured that the constructs are correlated, so it uses an oblique factor rotation technique. This approach was used to obtain an appropriate factor structure of the underlying dimension of the latent constructs. As we can observe from the correlation coefficient matrix of this study, factors are correlated; this study chooses the 'Promax' oblique rotation (Gerbing and Anderson, 1988). In SPSS, the pattern matrix is examined for factor loadings when oblique rotation is used.

5.2.4 Clean Factor Loading

With EFA, it is important to obtain a pattern matrix with clean-factor loading. Here, the clean-factor loading implies items are expected to be loaded into only one factor (no cross-loadings into multiple factors), and there should not be any items loaded into no factors. Several studies suggested using more stringent cut-off points for factor loadings such as 0.32 (poor), 0.45 (fair), 0.55 (good), 0.63 (very good) or 0.71 (excellent) (Tabachnick and Fidell, 2007; Comrey and Lee, 1992). In this study, we chose a significant factor loading cut-off of 0.50. For this reason, non-significant items which have factor loadings of less than 0.50 were automatically deleted by the software. Initially, thirty-two factors were loaded and some of them were cross-loading in more than one factor. Then we deleted those cross-loaded factors one by one and then repeated the analysis without those items. The deleted variables were, IP4, EP5, SMCS5, SMCS6, ECOP1, and SCOP1. Finally, a clean-factor loading was obtained with twenty-six items loading into nine factors. We found Table 5.9, which shows that the clean-factor loadings of EFA were extracted; with twenty-six measurement items grouped under nine factors. These are internal pressure, external pressure, four sub-factors of sustainability management control system (belief systems, boundary systems, diagnostic control systems, and interactive control systems), economic

performance, environmental performance and social performance. The study uses the SPSS and AMOS programs to analyse the data. All the items of each scale had high factor loadings between 0.500 and 0.900, meeting the desirable value of 0.50 as recommended by Hair et al. (2006).

Table 5.9 The result of factor analysis (Extraction Method: Principal Axis Factoring and Rotation Method: Promax)

Factors										
		F1	F2	F3	F4	F5	F6	F7	F8	F9
Internal Pressure	IP1	0.755								
	IP2	0.785								
	IP3	0.622								
External Pressure	EP1		0.501							
	EP2		0.651							
	EP3		0.573							
	EP4		0.608							
Belief Systems	SMCS1			0.900						
	SMCS2			0.500						
Boundary Systems	SMCS3				0.642					
	SMCS4				0.626					
Diagnostic control systems	SMCS7					0.616				
	SMCS8					0.605				
	SMCS9					0.592				
	SMCS10					0.546				
Interactive control systems	SMCS11						0.600			
	SMCS12						0.926			
Economic Performance	ECOP2							0.711		
	ECOP3							0.603		
	ECOP4							0.747		
Environmental Performance	ENVP1								0.766	
	ENVP2								0.806	
	ENVP3								0.716	
Social Performance	SOCP2									0.698
	SOCP3									0.638
	SOCP4									0.724
Eigen Values		2.21	1.33	1.00	1.32	1.93	1.08	1.58	5.68	1.44
% of Variance explained		8.51	5.13	3.86	5.07	7.42	4.18	6.08	21.80	5.54
Cumulative % of the variance explained		30.37	54.54	67.67	59.62	37.797	63.80	43.87	21.80	49.42

Note: IP: Internal Pressure; EP: External Pressure; SMCS: Sustainability Management Control System; ECOP: Economic Performance; ENVP: Environmental Performance; SOCP: Social Performance.

The first factor extracted by EFA is IP, and this factor comprises of three measurement items. This factor accounted for 8.512% of the total variance. The second-factor loading stand for EP comprises of four measurement items, and this factor accounted for 5.130% of the total variance. Then comes the SMCS, comprised of four second-order factors, where belief system counts for 3.869% of the total variance, and consists of two items. The boundary system accounts for 5.075% of total variance with two-factor loadings, with 7.427% of total variance explained by the factor labelled Diagnostic control systems, which contains four items. The last sub-factor of SMCS, the interactive control system, accounted for 4.183% of the total variance and contained two factors.

Then, three individual measurement items compose the seventh-factor economic performance, and the explained variance of this factor is 6.080%. Whereas factor eight has shown three attributes of environmental performance and is explained by 21.859% of the total variance, factor nine indicates social performance and consists of three measurement items and 5.541% of the total variance.

5.2.5 Reliability Measure – Cronbach's Alpha

Gerbing and Anderson (1988) claim that reliability proves the accuracy of measurement items. The reliable latent constructs must ensure stability and internal consistency. The reliability is calculated in the form of Cronbach's alpha coefficient, which is calculated through the mean of the correlations between each pair of items and the number of items in the scale (Cronbach, 1951). In this study, the reliability is calculated using Cronbach's alpha in SPSS, which was used to assess the internal consistency of the measure. The formula for calculating Cronbach's alpha is as follows:

$$\text{Cronbach's alpha } (\alpha) = \frac{NP}{[1+P(N-1)]}$$

Where N = number of questions and P = mean of inter-question correlation.

There is much debate among the researchers regarding the choice of appropriate cut-off points to test reliability (O'Leary-Kelly and Vokurka, 1998; Nunnally, 1978). Hinton (2004) have suggested four cut-off points for reliability, which includes excellent reliability (0.90 and above), high reliability (0.70-0.90), moderate reliability (0.50- 0.70) and low reliability (0.50 and below). Alpha values as low as 0.50 are acceptable for early stages of research or in exploratory research (O'Leary-Kelly and Vokurka, 1998;

Nunnally, 1978). Table 5.10 below displays a reliability analysis for each of the items of the newly developed instrument. Researchers claim that the standard Cronbach's alpha value is 0.7, but a score greater than 0.60 is also accepted as a reliability coefficient (Dunn et al., 2014). From the data in table 5.10, it is clear that in all latent constructs, Cronbach's alpha ranged from 0.700 to 0.814 which is within the recommended value in the extant literature (O'Leary-Kelly and Vokurka, 1998; Nunnally, 1978).This ensures the reliability of the developed instrument.

Table 5.10 Reliability Measure – Cronbach's Alpha

Measuring Items		Cronbach's alpha	Type
Internal Pressure (IP)		0.762	High Reliability
	IP1		
	IP2		
	IP3		
External Pressure (EP)		0.700	High reliability
	EP1		
	EP2		
	EP3		
	EP4		
Sustainability Management Control System (SMCS)			
Belief System		0.701	High reliability
	SMCS1		
	SMCS2		
Boundary System		0.706	High reliability
	SMCS3		
	SMCS4		
Diagnostic Control System		0.711	High reliability
	SMCS7		
	SMCS8		
	SMCS9		
	SMCS10		
Interactive Control System		0.742	High reliability
	SMCS11		
	SMCS12		
Economic Performance (ECOP)		0.729	High Reliability
	ECOP2		
	ECOP3		
	ECOP4		
Environmental Performance (ENVP)		0.814	High Reliability
	ENVP1		
	ENVP2		
	ENVP3		
Social Performance (SOCP)		0.730	High Reliability
	SOCP2		
	SOCP3		
	SOCP4		

5.3 Confirmatory Factor Analysis (CFA)

After obtaining the clean-factor loadings from EFA, the next step is to conduct confirmatory factor analysis (CFA) to acquire more robust measurements of the underlying latent constructs. CFA is a theory-driven confirmatory technique which is driven by the causal relationships among the observed and unobserved variables (Schreiber et al. 2006). CFA is used to assess the overall degree of model fitness by inspecting how well the convergent and discriminant validity is achieved (Haji, 2014). For this reason, CFA was conducted to test the validity of the measurement model of the conceptual framework. CFA was conducted on the scale of all twenty-six items using the AMOS program. Several indices were used to explore model-fit criteria.

This study used the AMOS software to perform a CFA on the measurement model, based on data collected from 255 top- and mid-level corporate managers from the Bangladeshi RMG industry. The data came from thirty-two questions on the 5 point Likert-scale questionnaire survey. After the EFA, twenty-six items were retained and distributed into nine latent variables. This study hypothesised a nine-factor model to be confirmed in the measurement portion of the model. It also evaluated both first- and second-order measurement models to ensure which model fits well. The first-order model contains all the nine factors, and in the second model there is one factor called SMCS which has four second-order factors. The results of the standardised lambda, t-value and p-value were shown in the following table 5.11. The results of the confirmatory factor analysis conducted in AMOS are shown in Appendix 5.

Table. 5.11 CFA Measurement Testing

Latent construct	Observed variable	Standardized lambda	t-value	S.E.	P-value
Internal Pressure	IP1	0.75	……	……	……
	IP2	0.79	9.71	.104	***
	IP3	0.62	8.49	.081	***
External Pressure	EP1	0.57	……	……	……
	EP2	0.78	7.04	.222	***
	EP3	0.45	5.28	.204	***
	EP4	0.60	5.82	.169	***
Belief System	SMCS 2	0.70	……	……	……
	SMCS 1	0.75	6.184	.182	***
Boundary System	SMCS 3	0.81	……	……	……
	SMCS 4	0.63	5.707	.125	***

Latent construct	Observed variable	Standardized lambda	t-value	S.E.	P-value
Diagnostic Control System	SMCS 7	0.68	……	……	……
	SMCS 8	0.52	6.842	.102	***
	SMCS 9	0.63	6.773	.154	***
	SMCS 10	0.60	6.19	.137	***
Interactive Control System	SMCS 11	0.73	……	……	……
	SMCS 12	0.63	5.681	.166	***
Sustainability Management Control System	Boundary System	0.61	……	……	……
	Belief System	0.65	4.870	.164	***
	Diagnostic Control	0.71	5.315	.173	***
	Interactive Control	0.68	5.164	.181	***
Economic Performance	ECOP2	0.67	……	……	……
Economic Performance	ECOP3	0.71	7.732	.135	***
Economic Performance	ECOP4	0.69	8.086	.112	***
Environmental Performance	ENVP2	0.77	……	……	……
Environmental Performance	ENVP1	0.79	11.515	.083	***
Environmental Performance	ENVP3	0.75	11.236	.085	***
Social Performance	SOCP1	0.61	……	……	……
Social Performance	SOCP2	0.74	7.579	.168	***
Social Performance	SOCP3	0.71	7.743	.159	***

5.3.1 Validity assessment

Validity is described as the extent to which any measuring instrument measures what it is intended to measure (Bryman and Cramer, 2002; Carmines and Zeller, 1979). Similarly, validity is the measure of the accuracy of the instrument developed and used in a study (Linn, 2000). There are two types of validity: content and construct validity (Churchill and Iacobucci, 2006).

5.3.1.1 Content Validity

In this study, the instrument is reviewed by the academicians and RMG industry experts to ensure the content validity of the research instrument, item selection and refinement of the developed questionnaire. The measurement items of the constructs were derived from the construct operationalisation discussed in section 4.4.2.1. Also, extensive pilot testing of the instrument ensured that the items were relevant to the Bangladeshi RMG industry's perspective. Experienced academicians with proven research expertise in sustainable business practices reviewed the initial questionnaire. This pilot-test was performed to ensure that the questions were understandable, meaningful, relevant and easy to interpret. Furthermore, the draft questionnaire was reviewed by participants who were carefully chosen from the top and mid-level corporate managers in the RMG industry who have extensive knowledge of the chosen subject area. Based on the comments received from corporate managers and academicians, some questions were modified in the questionnaire to make it more relevant for the Bangladeshi RMG managers. Therefore, the questionnaire could be accepted as possessing content validity.

5. 3.1.2 Construct Validity

Construct validity is concerned with the degree to which a particular measure relates to other measures and how much they are consistent with the theoretically derived hypotheses concerning the concepts (or constructs) (Carmines and Zeller, 1979). Construct validity is often thought to be comprised of two other types of validity: discriminant and convergent validity (Bagozzi, 1980). Convergent validity evaluates whether all the items evaluating the constructed cluster merge together to form a single construct; discriminant validity measures the degree to which a concept differs from other concepts.

5.3.1.2.1 Discriminant Validity

The Discriminant Validity test shows how much variance there is in those indicators that can explain variance in the construct (Said et al., 2011). Discriminant validity measures the degree to which a concept is diverse from other concepts and is indicated by a measure not correlating very highly with other measures from which it should theoretically differ (Bagozzi et al., 1991; Churchill, 1999). Discriminant Validity is assessed using the measures of Average Variance Extracted (AVE) and measures of paired constructs. The average variance extracted can be calculated as follows:

$$\mathrm{AVE} = \frac{\sum_{i=1}^{k} \lambda_i^2}{\sum_{i=1}^{k} \lambda_i^2 + \sum_{i=1}^{k} \mathrm{Var}(e_i)}$$

Here, k is the number of items, λ_i the factor loading of item i and Var(e_i) the variance of the error of item i.

Discriminant validity was assessed by examining the correlations between the factors with the square root of the AVE for each factor as recommended by Fornell and Larcker (1981). The discriminant validity of each factor is established if the correlations among the factors are less than the square root of the AVE and the variance extracted for each factor exceeded 0.50 (Huang et al., 2016). As observed in Table 5.12, all correlations among the factors were less than the square root of factor's AVE. In addition, Kline (2005) suggested, if the estimated correlations between the factors are less than 0.85, then discriminant validity can be ensured. Table 5.12 also shows there exist no correlations among factors which is greater than 0.85. Hence, the discriminant validity of the measurement scales is established. This table also illustrates the descriptive statistics of the latent variables in terms of mean and standard deviations.

Table 5.12 Discriminant Validity of Measurement Model

	MN	SD	CR	AVE	IP	EP	SMCS	ECOP	ENVP	SOCP
IP	3.71	0.79	0.767	0.526	**0.725**					
EP	3.85	0.71	0.701	0.501	0.439	**0.707**				
SMCS	4.05	0.44	0.756	0.518	0.255	0.541	**0.719**			
ECOP	3.94	0.78	0.731	0.516	0.368	0.215	0.552	**0.718**		
ENVP	4.15	0.67	0.814	0.594	0.393	0.222	0.665	0.517	**0.771**	
SOCP	4.14	0.67	0.728	0.504	0.176	0.303	0.551	0.375	0.395	**0.709**

Notes: MN: Mean; SD Standard Deviation; CR, Composite Reliability; AVE, Average Variance Extracted; DV: Discriminant Validity; EP, External Pressure; IP: Internal Pressure; SMCS, Sustainability Management Control System; ENVP: Environmental Performance; ECOP, Economic Performance; SOCP, Social Performance.

5.3.1.2.2 Convergent Validity

Convergent validity implies that the manifest variables of latent constructs should share a high degree of variance. The measurement item should correlate positively with other items of that construct to define the convergent validity of a latent construct. This study used the following three methods: factor loading, Average Variance Extracted (AVE), and composite reliability (CR) in order to estimate the convergent validity of the

constructs. The strong evidence of convergent validity presented in tables 5.10 and 5.12 illustrates the value of standardised lambda (i.e. factor loading), AVE and CR of constructs. All values of these measures are within the acceptable level, so there are no concerns about convergent validity with these measurement models. According to Fornell and Larcker (1981) if AVE is less than 0.5, but CR is higher than 0.6, the convergent validity of the construct is still adequate. As it can be seen from Table 5.11, all the values of AVE were greater than 0.50, thereby guaranteeing convergent validity.

5.3.2 Covariance values of the Measurement Model

Table 5.13 shows the values of covariance of the measurement model among the latent variables in the second-order measurement model. The values of the covariance between latent variables were positively defined. There is no negative value of the covariance in the CFA model, which indicates that there was no negative covariance among the variables.

Table 5.13 Covariance values of the measurement model

Relationships			Estimate	S.E.	C.R.	P
IP	<-->	EP	.168	.039	4.268	***
IP	<-->	ECOP	.192	.049	3.899	***
IP	<-->	ENVP	.190	.042	4.524	***
IP	<-->	SOCP	.290	.031	1.991	.007
EP	<-->	ECOP	.072	.032	2.279	.023
EP	<-->	ENVP	.069	.027	2.531	.010
EP	<-->	SOCP	.074	.024	3.084	.002
IP	<-->	SMCS	.077	.031	2.477	.031
EP	<-->	SMCS	.103	.026	3.955	***
ECOP	<-->	SMCS	.143	.034	4.250	***
ENVP	<-->	SMCS	.163	.032	5.151	***
SOCP	<-->	SMCS	.114	.026	4.414	***
ECOP	<-->	ENVP	.218	.041	5.319	***
ECOP	<-->	SOCP	.124	.032	3.822	***
ENVP	<-->	SOCP	.121	.028	4.270	***

5.3.3 Diagnostic Measures: Model Fit Indices

There are various model fit indices to determine the extent to which the proposed model reasonably explains the relationship between the constructs. There are three types of model-fit indices: absolute indices, parsimony indices and relative fit indices. Absolute indices assess the degree to which there exists a similarity between the model-implied and actual data variance-covariance matrices (Ockey and Choi, 2015). The more similar matrices predict better model fit. Some examples of absolute fit indices are the standardised root mean square residual (SRMR) (Bentler, 1995) and the goodness of fit index (GFI) (Jöreskog and Sörbom, 1981). GFI is the percentage of variance accounted for by the estimated population covariance (Kline. 2005). On the other hand, parsimony indices differ as they penalise models with a higher number of free parameters (Ockey and Choi, 2015). The root-mean-square error of approximation (RMSEA) (Steiger and Lind, 1980) and (AGFI) (Jöreskog and Sörbom, 1981) is an example of parsimony indices and increases in the number of indicators raises their values beyond the threshold value which are not preferable. Relative-fit indices can be used to compare the fit of a proposed model to the observed data or to compare the relative fit of two competing models to the observed data (Ockey and Choi, 2015). The comparative fit index (CFI) (Bentler, 1990), normed-fit index (NFI) (Bentler and Bonett, 1980), incremental fit index (IFI) (Bollen, 1989) and Tucker-Lewis index (Tucker and Lewis, 1973) are examples of relative fit indices.

In this study, the model fit was assessed using seven common measures, including Model Chi-Square ($\chi 2$), Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), Normed-Fit Index (NFI), Tucker-Lewis index (TLI), Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA). The model fits perfectly when the p-value is significant (p-value> 0.05). GFI and adjusted AGFI are highly dependent on sample size, indicating a better fit when the sample size is larger (Steiger and Lind, 1980). The accepted values of GFI and AGFI are 0.90 or above; although slightly lower values have been acceptable when the model is complex, and other fit indices are within their acceptable range (Gefen et al., 2011). A value of Normed-Fit Index (NFI) of 0.95 indicates the model of interest improves the fit by 95% relative to the null model. The comparative fit index (CFI) is a revised form of NFI which is not very sensitive to sample size. It compares the fit of a target model to the fit of an independent or null model (Kline, 2005). On the other hand, TLI is subject to being affected by the average size of the correlations in the data set (Kenny, 2008). The RMSEA is an estimate of lack of fit per degree of freedom, which also has a

known statistical distribution, unlike other fit indices, and therefore can be used for hypothesis testing (Gefen et al., 2011). The rule of thumb for acceptable values of RMSEA is 0.05 or less for a good approximate fit, while 0.08 or less indicated approximate fit, and values above 0.10 indicated room for improvement (Browne and Cudeck, 1993).

5.3.4 First order Measurement Model

At first, the first-order measurement model was run by AMOS 23.0 where all nine latent variables were defined only by first-order measurement items. In this analysis, the first-order measurement model-fit values are $\chi 2$ =1.846, GFI =0.873, AGFI =0.810, RMSEA = 0.059, TLI = 0.829 and CFI =0.859, PCLOSE=0.456.Those values indicate a good fit between the measurement model and the observed data.

5.3.5 Second-order Measurement Model

As shown in the block diagram (figure 5.3) of the second-order, this measurement model has six latent variables, where only SMCS has second-order constructs; first-order measurement items defined all other latent variables.

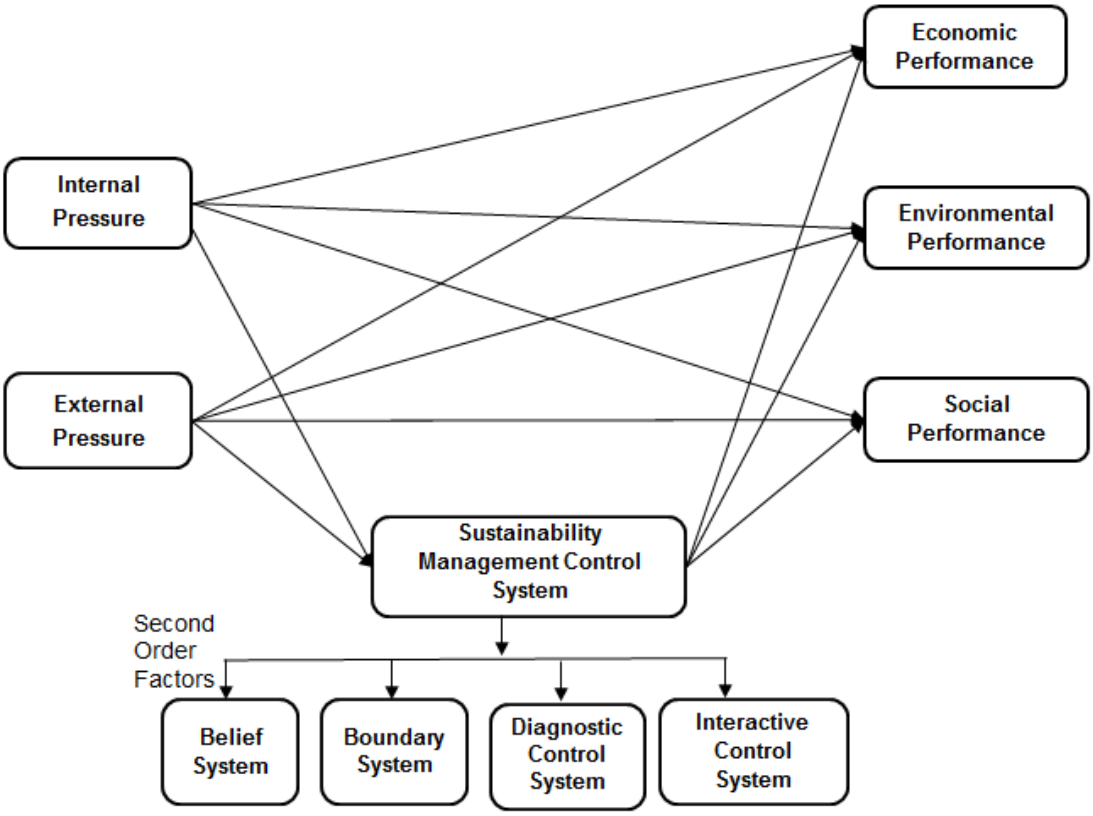


Figure 5.3 Internal dimensions of the conceptual framework

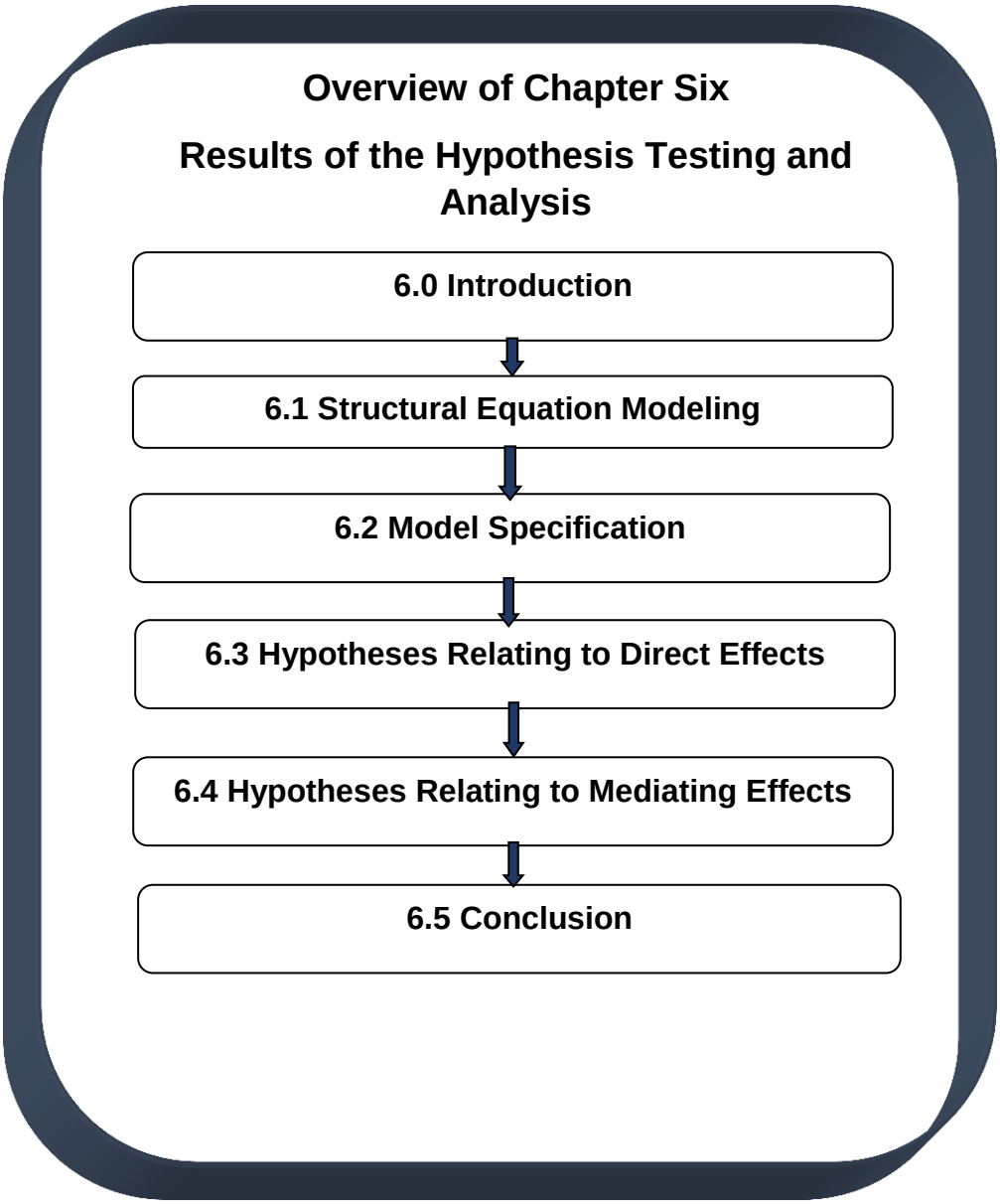
In the analysis of measurement model with second-order factors, the measurement model-fit values are $\chi 2$ =1.617, GFI =0.89, AGFI =0.89, RMSEA = 0.049, TLI = 0.89 and CFI =0.903. Those values indicate a good fit between the second-order measurement model and the observed data. The model-fit indices of the second-order measurement model imply a much better fit than the first-order, so the researcher proceeds with the second-order measurement model for further statistical analysis. The model-fit indices of both first and second-order measurement model are shown in Table 5.14.

