A thesis submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy

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DECLARATION

I certify that, except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and ethics procedures and guidelines have been followed. I acknowledge the support I have received for my research through the provision of an Australian Government Research Training Program Scholarship.

Aswini Yadlapalli
February 2018
DEDICATION

This thesis is dedicated to:

My loving husband,

Madala Venkata RaviKumar

AND

My beloved parents,

Yadlapalli Rama Seshaiyah

Yadlapalli Parvathi Devi
ACKNOWLEDGEMENTS

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TABLE OF CONTENTS

DECLARATION.................................................................................................. II
DEDICATION.................................................................................................. III
ACKNOWLEDGEMENTS.................................................................................. IV
TABLE OF CONTENTS...................................................................................... V
LIST OF FIGURES .......................................................................................... XII
LIST OF TABLES ........................................................................................... XIV
LIST OF ABBREVIATIONS ........................................................................... XVI
LIST OF PUBLICATIONS ........................................................................... XVIII
ABSTRACT ........................................................................................................ XX
CHAPTER ONE ................................................................................................... 1
INTRODUCTION................................................................................................. 1
1.1 Introduction ..................................................................................................... 1
1.2 Background ...................................................................................................... 2
1.3 Problem Identification .................................................................................... 5
1.4 Research Rationale Identification ................................................................. 7
1.5 Research Question and Objectives .............................................................. 10
1.6 Methodology .................................................................................................. 11
1.7 Scope of the Research ................................................................................... 11
1.8 Contribution of the Study............................................................................ 12
  1.8.1 Academic Contribution ............................................................................ 12
  1.8.2 Practical Contribution .............................................................................. 13
1.9 Synopsis of the Thesis ................................................................................... 13
1.10 Summary ...................................................................................................... 17
CHAPTER TWO ................................................................................................ 18
THE BANGLADESHI APPAREL INDUSTRY .............................................. 18
2.1 Introduction ..................................................................................................... 18
2.2 Global Trends in the Apparel Industry ...................................................... 18
2.3 Apparel Supply Chains ................................................................................. 20
2.4 The Bangladeshi Apparel Industry .............................................................. 23
2.4.1 Evolution of the Apparel Industry............................................................ 25
  2.4.1.1 Phase 1: Developments before 2004 ................................................. 25
  2.4.1.2 Phase 2: Post MFA ............................................................................ 26
  2.4.1.3 Phase 3: Global financial crisis ......................................................... 26
  2.4.1.4 Phase 4: Post-GFC ............................................................................ 27
  2.4.1.5 Phase 5: Safer facilities and sustainable apparel ............................... 27
  2.4.2 Organisational and Ownership Structure ................................................. 28
  2.4.3 Challenges Faced in the Apparel Industry .............................................. 29
    2.4.3.1 End-market and product concentration ........................................... 30
    2.4.3.2 Lack of backward linkages and long lead times ............................. 30
    2.4.3.3 Low productivity and lack of skills................................................. 31
    2.4.3.4 Poor record of labour and environmental compliance .................... 31
    2.4.3.5 Inadequate logistics infrastructure ................................................. 32
    2.4.3.6 Bureaucratic inefficiency .............................................................. 33
    2.4.3.7 Limited regional integration .......................................................... 33
    2.4.3.8 Economic and political stability...................................................... 34
  2.5 Disasters in the Apparel Industry............................................................... 34
  2.6 Studies on Social Responsibility in the Bangladeshi Apparel Industry ... 37
  2.7 Summary................................................................................................... 41

CHAPTER THREE ............................................................................................ 43

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT ................. 43

3.1 Introduction............................................................................................... 43

3.2 Theoretical Foundations of the Research ................................................. 44
    3.2.1 Transaction Cost Economics (TCE) ............................................... 46
    3.2.2 Resource-Based View (RBV) ......................................................... 48
    3.2.3 Agency Theory .................................................................................. 49

3.3 Social Responsibility (SR) ....................................................................... 51

3.4 Supply Chain Management (SCM) .......................................................... 53

3.5 Socially Responsible Supply Chains ......................................................... 55

3.6 Literature Review on Socially Responsible Supply Chains ................. 58
    3.6.1 Studies on Socially Responsible Supply Chains.............................. 58
    3.6.2 Studies on Extending Social Responsibility to Suppliers............... 64
3.7 Conceptual Framework .......................................................................................... 71
  3.7.1 Governance Mechanisms ............................................................................ 71
    3.7.1.1 Supplier selection mechanisms ......................................................... 72
    3.7.1.2 Supplier development mechanisms ................................................... 78
  3.7.2 Firm Performance ...................................................................................... 81
    3.7.2.1 Economic performance ..................................................................... 82
    3.7.2.2 Environmental performance .............................................................. 83
    3.7.2.3 Social performance ............................................................................ 83
  3.7.3 Agency Problems ....................................................................................... 84

3.8 Hypothesis Development ................................................................................. 86
  3.8.1 Supplier Selection and Supplier Development ........................................ 86
  3.8.2 Supplier Selection and Firm Performance ............................................... 87
  3.8.3 Supplier Development and Firm Performance ......................................... 88
  3.8.4 The Mediating Role of Supplier Development on Supplier Selection and Firm Performance .............................................................................................. 89
  3.8.5 Effects of Agency Problems on the Relationship between Governance Mechanisms and Firm Performance ................................................................. 90
  3.8.6 Environmental, Social, and Economic Performance ................................ 92

3.9 Summary .......................................................................................................... 92

CHAPTER FOUR ...................................................................................................... 94
RESEARCH METHODOLOGY .......................................................................... 94

4.1 Introduction ..................................................................................................... 94

4.2 Research Paradigm ......................................................................................... 95
  4.2.1 Research Paradigm Principals .................................................................. 95
    4.2.1.1 Ontology ............................................................................................ 96
    4.2.1.2 Epistemology .................................................................................... 96
    4.2.1.3 Methodology ..................................................................................... 97
  4.2.2 Research Paradigm Classification ............................................................ 97

4.3 Elements of the Research Design and Research Process ......................... 101

4.4 Research Methods ......................................................................................... 104

4.5 Questionnaire Design and Development ................................................... 105
  4.5.1 Layout of the Questionnaire ................................................................... 106
  4.5.2 Scaling and Measurement ...................................................................... 106
4.5.3 Questionnaire Development............................................................. 108
  4.5.3.1 Respondents’ profiles................................................................. 108
  4.5.3.2 Operationalisation of constructs................................................. 109
  4.5.3.3 Social desirability bias ................................................................. 110
  4.5.4. Pre-Test ....................................................................................... 115
  4.5.5 Pilot Study .................................................................................... 117
4.6 Sample Design ..................................................................................... 118
  4.6.1 Sampling Frame ............................................................................. 118
  4.6.2 Sampling Methods ......................................................................... 118
  4.6.3 Sample Size .................................................................................. 119
4.7 Data Collection Procedure ................................................................. 120
4.8 Unit of Analysis ................................................................................... 121
4.9 Time Horizon ..................................................................................... 121
4.10 Data Analysis Procedure .................................................................... 122
  4.10.1 Structural Equation Modelling..................................................... 122
    4.10.1.1 Covariance-based structural equation modelling (CB-SEM) .... 123
    4.10.1.2 Partial least squares structural equation modelling (PLS-SEM) ... 123
  4.10.2 Reasons for Using PLS-SEM ....................................................... 124
  4.10.3 Reflective and Formative Construct Specifications ..................... 125
4.11 Ethical Considerations ....................................................................... 127
4.12 Summary ........................................................................................... 128
CHAPTER FIVE ......................................................................................... 129
DATA ANALYSIS ..................................................................................... 129
5.1 Introduction ......................................................................................... 129
5.2 Sample Size Requirement .................................................................... 129
5.3 Demographic Profile ........................................................................... 132
  5.3.1 Respondents’ Profiles................................................................. 132
  5.3.2 Organisational Profiles ................................................................. 134
5.4 Preliminary Analysis ........................................................................... 135
  5.4.1. Assessment of Missing Values................................................... 136
  5.4.2. Assessment of Outliers ............................................................... 137
  5.4.3 Assessment of Normality .............................................................. 139
5.4.4 Assessment of Common Method Variance and Social Desirability Bias ................................................................. 141

5.5 Assessment of Measurement Model ................................................................. 143
  5.5.1 Indicator Reliability ........................................................................... 145
  5.5.2 Internal Consistency .......................................................................... 146
  5.5.3 Convergent Validity ........................................................................... 148
  5.5.4 Discriminant Validity ........................................................................ 149
  5.5.5 Quality of the Measurement Model .................................................... 151
  5.5.6 Assessment of the Formative Hierarchical Component Model ......... 152
    5.5.6.1 Internal validity ........................................................................... 152
    5.5.6.2 Multicollinearity ........................................................................ 153

5.6 Assessment of the Structural Model ............................................................ 155
  5.6.1 Collinearity of Dependent Variables .................................................. 157
  5.6.2 Significance of the Path Coefficients ............................................... 157
  5.6.3 Coefficient of Determination ($R^2$) .................................................. 160
  5.6.4 Effect Size ($f^2$) .............................................................................. 160
  5.6.5 Predictive Relevance ($Q^2$) .............................................................. 161

5.7 Evaluation of Mediating Effects ............................................................... 163
  5.7.1 Criteria for Evaluating Mediating Effects ........................................ 164
  5.7.2 Size of Mediating Effects .................................................................. 167
  5.7.3 Total Effects of Exogenous Constructs on Firm Performance .......... 167
  5.7.4 Results of Mediating Effects ............................................................. 167

5.8 Evaluation of Moderating Effect ............................................................... 170
  5.8.1 Criteria for Evaluating Moderating Effects ..................................... 171
  5.8.2 Results of Moderating Effects .......................................................... 171

5.9 Results of All Hypothesised Relationships ............................................ 172

5.10 Summary ............................................................................................... 173

CHAPTER SIX ............................................................................................. 175
DISCUSSION ............................................................................................. 175
6.1 Introduction ............................................................................................. 175
6.2 Discussion of the Governance Mechanisms and Agency Problem
  Constructs ............................................................................................... 175
    6.2.1 Supplier Selection ........................................................................... 176
7.4 Limitations ................................................................................................... 217
7.5 Direction for Future Research ................................................................... 218
7.6 Final Concluding Remarks ........................................................................ 219
7.7 Summary ...................................................................................................... 221
REFERENCES .................................................................................................. 222
APPENDIX ........................................................................................................ 245
Appendix A: Ethics Approval .......................................................................... 245
Appendix B: Survey Questionnaire .................................................................. 246
Appendix C: Items Removed During Factor Analysis ...................................... 259
LIST OF FIGURES

Figure 1.1: Global apparel and non-apparel manufacturing market geography segmentation .......................................................................................................................... 3

Figure 1.2: Global and Asia-Pacific apparel and non-apparel manufacturing market values: $US billion, 2012–16 and forecast 2017-2020 ........................................ 3

Figure 1.3: Framework of thesis organisation ......................................................... 16

Figure 2.1: Trade shifts among the top leading apparel exporters, 2000-2016 .... 20

Figure 2.2: Apparel supply chains ........................................................................ 21

Figure 2.3: Pyramid iceberg model in apparel supply chains ............................... 22

Figure 2.4: Number of factories and employees in the Bangladeshi RMG industry ....................................................................................................................... 24

Figure 3.1: Responsible supply chain framework ................................................. 57

Figure 3.2: Number of journal articles published over the last decade ................. 59

Figure 3.3: Classification of studies based on their research design ..................... 60

Figure 3.4: Conceptual framework ....................................................................... 86

Figure 4.1: Range of methodologies and related paradigms ............................... 101

Figure 4.2: The research process ......................................................................... 103

Figure 4.3: Four hierarchical component models ............................................... 126

Figure 5.1: G* power – A Priori analysis ........................................................... 131

Figure 5.2: G* power – post-hoc analysis ........................................................... 132

Figure 5.3: Reflective-Formative Type II and repeated-indicator approach: Mode B .................................................................................................................. 144

Figure 5.4: Final model with factor loadings ...................................................... 145

Figure 5.5: Two-stage approach .......................................................................... 156

Figure 5.6: Structural model – impact of governance mechanisms on firm performance ............................................................................................................. 159

Figure 5.7: A three-variable non-recursive causal model ................................... 164
Figure 5.8: Establishing mediation and classifying type ........................................ 165
Figure 5.9: Results of the hypothesised relationships.......................................... 173
Figure 6.1: Interaction between supplier selection and agency problems with social performance .......................................................................................... 199
Figure 6.2: Interaction between supplier selection and agency problems with economic performance ................................................................. 200
Figure 6.3: Interaction between supplier selection and agency problems with environmental performance ................................................................. 200
Figure 6.4: Interaction between supplier development and agency problems with social performance ................................................................. 201
Figure 6.5: Interaction between supplier development and agency problems with economic performance ................................................................. 201
Figure 6.6: Interaction between supplier development and agency problems with environmental performance ................................................................. 202
Figure 7.1: Links between the thesis chapters and the research question and objectives ........................................................................................................... 221
LIST OF TABLES

Table 2.1: Major incidents in the garment industry .................................................. 35
Table 2.2: Incidents in the Bangladeshi garment industry ......................................... 36
Table 2.3: Summary of articles on social responsibility in the Bangladeshi apparel industry .............................................................................................................. 39
Table 2.4: Principles of a social responsibility framework in the Bangladeshi apparel industry ............................................................................................. 41
Table 3.1: Agency assumptions applied to the buyer-supplier relationship .......... 51
Table 3.2: Related definitions of social responsibility in supply chains ............... 56
Table 3.3: Classification of literature into different categories ......................... 61
Table 3.4: Literature on extending social responsibility to suppliers ............... 67
Table 3.5: Supplier selection factors and their selected sources ...................... 73
Table 3.6: Operational selection criteria in the apparel industry and relevant references ...................................................................................................... 75
Table 3.7: Environmentally sustainable criteria in the apparel industry and relevant references ........................................................................................ 76
Table 3.8: Socially sustainable criteria in the apparel industry and relevant references ...................................................................................................... 78
Table 3.9: The supplier development governance mechanism and relevant literature ........................................................................................................ 79
Table 4.1: The basic beliefs of research paradigms .............................................. 98
Table 4.2: Current thoughts on research paradigms ............................................. 99
Table 4.3: Assumptions of qualitative and quantitative paradigms ................. 100
Table 4.4: Dimensions of the research design .................................................... 102
Table 4.5: Respondent profile questions ............................................................. 109
Table 4.6: Initial questionnaire items and their relevant sources .................... 112
Table 4.7: Pre-test respondents and organisational profiles .......................... 115
Table 4.8: Instrument refinement ........................................................................ 117
# LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCORD</td>
<td>Accord on Fire and Building Safety</td>
</tr>
<tr>
<td>ALLIANCE</td>
<td>Alliance for Bangladesh Worker Safety</td>
</tr>
<tr>
<td>AMOS</td>
<td>Analysis of Moments Structures</td>
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<tr>
<td>AP</td>
<td>Agency Problems</td>
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<td>AT</td>
<td>Agency Theory</td>
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<tr>
<td>AVE</td>
<td>Average Variance Extracted</td>
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<tr>
<td>BCHEAN</td>
<td>Business College Human Ethics Advisory Network</td>
</tr>
<tr>
<td>BGMEA</td>
<td>Bangladesh Garment Manufacturing Export Association</td>
</tr>
<tr>
<td>CAP</td>
<td>Corrective Actions Plans</td>
</tr>
<tr>
<td>CB-SEM</td>
<td>Covariance-Based Structural Equation Modelling</td>
</tr>
<tr>
<td>CFA</td>
<td>Confirmatory Factor Analysis</td>
</tr>
<tr>
<td>CR</td>
<td>Composite Reliability</td>
</tr>
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<td>CSR</td>
<td>Corporate Social Responsibility</td>
</tr>
<tr>
<td>ECP</td>
<td>Economic Performance</td>
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<tr>
<td>EFA</td>
<td>Exploratory Factor Analysis</td>
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<tr>
<td>ENP</td>
<td>Environmental Performance</td>
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<td>EPZ</td>
<td>Export Processing Zones</td>
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<td>ESC</td>
<td>Environmentally Sustainable Criteria</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>FP</td>
<td>Financial Performance</td>
</tr>
<tr>
<td>GC</td>
<td>Goal Conflicts</td>
</tr>
<tr>
<td>GFC</td>
<td>Global Financial Crisis</td>
</tr>
<tr>
<td>GOF</td>
<td>Goodness-of-Fit</td>
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<td>GSP</td>
<td>Generalised System of Preferences</td>
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<tr>
<td>IA</td>
<td>Information Asymmetry</td>
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<tr>
<td>ISO</td>
<td>International Standard Organisation</td>
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<tr>
<td>MFA</td>
<td>Multi-Fibre Agreement</td>
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<td>OBM</td>
<td>Original Brand Manufacturing</td>
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<tr>
<td>OEM</td>
<td>Original Equipment Manufacturing</td>
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<tr>
<td>OSC</td>
<td>Operational Selection Criteria</td>
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<td>PLS-SEM</td>
<td>Partial Least Squares Structural Equation Modelling</td>
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<tr>
<td>Acronym</td>
<td>Definition</td>
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<td>------------------------------------------------</td>
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<tr>
<td>PSR</td>
<td>Purchasing Social Responsibility</td>
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<td>RA</td>
<td>Risk Aversion</td>
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<td>RBV</td>
<td>Resource Based View</td>
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<td>SA</td>
<td>Supplier Assessment</td>
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<td>SC</td>
<td>Supplier Collaboration</td>
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<td>SCM</td>
<td>Supply Chain Management</td>
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<td>SCR</td>
<td>Supply Chain Responsibility</td>
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<td>SD</td>
<td>Supplier Development</td>
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<td>SEM</td>
<td>Structural Equation Modelling</td>
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<td>SOP</td>
<td>Social Performance</td>
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<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
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<tr>
<td>SR</td>
<td>Social Responsibility</td>
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<tr>
<td>SR-SCM</td>
<td>Socially Responsible Supply Chain Management</td>
</tr>
<tr>
<td>SR-SCO</td>
<td>Socially Responsible Supply Chain Orientation</td>
</tr>
<tr>
<td>SS</td>
<td>Supplier Selection</td>
</tr>
<tr>
<td>SSC</td>
<td>Socially Sustainable Criteria</td>
</tr>
<tr>
<td>TCE</td>
<td>Transaction Cost Economics</td>
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<tr>
<td>TREES</td>
<td>Toward Resource Efficiency and Environmental Sustainability</td>
</tr>
<tr>
<td>US</td>
<td>United States of America</td>
</tr>
<tr>
<td>VAF</td>
<td>Variance Accounted For</td>
</tr>
<tr>
<td>VIF</td>
<td>Variance Inflation Factor</td>
</tr>
<tr>
<td>WBCSD</td>
<td>World Business Council for Sustainable Development</td>
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<td>WTO</td>
<td>World Trade Organisation</td>
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LIST OF PUBLICATIONS

Journal papers


Book Chapters


Refereed Conference Papers (Full Paper)


ABSTRACT

The emergence of global apparel supply chains has raised concerns relating to unethical practices at the suppliers’ manufacturing facilities located in low-cost producing economies. This research addresses the question of how social responsibility can be implemented at the facilities of apparel manufacturers in the context of global apparel supply chains. Bangladesh, the world’s second largest apparel exporter, is known to employ unethical practices in its manufacturing facilities. Thus, the present study examines the implementation of social responsibility in the Bangladeshi context. Through a literature review of supply chains, supplier selection and supplier development underlined by transaction cost economics (TCE) and resource-based view (RBV) theories are identified as key governance mechanisms for implementing social responsibility at supplier facilities. The proposed conceptual model identifies supplier selection and supplier development as the second-order constructs formed by operational selection criteria, environmentally sustainable criteria, and socially sustainable criteria, in addition to supplier assessment and supplier collaboration constructs. The conceptual model investigates the relationship between socially responsible governance mechanisms and firm performance. Further, based on agency theory, role of agency problems as a moderator on the relationship between supplier development and economic performance is examined.

Based on 267 responses from Bangladeshi apparel manufacturers, and employing the partial least squares structural equation modelling (PLS-SEM) method, this study tests the hypothesised relationship between socially responsible governance mechanisms and firm performance. The results show that both supplier selection and supplier
development governance mechanisms have a positive impact on a firm’s social and environmental performance. However, supplier selection has no effect on a firm’s economic performance, whereas supplier development has a positive impact on economic performance. The results also demonstrate that the supplier development mechanism mediates the relationship between supplier selection and a firm’s environmental and social performance. In addition, the results also illustrate that agency problems have a moderating effect on the relationship between supplier development and economic performance.

This thesis makes significant theoretical, practical, and methodological contributions in relation to developing a model for the implementation of social responsibility in supply chains by integrating supplier selection with the supplier development governance mechanism. Through investigating the role of agency problems in the relationship, this study has also provided a new theoretical perspective on agency theory. The research findings can help managers and policy makers to identify practices for the implementation of social responsibility in supply chains.

**Keywords:** Apparel industry, governance mechanisms, social responsibility, socially responsible supply chains.
CHAPTER ONE
INTRODUCTION

1.1 Introduction

This thesis investigates the socially responsible governance mechanisms among apparel manufacturers\(^1\) in global supply chains in the context of a developing economy, Bangladesh. It develops and validates a model for identifying (1) the governance mechanisms for the implementation of social responsibility at supplier manufacturing facilities in global apparel supply chains, (2) the impact of socially responsible mechanisms on firms’ environmental, social, and economic performance, and (3) the role of agency problems on socially responsible mechanisms and firms’ performance relationships.

This chapter provides an introduction to the research. Following the introduction, Section 1.2 presents the background information. In Section 1.3, problem identification is detailed, while Section 1.4 reviews the preliminary literature and outlines the research rationale of the study. The overarching aim of the research and the specific research objectives are proposed in Section 1.5. After this, a brief overview of the methodology adopted in this study is given in Section 1.6, while Section 1.7 highlights the scope of the research. The theoretical and practical contributions of the study are stated in Section 1.8, Section 1.9 outlines the subsequent chapters, and finally, a summary of the thesis is provided in Section 1.10.

\(^{1}\) The terms ‘manufacturing firms’ and ‘suppliers’ are used synonymously throughout this thesis.
1.2 Background

For the last three decades, there has been an increase in customer demand for products with lower prices, better quality, reliability, and a shorter time to market. In order to respond to these demands, firms started to adopt various strategies, such as strategic alliances, partnerships, joint ventures, and outsourcing with several organisations (Bello, Dant & Lohtia 1997). In particular, developing economies with low-cost manufacturing have encouraged large organisations to outsource their manufacturing operations. In 2015, developing economies accounted for 39 per cent of the total world merchandise trade of US$15,984 billion (WTO 2016).

Among merchandise trade, manufactured products contribute to 71 per cent of global trade. World exports of manufactured goods increased from US$8,000 billion in 2006 to US$11,000 billion in 2016 (WTO 2017). Specifically, Asia has become the world's manufacturing hub. In this sense, with regard to manufactured products, Asia is known as the apparel factory of the world. Factories in the Asia-Pacific region manufacture about 61 per cent of the world’s apparel and non-apparel products (see Figure 1.1). In contrast, Europe produces 15 per cent of the world’s apparel and non-apparel products. Further, Figure 1.1 illustrates the geographical segmentation of apparel and non-apparel manufacturing countries in the Asia-Pacific region. In this regard, China manufacturers 63 per cent of apparel-related products, followed by India with 12 per cent of manufacturing.
In terms of the market value of global and Asia-Pacific apparel manufacturing, there has been an increase in value from US$660.4 billion in 2012 to US$785.9 billion in 2016 and from US$384.4 billion in 2012 to US$644.1 billion in 2016, respectively. It is also projected that the market value of global and Asia-Pacific apparel manufacturing will continue to increase until 2020 (see Figure 1.2) (Marketline 2017). Despite the increase in the value of the apparel manufacturing market both globally...
and in the Asia-Pacific region, the rate of the increase is greater in the Asia-Pacific region, which predominantly exports manufactured apparel products to the rest of the world (Perry & Towers 2013). Technological advancements, reduced tariff barriers, free trade agreements, increased mobility in labour and capital, increased manufacturer capabilities to act independently, and improved logistics have accelerated developing nations growth in export share (Wathne & Heide 2004).

All in all, sourcing from low-cost destinations has resulted in the transfer of social responsibility beyond organisations’ boundaries of ownership and control (Gimenez & Tachizawa 2012). This comes at a price of a different nature, in which organisations are liable to threats to their reputation due to misconduct along the supply chain. For instance, Apple Corporation has been criticised for the harsh working conditions at its supplier’s Faxconn factory, whereas Nike has been vilified because of its subcontractors’ use of child labour (Park-Poaps & Rees 2009). More recently, major US and Australian grocery chains were held accountable for the slave labour involved in the prawn industry. As a result, greater global attention is being placed on major brands or buyers who are sourcing from factories in developing nations. Multiple stakeholders expect global buyers to ensure that their supply chain partners who are located in developing countries are socially sustainable. This scenario has led to including aspects of social responsibility on the management agendas of large organisations from developed nations (McWilliams & Siegel 2001), since “a company is no more sustainable than its supply chain” (Krause, Vachon & Klassen 2009, p.18).
1.3 Problem Identification

Despite efforts towards social responsibility, many well-known garment and footwear manufacturers and retailers are known to abuse human rights by operating sweatshops in third-world countries. A few recent incidents that have shocked the apparel supply chain are as follows: a fire in a garment manufacturing factory in Karachi that burned over 300 people to death on 11 September 2012; another incidence of fire in Dhaka in November 2012, where 112 workers were killed; and the collapse of the Rana Plaza building in Bangladesh in May 2013, where more than 1,130 people died and more than 2,500 were injured, which was considered as the most tragic incident in the history of the apparel industry (Lund-Thomsen & Lindgreen 2014). Before the collapse of Rana Plaza, several fires that occurred during the past four years in the Bangladeshi apparel industry have killed approximately 160 workers. These are not isolated incidents, but they appear to be happening in a systematic manner. It has been suggested that poor safety standards contributed to the large number of fatalities in these accidents. In addition, the apparel industry is known for its low wages, unacceptable working conditions, and poor record of environmental compliance (Kurpad 2014). Social failures due to the poor supply chain-wide implementation of socially responsible practices have been especially evident in labour-intensive industries, particularly in the apparel sector.