Table 5.14 Model Fit Indices for measurement models

Model	$\chi 2$	GFI	AGFI	CFI	TLI	NFI	RMSEA
Measurement model with only first-order factors	1.854	0.85	0.81	0.864	0.835	0.75	0.058
Measurement model including SMCS with second-order factors	1.617	0.89	0.85	0.90	0.89	0.79	0.049

5.4 Conclusion

At first, this chapter addressed the data screening techniques employed in this study in order to order to generate a clean and accurate data set for further statistical analysis. Then, this chapter reported the results of the factor analysis which was performed to determine the underlying structure of the large set of variables operationalised in the previous chapter. Those variables were divided by factor analysis into multi-item groups according to their shared variance. At first, exploratory factor analysis was performed to obtain the desired factor loadings. Then, by using that pattern matrix of factor loadings, confirmatory factor analysis was conducted in AMOS. Next, the model-fit indices and validity testing were conducted on the measurement model obtained from CFA. The next chapter will address the data analysis related to hypothesis testing of the structural model which will be constructed using these latent variables with their corresponding measurement variables obtained from the factor loadings in this chapter.


Overview of Chapter Six
Results of the Hypothesis Testing and Analysis
6.0 Introduction
6.1 Structural Equation Modeling
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6.4 Hypotheses Relating to Mediating Effects
6.5 Conclusion

Chapter 6: Results of the Hypothesis Testing and Analysis

6.0 Introduction

Chapter three outlined the proposed conceptual framework of this study, based on extensive literature and theoretical review. Subsequently, hypotheses were proposed for the predicted relationships between the constructs of the conceptual framework. The comprehensive results of the factor analysis were then reported in chapter five; this is a prerequisite before conducting the hypothesis testing. The Exploratory Factor Analysis (EFA) was performed to merge individual items into multi-item groups. Confirmatory Factor Analysis (CFA) was conducted to test the validity of the measurement model of the conceptual framework. The results of the tests reported in chapter five reveal an appropriate factor structure with no validity or reliability issues. This chapter reported the results of the hypothesis testing using Structural Equation Modelling (SEM). At first, the results of the hypotheses related to the direct effects were presented. Next, the results of the hypotheses related to the mediating effects of the 'Sustainability Management Control System' (SMCS) were discussed. The results of the hypotheses testing as a means of providing statistical evidence for the acceptance or rejection of the hypothesis were then reported.

6.1 Structural Equation Modelling (SEM)

Structural Equation Modelling (SEM) is a multivariate statistical technique which is widely applicable in specifying and testing hypothesised relationships among a set of latent variables (Crowley and Fan, 1997). These latent variables can be either observable or unobservable. Several studies in the social sciences mention SEM in a variety of other guises, including ‘Latent Variable Modelling’, ‘Covariance Analysis’ or ‘Causal Modelling’ (Crowley and Fan, 1997). A diverse set of statistical techniques is included in SEM packages such as regression analysis, correlation analysis, confirmatory factor analysis and path analysis (Bagozzi and Larcker 1981; Bentler. 1992; Crowley and Fan 1997).

There are two primary components of SEM: measurement models and structural models. In the previous chapter, the measurement model was tested by confirmatory factor analysis, which was responsible for construct validation, measurement

invariance and scale refinement (Jeon, 2015). This chapter tested the structural model dedicated to path analysis which examined the significance of the direct and indirect effects of the hypothesised relationships (McDonald and Ho, 2002). SEM has been described in existing literature as a combination of factor analysis (both exploratory and confirmatory) and multiple regression (Ullman, 2001; McDonald and Ho, 2002; Schreiber et al., 2006). As argued by Byrne (2013), SEM takes more of a confirmatory, rather than exploratory, approach when analysing data, as there exist interrelations among the variables based on a theoretical framework (Crowley and Fan, 1997). In this study, the interrelated constructs of the hypothesised model grounded in contingency theory have been tested through SEM analysis.

6.1.1 Rationale for using SEM

There are several advantages of using SEM analysis for hypothesis testing. Firstly, SEM allows the use of latent variables with multiple measurement items; these are essential to capture the underlying concept of unobservable latent variables. In reality, it is not practical to operationalise an important theoretical construct using only one measurement item. For this reason, this study chose SEM for the structural model testing, as it has six latent variables, each of which were operationalised using multiple measurement items to ensure greater validity at the construct level (Werner and Schermelleh-Engel, 2009).

Additionally, SEM permits modelling and testing of complex patterns of relationships with multiple independent variables (IVs) and dependent variables (DVs) simultaneously (Werner and Schermelleh-Engel, 2009; Ullman, 2006). This feature is not allowed in other popular multivariate analysis techniques (e.g. ANOVA, multiple-regression analysis). For example, the regression analysis can allow one or more IVs and one DV simultaneously (Jeon, 2015; Tabachnick and Fidell, 1996; Jenatabadi, 2015). This study consists of two IVs and four DVs which were used to develop a multifaceted conceptual model which can be properly analysed by using this feature of SEM. Moreover, the researcher can explore the direct effect, indirect effect, and total effects of multiple IVs and DVs concurrently in SEM (Jenatabadi, 2015). The mediating effects of the variable named ‘SMCS’, which is available in this study, can also be tested simultaneously with other direct relationships by using SEM.

SEM also applies multiple statistical methods, such as confirmatory factor analysis, correlation analysis and regression analysis, in one model at the same time (Jenatabadi, 2015). For this reason, SEM was used in this study to perform all the

important statistical tests on the independent, dependent and mediating variables. In addition, the proposed model can be empirically evaluated by SEM, using both global and local model fit assessment indices. The global assessment ensures how well the model fits the observed data (e.g. χ2 test). The statistical significance of the relationship between the variables is assessed using local assessment (e.g. R^2 test, reliability, and discriminant validity test). This study reported the results of both the local and global fit indices. SEM was used because both assessments confirm the overall fitness of the model for the observed data more accurately (Werner and Schermelleh-Engel, 2009).

Lastly, in SEM analysis, measurement errors of the constructs are also reported. These are not included in many other popular multivariate analyses (e.g. multiple-regression analysis). The absence of these error terms in such multivariate analysis is only failed to explain the proportion of variance analysis, commonly called 'residual' or 'error' (Jeon, 2015). When seeking to capture any real-world phenomena it is impractical to expect a total absence of errors in the research studies. SEM was a suitable choice for this study because it was conducted to investigate the impact of organisational pressure on corporate sustainability performance, i.e. a real-world phenomenon where error terms play an important role in explaining the proportion of the variance analysis.

However, SEM analysis also has its limitations. There is a rule of thumb regarding the minimum sample size and distributional assumptions necessary to conduct SEM analysis successfully. Estimation problems and unreliable results may occur in SEM analysis, owing to small sample size, non-normal data and weak hypothetical relationships (Werner and Schermelleh-Engel, 2009). The sample size is recommended to be more than five times the number of parameters to be estimated and a minimum of 200 samples is recommended to run the SEM analysis (Kline, 1998). The sample size of this study was 255, so there was no problem with the sample size when running the structural model. Moreover, pre-tests, such as sample adequacy and normality tests, were conducted in the previous chapter to ensure the appropriateness of the data set. In SEM, sometimes a set of model-fit indices might not result in the desired hypothesised relationships among IVs and DVs as predicted by the theoretical lens. A model may have weak hypothesised relationships, even if model-fit indices are within their accepted level. To solve this problem, information about the model-fit indices and statistical estimates relevant to hypothesis testing, such as correlation or covariance matrices, standardised regression weights and squared

multiple correlations, are required to be reported by the researcher (Jeon, 2015). To address this issue, this study reported both local and global fit indices, as well as correlation and covariance matrices, standardised regression weights and squared multiple correlations.

6.2 Model Specification

The proposed model was based on contingency theory, which defines and explains the relationships between the constructs. A detailed discussion about the theoretical foundation of the constructs was provided in Chapter three, where these relationships were presented in the form of a set of hypotheses. As we know from the previous section, SEM consists of two types of models: firstly, the measurement model, which represents how each latent variable, is represented by the measured variables, and secondly, the structural model, which shows how the latent variables are related to each other. Mackenzie et al. (2011) suggested specifying a measurement model before identifying the structural model in order to capture the expected relationships between the indicators and the latent variables.

To specify the measurement model, the suggestions given by Anderson and Gerbing (1988) were followed. In the previous chapter (section 5.3) latent constructs and the associated indicators of the measurement models were repeatedly estimated and then re-specified, before the structural model was assessed. This iterative process of re-specification of latent constructs facilitates the estimation of a more consistent theoretical grounding of the constructs. This ensures that the observed items only measure the proposed latent construct and are not associated with other latent constructs (Anderson and Gerbing, 1998). Next, the validity of the measurement model was tested to ensure the accuracy of the instrument developed, as discussed in section 5.3.1. Anderson and Gerbing (1988) recommend that correlated measurement errors can increase the likelihood of non-unidimensionality, which may result in unexplained and confusing theoretical meanings. In this study, there is no correlation between the error terms. In the specified model, the items or indicators are the property of the model and each indicator includes an error term (Hair et al., 2006; Kline 1998; Mackenzie et al. 2011). Figure 6.1 shows the proposed model that was tested by SEM analysis. The main objective of this chapter is to examine the empirical characteristics of those variables and their associated relationships with other variables through SEM.

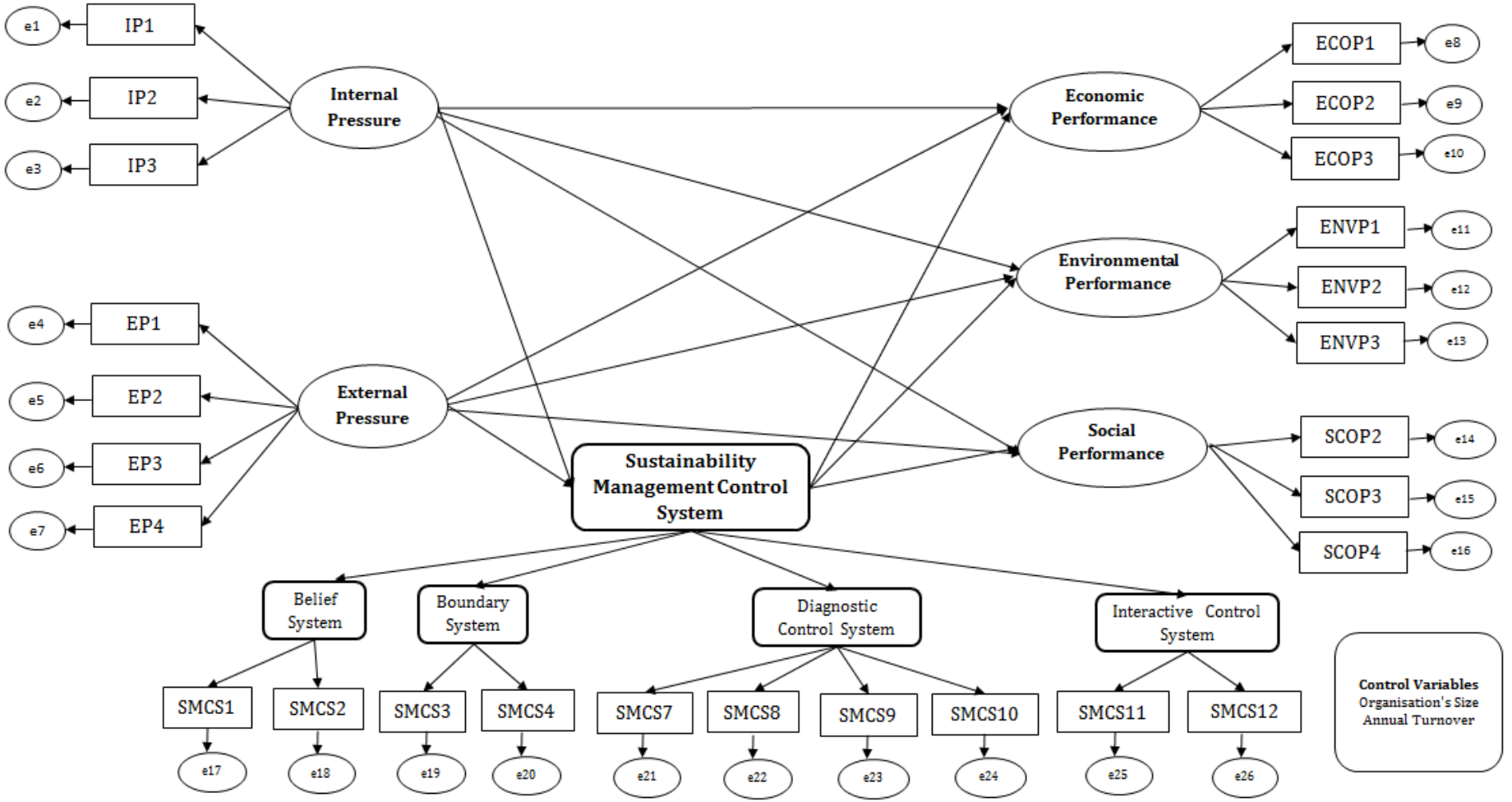


Figure 6.1 Structural Model of the proposed study

6.2.1 Testing the Structural Model

The validity of the structural model is measured using model-fit indices and the statistical significance of the structural paths (Hair et al., 2006). According to Diamantopoulos and Siguaw (2000), the structural path coefficient should be assessed based on t-value, regression weights, standard error, and squared multiple correlations. The t-value determines the statistical significance of the structural coefficient and is calculated by dividing the value of the parameter by its standard error for each path (Jöreskog and Sörbom, 1989). The value of t-statistics is an indication of determining whether the estimates occurred accidentally or not (Hair et al., 2006). There exist various rules of thumb for examining t-values at both one-tailed and two-tailed tests (Sharma, 1996; Hair et al., 2006). A critical value of 1.64 is considered significant at the 10% significant level, 1.96 at the 5% level and 2.58 at the 1% for a two-tailed test. For the one-tailed hypothesis, the corresponding critical values of t-statistics are 1.28 at the 10% level, 1.645 at the 5% level and 2.326 at 1%. All the hypotheses discussed in Chapter three are one-tailed, so those were assessed using one-tailed critical values to determine the significance of the structural path coefficient. The hypothesis was tested using regression paths, involving the estimation of path coefficients between the variables of interest and corresponding t-statistics (Byrne, 2013).

The Squared Multiple Correlation (SMC) measures the extent to which the variance of a measured variable is explained by the latent variable (Hair et al., 2006; Schumacher and Lomax, 1996). SMC represents how well an item measures each construct, and it is calculated and reported for each endogenous variable of the structural model. Although there are no specific guidelines for interpreting the value of SMC, a high value is desirable to enable explanation of the variance of variables through the underlying factors. According to Mackenzie et al. (2011), the preferred value of SMC should be close to 0.50. However, Falk and Miller (1992) argued that R^2, the variance explained by the endogenous variable ≥ 0.1 is also acceptable. Onditi (2013) argues that a value of SMC up to 0.25 is acceptable for social science studies where the researcher attempts to capture real-world phenomena.

6.3 Hypotheses Relating to the Direct Effects

A direct effect represents the influence of an independent variable (exogenous) on a dependent variable (endogenous) (Schreiber et al., 2006). This study hypothesised a direct relationship between both internal and external pressures and corporate sustainability performances (i.e. economic, environmental and social). This study also examined the impact of both environmental and social performance on economic

performance. Furthermore, this study tests the direct relationship between the mediating variables, SMCS with both independent and dependent variables before proceeding to the mediation test. The following subsections report the results of the direct relationships in detail.

6.3.1 Direct Effects of Internal Pressure on three dimensions of CSP

The hypothesis relating to internal pressure and corporate sustainability performance is given below:

$H1_a$: Internal pressures have a positive impact on economic performance.

$H1_b$: Internal pressures have a positive impact environmental performance.

$H1_c$: Internal pressures have a positive impact on social performance.

Table 6.1and Figure 6.2 shows the results of the direct effects of internal pressure on three dimensions of CSP. The results show that internal pressure has a significant direct impact on economic, environmental and social performance.

Table 6.1 A summary of the multivariate regression analysis of internal pressure and its impact on three factors of CSP

Hypothesis	Relationship		Standardised Regression weights	t-value	Sig-level (p value)	Supported Hypothesis
	From	To				
$H1_a$	IP	ECOP	0.448	4.821	<0.05	Supported
$H1_b$	IP	ENVP	0.444	5..118	<0.05	Supported
$H1_c$	IP	SOCP	0.281	2.916	<0.05	Supported

Note: IP: Internal Pressure; EP: External Pressure; ECOP: Economic Performance; ENVP: Environmental Performance and SOCP: Social Performance. Results of structural equation modelling is significant where *p<0.05; **p<0.01; ***p<0.001

6.3.2 Direct Effects of External Pressure on three dimensions of CSP

The hypothesis relating to external pressure and corporate sustainability performance is given below:

$H2_a$: External pressures have a positive impact on economic performance.

$H2_b$: External pressures have a positive impact on environmental performance.

$H2_c$: External pressures have a positive impact on social performance.

Table 6.2 and Figure 6.1 show the results of the direct effects of external pressure on three dimensions of CSP. The results show that external pressure has a significant positive relationship in all three performances (i.e. economic, environmental and social).This is analogous with the results of the hypothesis relating to the internal pressure.

Table 6.2 A summary of the multivariate regression analysis of external pressure and its impact on three factors of CSP.

Hypothesis	Relationship		Standardised Regression weights	t-value	Sig-level	Supported Hypothesis
	From	To				
$H2_a$	EP	ECOP	0.328	3.332	<0.05	Supported
$H2_b$	EP	ENVP	0.326	3.445	<0.05	Supported
$H2_c$	EP	SOCP	0.389	3.844	<0.05	Supported

Note: IP: Internal Pressure; EP: External Pressure; ECOP: Economic Performance; ENVP: Environmental Performance and SOCP: Social Performance. Results of structural equation modelling is significant where *p<0.05; **p<0.01; ***p<0.001

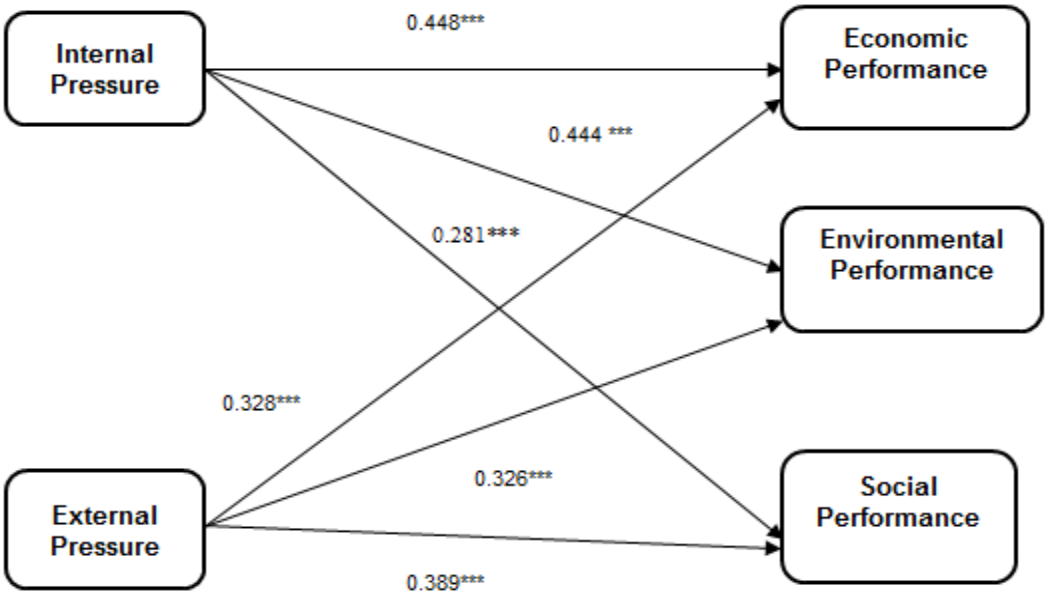


Figure 6.2 Results of hypotheses relating to direct effects

6.3.3 Direct Effects of Environmental Performance and Social Performance on Economic Performance

The hypotheses relating to the impact of environmental and social performance on economic performance are given below:

$H3_a$: There exists a positive impact of environmental performance on economic performance.

$H3_b$: There exists a positive impact of social performance on economic performance.

Table 6.3 shows the results of the direct effects of the impact of environmental and social performance on economic performance. The result shows a positive impact by both performances on economic performance.

Table 6.3 A summary of the multivariate regression analysis of external pressure and its impact on a SMCS.

Hypothesis	Relationship		Standardised Regression weights	t-value	Sig-level (p- value)	Supported Hypothesis
	From	To				
$H3_a$	ENVP	ECOP	0.519	5.936	<0.05	Supported
$H3_b$	SCOP	ECOP	0.376	4.190	<0.05	Supported

Note: ECOP: economic Performance; ENVP: Environmental Performance; SCOP: Social Performance; Results of structural equation modelling is significant where *p<0.05; **p<0.01; ***p<0.001.

6.3.4 Direct Effects of Internal Pressure on Sustainability Management Control System

The hypothesis relating to internal pressure and its relationship with the sustainability management control system is given below:

H4: There exists a positive impact of internal pressures on the sustainability management control system.

Table 6.4 shows the results of the direct effects of internal pressure on the sustainability management control system (SMCS). The result shows a positive significant relationship between internal pressure and SMCS. The SMCS has four underlying second-order factors. All second-order factors had a significant relationship with their latent variable SMCS.

Table 6.4 A summary of the multivariate regression analysis of internal pressure and the impact it has on SMCS

Hypothesis	Relationship		Standardised Regression weights	t-value	Sig-level (p- value)	Supported Hypothesis
	From	To				
H4	IP	SMCS	0.249	2.607	0.009	Supported

Note: IP: EP: Internal Pressure; SMCS: Sustainability Management Control System. Results of structural equation modelling is significant where *p<0.05; **p<0.01; ***p<0.001.

6.3.5 Direct Effects of External Pressure on Sustainability Management Control System

The hypothesis relating to external pressure and sustainability management control system is given below:

H5: There exists a positive impact of external pressures on the sustainability management control system.

Table 6.5 shows the results of the direct effects of external pressure on the sustainability management control system. The result shows a positive direct relationship between

external pressure and the sustainability management control system. The SMCS is a second-order factor with four underlying first-order factors. All its first-order factors also have a significant relationship with their second-order factor.

Table 6.5 A summary of the multivariate regression analysis of external pressure and the impact it has on SMCS.

Hypothesis	Relationship		Standardised Regression weights	t-value	Sig-level (p- value)	Supported Hypothesis
	From	To				
H5	EP	SMCS	0.528	4.399	<0.05	Supported

Note: EP: External Pressure; SMCS: Sustainability Management Control System. Results of structural equation modelling is significant where *p<0.05; **p<0.01; ***p<0.001.

6.3.6 Direct Effects of the Sustainability Management Control System on Corporate Sustainability Performance

The hypotheses relating to SMCS and economic, environmental and social and performances are given below:

$H6_a$: There exists a positive impact of the sustainability management control system on economic performance.

$H6_b$: There exists a positive impact of the sustainability management control system on environmental performance.

$H6_c$: There exists a positive impact of the sustainability management control system on social performance.

Table 6.6 shows the results of the direct effects of SMCS on the three dimensions of CSP. The results show that SMCS has a significant positive relationship with all three performances (i.e. economic, environmental and social). The figure A1 shows the results of testing the direct effects of SMCS on three dimensions of CSP in AMOS.

Table 6.6 A summary of the multivariate regression analysis of the SMCS and its impact on three factors of CSP

Hypothesis	Relationship		Standardised Regression weights	t-value	Sig-level (p- value)	Supported Hypothesis
	From	To				
$H6_a$	SMCS	ECOP	0.621	4.710	<0.05	Supported
$H6_b$	SMCS	ENVP	0.697	5.198	<0.05	Supported
$H6_c$	SMCS	SOCP	0.584	4.760	<0.05	Supported

Note: SMCS: Sustainability Management Control System; ECOP: Economic Performance; ENVP: Environmental Performance and SOCP: Social Performance. Results of structural equation modelling is significant where *p<0.05; **p<0.01; ***p<0.001.

6.3.7 Model-Fit Indices of Direct Effects

Table 6.7 shows the summary of absolute, parsimony and relative-fit indices of the model which were used to evaluate direct relationships between constructs. For good model fitness, the values of $\chi 2$ should be between 2.0 and 3.0, values of GFI, AGFI, CFI, TLI and

NFI should be greater than 0.90 and the RMSEA should be between 0.06 to 0.08 (Schreiber et al., 2006).The fit indices were considered to be a good fit based on the complexity of the model, the presence of the second-order factors as well as the context of social science research.