As mentioned in Section 1.2, Asian countries are major manufacturers of apparel. Bangladesh is the world’s second largest apparel exporter, with an export value of over US$28 billion in 2016 (WTO 2017). It also accounts for nearly 81 per cent of the nation’s export income and 13.5 per cent of GDP (BGMEA 2017). Despite the
significance of the apparel industry to the nation’s economy, the Rana Plaza collapse highlighted the need for safety standards at manufacturing facilities.

In the context of the Bangladeshi apparel industry, lower labour costs per unit offered competitiveness over other countries. Although recent times have witnessed an increase in the minimum wage, wages still remained very low in comparison to other countries (Kamal 2013). Manufacturing facilities in Bangladesh are known for their harmful and hazardous working conditions. The characteristics of the apparel industry that favour unfair employment are (1) labour intensive production and limited automation, (2) competitive pressures to lower production costs, and (3) transparency issues in the supply chain with respect to several subcontractors (Park-Poaps & Rees 2009). Perry and Towers (2013) identify high product variety, high volatility, low predictability, seasonality, and intense competition as the other factors that challenge the industry’s financial stability. In addition, the use of chemicals for textile dying and washing and waste disposal have raised concerns regarding environmental compliance in the Bangladeshi apparel industry (McKinsey 2011). The lack of skilled labour and inconsistencies in labour productivity are the other issues faced by the industry (Islam & Deegan 2010).

To sustain the nation’s economic growth, the apparel industry in Bangladesh needs to ensure that manufacturing facilities are safe and free from hazards. Meanwhile, multi-national corporations (MNCs) sourcing from low-cost nations are being scrutinised with regard to their policies relating to social aspects. In this sense, employees, trade associations, customers, governmental agencies, and several other stakeholders are applying intense pressure on MNCs to implement socially responsible practices in their apparel supply chains. Although the implementation of socially responsible
practices on distant suppliers is very challenging for MNCs, their implementation is crucial for the apparel industry due to its significance in international trade.

1.4 Research Rationale Identification

Globalisation has led to an increase in the power of MNCs to influence the society in which they operate, in addition to expectations regarding corporate responsibility and accountability amongst stakeholders. However, the implementation of practices relating to social responsibility, such as worker’s rights, health and safety, and social capital development, for the entire supply chain is an enormous task for MNCs. In the last two decades, there has been an increased emphasis in research on incorporating social issues in purchasing and supply chain activities; in this sense, links between purchasing and logistics and social responsibility (Carter & Jennings 2000; Carter & Jennings 2002), socially responsible buying (Leire & Mont 2010), and supply chain governance models for the effective implementation of social standards (Lund-Thomsen & Lindgreen 2014) are some examples of social responsible supply chain research areas. Most of these studies have emphasised MNCs obligation in relation to the implementation of supply chain-wide social responsibility. McNamara (2008), Huq, Stevenson and Zorzini (2014) and several others have highlighted the importance of implementing socially responsible policies at manufacturing facilities. Social responsibility refers to the approach towards managing ethics in organisations by building relationship amongst several stakeholders (McWilliams & Siegel 2001; Waddock 2004; Lu, Lee & Cheng 2012).

To implement social responsibility in supply chains, governance mechanisms are used. The notion of governance is associated with the process of economic exchange among firms and their associated organisations (Burkert, Ivens & Shan 2012).
Governance offers guidelines for establishing and structuring the relationship among supply-chain members (Gimenez and Sierra, 2013). It is also used as a tool to resolve conflicts in the relationship and to realise the mutual gain that can be achieved from participating in the exchange process (Williamson, 2002; Sancha, Wong & Thomsen 2016). Identifying and selecting supply-chain members, managing and developing the relationships with the supply-chain partners are the governance mechanisms that can be used for the implementation of social responsibility in supply chain.

In particular, MNCs are increasingly using supplier codes of conduct and other third-party certifications, such as Social Accountability 8000 (SA 8000), for supplier selection, with the aim of implementing social responsibility in supply chains. When the relationship is new and not transparent, the greater use of such standards for selecting suppliers provides an indication of the standards of potential suppliers from developing countries. In practice, greater emphasis is given to the content of the standards and not their execution (Huq, Stevenson & Zorzini 2014). It is apparent that there are some flaws relating to the auditing and inspection practices associated with supplier selection (Lim & Phillips 2008). To overcome the drawbacks associated with implementation of the selection mechanism, organisations are investigating in relationship mechanisms such as supplier development.

Relationships with stakeholders improve the operational efficiency and effectiveness of firms (Gallear, Ghobadianb & Chena 2012). In particular, the implementation of socially responsible practices through stakeholder relationships will improve the performance for most MNCs that are in the public eye. In addition, MNCs in the supply chain are responsible for the environmental and social performance of their suppliers. In past, to explain the relationship between governance mechanisms and the
efficiencies obtained in a socially responsible supply chain, transaction cost economics (TCE), resource-based view (RBV), and agency theory are used. However, only a limited number of studies have examined the social, economic, and environmental performance of social responsible supply chains.

Most studies on socially responsible governance mechanisms have been conducted from the buying firm’s perspective (Krause & Ellram 1997; Modi & Mabert 2007; Lu, Lee & Cheng 2012). As the unit of competition has shifted from individual firms to the supply chain, it can be suggested that future studies on socially responsible governance should incorporate the viewpoint of the supplier. In addition, most buying firms are located in developed nations, and therefore the findings of these studies cannot be generalised to developing nations’ contexts. In this sense, incorporating the suppliers’ perspectives would provide insights from the context of developing nations.

Against this background, the key gaps identified in the literature can be summarised as follows:

- There is limited research focusing on how buying firms assist in developing supplier capabilities that enhance the chain-wide social performance.
- There are a limited number of studies that have incorporated the selection mechanism as a means of implementing social responsibility.
- Despite the greater importance given to the social dimension of sustainability in global supply chains, there has been limited research on the social dimension.
- Fewer studies have been conducted in the context of developing countries, in comparison to developed countries.
• In comparison to buyers, there has been considerably less focus on suppliers when studying the implementation of socially responsible practices.

• Studies on governance mechanism and firm performance have ignored the problems in buyer-supplier relationships.

To address the aforementioned research gaps, this study examines the implementation of socially responsible governance mechanisms and their impact on firm performance.

1.5 Research Question and Objectives

The aim of the proposed research is to examine the following:

“How social responsibility can be implemented in the apparel manufacturing facilities of multi-national retailers in the context of global apparel supply chains, and its impact on sustainable performance?”

In order to address the main research question, the following specific objectives have been formulated:

• To identify the governance mechanisms for the implementation of social responsibility at supplier manufacturing facilities in the context of global apparel supply chains.

• To examine the impact of socially responsible governance mechanisms on the social, environmental, and economic performance of the firm.

• To measure the impact of agency problems as a moderator on the relationship between socially responsible governance mechanisms and firm performance.

• To study the impact of social and environmental performance on the economic performance of a firm.
1.6 Methodology

This research study adopts a positivist research paradigm. A positivist considers research from a realist perspective and adopts a scientific method to test hypotheses (Easterby-Smith, Thorpe & Lowe 1991). In this sense, the present study aims to develop a theoretical model with testable hypotheses.

To test the hypotheses regarding the impact of socially responsible governance mechanisms on firm performance, a quantitative methodology was adopted. To gather information, survey questionnaires were developed. A pre-test was used to strengthen the content validity of the survey instrument by investigating the degree of relevance of each variable item, in addition to confirming the proposed items in the survey through expert opinions from industry and academia. Following this, a pilot study was conducted to identify the internal consistency and reliability of the measured items and to examine the clarity and time allocated for the respondents to answer the questionnaires. A drop-and-collect method was used to distribute the survey questionnaires to manufacturers listed by the BGMEA (Bangladesh Garment Export Manufacturers & Export Association). Data obtained from the surveys was screened in order to verify that it was correctly entered, there were no missing values, it was free of outliers, and that the distribution of the variables was normal. To test the hypotheses between the observed and latent variables in a research model, a structural equation modelling (SEM) approach was used.

1.7 Scope of the Research

This research investigates the adoption of social responsibility in global apparel supply chains from the perspective of Bangladeshi apparel manufacturers. The scope
of the research is limited to apparel manufacturers listed by the BGEMA that are exporting to retailers in developed nations. In this study, the term ‘suppliers’ refers to the manufacturers that operate manufacturing facilities in Bangladesh, while ‘buyers’ refers to retailers or buying houses that source apparel from manufacturers. The unit of measure is the organisation. The data for this study is derived from a single respondent from each participating organisation who possesses relevant knowledge and experience in socially responsible activities, supply chain management, procurement, and production and operations management.

1.8 Contribution of the Study

This study identifies the critical governance mechanisms for the implementation of social responsibility in the Bangladeshi apparel industry and its effects on firm performance. In this process, this study contributes to the existing body of knowledge and research on social responsibility practices in supply chains in several ways, as outlined in Sections 1.8.1 and 1.8.2.

1.8.1 Academic Contribution

This study enhances understanding of the factors that influence the implementation of social responsibility and the impact of socially responsible mechanisms on firm performance. This study also synthesises the existing fragmented and independent literature on supply chain governance mechanisms and socially responsible activities to outline a list of socially responsible mechanisms. By employing the analytical power of the partial least squares structural equation modelling (PLS-SEM), the relationship between the determinants of socially responsible mechanisms and their impact on firm performance is examined and established. Further, from an agency
theory perspective, this study helps to develop an understanding of the problems in the retailer-manufacturer dyadic relationship. Finally, the findings from the model developed in this study can be used to examine the social responsibility issues in other apparel exporting nations, such as Vietnam and Cambodia.

1.8.2 Practical Contribution

In terms of practical contributions, this study provides a framework for practitioners with the key governance mechanisms that need to be considered for social responsibility operations and their influence on firm performance. The research findings can help government policy makers, industry leaders, and organisations like the BGMEA identify appropriate practices to enable social responsibility in the apparel industry.

1.9 Synopsis of the Thesis

This thesis is comprised of seven chapters. Chapter 1 sets out the background to the research. A review of the literature on social responsibility in supply chains is conducted in this chapter, which also defines the research aim and related objectives. Further, the chapter also presents an overview of the proposed research methodology, the scope of the study, and the implications of the study. Finally, the chapter concludes with the structure of the thesis.

Chapter 2 provides an overview of the global apparel industry and its supply chains. In particular, the evolution of the Bangladeshi apparel industry and the challenges faced by the industry are discussed. The chapter also highlights some of the horrific incidents that have happened in the industry globally and, in particular, in the Bangladeshi apparel industry. Finally, this chapter offers a systematic review of the
literature on the Bangladeshi apparel industry in order to identify the socially responsible aspects of the Bangladeshi apparel industry in the context of the research study.

Chapter 3 presents the theoretical background underlying the study. It provides a comprehensive review on social responsibility in supply chains and presents the definition of socially responsible supply chains to be used in this study. Through a systematic review, this chapter identifies various themes in the social responsible supply chain literature. Further, to develop a conceptual framework, this chapter examines the literature on existing social responsibility frameworks and sustainability in supply chains, in addition to how the latter affects performance. Finally, this chapter proposes the hypotheses to be tested.

Chapter 4 presents a justification of the research design used in the study, i.e. the research paradigm, methodologies of choice, and empirical design. It also provides discussion on the steps involved in developing the research instrument (pre-test and pilot study), the data collection procedure, and the justification for the use of PLS-SEM for data analysis. Finally, this chapter also explains the ethical considerations of the research.

Chapter 5 presents a discussion on data cleaning, examination, and preparation for analysis. It provides the results of the descriptive data analysis. In addition, this chapter also reports on the results of the data analysis using PLS-SEM to examine the measurement model and test the hypotheses through structural model evaluation. Further, the structural model in this chapter also examines the mediation and moderation analysis.
Chapter 6 discusses the findings of the statistical analysis presented in Chapter 5. This chapter provides discussion of the constructs and their intended items, in addition to also explaining the effects of socially responsible governance mechanisms on firm performance and reporting on the role of agency problems on the relationship between the governance mechanisms and firm performance.

Chapter 7 provides a discussion of the research objectives and hypotheses presented in Chapters 1 and 3 respectively. Based on the research findings, this chapter outlines the theoretical and practical implications of the study. It also details the limitations of the study as well as future research areas. Finally, this chapter concludes with an overall summary of the research study. Figure 1.4 illustrates the flow of chapters in this thesis.
Figure 1.3: Framework of thesis organisation

**Chapter 1: Introduction**
Provides research background, research problem and questions, scope and contributions of the study.

**Chapter 2: Study Context – Bangladesh Apparel industry**
Literature review on Bangladesh apparel industry background is provided.

**Chapter 3: Literature Review – Conceptual Framework Development**
Analyses a range of social responsible mechanisms in supply chains to develop a theoretical framework and propose hypotheses to be examined.

**Chapter 4: Research Methodology**
Explains the research design and methodology adopted in the study and discusses the development of the survey instrument.

**Chapter 5: Data Analysis and Results**
Data is prepared for statistical analysis and descriptive data analysis is presented. Dimensionality of the model is examined through CFA and model is tested through PLS-SEM.

**Chapter 6: Discussion of Results**
Discussion of the results with respect to governance mechanisms, agency problems and performance is presented.

**Chapter 7: Research Contribution and Conclusions**
Addresses the research questions and discusses the research contribution, limitations and recommendations.
1.10 Summary

In summary, this chapter has provided a background to the importance of social responsibility in apparel manufacturing facilities. In addition, it has discussed the importance of the Bangladeshi apparel industry with regard to global exports and the unethical practices associated with the industry. Based on the literature, this chapter has also identified the research gaps with regard to the relationship between socially responsible governance mechanisms and firm performance. The study’s research question, developed in this chapter, is as follows:

*How social responsibility can be implemented in the apparel manufacturing facilities of multi-national retailers in the context of global apparel supply chains, and its impact on sustainable performance?*

Finally, a brief discussion of the methodology used and the significance and limitations of the research was also presented in this chapter.
CHAPTER TWO

THE BANGLADESHI APPAREL INDUSTRY

2.1 Introduction

Bangladesh is the world’s second largest apparel exporter, next to China. In Bangladesh, the apparel industry contributes to a significant portion of the nation’s export income. This chapter presents an overview of the Bangladeshi apparel industry. Specifically, it details with the significance of the industry and its evolution. Despite the significance of the industry to the nation’s economy, several fatal incidents in different manufacturing facilities have threatened its existence. This chapter also highlights the challenges faced by the industry.

Section 2.1 briefly provides a background to the Bangladeshi apparel industry. Following this introduction, Section 2.2 provides an overview of the trends in the global apparel industry. A description of the apparel supply chain is presented in Section 2.3, while Section 2.4 provides background on the Bangladeshi apparel industry: its global significance, structure, evolution, and challenges. After this, the incidents that have occurred in the global apparel industry are outlined in Section 2.5. Based on the systematic literature review, the principles of a social responsibility framework in the Bangladeshi apparel industry are highlighted in Section 2.6. Finally, Section 2.7 provides a summary of the chapter.

2.2 Global Trends in the Apparel Industry

Since the 1960s, global retailers have been using offshore apparel manufacturing facilities from developing nations in order to address increased pressures for price reductions (Singleton 1997). In addition, the quota restrictions of the Multi-Fibre Arrangement (MFA)
led to the use of new developing nations for apparel manufacture, which resulted in
globalised apparel supply chains. Even after the end of the MFA in 2005, apparel export
value from developing nations continued to increase due to competitive low prices (Gereffi,
& Frederick 2010).

Since 2000, apparel-exporting nations have registered a significant growth in exports,
reaching US$445 billion in 2016 (WTO 2017). During this period, it can be observed that
there have been changes in the position of the world’s leading apparel exporters. Figure 2.1
illustrates the shifts in the percentage of trade among the leading apparel exporters from 2000
to 2016. It can be seen that the export share of the US decreased from 4 per cent in 2000 to
1.3 per cent in 2016. The small decrease in exports from Indonesia, Thailand, and Pakistan
resulted in both Thailand and Pakistan losing their position in the list of the top 10 leading
exporters, while Indonesia retained its position there. On the other hand, the drastic increase
in exports from Bangladesh, Vietnam, and Cambodia secured these countries’ positions on
the list. India and Turkey have also seen an increase in share, from 3 to 4 per cent and from
3.3 to 3.4 per cent respectively. Overall, there has been a significant increase in apparel
export from the Asia-Pacific region. China has remained the leading apparel exporter (WTO
2016), and Bangladesh is second only to China, recording an export share of US$28 billion,
with a growth rate of 6 per cent, in 2016 (WTO 2017). Low capital requirements and labour-
intensive manufacturing are the factors that have helped these Asian countries emerge as
export-oriented nations (Gereffi & Frederick 2010). In particular to Bangladesh, price,
capacity, and capability, along with favourable trade agreements, can be considered as the
factors that have facilitated such massive levels of apparel exports (McKinsey 2011).
Figure 2.1: Trade shifts among the top leading apparel exporters, 2000-2016

2.3 Apparel Supply Chains

In the globalised era, increased outsourcing of manufacturing activities has resulted in most products being affiliated to multiple countries. In particular, apparel supply chains are globally dispersed, with products designed in one country, raw materials sourced from a different country, products manufactured in a third country, and, finally, sales spanning over several countries. Gereffi and Memedovic (2003) illustrate the complexity involved in apparel supply chains, a simplified version of which is shown in Figure 2.2. Each block in the figure represents several members, for example, a retailer represents multiple channels of retail outlets, such as department stores, specialty stores, discounted stores, and factory outlet or e-commerce websites, where the product is sold to the final consumer. An export network consists of brand-named apparel companies, overseas buying houses, and trading companies.

(Source: WTO 2015, 2016, 2017)
The companies in the export network act as intermediaries between retailers and manufacturers. The export network companies not only facilitate the buying process for retailers, but also provide assistance for manufacturers in sourcing materials and retailers in logistical activities (Gereffi & Memedovic 2003).

**Figure 2.2: Apparel supply chains**

Based on the type of operations during the production process, three types of production systems are identified: Assembly, Original Equipment Manufacturing (OEM), and Original Brand Manufacturing (OBM). In the assembly system, manufacturers are provided with imported raw materials for the assembly (stitching) of the final garment. In OEM, the manufacturing firm makes the product according to the buyer’s specification and also has control over the distribution. Finally, in OBM, the most sophisticated model, manufacturers design, manufacture, and sell the product under their own brand name (Gereffi & Memedovic 2003). In the globalised world, the apparel industry has shifted the manufacturing process from OBM through OEM and assembly, resulting in increased visibility concerns.

Further upstream, textile companies source the raw materials (natural and synthetic fibres) required for the yarn and fabric production globally. In addition to textile companies, several other companies supply accessories and components to apparel manufacturers in the supply chain. The global nature of the apparel supply chain results in a scenario where retailers may not have the information about the raw material suppliers upstream. Gupta (2012) has developed a pyramid iceberg model to explain the level of visibility of retailers over their downstream suppliers in an apparel supply chain (see Figure 2.3). From the pyramid iceberg model, it is clear that firms below the water line (i.e. tier-3, 4, and 5 manufacturers) are less
visible in the supply chain. Though tier-3, 4, and 5 manufacturers are less visible, they produce according to the design specifications of their buyers (Ahsan & Azeem 2010).

Figure 2.3: Pyramid iceberg model in apparel supply chains

Overall, globalisation has resulted in a trend where retailers do not own any manufacturing units; instead, they outsource apparel production to manufacturers in developing nations. Buyer-driven apparel supply chains, with an increasing number of network members, have resulted in retailers with minimum control over manufacturers. This scenario has resulted in opportunistic behaviour among supply chain members and unacceptable practices in the apparel industry. As supply chains are no longer sustainable than the companies in the supply chain, it is important for retailers to address sustainable aspects in the supply chains (Gereffi & Frederick 2010). To promote sustainable and socially responsible apparel supply chains globally, the following section details the characteristics of the Bangladeshi apparel industry as a case of an apparel exporting country.
2.4 The Bangladeshi Apparel Industry

MNCs are ‘racing to the bottom’ for cheaper apparel, and Bangladesh has always stood at the forefront of the race (Ahmed & Nathan 2014). The MFA, introduced in 1974, is considered as one of the initial factors that triggered the multi-billion-dollar Bangladeshi apparel industry. In particular, the quota restrictions imposed by the MFA restrained the amount of apparel exports from developing countries, resulting in well-established exporting countries like Korea subcontracting to Bangladeshi manufacturers and utilising unfulfilled quotas (Staritz 2010). Therefore, Bangladeshi apparel companies started as sub-contracting or offshore manufacturing facilities for the apparel firms of other exporting nations. During the period of effective MFA regulation, the Bangladeshi apparel industry experienced a growth rate of more than 25 per cent per year. Even after the phase-out of the MFA in 2005, the growth rate of the Bangladeshi apparel industry was consistent with the MFA period. Further, the rate of Bangladeshi apparel export share continued to increase during the global financial crisis (GFC) of 2008-2009.

By 2016, the apparel industry in Bangladesh contributed US$28 billion, which accounts for more than 81.5 per cent of the nation’s merchandise exports. The Bangladeshi apparel industry had a share of 6.4 per cent in regard to worldwide exports (WTO 2017). The apparel industry in Bangladesh employed over four million workers, among which 85 per cent were women, and had about 4,300 factories in 2015 (BGMEA 2017). The growth in the number of apparel factories and employment generated from 1989 to 2015 can be seen in Figure 2.4. It is clear that there has been a continuous rise in both the number of employees and factories up to 2010, and then there was a decrease in the number of factories in 2015. Despite the decrease in the number of factories, the export share has increased over 6 per cent in the last two years (WTO 2017). The growth of the apparel industry has helped Bangladesh achieve
its position as one of the ‘Frontier Five’ economies (McKinsey 2011), in addition to the ‘Next 11’ emerging countries (Goldman Sachs 2013), for future investments.

Figure 2.4: Number of factories and employees in the Bangladeshi RMG industry

![Graph showing number of factories and employees in the Bangladeshi RMG industry](Source: BGMEA 2017)

The European Union (EU) and the United States of America (US) are the two major export markets for Bangladeshi apparel. Over the last three financial years, more than 58 per cent of Bangladeshi apparel has been exported to the EU, making it the first major export destination. The second largest export market for Bangladeshi apparel is the US, with over 23 per cent for the last three financial years. Price competitiveness, functionality of the products, and good value for money are the factors that have contributed to such substantial export volumes to the EU and the US. Chief purchasing officers from EU and US retailers ranked Bangladesh as the top sourcing destination and anticipated that the 80 per cent of US and EU brands will be sourced from Bangladesh in the future (Berg & Hedrich 2014). Wal-Mart, Nike, Gap, PVH, Tommy Hilfiger, Tesco, Inditex (Zara), H&M, and Marks & Spencer are some of the EU and US brands sourcing from Bangladesh (Kamal & Deegan 2013). End market concentration regarding apparel exports is considered as one of the challenge faced by the
Bangladeshi apparel industry, which will be discussed in Section 2.4.3. The following subsection provides details on the evolution of the Bangladeshi apparel industry.

**2.4.1 Evolution of the Apparel Industry**

After the war for liberation in 1971, the Bangladeshi economy was shattered, and production in the country came to a near halt, with very low economic growth continuing until the 1980s. Since the early 1980s, the apparel industry has contributed greatly to needed growth in the Bangladeshi economy. Now, the apparel industry in Bangladesh contributes 13.5 per cent of the nation’s GDP (BGMEA 2015). Due to the significance of this industry in the country’s industrial development, it is important to understand how the sector evolved. According to Staritz (2010), the evolution of the Bangladeshi apparel industry can be divided into four phases: developments before 2004, post-MFA, during GFC, and post-GFC. However, the collapse of the Rana Plaza building marks another phase in the evolution of the Bangladeshi apparel industry. Therefore, in this section, a fifth phase in the Bangladeshi apparel industry is identified.

**2.4.1.1 Phase 1: Developments before 2004**

During the MFA period, countries like the Republic of Korea and many other East Asian countries reached their export quota and could no longer meet the export demand. To use the unfulfilled quotas of Bangladesh, companies from these countries started joint ventures with entrepreneurs from Bangladesh to produce and export apparel to developed nations, which can be considered as the start of the apparel industry in Bangladesh. Following this, factors such as an abundance of low-cost labour and government policies facilitated the massive expansion of this industry. Until the mid-1990s, the Bangladeshi apparel industry experienced triple digit growth. Until that period, the US was considered as a major market for Bangladeshi apparel exports. In the mid-1990s, Bangladeshi apparel exports reached the
US quota limit, thus restricting US exports. As a result, apparel firms in Bangladesh started to explore new export destinations. Meanwhile, in the 1990s, the EU Generalized System of Preferences (GSP) scheme offered preferential tariffs for Bangladesh to export to the EU. By 2000, apparel exports to the EU accounted for over 50 per cent of the total Bangladeshi apparel exports (Staritz 2010). The year 2004 marks the MFA phase-out, which predicted a decrease in the growth of apparel export from Bangladesh.

2.4.1.2 Phase 2: Post MFA

After the phase-out of the MFA in 2005, despite predictions of a decrease, there was a consistent increase in the export of apparel from Bangladesh, one of the potential reasons for which was China’s safeguards that restricted the export of Chinese apparel to the EU and the US. Manufacturing capabilities and well-established connections led Bangladesh, next to China, to become a favoured apparel exporting country (Staritz 2010). Overall, regardless of negative predictions after the MFA phase-out, Bangladeshi apparel exports still captured a significant share of exports from the major markets.

2.4.1.3 Phase 3: Global financial crisis

The GFC in 2008-2009 resulted in declined demand for apparel products. However, the Bangladeshi apparel industry was resilient, and it recorded an increase in export share by 20 per cent and 15.4 per cent in 2008 and 2009 respectively. Bangladeshi resilience during the financial crisis can be explained by four major factors, the first of which is the ‘Wal-Mart effect’, i.e. a shift in consumer choice from expensive products to low-end products offered by discounters such as Wal-Mart. Bangladesh predominantly produces low-end apparel for discounted stores, resulting in an increase in export share during the GFC. Second, the ‘China effect’ describes the decrease in Chinese exports due to a rise in labour costs, labour shortages, and inflation in Chinese currency. At this point in time, Bangladesh emerged as an
alternative to China in apparel exports. The third factor was the responsiveness of Bangladeshi firms towards price sensitivity. Before the crisis, Bangladeshi firms had higher profit margins in comparison to other countries, so it was possible for them to squeeze prices and offer products at a low cost. Finally, the fourth factor was the ownership structure of the Bangladeshi apparel industry. In this sense, apparel firms in Bangladesh are predominately owned by local entrepreneurs, resulting in a minimum impact of the GFC on production (Staritz 2010).