Table 6.7 Model-Fit Indices of models testing direct effects

Relationships	X^2	GFI	AGFI	CFI	TLI	NFI	RMSEA
IP-> ECOP IP-> ENVP IP-> SCOP	2.430	0.92	0.88	0.92	0.89	0.87	0.075
EP-> ECOP EP-> ENVP EP-> SCOP	2.056	0.93	0.89	0.92	0.90	0.86	0.064
ENVP->ECOP	1.650	0.98	0.96	0.99	0.99	0.96	0.031
SCOP->ECOP	1.001	0.99	0.98	0.99	0.99	0.97	0.010
IP-> SMCS	2.123	0.92	0.89	0.93	0.90	0.85	0.066
EP-> SMCS	1.648	0.94	0.91	0.93	0.91	0.85	0.051
SMCS -> ECOP SMCS -> ENVP SMCS -> SCOP	1.862	0.89	0.87	0.91	0.90	0.82	0.058

Note: IP: Internal Pressure; EP: External Pressure; SMCS: Sustainability Management Control System; ECOP: Economic Performance; ENVP: Environmental Performance and SOCP: Social Performance.

6.4 Hypotheses Relating to Mediating Effects

An indirect effect represents the effect of an independent variable (exogenous) on a dependent variable (endogenous) through a mediating variable (Baron and Kenny, 1986). Indirect effects are empirically tested using mediation test. Suppose that there is a predictor variable X that has a causal effect on another outcome variable Y as shown in Figure 6.3a. The total effect of the path from X to Y is labelled as c. In this case, mediation is supposed to occur when a causal effect of X on Y is explained by an intervening variable M as shown in Figure 6.3b (Shrout and Bolger, 2002). The indirect effect of the path X to Y with the presence of mediating variable M is called c'. The path coefficient between M to both X and Y is labelled as a and b respectively.

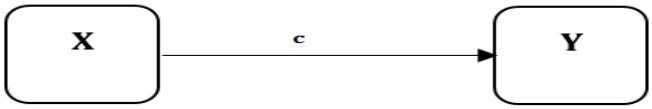


Figure 6.3a Direct Effects between X and Y

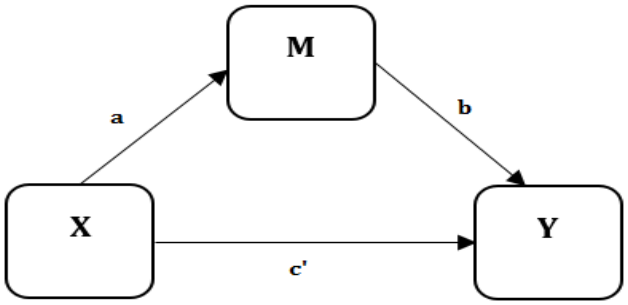


Figure 6.3b Indirect Effects between X and Y

As suggested by Baron and Kenny (1986), Judd and Kenny (1981), and James and Brett (1984) there are four conditions for examining the mediating effects. These are discussed below:

- The variable X should be correlated with outcome variable Y. A causal relationship should exist from X->Y that may be mediated by an intervening variable M.
- The variable X should be correlated with mediating variable M.
- The mediating variable M should be correlated with outcome variable Y.
- If, with the presence of M, the relationship between X->Y becomes insignificant, then M fully mediates the relationship between X and Y. Otherwise, if there is a significant relationship X->Y, partial mediation will occur, despite the presence of M.

Several authors have argued that Baron and Kenny's (1986) recommendation of first testing the direct relationship between X and Y for statistical significance should not be a major requirement (Shrout and Bolger, 2002). In some cases, mediator M may mediate the relationship between X and Y without having any prior direct relationship.

Mediation models are gaining popularity because they allow interesting associations of important intervening variables which are useful for theory development and testing in social science research (Shrout and Bolger, 2002). A wide variety of statistical approaches are available to conduct mediation analysis (Baron and Kenny, 1986; Collins et al., 1998; James and Brett, 1984; Judd and Kenny, 1981; MacKinnon et al., 1995; Rozeboom, 1956; Sobel, 1982; Shrout and Bolger, 2002). Generally, there are four types of statistical analyses for detecting mediating relationships: causal steps approach (Baron

and Kenny, 1986); the difference in coefficients approach; a product of effect approach (e.g. bootstrapping); and differences in R squares approach.

Recently, the bootstrapping method for detecting indirect effects has become very popular, and it has been included in some well-known structural equation modelling programs such as EQS (Bentler, 1995) and AMOS (Arbuckle and Wothke, 2006, Shrout and Bolger, 2002). The bootstrapping method was used in this study because it is a nonparametric re-sampling procedure for testing mediation which does not impose the restrictions of normality of the sampling distribution and is also applicable to moderate sample sizes (Preacher and Hayes, 2008). It is a computationally intensive method that involves repeatedly sampling from the data set and estimating the indirect effect in each resampled data set (Preacher and Hayes, 2008). By repeating this process several thousand times, an empirical approximation of the sampling distribution of a*b is constructed and used to build confidence intervals for the indirect effect (Preacher and Hayes, 2008). Several researchers have recommended bootstrapping to secure extensive simulation results (Briggs, 2006; Williams and MacKinnon, 2008; Preacher and Hayes 2008).This study uses the bootstrapping method for analysing indirect effects in AMOS for 2000 samples and 95% bias-correlated confidence level.

6.4.1 Mediating Effects of a Sustainability Management Control System (SMCS)

This study hypothesises that both the internal and external pressures have an indirect effect (through a sustainability management control system) on all three dimensions of CSP. Hence it was hypothesised that the relationships between both internal and external pressure and three dimensions of corporate sustainability performance (i.e. ENVP, ECOP and SOCP) were mediated by SMCS, as shown below:

$H7_a$: SMCS positively mediates the relationship between internal pressure and economic performance.

$H7_b$: SMCS positively mediates the relationship between internal pressure and environmental performance.

$H7_c$: SMCS positively mediates the relationship between internal pressure and social performance.

$H8_a$: SMCS positively mediates the relationship between external pressure and economic performance.

$H8_b$: SMCS positively mediates the relationship between external pressure and environmental performance.

$H8_c$: SMCS positively mediates the relationship between external pressure and social performance.

Table 6.8 and Figure 6.4 show the hypothesis-testing results of the mediating effects of SMCS, as well as the results of the AMOS output of testing the mediating effects of SMCS is attached in Appendix 5.

Table 6.8 A summary of the structural model-testing results of the indirect effects of SMCS

Hypothesis	Causal Relationships	Coefficient	t value	Sig-level (p-value)	Significance Level	Results
$H7_a$ IP -> SMCS-> ECOP	IP-> ECOP	0.329	3.25	<0.05*	Significant	Not supported
	IP -> SMCS	0.018	0.17	0.991	Not Significant	
	SMCS -> ECOP	0.635	4.38	<0.001***	Significant	
$H7_b$ IP -> SMCS-> ENVP	IP->ENVP	0.356	3.77	<0.001***	Significant	Not supported
	IP -> SMCS	0.018	0.17	0.991	Not Significant	
	SMCS -> ENVP	0.059	5.26	<0.001***	Significant	
$H7_c$ IP -> SMCS-> SCOP	IP-> SCOP	0.220	0.11	<0.05*	Significant	Not supported
	IP -> SMCS	0.018	0.17	0.991	Not Significant	
	SMCS -> SOCP	0.626	4.47	<0.001***	Significant	
$H8_a$ EP -> SMCS-> ECOP	EP->ECOP	0.268	2.15	<0.05*	Significant	Supported
	EP -> SMCS	0.521	3.77	<0.001***	Significant	
	SMCS -> ECOP	0.635	4.38	<0.001***	Significant	
$H8_b$ EP -> SMCS-> ENVP	EP -> ENVP	0.308	2.73	<0.05*	Significant	Supported
	EP -> SMCS	0.521	3.77	<0.001***	Significant	
	SMCS -> ENVP	0.759	5.26	<0.001***	Significant	

Hypothesis	Causal Relationships	Coefficient	t value	Sig-level (p-value)	Significance Level	Results
$H8_c$ IP -> SMCS-> SCOP	EP -> SOCP	0.001	0.76	0.445	Not Significant	Supported
	EP -> SMCS	0.521	3.77	<0.001***	Significant	
	SMCS -> SOCP	0.626	4.47	<0.001***	Significant	

Note: IP: Internal Pressure; EP: External Pressure; SMCS: Sustainability Management Control System; ECOP: Economic Performance; ENVP: Environmental Performance and SOCP: Social Performance. Results of structural equation modelling are significant where *p<0.05; **p<0.01; ***p<0.001.

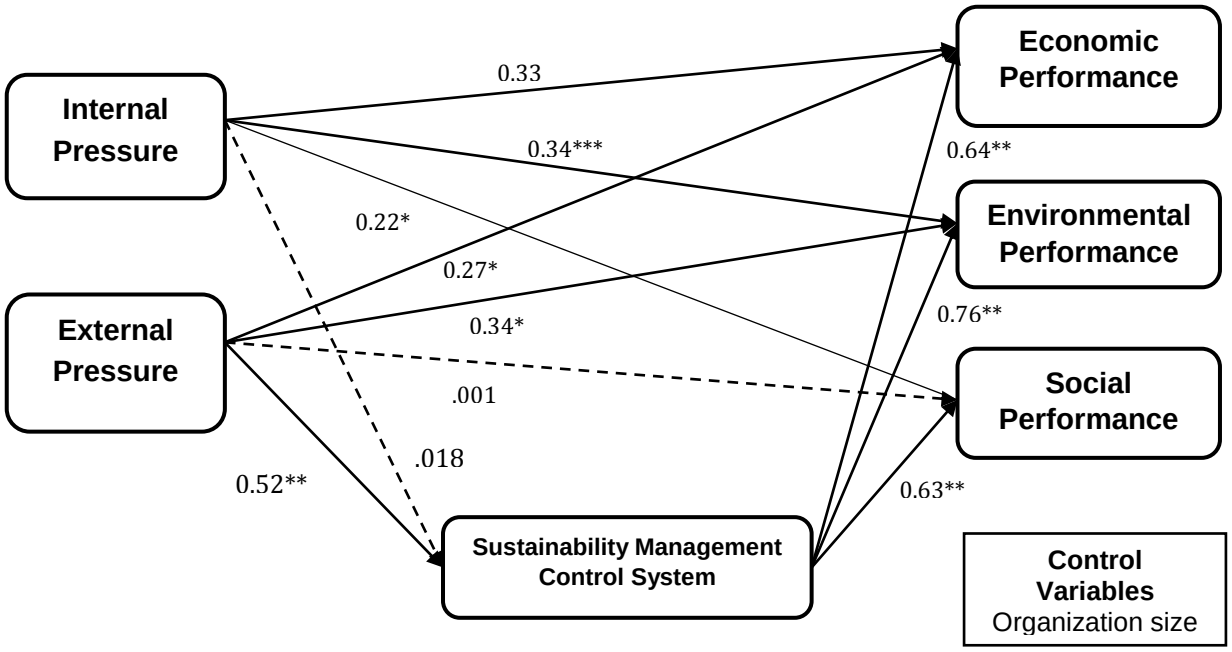


Figure 6.4 Results of the SEM analysis where SMCS used as a mediating variable

It is clear from the results summarised in table 6.8 that the relationship between IP and mediating variable SMCS in Figure 6.4 is not significant. So we can conclude that the SMCS does not mediate the relationship between IP and the three performances of CSP. In contrast, EP has a significant causal relationship with the mediating variable SMCS. SMCS also has a significant positive relationship with all three dimensions (economic, environmental and social) of CSP. It is indeed noteworthy that with the presence of the mediator SMCS, the path coefficient of the direct relationship among EP and both ECOP and ENVP reduces from the previous value obtained from the test conducted without the mediating variable. Hence, SMCS partially mediates the relationship between EP and ECOP. The same partial mediation occurred with ENVP. In the case of SCOP, full mediation occurs, since, with the presence of SMCS, the direct relationship between EP and SOCP becomes insignificant, having been strongly significant in the previous findings of the direct effects of those variables. As a result, after mediation only hypotheses $H7_{a-c}$ were not supported, whereas $H8_{a-c}$ were empirically supported by the observed data.

6.4.2 Mediating Effects of Internal Pressure

This study hypothesises that internal pressure mediates the relationship between external pressure and sustainability management control system. The result of the hypothesis related to the mediating effects of internal pressure is given in table 6.9 and figure 6.5.

H9: The internal pressure positively mediates the relationship between external pressure and SMCS.

Table 6.9 A summary of the structural model-testing results of the indirect effects of SMCS

Hypothesis	Causal Relationships	Coefficient	t value	Sig-level (p-value)	Significance Level	Results
H9 EP -> IP-> SMCS	EP->SMCS	0.381	3.201	<0.05*	Significant	Supported
	EP->IP	0.467	4.749	<0.001***	Significant	
	IP-> SMCS	0.297	2.960	<0.05*	Significant	

Note: IP: Internal Pressure; EP: External Pressure; SMCS: Sustainability Management Control System; ECOP: Economic Performance; ENVP: Environmental Performance and SOCP: Social Performance. Results of structural equation modelling are significant where *p<0.05; **p<0.01; ***p<0.001.

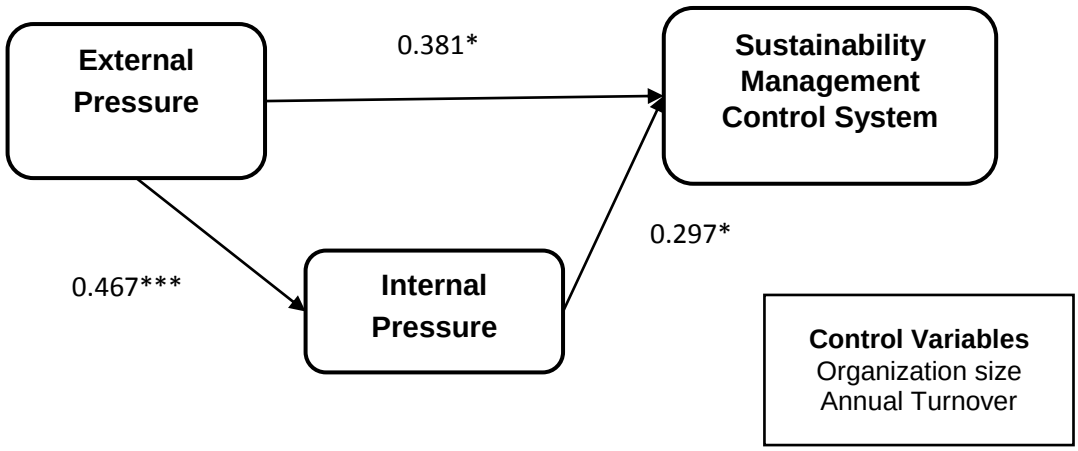


Figure 6.5 Results of the SEM analysis where IP used as a mediating variable

It is evident from the results summarised in table 6.9 that the relationship between EP and mediating variable IP in Figure 6.5 is significant which has a significant relationship with SMCS. So we can conclude that the IP mediates the relationship between EP and SMCS. In contrast, EP has a significant causal relationship with the mediating variable SMCS. It is worth mentioning that this is a case of partial mediation as with the presence of the mediator IP, the path coefficient of the direct relationship among EP and SMCS reduces from the previous value obtained from the test conducted without the mediating variable.

6.4.2 Model Fit Indices

The absolute and incremental fit indices were used to evaluate the model, in order to provide a more dynamic perspective and to ensure parsimony (Byrne, 2013). Section 5.3.3 of the previous chapter discusses the interpretation behind these model-fit indices. Table 6.10 summarises the model-fit indices for the structural model for testing the mediating effects of SMCS and table 6.11 summarises the model-fit indices for the structural model for testing the mediating effects of IP.

Table 6.10 Model Fit Indices for the model testing the mediating effects of SMCS

χ2	GFI	AGFI	CFI	TLI	NFI	RMSEA
1.606	0.89	0.85	0.90	0.89	0.79	0.049

Table 6.11 Model Fit Indices for the model testing the mediating effects of IP

χ2	GFI	AGFI	CFI	TLI	NFI	RMSEA
1.911	0.91	0.89	0.88	0.87	0.87	0.060

The model-fit indices shown in Table 6.10 and 6.11 are considered to be a good fit, taking into consideration the complexity of the model. The four second-order factors of the mediating variable increase the level of complexity of the structural model.

6.4.3 Control Variables

In this study, the organisation's size and its annual turnover are used as a control variable in the model. These control variables were co-varied with each independent variable in the model to determine its impact on those variables. The results of the covariance were shown in table 6.12. As we can observe from that table, the covariance between external pressure and both control variables (i.e. the organisation's size and its annual turnover) were significant. However, the covariance between both the controls and the internal pressure is not significant. Thus, it can be concluded that the external pressures vary with the change in both the organisation's size and its annual turnover. However, changes in the values of control variables have no impact on internal pressure.

Table 6.12 Covariance of control variables and independent variables

Co-varied variables	S.E.	C.R.	p-value
IP <--> ORGSIZE	.046	2.453	0.014
EP <--> ORGSIZE	.035	4.284	***
EP <--> ANNUAL_TURNOV	.033	3.130	0.002
IP <--> ANNUAL_TURNOV	.044	0.802	0.423

Note: IP: Internal Pressure; EP: External Pressure; ORGSIZE: Organisation's size; ANNUAL_TURNOV: Annual turnover of the organisation; Result is significant where *p<0.05; **p<0.01; ***p<0.001.

6.4.4 Squared Multiple Correlations

Squared Multiple Correlations (R^2) indicates the percentage of the variance in the dependent variable explained by the independent variables collectively (Frost, 2013).The R^2 values calculated in SEM are equivalent to the R^2 values in conventional regression analysis. According to Mackenzie et al., (2011) the preferred value of R^2 should be greater than 0.5 to reflect the majority of shared variance explained by the indicators for each construct. However, the values of the R^2 sometimes depend on the discipline where the research was performed. For example, in social science studies where the researcher attempts to predict human behaviour in a real-world context, R^2 greater than 0.10 are acceptable (Falk and Miller, 1992). Table 6.13 shows the R^2 of the four endogenous variables before and after the inclusion of the control variables.

Table 6.13 Squared Multiple Correlations

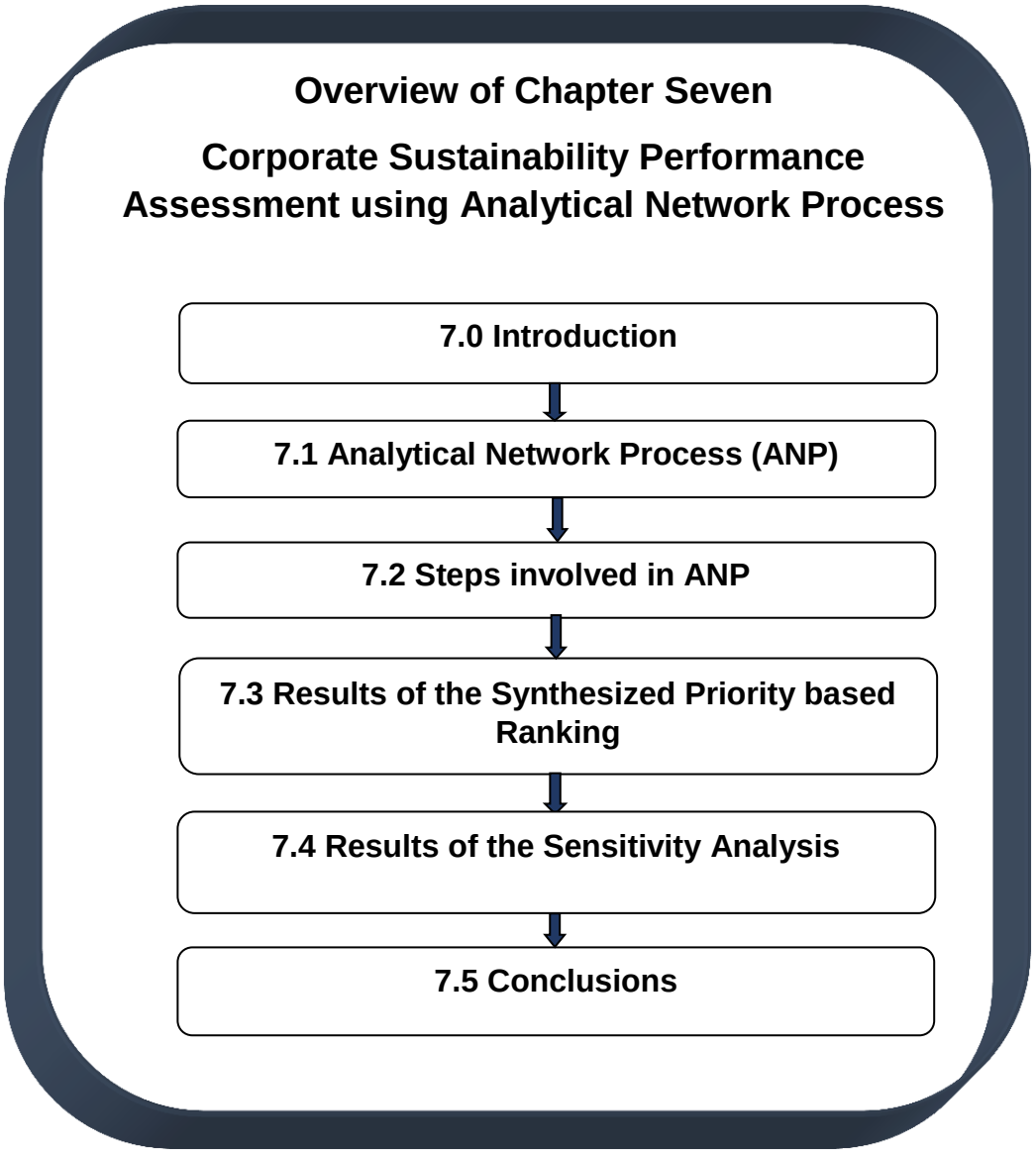
Endogenous Variable	Estimates	Estimates with controls	Δ in R^2
ECOP	0.415	0.502	0.087
ENVP	0.429	0.484	0.055
SCOP	0.515	0.565	0.050
SMCS	0.379	0.435	0.056

The results of Table 6.7 showed that the values of R^2 were calculated first from the developed structural models without control variables and then with control variables. The values of R^2 improved after the inclusion of the control variables. The values of R^2 of endogenous variables, ECOP and SCOP, were 0.502 and 0.565 respectively, which satisfies the value recommended by Mackenzie et al., (2011). On the other hand, the other two endogenous variables have R^2 values of 0.484 and 0.435 respectively which is slightly lower than 0.50. All R^2 values are greater than the recommended level of 0.10 and also increase after including the control variable (Falk and Miller, 1992; Shubham et al., 2018). However, these values of R^2 are widely accepted in social science research as suggested by various studies (Falk and Miller, 1992; Shubham et al., 2018; Onditi, 2013).

6.5 Conclusion

This chapter has reported the results of the SEM analysis. At first, the results of the proposed hypotheses were related to direct effects and then, the mediating effects were reported. All the hypotheses related to the direct effects were supported by the given data set. In the case of mediating effects, SMCS mediates only the relationship among the external pressure and all three dimensions of CSP. No mediation occurs in case of internal pressure. Furthermore, results also revealed that there exists an influence of external pressure on internal pressure in implementing SMCS within the organisation. The subsequent sections reported the model-fit indices, the impact of the control variables

and results of the squared multiple correlations. The next chapter will discuss the second phase of the data analysis and will report the results of a corporate-sustainability performance-benchmarking assessment using the Analytical Network Process (ANP).


Overview of Chapter Seven
Corporate Sustainability Performance Assessment using Analytical Network Process
7.0 Introduction
7.1 Analytical Network Process (ANP)
7.2 Steps involved in ANP
7.3 Results of the Synthesized Priority based Ranking
7.4 Results of the Sensitivity Analysis
7.5 Conclusions

Chapter 7: Corporate Sustainability Performance Assessment using Analytic Network Process (ANP)

7.0 Introduction

Chapter four performed the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to merge individual items into multi-item groups, in order to determine the underlying factor structure. Subsequently, in chapter five, the proposed hypotheses of the conceptual framework were tested, using Structural Equation Modelling (SEM). This chapter outlines a Multiple Criteria Decision Making (MCDM) model, developed using Analytic Network Process (ANP) in order to assess and rank the five best-practising RMG companies in Bangladesh based on their corporate sustainability performance. In this model, the latent variables of the structural model that were used as criteria and corresponding measurement items are considered as sub-criteria. Initially, the steps involved in the ANP process are discussed, and then the results of the ANP analysis are summarised to determine the relative ranking of the selected companies. Subsequently, the detailed results of the sensitivity analysis are discussed to determine the robustness of the proposed MCDM model.

7.1 Analytic Network Process (ANP)

Analytic Network Process (ANP) is a popular MCDM method introduced by Saaty (1996). It is considered to be an ideal strategic tool for resolving versatile decision-making problems (Saaty, 2004). ANP is principally an extension of Analytical Hierarchy Process (AHP), which eliminates its restrictions of explicitly maintaining the hierarchical structure of the independent criteria. In ANP, decision problems are structured in a network, rather than simply hierarchical form, as in AHP (Chemweno et al., 2015). The network links are used to connect the elements and the clusters of the decision problem. The dependencies among the elements in the same cluster are referred to as inner dependencies and dependencies between the different clusters and they represent outer dependencies of the network (Saaty, 2004). The structural differences between AHP and ANP are shown in figure 7.1(a) and 7.1(b), respectively. As shown in figures 7.1(a) and 7.4(b), both interactions and feedback within the criteria and between the clusters are allowed in ANP, thereby enabling this process to deal with more complex decision-making problems (Hashemi et al., 2015).

The main advantage of ANP compared to AHP is its ability to make more accurate and precise predictions with better priority calculations for decision problems with multiple

interdependent criteria (Büyüközkan and Sezin-Güleryüz, 2016). ANP provides a systematic process of analysis that determines the weight of both tangible and intangible criteria (Lin and Yang, 2016; Thakkar et al., 2005). ANP is widely applicable to real-life MCDM problems, and involves interdependencies among the criteria which cannot be appropriately represented by using only a strictly hierarchal structure.