2.4.1.4 Phase 4: Post-GFC

During the post-GFC period, China shifted to low-value products, intensifying the competition with the Bangladeshi apparel industry and resulting in a decrease in EU and US export share. In the course of the GFC, besides the pressure for lower prices, there was a demand for shorter lead times and a requirement for additional services. Being a leader in low-value apparel production, Bangladesh was able to compete on additional services (Sultana & Islam 2013). In addition, to address Chinese competitiveness and complement EU and US export share, Bangladesh started to export apparel to fast-growing countries such as India, Brazil, and Russia (Staritz 2010).

2.4.1.5 Phase 5: Safer facilities and sustainable apparel

Despite the crisis in the Bangladeshi apparel industry at several phases, it was resilient and export share consistently increased. However, this scenario changed as a result of two consecutive disasters: the fire in a Tazeren factory and the collapse of Rana Plaza. A lack of safety, poor working conditions and issues regarding the implementation of worker’s rights are considered as the major reasons for these incidents. Since these incidents, there has been increased pressure on the Bangladeshi apparel industry to implement socially responsible practices in its manufacturing facilities. In relation to these incidents, all major retailers are
forced to audit their manufacturing facilities based on safety standards such as the Bangladesh Accord on Fire and Building Safety (ACCORD) and the Alliance for Bangladesh Worker Safety (ALLIANCE). In addition to social responsibilities, there is also an emphasis on the implementation of energy-efficient production technologies in apparel manufacturers. Overall, Phase 5 is considered as the key development stage towards a sustainable apparel industry in Bangladesh.

2.4.2 Organisational and Ownership Structure

As mentioned in Section 2.4.1.3, structure of ownership played an important role in building resilience in the Bangladeshi apparel industry. Therefore, highlighting the ownership structure can provide further insights into the industry. Based on the orders received and the level of hierarchy, manufacturers are divided into three tiers. Tier-1 category firms are larger units with employees over 2,000, which receive orders directly from retailers. In the Bangladeshi apparel industry, there are about 1,000 firms in this category, accounting for 20 per cent of the industry’s total firms (Birnbaum 2013). Retailers continually audit these firms with regard to compliance with the codes of conduct. The second category, tier-2 firms, is medium-sized companies with hundreds of workers. These firms receive orders from tier-1 firms and act as subcontracting units to produce specific lines or to fill gaps in capacity. As they do not receive contracts from buyers, they are outside the buyers’ compliance nets. In some exceptional cases, when tier-1 firms are unable to fill the orders from larger companies, tier-2 firms receive orders directly from the buyers. Tier-3 firms are those supplying various accessories, such as zips to manufacturers in the industry. The apparel industry in Bangladesh is not entirely organised in the three tiers mentioned above. In the informal network, firms receive a single task order through the subcontracting route when tier-1 suppliers find it difficult to deliver a large or quick order. Home-based informal work, such as hand
embroidery, constitutes a small portion of Bangladeshi exports. Overall, the Bangladeshi apparel industry is an organised sector with stringent rules and regulations.

Facility location plays an important role in determining the policies that a factory needs to follow. Bangladeshi apparel factories operate in two types of locations: within Export Processing Zones (EPZ) and outside. During the MFA period in Bangladesh, foreign investments in the apparel industry were only allowed to invest in the EPZ region. As a result, most of the organisations in the EPZ are joint venture large firms with an average of 1,150 workers. On the other hand, firms outside the EPZ region are owned by local entrepreneurs and are predominantly medium-to small-sized, with an average of 500 workers. In 2012, there were 403 large factories located in the EPZ, employing 323,000 workers, which is less than 10 per cent of the employment in the apparel industry. Greater involvement of locals has enabled the apparel industry to develop backward linkages with local textile firms. Despite the MFA phase-out, FDIs still continue to invest in firms located in the EPZ region due to the ease of investment procedures (Staritz 2010). In addition, EPZ authorities perform inspections with regard to social and environmental compliance and workplace safety in order to maintain harmonious labour management, which is another factor that facilitated the growth of FDIs in the EPZs.

2.4.3 Challenges Faced in the Apparel Industry

Factors such as low-cost labour and production expertise helped Bangladesh be competitive in the apparel industry. Despite its competitive position, there are number of factors that challenge the growth of the Bangladeshi apparel industry. Major challenges faced by the Bangladeshi apparel industry are outlined in the next sections.
2.4.3.1 **End-market and product concentration**

The Bangladeshi apparel industry is characterised by low-value products exported in bulk to discounted stores in the EU and US. Up to the present day, the EU and US have remained as the dominant export markets for Bangladeshi apparel, with an export share of 80 per cent. However, the growth in export share to the EU and US started declining due to competitiveness from emerging markets such as Vietnam and Cambodia, which are capable of producing apparel of basic models in high-volume. Other factors include changes in preferential trade policies and greater pressure from retailers to implement safety practices in manufacturing facilities. To retain its growth, the Bangladeshi apparel industry needs to diversify its exports to potential markets such as Argentina, the Middle East, and China, and to regional markets, especially India. In addition to these markets, Japan, with its ‘China plus 1’ policy, is a lucrative market for Bangladeshi apparel exports. By targeting the Japanese market, the apparel industry in Bangladesh could enhance the capabilities of quality, cost, and lead time (Berg, Hedrich & Tochtermann 2012).

2.4.3.2 **Lack of backward linkages and long lead times**

Raw materials such as fabric, yarn, and accessories required by the Bangladeshi apparel industry are predominantly imported from other countries. As a result of imported raw materials, lead time has increased by 60 to 80 days for knitwear and 90 to 120 days for woven material. The additional lead time required by the Bangladeshi apparel industry raises concerns about its competitiveness. In addition to the increased lead time, raw material imports may result in price instabilities and a lack of reliable supplies, leading to unreliable supply chains. In order to address the challenges related to lead times, price fluctuations, and unreliable raw material supplies, developing a strong backward linkage is advised (Rahman & Sayeda 2016). Sourcing raw materials from regional markets like India and Pakistan, who
are closer to Bangladesh, would minimise lead times. As leaders in producing yarn and fabrics, India and Pakistan will be able to provide a continuous and reliable supply of raw material to the Bangladeshi apparel industry. Competitiveness through lead times, product flexibility, and cost will facilitate the Bangladeshi apparel industry to produce fast fashion (Berg, Hedrich & Tochtermann 2012).

2.4.3.3 Low productivity and lack of skills

In comparison to other apparel producing countries, Bangladesh is known for its low-cost labour. For instance, labour costs per hour in India are more than twice and China almost four times that of Bangladesh. However, in terms of productivity, value added per worker in China is around US$7,000, which is far greater than that of Bangladesh, at US$2,500. Although worker productivity is relatively low in the Bangladeshi apparel industry, very low labour costs offset less productivity. As a result, the Bangladeshi apparel industry retains its competitiveness with a per unit labour cost advantage. However, the increase in Bangladeshi labour costs challenges its competitiveness. Thus, there is a need to improve productivity. Employee training will enhance the skills and increase the productivity of employees in the Bangladeshi apparel industry (McKinsey 2011).

2.4.3.4 Poor record of labour and environmental compliance

The low-cost labour advantage of the Bangladeshi apparel industry is scrutinised by NGOs globally. Although the Bangladeshi government has established a regulation minimum wage of Tk3000 per month for workers in 2013, this amount is not enough to cover living expenses. Minimum wages well below a liveable wage is due to the fact that the government did not consider inflation when setting the guidelines for minimum wages. In addition, the Bangladeshi apparel industry is known for non-compliance with labour and environmental standards. Research shows that 30 per cent of factories in Bangladesh are non-complaint with
labour standards, and among the compliant firms, it is claimed that 90 per cent operate one or more sweatshops. In addition, the greater use of chemicals for dying and water for washing raises environmental concerns regarding the Bangladeshi apparel industry (Staritz 2010). In order to address these challenges, buyers are initiating several programs to monitor and enforce standards. However, social and environmental compliance challenges apparel firms on price competitiveness.

2.4.3.5 Inadequate logistics infrastructure

Constraints related to utilities, transportation, and logistics infrastructure affect the efficiency of apparel firms in Bangladesh (Berg, Hedrich & Tochtermann 2012). For instance, during power outages, large and medium-sized factories use generators or alternative fuels, resulting in increased operational costs and delays in production (Staritz 2010). The lack of a deep-sea harbour, congestion on roads, and limited alternatives for inland transport are the major transportation constraints that challenge the competitiveness of the Bangladeshi apparel industry (McKinsey 2011). As there is no deep-sea port in Bangladesh, manufacturers use Singaporean ports for international shipments. Feeder boats are used to ship products from Bangladesh’s Chittagong port to mother vessels in Singapore, which leads to an increase in lead time by ten days. In addition, the Chittagong port suffers from productivity issues related to manual handling, capacity constraints, and strikes. Further, a two-lane road between Chittagong port and the Dhaka manufacturing zones results in traffic congestion, which increases transportation times up to 20 hours. The existing Dhaka-Chittagong train service can only accommodate 120 containers per day, which is ten times less capacity than required. In order to ease road congestion, a frequent container train operation with an increased capacity is required (McKinsey 2011).
2.4.3.6 Bureaucratic inefficiency

Bureaucratic procedures in Bangladesh impact on the trade efficiency of apparel firms. The number of documents required, document processing time, and processing costs are some of the factors that impact on customs clearance and international trade. Compared to the other SAARC (South Asian Association for Regional Cooperation) countries, the number of documents required for customs clearance is relatively less (six documents for export). However, this is significantly greater than for other exporting economies. The time taken for customs clearance, i.e. three to four days, increases the lead time in the Bangladeshi apparel industry. Reducing the custom clearance time from a number of days to a day, as in India, or few hours, as in Singapore, will reduce the lead time and provide competitiveness to the industry. Further, there are no fixed document processing costs, which can vary from US$3.5 to $70.5, thus creating a challenge for manufacturers in calculating shipment costs (Rahman, Khatri, & Brunner 2012).

2.4.3.7 Limited regional integration

To reduce lead times and improve cost competitiveness, the Bangladeshi apparel industry should source from leading textile export countries in the region, such as India and Pakistan. However, high duty tariffs and non-tariff barriers limit Bangladesh importing textiles from India and Pakistan. The elimination of trade barriers and improvements in logistics and transport infrastructures, along with lighter bureaucratic procedures in customs, would improve regional trade, resulting in lower costs for the final product. As a result, inter-regional investments with India, Sri Lanka, and Pakistan would increase the growth of the Bangladeshi apparel industry.
2.4.3.8 Economic and political stability

Buyers of Bangladeshi apparel have identified strikes and political unrest as major concerns when sourcing from Bangladesh. Political unrest in the country’s government continually interrupts both the short-term and long-term planning of buyers and affects supply chain performance. For instance, delays in the delivery of the product due to strikes will affect the delivery performance of manufacturers. In addition, corruption is considered to be another concern of Bangladeshi apparel buyers. Although there has been an improvement in Bangladesh’s position in the Transparency Corruption Index, there is still room for further improvement (McKinsey 2011). The Bangladeshi government should play an important role in enforcing the law against corruption.

2.5 Disasters in the Apparel Industry

In the era of globalisation, apparel supply chains are experiencing increasing numbers of supply chain members, resulting in retailers with minimum or no control over manufacturers. For this reason, supply chain members are increasingly demonstrating self-centred behaviour and unacceptable practices. In particular, the apparel industry has been accused of not paying living wages to workers, the use of underage labour, gender, religious, and class discrimination, human rights abuses, preventing employees from joining unions, and failing to provide minimum labour standards (Awaysheh & Klassen 2010; Ahamed & Skallerud 2015).

Several incidents in the apparel industry that have resulted from unethical practices are listed in Table 2.1. The earliest incident reported in the apparel industry was in 1911, where a fire in a New York factory killed 146 workers. In the context of developed nations, this is considered as the deadliest incident on record in the apparel industry. On the other hand, the
first incident in the context of developing nations to attract media attention was the working conditions of a Chinese factor producing for Wal-Mart in 1996 (Park-Poaps & Rees 2009). Some of the more recent incidents include fires in the Ali Garment and Tazreen Fashion factories in September and November 2012 respectively. In these two devastating incidents, more than 400 workers were killed and over 500 suffered injuries. The collapse of the Rana Plaza building in May 2013 buried more than 1,130 workers and injured more than 2,500, and it is considered as the worst industrial disaster in the world (Lund-Thomsen & Lindgreen 2014).

<table>
<thead>
<tr>
<th>Company, Country</th>
<th>Year</th>
<th>Number of Deaths</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle shirt waist factory, US</td>
<td>1911</td>
<td>100</td>
<td>Fire</td>
</tr>
<tr>
<td>Ali Garment factory, Pakistan</td>
<td>2012</td>
<td>289</td>
<td>Fire</td>
</tr>
<tr>
<td>Tazreen Fashions, Bangladesh</td>
<td>2012</td>
<td>112</td>
<td>Fire</td>
</tr>
<tr>
<td>Rana Plaza, Bangladesh</td>
<td>2013</td>
<td>1132</td>
<td>Building collapsed</td>
</tr>
</tbody>
</table>

Frequent fires and collapsing factory buildings portray Bangladesh as a country with unsafe workplace practices. Infrastructure issues, such as poorly structured buildings, the use of substandard materials for construction, a lack of building maintenance, and the violation of building codes, were the reasons for the collapse of the Rana Plaza building (Goldstein et al. 2017). On the other hand, a lack of proper procedures during firms’ operations, such as disorganisation and stacking of flammable materials, damaged and overloaded electrical systems, a lack of fire evacuation plans, and windows blocked with bars, resulted in the factory fires (Haque & Azmat 2015). Table 2.2 provides a list of the factory fires and building collapses in the Bangladeshi apparel industry. From the table, it can be noted that there were several factory fires between 1990 and 1999, with a death toll of 248 workers. Since 2000, there has been at least one reported factory fire at manufacturing facilities every
year. More recently, a fire in the Tazreen Fashions factory killed over 112 people, and the collapse of the Rana Plaza building killed 1,130 people. The Rana Plaza collapse marks another phase in the Bangladeshi apparel industry.

Table 2.2: Incidents in the Bangladeshi garment industry

<table>
<thead>
<tr>
<th>Year</th>
<th>Factories</th>
<th>Number of deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990 to 1999</td>
<td>Several factory fires</td>
<td>248</td>
</tr>
<tr>
<td>2000</td>
<td>2 factory fires</td>
<td>53</td>
</tr>
<tr>
<td>2001</td>
<td>1 factory fire</td>
<td>24</td>
</tr>
<tr>
<td>2002-2003</td>
<td>2 factory fires</td>
<td>17</td>
</tr>
<tr>
<td>2004</td>
<td>4 factory fires</td>
<td>50</td>
</tr>
<tr>
<td>2005</td>
<td>1 factory fire, Spectrum Sweater</td>
<td>64</td>
</tr>
<tr>
<td>2006</td>
<td>Two factory fires, one in KTS Textile Industries Limited in Chittagong, and another in Narayanganj</td>
<td>90</td>
</tr>
<tr>
<td>2007 to 2009</td>
<td>Several factory fires</td>
<td>95</td>
</tr>
<tr>
<td>2010</td>
<td>2 factory fires, one in the Ha-meem group and another in the Garib &amp; Garib Sweater plant</td>
<td>57</td>
</tr>
<tr>
<td>2011</td>
<td>1 factory fire</td>
<td>2</td>
</tr>
<tr>
<td>2012</td>
<td>1 factory fire, Tazreen Fashions Ltd</td>
<td>112</td>
</tr>
<tr>
<td>2013</td>
<td>Factory building collapse (Rana Plaza) on April 24, 2013</td>
<td>1130</td>
</tr>
<tr>
<td>2013</td>
<td>1 factory fire in the Tung Hai Group, Mirpur, May 8, 2013</td>
<td>8</td>
</tr>
<tr>
<td>2013</td>
<td>1 factory fire in the Aswad garment factory, October 8, 2013</td>
<td>10</td>
</tr>
<tr>
<td>Total since 1990</td>
<td></td>
<td>1968</td>
</tr>
</tbody>
</table>

(Source: Kamal 2013; CBA 2013)

MNCs are under pressure to address safety issues in the industry. To address the issues related to labour standards, human rights abuses, non-payment of living wages, and rights to join unions, the industry is required to implement social responsibility practices in manufacturing facilities (Rahim & Alam 2014; Huq, Chowdhury & Klassen 2016). Several measures regarding building codes have been introduced to ensure that workplaces are safe. However, these practices alone are not sufficient to retain the country’s position as the world’s second leading apparel exporter (Haque & Azmat 2015). Therefore, to mitigate the risks related to social responsibility and to promote a sustainable apparel industry in
Bangladesh, this study investigates the implementation of socially responsible governance mechanisms and the relationship between these mechanisms and firm performance.

2.6 Studies on Social Responsibility in the Bangladeshi Apparel Industry

To understand the existing research on social responsibility in the Bangladeshi apparel industry, a literature review was performed. Literature reviews help identify not only what is known but also the issues that need to be addressed in the research. To identify the relevant studies, a systematic literature review was performed in October 2017 with a keyword search in databases. Comprehensive business databases and citation databases, such as Scopus, EBSCO host, Emerald, Proquest, ABI/Inform Global, JSTOR, and Wiley Online, were selected for the literature search. The keywords ‘Bangladesh garment’ or ‘Bangladesh apparel’ were used to search the databases’ title and abstract fields. Further, search results were restricted to peer-reviewed research papers. To understand the research across all time periods, there were no restrictions on the timeframe. Searching the different databases with the aforementioned keywords resulted in 258 articles, and the subsequent deletion of repetitive articles resulted in 135 articles.

With regard to the distribution of articles across time, it is evident that there has been an increase in the number articles published since 2013. After the Rana Plaza incident in 2013, practitioners paid more attention to implementing social responsibility procedures in the Bangladeshi apparel industry, which is also reflected in the research. In addition, by examining the journals in which the papers were published, it is evident that Asian journals dominate, indicating that the social responsibility issue in Bangladesh is particularly emphasised by the Asian scientific community. Further, analysis was performed to identify the subject areas of the research on the Bangladeshi apparel industry. In this sense, most of the articles published on the Bangladeshi apparel industry are in the area of business,
followed by the social sciences and allied health. In the business discipline, literature on the Bangladesh apparel industry mainly focuses on labour and employment issues, such as wages, working conditions, child labour, discrimination, and the right to join unions.

As the objective of this research is to examine the socially responsible governance mechanisms in supply chains, the systematic literature review was restricted to the supply chain aspects of the business discipline and social responsibility. The time period for the articles was restricted to 2010 and after because earlier articles in the review were highly fragmented, and many of them were concerned with MFA policy, female empowerment, and the gender gap, all of which are beyond the scope of this analysis. By only including the most recent articles from 2011 on apparel supply chains, 19 articles on social responsibility in the Bangladesh apparel supply chains were identified. Most of the studies up to 2013 focus on the lean manufacturing concept of minimising waste emissions and reducing lead times. However, since the Rana Plaza incident, researchers have increasingly emphasised the social aspects of social responsibility. In particular, initiatives that promote safety in the workplace and social management capabilities have been widely explored.

Table 2.3 provides a summary of the 19 articles relating to the Bangladesh apparel industry. From the literature, most of the studies on social sustainability in the Bangladesh apparel industry adopted a case study methodology (see, for example, Huq, Stevenson & Zorzini 2014; Huq, Chowdhury & Klassen 2016; Fontana 2017). Moreover, Haque and Azmat (2015), Goldstein et al. (2017), and Jacobs and Singhal (2017) used secondary data to analyse aspects of social responsibility in supply chains. Finally, several studies are descriptive in nature, exploring social responsibility issues in the Bangladesh apparel industry. Overall, there are no studies relating to the Bangladesh apparel industry with empirical research using a survey methodology from the perspective of the supplier or buyer. This identifies a
significant gap with respect to the methodology adopted in studies relating to the Bangladeshi apparel industry.

### Table 2.3: Summary of articles on social responsibility in the Bangladeshi apparel industry

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Study Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haque et al.</td>
<td>2011</td>
<td>To measure the supply chain performance of a supply chain network using an SCOR model</td>
</tr>
<tr>
<td>Tanvir &amp; Muqaddim</td>
<td>2013</td>
<td>Bringing supply chain perspectives to the Bangladeshi garment industry</td>
</tr>
<tr>
<td>Ahmed, Raihan &amp; Islam</td>
<td>2013</td>
<td>To identify the causes for labour unrest in the Bangladeshi apparel industry</td>
</tr>
<tr>
<td>Sultana &amp; Islam</td>
<td>2013</td>
<td>To implement lean manufacturing by value streaming material and information flows and cycle times</td>
</tr>
<tr>
<td>Huq, Stevenson &amp; Zorzini</td>
<td>2014</td>
<td>To understand the importance of social sustainability in apparel supply chains and how social sustainability can be implemented in the supply chains</td>
</tr>
<tr>
<td>Haque &amp; Azmat Islam</td>
<td>2015</td>
<td>CSR in labour intensive industries (Bangladesh RMG)</td>
</tr>
<tr>
<td>Islam, Deegan &amp; Gray</td>
<td>2015</td>
<td>Examines the social audits imposed by the retailer How changes in the European Union’s regime have affected the Bangladesh apparel industry</td>
</tr>
<tr>
<td>Curran &amp; Nadvi Rahman,</td>
<td>2015</td>
<td>Bangladesh apparel industry</td>
</tr>
<tr>
<td>Hossain &amp; Hassan</td>
<td>2016</td>
<td>Factors of CSR that contribute to consumer behaviour towards RMG Emphasises the importance of backward linkages and manufacturers establishing textile manufacturing facilities to reduce lead times</td>
</tr>
<tr>
<td>Habib</td>
<td>2016</td>
<td>Presents several initiatives that promoted employee safety in workplaces after the Rana Plaza incident</td>
</tr>
<tr>
<td>Barua &amp; Ansary</td>
<td>2016</td>
<td></td>
</tr>
<tr>
<td>Huq, Chowdhury &amp; Klassen</td>
<td>2016</td>
<td></td>
</tr>
<tr>
<td>Rahman &amp; Sayeda</td>
<td>2016</td>
<td></td>
</tr>
<tr>
<td>Chowdhury, Sundström, &amp;</td>
<td>2016</td>
<td></td>
</tr>
<tr>
<td>Hyder</td>
<td>2016</td>
<td></td>
</tr>
<tr>
<td>Inaba &amp; Masum</td>
<td>2016</td>
<td>To examine the demand-supply structure of the apparel industry Risks related to factory structure, fire, and electrical issues have a significant impact on trustworthiness</td>
</tr>
<tr>
<td>Goldstein et al.</td>
<td>2017</td>
<td></td>
</tr>
<tr>
<td>Fontana</td>
<td>2017</td>
<td>Identified cognitive and behavioural elements of CSR</td>
</tr>
<tr>
<td>Jacobs &amp; Singhal</td>
<td>2017</td>
<td>Examines the impact of the Rana Plaza incident on apparel retailer companies’ stock prices</td>
</tr>
</tbody>
</table>

Studies focusing on social issues predominantly concentrate on auditing practices as a mechanism for the implementation of social responsibility in the Bangladeshi apparel industry (Huq, Stevenson & Zorzini 2014; Chowdhury, Sundström, & Hyder 2016). The extent of social audits performed depends on the results of previous audits. If it is the first-
time audit for the selection of a supplier, then audits are more detailed (Islam, Deegan & Gray 2015). Moreover, the size (Chowdhury, Sundström & Hyder 2016), age, location, and ownership structure of the firm determines the success of the implementation of audit practices (Goldstein et al. 2017). Islam, Deegan and Gray (2015) conclude that social audits would only improve workers’ rights where there are financial penalties imposed on suppliers in the event of non-compliance. Costs and inconsistencies in standards are the negative aspects relating to the implementation of auditing practices. Further, mock compliance and corruption are some of the challenges faced by organisations during the implementation of auditing practices (Huq, Stevenson & Zorzini 2014). To overcome these challenges and the barriers associated with auditing practices, firms are increasingly adopting collaboration and innovation as a means of implementing social responsibility (Huq, Chowdhury & Klassen 2016).