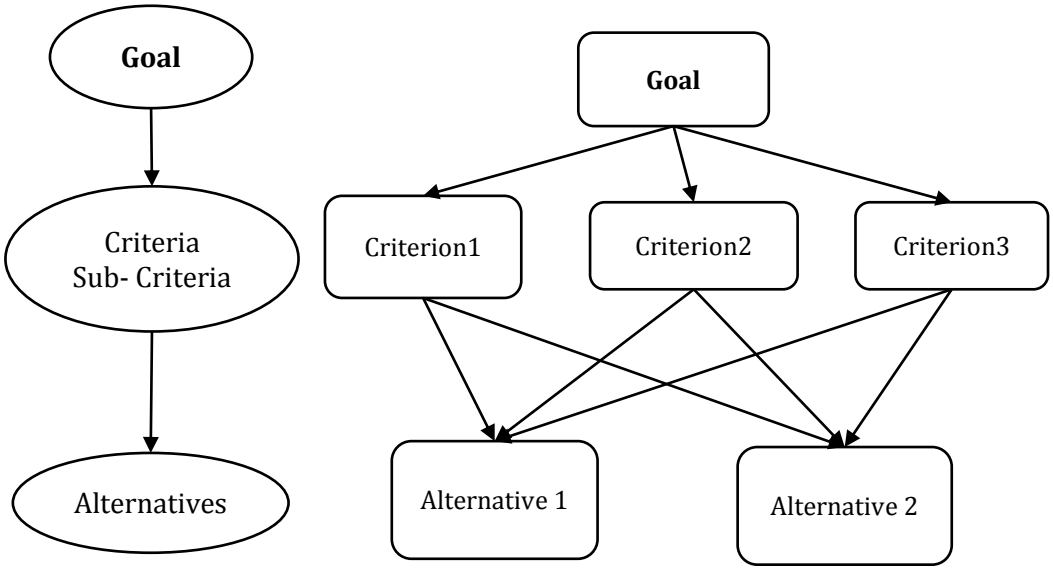


Figure 7.1a Analytical Hierarchy Process (AHP)

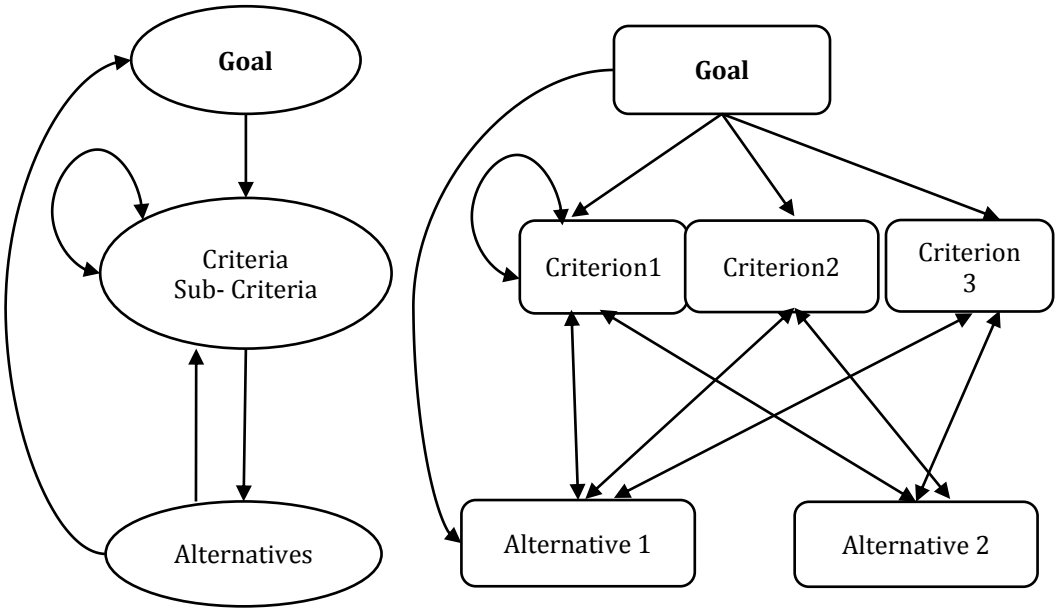


Figure 7.1b Analytical Network Process (ANP)

7.2 Steps involved in ANP

ANP represents a decision-making problem as a network of criteria, sub-criteria and alternatives which are grouped into clusters (Aragonés-Beltrán et al., 2017). There were several steps involved in the ANP which are shown in figure 7.2 and described in the following sections.

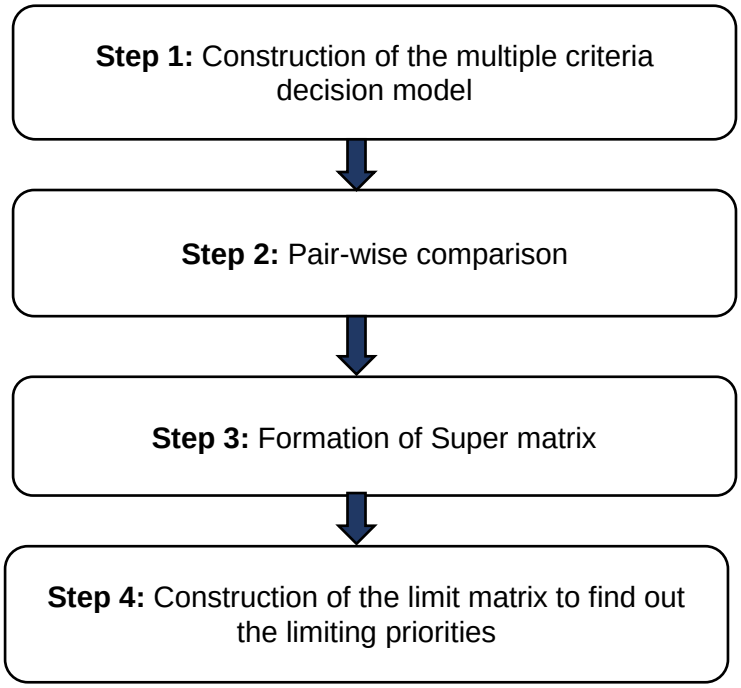


Figure 7.2 Steps of ANP

7.2.1 Step 1: Construction of the multiple-criteria decision model

The first step with ANP is to identify the network elements of the decision model (i.e. criteria, sub-criteria and alternatives) and group them according to some common features. Then, the network elements are interconnected based on their inner (elements within the cluster) and outer dependencies (elements between the clusters). In the previous chapter, the causal relationship between both the internal and external pressures and corporate sustainability performance (CSP) was empirically analysed using SEM. In chapter five, factor analysis was conducted to obtain factor loadings for economic, environmental and social performance. There were three-factor loadings for economic performance: increase in existing market share (ECOP1); increase in profit margin (ECOP2); and an increase in new market share in geographical areas (ECOP3). Reduction in consumption of water, waste and energy (ENVP1), reduction in consumption of hazardous materials (ENVP2) and implementation of ISO 14001 (ENVP3) were the principal factor loadings for environmental performance. The main factors in the social

dimension were the improvement in participation in occupational health and safety practices (SCOP2), improvement in participation in employee welfare programs (SCOP3) and improvement in participation in community development programs (SCOP4). In the proposed ANP model, the latent variables of the previous SEM analysis of sustainability performance dimensions (i.e. Economic Performance, Environmental Performance and Social Performance) were used as criteria, and their measurement factors were considered as sub-criteria. In this study, five best-practising large companies were selected as alternatives based on their commitment to sustainable business practices, as was evident from multiple criteria such as: publication of stand-alone sustainability reports according to the GRI guidelines; achievement of voluntary certifications (i.e. ISO 14001, SA 8000, OHASIS); reception of different global and local sustainability-related awards; existence of a dedicated sustainability team; and construction of green factories (i.e. LEEDs certification). In ANP analysis, the selected best-practising companies for CSP benchmarking are referred to as alternatives, and each company was given a label A, B, C, D or E to ensure anonymity and confidentiality as promised. The proposed ANP model for this study was illustrated in figure 7.3.

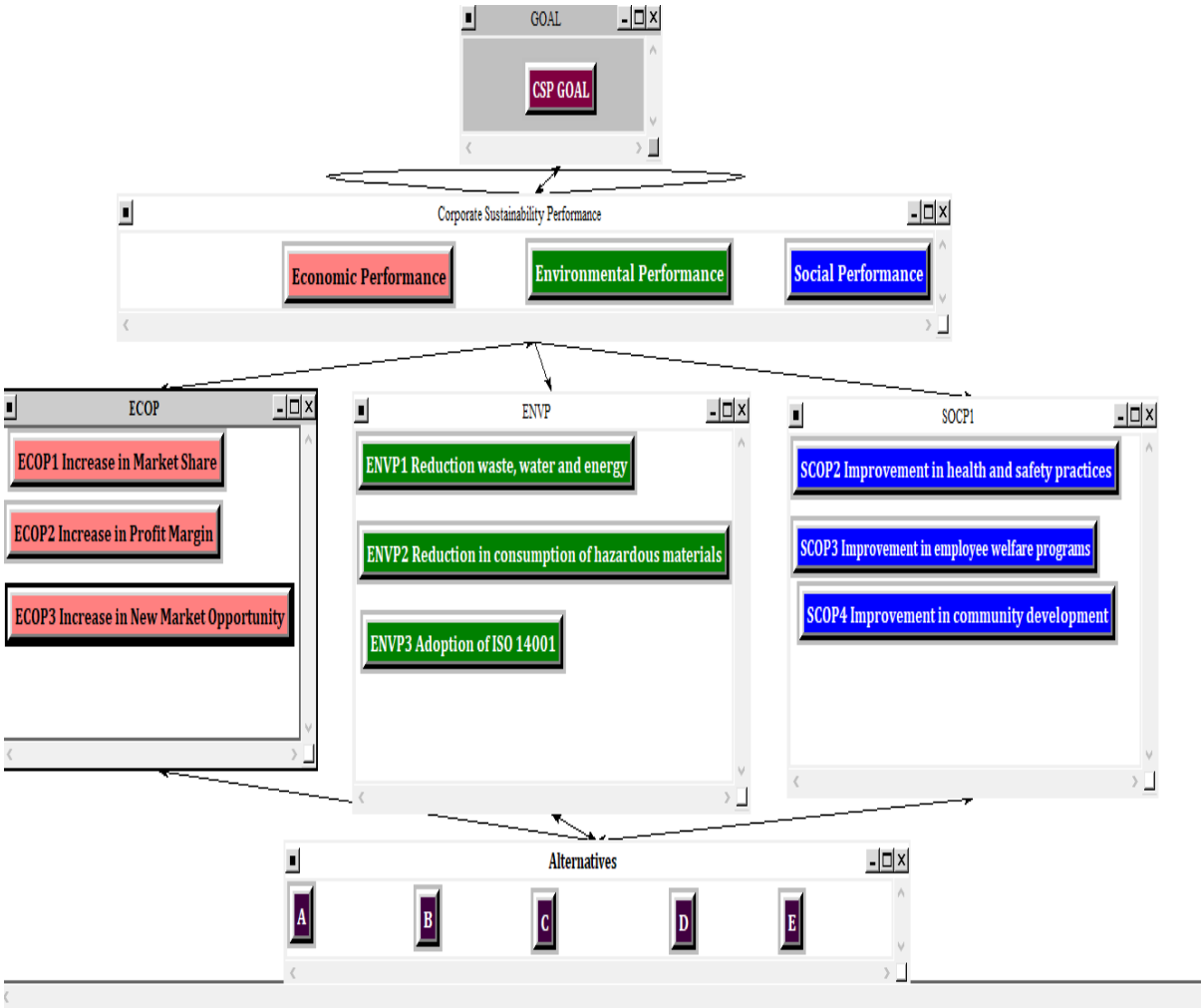


Figure 7.3 Integrated Model of ANP for CSP benchmarking

7.2.2 Step 2: Pair-wise comparison matrices

After the development of the model, the next step is to perform the pair-wise comparison. In this step, the pair-wise comparison questionnaire survey, document analysis (i.e. sustainability reports, UNGC reports, websites of the selected companies) and semi-structured interviews were conducted to collect the data for the pair-wise comparison. The corporate-sustainability performance part of the initial questionnaire developed for SEM analysis was converted into a pair-wise questionnaire including only those measurement items which were selected as sub-criteria. The pair-wise comparisons are conducted based on a scale of 1-9, as proposed by Saaty (1999), where a score of 1 represents equal importance between the compared elements, and a score of 9 indicates the extreme importance of one element compared to the other. The data collected were then entered into the 'SuperDecision' software for ANP analysis. First, the pair-wise comparisons among sub-criteria were conducted, and then the pair-wise comparisons of criteria were carried out. Next, interdependencies among the elements of a cluster are compared pair-wise.

These pair-wise comparisons matrices are checked for the consistency ratio, in order to check for any inconsistencies. For each paired comparison matrix, the consistency is checked using the Consistency Index (CI) and Consistency Ratio (CR), using the formula given below:

$$CI = \frac{1}{n-1}(\lambda_{\max} - n)$$

$$CR = \frac{CI}{RI}$$

The value of CR ≤ 0.10 indicates that the pair-wise comparison matrix is consistent (Hashemi et al., 2015). As suggested by Saaty and Kearns (1985), a value of CR less than 0.20 is also tolerable. Numerous pair-wise comparison metrics were obtained from the interdependence relationships among the criteria and sub-criteria. Those were then checked for any inconsistencies. Appendix 6 reports the results of the pair-wise comparison of the corporate sustainability performance dimensions (i.e. economic, environmental and social performance). The results revealed that the CR values of those performance criteria and their sub-criteria were within the tolerance level.

7.2.3 Step 3: Formation of Supermatrix

After construction of pair-wise matrices, the next step in the ANP analysis is to construct the supermatrix. There are two types of supermatrices – weighted and unweighted. Local priorities were used to obtain the global priorities of the interdependent clusters residing in each column of the unweighted supermatrix. As a result, a super-matrix is a partitioned matrix, where each section represents a relationship between two clusters (Hashemi et al., 2015). The unweighted supermatrix of this study is shown in Table 7.1. Each column of the unweighted supermatrix was normalised in order to obtain a stochastic weighted supermatrix, as shown in Table 7.2 (Hashemi et al., 2015).

7.2.4 Step 4: Construction of the limit matrix

When the super-matrix is guaranteed to be column-stochastic, the limit matrix is obtained by raising the super-weighted matrix to successive powers until convergence occurs (Saaty, 1996). Generally, the supermatrix is raised to limiting powers (2k+1) to become W^{2k+1}; where k is an arbitrarily large number, so as to obtain a steady-state result. Then, the relative weights of the elements can be found in the rows of the limit matrix (Hashemi et al., 2015). The final priority rankings of each alternative can be found in the limit matrix shown in Table 7.3.

7.3 Results of the Synthesized Priority-Based Ranking

Using the ANP analytical tool, the alternatives (i.e. selected companies) were ranked based on their synthesized priority. The final results of the synthesized priority for benchmarking the alternatives are shown in Table 7.4. The values of the second column were obtained from the limit matrix, and then all the values of the alternatives from the first column were added, with each value then divided by the summation, so as to obtain the normalised priority to be shown in the third column. The values of the fourth column were calculated by dividing the scores of the alternatives by the highest score. The overall ranking of the alternatives based on those calculations is reported in the final column.

Selected best-practising companies, C, E, B, A and D secured the first, second, third, fourth and fifth ranks respectively, based on their overall corporate sustainability performance. With a normalised priority ranking of 24.4%, the ANP analysis indicates that C has the highest corporate sustainability performance score among the five best-practising RMG companies selected for this analysis. E, B and A have obtained an almost similar normalised priority of 21.3%, 20.1% and 19.5% respectively. D is found to be the lowest-scoring company with a normalised priority ranking of 14.7%, which was relatively low in comparison to other companies compared.

It was evident from the priority ranking of the limit matrix that economic performance has the highest importance among the three dimensions of the CSP, with 40.7% of the normalised priority. The second important sustainability-performance dimension is the environmental performance, and third is a social performance, with normalised priority values of 36.3% and 23.0% respectively. Among the three economic performance criteria, an increase in profit margin has 64% normalised priority. The other two parameters showing an increase in existing market share and an increase in new market share obtained a relatively low score of normalised priority of 19.1% and 17% respectively, in comparison to economic performance. According to the results obtained from the ANP analysis, the best-practising companies gave high priority to the reduction of consumption of waste, water and energy, with a normalized priority of 41.5%. Next, the reduction of consumption of hazardous materials is occupying the second position, with a 35.6% priority. Adoption of ISO 14001, Environment Management System secured the lowest position with a normalised priority of only 22.9%.

In the social performance dimension, improvement in health and safety practices gained a high priority of 47.5%. Improvement of employee welfare was given the second-highest importance with a normalised priority of 38.1%. The lowest priority, with a normalised rate of 14.4%, was given to the improvement in community development programs.

Table 7.1 Unweighted Super Matrix

	A	B	C	D	E	Economic	Environ	Social	ECOP1	ECOP2	ECOP3	ENVP1	ENVP2	ENVP3	Goal	SCOP2	SCOP3	SCOP4
A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.249	0.907	0.211	0.184	0.423	0.100	0.000	0.159	0.186	0.080
B	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.097	0.384	0.093	0.049	0.499	0.000	0.099	0.255	0.193
C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.073	0.362	0.079	0.063	0.320	0.110	0.000	0.438	0.277	0.325
D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.263	0.042	0.227	0.124	0.143	0.227	0.000	0.122	0.096	0.186
E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.309	0.401	0.097	0.535	0.065	0.064	0.000	0.183	0.186	0.216
Economic	0.000	0.000	0.000	0.000	0.000	0.000	0.167	0.200	1.000	1.000	1.000	0.000	0.000	0.000	0.109	0.000	0.000	0.000
Environ	0.000	0.000	0.000	0.000	0.000	0.800	0.000	0.800	0.000	0.000	0.000	0.000	0.000	0.000	0.582	0.000	0.000	0.000
Social	0.000	0.000	0.000	0.000	0.000	0.200	0.833	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.309	0.000	0.000	0.000
ECOP1	0.225	0.131	0.229	0.559	0.070	0.062	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ECOP2	0.674	0.660	0.696	0.352	0.707	0.652	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ECOP3	0.100	0.208	0.075	0.089	0.223	0.285	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ENVP1	0.614	0.117	0.594	0.444	0.079	0.000	0.655	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ENVP2	0.268	0.683	0.249	0.472	0.263	0.000	0.249	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ENVP3	0.117	0.199	0.157	0.083	0.659	0.000	0.095	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Goal	0.000	0.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SCOP2	0.690	0.364	0.238	0.376	0.539	0.000	0.000	0.696	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SCOP3	0.217	0.537	0.625	0.474	0.163	0.000	0.000	0.299	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SCOP4	0.094	0.099	0.137	0.149	0.297	0.000	0.000	0.075	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 7.2 Weighted Super Matrix

	A	B	C	D	E	Economic	Environ	Social	ECOP1	ECOP2	ECOP3	ENVP1	ENVP2	ENVP3	Goal	SCOP2	SCOP3	SCOP4
A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.125	0.049	0.106	0.184	0.423	0.100	0.000	0.159	0.186	0.080
B	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.052	0.049	0.192	0.094	0.049	0.499	0.000	0.099	0.255	0.193
C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.037	0.181	0.040	0.063	0.320	0.110	0.000	0.438	0.277	0.325
D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.132	0.021	0.113	0.124	0.143	0.227	0.000	0.122	0.096	0.186
E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.154	0.200	0.048	0.535	0.065	0.064	0.000	0.183	0.186	0.216
Economic	0.000	0.000	0.000	0.000	0.000	0.000	0.056	0.067	0.500	0.500	0.500	0.000	0.000	0.000	0.109	0.000	0.000	0.000
Environ	0.000	0.000	0.000	0.000	0.000	0.267	0.000	0.267	0.000	0.000	0.000	0.000	0.000	0.000	0.582	0.000	0.000	0.000
Social	0.000	0.000	0.000	0.000	0.000	0.067	0.278	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.309	0.000	0.000	0.000
ECOP1	0.074	0.043	0.075	0.184	0.023	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ECOP2	0.222	0.218	0.229	0.116	0.233	0.218	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ECOP3	0.033	0.069	0.025	0.029	0.073	0.095	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ENVP1	0.244	0.046	0.236	0.176	0.031	0.000	0.218	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ENVP2	0.107	0.271	0.099	0.187	0.104	0.000	0.083	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ENVP3	0.047	0.079	0.062	0.033	0.262	0.000	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Goal	0.000	0.000	0.000	0.000	0.000	0.333	0.333	0.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SCOP2	0.189	0.099	0.065	0.103	0.148	0.000	0.000	0.232	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SCOP3	0.060	0.147	0.171	0.129	0.045	0.000	0.000	0.076	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SCOP4	0.025	0.027	0.037	0.041	0.081	0.000	0.000	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 7.3 Limit Matrix

	A	B	C	D	E	Economic	Environ	Social	ECOP1	ECOP2	ECOP3	ENVP1	ENVP2	ENVP3	Goal	SCOP1	SCOP2	SCOP3
A	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
B	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066
C	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
D	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048
E	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070
Economic	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Environ	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
Social	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047
ECOP1	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
ECOP2	0.087	0.087	0.087	0.087	0.087	0.087	0.087	0.087	0.087	0.087	0.087	0.087	0.087	0.087	0.087	0.087	0.087	0.087
ECOP3	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
ENVP1	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065
ENVP2	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055
ENVP3	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036
Goal	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068
SCOP2	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
SCOP3	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
SCOP4	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040

Table 7.4 Synthesized Priority and Rankings of Alternatives, criteria and sub-criteria

		1	2	3	4
		Priority obtained from the limit matrix	**Normalised Priority**	**Ideal Priority**	**Rank**
Alternatives					
A		0.064	0.195	0.801	**4**
B		0.066	0.201	0.825	**3**
C		0.080	0.244	1.000	**1**
D		0.048	0.147	0.601	**5**
E		0.070	0.213	0.873	**2**
Corporate Sustainability Performance Dimensions					
Economic Performance		0.083	0.407	1.000	**1**
Environmental Performance		0.074	0.363	0.892	**2**
Social Performance		0.047	0.230	0.565	**3**
Economic Performance					
ECOP2	Increase in existing market share	0.026	0.190	0.298	**2**
ECOP3	Increase in profit margin	0.087	0.640	1.000	**1**
ECOP4	Increase in new market share	0.023	0.170	0.265	**3**
Environmental Performance					
ENVP1	Reduction in the consumption of energy, waste and water	0.065	0.415	1.000	**1**
ENVP2	Reduction in the consumption of hazardous and toxic materials	0.055	0.356	0.858	**2**
ENVP3	Adoption of ISO 14001	0.036	0.229	0.552	**3**
Social Performance					
SCOP2	Improvement in occupational health and safety practices	0.050	0.475	1.000	**1**
SCOP3	Improvement in employee welfare programs	0.015	0.381	0.802	**2**
SCOP4	Improvement in community development programs	0.040	0.144	0.303	**3**

A comparison of selected companies, based on their performance in economic, environmental and social criteria, is shown in Figure 7.4. The results of this comparison study will be discussed in detail in the discussion chapter.

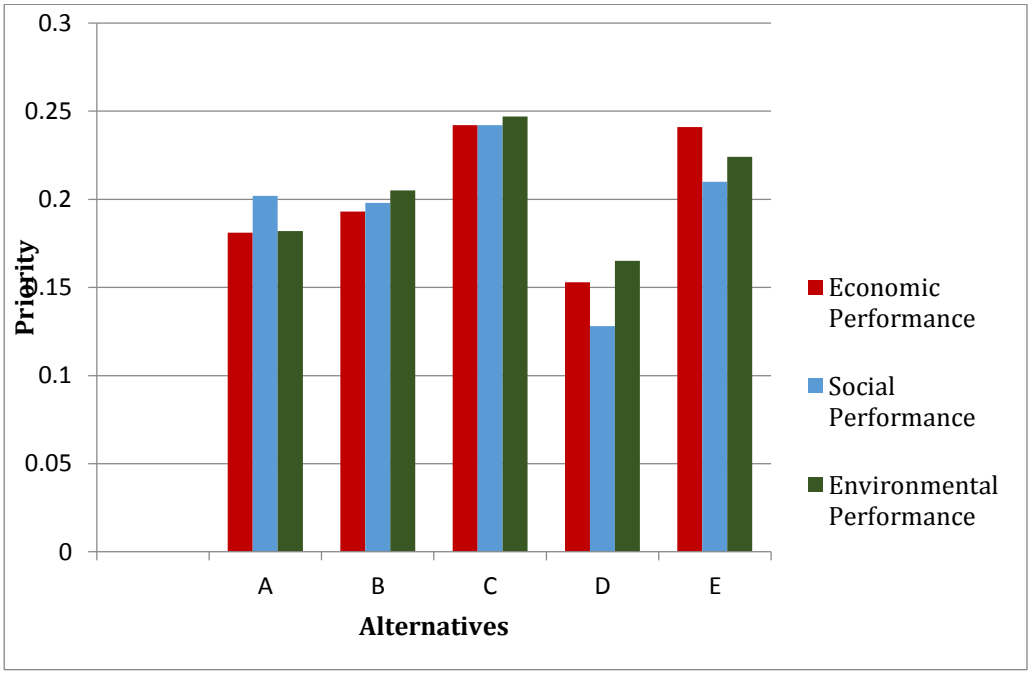


Figure 7.4 Comparison of alternatives based on their corporate sustainability performance

7.4 Results of the Sensitivity Analysis

In this study, sensitivity analysis has been used to evaluate the robustness of the ANP model with regard to variation in judgments (Saaty, 1996). The priority weightings were varied in order to determine potential changes in the ranking order of the alternatives (Nixon et al., 2013). At first, the single-factor sensitivity analysis was conducted for each independent variable to inspect the impact of each variable's priority change on alternative rankings (Tjader et al., 2014). Figure 7.5 (a-i) represents the results of the sensitivity analysis of each independent variable by varying its priority from 0.0001 to 0.999, with an increment of 0.10 and its impact on five alternative rankings. The red-dashed vertical lines in the graph represent the points when the priority of the alternative changes.

Sensitivity analysis makes the assessment dynamic and helps managers to anticipate the consequences of decisions on corporate sustainability performance. Given that the business

strategy may change over time, the proposed framework allows a continuous assessment and indicates the redefinition of priorities in CSP assessment (Farias et al., 2019).

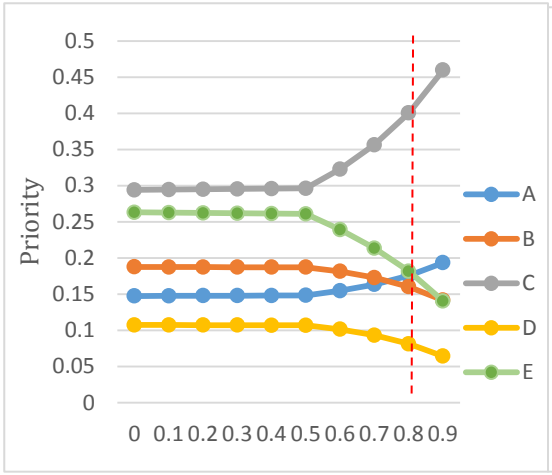
Figure 7.5 (a) shows the sensitivity analysis for the sub-criterion 'Increase in existing market share' (ECOP1). The results showed that, in the beginning, C has the highest priority, E has the second-highest priority and B, A and D were in third, fourth and fifth position respectively. At point 0.8, a priority change occurs, as the priority of both E and B decreases and A increases. The Figure 7.5 (b) shows the sensitivity analysis for the sub-criterion 'Increase in profit margin' (ECOP2), with the results showing that no significant changes in the priority ranking during the sensitivity analysis. The Figure 7.5 (c) shows the sensitivity analysis for the sub-criterion 'Increase in new market share' (ECOP3) and the results show that at around 0.7, the priority of B increases, whilst the priority of both A and C decreases. At around 0.8, B continues as a ranked one company, and D and B obtained almost the same priority by ranking second.

The Figure 7.5 (d) shows the sensitivity analysis for the sub-criterion 'Reduction in consumption of waste, water and energy' (ENVP1), with the results showing that, at the beginning, E has the highest priority, C has the second-highest priority and B, A and D were in third, fourth and fifth position respectively. At point 0.2, a priority change occurs, as the priority of E decreases and C increases. The priority of E continued to decrease, and at point 0.7 B became the second-highest priority. The Figure 7.5 (e) shows the sensitivity analysis for the sub-criterion 'Reduction in consumption of hazardous materials' (ENVP2), with the results showing that, at the beginning, C has the highest priority, E has the second-highest priority and B, A and D were in third, fourth and fifth position respectively. At the point 0.6, there was a change in priority as the priority of E started to increase and became the number one priority crossing C. Some priority changes also occurred in 0.9, where E was still the highest priority, but A becomes the second, crossing the priority of C. Throughout the process D had the lowest priority, albeit it slightly increases at point 0.9. Figure 7.5 (f) shows the sensitivity analysis for the sub-criterion 'Adoption of ISO 14001' (ENVP3), with the results showing that its priority remained unchanged up to 0.7. At that point the priority of B decreases and A becomes the third-ranked company.

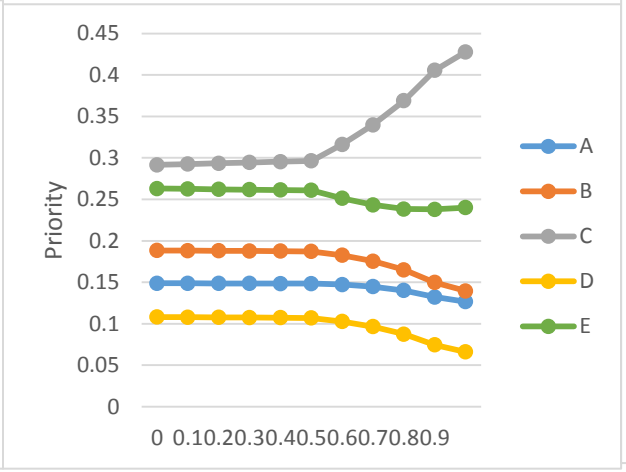
Figure 7.5 (g) shows the sensitivity analysis for the sub-criterion 'Improvement in Health and Safety practices' (SCOP2). Here the results show that, in the beginning, C has the highest priority, E has the second-highest priority and B, A and D were in the third, fourth and fifth position respectively. At point0.6, a priority change occurs as the priority of D increases, and

it became the fourth highest priority. Figure 7.5 (h) shows the sensitivity analysis for the sub-criterion 'Improvement in employee welfare programs' (SCOP2) with the results showing that, in the beginning, C has the highest priority, E has the second-highest priority and B, A and D were in third, fourth and fifth position respectively. At point 0.7, a priority change occurs as the priority of B decreases, and it becomes the fourth highest priority. The Figure 7.5 (i) shows the sensitivity analysis for the sub-criterion 'Improvement in employee welfare programs' (SCOP2) with the results showing that, in the beginning, C has the highest priority, E has the second-highest priority and B, A and D were third, fourth and fifth respectively. Then at point 0.8 the priority of B increases and it becomes the second-ranking company crossing A.

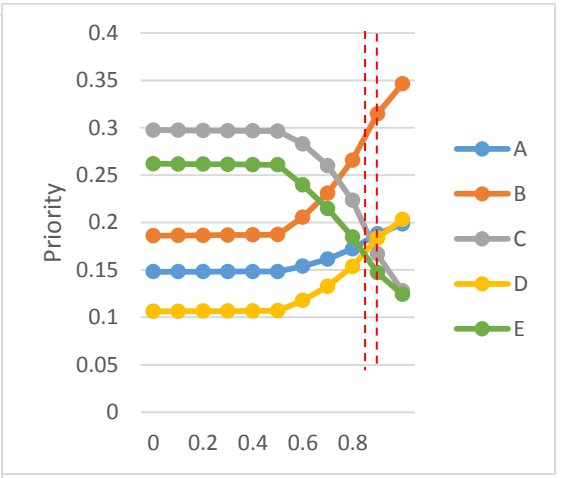
The results of the dynamic sensitivity analysis for all sub-criteria shown in Figure 7.5 reveal that the priority of the alternatives is hardly influenced by variation in sub-criteria weightings. Figure 7.5 (j) presents the results of the overall sensitivity analysis, which show that the rankings of the alternatives remained, unchanged after varying the sub-criteria. This confirms the robustness of the developed models and allows for the generalization of obtained results.



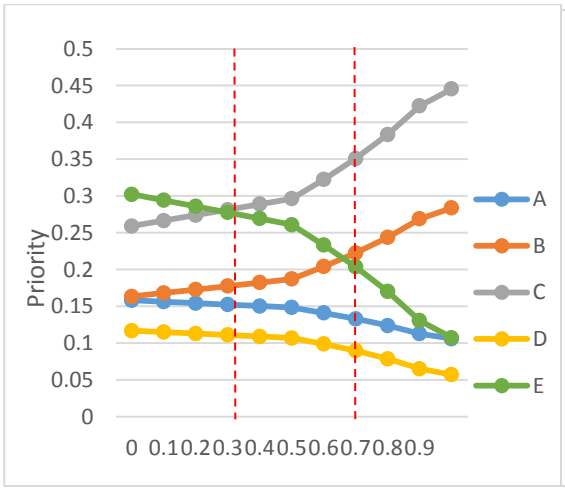
(a) Sensitivity analysis for an increase in existing market share (ECOP1)



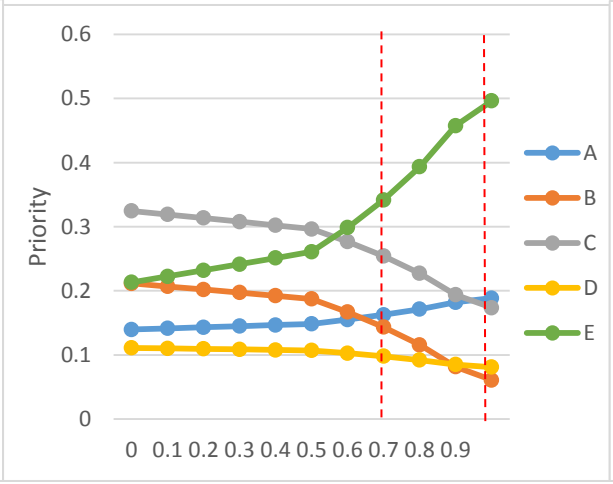
(b) Sensitivity analysis for an increase in profit margin (ECOP2)



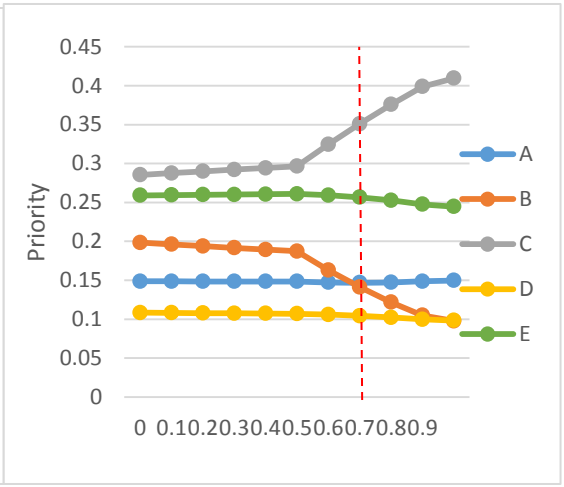
(c) Sensitivity analysis for an increase in new market share (ECOP3)



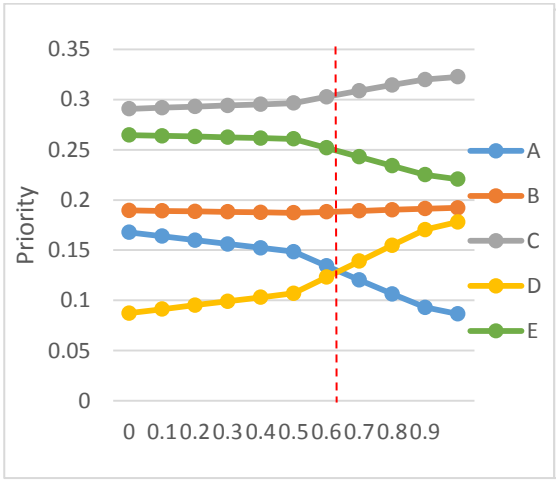
(d) Sensitivity analysis for a reduction in waste, water and energy (ENVP1)



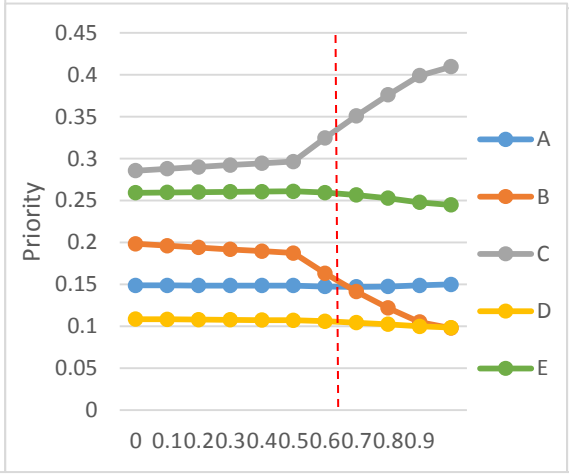
(e) Sensitivity analysis for reduction in hazardous materials(ENVP2)



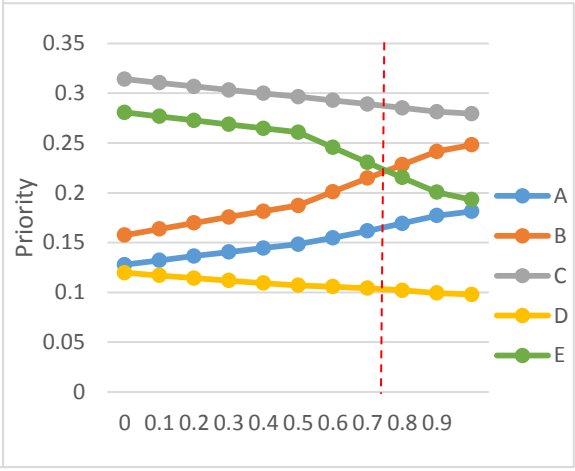
(f) Sensitivity analysis for the adoption of ISO 14001 (ENVP3)



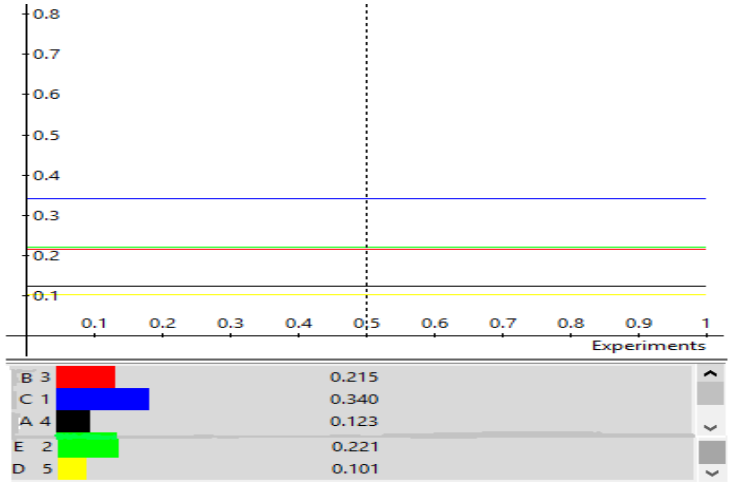
(g) Sensitivity analysis for improvement in health and safety (SCOP2)



(h) Sensitivity analysis for improvement in employee welfare (SCOP3)



(i) Sensitivity analysis for improvement in community development (SCOP4)

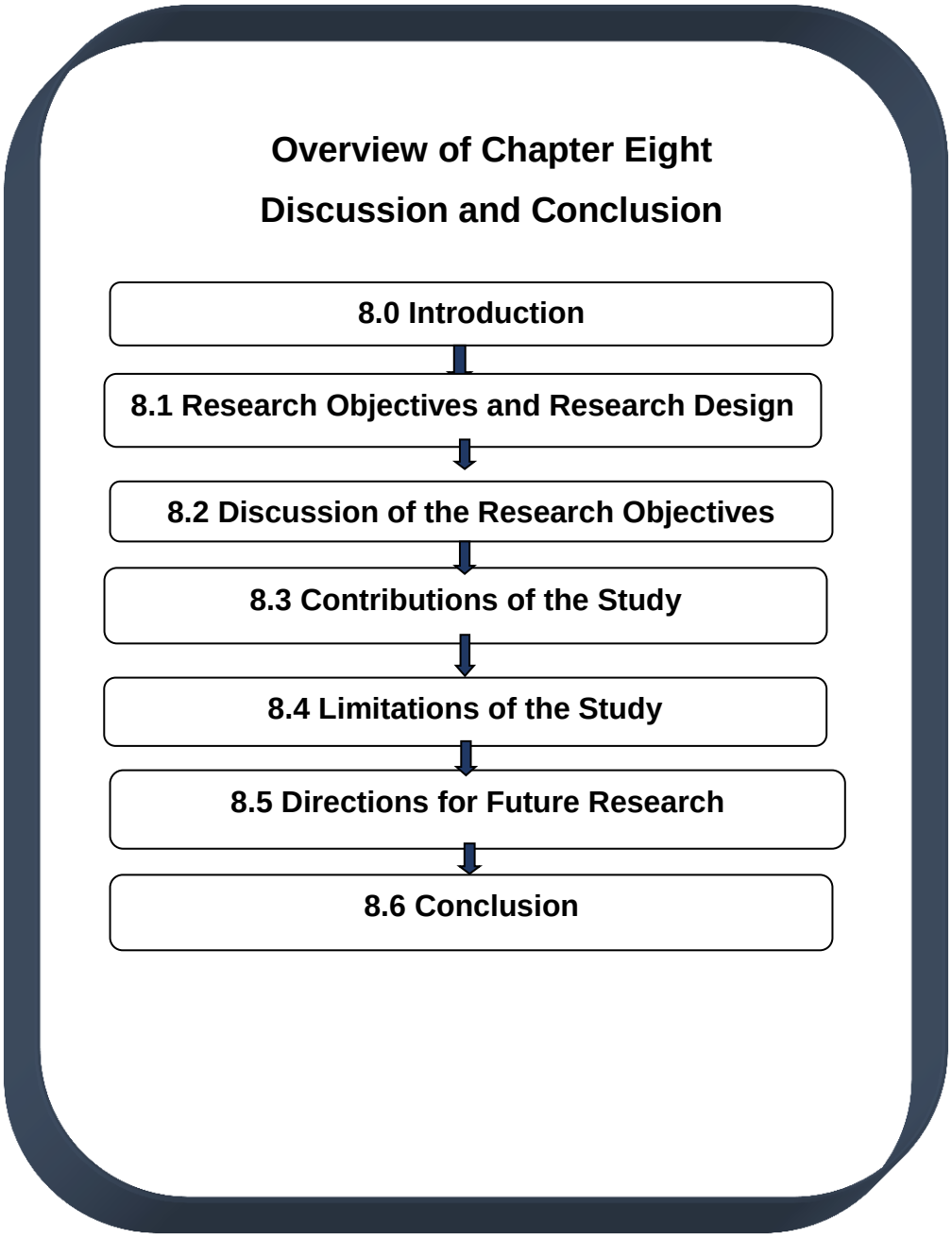


(j) Sensitivity Analysis of the overall model

Figure 7.6 Sensitivity Analysis

7.5 Conclusion

This chapter has developed a Multiple Criteria Decision Making (MCDM) model using Analytical Network Process (ANP) which has been used to assess and rank the five best-practising RMG companies in Bangladesh, based on their corporate sustainability performance. The results show the ranking of the companies as well as the importance of the performance criteria and sub-criteria in all three dimensions: economic, environmental and social. Finally, sensitivity testing was conducted to test the strength of the developed model. The next chapter will present an overall discussion and conclusion of the findings drawn from this thesis.


Overview of Chapter Eight
Discussion and Conclusion
8.0 Introduction
8.1 Research Objectives and Research Design
8.2 Discussion of the Research Objectives
8.3 Contributions of the Study
8.4 Limitations of the Study
8.5 Directions for Future Research
8.6 Conclusion

Chapter 8: Discussion and Conclusion

8.0 Introduction

This chapter provides a comprehensive discussion of the findings reported in chapters five to seven, based on literature, theory and the research context. At first, the main research objectives and overall research design of this study are recalled, and following this, discussion relating to each research objective is provided in detail. The discussion then moves on to address the knowledge contributions of this thesis. This contribution section highlights both theoretical contributions and practical implications. The limitations of the study and future directions for research are given in the subsequent two sections. Finally, in the concluding section, a summary of the overall research work is provided.

8.1 Research Objectives and Research Design

The main research objectives of this study are outlined below:

1. To identify the major internal and external pressures behind the improvement in corporate sustainability performance, and to assess the relationship among those pressures and performance.
2. To investigate the mediating role of a 'Sustainability Management Control System' (SMCS) between organisational pressure (i.e. internal and external) and corporate sustainability performance.
3. To benchmark the best-practising companies based on their corporate sustainability performance through a multiple-criteria decision-making model.

A conceptual framework was developed in Chapter three based on an extensive literature review. Next, the constructs of the conceptual framework were operationalised, and a draft questionnaire was developed. After successful pilot testing of the draft questionnaire, a large-scale questionnaire survey was conducted among the RMG companies of Bangladesh. Around 255 responses were received, and then Exploratory Factor Analysis (EFA) was conducted to determine the underlying factor structure. Six out of thirty-two items were deleted, and finally, twenty-six items were loaded into nine factors. In those nine factors, four were treated as a second-order factor for the sustainability management control system construct. So eventually there are six first-order factors.

The results of the factor loadings showed that only three internal pressures (pressure from top-level management, pressure to improve employee well-being and pressure to reduce

cost) and four external pressures (pressure from international retailers, pressure from the regulators, pressures to gain competitive advantages and pressure to comply with the certifications) achieved significant factor loadings. On the other hand, three economic performance factors (e.g. increase in existing market share, increase in profit margin and increase in new market share), three environmental performance factors (e.g. reduction in the consumption of waste, water and energy, reduction in the consumption of hazardous materials, adoption of ISO 14001) and three social performance factors (improvement in employee welfare programs, improvement in health and safety practices, improvement in community development programs) obtained significant factor loadings.

After obtaining the clean-factor loadings from EFA, confirmatory factor analysis (CFA) was conducted to acquire more robust measurements of the underlying latent constructs. CFA is used to assess the overall degree of model fitness by inspecting how well the convergent and discriminant validity is achieved. Then the Structural Equation Modelling (SEM) was performed to test the structural model by examining the significance of the direct and indirect effects of the hypothesised relationships of the conceptual framework. The factor analysis and hypothesis testing were conducted using SPSS and AMOS software packages.

Afterwards, a Multiple Criteria Decision Making (MCDM) model was developed using Analytical Network Process (ANP) in order to assess and rank the five best-practising RMG companies in Bangladesh based on their corporate sustainability performance. In this model, the latent variables of the structural model used for CSP dimensions (i.e. economic, environmental and social) were used as criteria, and corresponding measurement items were considered as sub-criteria. In this phase of the study the pair-wise questionnaire survey, document analysis and semi-structured interviews were used for the data collection process. The data were analysed using 'SuperDecision' software.

8.2 Discussion of the Research Findings

The following sub-sections discuss the major findings drawn from the thesis to answer the intended research objectives outlined in section 8.2.

8.2.1 Research Objective One: To identify the major internal and external pressures behind the improvement in corporate sustainability performance, and to assess the relationship among those pressures and performance

Integration of sustainability practices in businesses has gained extensive attention in recent times owing to the escalating pressures from different stakeholder groups (Seuring and Muller 2008; Diabat et al., 2014). Companies in the RMG sector are facing tremendous pressure to reduce the negative consequences of their business practices. Against the recent backdrop of widespread consumer protests and labour rights campaigns, the adoption of more sustainable environmental and social practices by the RMG industry are being demanded (Kabir, 2017). The Bangladeshi RMG industry has often been criticised for its unsustainable business practices (World Bank Report, 2013).

To overcome this criticism, Bangladeshi RMG companies have started to adopt sustainable business practices in their operations, for various reasons. These include pressures to comply with the requirements of the IRs' mandatory codes of conduct, which drive them to adopt SBPs. Organisations are being forced by environmental and social regulations imposed by both local and global regulators to become more sustainable . Firms are also being forced to incorporate SBPs to comply with the requirements of the voluntary certifications. Over the last few years, these companies have become increasingly aware of the competitive advantages associated with the adoption of SBPs in terms of various tangible and intangible returns. Examples of tangible benefits include cleaner production, cost reduction, improved operational efficiency, improved health and safety practices, and increased market opportunities. On the other hand, examples of intangible benefits include improved company image and good working relationships with the IRs and regulatory bodies. The first research objective of this study aims to provide new and significant insight into this phenomenon by identifying the major internal and external pressures which the Bangladesh RMG companies were facing to improve their corporate sustainability performance and explore the relationship among those pressures and performances. Figure 8.1 shows the structural model illustrating the direct effects of both internal and external pressures on CSP in all three dimensions.

The findings of the factor analysis, based on their factor score, revealed important internal pressures. The sequence of measurement items based on their factor score and loaded in the internal pressure factor is: pressure to reduce cost; pressure to improve employee well-being; and pressure from the top management. Miras-Rodríguez et al. (2018) claimed findings similar to this study by arguing that cost savings were the primary internal driver

behind the adoption of environmental practices. It is also evident from the existing literature that companies can reduce their environmental impact by planning their environmentally-friendly business processes in a way that will lower the costs of inputs, energy consumption and waste disposal, thus indirectly helping their economic bottom-line (Lampe et al., 1991; Porter and Van der Linde, 1995; Pullman et al. 2009). Moreover, the socially responsible image of RMG companies changes the customers' perception of them and increases customers' willingness to buy specific brands, thereby helping profit maximisation (Ganesan et al. 2009; Luo and Bhattacharya, 2006). As a low price portfolio is the main attraction of the IRs when extending their supply chain to Bangladesh, IRs have been exerting continuous pressure on the RMG industry to maintain the low cost of the per-unit garment. In recent times, owing to the increase in energy, raw materials, utilities and transportation costs, as well as a huge rise in the labour wages, it became challenging for RMG companies to maintain that low cost. IRs are also threatening to transfer their businesses to other countries if Bangladeshi RMG companies failed to ensure a low price portfolio. In this scenario, those companies were trying to incorporate innovative SBPs as a way of cost reduction, which in turn will help them in their CSP enhancement.

Furthermore, findings from several studies (Zhu and Sarkis, 2006, Dai et al., 2015; Govindan et al., 2015) were in line with the results of this study. They argued that ensuring employee well-being was an important internal factor in improving sustainability performance (Eiadat et al. 2008; Yu and Choi 2016). Recently, owing to some catastrophic factory-related tragedies, serious concerns were raised about unsustainable management practices in many organisations in Bangladesh. These types of catastrophic incidents project a very negative image to the partner companies and can cause severe damage to their brand image. In conjunction with these unfortunate incidents, on-going employee protests for ensuring a fair wage, a safe working environment (i.e. building and fire safety, assurance of employee welfare, controlled usage of hazardous material) and labour rights campaigns were also pressurising companies to implement different environmental and social practices. To overcome these problems, ensuring employee well-being is now considered to be an important concern by those RMG companies wishing to survive in the international market. To ensure employee well-being Bangladeshi RMG companies have started to adopt SBPs by improving health and safety practices, ensuring a fair wage, providing job security, a pension plan, medical facilities and insurances, paid maternity leave and child-care facilities. These facilities not only improve employee satisfaction, retention and productivity but also improve overall sustainability performance, particularly in the social dimension.