Through an extensive review of the articles published in leading newspapers, Haque and Azmat (2015) identify occupational health and safety, fair pay, legal aspects, social welfare, labour rights, the environment, gender issues, and fair trade as the common social responsibility issues of Bangladeshi apparel manufacturing facilities. Barua and Ansary (2017) conclude that, after the Rana Plaza incident, the Bangladeshi apparel industry needs to invest in protecting labour rights and workplace safety. Huq, Chowdhury and Klassen (2016) have highlighted the importance of integrating labour rights and safety practices in auditing and collaborative practices in the implementation of social responsibility in the apparel industry. Based on the above discussion, the principles and elements of a social responsibility framework for the Bangladeshi apparel industry, as well as their related sources, are outlined in Table 2.4. From such a perspective, the social responsibility implementation mechanisms and the dimensions of social responsibility identified from the literature review will be utilised in this study, a detailed discussion of which can be found in Chapter 3.
Table 2.4: Principles of a social responsibility framework in the Bangladeshi apparel industry

<table>
<thead>
<tr>
<th>Principles</th>
<th>Elements</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation</td>
<td>Auditing</td>
<td>Huq, Chowdhury and Klassen (2016); Chowdhury, Sundström, and Hyder (2016); Huq, Stevenson and Zorzini (2014)</td>
</tr>
<tr>
<td></td>
<td>Collaboration</td>
<td>Huq, Chowdhury and Klassen (2016)</td>
</tr>
<tr>
<td></td>
<td>Innovation</td>
<td>Huq, Chowdhury and Klassen (2016)</td>
</tr>
<tr>
<td>Barriers</td>
<td>Costs</td>
<td>Huq, Stevenson and Zorzini (2014)</td>
</tr>
<tr>
<td></td>
<td>Different and inconsistent standards</td>
<td>Huq, Stevenson and Zorzini (2014)</td>
</tr>
<tr>
<td>Factors effecting social responsibility implementation</td>
<td>Factory size</td>
<td>Chowdhury, Sundström, and Hyder (2016); Goldstein et al. (2017)</td>
</tr>
<tr>
<td></td>
<td>Factory age</td>
<td>Goldstein et al. (2017)</td>
</tr>
<tr>
<td></td>
<td>Location of the factory</td>
<td>Goldstein et al. (2017)</td>
</tr>
<tr>
<td></td>
<td>Factory ownership</td>
<td>Goldstein et al. (2017)</td>
</tr>
<tr>
<td>Dimensions of social responsibility</td>
<td>Protection of labour rights</td>
<td>Baura and Ansary (2017); Haque and Azmat (2015)</td>
</tr>
<tr>
<td></td>
<td>Workplace safety</td>
<td>Baura and Ansary (2017); Goldstein et al. (2017); Haque and Azmat (2015)</td>
</tr>
<tr>
<td></td>
<td>Environment</td>
<td>Haque and Azmat (2015)</td>
</tr>
</tbody>
</table>

2.7 Summary

Bangladesh has emerged as a leader in low-value, high-volume apparel exports. This chapter has outlined the evolution of the industry in order to understand the factors that contributed to the industry’s development. To understand the complexity and the challenges faced by the industry, the supply chain and organisational ownership structures were presented in this chapter. In addition, this chapter described incidents in the apparel industry and, in particular, disasters in the Bangladeshi apparel industry that highlights the need for socially responsible practices. Finally, this chapter also reviewed the existing literature on social responsibility in the Bangladeshi apparel industry in order to identify the gaps in the literature and areas for potential future research. Through the literature review, this chapter identified that audits and collaboration are the most important mechanisms for the implementation of social responsibility in the Bangladeshi apparel industry. Overall, this chapter has provided the
background of the research and outlined the significance of the industry. The literature review in Chapter 3 will present the theories underpinning this research, in addition to developing the study’s conceptual framework.
CHAPTER THREE

LITERATURE REVIEW AND HYPOTHESES

DEVELOPMENT

3.1 Introduction

This chapter provides a review of the social responsible supply chain literature in order to develop a conceptual framework for the implementation of social responsibility. Published books, journals, conference proceedings, and doctoral dissertations, as well as unpublished work from secondary sources such as industry and trade magazines and government publications, are reviewed to provide the background on socially responsible governance mechanisms. A preliminary literature review to develop the overarching research question and objectives was provided in Chapter 1, whereas this chapter provides an extensive literature review in order to develop research hypotheses that address the research objectives.

Section 3.1 briefly introduces the need for a literature review in order to develop the conceptual framework. Following the introduction, Section 3.2 provides a discussion on supply chain management theories and presents the theoretical underpinnings of the study. A conceptual understanding of social responsibility, supply chain management, and socially responsible supply chains is provided in Section 3.3, Section 3.4, and Section 3.5 respectively. A systematic literature review on socially responsible supply chains and extending social responsibility to suppliers is presented in Section 3.6. Following this, a detailed discussion of socially responsible governance mechanisms, firm performance, and agency problems is supplied in Section 3.7. Section 3.8 provides justification for the development of the hypotheses, while a conclusion is given in Section 3.9.
3.2 Theoretical Foundations of the Research

Good research is grounded in theory (Mentzer, Stank & Esper 2008). This section details the importance of the theories in the Supply Chain Management (SCM) literature. In particular, green and sustainable supply chain theories are presented in this section. The interdisciplinary nature of SCM and the lack of boundaries with other disciplines, such as operations management, logistics, marketing, and information systems, raises concerns about the firms’ problem-solving abilities. To address these challenges, concepts and logic from theories should be used (Halldórsson, Hsuan & Kotzab 2015). Theory relates to a systematic grouping of interdependent concepts and principals for the development of frameworks that can be used for knowledge management. In the field of supply chain research, theory-driven empirical research is required (Frankel et al. 2008). In this sense, theories play an important role in decision making with regard to how to structure supply chains, for example:

- What activities a firm should outsource to external parties in the supply chain or keep in-house
- What the roles and responsibilities of the partners in the supply chain should be
- How a firm can mitigate the risk of opportunism from other participants in the supply chain
- How incentives should be aligned internally between the participants in order to achieve the best outcomes of the supply chain (Halldórsson et al. 2007).

There is no ‘right’ theory to explain the relationship among supply chain members (Frankel et al. 2008). The context of the research determines the selection of the theory to be used (Defee et al. 2010). In general, a combination of organisational and behavioural theories is used to explain the complexity of supply chains. Through the literature review, researchers have examined the theories used in the SCM literature (Halldórsson et al. 2007; Defee et al. 2010;
Halldórsson, Hsuan & Kotzab 2015). In this sense, transaction cost economics (TCE) and resource-based view (RBV) theories have been extensively used in the SCM literature (Defee et al. 2010) because of their ability to assist in decisions related to supply chain structure and management (Halldórsson, Hsuan & Kotzab 2015).

TCE, developed by Coase (1937) and extended by Williamson (1975), emphasises the transaction costs involved in an exchange relationship between firms, whereas RBV, proposed by Wernerfelt (1984), emphasises the importance of a firm’s competitive advantage provided by its resources. TCE is considered as a valuable tool for the efficiency-seeking process and helps to explain why firms exist in a relationship, while RBV focuses on why firms differ in performance, emphasising the development of resources and capabilities/competencies within and between organisations (Halldórsson, Hsuan & Kotzab 2015). Overall, both TCE and RBV are relevant in making outsourcing decisions. However, there is a need for other theories to manage various types of relationships between firms (Sarkis, Zhu & Lai 2011; Halldórsson, Hsuan & Kotzab 2015). In addition to TCE and RBV, agency theory is used to understand relationships in a supply chain (Halldórsson et al. 2007).

Specific to the field of sustainable or socially responsible supply chain, researchers have identified the need for the use of theory (Carter & Easton 2011; Sarkis, Zhu & Lai 2011). Theories are used in decision making relating to the implementation of sustainability in supply chains, such as:

- Who are exerting pressures on the firms to implement sustainability in supply chains?
- How external pressures influence organisational actions in maintaining sustainable supply chains?
- What strategic capabilities are important in maintaining sustainable competitive advantage in supply chains?
Specific to sustainable supply chains, researchers have used, for example, stakeholder theory, the natural resource based view, diffusion of innovation theory, and ecological modernisation theory (Sarkis, Zhu & Lai 2011). However, most of the theories do not fit within the scope of this study in regard to examining relationship mechanisms. To explain the relationship structure and the efficiencies obtained in a socially responsible supply chain, TCE, RBV, and agency theory are used in this research. The following sub-section presents a discussion on these three theories.

3.2.1 Transaction Cost Economics (TCE)

TCE is a social theory that offers a set of normative rules for choosing an exchange relationship from alternative governance arrangements (Ghoshal & Moran 1996). The primary focus of TCE is to design efficient mechanisms for conducting a transaction (Heide & Stump 1995). TCE focuses on how much effort and cost is required for two entities, i.e. the buyer and seller, to complete an activity (economic exchange or transaction) (Williamson 1975). These costs become significant in the presence of transaction-specific investments and uncertainty (Heide & Stump 1995). Transaction-specific investments relate to the investment in assets that are unique to a particular relationship exchange, resulting in unique assets that are of low value outside the relationship. A lack of investments from both parties in a buyer-seller exchange results in opportunistic behaviour.

The problem of transactional uncertainty is related to the decision environment in which a transaction takes place. Uncertainties in a transaction can come in many forms, for example, volume unpredictability, changes to product specifications, or transaction uncertainty. This form of uncertainty creates problems of adoption, which, in turn, results in an increase of transaction costs in order to adapt to the new circumstances. The objective of the buyer and supplier is to minimise the cost associated with the uncertainty of their transaction (Lai,
The uncertainty and asset uniqueness associated with the transaction determines the efficient mode of relationship governance (Walker & Weber 1984). Adoption of the TCE framework suggests that many benefits can be achieved when independent organisations are integrated.

In SCM, TCE is considered as a valuable tool for the efficiency-seeking process, explaining why firms exist in a relationship (Halldórsson, Hsuan & Kotzab 2015). It helps to identify the best structure of and within institutions in a supply chain. Underlined by TCE, asset specificity, behavioural aspects of bounded rationality, and the risk of being subject to opportunistic behaviour from a partner influence the transaction costs in a supply chain (Halldórsson et al. 2007). The use of TCE provides an explanation for how to optimise the opportunity costs associated with the set-up of a transaction. TCE emphasises the importance of the selection criteria in minimising transaction costs during supplier selection (Sancha, Wong & Thomsen 2016).

Global supply chains are characterised by a complex web of suppliers, making it difficult for buyers to monitor suppliers’ practices. With respect to socially responsible practices, suppliers may employ opportunistic behaviour to achieve cost advantages (Huq, Chowdhury & Klassen 2016). According to TCE, in an uncertain transaction environment and when there is less asset specificity, buyers play a critical role in assessing suppliers’ actions (Williamson 1975). A supplier-selection mechanism underlined by TCE governs the buyer–supplier relationship and its effect on firm performance (Sancha, Wong & Thomsen 2016). In the context of this study, apparel supply chains are portrayed by demand uncertainty and less asset specificity, resulting in demands for an appropriate relationship mechanism in order to manage social responsibility (Perry & Towers 2013). Based on TCE, this study adopts a supplier-selection mechanism to establish the buyer–supplier relationship.
3.2.2 Resource-Based View (RBV)

The resource-based view (RBV) is an organisational theory that focuses on firms’ strategic options from a resource perspective. According to RBV, resources that are valuable, rare, imperfectly imitable, and non-substitutable create capabilities that provide competitive advantage (Barney 1991). The RBV deals with competitive advantage related to a firm’s possession of heterogeneous resources (financial, physical, human, technological, organisational, and reputational) and capabilities (a combination of two or more resources). These resources enable firms to implement strategies, with the goal of improving their efficiency and effectiveness and providing competitiveness (Daft 1983; Barney 1991). In addition, RBV considers that the overall improvement of reputation and image is a significant resource of a firm. RBV emerged from an organisational context and has been extended to the supply chain context in order to provide competitive advantages across the supply chain (Gold, Seuring & Beske 2010). In the context of SCM, relationships between buyers and suppliers develop learning that is considered as a valuable and rare resource, offering competitive advantage (Formentini & Taticchi 2016).

To minimise the risks involved in an opportunistic relationship, firms need to invest in assets to develop resources (Williamson 1993). Supplier assessment and collaboration incorporates social connectedness among buyers and suppliers to commit and maintain cooperative relationships that create competitive advantage (Gavronski et al. 2011; Sancha, Wong & Thomsen 2016). Although transaction costs are increased in the supplier-development process, RBV illustrates the importance of this mechanism in managing buyer–supplier relationships (Gimenez & Sierra 2013).

From an RBV perspective, the adoption of green practices in supply chains provides competitive advantage. In this sense, the implementation of green practices will develop capabilities that are rare and not imitable (Carter, Ellram & Ready 1998). Likewise, RBV can
be extended to the context of social responsibilities. Earlier studies have investigated the role of RBV in examining the mechanisms of social responsibility on firm performance (Gimenez, Sierra & Rodon 2012; Gimenez & Sierra 2013; Gimenez & Tachizawa 2012). In the context of apparel supply chains, supplier development underlined by RBV is used to implement social responsibility and to minimise the opportunistic behaviour of suppliers.

3.2.3 Agency Theory

In the management literature, agency theory focuses on the costs occurred due to a conflict of interests between managers and stakeholders. To manage such costs and reduce conflicts, some researchers have used agency theory in order to investigate the relationship between employee compensation and performance (Cordeiro & Sarkis 2008; Berrone & Gomez-Mejia 2009). However, the use of agency theory can be extended from the organisational level to supply chains. Agency theory is widely used in the business management literature and is only a recent addition to the supply chain discipline (Halldórsson et al. 2007). Agency theory offers a natural fit with supply chain management research, and it has been identified as a promising theory for explaining relationship problems in supply chains (Sarkis, Zhu & Lai 2011).

In the research, the applications of agency theory, such as compensation, incentive management, and the motivation of upper-level managers to implement environmentally responsible supply chains, are examined (Kogg 2003). In addition, the role of agency theory in managing supply chain risks is another studied area of research (Zsidisin & Ellram 2003; Blome & Schoenherr 2011). However, no prior research has been carried out on the application of agency theory to understanding supply chain relationship problems.

Supply chains are full of relationships, with the ownership and control of economic activities vested with certain members (Fayezi, O’Loughlin & Zutshi 2012). Agency theory is
commonly applied when one party, the principal, delegates the work to another party, the agent (Eisenhardt 1989). In a supply chain relationship, agency theory is built around the sourcing activities, where the buying firm acts as a principal that delegates production to the supplier/manufacturer, who becomes the agent (Shook et al. 2009). This shows that the assumption of agency theory fits naturally with relationship issues in supply chains (Ketchen Jr & Hult 2007). Though agency theory is relevant, very little research has been carried out in the past on the role of agency theory in explaining the relationship between supply chain members (Fayezi, O’Loughlin & Zutshi 2012). Agency theory can explain the problems in inter-organisational relationships (Halldórsson et al. 2007). Therefore, with the aim of explaining the relationship problems in the apparel supply chain, this research adopts agency theory (Halldórsson et al. 2007).

According to agency theory, the problems between principals and agents, such as opportunism, differences in goals, and information asymmetry, are referred to as agency problems. Agency theory is concerned with resolving the agency problems that exist in supply chains. Important assumptions of agency theory in an organisational context are as follows:

- Goal conflicts exist between principals and agents
- Each party acts in its own self interest
- Information asymmetry exists between principals and agents
- Efficiency is the criterion for effectiveness
- Agents are more risk averse than principals (Zu & Kaynak 2012).

In theory, the adoption of Corporate Social Responsibility (CSR) practices may solve agency problems and effectively reduce unethical practices (Lu, Lee & Cheng 2012). However, the implementation of social responsibility based on a triple bottom line approach raises the
issues of opportunistic behaviour among both agents and principals, if the agent or principal is driven by self-interest and opportunism (Wilhelm et al. 2016). Based on Eisenhardt (1989), assumptions relating to the buyer-supplier relationship with respect to social responsibility are shown in Table 3.1. In summary, agency theory provides a unique, realistic, and empirically-testable perspective on the problems of cooperative efforts (Eisenhardt 1989). This study examines the moderating role of agency problems on socially responsible governance mechanisms and firm performance.

**Table 3.1: Agency assumptions applied to the buyer-supplier relationship**

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Retailer (Principal)</th>
<th>Manufacturer (Agent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk aversion</td>
<td>Risk is neutral when sourcing from more than one supplier</td>
<td>Risk averse, as income and reputation are often tied to a branded retailer</td>
</tr>
<tr>
<td>Goal conflict</td>
<td>The overarching goal is to create a positive image and increase sales by decreasing agency costs</td>
<td>Wants to provide a good service while maximising profits and maintaining relationships</td>
</tr>
<tr>
<td>Information asymmetry</td>
<td>Information requirements are high, as there are several partners for the principal</td>
<td>Exchange of information is very much limited to rational issues</td>
</tr>
</tbody>
</table>

(Source: adapted from Eisenhardt 1989)

### 3.3 Social Responsibility (SR)

Over the last six decades, Social Responsibility (SR) has been a contested topic amongst academics (Okoye 2009). However, the term appears to be relatively new to the corporate world (Taneja, Taneja & Gupta 2011). In academia, the origin of SR is subject to argument. Dodd and Merrick’s (1932) research on managers’ social responsibility as the genesis of SR in corporations, and is referred to as CSR, whereas Carroll (1979) and Rahman (2011) recognise Bowen (1953) as providing the first definition and conceptualisation of CSR:
The obligation of businessmen to pursue those policies, to make those decisions, or to follow those lines of actions which are desirable in terms of the objectives and values of our society.

Despite the arguments on its origins, the concept of CSR has proliferated in different contexts (Carroll & Shabana 2010), resulting in the introduction of several interpretations of CSR (Taneja, Taneja & Gupta 2011). This scenario has resulted in several challenges to understanding CSR. In this sense, Votaw and Sethi (1973, as cited in Okoye 2009) state that “CSR means something, but not always the same thing”. Many different researchers have had something to say about CSR within his or her field of interest, which has resulted CSR becoming a ‘garbage can word’. Despite there being no common consensus on how CSR is defined both in the academic and corporate world (Yadlapalli & Rahman 2013), it is important to identify and develop a common understanding on CSR (Sheehy 2015).

This study conceptualises CSR based on Yadlapalli and Rahman’s (2013) consensus definition:

CSR is defined as the firm’s responsibility that goes beyond obligation and philanthropy to integrate social, environmental, and economic aspects into its business from strategic to operational level, benefiting both internal and external stakeholders, that results in long-term and short-term gains and finally contributes to its sustainable development.

The definition offered will help to eliminate the inherent ambiguity surrounding the conceptualisation of CSR and to develop the constructs of social responsibility. In the globalised world, firms are increasingly liable for the social responsibility of their supply chain partners; thus, the concept of CSR needs to be extended to supply chains. With this in mind, Section 3.4 outlines the conceptualisation of socially responsible supply chains.
3.4 Supply Chain Management (SCM)

The concept of SCM first appeared in the research literature in the 1960s, and ever since then it has been recognised as a discipline or a branch of knowledge in management (Popper 1959; Oliver & Webber 1982). Forrester (1958) seminal research on industrial dynamics explained the phenomena of demand magnification upstream in the supply chain. Since then, there has been a continuous evolution of scope and significance of SCM. Though the fundamental assumptions of SCM are significantly older, it is only more recently, in the mid-1980s, that the term started to appear in the literature (Cooper, Lambert & Pagh 1997). Bowersox, Closs and Helferich (1996) used the term SCM for the first time in the title of a textbook. In 1996, the first journal to include supply chains in the title was the *Supply Chain Management Review* (Kent Jr & Flint 1997).

Initial SCM conceptualisations emphasised the reduction of inventory both within and across firms (Cooper, Lambert & Pagh 1997). There have been various interpretations of SCM definitions in several disciplines. Some argue that SCM originates from the operations management discipline. In this sense, topics such as product development, the customisation and distribution of goods, trade-offs in demand needs, and capacity requirements are adopted from the operational management discipline. In contrast, other streams of literature define SCM as logistics taken across inter-organisational boundaries (Larson & Halldorsson 2004). The integration of upstream and downstream members within an internal performance system is considered as the aspect that differentiates SCM from logistics (Halldorson et al. 2007). Compared to logistics, supply chains are customer oriented (Tan et al. 1999). From the customers’ view, the end consumer drives demand in the supply chain, so SCM should be characterised as a ‘demand chain management’. Since the early definitions of SCM, there
have been a multitude of different definitions of SCM (Mares 2010). In this sense, “the term SCM is defined as a disparate set of definitions” (Gibson, Mentzer & Cook 2005, p.17).

Researchers have attempted to review existing SCM definitions in order to identify its elements. Cooper, Lambert and Pagh (1997), in analysing 13 early SCM definitions, identify business processes, management components, and supply chain structure as the elements that differentiate SCM from logistics. Bechtel and Jayaram (1997) reviewed SCM definitions and identify the importance of information management in SCM. Mentzer et al. (2001) assessed more than 20 definitions in order to understand the SCM philosophy. In addition, Gibson, Mentzer and Cook (2005) reviewed definitions from professional bodies in the industry, such as the Council of Supply Chain Management Professionals, in order to provide a greater understanding of SCM definitions from a practitioner perspective.

More recently, Stock and Boyer (2009) developed a consensus definition of SCM:

The management of a network of relationships within a firm and between interdependent organizations and business units consisting of material suppliers, purchasing, production facilities, logistics, marketing, and related systems that facilitate the forward and reverse flow of materials, services, finances and information from the original producer to final customer with the benefits of adding value, maximizing profitability through efficiencies, and achieving customer satisfaction.

In this study, Stock and Boyer’s (2009) definition of SCM is adopted.

SCM is a management philosophy that has integrated behaviours, processes, goal sharing, risks, and rewards and enables long-term relationship among different members (Mares 2010). The primary focus of the SCM literature is how the activities and decisions improve
performance amongst supply chain partners (Vaal and Owusu 2012). How to select suppliers and partners and the coordination and cooperation among members are considered as the supply chain activities (Schwartz & Carroll 2003; Xu et al. 2013). This study focuses on the activities of supplier selection and supplier development for the improvement of performance, which are discussed in the following sections.

3.5 Socially Responsible Supply Chains

In the supply chain literature, SR dates back to 1989, with the concept of the logistics manager’s responsibility to consider social aspects along with the financial aspects during the decision-making process. Although there are some studies relating to this topic, academics and supply chain practitioners are slow in adapting the concept of socially responsible supply chains (Murphy & Poist 2002). More recently, several incidents in supply chains have raised concerns among stakeholders, and social responsibility in supply chains has become an important topic for the management of the associated new risks. The consideration of social responsibility adds more complexity for supply chain professionals (Mares 2010).

To avoid or mitigate the risks in business, SR advocates the integration of social, environmental, and economic aspects into regular decision making. The broadness and ambiguity of CSR results in uncertainty with regard to defining socially responsible supply chains (Mares 2010; Sarkar & Searcy 2016). In the literature, various terms have been used to represent social responsibility in supply chains, such as social responsible purchasing (Drumwright 1994; Maignan, Hillebrand & McAlister 2002), logistic social responsibility (Carter & Jennings 2002), purchasing social responsibility (Carter 2004), supply chain responsibility (Spence & Bourlakis 2009), responsible supply chains (Vaal and Owusu 2012), and social responsible supply chains (Andersen & Skjoett-Larsen 2009; Awaysheh & Klassen 2010; Wang & Sarkis 2013). Different social responsible supply chain terms and
their associated definitions are presented in Table 3.2. From these terms, it is clear that social responsible purchasing is most commonly used at initial stages, followed by social responsible supply chains at later stages. The profusion of overlapping terms of social responsible supply chains has also created confusion (Robert 2012).

<table>
<thead>
<tr>
<th>Source</th>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drumwright (1994)</td>
<td>SRP</td>
<td>Taking into account the public consequences of organizational buying or bring about positive social change through organizational buying behavior.</td>
</tr>
<tr>
<td>Carter and Jennings (2000)</td>
<td>PSR</td>
<td>Consists of a wide array of behaviors that broadly fall into the categories of environmental management, safety, diversity, human rights and quality of life, ethics, and community and philanthropy activities.</td>
</tr>
<tr>
<td>Maignan, Hillebrand and McAlister (2002)</td>
<td>SRP</td>
<td>It implies to include in purchasing decisions of the social issues advocated by organizational stakeholders.</td>
</tr>
<tr>
<td>Park-Poaps and Rees (2009)</td>
<td>SR-SCO</td>
<td>The orientation toward socially responsible supply chain dresses firms’ proactive values and actions in conjunction with their supply chain partners to promote fair labor practices throughout the chain.</td>
</tr>
<tr>
<td>Salam (2009)</td>
<td>PSR</td>
<td>Purchasing activities that meet the ethical and discretionary responsibilities expected by society.</td>
</tr>
<tr>
<td>Spence and Bourlakis (2009)</td>
<td>SCR</td>
<td>Supply chain responsibility is the chain-wide consideration of, and response to, issues beyond the narrow economic, technical and legal requirements of the supply chain to accomplish social (and environmental) benefits along with the traditional economic gains which every member in that supply chain seeks.</td>
</tr>
<tr>
<td>Awaysheh and Klassen (2010)</td>
<td>SR-SCM</td>
<td>It encompass all management practices that affect how a firm contributes to the development of human potential or protects people from harm, thereby capturing both positive and negative aspects, respectively.</td>
</tr>
<tr>
<td>Leire and Mont (2010)</td>
<td>SRP</td>
<td>SRP refers to the utilization of the purchasing power of public and private organisations to purchase products, works and services that have a positive social impact</td>
</tr>
<tr>
<td>Wang and Sarkis (2013)</td>
<td>SR-SCM</td>
<td>As organizational activities that are conducted to manage the supply chain system, from material sources to customer service, to be environmentally and socially responsive, respectively</td>
</tr>
</tbody>
</table>

Having recognised the differences in terms, this study adopts the conceptualisation of a socially responsible supply chain given by Vaaland and Owusu (2012). SR in SCM has been conceptualised based on the functions and actions needed for the implementation of SR in supply chains. A framework for the relationship between the supply chain and social responsibility can be seen in Figure 3.1. The three major activities or functions that embrace the implementation of SR in supply chains are (1) identifying or selecting supply chain members, (2) managing and developing relationships in the chain, and (3) monitoring and controlling the performance of actors. In this study, to build a socially responsible supply chain, socially responsible activities need to be implemented across the functions. Further, Section 3.6 identifies the use of governance as a major function for the implementation of social responsibility in supply chains.

![Figure 3.1: Responsible supply chain framework](Source: Vaaland and Owusu 2012)
3.6 Literature Review on Socially Responsible Supply Chains

In any field of study, a literature review is essential to synthesise the existing studies that are relevant to the research question. In this study, the literature review assists in identifying the existing studies that can assist in answering the research question regarding how social responsibility can be implemented at apparel manufacturing facilities. The adoption of a systematic process of reviewing literature increases research rigour by promoting a replicable and reliable process and decreasing bias (Tranfield, Denyer & Smart 2003). This study conducted a systematic literature review on the social responsible supply chain literature in order to identify the themes in the literature. After this, a review to understand how social responsibility can be implemented at the manufacturing facilities of suppliers was conducted.

3.6.1 Studies on Socially Responsible Supply Chains

Over the past ten years, there has been a substantial amount of research on socially responsible supply chain management. To understand the relevant studies on social responsibility in supply chains and to identify the research rationale, a systematic literature review was conducted in November 2016. A search performed in Google scholar, with the keywords ‘social responsibility’ and ‘supply chain’ in the title fields resulted in 85 journal articles from the year 2000. Tranfield, Denyer, and Smart’s (2003) guidelines on systematic reviews were adopted in order to identify the most relevant articles. Distribution of the 80 relevant articles over the years can be seen in Figure 3.2. Compared to earlier, there was a sharp increase in number of articles published in 2007 and then a decrease in 2010 and 2011. The global financial crisis of 2008-2009 had an effect on the number of articles published in 2010 and 2011. Followed this, there was an increase in the number of papers published in 2013-2016. The number of articles identified through the systematic review and their
distribution are consistent with a prior literature review on social and environmental procurement conducted by Hoejmose and Kirby (2012).

Figure 3.2: Number of journal articles published over the last decade

Based on the methodology adopted, Seuring et al. (2005) cluster the SCM literature into five groups: literature reviews, theoretical and conceptual papers, case studies, empirical surveys, and modelling. In the supply chain social responsibility literature, the case study is the dominant methodology, encompassing 39 per cent of literature, followed by 22 per cent for mathematical modelling and 20 per cent for theoretical and conceptual papers (see Figure 3.3). At the early stage of developing a concept, it is more common to see conceptual papers and exploratory studies with case study methodologies. Case research is a highly recommended method for gathering effective information and advancing knowledge on complicated concepts such as CSR (Andersen & Skjoett-Larsen 2009). In the SCM discipline, once the theory is formulated, concepts can be empirically validated using quantitative methods (Seuring et al. 2005). Supply chain social responsibility is at the
conceptualisation stage, where a survey methodology seems to be promising for future research (Gimenez & Tachizawa 2012).

Further, the social responsibility supply chain literature identified from the systematic review was analysed to identify key themes. In the social responsible supply chain research, it is common to see researchers investigate social responsibility in a piecemeal manner based on their needs (Cruz 2009). The five most common themes appearing in the social responsible supply chain research are drivers and barriers of social responsibility in supply chains, dimensions of socially responsible supply chains, the integration of social responsibility in supply chains, the impact of social responsibility on performance, and standards of social responsibility. A brief explanation of each theme and their relevant sources is presented in Table 3.3.

Drivers and barriers of social responsibility in supply chains are widely explored concepts, but none of the studies identified incorporated the suppliers’ perspectives (Huq, Stevenson & Zorzini 2014). Worthington et al. (2008) explore the driving factors of CSR from the perspective of procurement managers from the UK and US. Likewise, based on the
perceptions of procurement managers from the US, Park-Poaps and Rees (2009) identify stakeholder pressure as a major driver for the implementation of social responsibility at supplier facilities in apparel supply chains. More recently, Perry and Towers (2013) have identified the inhibitors and drivers of CSR implementation among Sri Lankan garment manufacturers. Through the case study analysis of seven leading UK companies, Walker, Kent and Vincent (2011) classify barriers of social responsibility into internal and external. Overall, it can be observed that the majority of the literature on drivers and barriers of CSR implementation in supply chains is specific to the context of developed nations.

Table 3.3: Classification of literature into different categories

<table>
<thead>
<tr>
<th>Theme</th>
<th>Category</th>
<th>Aim of these studies</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drivers and barriers</td>
<td>To identify the drivers, enablers, and barriers of the implementation of social responsibility in supply chains</td>
<td>Worthington et al. (2008); Mont and Leire (2009); Park-Poaps and Rees (2009); Walker and Jones (2012); Perry and Towers (2013); Chkanikova and Mont (2015); Jean et al. (2016); Mzembe et al. (2016)</td>
</tr>
<tr>
<td>2</td>
<td>Dimensions of socially responsible supply chains</td>
<td>To develop knowledge and understandings of the dimensions of socially responsible supply chains</td>
<td>Carter and Jennings (2002); Maloni and Brown (2006); Spence and Bourlakis (2009); Vaaland and Owusu (2011); Perry and Towers (2013); Eriksson and Svensson (2015)</td>
</tr>
<tr>
<td>3</td>
<td>Implementation of social responsibility in SC</td>
<td>To understand the mechanisms used for the implementation of social responsibility in supply chains</td>
<td>Boyd et al. (2007); Hsueh and Chang (2008); Lim and Phillips (2008); Faisal (2010); Kogg and Mont (2012); Lund-Thomsen and Lindgreen (2014)</td>
</tr>
<tr>
<td>4</td>
<td>Impact on performance</td>
<td>To examine the impact of socially responsible mechanisms on performance</td>
<td>Carter and Jennings, (2002); Carter, (2004); Hsueh and Chang (2008); Cruz (2009); Eltantawy, Fox and Giunipero (2009); Klassen and Vereecke (2012); Sancha, Wong and Thomsen (2016); Corbett (2006); Castka and Balzarova, (2008); Nawrocka (2008), Hahn (2013)</td>
</tr>
<tr>
<td>5</td>
<td>Standards of social responsibility</td>
<td>To review the available social responsibility standards and their implementation in supply chains</td>
<td></td>
</tr>
</tbody>
</table>
Papers on the second theme focus on defining the elements of CSR in SCM. Carter and Jennings (2002) identify environment, diversity, human rights, philanthropy, and safety as the dimensions of socially responsible purchasing. Maloni and Brown (2006) have identified CSR dimensions such as hygiene and safety as specific to the food supply chain. By examining the case study of a UK retailer, Spence and Bourlakis (2009) define supply chain responsibility as “the chain-wide consideration of, and response to, issues beyond the narrow economic, technical and legal requirements of the supply chain to accomplish social (and environmental) benefits along with the traditional economic gains which every member in that supply chain seeks” (p.295). Vaaland and Owusu (2011) identify the dimensions of socially responsible supply chains based on aspects of the implementation and coordination of values as well as the strategies and tactics of socially responsible practices among organisations.

The implementation of social responsibility in supply chains is the third theme in the papers under examination. In this sense, several studies in the literature investigated the implementation of social responsibility in supply chains (Boyd et al. 2007; Kogg & Mont 2012; Lund-Thomsen & Lindgreen 2014). In the context of supply chains, governance relates to those practices that aim to manage relationships with suppliers. In this stream of research, most of the papers emphasised the limitations of the use of compliance-based practices for the integration of social responsibility in supply chains (Boyd et al. 2007; Spence & Bourlakis 2009; Kong & Mont 2012). On the other hand, the cooperative paradigm, considered as an effective way of implementing social responsibility in supply chains, needs further exploration (Lund-Thomsen & Lindgreen 2014). In this stream, most of the existing literature is dominated by conceptual frameworks and case study analysis (see, for example, Lim & Phillips 2008; Spence & Bourlakis 2009; Kogg & Mont 2012), thus indicating a need for quantitative methodologies. With this in mind, the present study aims to examine the
governance mechanisms for the implementation of social responsibility at apparel manufacturing facilities.

Papers on the fourth theme have investigated the impact of socially responsible supply chain practices on firm performance. Mathematical models for the optimisation of firm performance have dominated this stream of literature, followed by a survey methodology, in studying the impact of practices on firm performance (Carter and Jennings 2002; Carter 2004; Hsueh & Chang 2008; Cruz 2009; Eltantawy, Fox & Giunipero 2009). In addition, a number of papers have examined the effects of social responsibility on performance (see, for example, Orlitzky, Schmidt & Rynes 2003; Van Beurden & Gossling 2008; Lu et al. 2014). However, the relationship between governance mechanisms and environmental performance has only been recently analysed (Gimenez & Sierra 2013). Following this theme, the present study proposes to examine the effects of socially responsible governance mechanisms on firm performance.

The fifth and final research theme explores the importance of socially responsible standards among supply chain members (see, for example, Corbett 2006; Castka & Balzarova 2008; Hahn 2013). Castka and Balzarova (2008) consider the international standard ISO 26000 as a means of implementing social responsibility in supply chains. More recently, Hahn (2013) examined ISO 26000 as a strategic management process for the implementation of CSR. In general, this stream of research emphasises ISO 26000 as a standard for CSR implementation and a guideline for auditing the quality of processes of CSR implementation in supply chains. Given the voluntary nature of ISO 26000, it has not been widely accepted. The impact of international standards on social responsibility is not within the scope of this research.

Though the identified themes are presented as discrete topics in this section, they may overlap with each other. As stated in Chapter 1, the objective of this study is to understand
how social responsibility can be implemented at supplier facilities and its impact on firm performance. However, only a few studies identified in this review have focused on the implementation of social responsibility and its impact on firm performance (i.e. Theme 3 and Theme 4 together). To examine governance mechanisms in relation to maintaining relationships among supply chain members, widely-adopted research from the sustainability discipline can be considered. The following section presents literature on the extension of social responsibility or sustainability in supply chains in order to identify the relationship mechanisms and their impact on firm performance.

3.6.2 Studies on Extending Social Responsibility to Suppliers

According to Gimenez and Tachizawa (2012), up to 2011, 46 journal articles have been published on extending sustainability to suppliers. To understand the literature on the extension of social responsibility to suppliers, this research followed Gimenez and Tachizawa (2012) and extended the findings by including journal articles from 2012 to 2017. In this sense, a search based on all the possible combinations between words related to sustainability/corporate social responsibility (e.g. ‘sustainab*’, ‘environment*’, ‘green’, and ‘social responsibility’) and SCM (e.g. ‘supply’, ‘purchasing’, ‘procurement’, and ‘logistics’) was performed in a meta-search engine (MetaLib).

A total of 746 papers (on 21 December 2017) were identified in the first step of the literature review. After deleting duplications, the total number of articles was reduced to 569. The following two criteria were used to review the abstracts of the articles: Does the paper analyse the transfer of social responsibility practices to the supply base? Is it based on empirical data? A review of the abstracts resulted in 74 articles. Finally, each article was reviewed and the selected articles were able to provide insights into the research objective, i.e. what governance mechanisms are used for the implementation of social responsibility and
what is the impact of the different governance structures on firm performance (environmental, social, and economic performance)? After the final screening, 38 papers remained; Table 3.4 provides a summary of the articles.

From the literature, supply chain practices for the implementation of social responsibility or sustainability can be classified as internal and external. External practices refer to management practices that include transactions with suppliers and customers, whereas activities within the direct control of manufacturers, without direct supplier or customer involvement, are considered as internal activities (Zhu, Sarkis & Lai 2013). As the objective of this study is to understand the mechanisms for extending social responsibility to suppliers, only external practices are considered.

Complying with Gimenez and Tachizawa (2012), selection, assessment, and collaboration are considered as the external practices of an organisation relevant for the implementation of social responsibility in supply chains. A detailed discussion of the mechanisms is provided in Section 3.7. Results from the review demonstrate that most of the studies have emphasised the importance of collaboration with suppliers for the implementation of sustainability and its impact on performance (see Table 3.4). On the other hand, only a few studies have referred to the role of supplier selection in implementing sustainability in supply chains. Even in these studies, supplier selection is considered as one of items reflecting sustainable purchasing or sustainable procurement constructs. Most of the studies have directly or indirectly examined the impact of mechanisms on economic, environmental, and operational performance. Despite the objectives of the present thesis, no study has emphasised social performance (see Table 3.4). Detailed discussion of the relationship between performance and the mechanisms is presented in Section 3.8.
The findings suggest that collaboration and assessment practices lead to positive economic and environmental performance. However, selection with other factors of purchasing will improve performance (see Table 3.4). The results of this review will be used to support the mediation role of supplier assessment and collaboration on the relationship between supplier selection and firm performance presented in Section 3.8. Further, the findings of the review may provide justification for the study’s results. Although the terms social responsibility and sustainability are used, most of the studies in the review emphasise the implementation of environmental aspects in the supply chain. Therefore, this study extends the existing literature by integrating social aspects in relation to supplier selection.

Overall, this literature review forms the basis for identifying the mechanisms of the conceptual framework. From this review, a gap in the literature with regard to using supplier selection as a social responsibility implementation mechanism has been identified. This research proposes the use of selection, assessment, and collaboration mechanisms for the implementation of social responsibility in supply chains. Further, this research aims to understand the effect of socially responsible governance mechanisms at suppliers’ manufacturing facilities on firms’ social, environmental, and economic performance. Section 3.7 provides a detailed discussion of the mechanisms and firm performance for the development of the conceptual framework.
<table>
<thead>
<tr>
<th>Paper</th>
<th>Scope</th>
<th>Method</th>
<th>Mechanisms</th>
<th>Performance</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liu et al. (2012)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td></td>
<td>Through assessment, companies are able to invest in the number of environmentally-friendly certification standards</td>
</tr>
<tr>
<td>Tachizawa, Thomsen and Montes-Sancho (2012)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>through assessment and collaboration, organisations can improve the environmental performance of waste reduction, the organisations’ environmental reputation, and economic factors such as increased revenues and market position.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementation of internal environmental management, green purchasing practices, and cooperation with customers have an effect on operational efficiency and business performance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chan et al. (2012)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td></td>
<td>P</td>
</tr>
<tr>
<td>Green purchasing, with the use of selection criteria and cooperation with customers, will improve corporate efforts.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perotti et al. (2012)</td>
<td>Env</td>
<td>Case Study</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Green supply chain practices, such as green supply, distribution, warehousing, reverse logistics, cooperation with customers, and internal management will improve the environmental, economic, and operational performance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youn, Yang and Roh (2012)</td>
<td>Env</td>
<td>Case Study</td>
<td>X</td>
<td></td>
<td>(P)</td>
</tr>
<tr>
<td>Eco-efficient and eco-responsive practices will have an influence on the performance of green supply chains.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zhu, Sarkis and Lai (2012)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td>X</td>
<td>(P)</td>
</tr>
<tr>
<td>Mediation relationships between external and internal practices of green supply chain management with respect to environmental, economic, and operational performance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ageron, Gunasekaran and Spalanzani (2012)</td>
<td>Sus</td>
<td>Survey</td>
<td>X</td>
<td></td>
<td>(P)</td>
</tr>
<tr>
<td>Supplier selection and supplier collaboration through green purchasing drives sustainable supply chains.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Authors</td>
<td>Type</td>
<td>Method</td>
<td>X</td>
<td>P</td>
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<tr>
<td>Green Jr et al. (2012)</td>
<td>Env</td>
<td>Survey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitra and Datta (2013)</td>
<td>Env</td>
<td>Survey</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gimenez and Sierra (2013)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zhu, Sarkis and Lai (2013)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dubey, Gunasekaran and Ali (2014)</td>
<td>Env</td>
<td>Survey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blome, Hollos and Paulraj (2014)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wolf (2014)</td>
<td>Sus</td>
<td>Survey</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yu et al. (2014)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tachizawa &amp; Gimenez and Sierra (2015)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lee (2015)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Green supply chain practices of environmental management, green purchasing, and eco-design effect the environmental, operational, and organisational performance.

Collaboration with suppliers, environmentally sustainable product design, and logistics improve economic performance.

Assessment and collaboration of sustainable supply chains improve environmental performance.

Institutional pressures influence the implementation of green supply chain practices and their impact on performance.

Institutional pressures moderate the relationship between green supply chain management practices and their impact on environmental performance.

Market performance influences supplier development and affects supplier performance.

Stakeholder pressure has a mediating and moderating effect on supplier assessment and firms’ environmental and social performance.

Internal green supply chain practices and green supply chain practices with customers and suppliers positively affect the operational performance of the firm.

Assessment of green supply chain practices does not have an effect on environmental performance, whereas collaboration has an effect on environmental performance.

Collaboration mechanisms act as a moderator on eco-design and investment recovery and environmental and financial performance.

Green supply chain practices have a positive effect on environmental performance through social and relational capital.
Possession of EMS certification, firm size, and firm age affect the relationship between green supply chain management practices and environmental, social, economic performance and operational relationships.

Green supply chain management practices have a positive effect on cost effectiveness, customer efficiency, and differentiation.

Sustainable procurement, distribution, and design have a positive effect on environmental and cost performance.

Internal green practices and external collaboration practices have positive effects on green performance.

Long-term relationships and strategic integration of purchasing moderates the positive relationship between green purchasing and purchasing performance.

External green supply chain practices, such as purchasing and collaboration with partners, have a positive effect on firm performance.

Green supply chain practices affect firms’ operational (manufacturing and marketing) performance.

Green supplier selection and value internalisation drives the performance of green supply chains.

Institutional pressures influence the implementation of green supply chain practices and their impact on performance.

Instrumental, relational, and moral motives drive the implementation of sustainability in supply chains. Further, sustainable supply chains have a positive impact on environmental and financial performance.
<table>
<thead>
<tr>
<th>Authors</th>
<th>Type</th>
<th>Study</th>
<th>Presence</th>
<th>Impact on performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Das (2017)</td>
<td>Sus</td>
<td>Survey</td>
<td>X</td>
<td>(P)</td>
</tr>
<tr>
<td>Esfahbodi et al. (2017)</td>
<td>Sus</td>
<td>Survey</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Costantini et al. (2017)</td>
<td>Env</td>
<td>Case Study</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Scur and Barbosa (2017)</td>
<td>Env</td>
<td>Case Study</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Vanalle et al. (2017)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Li and Huang (2017)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Balasubramanian and Shukla (2017a)</td>
<td>Env</td>
<td>Case Study</td>
<td>X</td>
<td>(P)</td>
</tr>
<tr>
<td>Yu, Chavez &amp; Feng (2017)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balasubramanian and Shukla (2017b)</td>
<td>Env</td>
<td>Survey</td>
<td>X</td>
<td>P</td>
</tr>
</tbody>
</table>

Notes: * ENV: Environmental; Sus: Sustainable; P: Impact on performance analysed; (P): Impact on performance implicitly analysed; X: presence of the particular mechanism

Environmental management practices, operations practices, supply chain integration, and socially inclusive practices for employees and communities are the aspects of sustainable supply chains that could impact on environment, social, and economic performance.

Governance pressures influence the implementation of sustainable practices in supply chains and their impact on firm performance.

Eco-innovation through supply chains has a positive influence on performance.

Green purchasing and collaboration with supply chain partners facilitate the implementation of environmental aspects that affect performance.

Institutional pressure influences green supply chain practices and their effect on firms’ environmental, operational, and economic performance.

Relational bonding moderates the relationship between green supply chain practices and performance.

Core green and facilitating green practices have a positive effect on firms’ environmental, economic, and operational performance.

Supplier selection through supplier collaboration has a positive influence on firms’ operational and environmental performance.

Core green and facilitating green practices have a positive effect on firms’ environmental, economic, and operational performance.
3.7 Conceptual Framework

This section provides a detailed overview of the conceptual framework of governance mechanisms and firm performance.

3.7.1 Governance Mechanisms

The notion of governance is associated with the economic exchange process among firms and their relationships (Burkert, Ivens & Shan 2012). It offers guidelines for establishing and structuring such relationships. Governance refers to the system by which companies are directed and controlled, in addition to involving the actions that both parties undertake to achieve a common goal (Liu, Luo & Liu 2009). It is used as a tool for conflict resolution and for realising the mutual gains of the exchange process (Williamson 2002; Sancha, Wong & Thomsen 2016).

In the field of buyer-supplier relationships, researchers have argued that there is a need for multiple mechanisms to govern relationships and to improve sustainable performance (Liu, Luo & Liu 2009). Wathne and Heide (2000) identify monitoring, incentives, selection, and socialisation as the governance strategies of inter-organisational relationships. More recently, Ashenbaum et al. (2009) propose information exchange, supplier selection, collaboration, and monitoring as the governance mechanisms. In particular, the objective of this study is to examine such relationships at a dyadic level. To manage the dyadic relationship of retailer-manufacturer, governance mechanisms of supplier selection, supply chain sourcing, supplier development, and supply chain management should be used (Cox 2004). To implement CSR in supply chains and to promote continuous relationships, effective governance mechanisms should be used (Vurro, Russo & Perrini 2009; Burkert, Ivens & Shan 2012).
The most common approach to managing compliance with social responsibility is to use a selection mechanism (Joshi & Campbell 2003). Studies conducted on the code of conduct as a selection mechanism have illustrated improvements in working conditions, the payment of minimum wages, and a reduction in overtime work. However, the selection mechanism has a limited impact on issues such as collective bargaining and freedom of rights (Lund-Thomsen & Lindgreen 2014). In order to promote mutual exchange and enhance capabilities amongst supply chain partners, a relational governance mechanism should be used (Lim & Phillips 2008). Most of the previous literature has emphasised the importance of a relational governance mechanism for the buying firm in relation to investing personnel, time, and resources into enhancing supplier performance (Krause 1997; Krause, Scannell & Calantone 2000; Klassen & Vachon 2003; Large & Gimenez 2011). The relational mechanism of supplier development offers greater transparency and enhances long-term relationship (Cox 2004). As identified in Section 3.6.2, supplier selection and supplier development (supplier assessment and supplier collaboration) are the two mechanisms for social responsibility implementation at supplier facilities.

### 3.7.1.1 Supplier selection mechanisms

Supplier selection is the first stage in establishing a relationship between supplier and buyer, with the aim of reducing risks in the relationship (Koufteros, Vickery & Dröge 2012). Supplier selection aids in choosing suppliers who can fulfil the buyer’s requirements and improve the firm’s performance (Ittner et al. 1999; Krause, Scannell & Calantone 2000). In the context of international buyer-supplier relationships, the use of a selection mechanism can align the goals and values of the exchange partners with business operations in different countries (Wathne & Heide 2004; Burkert, Ivens & Shan 2012).
Table 3.5: Supplier selection factors and their selected sources

<table>
<thead>
<tr>
<th>First-Order Construct</th>
<th>Explanation</th>
<th>Source</th>
</tr>
</thead>
</table>
| Operational           | The operational criteria dimension category refers to the factors that determine the production, distribution, and consumption of goods. It is operationalised as:  
• Costs  
• Quality  
• Delivery performance | Weber, Current and Benton (1991); Dickson (1996); Liu, Ding and Iall (2000); Kannan and Tan (2003); Carr and Kaynak (2007); Paulraj (2011); Kannan, Govindan and Rajendran (2014) |
| Environmentally Sustainable | The environmentally sustainable dimension category relates to the natural world and the impact of the activity on its condition, most often referring to the following:  
• Pollution emissions  
• Resource consumption  
• Environmental management systems | Kannan and Tan (2002); Handfield et al. (2002); Zhu and Sarkis (2007), Paulraj (2011); Shaw et al. (2012); Baskaran, Nachiappan and Rahman (2012), Kannan, Govindan and Rajendran (2014) |
| Socially Sustainable | The socially sustainable dimension category refers to firms’ activities and their impact on human society and their employees. The dimensions of social factors include:  
• Human rights  
• Child labour  
• Discrimination  
• Health and safety standards  
• Unfair competition | Kannan and Tan (2002); Kannan and Tan (2003); Paulraj (2011); Baskaran, Nachiappan and Rahman (2012); Govindan, Khodaverdi and Jafarian (2013); |

Over the years, researchers have used several criteria in the decision-making process of selecting suppliers (Handfield et al. 2002; Humphreys et al. 2006; Lu, Wu & Kuo 2007; Tsai & Hung 2009; Govindan, Khodaverdi & Jafarian 2013; Kannan, Govindan & Rajendran...
2014). Earlier, researchers used operational criteria such as price, quality, and delivery performance as the criteria for supplier selection (Weber, Current & Benton 1991; Dickson 1996; Kwong, Ip & Chan 2002). Due to the importance given to aspects of sustainability, environmental criteria have gained greater attention in the decision-making process of supplier selection (Baskaran, Nachiappan & Rahman 2012). However, most sustainability studies have focused on environmentally sustainable criteria rather than socially sustainable criteria (e.g. Handfield et al. 2002; Humphreys et al. 2006; Lu, Wu & Kuo 2007; Tsai & Hung 2009; Paulraj 2011; Gimenez & Sierra 2013). More recently, Sancha, Wong and Thomsen (2016) have addressed the shortcomings of earlier research by incorporating socially sustainable criteria in the supplier selection mechanism. In this study, a balanced approach is adopted by considering operational, environmentally sustainable, and socially sustainable criteria for the supplier selection governance mechanism. A brief explanation of each of these factors is provided in Table 3.5.

3.7.1.1.1 Operational selection criteria

Researchers have identified a number of dimensions relating to the operational selection criteria (Xu et al. 2013; Nair, Jayaram & Das 2015). The primary focus of a firm is to maximise profit, and therefore the price dimension is the most often referred to operational criteria compared to any other dimension (Baskaran, Nachiappan & Rahman 2012). Several studies have consistently referred to quality as a dimension for supplier selection and have related them to organisational success (Ellram 1990; Weber & Current 1993; Dickson 1996; Ittner et al. 1999; Kannan & Tan 2003). Additionally, researchers have also integrated delivery performance into the supplier selection process that has a direct influence on the operations of the firm (Weber & Current 1993; Dickson 1996). Another dimension, the service aspect, explains the role of suppliers in meeting buyers’ demands. A number of studies have also integrated services into the selection process (Kannan & Tan 2002).
However, service cannot be a separate dimension in selection; rather, it should be embedded into all the other dimensions. Nair, Jayaram and Das (2015) conducted an extensive literature review on selection indicators, and they group costs, quality, and delivery performance under operational criteria. Table 3.6 provides a summary of the literature on the dimensions of operational criteria in the context of apparel supply chains.

Table 3.6: Operational selection criteria in the apparel industry and relevant references

<table>
<thead>
<tr>
<th>First-Order Construct</th>
<th>Explanation</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>Quality refers to the state of being free from defects. Often, quality is operationalised into the following aspects:</td>
<td>Sarkis and Talluri (2002); Koprulu and Albayrakoglu (2007); Chan and Chan (2010)</td>
</tr>
<tr>
<td></td>
<td>• Quality assurance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Process capabilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reject rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Warranties and claim policies</td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>Price is a critical dimension that provides competitiveness among suppliers. The following are some of the aspects that determine the price dimension:</td>
<td>Thaver and Wilcock (2006); Chan and Chan (2010); Govindan et al. (2013)</td>
</tr>
<tr>
<td></td>
<td>• Purchasing price</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Price performance value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Transportation costs</td>
<td></td>
</tr>
<tr>
<td>Delivery performance</td>
<td>Delivery performance ascertains that suppliers meet buyers’ requirements regarding delivery. Some aspects of delivery performance are:</td>
<td>Thaver and Wilcock (2006); Akesson, Jonsson and Edanius-Hallas (2007)</td>
</tr>
<tr>
<td></td>
<td>• Assurance of supply</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Flexibility-responsiveness</td>
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</tr>
<tr>
<td></td>
<td>• Reliability</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Service quality</td>
<td></td>
</tr>
</tbody>
</table>

3.7.1.1.2 Environmentally sustainable criteria

In the recent past, organisations have increasingly used green practices in production, and attempts have been made to incorporate environmentally sustainable criteria into the supplier selection mechanism (Liu, Ding & Lall 2000). The integration of environmental factors into the supplier selection mechanism will build trust and reputation and enhance inter-
organisational relationships, resulting in the improvement of financial performance (Baskaran, Nachiappan & Rahman 2012).