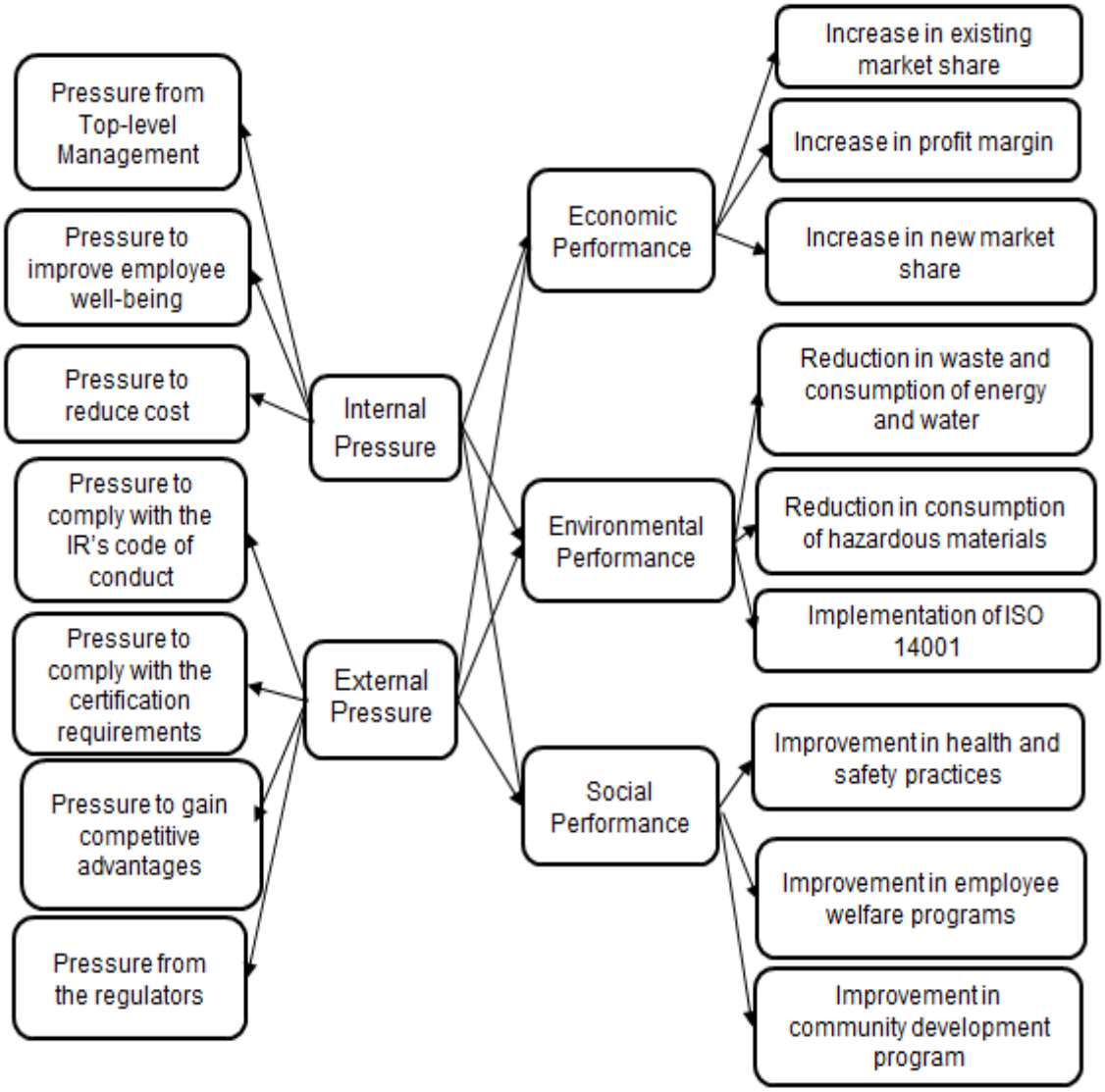


Figure 8.1 Direct Effects of organisational pressure on CSP

Several empirical studies have investigated the role of top-level management in providing motivations to improve CSP (Miras-Rodriguez et al. 2018; Zhu and Zhang, 2015; Wijethilake et al. 2017; Giunipero et al. 2012; Renukappa et al. 2013; Abdalla and Siti-Nabiha, 2015; Hamann et al., 2017). A top management team serves as an organisation's primary interface with stakeholders and rivals, and thus its commitment and support inspire a greater understanding of environmental and social activities (Hambrick and Mason, 1984). It would be difficult to initiate and implement those sustainable actions successfully without support from top management (Schneider and Wallenburg, 2012). Top management's main motivations for adoption of SBPs are: cost reduction and profit maximisation. Bhardwaj (2016) also claimed that top management's support is a critical success factor when

executing sustainable strategies in Indian organisations. Hamann et al. (2017) also confirmed empirically that top managers' environmental responsibility is a vital driver for environmental performance improvement in the wine industry of South Africa. All of these studies are in line with the results of this study, which concludes that top management exerts a positive influence on improving the firm's CSP. In the Bangladeshi RMG industry's context, top management is considered a compelling authority in any organisational decision-making process. Thus, top-level management exercises strong intervention in the planning and implementing of SBPs, in order to improve CSP.

In this study, internal pressures, such as pressure originating from the firm's moral and ethical commitment were not found to be statistically significant in the EFA analysis. As a result, it was deleted from further analysis. Several studies contradict this finding by arguing that managerial moral values and norms were also important internal factors when seeking to motivate organisations towards proactive sustainable behaviour (Eiadat et al. 2008; Babiak and Trendafilova, 2011; Emamisaleh and Rahmani 2017). However, the concept of sustainability is still an emerging phenomenon and in the Bangladeshi RMG sector it is still in an initial evolutionary phase. In this early phase, a firm's moral and ethical commitment towards sustainability was weak, as firms undertook SBPs mainly for reasons of cost reduction, improvement in employee well-being and top management's insistence on improving their CSP. Firms' greater emphasis on adopting SBPs is based on their economic imperative, rather than any sense of moral commitment.

In addition to the internal pressures, there are several external pressures that have a positive impact on CSP (Haigh and Jones 2006; Walker et al. 2008; Wu et al. 2012; Cai and Zhou 2014; Zhu 2016; Yu et al. 2017; Awan et al. 2017). The findings of the EFA outline a sequence of important items based on their factor score loaded in the external pressure factors. These are: pressure to comply with the IRs' mandatory code of conducts; pressure to comply with the requirements of the certifications; pressures from the regulators; and pressure to gain competitive advantages.

In the global RMG industry, the international brands' search for lower production costs has led to a dramatic relocation of production sites in the developing countries (Bonacich et al., 1994). Sometimes it is difficult for the IRs to monitor the environmental and social impact of their affiliated suppliers, who reside at the other end of their supply chain. If there is any violation of environmental or social standards, then the brands will be held directly responsible for those adverse effects. For this reason, recently, a powerful campaign has been launched by the IRs to improve the sustainability performance of their affiliated supply-chain partners in the developing countries. Given their interdependent relationship suppliers

need to respond to the expectations from the IRs. If suppliers (i.e. Bangladeshi RMG companies) fail to comply with the IRs' sustainability-related code of conduct, then their companies' survival will be jeopardised. Turker and Altuntas (2014) studied the current sustainability condition of the textile companies and found that IRs are now placing great emphasis on supplier compliance-related issues, which include mandatory codes of conduct, and tightly controlled audit systems for monitoring health and safety by a third party. In another case study on H&M, Shen (2014) confirmed that IRs in the fast-fashion industry is giving more importance to sustainability-related issues, as reflected in their mission statements, vision, codes of conduct and their supplier selection process.

Some renowned IRs like 'Puma' has started to publish annual sustainability reports which also include their associated suppliers' sustainability performance. Suppliers from developing countries have been forced to disclose their environmental and social performance information periodically to those brands. Moreover, in recent times, IRs have started to include sustainability-related assessment methods in their supplier selection process. In this case, suppliers are selected based not only on their product quality and delivery but also on their commitment to sustainability-related business practices. Thus IRs are pressurising RMG companies in developing counties in various ways to improve their CSP. Several studies agreed with the findings by showing that pressures from IRs positively influence the enhancement of CSP (Zhu et al., 2004; Eiadat et al., 2008; Zhu, 2016; Awan et al., 2017; Wijethilake et al., 2017; Emamisaleh and Rahmani, 2017). The results of this study also confirm these findings, as pressure from IRs has the highest factor score in the factor loading for external pressure.

According to the results of this study, the second most significant external pressure was to comply with the sustainability-related certifications. In recent times, IRs have been pressurising their suppliers to comply with some specific environmental and social certifications (Delmas and Montiel, 2007). IRs want to ensure that their products sufficiently meet appropriate environmental and social quality standards (Handfield et al., 2002). The recent movement towards greater environmental awareness and the escalating emphasis on sustainability issues are also the results of consideration of third-party certifications like ISO 14001, SA 8000, OHASIS (Giunipero et al., 2012; Handfield et al., 2002). To comply with the requirement of these certifications, firms have to go through an extensive auditing and monitoring process, which forces them to adopt some explicit SBPs. Some proactive best-practising companies were also complying voluntarily with these certifications as part of their business strategy to further strengthen their long-term competitive advantages. Companies comply with these certifications in order to improve their environmental and social practices, as well as to use these certifications as a label of their sustainable firm image in the

international market. In Bangladesh, ninety RMG factories have so far achieved LEED certification for setting up green factories (USGBC, 2019) and a good number of RMG companies have adopted, or are planning to adopt, ISO 14001. Among those LEED-certified companies, twenty-four are platinum-rated, and six are amongst the top ten in the world (The Daily Star, 2019b).

The results show that pressure from the regulators was one of the main critical external pressures. The regulatory burden is probably one of the main forces driving firms towards sustainable development, especially if the target markets include the member states of the European Union (de Brito et al., 2008; Chan et al. 2016). Violations of this regulation may result in export barriers being imposed by the EU and the US for not complying with the desired environmental and social standards (Yu and Choi, 2016). As eighty-eight per cent of the garments produced by Bangladeshi RMG companies is exported to the EU and the US, those production companies have to conduct their business in a sustainable way to avoid export bans (BGMEA, 2019). Bangladesh RMG industry is enjoying GSP (Generalized System of Preferences) facilities in the EU market which allows duty-free market access to those countries which help them to maintain their cost competitiveness (Dhaka Tribune, 2018). The US market does not provide any special trade privileges like GSP, and has instead cancelled the Trans-Pacific Partnership (TPP) agreement; hence, Bangladesh lost their quota-free access to the US market.

After the 'Rana Plaza' incident in 2013, two platforms called 'Accord' and 'Alliance' started collaboration programs with the global brands, retailers, IndustriALL Global Union, UNI Global Union and eight of their Bangladeshi affiliated trade unions, in order to design a reasonable health and safety measures for RMG factories. On these two platforms, factory inspections for fire, building and workers' safety were conducted by third-party auditors and their inspection reports were then immediately disclosed publically, with the inspected companies being required to implement the remediation plans within nine months of the inspections. Bangladesh also has their specific regulations (i.e. Factories Act 1965, Amended Bangladesh Labour Act 2013, and Environmental Protection Act 1995) for monitoring environmental and social business practices. Designated ministries, directorates and special courts of government are responsible for monitoring the social and environmental behaviour of Bangladeshi RMG companies. The Bangladeshi Government's Department of Environment (DoE) has been instigating various activities for monitoring and managing air pollution (Bangladesh Economic Review, 2018). These include the Installation of 'Effluent Treatment Plant (ETP)', sound barrier mechanisms, 'Air Treatment Plant (ATP)', dust collection and internal monitoring systems. All are mandatory requirements by the

Bangladeshi government to monitor and control the pollution caused by the RMG industry (Bangladesh Economic Review, 2018).

Regulatory agencies, both global and at the local level, are introducing stringent environmental and social policies to ensure appropriate practices in the industry's organisations (Bai and Imura, 2001; MacBean, 2007). The findings from this study concur with those of Zailani et al. (2012), Cai and Zhou (2014) and Adebanjo et al. (2016), who also found that external pressure from regulations has a significant relationship with environmental performance. Awan (2016) also emphasises that regulatory governance should be one of the most important external pressures when seeking greater effectiveness of sustainability initiatives. In addition, Aboelmaged (2018) argued that regulations not only pressurise firms but also provide shape for their sustainable behaviours and actions by outlining proper guidelines on sustainability policies.

According to the finding of this study, there is external pressure to gain competitive advantages. According to de Brito et al. (2008), organisations initially became involved in SBPs because of the pressures from legislation and regulations; however, they subsequently realised that sustainability could provide a competitive advantage that would enhance their market value. These pressures motivate firms to mimic the innovative sustainability practices of best-practising companies with their own management policies and strategies (Sarkis et al., 2010). In the same vein as the findings of this study, Hicks and Dietmar (2007) confirm that external competitive pressures to improve environmental practices and product quality are contributing to the growing demand for improving environmental performance.

There is substantial evidence in the literature of a positive impact of organisational pressures on CSP (Wolf, 2014; Ye et al., 2015; Huang et al., 2016; Yu et al., 2017; Dubey et al., 2017). Most of the existing literature was investigating the impact of external pressure on CSP (Haigh and Jones, 2006; Walker et al., 2008; Wu et al., 2012; Cai and Zhou, 2014; Zhu, 2016; Yu et al., 2017; Awan et al., 2017) and only a very few studies explored the impact of internal pressure on CSP (Cai and Zhou 2014; Abdalla and Siti-Nabiha, 2015). Cai and Zhou (2014) argued that conceptual frameworks that include both internal and external drivers could explain corporate sustainability performance more accurately than an exploration of external or internal pressure separately. In this study, both internal and external pressures were included in the framework, which shows a significant direct and positive relationship with all three CSP dimensions (i.e. economic, environmental and social). The results of the hypothesis testing of the direct effects show that internal pressure has a stronger influence on both economic and environmental performance in comparison with external pressure. In

contrast, external pressure has more impact than internal pressure does on social performance. Companies have started to implement resource efficiency practices (i.e. waste minimisation, recycling, emission control, reduction in consumption of raw materials, installation of Effluent Treatment Plant (ETP)) to deal with the pressure to reduce cost, which will help them to maximise profits as well as enhance environmental performance indicators. Then again, by adopting social practices (i.e. health and safety, employee welfare, community development), companies can gain an image as a socially responsible firm, which will help them to seize future market opportunities, maintain good relations with the IRs and fulfil the expectations of the various stakeholders' groups (i.e. regulators, media, labour rights organisations, human right organisations).

The literature shows similar results for the impact of internal pressures on CSP, in both developed (Walker et al., 2008; Babiak and Trendafilova, 2011; Giunipero et al., 2012; Renukappa et al., 2013 ; Miras-Rodríguez et al., 2018) and developing countries (Eiadat et al., 2008; Sarkis et al., 2010; Zhu and Zhang, 2015; Yu and Choi, 2016; Wijethilake et al., 2017) . However it shows differing conclusions when discussing external pressures (Marshall et al., 2005; Castka and Prajogo, 2013; Cai and Zhou, 2014; Dai et al., 2015; Dubey et al., 2017). It is evident from the literature that the common external pressures on the organisations from the developing countries (i.e. China, India, Pakistan, Sri-Lanka, Bangladesh) were generally originating from their international retailers (Zhu et al. 2004; Zhu 2016; Awan et al., 2017), as a result of local and global regulations (Zhu and Sarkis, 2006; Dubey et al., 2017), with the aim of gaining competitive advantages (Cai and Zhou 2014; Zhu and Zhang 2015). In the case of developed countries (i.e. UK, USA, Australia, New Zealand), the principal external pressures were coming from customer demands (Dai et al 2015; Miras-Rodríguez et al., 2018), regulators (Babiak and Trendafilova 2011; Yu et al. 2017), suppliers (Marshall et al. 2005; Walker et al. 2008), the media (Castka and Prajogo 2013) and competitors (Dai et al 2015; Walker et al. 2008). The reason for such variation is that the companies residing in the downstream of the supply chain were generally the developing countries' suppliers. The international retailers of those suppliers were the main source of pressure to improve CSP, usually based in developed countries. Most of the RMG factories in the developing countries are primarily export-oriented, and they trade their products directly to international retailers. Hence, these companies do not have any interaction with the end customers, and for this reason they experience no direct pressure from those customers. The influence of community and media does not have as loud a voice in emerging economies as in developed countries. On the other hand, because of extensive media coverage and active movements of different NGOs in the developed economies, the concept of sustainability is now playing a vital role in IRs' sustainability strategy. With the

exponential growth of an Internet-based infrastructure, the media can easily publicise their concerns and extend to much larger audiences so as to affect the IRs' image (Chu and Kim, 2011; Jones et al., 2009; Yan, 2011). Since this study was performed on the Bangladeshi RMG industries, who were the suppliers of ready-made garments in the international market, the findings match with the studies conducted in the developing countries context.

Most of the studies discussed above were mainly investigating the impact of organisational pressures on improving environmental performance (Sarkis et al. 2010; Wu et al 2012; Dai et al., 2015; Shubham et al., 2018; Aboelmage et al., 2018) and economic performance (Eiadat et al., 2008; Yu et al., 2017). However the very important social dimension was neglected (Adebanjoet et al., 2016). Also, very few studies adopted the holistic view of sustainability by including all three dimensions (Giunipero et al., 2012; Renukappa et al., 2013; Diabat et al., 2014; Wijethilake et al., 2017; Dubey et al., 2017). This study has tried to capture the holistic view of sustainability when operationalising corporate sustainability performance in accordance with the TBL approach defined by Elkington (1994). In summary, the findings of this study not only identify the most important internal and external pressures that the RMG industry of Bangladesh was facing to improve their CSP, but also showed the relationship of these pressures with their firm's CSP.

8.2.2 Research Objective Two: To investigate the mediating role of 'Sustainability Management Control System' (SMCS) between organisational pressure and corporate sustainability performance

To address the second research objective, this study introduced a mediating variable named the 'Sustainability Management Control System'. It built on the work of Simon's LOC framework and using SEM tested its mediating effect between organisational (internal and external) pressure and CSP (i.e. economic, environmental and social). The analysis evaluated the mediating effects of SMCS between the independent and dependent variables. The mediating effects of internal pressure in the relationship between external pressure and SCMS were also tested. Results revealed interesting findings that include: (i) SMCS mediates the relationship between external pressure and CSP. In this case, partial mediation occurs between external pressure and both economic and environmental performance; full mediation occurs in case of social performance. (ii) No mediation of SMCS results in the event of internal pressure and its relationship with CSP. (iii) Internal pressure mediates the relationship between external pressure and SCMS.

While the conventional MCS is principally focused on financially-oriented decision-making issues, recently several researchers have argued for a transformation in conventional MCS

so that it can capture broader institutional expectations, particularly when addressing stakeholders' sustainability concerns (Perrini and Tencati, 2006; Baker and Schaltegger, 2015). An increasing body of studies highlights the usage of MCS in the coordination and implementation of sustainable business practices. They argue that SMCS should be implemented as a strategic response to external pressures (Gond et al., 2012; Arjaliès and Mundy, 2013; Wijethilake et al., 2017; Delmas and Toffel, 2004; Durden, 2008; Pondeville et al., 2013).

Figure 8.2 shows the results of the mediating effects of SMCS. Companies have started to develop, or plan to develop, dedicated sustainability management control systems, mainly to cope with the pressures originating from external sources such as international retailers and regulators (Lin and Ho, 2011). The results of this study also confirmed this, as the mediation occurs in the relationship between external pressure and all three dimensions of CSP. Pressures from different external sources were the primary motivating force that underpins the development of a dedicated SMCS, which in turn helps the organisation to improve their CSP (Pondeville et al., 2013). Pondeville et al. (2013) claimed that external stakeholders influence the design of formal and informal environmental MCS, which is consistent with the findings of this study. In a similar study, the findings of Abdel-Maksoud et al. (2016) conclude that there is a significant positive association between the effect of stakeholders' pressure and the extent of using eco-control systems, and Durden (2008) confirms the stakeholders' impact on the design of a socially responsible MCS. The findings of a study carried out in Sri Lanka highlighted that organisations use MCS as a medium to respond strategically to institutional pressures for sustainability and in turn, that the use of MCS has important implications for organisational change and performance improvement (Wijethilake et al., 2017). In that study, the significant institutional pressures originated from law and regulations (coercive), peer organisations (mimetic) and regulators (normative), all of which were examples of external pressures. de Villiers et al. (2016) investigated the influencing factors that drive companies towards sustainability and the advantages of using integrating sustainability reporting with management control systems, through a case-study approach in a large industrial firm. The results suggested that external stakeholders using MCS play a vital role in sustainability reporting.

This study, like other previous research work, delivers empirical evidence supporting a positive impact of SMCS in improving CSP (Henri and Journeault, 2010; Lisi, 2015). This study also reports the positive mediating effects on the relationship between external pressure and all three dimensions of CSP. According to the results, the implementation of SMCS has a greater impact on environmental performance as compared to economic and

social performances, respectively. This concurs with other studies which find that SMCS can mediate positively between external pressure and environmental outcomes (Testa and Iraldo, 2010; Zhu and Sarkis, 2006; Adebanjo et al., 2016). The significant mediating effects of SCMS are partially consistent with Wijethilake (2017), who finds that SMCS positively mediates the relationship between proactive sustainability strategy and environmental and social performance, with the exception of economic performance. Ussahawanitchakit (2017) examined the effects of MCS on the sustainability of textile and apparel businesses in Thailand, and the results showed that MCS positively impacts on organisational renewal and firm sustainability. This finding is also consistent with the outcomes of this study.

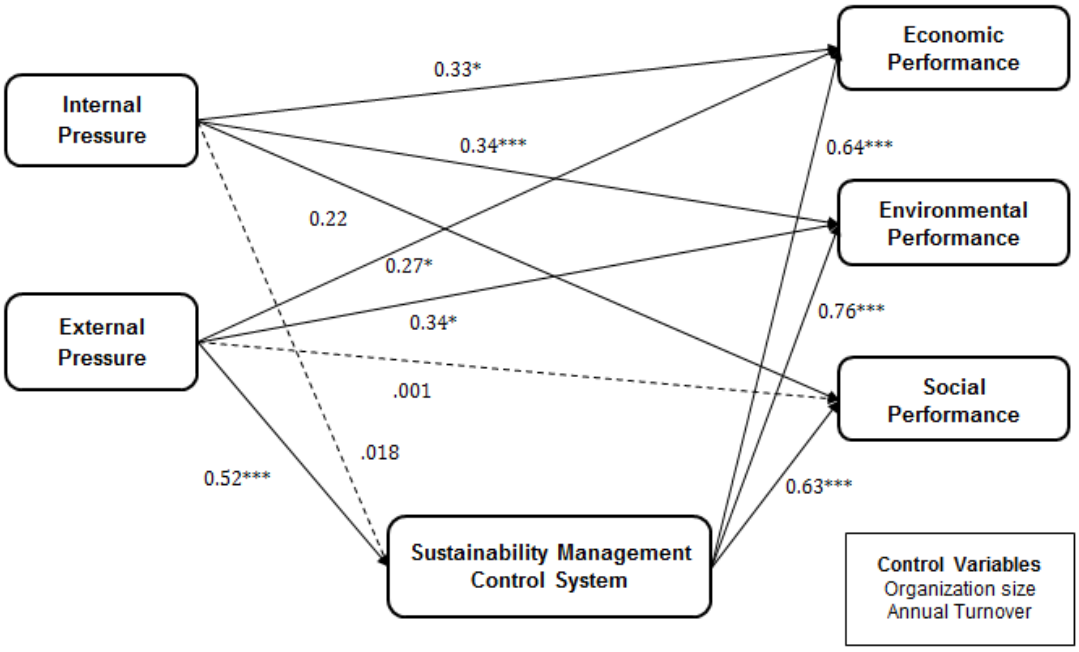


Figure 8.2 Results of mediating effects of SMCS

The no-mediation effects convey a key message for the organisations, in that they highlight the need to enhance the support and commitment of internal management towards the development of SMCS by facilitating the CSP (Arjalies and Mundy, 2013; Crutzen and Herzig, 2013; Gond et al., 2012). In a buyer-driven RMG industry like Bangladesh's, incorporation of a dedicated SMCS is generally triggered by external pressures, rather than willingly implemented by internal management. Since the results show no mediation effects of SMCS in the case of internal pressure and CSP, this study tried to investigate further whether there exist any mediating effects of internal pressures between external pressure and SMCS. Figure 8.3 shows the mediating effects of internal pressure on external pressure and SMCS. The results of those mediation tests show that internal pressures partially

mediate the relationship between external pressure and SMCS. Emamisaleh and Rahmani (2017) showed that external drivers of the organisations influence internal drivers by creating sustainable orientation within an organisation. This is in line with the findings of this study. Most of the industry's decisions to adopt these SMCS are not voluntarily taken by internal management, but are rather driven by the external pressures i.e.: to meet international buyers' sustainability-related requirements; to comply with the regulations, to mimic the best-practising competitors' SBPs; to comply with the certifications' requirements; to survive in this competitive global market. Hence, internal pressures such as that from top management, pressure to improve employee wellbeing or cost reduction generally originating from the pressures coming from the various external sources.

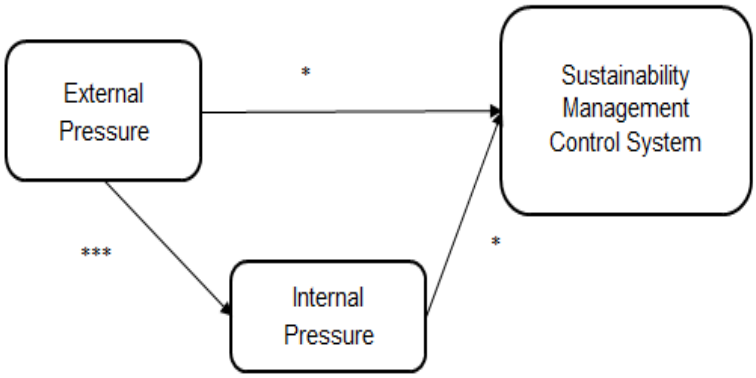


Figure 8.3 Mediating effects of Internal pressure on External pressure and SMCS

It is apparent from the literature review that considerable attention has revolved around the emergence of new forms of dedicated management control systems for managing and formulating environmental and social issues to support the strategic integration of sustainability into organizations (Gond et al., 2012; Epstein and Roy, 2001; Durden, 2008; Perego and Hartmann, 2009; Gond et al., 2012; Crutzen et al 2017). Up until now, most of the existing studies on MCS relating to sustainability were mainly concerned about the environmental dimension and about investigating the role of eco-control or environmental management control systems in improving economic and environmental performance (Pondeville et al. 2013; Henri and Journeault, 2010). Recently, an increasing number of researchers suggest that management control systems (MCS) can play a vital role in fostering the integration of sustainable development with its social, environmental, and economic dimensions (e.g. Ball and Milne, 2005; Covaleski et al., 2003; Durden, 2008; Gond, et al., 2012; Lueg and Radlach, 2016). Therefore, SMCS has become one of the emergent themes in the management control literature (e.g., Bebbington and Thomson, 2013; Lueg and Radlach 2016).