Table 3.7: Environmentally sustainable criteria in the apparel industry and relevant references

<table>
<thead>
<tr>
<th>First-Order Construct</th>
<th>Explanation</th>
<th>Source</th>
</tr>
</thead>
</table>
| Pollution emissions   | Monitoring pollution emissions and discharge of waste will preserve the environment and will have long-term effects on climate. Aspects of emission that needs to be addressed are:  
  • Air emissions  
  • Waste water  
  • Solid waste  
  • Costs of waste and pollution treatment  
  • Use of harmful materials | Baskaran, Nachiappan and Rahman (2012); Lo, Yeung and Cheng (2012); Shaw et al. (2012) |
| Environmental management systems | An environmental management system helps to manage the impact of an organisation’s activities on the environment. It provides an approach for managing environmental aspects. For selection based on the environmental systems, the following aspects are used:  
  • Environmental policies and planning  
  • ISO 14001 certification  
  • Management commitment | Baskaran, Nachiappan and Rahman (2012); Lo, Yeung and Cheng (2012); Jakhar (2015) |
| Resource consumption | Manufacturers need to be encouraged to reduce the consumption of resources to remain sustainable for the future. Aspects of resource consumption are:  
  • Energy consumption  
  • Material consumption  
  • Recycle material consumption | Baskaran, Nachiappan and Rahman (2012); Cervellon and Wernerfelt (2012) |

Several studies have attempted to identify the underlying environmentally sustainable criteria for supplier selection (Andersen & Skjoett-Larsen 2009; Ehrgott et al. 2011; Goebel et al., 2012; Kannan, Govindan & Rajendran 2014). Dimensions of environmental criteria vary from quantitative to qualitative indicators (Humphreys, Wong & Chan 2003). Studies have identified pollution as the major environmental concern directly affecting financial performance (Zhu & Sarkis 2004; Rao & Holt 2005). The implementation of environmental
management systems is seen as the most important selection criteria for improving firms’
performance (Xu et al. 2013). Further, a number of studies have incorporated the dimension
of resource consumption into the environmental criteria of supplier selection (Handfield et al.
2002; Humphreys, Wong & Chan 2003). Among the plethora of environmentally sustainable
criteria, practitioners tend to use criteria that are context specific (Goebel et al. 2012). A brief
description of each environmentally sustainable criterion specific to the apparel supply chain
is provided in Table 3.7.

3.7.1.1.3 Socially sustainable criteria

Several disasters in apparel manufacturing relate to human rights violations, long working
hours, child labour, discrimination, and a lack of health and safety standards (Haque &
Azmat 2015). In the context of developing nations, it is very common to see organisation’s
practices such as bribery, excessive gift giving, and unethical marketing to gain advantage
over competitors (Baskaran, Nachiappan & Rahman 2011). In spite of having a long history
of social responsibility, the application of social concepts has only emerged in recent years
(Ciliberti et al. 2011). The study of Carter and Jennings (2002) is one of the first to define
‘purchasing social responsibility’ as an umbrella term including diversity, the environment,
human rights, philanthropy/community, and safety dimensions. Govindan, Khodaverdi and
Jafarian (2013) classify social measures into internal indicators, such as employment
practices and health and safety, and external indicators, such as local community influence
and contractual stakeholders. Studies have identified a wide variety of socially sustainable
criteria for supplier selection (Ehrgott et al. 2011; Goebel et al. 2012). Due to the prevalence
of unethical workplace practices in the apparel industry, supplier selection based on social
factors is a contested topic (Baskaran, Nachiappan & Rahman 2012). Table 3.8 provides a
brief description of socially sustainable criteria for supplier selection in apparel supply
chains.
<table>
<thead>
<tr>
<th>First-Order Construct</th>
<th>Explanation</th>
<th>Source</th>
</tr>
</thead>
</table>
| Human rights         | Manufacturers must not interfere with, obstruct, or prevent legitimate activities of workers and their decision making. Aspects of human rights are:  
  - Rights of stakeholders  
  - Interests and rights of employees | Cooke and He (2010); Baskaran, Nachiappan and Rahman (2012) |
| Child labour         | No person shall be employed at an age younger than the legal minimum for working in any specific jurisdiction. Practices that ensure child labour is not employed are:  
  - Identification procedures  
  - Verification of employment | Bremer and Udovich (2001), Mamic (2005) |
| Discrimination       | Employees should not be discriminated against based on race, colour, national origin, gender, and other similar factors. The following aspects are related to discrimination  
  - Policies against discrimination  
  - Procedures to prevent discrimination | Bremer and Udovich (2001); Cooke and He (2010) |
| Health and safety standards | Factories shall ensure that proper and adequate considerations for health and safety are considered. Aspects of health and safety standards are:  
  - Training to handle equipment and hazardous substances  
  - Restrictions on working hours  
  - Health check-ups  
  - Safety procedures (e.g. fire exits, fire extinguishers, emergency evacuation plans) | Bremer and Udovich (2001); Mamic (2005); Baskaran, Nachiappan and Rahman (2012) |
| Unfair competition   | The effectiveness of any program or practice on communities depends on aspects of fair work practices, such as:  
  - Bribery  
  - Advertisements  
  - Ethical violations  
  - Non-disclosure of privacy information | Baskaran, Nachiappan and Rahman (2012) |

3.7.1.2 Supplier development mechanisms

In the recent past, to manage the interdependence among members, attempts have been made to incorporate supplier development mechanisms into supply chains (Cai, Yang & Hu 2009; Vurro, Russo & Perrini 2009). The supplier development mechanism refers to the inter-firm
exchange of assets that can be incorporated into the organisation structure and process, to the benefit of the relationship (Zaheer & Venkatraman 1995). The implementation of supplier development results in enhanced trust, fewer contracts, development of supplier capabilities, and the elimination of opportunistic behaviour (Krause, Scannell & Calantone 2000; Wathne & Heide 2000; Joshi & Campbell 2003; Yu, Liao & Lin 2006). Several studies have attempted to identify the underlying factors of the development mechanism and relate them to organisational performance (Lee & Klassen 2008; Sucky & Durst 2013). In early phases, researchers in the field of marketing identified a number of dimensions of the supplier development mechanism (e.g. Wathne & Heide 2000; Yu, Liao & Lin 2006; Cai, Yang & Hu 2009), closely followed by the supply chain literature (e.g. Krause & Ellram, 1997; Cox 2004; Park et al. 2010).

Table 3.9: The supplier development governance mechanism and relevant literature

<table>
<thead>
<tr>
<th>First-Order Construct</th>
<th>Explanation</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>Activities conducted by the buying organisation in order to evaluate and control its suppliers by auditing, providing feedback of the evaluation, and offering certifications, thus making future inspections less frequent.</td>
<td>Krause (1997); Krause, Scannell and Calantone (2000); Klassen and Vachon (2003); Large and Gimenez (2011); Gimenez, Sierra and Rodon (2012); Gimenez and Sierra (2013); Gualandris et.al. (2015)</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Collaboration in CSR is regarded as direct involvement of an organisation with its suppliers and customers in planning jointly for CSR management.</td>
<td>Klassen and Vachon (2003); Vachon and Klassen (2008); Cao and Zhang (2011); Lu, Lee and Cheng (2012); Gimenez and Tachizawa (2013); Gualandris et.al. (2015)</td>
</tr>
</tbody>
</table>

Assessment, feedback of evaluation, education/training, and capital investment are identified as the practices of the supplier development mechanism (Krause & Ellram 1997; Humphreys, Li & Chan 2004; Lu, Lee & Cheng 2012). Further, researchers have clustered the supplier development governance dimensions into broad factors, such as reactive vs. proactive and direct vs. indirect (e.g. Klassen & Vachon 2003; Lee & Klassen 2008; Large & Gimenez
2011; Gimenez & Tachizawa 2012). Notwithstanding the differences in clustering, assessment and collaboration are considered as the crucial factors of relationship management (Park et al., 2010). Most of the earlier empirical research on the supplier development mechanism has investigated supplier assessment and supplier collaboration as two independent constructs (see, for example, Tachizawa, Gimenez & Sierra 2015; Sancha, Gimenez & Sierra 2016). Recently, a number of attempts have been made to apply the supplier development mechanism in the context of sustainable supply chains. For example, Lee and Klassen (2008), Large and Gimenez (2011), and Gimenez and Sierra (2013) have used assessment and collaboration practices to extend sustainability to supply chains. On the other hand, Andersen and Skjoett-Larsen (2009) and Vurro, Russo and Perrini (2009) have assessed the importance of these practices in relation to integrating social responsibility into supply chains. The present study adopts both supplier assessment and collaboration as the practices of the supplier development governance mechanism. Table 3.9 provides a brief explanation of the factors relating to supplier development.

3.7.1.2.1 Supplier assessment

Supplier assessment is a management process that addresses how an organisation can identify the actions required for the improvement of processes at suppliers’ facilities (Gimenez & Tachizawa 2012). Studies have identified that, through assessment, supplier development needs can be identified (Vachon & Klassen 2006; Gimenez & Sierra 2013). Researchers have incorporated assessment through formal processes, providing feedback of assessment and offering certification or accreditation of assessment as the elements of the assessment process (Krause 1997; Vachon & Klassen 2006). Information from the supplier assessment provides guidance for the supplier in relation to the direction for improvement (Krause, Scannell & Calantone 2000). Studies have suggested that customer expectations of suppliers’ social and environmental practices can be effectively communicated through assessment (Vachon &
Klassen 2006). This study adopts formal evaluation, feedback from evaluation, and certification as the dimensions for the supplier assessment mechanism in relation to implementing social responsibility. Assessment is considered as the first step towards identifying what actions are needed, and then collaboration can help to improve sustainability (Gimenez & Tachizawa 2012).

3.7.1.2.2 Supplier collaboration

Studies on inter-organisational relationships have found that collaborative relationships generate profit that is positively correlated to the performance of each participant in the relationship (Joshi & Campbell 2003; Paulraj, Chen & Blome 2017). In the context supply chains, collaboration is regarded as a dominant mechanism to implement social responsibility in the supply chain (Gimenez & Tachizawa 2012). Collaborative partnerships with more secure relationships will not only lead to superior compliance but also to suppliers developing an independent commitment to CSR. Based on Florida’s (1996) definition of environmental collaboration, collaboration in CSR is considered as the direct involvement of an organisation with its suppliers and customers to plan jointly for CSR management. In this sense, it provides a platform for suppliers and buyers to learn from each other (Björklund 2010). In the research, collaborative activities include joint planning sessions, knowledge sharing regarding products and processes, site visits, training and/or education, and technical assistance (Klassen & Vachon 2003). In aligning with previous research, this study considers site visits, joint planning, technical assistance, and training/education as factors of collaboration.

3.7.2 Firm Performance

SCM is a key driver for the improvement of firm performance (Kannan & Tan 2006). Success of the supply chain strategy is measured through firm performance, which refers to
how well a firm has achieved its financial and non-financial performance (Yamin, Gunasekaran & Mavondo 1999). Studies have examined the benefits of sustainable supply chains (Vachon & Klassen 2008; Large & Gimenez 2011; Gimenez & Tachizawa 2012). In relation to sustainable supply chains, most studies have only emphasised the environmental benefits (Paulraj 2011). However, the benefits of sustainable supply chains extend beyond the environmental to the social and economic (Gimenez, Sierra & Rodon 2012). Studies suggest that social responsibility can deliver benefits in relation to the reduction of resource usage and environmental waste, enhancing working conditions, stakeholder welfare, community development, and corporate image (Orlitzky, Schmidt & Rynes 2003; Lu et al. 2014). In addition to social and environmental performance improvements, firms have also realised economic benefits in terms of increased revenue, decreased costs, and improvements in customer satisfaction (Golicic & Smith 2013). In this study, social, environmental, and economic aspects are used to measure firm performance, and an explanation for each performance measure is provided below.

3.7.2.1 Economic performance

In empirical research, economic performance is a common or the dominant variable in models. Indicators used to measure economic performance reflect the fulfilment of a firm’s economic goals (Lambert & Schwieterman 2012). Measurement of economic performance demonstrates the form of assessment with the factors outside the firm’s boundaries (Chen & Paulraj 2004). Economic performance can be measured either using accounting measures or market measures. Accounting measures capture historical aspects of a firm’s financial performance, whereas market measures are future based (Tsoutsoura 2004). To properly evaluate a firm, a combination of both measures should be used. In the social responsible supply chain literature, accounting measures such as ROI (return on investment), ROA
(return on assets), and market share and market measures such as sales volume and market performance are commonly used to study the relationship between social responsibility and firm performance (Gallear, Ghobadianb & Chena 2012; Quazi & Richardson 2012). Therefore, in the proposed study, a combination of these measures is considered.

3.7.2.2 Environmental performance

Due to regulatory compliance, public pressure, and competitive advantage, managers are increasingly responsible for improvements in environmental performance (Theyel 2006). In the context of supply chains, to improve environmental performance, several practices, such as supplier visits, supplier evaluative practices, and partnering or mentoring are used (Lamming & Hampson 1996; Tan et al. 1999). Material usage, waste management, recycling, and reputation are common environmental performance improvements examined in the literature (Miemczyk, Johnsen & Macquet 2012; Gimenez & Sierra 2013). Pollution emissions is an important construct that is not considered in the majority of studies. In this study, a reduction in material usage, waste, and air emissions, and the increased use of recycled material form the constructs for measuring environmental performance.

3.7.2.3 Social performance

In the literature, social performance measures are relatively new (Paulraj 2011). The majority of social measures relate to issues such as sourcing from diverse suppliers, workers’ rights, and community development (Miemczyk, Johnsen & Macquet 2012). Supplier diversity is considered as an important indicator for measuring social performance (Carter 2004). Awaysheh and Klassen (2010) identify working conditions, working hours, and wages as social issues of firm performance. Recent incidents such as Rana Plaza have demonstrated the importance of safety in the workplace. Human rights issues, such as forced or compulsory child labour, are important issues of concern for branded retailers in their global supply
chains (Perry & Towers 2013). Throughout the evolution of social responsibility, the community is regarded as an important dimension in social responsibility (Carter 2004). Product responsibility with regard to customer health, safety, and privacy are some of the social dimensions that have not been considered in the literature so far. This study uses stakeholder welfare issues, such as workers’ health and safety, workers’ rights, fair operating practices, and community development, as the social performance measures. In this regard, the items reflecting performance measures can be seen in Chapter 4.

3.7.3 Agency Problems

In the supply chain context, agency problems refer to the self-serving behaviour of a supply chain member when opportunities arise. As explained in earlier sections, agency problems have a significant effect on relationships between supply chain partners. Agency problems refer to information asymmetries, conflicting goals, and the risk-aversive behaviour of the members in the relationship (Fayezi, O’Loughlin & Zutshi 2012; Li et al. 2015). In a principal-agent relationship, one party having more information than the other is referred to as information asymmetry (Zu & Kaynak 2012). Asymmetric information among supply chain members will affect the dynamics of their relationship (Boyd et al. 2007; Perry & Towers 2013). In global supply chains, suppliers have increasingly failed to follow standards and codes of conduct and maintain safe working environments (Zsidisin & Ellram 2003). In some cases, suppliers mock compliance may result in risk-aversive behaviour (Huq, Chowdhury and Klassen 2016). In particular, when the principal cannot observe what the agent does, then the agent may be involved in deceitful behaviour by exerting low-level efforts (Ekanayake 2004). Such deceitful behaviour is very common when supply chains are globally spread with multiple layers of relationships (Andersen & Skjoett-Larsen 2009). Risk-aversive behaviour among supply chain members will result in agency problems. Self-
interested suppliers and buyers with conflicting goals can also cause relationship issues (Zu & Kaynak 2012). A goal conflict is associated with the risks of moral hazard and adverse selection (Eisenhardt 1989). Goal conflict is another factor that affects supply chain relationships. In this study, information asymmetry, risk-aversive behaviour, and goal conflicts are used to measure agency problems.

Drawing from the literature, a theoretical framework is developed with five first-order (lower) independent constructs, i.e. operational selection criteria (OSC), socially sustainable criteria (SSC), environmentally sustainable criteria (ESC), supplier assessment (SA), and supplier collaboration (SC), reflective of several indicators, which, in turn, form two second-order (higher) independent constructs: supplier selection (SS) and supplier development (SD). Thus, the governance mechanisms in this study are operationalised as first-order reflective constructs and second-order formative construct. On the other hand, the three dependent variables, i.e. social performance (SOP), economic performance (ECP), and environmental performance (ENP), are also variables reflective of several items. Further, the moderating variable agency problems (AP) is formed with the first-order constructs goal conflict (GC), information asymmetry (IA), and risk aversion (RA). These three first-order constructs of agency problems are reflective of several items. The relationship between governance mechanisms and firm performance, and the impact of the moderating variable on the relationship, is tested by the proposed hypotheses; the detailed model is shown in Figure 3.4.
3.8 Hypotheses Development

Working from the literature review and conceptual framework, this section focuses on developing the study’s hypotheses. In order to answer the research objectives formulated in Chapter 1, eighteen hypotheses were developed and analysed.

3.8.1 Supplier Selection and Supplier Development

The literature highlights the relationship between supplier selection and supplier development mechanisms and suggests that implementing both mechanisms together will have an effect on firm performance (Kwong, Ip & Chan 2002; Park et al. 2010; Gualandris et al. 2015). Several studies have identified a positive relationship between the supplier assessment and supplier collaboration aspects of the supplier development mechanism (Tracey & Tan 2001; Klassen & Vachon 2003; Large & Gimenez 2011). Research has also emphasised that the development of supplier capabilities is highly influenced by supplier selection (Hahn, Watts & Kim 1990; Tracey & Tan 2001; Kannan & Tan 2006). More recently, Koufieros, Vickery
and Dröge (2012) and Nair, Jayaram and Das (2015) conclude that, as a strategic function, supplier selection can enhance supplier development activities. Hence, the following is hypothesised:

\[ H_1: \text{Supplier selection is positively related to supplier development} \]

### 3.8.2 Supplier Selection and Firm Performance

According to transactional cost economies (TCE), there is a risk of adopting opportunistic behaviour in a buyer–supplier relationship (Williamson 1993). In the context of social responsibility, suppliers may employ opportunistic behaviour to achieve cost advantages (Huq, Chowdhury and Klassen 2016). According to TCE, in an uncertain transaction environment, buyers play a critical role in assessing suppliers’ actions (Williamson 1975). A supplier selection mechanism underlined by TCE governs the buyer–supplier relationship and its effect on firm performance (Sancha, Wong & Thomsen 2016). Apparel supply chains are characterised by demand uncertainty and require an appropriate relationship mechanism to manage CSR (Perry & Towers 2013). Based on TCE, this study adopts the supplier-selection mechanism to establish the buyer–supplier relationship.

Previous studies have identified a significant positive relationship between the supplier selection mechanism and a firm’s economic and operational performance (Ittner et al. 1999; Tracey & Tan 2001; Kannan & Tan 2006; Nair, Jayaram & Das 2015). The use of cost, quality, and delivery performance criteria for supplier selection has a positive influence on the economic performance of sales revenue, market share, and return on assets (Ittner et al. 1999; Tracey & Tan 2001). Research has also identified that supplier selection has a positive effect on economic performance through the buyer–supplier relationship (Kannan & Tan 2006). In addition to improvements in economic performance, socially responsible supplier selection has a positive influence on a buying firm’s reputation and social performance.
(Ehrgott et al. 2011). Gallear, Ghobadianb and Chena (2012) note that the inclusion of social aspects in the supplier-selection mechanism enhances both the social and environmental performance of the firm. Overall, research has identified that supplier selection has a positive effect on a firm’s social, environmental, and economic performance (Paulraj 2011). Based on the above discussion, the following is hypothesised:

\[ H_2: \text{Supplier selection is positively related to firm performance} \]

- \[ H_{2a}: \text{Supplier selection is positively related to social performance} \]
- \[ H_{2b}: \text{Supplier selection is positively related to economic performance} \]
- \[ H_{2c}: \text{Supplier selection is positively related to environmental performance} \]

3.8.3 Supplier Development and Firm Performance

To minimise the risks involved in an opportunistic relationship, firms need to invest in assets in order to develop resources (Williamson 1993). Supplier assessment and collaboration incorporates social connectedness among buyers and suppliers to commit to and maintain a cooperative relationship that creates competitive advantage (Sancha, Wong & Thomsen 2016). The learning that occurs between buyers and suppliers through collaboration is considered as a valuable and rare resource offering competitive advantage (Formentini & Taticchi 2016). According to the resource-based view (RBV), hard-to-copy resources create capabilities that provide competitive advantage (Barney 1991). Although transaction costs may increase in the supplier-development process, RBV illustrates the importance of this mechanism in managing buyer–supplier relationships (Gimenez & Sierra 2013). In the context of apparel supply chains, supplier development underlined by RBV is used to implement social responsibility and to minimise supplier opportunistic behaviour.
The supplier-development literature suggests that the supplier-development mechanism has a positive effect on firm performance (Gimenez & Tachizawa 2012; Sucky & Durst 2013). In particular, socially responsible supplier development has a positive effect on economic performance (Gallear, Ghobadianb & Chena 2012). The literature on sustainable supplier development has also identified a positive effect of supplier development on a firm’s environmental performance (Vachon & Klassen 2008; Large & Thomsen 2011; Gimenez & Sierra 2012). In a more recent study, Sancha, Wong & Thomsen (2016) suggest that the supplier-development mechanism plays an important role in improving the social performance of both the buyer and supplier. Paulraj (2011) and Gimenez, Sierra and Rodon (2012) comprehensively examined the relationship between supplier development and a firm’s economic, environmental, and social performance and found a positive association between these variables. Therefore, the following is hypothesised:

\[ H_3: \text{Supplier development is positively related to firm performance} \]

- \[ H_{3a}: \text{Supplier development is positively related to social performance} \]
- \[ H_{3b}: \text{Supplier development is positively related to economic performance} \]
- \[ H_{3c}: \text{Supplier development is positively related to environmental performance} \]

3.8.4 The Mediating Role of Supplier Development on Supplier Selection and Firm Performance

A number of conceptual papers have discussed the congruent effect of supplier selection and supplier development mechanisms on firm performance (Pedersen & Andersen 2006; Lund-Thomsen & Lindgreen 2014). Through case study analysis, Pedersen and Andersen (2006) maintain that supplier selection, along with development efforts, will improve a firm’s social performance. In addition to improvements in social performance, socially responsible supplier selection and development together enhance the environmental and economic
performance of a firm (Lund-Thomsen & Lindgreen 2014). Although a direct relationship between supplier selection and firm performance is expected, it is important to investigate the mediating role of supplier development. Koufteros, Vickery and Drögeet (2012) propose that the indirect effect between supplier selection and firm performance through supplier development is significant. Therefore, this study posits the mediating role of supplier development on the relationship between supplier selection and firm performance.

\[ H_4: \text{Supplier development mediates the relationship between supplier selection and firm performance.} \]

- \[ H_{4a}: \text{Supplier development mediates the relationship between supplier selection and social performance.} \]
- \[ H_{4b}: \text{Supplier development mediates the relationship between supplier selection and economic performance.} \]
- \[ H_{4c}: \text{Supplier development mediates the relationship between supplier selection and environmental performance.} \]

3.8.5 Effects of Agency Problems on the Relationship between Governance Mechanisms and Firm Performance

In a supply-chain relationship, agency theory is built around sourcing activities (Shook et al. 2009), where the buying firm acts as the principal that delegates production to the supplier/manufacturer, which becomes the agent. This shows that the assumption of agency theory fits naturally with the issues relating to a supply-chain relationship (Ketchen Jr & Hult 2007). Despite this natural fit, very little research has been conducted on agency theory with regard to explaining relationships between organisations (Fayesi, O’Loughlin & Zutshi 2012). The literature provides adequate evidence that CSR adoption can solve agency problems and effectively reduce unethical practices (Lu, Lee & Cheng 2012). However, no
prior research has examined the role of agency problems on the implementation of social responsibility.

In the context of the buyer–supplier dyad, several power regimes amongst relationships have been identified (Cox 2004). In this study, the availability of many alternative manufacturers results in retailer dominance. This unequal distribution of power may raise issues related to information asymmetry, goal conflicts, and risk aversion of agency problems (Jensen & Meckling 1976). Such agency problems arise when two parties are in an agency relationship in which one party delegates work to another to act on its behalf (Eisenhardt 1989). Further, Zu and Kaynak (2012) have identified that these issues can affect how firms manage supply chains and their effect on performance. This study employs agency theory to investigate the moderating role of agency problems on the relationship between governance mechanisms and firm performance. Hence, the following is hypothesised:

$$H_5: \text{The relationship between the governance mechanisms and firm performance is negatively affected by agency problems.}$$

- $$H_5a: \text{The relationship between supplier selection and social performance is negatively affected by agency problems.}$$
- $$H_5b: \text{The relationship between supplier selection and economic performance is negatively affected by agency problems.}$$
- $$H_5c: \text{The relationship between supplier selection and environmental performance is negatively affected by agency problems.}$$
- $$H_5d: \text{The relationship between supplier development and social performance is negatively affected by agency problems.}$$
- $$H_5e: \text{The relationship between supplier development and economic performance is negatively affected by agency problems.}$$
• *H₅f*: The relationship between supplier development and environmental performance is negatively affected by agency problems.

3.8.6 Environmental, Social, and Economic Performance

As discussed earlier, in this study, social, environmental, and economic performances are considered as the firm performance. A number of meta-analysis studies have highlighted that the social performance of a firm contributes to economic performance (Orlitzky, Schmidt & Rynes 2003; Lu et al. 2014). In this sense, improvements in the performance of social measures will help firms to become economically successful (Orlitzky, Schmidt & Rynes 2003). The positive influence of social performance on economic performance drives a firm to implement social responsibility (Lu et al. 2014). Similarly, through meta-analysis, Dixon-Fowler et al. (2013) and Golicic and Smith (2013) identify that positive environmental performance leads to improvements in operational efficiencies and economic performance. Therefore, the following is hypothesised:

• *H₆ₐ*: Social performance leads to economic performance.

• *H₆₉*: Environmental performance leads to economic performance.