This study was conducted in the RMG industry of Bangladesh, where the majority of its business organisations are currently in the transition stage, moving from financially- oriented traditional management control systems to SMCS. Thus the attitude of the respondents of this study towards the development of SMCS as a means of dealing with the organisational pressures and their impact on CSP was entirely dependent on the market in which they were operating. As the second-largest garments exporter in the world, RMG companies in Bangladesh completely depend on their buyers. They were placing heavy emphasis on external pressure (i.e. international retailers, certifications, regulators, competitive advantage) in relation to the initiation and incorporation of SMCS inside their organisation. However, having been made aware of the advantages of incorporating sustainability strategies into their organisations, in terms of enhanced firm reputation, operational efficiency and new global market opportunities, they unconditionally agreed that the development of SMCS improves their CSP in all three dimensions.

8.2.3 Research Objective Three: To develop a multiple criteria decision-making model to evaluate and rank the best practising companies based on their CSP

To address the third research objective, an MCDM model was developed by ANP for benchmarking the best practising Bangladeshi RMG companies based on their CSP. The best-practising companies were selected based on their commitment to sustainable business practices (i.e. publication of stand-alone sustainability reports, adoption of ISO 14001, SA 8000, OHASIS, attainment of LEEDs certification, reception of different global and local sustainability-related awards, and the existence of a dedicated sustainability team). At first, an ANP model was developed using CSP dimensions as criteria and their measurement items as sub-criteria. After the development of the model, the pair-wise comparison questionnaire survey, document analysis (i.e. sustainability reports, UNGC reports, websites of the selected companies) and semi-structured interviews were conducted to collect the data for the pair-wise comparison. After construction of pair-wise matrices, the unweighted and weighted supermatrices were constructed. The limit matrix was constructed in the next step of the ANP analysis, which shows the final priority rankings of the selected best-practising companies based on their overall CSP. The results of this analytical study revealed a ranking of the participated companies based on their overall CSP. Moreover, the findings of this study also revealed the importance of each of the CSP dimensions that were considered as criteria (i.e. economic, environmental and social) and an individual ranking of measurement items in three different dimensions which were considered as sub-criteria in the MCDM model. Furthermore, a sensitivity analysis was also conducted in this study to

monitor the consequences of fluctuating priorities in the corporate sustainability performance strategy.

In general, qualitative indicators of any performance measurement model are too complicated for practical use and hence it is desirable for the model to be based on quantitative indicators. However, the benchmarking problem in real-world settings involves both quantitative and qualitative criteria. In such cases, the proposed MCDM model developed by ANP is capable of dealing with both quantitative (i.e. profit margin, market share, reduction in waste, water and energy) and qualitative indicators (i.e. improvement in community development and employee welfare programs, adoption of environmental certifications). In the existing literature, there are studies which also applied ANP successfully in many supplier evaluations, benchmarking and decision-making problems (Chan, 2003; Baskaran et al., 2012; Lin et al., 2015; Hussain et al., 2016; Farias et al., 2019).

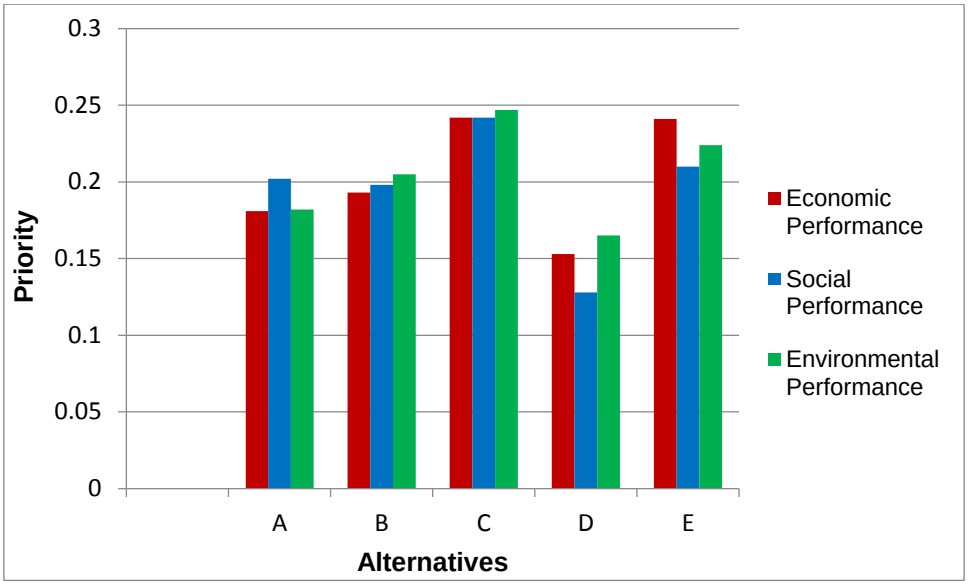


Figure 8.4 Comparison of the best-practising companies based on their CSP

The above results of the ANP analysis revealed a ranking of five best-practising companies A, B, C, D and E, based on their economic, environmental and social performance, as illustrated in figure 8.4. According to figure 8.4, C is the highest-ranked company. With a priority ranking of 24.4% it has given the highest priority to environmental performance. The economic and social performances of this company have equal priority, which is slightly lower than the environmental performance. The three dimensions of CSP seemed to be more balanced for this particular company, as they are providing similar emphasis on all the dimensions of sustainability. Company C has realised the competitive advantages relating to

the adoption of SBPs and has incorporated those in their operations. This helps them to improve their CSP and to secure the first position in this benchmarking process.

Company C has gained significant progress in environmental practices in terms of reduction in the consumption of waste, water and energy as well as consumption of hazardous material (i.e. installation of Effluent Treatment Plants (ETPs), initiation of Energy Efficiency Engagement (3E) programs and Zero Discharge of Hazardous Chemicals (ZDHC) programs, rainwater harvesting, biogas generation, installation of energy-efficient machineries) over the past few years. They have successfully implemented the Environment Management System (i.e. ISO 14001) and initiated a Partnership with Cleaner Textile (PaCT) to manage their environmental practices. This company also placed heavy emphasis on adopting social practices to ensure employee welfare (i.e. in-house day-care centre, medical centre, in-house Mini Fire Brigade (MFB), sponsorship for children's education, maternity facilities and benefits, subsidised shop for employees to have zero-cash transactions), health and safety (i.e. adoption of Occupational Health and Safety Assessment Series (OHSAS) 18001 certification, building and fire safety approved by Accord and Alliance) and community development programs (i.e. community knowledge exchange program, community health programs and education support, tree plantation programs). C is one of the few companies in the RMG industry who publish standalone a sustainability report annually in accordance with the GRI guideline. According to company C's head of sustainability, their organisation perceives sustainability as a multidimensional interrelated approach, which plays an important role in achieving their company's long-term mission and vision. According to their perception, incorporation of environmental and social practices helps them to achieve their economic bottom line in terms of profit maximisation and increase in market opportunities in new geographical areas.

E has the second position in the ranking with a priority of 21.3%. Company E has given highest priority to economic performance (i.e. increase in profit margin, new and existing market share) and then the environmental performance (i.e. reduction in the consumption of waste, water and energy, reduction of hazardous materials and adoption of ISO 14001). They give the least importance to social performance. The main vision in implementing SBPs of this company is profit maximisation. They perceive investing in the implementation of SBPs as a way of improving their market share, reducing costs and improving their profit margins. Financial gain might be their main focus, but they are also adopting various environmental and social practices. Some examples of their environmental initiatives are: adoption of ISO 14001; construction of LEED-certified green buildings; installation of rainwater harvesting and water recycling and discharge systems; ETP, usage of energy-efficient lighting and machineries. These resource-efficiency practices reduce the waste,

water and energy consumption during the production process and help them in profit maximisation. The socially responsible business practices implemented by company E include: installation of safety measures (i.e. Fire, building, electrical and chemical safety); employee welfare programs (i.e. in–house medical clinics, eye Camp, childcare and maternity facilities for the workers); community development programs (i.e. blood donation program, immunization program; development of a pre-primary school and special school for physically challenged and underprivileged children).

Company A, who ranked third, attach the greatest importance to social sustainability. A is one of the few companies in the RMG industry who have successfully adopted social certifications, such as Social Accountability (SA) 8000, ISO 14001 certifications, in order to ensure a favourable environment for the workers. They have given the main emphasis to employee welfare programs (i.e. Freedom of Association and Right to Collective Bargaining, medical insurance, pension plan, maternity facilities, medical facilities, childcare and education support systems), health and safety practices and community development programs (i.e. contribution of BDT 16 million for social responsibility and for communal improvements, contribution to Acid Survivors Foundation (ASF) Fund, free treatment for underprivileged people, support for vocational training, working with different human rights and labour rights NGOs). They have also made a great contribution to waste reduction and emission control over the past few years.

Company B, who ranked fourth, perceive sustainability in terms of environmental and social issues. They also claim that the implementation of these social and environmental business practices helps them to fulfil requirements of their international buyers, hence helps their company in qualifying for a future order. They are progressing well in adopting SBPs, as recently they adopted ISO 14001 for managing environmental practices. They have also implemented environmental practices (i.e. ETPs, Better Cotton Initiative (BCI), waste reduction, emission control, reduction in usage of hazardous materials management) and social business practices (i.e. Free healthcare system for unprivileged people, development of primary schools, donation to community for natural disaster management programs, tree plantation week observance).

Company D, ranked last, have attached most importance to the environmental dimension. They have a LEEDs certified green building which helps them in reducing their carbon footprint. They also have adopted ISO 14001, ETP and efficient waste and hazardous material management system. However, recently, they have invested a huge amount of their assets into implementing this infrastructure for a green factory (i.e. installation of energy-efficient machinery and technologies, procurement of materials and resources), and this has

an adverse impact on their economic performance. However, they argued that the adoption of these SBPs would benefit them in achieving long-term sustainability goals in all three dimensions.

According to the results of the ANP analysis, economic performance was given the highest priority above all other dimensions of CSP. In the Bangladeshi RMG industry's context, best-practising companies were always giving their main emphasis on financial performances. As an emerging economy, best-practising companies were always seeking to increase their profit margin, so they were attaching great importance to profit margin among all three financial performance evaluation criteria. They were adopting environmentally friendly practices (i.e. ISO, 14001, ETP, LEEDs) to improve their environmental performance, which was also their business strategy to increase existing and new market share, profit margin and reduce cost. The RMG industry is a high-pollution intensive sector, as it involves usage of massive amounts of dyes (i.e. Cationic materials, colour, acid, urea, solvents, metals, foam) and chemicals (i.e. Hydrogen peroxide, sodium silicate) throughout the whole manufacturing process. Thus, maintaining environmental sustainability by reducing the consumption of toxic materials, waste, water and energy is highly important for the RMG companies. They were trying to use the social dimension to enhance their company image in the global market, in order to attract global customers by promoting their community development, health and safety and employee welfare programs.

8.3 Contribution of the Study

The contributions of this study are manifold which are outlined below:

- This study contributes by identifying major internal and external pressures behind Corporate Sustainability Performance (CSP) using the holistic approach of TBL - from the context of Bangladesh in general and RMG industry in particular, which is missing in the existing literature.
- This study developed a new Conceptual Framework outlining the relationship among both external and internal pressures, Sustainability management Control System (SMCS) and CSP.
- This is the first study which developed and operationalised a dedicated SMCS based on Simons' (1995) Levers of control (LOC) framework and statistically tested its mediating role on the relationship between organisational pressure and CSP.
- One of the significant contributions of this study is that it investigated the impacts of external pressure on internal pressure in incorporating SMCS within the organisational level, which is also absent in the extant literature.

- This study further developed a multiple-criteria decision-making tool for CSP benchmarking in the RMG industry of Bangladesh as there exists no such study in the present literature.
- This study contributes by combining both conceptual frameworks followed by an analytical decision-making tool applied for investigating sustainability-performance management and benchmarking process.
- This study contributes methodologically to the sustainability performance management literature by designing a comprehensive research design which includes a diverse set of research methods, such as a large-scale questionnaire survey, a pair-wise questionnaire survey, document analysis and semi-structured interviews.
- The contribution of the RMG industry in Bangladeshi economy is unparalleled, and the sustainability concept has a major impact on their business practices. This study contributes contextually to the existing literature by empirically testing the proposed conceptual and analytical model in this industry as no known comprehensive study has so far been undertaken to test such models within the context of Bangladeshi RMG industry.

Theoretical Contribution

This study makes significant contributions to the existing sustainability management control system literature by providing theoretical contributions based on a rich empirical dataset. From the theoretical point of view, although previous SMCS literature infrequently applied traditional theories, such as stakeholder theory, resource-based view theory and institutional theory (Durden, 2008; Perego and Hartmann, 2009; Pondeville et al., 2013, Crutzen and Herzig, 2013; Wijethilake, 2017; Wijethilake et al. 2017), the potential of application of contingency theory (Feng et al. 2016) is largely ignored. Moreover, a limited number of studies applied the Simons' LOC framework to operationalise MCS dedicated to sustainability (Arjaliès and Mundy, 2013; Wijethilake, 2017). To address those gaps, this study operationalised the construct SMCS using Simons' LOC framework and adopted contingency theory to explain the mediating role of SMCS in response to organisational pressure to improve CSP. The empirical evidence provided by this study is consistent with several other studies which argued that various types of pressures motivate firms to develop sustainability strategy in order to improve environmental and financial performance (Donaldson and Preston, 1995; Sarkis et al., 2010). This contingency theory perspective is also in line with the findings of the study conducted by Yu et al. (2017) who claimed that

environmental pressure mediated the relationship between environmental innovation strategy and both environmental and economic performance.

Our finding of the mediating effect of SMCS is important since the mediation has largely been ignored in previous research. Previous empirical studies (e.g. Giunipero et al. 2012; Diabat et al. 2014; Cai and Zhou 2014; Sarkis et al., 2010; Dubey et al. 2017) have focused on examining the direct effect of organisational pressures on implementing sustainability-management practices and its impact on a firm's CSP. The results of the mediating effects of SMCS provide detailed insights on the strategic responses about the implementation of SMCS in an increasingly dynamic market like the RMG sector, characterized by both external and internal pressures and how this can lead to superior corporate sustainability performance.

Practical Implications

The findings of this research study have several implications for the corporate managers of the RMG sector, as well as for industry associations and policymakers. Firstly, the findings of the study will provide corporate managers and policymakers with a comprehensive understanding of the relationship between major external and internal pressures and all three dimensions of corporate sustainability performances (i.e. economic, environmental and social). The findings of this study also offer valuable insights to managerial decision making by informing corporate managers, as well as policymakers, as to what extent different types of external and internal pressures are influencing them to improve their CSP. This statistical finding will help them to make an informed decision about different stakeholders expectations regarding sustainability issues and help them prioritising SBPs based on their influence in CSP improvement. The policymakers and trade associations (i.e. BGMEA), along with the regulators, might play a vital role in understanding the importance of internal and external pressures from different stakeholder groups demanding improvement in CSP, and should be motivated to introduce required regulations and policies to deal with these pressures. IR, as the major driver behind the CSP improvement, should provide financial support for adopting essential technology, and designing needed sustainability-related training programs through various collaborative initiatives with the government and associations.

Secondly, the findings reveal that a sustainability management control system (SMCS) mediates the relationship between external pressures and corporate sustainability performances of the firm. This result indicates that it is crucial for firms to develop a dedicated SMCS as a response to the pressure from the external sources to improve CSP. This dedicated SMCS will help them in the strategic decision-making process relating to

sustainability issues and also advise them on how to manage SBPs, track progress and find out the way to achieve improvements. This study highlights that failure to adopt, manage and monitor sustainable business practices due to the lack of an integrated SMCS would result in detrimental consequences for long-term CSP.

Given the specific buyer-driven nature of the RMG industry, corporate managers should be able to balance conflicting demands from different stakeholder groups through the incorporation of SMCS to improve their overall CSP. The absence of mediating impacts of SMCS in the relationship between internal pressure and all three dimensions of CSP convey an important message to the industry by highlighting the need to enhance the involvement of internal management in enforcing the incorporation of SMCS to improve CSP. The mediating effect of internal pressures on the relationship between external pressure and SMCS reflects that internal management was pressurised by the demands of the external stakeholders in incorporating SMCS in Bangladesh.

This study has developed a corporate sustainability-performance benchmarking tool using ANP that enables RMG companies to evaluate their CSP and compare them with their best practising competitors. This benchmarking tool can also be utilised to assess the CSP of the departments within the organisation. Moreover, it will help managers in their decision-making, as well as in highlighting vital SBPs to improve their economic, environmental and social performance. This benchmarking tool can also be used by the associations, policymakers and various sustainability-related awarding bodies to assess the RMG companies based on their CSP. The results of the sensitivity analysis will help managers to anticipate the consequences of decisions on corporate sustainability performance and take account of likely changes in sustainability-related business strategy over time. From the results of benchmarking analysis, the least-ranking companies can become aware and learn about the innovative SBPs which help the best-practising companies to obtain a high ranking in a CSP-based evaluation process. The proposed MCDM model for CSP benchmarking was developed using 'SuperDecision' software, which is readily available free of cost. Hence, corporate managers in the RMG industry can easily download the software; make necessary amendments in the developed model as required and use it for their self-assessment and comparison purposes.

8.4 Limitations and Future Research Directions

Despite the significant empirical, theoretical and practical contributions, which offer an excellent platform for understanding future research work this study is subject to certain limitations. This study proposed a conceptual framework which was tested through a cross-sectional questionnaire survey among the RMG companies of Bangladesh in the second

stage of the research. The first limitation of the study is that as data were collected from one point in time, it was not possible to capture the changing dynamics over time, as in the longitudinal study. Moreover, as argued by Guide and Ketokivi (2015), the common method bias (CMB) remains a problem with data which are collected at one point in time, even though widespread rigorous safety measures have been taken by the researcher. As several researchers (Podsakoff and Organ, 1986; Ketokivi and Schroeder, 2004) recommended that the longitudinal data may reduce the CMB problem, future longitudinal studies can be conducted to better understand the constructs and relationships of the proposed conceptual framework over time. Furthermore, this study used a non-random sampling method called snowball sampling because the concept of sustainable business practices is considered as an emerging phenomenon in the Bangladeshi RMG industry's context. Future studies may empirically test the conceptual framework using random sampling in the developed countries, where the awareness about sustainable business practices is much higher, in order to increase the generalizability of the results.

The researchers endeavoured to discover a limited number of internal and external pressures and corporate sustainability performance variables. Future research may identify and add new pressures or performance variables in the model and empirically investigate its significance in the proposed conceptual framework. This study examined the mediating effects of SMCS; future studies can also explore its moderating effects in the relationship between those pressures and performance.

This research study examined the conceptual model based on a large-scale questionnaire survey which mainly focuses on the perception of the organisation rather than actual adoption of SMCS. To make sure that the measurement items of the conceptual model can accurately predict the actual process, each item was meticulously operationalised based on an extensive literature review to ensure high validity and reliability of the indicators. Hence, further in-depth analysis through qualitative research design can be performed to investigate the actual process of implementing SMCS within the organisations.

Since the scope of the research is limited to the Bangladeshi RMG industry, which may undoubtedly limit generalizability to other industries like leather, automobile, manufacturing or energy, further research could be conducted by replicating this study in other industries in different countries with larger sample size and other control variables. A comparative study should be conducted from the results obtained from both developed and developing countries to provide much more comprehensive conclusions about the significance of different types of pressures, the importance of implementing SMCS, and implications of

corporate sustainability performance indicators in each perspective. The future studies may include various supply chain partners to provide a comparative analysis of the differences in pressures and performances in various stages of the supply chain.

This study used ANP to develop and assess the corporate sustainability performance benchmarking model in the second stage of the research design. However, this ranking order obtained from ANP may differ depending on the participation of different experts or stakeholders for a specific study or type of MCDM method employed. Future studies can combine ANP with other multi-criteria decision-making tools such as Graph-Theoretic Approach (GTA) or Interpretive Structural Modelling (ISM), in order to enrich the robustness of the obtained results.

8.5 Conclusion

This chapter provided a detailed discussion of the findings drawn from this thesis. The findings of each research objective were discussed thoroughly with appropriate literature support and research context. Then this chapter outlined the main contributions of this research study which were successful in fulfilling the addressed research gaps of chapter two. Afterwards, both theoretical contributions, as well as practical implications drawn from the findings of the study were discussed in the subsequent sections. Finally, the limitations and future scope of this study were provided in the following sections to provide further research directions in this area of research. This research concludes that the incorporation of SMCS at the organisational level will not only help them in improving their CSP but also assist them in dealing with the tremendous pressures originated from both external and internal sources. The findings of this study provide high-quality statistical evidence and new insight regarding the relationship among the organisational pressure, SMCS and all three dimensions of CSP in an emerging economies context.

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Appendix

Appendix 1: Participant Information Sheet

You are being invited to take part in a research study. This is being carried out by a doctoral student from Aston University, UK. Before you decide whether or not to take part, it is important for you to understand why the research is being conducted and what it will involve.

Please take time to read the following information carefully. Please feel free to ask us if there is anything that is not clear or if you would like more information about it.

Title of the study:

Corporate Sustainability Performance of the Readymade Garments Industry in Bangladesh: Impact of Organisational Pressures and Sustainability Management Control System

What is the purpose of the study?

The Bangladeshi Readymade Garment (RMG) industry has been severely criticised for its harmful impact on the environment, workplace safety and human rights conditions. These impacts create a highly negative image of RMG companies in the global market. There exist several external and internal pressures on RMG companies to adopt sustainable business practices (SBPs). This study proposed a conceptual framework which will empirically investigate how an integrated Sustainability Management Control System (SMCS) help the organisations to deal with the external and internal pressures in improving their corporate sustainability performance (CSP) 0n all three dimensions (i.e. economic, environmental and social). This dedicated SMCS will help them to manage, monitor and evaluate their ongoing SBPs in a more organised manner by ensuring planning, reporting, monitoring, and providing improvement measures which will help them in enhancing their CSP. To test the proposed conceptual model, a survey questionnaire is designed to collect data through a large scale questionnaire survey in the RMG industry of Bangladesh.

Why have I been invited to participate?

You are being invited to participate because the organisation where you are currently employed was found considerably progressive in sustainability issues. You have been identified as someone who may have a great deal of knowledge to share about your company's SBPs and sustainability performance management.

Do I have to take part?

Taking part in the study is entirely voluntary. It is up to you to decide whether or not to take part. If you do decide to take part, then I will brief you about the whole study. You will be given this information sheet to keep and be asked to give your written consent to start the survey. If you agree to take part and later change your mind, you are free to withdraw from the study at any time and without giving a reason. Your data will no longer be used in the study.

What is involved if I decide to take part?

If you decide to take part in the survey, you will be asked to fill up a questionnaire. The survey will not take more than 15-20 minutes.

What are the possible disadvantages and risks of taking part?

There are no known risks associated with your participation in this survey. Taking part in the study will mean that we take up a little of your time to fill up the questions of the survey about your company's SBP, sustainability strategies and performance related issues.

What are the possible benefits of taking part?

You will receive no direct benefits by taking part in this study. However, this study will propose and test a conceptual framework which may help corporate managers like you to measure, manage and monitor SBPs and sustainability performance in a more effective and integrated way.

What will be kept confidential in this study?

All information gathered during the course of the research will be kept strictly confidential. None of the reports or publications from this study will include any information identifiable to you as an individual. In fact, the data will be anonymous so that even if it could be accessed, it would not be attributable to any individuals.

The data collected from the survey will then be uploaded to a password-protected computer at Aston University. All paper documents will be kept in a locked cabinet on secure premises in accordance with the Data Protection Act. All data will be kept for up to 5 years, after which it will be destroyed securely. Electronic copies of the transcripts will be stored securely and confidentially: access to these will be limited to me and will be password protected.

What will happen to the results of the research study?

The research findings will primarily be used in my PhD thesis to be submitted at Aston University. Results will be presented in academic conferences, seminars and workshops with academics, professionals and policy-makers in both Bangladesh and the UK. Research findings may get published in a peer-reviewed journal as well. You will not be identified in any presentation or publication unless you have consented to release such information.

I am happy to share the findings (may be in Bengali or English, whichever you prefer) of the study with you if you are interested. I will also provide you with information on where to access the published study if there is any. Alternatively, I may possibly invite you along with other participants to attend a workshop where the preliminary findings will be presented, and feedback from you sought as to the implications of these findings for practice.

Who is organising and funding the research?

The study is being conducted by me (Ismat Rahman) and I am a full-time doctoral student in Operations & Information Management Department of Aston Business School, Aston University, UK.

Who has reviewed the study?

The study has been approved by the Aston University's Research Ethics Committee to ensure that the study meets ethical standards.

Further information and contact details:

If you have a concern about any aspect of this study or if you wish to get more information about the study at any point, please contact me:

Ismat Rahman
Assistant Professor, Department of Computer Science & Engineering
University of Dhaka, Bangladesh
&
Doctoral Researcher
Operations & Information Management Department
Aston Business School, Aston University
Birmingham, B4 7ET, UK
[redacted]

Or if you have any concerns about how the study has been conducted, then you can contact my doctoral supervisor:

Prof. Dr. Prasanta Kumar Dey
Operations & Information Management Department
Aston Business School, Aston University
Birmingham, B4 7ET, UK
[redacted]

Thank you for your time!

Appendix 2: 'Consent Form' for participating in the Questionnaire Survey

Title of the Project: Corporate Sustainability Performance of the Readymade Garments Industry in Bangladesh: Impact of Organisational Pressures and Sustainability Management Control System

Name and Contact Address of the Doctoral Researcher**: Ismat Rahman,** Assistant Professor, Department of Computer Science & Engineering, University of Dhaka, Bangladesh & Doctoral Researcher, Operations & Information Management Group, Aston Business School, Aston University, Birmingham, B4 7ET, UK;
[redacted].