3.9 Summary

The first section of this chapter provided a literature review on CSR evolution in order to identify the importance of integrating social, environmental, and operational aspects in CSR implementation. Through the literature review, the importance of SR in supply chains and the governance mechanisms used for the implementation of SR in supply chains was presented. This chapter also provided the background to the supply chain theories used in this study. Supplier selection and supplier development mechanisms and their sub-factors were identified as the governance mechanisms in this chapter, which also focused on developing
the research framework and hypotheses. Based on existing studies, a number of testable hypotheses were proposed in this chapter, including the relationship between supplier selection and supplier development and a firm’s social, environmental, and economic performance, the mediating role of supplier development on the relationship between supplier selection and a firm’s performance, the moderating role of agency problems on the relationship between governance mechanisms and a firm’s performance, and the relationship between a firm’s social and environmental performance and its economic performance. Chapter 4 will provide a discussion of the survey design and data collection procedures adopted in this study.
CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

In any research, it is important not only to address what methodologies and methods are employed, but also to justify those selected methodologies (Deshpande 1983). The selection of a research methodology is influenced by the research questions and the aim of the study. Other factors, such as data accessibility, time, and availability of resources determine the methodology used. In this study, an extensive literature review was performed to select the appropriate research paradigm and methods of enquiry. This chapter explains the research paradigm adopted in the study to examine the theoretical model established in Chapter 3.

This chapter is organised into 12 sections. Following the introduction, Section 4.2 introduces the different research paradigms and philosophies. Different elements of research design and the research process are discussed in Section 4.3, while Section 4.4 provides justification for the quantitative methodology employed in this study. The development of the instrument and its design is explained in Section 4.5, whereas Section 4.6 details the research population, sampling procedures, and unit of analysis for the research design used in this study. Further, data collection methods and the procedures used are discussed in Section 4.7. Section 4.8 presents the unit of analysis, Section 4.9 outlines the time horizon, and Section 4.10 details the data analysis procedure. Finally, Section 4.11 covers the ethical issues considered in this thesis, while Section 4.12 provides a summary of the chapter.
4.2 Research Paradigm

This section provides a background on research paradigms, which refers to the set of beliefs and assumptions that govern every research project (Guba 1990; Guba & Lincoln 2005; Mertens 2007). A paradigm is defined as a “set of linked assumptions about the world which is shared by a community of scientists investigating the world” (Deshpande 1983, p.101). Some researchers refer paradigms to one’s worldview, epistemology, and ontology. They help researchers to identify what problems are worthy of exploration and what methods can be used to address these problems. They also help in the identification of any underlying basis used to construct a scientific investigation. The selection of a research paradigm depends upon the subject area (the research questions) and whether the observer will be independent or a part of the research. The term paradigm is left in an unfinished manner, so that it can be understood within present-day implications (Mertens 2007). This section provides an overview of different classes of research paradigms and the justification for the one selected in this study.

4.2.1 Research Paradigm Principals

Paradigms not only allow a discipline to "make sense" of different kinds of phenomena but also provide a framework in which these phenomena can be identified as existing in the first place (Filstead 1979, p.34). The four main objectives of a paradigm are: (1) to serve as a guide for professionals to indicate the important and controversial issues in a discipline; (2) to help in developing an explanatory scheme (i.e. models and theories) in order to solve the issues and research problems; (3) to establish the criteria for the appropriate tools (i.e. methodologies, instruments, and types and forms of data collection) in order to solve the issues; and (4) to provide an epistemology in which the preceding tasks can be viewed as principles for carrying out the ‘normal work’ of the discipline (Filstead 1979). The three
fundamental principles of a research paradigm are: ontology, epistemology, and methodology.

4.2.1.1 Ontology

Ontology is a branch of metaphysics that focuses on the study of being and relates to the philosophy of reality (Deshpande 1983). It questions ‘what is’ in relation to the nature of existence and reality (Crotty 1998). It emphasises the “assumptions that concern the very essence of the phenomena under investigation” (Burell & Morgan 1979). Ontologically, a researcher can take the stance that the phenomenon under investigation has an objective that is independent of the researcher’s method of inquiry or that it has a subjective and malleable reality that exists only in relation to human action (Orlikowski & Baroudi 1991).

4.2.1.2 Epistemology

Ontological and epistemological principles of research paradigms emerge together (Crotty 1998). The term epistemology is derived from the Greek word ‘episteme’, meaning knowledge. Epistemology is the philosophy of “how we come to know the knowledge” (Guba & Lincoln 1994, p.108). Epistemology raises questions on the nature of the relationship between the knower (the inquirer) and the known (or knowable) (Guba & Lincoln 1994). Epistemology is concerned with providing the philosophical grounds for “deciding what kinds of knowledge are possible and how we can ensure that they are both adequate and legitimate” (Maynard 1994, p.242). It also emphasises communicating the researchers’ understandings of the world as knowledge to fellow human beings (Burell & Morgan 1979).
4.2.1.3 Methodology

Methodology identifies the practices used to attain knowledge. Guba and Lincoln (1994, p.108) point out that methodology should address the question, “How can the inquirer (would-be knower) go about finding out whatever he or she believes can be known?” In simple terms, methodology is the application of ontological and epistemological beliefs to carry out research. It is referred to as a ‘research design’, i.e. a strategy or a plan of action to shape the choice and use of a particular method and to link this to desired outcomes (Crotty 1998). Methods are a subset of methodology focusing on the techniques and procedures employed for data collection and analysis. It is important to understand the implications of the theoretical considerations or philosophical stance of the research methods selected (Crotty 1998).

4.2.2 Research Paradigm Classification

In research, it is very common to see Guba and Lincoln’s (1994) classification of research paradigms: positivism, post-positivism, critical theory, and constructivism. A summary of the four research paradigms is given in Table 4.1, from which it can be inferred that the researcher acts as an independent observer in positivist and post-positivist paradigms. On the other hand, the researcher is an essential part of the research within the critical theory and constructivist paradigms. The additional assumptions of the four paradigms can be seen in Table 4.2, which confirms that positivism and post-positivism are used to test established hypotheses. From the literature, it is clear that positivism and post-positivism suit the objectives of this study.
Table 4.1: The basic beliefs of research paradigms

<table>
<thead>
<tr>
<th>Item</th>
<th>Positivism</th>
<th>Post-positivism</th>
<th>Critical Theory</th>
<th>Constructivism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontology</td>
<td>‘Naïve’ realistic – reality exists ‘out there’. Knowledge of these entities is summarised in the form of time and context free generalisations.</td>
<td>Critical realistic – reality exists that can never be fully understood.</td>
<td>Critical realistic – ideologically oriented inquiry.</td>
<td>Relativist – realities exist in the form of multiple mental constructions, which are socially and experimentally based, as well as local and specifically dependent to the person who holds them.</td>
</tr>
<tr>
<td>Epistemology</td>
<td>Objectivistic – researchers observe nature as it is without altering it in any way.</td>
<td>Modified objectivistic – adjustments to the interpretations of the findings by relying on the ‘critical tradition.’</td>
<td>Interactive, subjectivist – nature can be seen through a value window.</td>
<td>Interactive; subjectivist.</td>
</tr>
<tr>
<td>Methodology</td>
<td>Manipulative/experimentalism – questions and/or stated hypotheses are subjected to empirical testing.</td>
<td>Modified experimentalism; critical multiplicity – elaborated triangulation of findings from many data sources.</td>
<td>Dialogic, participative, transformative – eliminate false consciousness and energise and facilitate transformation.</td>
<td>Hermeneutic and dialectic – depicting individual constructs as accurately as possible hermeneutically, and then comparing the constructs of the respondents to produce an informed and sophisticated construct.</td>
</tr>
</tbody>
</table>

(Source: Guba & Lincoln 1994)

Similar to Guba and Lincoln’s (1994) classification of paradigms, several researchers have identified different paradigms. However, the most common classification is positivism and idealism as the two poles of a philosophical continuum (Deshpande 1983). Likewise, Creswell (1994) classifies the paradigms into either qualitative or quantitative. The logical positivist view of the world is synonymous with the quantitative paradigm, while the
idealistic view of the world relates to the qualitative paradigm (Creswell 1994). The assumptions of qualitative and quantitative paradigms are listed in Table 4.3.

Table 4.2: Current thoughts on research paradigms

<table>
<thead>
<tr>
<th>Item</th>
<th>Positivism</th>
<th>Post positivism</th>
<th>Critical Theory</th>
<th>Constructivism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of knowledge</td>
<td>Verified hypotheses established as fact or laws</td>
<td>Non-falsified hypotheses that are probably facts or laws</td>
<td>Structural/historical insights</td>
<td>Individual knowledge reconstructions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>coalescing around consensus</td>
</tr>
<tr>
<td>Knowledge accumulation</td>
<td>Accretion – ‘building blocks’ adding to the ‘edifice of knowledge’; sophisticated generalisations and cause-effect linkages</td>
<td></td>
<td>Historical revisionism; generalisation by similarity</td>
<td>More informed and accumulated reconstructions; vicarious experience</td>
</tr>
<tr>
<td>Goodness or quality criteria</td>
<td>Conventional benchmarks of ‘rigor’: internal and external validity, reliability, and objectivity</td>
<td></td>
<td>Historical situatedness; erosion of ignorance; action stimulus</td>
<td>‘Trustworthiness, authenticity, and misapprehensions</td>
</tr>
<tr>
<td>Voice</td>
<td>‘Disinterested scientist’ as the informer of decision makers, policy makers, and change agents</td>
<td>‘Transformative intellectual’ as advocate and activist</td>
<td>‘Passionate participant’ as facilitator of multi-voice reconstruction</td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td>Technical and quantitative; substantive theories</td>
<td>Technical, quantitative, and qualitative; substantive theories</td>
<td>Resocialisation; qualitative and quantitative; history; values of altruism and empowerment</td>
<td></td>
</tr>
<tr>
<td>Accommodation</td>
<td>Commensurable</td>
<td>Incommensurable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hegemony</td>
<td>In control of publication, funding, promotion, and tenure</td>
<td></td>
<td>Seeking recognition and input; offering challenges to preceding paradigms, aligned with post-colonial aspirations</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Guba 1990)

Notwithstanding the different paradigms and their classifications, it is important to understand how paradigms offer insights into the research problem (Sethi, Smith & Park 2001). It should be noted that the research paradigm not only dictates the researcher’s view of the world in conceptualising the research problem but also assists in choosing the appropriate data gathering methods and data analysis procedures to resolve the issue or problem (Sethi,
Smith & Park 2001). Healy and Perry (2000) state that the methodology define the links between the methods and the related paradigms. The range of methodologies and related paradigms can be seen in Figure 4.1.

**Table 4.3: Assumptions of qualitative and quantitative paradigms**

<table>
<thead>
<tr>
<th>Qualitative Paradigm</th>
<th>Quantitative Paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualitative methods preferred</td>
<td>Quantitative methods preferred</td>
</tr>
<tr>
<td>Concerned with understanding human behaviour from the actor’s frame of reference</td>
<td>Seeks the facts or causes of social phenomena without advocating subjective interpretations</td>
</tr>
<tr>
<td>Phenomenological approach</td>
<td>Logical-positivistic approach</td>
</tr>
<tr>
<td>Uncontrolled, naturalistic observational measurement</td>
<td>Obtrusive, controlled measurement</td>
</tr>
<tr>
<td>Subjective: ‘insider’s’ perspective; close to data</td>
<td>Objective: ‘outsider’s’ perspective: distance from the data</td>
</tr>
<tr>
<td>Grounded, discovery-oriented, exploratory, descriptive, inductive</td>
<td>Ungrounded, verification-oriented, confirmatory, reductionist, inferential, hypothetic-deductive</td>
</tr>
<tr>
<td>Process-oriented</td>
<td>Outcome-oriented</td>
</tr>
<tr>
<td>Validity is critical; ‘real’, ‘rich’, and ‘deep’ data</td>
<td>Reliability is critical; ‘hard’ and replicable data</td>
</tr>
<tr>
<td>Holistic-attempts to synthesise</td>
<td>Particularistic – attempts to analyse.</td>
</tr>
</tbody>
</table>

(Source: Guba & Lincoln 1994)

This study aims to examine the socially responsible governance mechanisms in apparel supply chains and their impact on firm performance through the set of testable hypotheses proposed in Chapter 3. To test the hypotheses, the researcher in this study is independent and observing nature without altering the environment. The study’s aim and the role of the researcher demonstrate that positivism is an appropriate research paradigm. Statistical methods are used to test the hypotheses and the findings are generalised to a larger sample. A quantitative survey method is a more appropriate option for this research, and, in particular, structural equation modelling (SEM) is used to test the proposed model. Section 4.4 details the research methodology selected and the justification for such a selection.
4.3 Elements of the Research Design and Research Process

The research design involves a series of decision-making processes that will affect the research (Bryman & Bell 2007). According to Sekaran and Bougie (2010), any research design needs to address nine research dimensions. In this study, guidelines from Emory (1985), Malim and Birch (1997), and Sekaran and Bougie (2010) have been used for developing the dimensions. Table 4.4 lists the research design dimensions and their relevance for this study.

The aim of this study is to identify and investigate socially responsible practices in supply chains. To address the research objectives, by means of a literature review, a conceptual framework was developed in Chapter 3. To test the model and its underlying theoretical implications, this study employed a quantitative methodology for data collection and analysis. Figure 4.2 illustrates the research process of this study.
Table 4.4: Dimensions of the research design

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Study context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose of the study</td>
<td>Hypotheses testing</td>
</tr>
<tr>
<td>Types of investigation</td>
<td>Correlation, causal relationship</td>
</tr>
<tr>
<td>Extent of researcher’s interference</td>
<td>Minimal</td>
</tr>
<tr>
<td>Study setting</td>
<td>Field study</td>
</tr>
<tr>
<td>Unit of analysis</td>
<td>Organisational level</td>
</tr>
<tr>
<td>Sampling design</td>
<td>Simple random sampling</td>
</tr>
<tr>
<td>Time horizon</td>
<td>One shot, cross-sectional study</td>
</tr>
<tr>
<td>Data collection method</td>
<td>Quantitative method (Drop-and-collect)</td>
</tr>
<tr>
<td>Measurement of variables</td>
<td>Element definition, interval scale (seven-point Likert scale), and nominal and dichotomous scales</td>
</tr>
</tbody>
</table>

The first stage of the research was an exploratory study that involved an extensive literature review, which was performed on different aspects to determine the importance of each topic and to identify the research rationale. An initial literature review of CSR in the supply chain discipline assisted in developing the research objectives and questions. In addition, by reviewing all the relevant models on governance mechanisms, supplier selection and supplier development were identified as the mechanisms for implementation of social responsibility in supply chains. Overall, the literature review was used to formulate the research objectives, questions, conceptual model, and hypotheses to be tested. The literature review was presented through Chapter 1 to Chapter 3.

The second stage of research was to develop the research instrument and collect data. To develop the research instrument, variables were operationalised from the literature. In this research, there were three stages for data collection: pre-test, pilot study, and main survey. A pre-test and pilot study, carried out before the main survey, was used to refine the instrument. At this stage, the sampling frame for the research was also proposed. The sample required for the main survey was selected based on the requirement of data for the SEM. The main survey was then distributed to potential respondents.
Stage three of the research was data analysis. To analyse the collected data, statistical tools were used. In this stage, the first step was to examine if the collected sample was enough to process the structural model. Following this, data preparation was carried out through the
consideration of missing values and outliers. The last step in the data analysis was to test the conceptual structure and hypotheses proposed in Chapter 3. Finally, stage four of the research presents an interpretation of the results in relation to addressing the overarching research question and specific objectives proposed in Chapter 1. Stage four also provides a conclusion for the thesis. A brief explanation of the stages is provided in the following sub-sections.

4.4 Research Methods

In research, it is very common to see debate on the use of qualitative versus quantitative techniques with regard to answering research questions. Moreover, researchers have also proposed the use of mixed methods, a combination of qualitative and quantitative, for answering research questions (Creswell 2009). However, the selection of a methodology is based on the phenomenological paradigm and the theoretical propositions of the research. In the context of the positivist paradigm, a deductive approach with no interference from the researcher and quantitative methods are appropriate for examining proposed hypotheses (Sobh & Perry 2006).

Quantitative methods are used to observe and confirm causal relationships and to predict general patterns of human activity. They provide statistical evidence on the strengths of the relationships between both exogenous and endogenous variables (Amaratunga et al. 2002). A quantitative methodology can validate hypotheses and provide tools to examine reliability and validity (Brown & Eisenhardt 1995). Since the objective of this study is to investigate the relationship between socially responsible governance mechanisms and firm performance, a quantitative methodology is the most appropriate method.

A survey questionnaire is the most commonly used quantitative technique for data collection. Surveys are considered as the most efficient, accurate, and inexpensive way of collecting
information about a given population. Over the years, the survey research technique has become scientific and accurate (Zikmund 2003). The use of a survey provides systematic measurement and offers the possibility of replicating the study to other contexts. Another reason for the ability of replicating the study is that researchers are considered as external; in this sense, regardless of who conducts the study, it would be expected to generate the same results. A survey could provide more appropriate and accurate managerial implications when conducted properly. As this study aims to collect data about a population, it is more appropriate to use a survey questionnaire for data collection. In research, it is often claimed that questionnaires can be a source of error, so survey instrument design plays a crucial role. For this reason, the following section provides details on the research instrument design.

4.5 Questionnaire Design and Development

In a quantitative study, designing and developing the questionnaire plays a critical role. In order to improve the respondents’ confidence while answering questionnaires, the following aspects needs to be considered when designing the questionnaire:

- A respondent needs to be informed about the voluntary nature of participation
- Respondents should be notified about the confidentiality of the data collected
- An explanation should be given to the participants regarding how to complete the questionnaire
- The survey questionnaire should be designed to be user friendly and the time taken to complete the questionnaire should be communicated.

The following section outlines several aspects of the questionnaire design and development in more detail.
4.5.1 Layout of the Questionnaire

The survey questionnaire for this study was divided into five parts in total. Part one aimed to gather information on the respondents and organisations’ profiles. Respondents were asked to indicate their responses in relation to themselves and their organisations by ticking the boxes provided. Parts two and three related to the independent variables supplier selection and supplier development. The five factors representing the independent variables were the operational selection criteria, socially sustainable criteria, environmentally sustainable criteria of supplier selection, and supplier assessment and supplier collaboration of supplier development. Part four consisted of questions reflecting information asymmetry, goal conflicts, and risk aversion constructs in relation to the moderating variable agency problems. Questions measuring environmental, social, and economic performance constructs of the dependent variable were listed in part five.

4.5.2 Scaling and Measurement

In quantitative research, nominal, ordinal, interval, and ratio scales are commonly used (Bryman & Bell 2007). This study adopted nominal scales for the demographic information and interval scales to measure the constructs. Rating and ranking scales are types of interval scales for measuring the attitudinal responses of participants towards the research topic. In comparison to ranking scales, rating scales capture respondents’ responses within the provided response category (Sekaran & Bougie 2010). With the use of a response category, respondents can communicate internal states such as attitudes, feelings, or beliefs more accurately. They provide greater reliability for the measurement (Churchill 1979). In this study, the respondents’ opinions on the constructs were gathered based on rating scales.

The Likert scale is the most widely used rating scale in social science research. A Likert scale provides the respondents with an opportunity to express either a favourable or unfavourable
attitude toward the object of interest (Cooper & Schindler 2006). It is also easy to develop, reliable, and applicable to both respondent-centred and stimulus-centred studies (Emory 1985). From the literature, it is clear that, in supply chain research, Likert scales are commonly used (Yusuf et al. 2004; Swafford Ghosh & Murthy, 2006). In addition, Likert scales are recommended for the implementation of SEM data analysis procedures (Hair et al. 2010; Tabachnick & Fidell 2011).

Most social science research uses either five-point or seven-point Likert scales. The human mind has a span of absolute judgement that can distinguish about seven distinct categories (Miller 1956). Thus, it is clear that, when the response categories increase beyond seven, they may not be effective. Several studies have tended to reinforce the general preference for a seven-point scale (Sekaran & Bougie 2010). In this study, a seven-point scale was employed in order to provide respondents with options for articulating their information. Respondents were instructed to indicate their level of agreement with items based on a seven-point Likert scale, which consisted of numerical values indicating the following:

- 1 = Strongly Disagree
- 2 = Somewhat Disagree
- 3 = Disagree
- 4 = Neither Agree nor Disagree
- 5 = Agree
- 6 = Somewhat Agree
- 7 = Strongly Agree

The respondents were instructed to circle their responses to the statement indicated with their numerical values. In the literature, negatively worded items are acceptable. However, researchers favour positively worded items rather than negatively worded ones (Sekaran & Bougie 2010). Therefore, in this study, all the items were positively worded. The following section discusses how the items were constructed.
4.5.3 Questionnaire Development

The conceptual research model proposed in Chapter 3 was operationalised to quantify the constructs. This section provides details on how the constructs were operationalised and how the questionnaire items were developed. It also captures the items to understand the demographics of the organisations and respondents.

4.5.3.1 Respondents’ profiles

In survey-based questionnaires, questions in the respondent profile section provide information about the profile of the respondents and the background to organisations. The respondents’ profiles provide rich information for mapping the demographics of the respondents with attitudes towards the constructs. The demographic questions were carefully designed in order to avoid asking sensitive information, so as to protect the confidentiality of the respondents. In this study, questions regarding respondents’ profiles were adopted from Tan (2007) and Sahakijpicharn (2007) and modified to suit to the particular study context of the Bangladeshi apparel industry. Several demographic factors affecting the implementation of social responsibility in the Bangladeshi apparel industry identified in Chapter 2 were included in the demographic profile questions. The survey questionnaire used fixed-alternative questions as well as open-ended responses (Mulaik & Millsap 2000) to identify the background and nature of the participant organisations. Overall, the questions complied with the requirements of RMIT University’s Human Research Ethics Committee and did not collect any information that could have identified the respondents. Table 4.5 summarises the type of questions asked in part one of the questionnaire.
### Table 4.5: Respondent profile questions

<table>
<thead>
<tr>
<th>General</th>
<th>Item</th>
<th>Type of Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role of</td>
<td>What is your position in the organisation?</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td>Respondent</td>
<td>Which department are you attached to?</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td></td>
<td>What is your level of education?</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td>Managerial</td>
<td>Do you have managerial experience?</td>
<td>Simple dichotomy</td>
</tr>
<tr>
<td>Experience</td>
<td>How many years of managerial experience do you have?</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td></td>
<td>Do you have managerial experience in the apparel industry?</td>
<td>Simple dichotomy</td>
</tr>
<tr>
<td></td>
<td>How many years of managerial experience do you have in the apparel industry?</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td></td>
<td>Number of employees in your organisation:</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td></td>
<td>Number of years that your organisation has been operating:</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td></td>
<td>Last three financial years’ average annual sales in Bangladeshi taka (Tk) (1 million=10 lakh):</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td></td>
<td>Location of business operations:</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td>Type of</td>
<td>Type of organisation (based on paid-up capital):</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td>Organisation</td>
<td>What category of product does your organisation produce?</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td></td>
<td>What is the major channel through which your organisation receives new orders?</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td></td>
<td>Principal export destination:</td>
<td>Determinant-choice</td>
</tr>
<tr>
<td></td>
<td>What percentage of your total exports is to Australia?</td>
<td>Open-ended</td>
</tr>
<tr>
<td></td>
<td>Is your organisation certified with fire safety protocols like ACCORD or ALLIANCE?</td>
<td>Simple dichotomy</td>
</tr>
</tbody>
</table>

#### 4.5.3.2 Operationalisation of constructs

The two approaches for scale development are deductive and inductive. In the deductive approach, the literature review is used to operationalise constructs from theoretical definitions. In the inductive approach, researchers take respondents’ opinions in order to develop scales. In this study, a deductive approach was adopted to develop items from previous studies. The process suggested by Sekaran and Bougie (2010) was used to develop
the survey questionnaire. This section details how the constructs were operationalised from the literature review. Further, a pre-test and pilot study was also used to refine the questionnaire, which are also explained in this section.

In this study, constructs on the implementation of social responsibility are investigated. More specifically, constructs indicating socially responsible governance mechanisms are examined. To facilitate the development of the scale items, a list of potential questions was drafted from the previous literature. However, most previous studies have been conducted in different contexts and industries. In particular, studies examining socially responsible mechanisms in the apparel industry are very limited. Thus, the items adopted from existing studies were modified to fit the context of Bangladeshi apparel supply chains.

To implement social responsibility in supply chains, this study employs governance mechanisms. Supplier selection and supplier development are the two governance mechanisms considered in this study. Supplier selection is represented with operational selection criteria, socially sustainable criteria, and environmentally sustainable criteria, while the supplier development construct is represented by supplier assessment and supplier collaboration. The firm performance in this study is measured by environmental, social, and economic performance. Further, the role of agency problems on the relationship between governance mechanisms and firm performance is also examined. Agency problems are represented by information asymmetry, goal conflict, and risk aversion. Table 4.6 presents the items developed from the literature review and their respective sources.

4.5.3.3 Social desirability bias

In social science disciplines, respondents tend to provide socially desirable answers, resulting in a response bias known as social desirability bias (Paulhus 1991). In this sense, respondents may tend to under-report behaviours that are deemed to be inappropriate by researchers and
over report those viewed as appropriate. To reduce social desirability bias, respondents were asked to provide their responses about the practices in their organisations and not their personal beliefs. This technique is commonly used to minimise social desirability bias (Rudelius & Buchholz 1979).

Social-desirability bias has been found to affect the measurement of personality variables (e.g. Mick 1996), attitudes (e.g. Fisher 1993), and self-reported behaviour (e.g. Mensch & Kandel 1988). In the organisational behaviour research, it is very common to see employees reporting on organisations’ practices. Suspicion among employees that the employer may gain access to their responses results in social desirability bias (Donaldson & Grant-Vallone 2002). In this study, to reduce the bias associated with self-reporting, participants were assured about the anonymity of their response in the participatory information sheet.

Moorman and Podsakoff (1992) identify that, in general, job satisfaction, role conflict, role ambiguity, and organisational commitment are the common organisational behaviour measures affected by social desirability bias. This study uses organisation as a unit of analysis and the questions used in this study measure the social responsibility behaviour of the buying firms and their performance, so the concerns regarding social desirability bias were minimised. In addition to the above-mentioned strategies, the drop-and-collect method employed in this study reduced the effects of social desirability by harnessing the benefits of face-to-face recruitment and follow-up, while also leaving participants to complete the survey alone in their own time (MacLennan, Langley & Kypri 2011).
Supplier selection is a major aspect of business management in the acquisition of required materials, services, and equipment. Supplier selection plays a crucial role in gaining competitive advantage in an integrated manufacturing environment. Selection of suppliers based on established criteria is a common practice. Weber, Current and Benton (1991); Liu, Ding and Lall (2000).