Name and contact address of the Doctoral Supervisor: **Dr. Prasanta Kumar Dey** Professor, Operations & Information Management Department, Aston Business School, Aston University, Birmingham B4 7ET, UK; UK;
[redacted]

Please put a check mark (✓) in the boxes:

- I have read and understood the attached information sheet giving details of the project. ☐
- I have had the opportunity to ask the researcher my questions that I had about the project and my involvement in it and understand my role in the project. ☐
- I understand that my participation in this project is voluntary and I will not be paid for my participation. I am free to withdraw and discontinue participation at any time without giving any reason. ☐
- I understand that taking part in this project will include filling up a survey questionnaire. ☐
- I understand the data gathered in this project may form the basis of a doctoral dissertation to other form of academic publication or presentation. ☐
- I understand that the data I provide will be treated as confidential, my anonymity will be protected and the researcher will not identify me or my organization by name in any reports, publication or presentation using information obtained from this survey. ☐
- I voluntarily agree to participate in this study. ☐
- I have been given a copy of this consent form. ☐

Participant's Signature: _____ Date:

Participant's Name (in BLOCK LETTERS):

Researcher's signature: _____ Date:

Appendix 3: Survey Questionnaire

Corporate Sustainability Performance of the Readymade Garments Industry in Bangladesh: Impact of Organisational Pressures and Sustainability Management Control System

Please read each question carefully and **circle** a box to indicate your answer.

1.1 Internal pressures to improve corporate sustainability performance					
Please assess the extent to which your organization was pressurized by the following internal sources/factors to improve corporate sustainability performance.					
Internal Pressures	Not at all	Slight	Somewhat	Moderate	Extreme
1. To improve employee wellbeing (e.g. safe working environment, health services, fair wage)	1	2	3	4	5
2. To reduce production costs	1	2	3	4	5
3. To meet the expectations of the top-level management (e.g. owners, board of directors) to implement sustainable business practices	1	2	3	4	5
4. To comply with an organisation's moral and ethical commitment	1	2	3	4	5

1.2 External pressures to improve corporate sustainability performance					
Please assess the extent to which your organization was pressurized by the following external sources/factors to improve corporate sustainability performance.					
External Pressures	Not at all	Slight	Somewhat	Moderate	Extreme
1. To satisfy the requirements of the regulatory bodies (e.g. Dept. of Env., Dept. of Labour, Dept. of Inspection).	1	2	3	4	5
2. To comply with the mandatory requirements of International Retailers (e.g. codes of conducts).	1	2	3	4	5
3. To retain a competitive advantage (e.g. pressure from the best-practising companies)	1	2	3	4	5
4. To comply with various environmental and social certifications (e.g. WRAP, BSCI, ISO 14001, SA 8000 and OHSAS 18001)	1	2	3	4	5
5. Pressure from activist groups (i.e. NGOs. labour rights organisations, media)	1	2	3	4	5

2. 0 Sustainability Management Control System (SMCS)					
To what extent do you agree/disagree that the implementation of the following activities willimprove your sustainability performance?					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Beliefs systems					
1. Integration of sustainability dimensions into the strategic planning system of the organization (as reflected in vision and mission statements, core values etc.).	1	2	3	4	5
2. Communication of sustainability policy amongst internal and external stakeholder groups.	1	2	3	4	5
Boundary systems					
3. Development of well-defined guidelines to operationalize the strategic plan.	1	2	3	4	5
4. Setting of measurable targets for different sustainability performance indicators (e.g. raw materials, energy, water, waste etc.).	1	2	3	4	5
5. Delegation of responsibilities and authorities to attain those targets (by forming/appointing sustainability team/manager).	1	2	3	4	5
6. Compliance with international and industry specific agreements, guidelines and management systems (e.g. UN Global Compact, Global Reporting Initiative (GRI) guidelines, ISO 14001 etc.).	1	2	3	4	5
Diagnostic control systems					
7. Regular assessments (e.g. environmental and social audits) of various sustainability risks (e.g. workplace injuries, hazardous chemical discharge etc.).	1	2	3	4	5
8. Periodic review of sustainability performance indicators to track progress.	1	2	3	4	5
9. Benchmarking of sustainability performance with competitors.	1	2	3	4	5
10. Giving rewards and benefits to the employees for achieving targets and for suggesting innovative sustainable business practices.	1	2	3	4	5
Interactive control systems					
11. Regular reporting of progress to top management during formal and informal meetings.	1	2	3	4	5
12. Sharing of sustainability information through newsletters, workshops and sustainability reports.	1	2	3	4	5

3.0 Corporate Sustainability Performance					
Please assess the degree to which you agree/disagree that the implementation of sustainability management control system (SCMS) activities and dynamic capabilities will help your organization's in improving sustainability performance (e.g. economic, environmental and social)?					
5.1 Economic Performance	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Increase in sales volume	1	2	3	4	5
2. Increase in existing market share	1	2	3	4	5
3. Increase in profit margin	1	2	3	4	5
4. Increase in new market share	1	2	3	4	5

5.2 Environmental Performance	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Reduction in the consumption of hazardous and toxic materials	1	2	3	4	5
2. Reduction in waste and consumption of energy and water	1	2	3	4	5
3. Implementation of an environment management system (e.g. ISO 14001 certification).	1	2	3	4	5

5.3 Social Performance	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Attainment of important social compliance certificates (e.g. WRAP, BSCI, Fair trade, SA 8000.).	1	2	3	4	5
2. Participation in community development programs (e.g. health and education-related programs, donations to charitable organizations)	1	2	3	4	5
3. Participation in employee welfare programs (e.g. food allowances, pension plan; maternity benefits, medical facilities).	1	2	3	4	5
4. Improvement in occupational health and safety practices (e.g. fire, building, chemical and electrical).	1	2	3	4	5

6.0 Demographic Information		
Please **tick** the appropriate box accordingly		
1. Company Size (in terms of number of employees)	5000 to 10000 ☐	More than 10000 ☐
2. Annual Turnover in USD/year	20m to 50m ☐	More than 50m ☐

Thank You!!!!

Appendix 4: Pair-wise Questionnaire Survey

Please read each question carefully and <u>circle</u> a box to indicate your answer
9: Extremely 7: Very Strong 5: Strong 3: Moderately 1: Equally 2,4,6: In between values

1.0 Pair-wise Comparison of Economic Performance Parameters

To what extent the **<u>economic performance</u>** in the left is more important than the economic performance on the right side?

Increase in profit margin	>=9.5	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	>=9.5	No Comp	Increase in existing market share
Increase in profit margin	>=9.5	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	>=9.5	No Comp	Increase in new market share
Increase in existing market share	>=9.5	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	>=9.5	No Comp	Increase in new market share

2.0 Pair- wise Comparison of Environmental Performance Parameters

To what extent the **<u>environmental performance</u>** on the left is more important than the environmental performance on the right side?

Reduction in waste amd consumption of energy and water	>=9.5	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	>=9.5	No Comp	Reduction in the consumption of hazardous and toxic materials
Reduction in waste amd consumption of energy and water	>=9.5	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	>=9.5	No Comp	Implementation of Environment Management Systems (i.e. ISO 14001)
Reduction in the consumption of hazardous and toxic materials	>=9.5	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	>=9.5	No Comp	Implementation of Environment Management Systems (i.e. ISO 14001)

3.0 Pair- wise Comparison of Social Performance Parameters																					
To what extent the **social performance** in the left is more important than social performance on the right side?																					
Participation in community development programs	>=9.5	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	>=9.5	No Comp	Participation in employee welfare programs
Participation in community development programs	>=9.5	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	>=9.5	No Comp	Improvement in occupational health and safety practices
Participation in employee welfare programs	>=9.5	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	>=9.5	No Comp	Improvement in occupational health and safety practices

4.0 Pair- wise Comparison of Corporate Sustainability Performance Parameters																					
To what extent the sustainability **performance** in the left is more important than performance on the right side?																					
Economic Performance	>=9.5	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	>=9.5	No Comp	Environmental Performance
Economic Performance	>=9.5	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	>=9.5	No Comp	Social Performance
Environmental Performance	>=9.5	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	>=9.5	No Comp	Social Performance

4.0 Demographic Information		
Please **tick** the appropriate box accordingly		
1. Company Size (in terms of number of employees)	5000 to 10000 ☐	More than 10000 ☐
2. Annual Turnover in USD/year	20m to 50m ☐	More than 50m ☐

Thank You!!!!

Appendix 5: AMOS Output

AMOS output of Confirmatory Factor Analysis with second-order factor

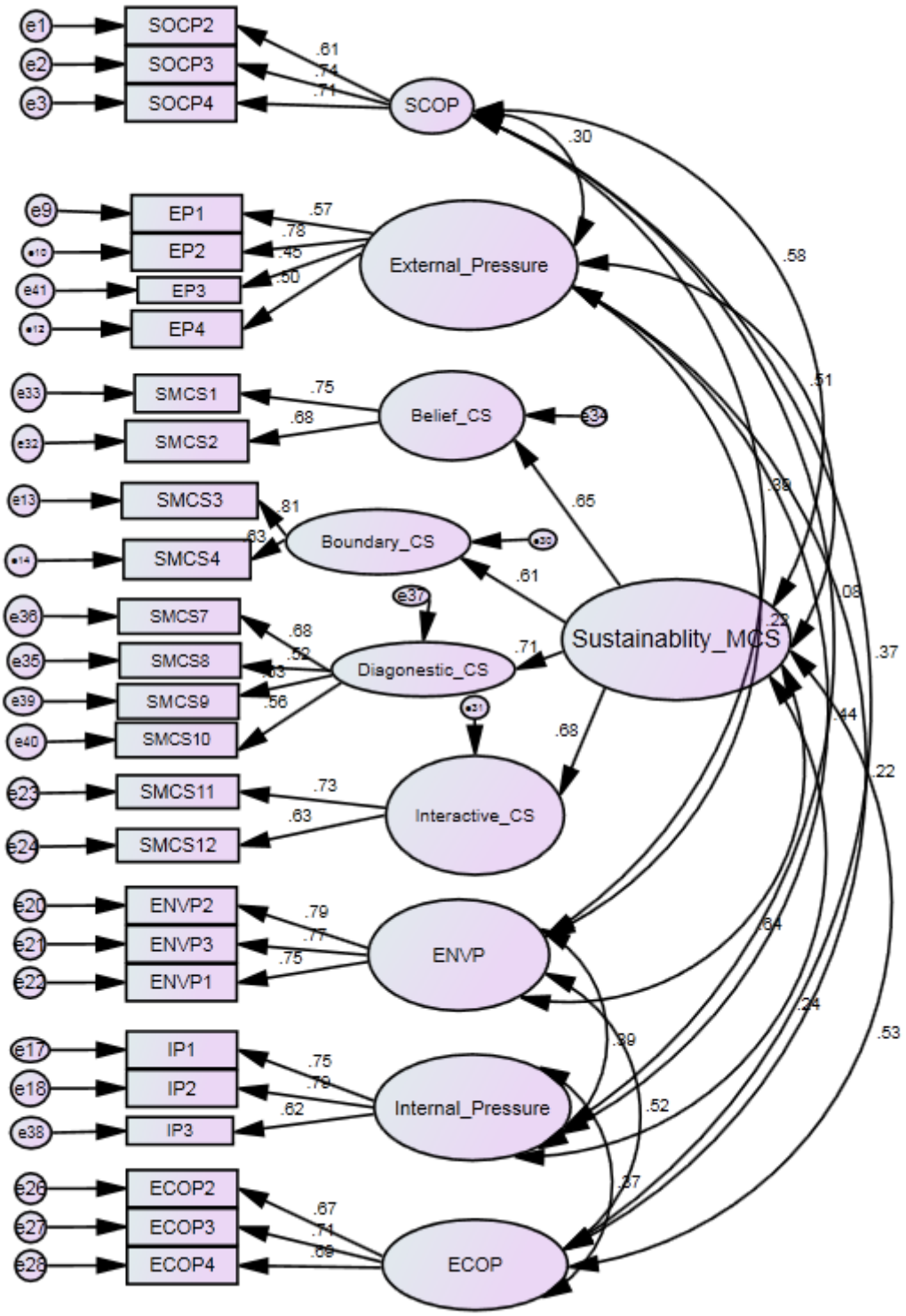

Figure A1 AMOS output of Confirmatory Factor Analysis with second-order factor

Model Fit Summary of Confirmatory Factor Analysis with second-order factor

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	71	452.774	280	.000	1.617
Saturated model	351	.000	0		
Independence model	26	2111.955	325	.000	6.498

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.042	.882	.852	.704
Saturated model	.000	1.000		
Independence model	.154	.465	.423	.431

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.786	.751	.906	.888	.903
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.862	.677	.778
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	172.774	118.515	234.946
Saturated model	.000	.000	.000
Independence model	1786.955	1645.376	1935.971

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.783	.680	.467	.925
Saturated model	.000	.000	.000	.000
Independence model	8.315	7.035	6.478	7.622

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.049	.041	.057	.547
Independence model	.147	.141	.153	.000

AMOS output of Hypothesis Testing for mediating effects of SMCS

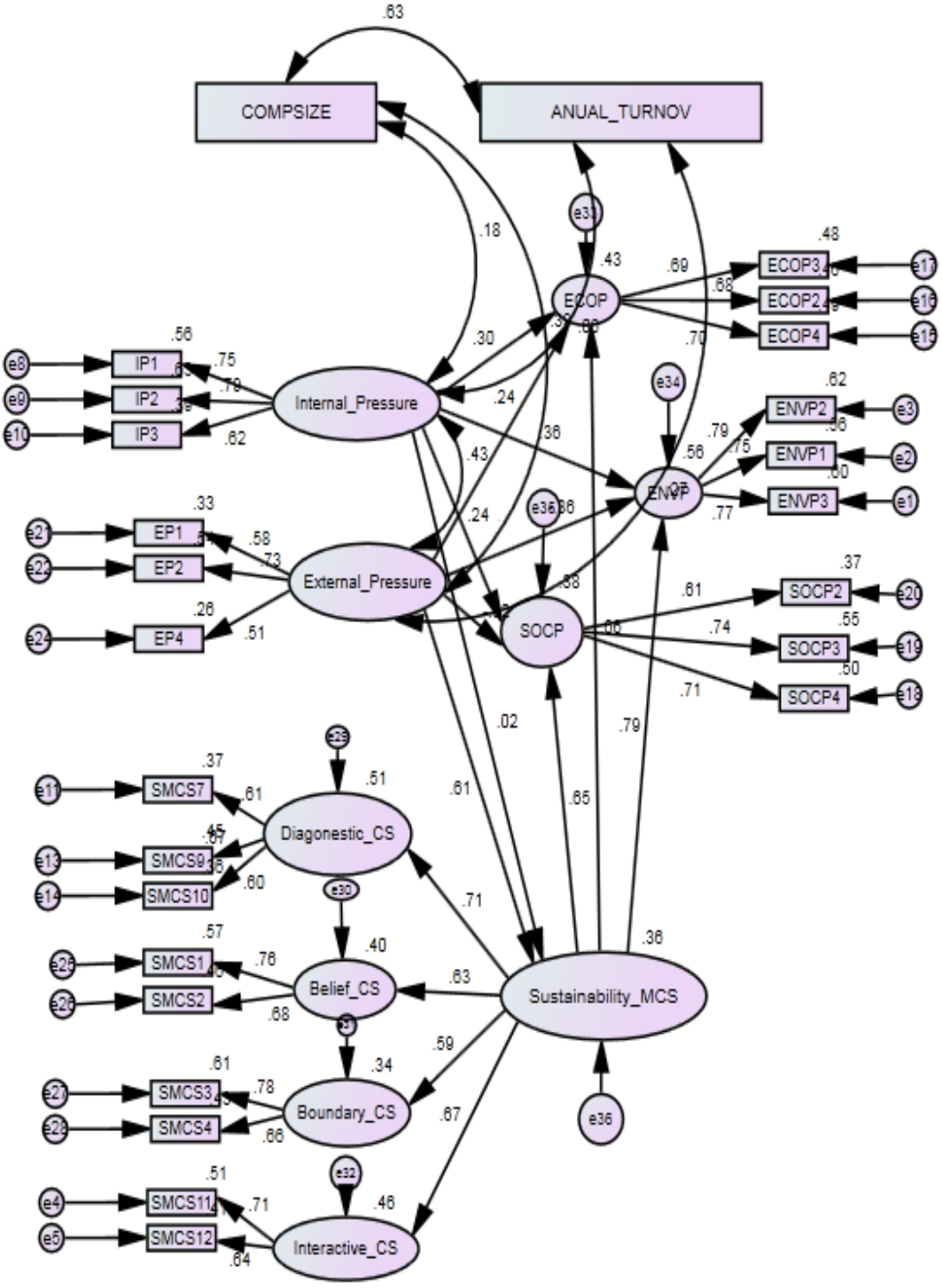

Figure A2 AMOS output of Hypothesis Testing for mediating effects of SMCS

Model Fit Summary of Hypothesis Testing for mediating effects of SMCS

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	68	454.579	283	.000	1.606
Saturated model	351	.000	0		
Independence model	26	2111.955	325	.000	6.498

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.042	.882	.853	.711
Saturated model	.000	1.000		
Independence model	.154	.465	.423	.431

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.785	.753	.906	.890	.904
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.871	.683	.787
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	171.579	117.294	233.782
Saturated model	.000	.000	.000
Independence model	1786.955	1645.376	1935.971

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.790	.676	.462	.920
Saturated model	.000	.000	.000	.000
Independence model	8.315	7.035	6.478	7.622

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.049	.040	.057	.581
Independence model	.147	.141	.153	.000

AMOS output of Hypothesis Testing for mediating effects of IP

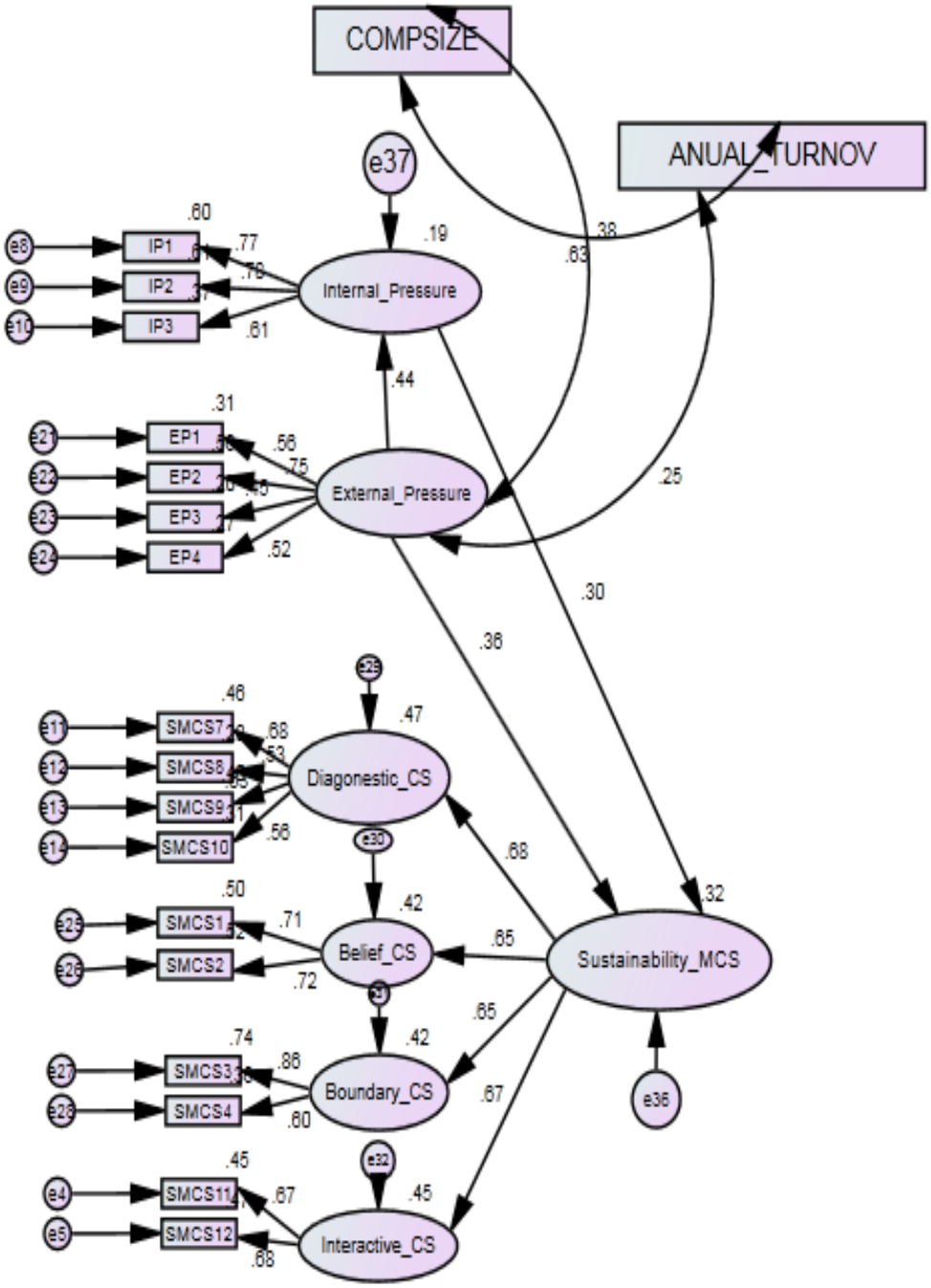

Figure A3 AMOS output of Hypothesis Testing for mediating effects of IP

Model Fit Summary of Hypothesis Testing for mediating effects of IP

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	45	277.034	145	.000	1.911
Saturated model	190	.000	0		
Independence model	19	1291.116	171	.000	7.550

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.061	.902	.872	.688
Saturated model	.000	1.000		
Independence model	.150	.559	.510	.503

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.785	.747	.885	.861	.882
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.848	.666	.748
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	132.034	88.843	183.032
Saturated model	.000	.000	.000
Independence model	1120.116	1009.582	1238.107

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.091	.520	.350	.721
Saturated model	.000	.000	.000	.000
Independence model	5.083	4.410	3.975	4.874

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.060	.049	.070	.065
Independence model	.161	.152	.169	.000

Appendix 6 Pair-wise Comparison Table

Pair-wise Comparison of Economic Performance				
A				
	ECOP2	ECOP3	ECOP4	e-Vector
ECOP2	1	1/4	1/3	0.225
ECOP3	4	1	5	0.673
ECOP4	3	1/5	1	0.101
				CR = 0.082
B				
	ECOP2	ECOP3	ECOP4	e-Vector
ECOP2	1	¼	½	0.131
ECOP3	4	1	2	0.661
ECOP4	2	½	1	0.208
				CR = 0.051
C				
	ECOP2	ECOP3	ECOP4	e-Vector
ECOP2	1	1/4	4	0.229
ECOP3	4	1	7	0.695
ECOP4	1/4	1/7	1	0.075
				CR =0.073
D				
	ECOP2	ECOP3	ECOP4	e-Vector
ECOP2	1	2	5	0.559
ECOP3	½	1	5	0.352
ECOP4	1/5	1/5	1	0.088
				CR =0.051
E				
	ECOP2	ECOP3	ECOP4	e-Vector
ECOP2	1	1/8	¼	0.070
ECOP3	8	1	4	0.707
ECOP4	4	1/4	1	0.222
				CR = 0.053

Pair-wise Comparison of Environment Performance				
A				
	ENVP1	ENVP2	ENVP3	e-Vector
ENVP1	1	1/3	3	0.262
ENVP2	3	1	4	0.078
ENVP3	1/3	1/4	1	0.658
				CR=0.070
B				
	ENVP1	ENVP2	ENVP3	e-Vector
ENVP1	1	5	4	0.116
ENVP2	1/5	1	½	0.683
ENVP3	¼	2	1	0.199
				CR=0.023
C				
	ENVP1	ENVP2	ENVP3	e-Vector
ENVP1	1	1/3	2	0.249
ENVP2	3	1	3	0.593
ENVP3	1/2	1/3	1	0.157
				CR =0.005
D				
	ENVP1	ENVP2	ENVP3	e-Vector
ENVP1	1	1	6	0.444
ENVP2		1	5	0.472
ENVP3	1/6	1/5	1	0.083
				CR = 0.003
E				
	ENVP1	ENVP2	ENVP3	e-Vector
ENVP1	1	4	1/7	0.262
ENVP2	1/3	1	¼	0.075
ENVP3	7	3	1	0.658
				CR =0.031

Pair-wise Comparison of Social Performance				
A				
	SCOP2	SCOP3	SCOP4	e-Vector
SCOP2	1	1/4	3	0.217
SCOP3	4	1	6	0.691
SCOP4	1/3	1/6	1	0.091
				CR=0.051
B				
	SCOP2	SCOP3	SCOP4	e-Vector
SCOP2	1	2	4	0.536
SCOP3	½	1	5	0.364
SCOP4	¼	1/5	1	0.099
				CR=0.090
C				
	SCOP2	SCOP3	SCOP4	e-Vector
SCOP2	1	3	4	0.625
SCOP3	1/3	1	2	0.238
SCOP4	¼	1/2	1	0.138
				CR=0.017
D				
	SCOP2	SCOP3	SCOP4	e-Vector
SCOP2	1	1	4	0.474
SCOP3	1	1	2	0.376
SCOP4	1/4	1/2	1	0.149
				CR=0.052
E				
	SCOP2	SCOP3	SCOP4	e-Vector
SCOP2	1	1/3	2	0.163
SCOP3	3	1	2	0.539
SCOP4	1/2	1/2	1	0.296
				CR= 0.011

Appendix 7 Related Publications

[1] Rahman, I. and Dey, P. K. (2018, April). “Organizational Pressures behind Sustainability Performance in Bangladeshi Readymade Garments Industry: The Effects of Sustainability Management System, Organizational Dynamic Capabilities and Resource Commitment”. The 27th International Association for Management of Technology (IAMOT) Conference, Birmingham, UK.