### Environmentally sustainable criteria

| ESC 1 | Waste treatment | Our customers select us based on our treatment of waste | Goebel et al. (2012) |
| ESC 2 | Raw material consumption | Our customers select us based on our efficiency of raw material consumption | Kannan, Govindan and Rajendran (2014) |
| ESC 3 | Policies/plans | Our customers select us based on our ability to support environmental policies/plans |
| ESC 4 | Chemical Usage | Our customers select us based on the level of restrictions regarding chemical usage in the production process |
| ESC 5 | Certifications | Our customers select us based on our environment-related certification |

### Socially sustainable criteria

| SSC 1 | Discrimination | Our customers select us based on our procedures to prevent discrimination against gender, race, and ethnicity | Baskaran, Nachiappan and Rahman (2011); Ehrgott et al. (2011) |
| SSC 2 | Fair work practices | Our customers select us based on our fair workplace practices regarding working hours and compensation |
| SSC 3 | Child labour | Our customers select us based on our practices to eliminate child labour |
| SSC 4 | Compulsory labour | Our customers select us based on our strategies to eliminate all forms of forced or compulsory labour |
| SSC 5 | Accountability | Our customers select us based on accountability for our actions |

### Operational selection criteria

| OSC 1 | Product cost | Our customers select us based on the product cost | Xu et al. (2013); Nair, Jayaram and Das (2015) |
| OSC 2 | Ordering costs | Our customers select us based on the ordering costs |
| OSC 3 | Quality | Our customers select us based on the quality of the products and services |
| OSC 4 | Delivery performance | Our customers select us based on our capability to deliver on time |
| OSC 5 | Transportation costs | Our customers select us based on the transportation costs |

### Supplier assessment

<p>| SA 1 | Evaluation | Our customers assess our performance through formal evaluation, using established guidelines and procedures | Klassen and Vachon (2003); Vachon and Klassen (2006) |
| SA 2 | Feedback | Our customers provide us with feedback about results of their evaluation |
| SA 3 | Audits | Our customers perform environmental audits of internal management systems |</p>
<table>
<thead>
<tr>
<th><strong>Supplier development</strong></th>
<th><strong>SA 4</strong></th>
<th><strong>Certification</strong></th>
<th>Our customers use a certification program to certify us, thus making incoming inspection unnecessary</th>
<th>Sierra (2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier collaboration</td>
<td>Collaboration in CSR is regarded as the direct involvement of an organisation with its suppliers and customers in jointly planning for CSR management.</td>
<td>Florida 1996</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 1 Visits</td>
<td>Our customers visit our premises to help us improve performance</td>
<td>Large and Gimenez (2011); Gimenez and Sierra (2013)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 2 Training</td>
<td>Our customers provide training/education to our personnel</td>
<td>Florida 1996</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 3 Joint efforts</td>
<td>Our customers make joint efforts with us to reduce waste</td>
<td>Florida 1996</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 4 Assistance</td>
<td>Our customers provide us with technical assistance</td>
<td>Florida 1996</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 5 Awareness</td>
<td>Our customers invite us to their site to increase our awareness of how a product is used</td>
<td>Florida 1996</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Information asymmetry</strong></th>
<th><strong>IA 1</strong></th>
<th><strong>Relevant</strong></th>
<th>Our organisation and supply chain partners do not exchange relevant information</th>
<th>Zu and Kaynak (2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>IA 2</strong></td>
<td><strong>Timely</strong></td>
<td>Our organisation and supply chain partners do not exchange timely information</td>
<td>Cao and Zhang (2011)</td>
</tr>
<tr>
<td></td>
<td><strong>IA 3</strong></td>
<td><strong>Accurate</strong></td>
<td>Our organisation and supply chain partners do not exchange accurate information</td>
<td>Cao and Zhang (2011)</td>
</tr>
<tr>
<td></td>
<td><strong>IA 4</strong></td>
<td><strong>Confidential</strong></td>
<td>Our organisation and supply chain partners do not exchange confidential information</td>
<td>Cao and Zhang (2011)</td>
</tr>
<tr>
<td></td>
<td><strong>IA 5</strong></td>
<td><strong>Complete</strong></td>
<td>Our organisation and supply chain partners do not exchange complete information</td>
<td>Cao and Zhang (2011)</td>
</tr>
<tr>
<td></td>
<td><strong>IA 6</strong></td>
<td><strong>Requirements</strong></td>
<td>Our organisation and supply chain partners do not exchange requirements or specifications</td>
<td>Cao and Zhang (2011)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Goal Conflicts</strong></th>
<th><strong>GC 1</strong></th>
<th><strong>Supply chain collaboration</strong></th>
<th>Our organisation and supply chain partners do not agree on the goals of the supply chain</th>
<th>Cao and Zhang (2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>GC 2</strong></td>
<td><strong>Improvements</strong></td>
<td>Our organisation and supply chain partners do not agree on the importance of collaboration across the supply chain</td>
<td>Cao and Zhang (2011)</td>
</tr>
<tr>
<td></td>
<td><strong>GC 3</strong></td>
<td><strong>Individual goals</strong></td>
<td>Our organisation and supply chain partners do not agree that our own goals can be achieved through working toward the goals of the supply chain</td>
<td>Cao and Zhang (2011)</td>
</tr>
<tr>
<td></td>
<td><strong>GC 4</strong></td>
<td><strong>Implementation plans</strong></td>
<td>Our organisation and supply chain partners do not have collaboration implementation plans to achieve the goals of the supply chain</td>
<td>Cao and Zhang (2011)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Risk aversion</strong></th>
<th><strong>RA 1</strong></th>
<th><strong>Chances</strong></th>
<th>Our organisation does not feel comfortable about taking chances with new supply chain partners</th>
<th>Mandirk and Bao (2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>RA 2</strong></td>
<td><strong>Uncertain outcomes</strong></td>
<td>Our organisation avoids situation that have uncertain outcomes</td>
<td>Mandirk and Bao (2005)</td>
</tr>
<tr>
<td></td>
<td><strong>RA 3</strong></td>
<td><strong>Higher reward</strong></td>
<td>Our organisation is comfortable working in higher-reward situations</td>
<td>Mandirk and Bao (2005)</td>
</tr>
<tr>
<td>Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Environmental performance</strong></td>
<td>ENP 1</td>
<td>ENP 2</td>
<td>ENP 3</td>
<td>ENP 4</td>
</tr>
<tr>
<td>Performance</td>
<td>Energy efficiency</td>
<td>Risks</td>
<td>Compliance</td>
<td>Reputation</td>
</tr>
<tr>
<td></td>
<td>Our organisation is satisfied with this partnership in terms of energy efficiency</td>
<td>Our organisation is satisfied with this partnership in terms of managing environmental risks to the general public</td>
<td>Our organisation is satisfied with this partnership in terms of compliance with environmental laws</td>
<td>Our organisation is satisfied with this partnership in terms of environmental reputation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paulraj (2011); Gimenez and Sierra (2013)</td>
</tr>
</tbody>
</table>

| Social performance | SOP 1 | SOP 2 | SOP 3 | SOP 4 | SOP 5 |
| Initiative | Health and safety | Workers’ rights | Community development | Stakeholder welfare |
| | Our organisation is satisfied with this partnership in terms of awareness among employees on initiatives such as healthcare, insurance schemes, and safety programs | Our organisation is satisfied with this partnership in terms of employees’ health and safety | Our organisation is satisfied with this partnership in terms of awareness and protection of workers’ rights | Our organisation is satisfied with this partnership in terms of community involvement and development | Our organisation is satisfied with this partnership in terms of overall stakeholder welfare or betterment |
| | | | | | Paulraj (2011) |

| Economic performance | ECP 1 | ECP 2 | ECP 3 | ECP 4 | ECP 5 |
| Return on investment | Owners’ equity | Profit margin | Sales volume | Market share |
| | Our organisation is satisfied with this partnership in terms of return on investment | Our organisation is satisfied with this partnership in terms of owners’ equity | Our organisation is satisfied with this partnership in terms of profit margin | Our organisation is satisfied with this partnership in terms of sales volume | Our organisation is satisfied with this partnership in terms of market share |
| | | | | | Carr and Kaynak, (2007); Paulraj (2011) |

Table 4.6: Initial questionnaire items and their relevant sources
4.5.4. Pre-Test

To examine the relevancy of the instrument in the study context, a pre-test was conducted. The purpose of the pre-test was to improve the content validity of the instrument by assessing the appropriateness of the original items (Churchill 1979). The pre-test was conducted by obtaining feedback from the target population and academic experts (Straub, Boudreau & Gefen 2004). To confirm the relevance of the proposed items, a semi-structured interview was conducted on the items generated from the literature. Interview responses were used to eliminate the items that were not important in the study context. In addition, semi-structured interviews also facilitated the discovery of new items relevant to the study (Haynes, Richard & Kubany 1995).

<table>
<thead>
<tr>
<th>Table 4.7: Pre-test respondents and organisational profiles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manufacturer A</strong></td>
</tr>
<tr>
<td>Establishment Year</td>
</tr>
<tr>
<td>Annual Turnover</td>
</tr>
<tr>
<td>Export Countries</td>
</tr>
<tr>
<td>Production Capacity</td>
</tr>
<tr>
<td>Employee Number</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td>Experience in the Garment Industry</td>
</tr>
<tr>
<td>Position</td>
</tr>
<tr>
<td>Associated Department</td>
</tr>
</tbody>
</table>

In this study, two senior academics with expertise in apparel supply chains and three senior executives from the Bangladeshi apparel industry participated in the pre-test interviews. Table 4.7 provides demographic details of the executives and their respective organisations. It
is clear that the interview respondents differed in regard to the positions they held, qualifications, and experience. In addition, respondents’ organisations were of different sizes, exporting predominantly to European countries. Three organisations in the study were established over three decades: Manufacturer A in 1984, Manufacturer B in 2000, and Manufacturer C in 2012, which demonstrates that the organisations were undergoing different experience in their production operations. Diversity in respondents’ profiles and their representative organisations indicates that they were representative of the study’s population.

From the interview response, changes were made to the instrument in order to improve the content validity. A few items were added or deleted from the survey, while a few were reworded (see Table 4.8). The majority of these changes were reflected in the supplier selection construct. Since the Rana Plaza incident, the Bangladeshi apparel industry has been under pressure to implement safety standards at manufacturing facilities. Based on the feedback, a few items relating to building safety, SSC2 and SSC5, were added to the socially sustainable supplier selection construct. On the other hand, manufacturing facilities are assembly plants and do not involve dying processes, so chemical usage was not an issue and was removed from the instrument. In this sense, chemical usage item ESC4 was removed from the questionnaire. Likewise, the interviews also highlighted that transportation costs were not a factor when selecting suppliers, so item OSC5 was deleted. Further, technical assistance was not an important factor leading to the deletion of item SC4. In addition, to improve clarity in the interpretation of the items, the international standard ISO 14000 was added to item ESC5 as an example, and the term ‘accountability’ in item SSC5 was explained as the level of organisational acceptance of responsibility for their actions. Table 4.8 provides details on the major refinements of the questionnaire at the pre-test stage.
Table 4.8: Instrument refinement

<table>
<thead>
<tr>
<th>Label</th>
<th>Item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profile</td>
<td>Production capacity</td>
<td>Added</td>
</tr>
<tr>
<td>ESC 4</td>
<td>Chemical usage</td>
<td>Deleted</td>
</tr>
<tr>
<td>SSC 2</td>
<td>Safety training</td>
<td>Added</td>
</tr>
<tr>
<td>SSC 6</td>
<td>Building safety</td>
<td>Added</td>
</tr>
<tr>
<td>OSC 5</td>
<td>Transportation costs</td>
<td>Deleted</td>
</tr>
<tr>
<td>SC 4</td>
<td>Technical assistance</td>
<td>Deleted</td>
</tr>
</tbody>
</table>

4.5.5 Pilot Study

A pilot study was used to examine the content validity of the instrument modified at the pre-test stage. The aim of the pilot study was to refine the measurement items so as to improve both content validity and reliability. Cronbach’s alpha was used as a measure of reliability and construct validity. Responses from a sample of 20 were collected and analysed for reliability. Table 4.9 presents the results of the pilot study, which indicates that the reliability coefficients (Cronbach’s alpha $\alpha$) of all the eight first-order constructs are greater than 0.70, thus resulting in a reliable questionnaire (Hair et al. 2014). Exceeding the minimum value of 0.70 for variables indicates that they are internally consistent and are good measures of the concept under study (Nunnaly 1978; Hair et al. 2012).

Table 4.9: Reliability coefficients of the pilot study

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of Items</th>
<th>$\alpha$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier selection</td>
<td>21</td>
<td>0.883</td>
</tr>
<tr>
<td>Supplier development</td>
<td>10</td>
<td>0.876</td>
</tr>
<tr>
<td>Agency problems</td>
<td>16</td>
<td>0.882</td>
</tr>
<tr>
<td>Environmental performance</td>
<td>7</td>
<td>0.934</td>
</tr>
<tr>
<td>Social performance</td>
<td>6</td>
<td>0.903</td>
</tr>
<tr>
<td>Economic performance</td>
<td>7</td>
<td>0.872</td>
</tr>
</tbody>
</table>
4.6 Sample Design

In quantitative business research, sampling is an important aspect, and it needs in-depth investigation (Zikmund 2003). This section provides clarification of the sampling frame, sampling method, and sample size used in this study.

4.6.1 Sampling Frame

A population refers to the entire group of people, events, or things of interest that the researcher wishes to investigate (Sekaran & Bougie 2010). The population forms the basis for the sampling frame, which is defined as the list of respondents from which the sample will be drawn. It is also referred to as the working population, as it provides a list that can be worked on operationally (Zikmund 2003). The sampling frame for this study was the BGMEA members’ directory, published in 2014. The directory was chosen as it represents the apparel industry of Bangladesh, and participants in the list account for four out of every five dollars of export income (BGMEA 2013). In 2014, 3,507 apparel-manufacturing firms exporting globally were listed in the BGMEA. This directory provides detailed information on the manufacturing organisations in Bangladesh, including name, product category, postal address, link to website, contact names, contact numbers, and respective email addresses.

4.6.2 Sampling Methods

The sampling method governs the nature of the respondents and the response rate, which determine the quality of an empirical study. This study employed a probability sampling design known as simple random sampling, which helps to reduce bias and provides an equal opportunity to every member of the population. In addition, simple random sampling offers greater generalisability of the findings (Sekaran & Bougie 2010), and it is categorised as an unrestricted probability sampling design. In order to implement simple random sampling, the
researcher needs to use the sampling frame to select the cases (Neuman 2011). As mentioned in Section 4.6.1, the BGMEA directory acted as the sampling frame for this study, from which the respondents were selected through simple random sampling.

4.6.3 Sample Size

For statistical analysis, sample size (n) plays a critical role in minimising the sampling error and providing reliable findings from statistical analysis. However, there are no definitive recommendations for sample size. In regards to the use of SEM, it is not advisable to use a small sample, as both the covariance and correlation results would be unstable. For reference, a small sample size (n) is one with less than 100 respondents, a medium sample size is between 100 and 200 respondents, and a large sample size is above 200 respondents (Kline 2005). Most of the literature identified that, for SEM, a larger sample size is required in order to maintain stable estimates and power.

In the literature, an absolute number in regard to the sample size for SEM is not specified. Some researchers argue that, in some cases, a sample size of more than 5,000 respondents is required (Hu, Bentler & Kano 1992). On the other hand, Hair et al. (2012) propose a minimum absolute sample size of 50. Anderson and Gerbing (1988) recommend a minimum of 150 to 200 respondents in order to ensure the credibility of SEM findings. Chou and Bentler (1995) support this argument by stating that 200 participants is a reasonable sample size. Bentler and Chou (1987) suggest that a ratio of five subjects per variable would be sufficient, depending on the normal distribution. Hair et al. (2012) propose five cases per variable as the rule of thumb for determining the sample size. However, the method of analysis determines the sample size. In this sense, the literature suggests that covariance-based structural equation modelling (CB-SEM) requires a larger sample size, while partial
least squares structural equation modelling (PLS-SEM) can be applicable to smaller sample sizes. A detailed discussion on sample size requirements is provided in Chapter 5.

4.7 Data Collection Procedure

In this study, a fast and reliable method of data collection was considered. This study used a drop-and-collect method, involving the distribution of self-administered questionnaires to the identified respondents from the sampling frame. This involved delivering the questionnaires, which would be personally collected later. Drop-and-collect is a hybrid technique that yields a response rate similar to interviewing at a cost equivalent to questionnaire mailing. According to Brown (1993), by combining the strengths and avoiding the weaknesses of face-to-face recruitment and postal surveys, drop-and-collect provides a fast, cheap, and reliable research tool. In addition, the drop-and-collect method may reduce the risk of bias from non-participation, as well as interviewer and social desirability effects, by harnessing the benefit of face-to-face recruitment and follow-up, while leaving participants to complete the survey alone and in their own time (Maclennan, Langley & Kypri 2011).

In this study, 500 manufacturers were randomly selected in the Dhaka region and notified about the survey by telephone. The Dhaka region is considered the apparel manufacturing hub of Bangladesh, with 1,924 apparel manufacturers located there (BGMEA 2015). The drop-and-collect method was employed to collect the data. To ensure a high response rate, follow-up telephone calls and reminder emails were sent to the survey respondents. To encourage participation, respondents were offered a summary of the study. A total of 267 usable questionnaires were collected for the analysis, yielding a response rate of 53 per cent.
4.8 Unit of Analysis

The unit of analysis is defined as “the person who answers an interviewer’s questions or provides answers to written questions in a self-administered survey” (Zikmund 2003, p.175). This study focuses on analysis at the organisational level. Managers, senior managers, senior executives, and directors were identified as appropriate key respondents since they were involved in the decision-making processes. The purpose of this approach was to validate the applicability of the conceptual model in a ‘real world’ environment.

This study explores the critical governance mechanisms for the implementation of social responsibility in supply chains and the relationship between the governance mechanisms and firm performance in the context of the apparel industry in Bangladesh. Thus, substantial knowledge in relation to this particular industry is vital for the present study. Thus, to answer the research objectives, the study required respondents with vast experience in the apparel industry who played a significant role in organisational decision making.

4.9 Time Horizon

Based on the time period of data collection, research studies are classified as either cross-sectional or longitudinal. Unlike longitudinal studies, in cross-sectional studies, as the most popular form of survey (Zikmund 2003), data is collected only once, perhaps over a period of days, weeks, or months. Cross-sectional surveys are relatively less expensive and easy to administer (Sekaran 2003), and they are commonly used to test the relationship between variables (Graziano & Raulin 2007). For these reasons, this study used cross-sectional data to test the relationships among the variables.
4.10 Data Analysis Procedure

Data analysis is conducted in three stages: data screening, measurement model validation, and structural model evaluation (Hair, Ringle & Sarstedt 2011). Data screening is used to identify missing values and examine the normality of the data and the other assumptions for conducting further analysis. In this study, IBM SPSS Statistics 21 was used for the data screening, which also provided information about the respondent and organisations’ profiles. Results of the data screening are presented in Chapter 5. Following the data screening, this study examined the relationship between the exogenous and endogenous variables. To examine relationships between variables, multivariate analysis is recommended (Sethi 1975). Thus, in the present study, PLS-SEM, a method of multivariate analysis, was employed as an analytical tool for assessing the measurements and the structural model. In this sense, PLS-SEM was used to test and estimate the relationships amongst the variables, in addition to helping to estimate the strength and nature of any causal relationships (Hulland 1999). The following section explains the rationale for selecting the PLS-SEM approach.

4.10.1 Structural Equation Modelling

SEM is a ‘multivariate technique’ used to analyse the relationships between variables (Hoyle 1995; Gefen, Straub & Boudreau 2000). SEM combines factor analysis and multiple regressions to examine the relationship between variables and test hypotheses (Hair 2006). Since this research aims to examine the relationship between socially responsible governance mechanisms and firm performance, structural equation modelling was utilised. CB-SEM and PLS-SEM are the two multivariate analyses often used to examine the relationship between variables. The following section provides details on the similarities and differences between the CB-SEM and PLS-SEM methods.
4.10.1.1 Covariance-based structural equation modelling (CB-SEM)

CB-SEM uses a covariance matrix along with structural equations for theory testing. CB-SEM emphasises the overall fit of the observed covariance matrix (Gefen, Straub & Boudreau 2000), and it is frequently used to analyse reflective measurement models, which has led to misspecification pertaining to formative measurement models (Jarvis, MacKenzie & Podsakoff 2003). Furthermore, CB-SEM is a viable technique only if requirements regarding data, theory, and the operationalisation of latent variables are met.

4.10.1.2 Partial least squares structural equation modelling (PLS-SEM)

PLS-SEM is an alternative to CB-SEM. Unlike CB-SEM, PLS-SEM uses multiple regression to evaluate the relationships between variables. PLS-SEM overcomes the limitations of multiple regression by explaining the significance of any variances (Haenlein & Kaplan 2004). First developed by Jöreskog and Wold (1982), PLS-SEM was initially used to analyse data in low-structured environments. PLS-SEM is predominately used in exploratory research in order to predict the main constructs. PLS-SEM gained its prominence due to its unrestricted computation of relationships in both reflective and formative situations (Hoyle 1999; Henseler, Ringle & Sinkovics 2009). In business disciplines, the partial least squares structural model has gained in importance over the last decade (Henseler, Ringle & Sinkovics 2009; Wetzels, Odekeren-Shroder & van Oppen 2009; Anderson & Swaminathan 2011), which is also reflected in the area of supply chain management (Vandaele & Gemmel 2007; Vivek & Ravindran 2009; Braunschideel, Suresh & Boisnier 2010). In accordance with previous supply chain research, this study utilised PLS-SEM to explore the constructs, the reasons for which are discussed in following sub-section.
4.10.2 Reasons for Using PLS-SEM

The research data and model properties determine the selection of the SEM tool (Jöreskog & Wold 1982; Hair et al. 2010; Hair, Ringle & Sarstedt 2011). Explanation of the data and model characteristics relevant to this study can be seen in Table 4.10.

Table 4.10: Data and model characteristics

<table>
<thead>
<tr>
<th>Data Characteristics</th>
<th>Explanation</th>
<th>Study context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size</td>
<td>Large sample size increases the precision of PLS-SEM estimates</td>
<td>267 usable responses</td>
</tr>
<tr>
<td>Missing values</td>
<td>Highly robust as long as missing values are below a reasonable level</td>
<td>No missing values</td>
</tr>
<tr>
<td>Scale of measurement</td>
<td>Works with metric data, scaled data, and binary data</td>
<td>Scaled data</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model Characteristics</th>
<th>Explanation</th>
<th>Study context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of items in each construct measurement model</td>
<td>Handles constructs measured with single and multi-item measures</td>
<td>All the constructs are measured with a multi-item scale</td>
</tr>
<tr>
<td>Relationship between constructs and their indicators</td>
<td>Easily incorporates reflective and formative measurement models</td>
<td>The model has first-order reflective constructs and second-order formative constructs</td>
</tr>
<tr>
<td>Model complexity</td>
<td>Handles complex models with many structural relationships</td>
<td>This study attempts to examine 18 structural relationships, so it is quite a complex model</td>
</tr>
</tbody>
</table>

From Table 4.10, it is clear that the PLS-SEM method can be used to examine the complex relationships among several variables in the study. In addition, Hair et al. (2014) also propose three rules of thumb for choosing between PLS-SEM and CB-SEM. First, PLS is intended for causal-predictive analysis (Anderson & Gerbing 1988). The focus of this study is to examine the impact of governance mechanisms on firm performance, so PLS is deemed appropriate. Second, the PLS method can examine the cause-effect relationship of a model with both reflective and formative constructs in a measurement model (Henseler, Ringle & Sinkovics 2009). The model developed in Section 3.5 explains that the first-order constructs of independent variables are reflective of the formation of second-order constructs, so PLS can
be considered as an appropriate method. The third rule of thumb is that PLS is suitable for complex models comprising hierarchical components, with many relationships to examine. The model proposed in this study is a hierarchical model examining 18 relationships; it is thus a complex model and PLS-SEM is appropriate for its analysis.

4.10.3 Reflective and Formative Construct Specifications

In a model, multidimensional constructs related to other constructs at a similar level of abstraction are known as hierarchical component models (Chin 1998). The number of levels in the model and the relationship between the constructs in the model are the characteristics that explain different types of hierarchical models (Becker, Klein & Wetzels 2012). Specifically, based on the relationships of second-order and first-order constructs, Jarvis, MacKenzie and Podsakoff (2003) and Ringle, Sarstedt and Straub (2012) suggest four distinct types of hierarchical component models:

1) Reflective-Reflective: Type I
2) Reflective-Formative: Type II
3) Formative-Reflective: Type III
4) Formative-Formative: Type IV

The four models are differentiated with respect to the relationships between the first-order constructs and the observable indicators and the relationships between first-order and second-order constructs (see Figure 4.3). Although all the models have been empirically examined in the research literature, it is common to see Reflective-Formative Type II models (Ringle, Sarstedt & Straub 2012). The model developed in this study is also a Type II Reflective-Formative model.
Supplier selection in this study is formed by three reflectively-measured first-order constructs: operational, socially sustainable, and environmentally sustainable criteria. Similarly, the supplier development construct is formed by reflectively-measured supplier assessment and supplier collaboration constructs. This means that the constructs are independent of each other and have different meanings, and removing any of these constructs would change the conceptual interpretation of the second-order constructs. The endogenous variables of firm performance used in this study are first-order reflective constructs, which are all viewed to be caused by a common underlying construct (Grawe, Chen & Daugherty 2009).
4.11 Ethical Considerations

In most research situations, several parties are involved, such as the researcher, respondents, and funding organisations, all of whom interact with each other throughout the research. Researchers believe that they have a right to seek information, whereas respondents believe that they have a right to privacy. Situations like this raise several questions and obligations towards other parties (Zikmund 2003). Ethical considerations are important aspects that address questions related to the interests of participants in a particular project, research, or study. Ethical matters play an important role in data collection in relation to affirming that the interests of participants are not compromised or taken for granted (Bryman & Bell 2007). Since this research involved collecting data from individuals, ethical consideration played a significant role.

This study followed the guidelines outlined by the RMIT Business College Human Advisory Network (BCHEAN). The ethics approval letter from the BCHEAN committee can be seen in Appendix A. The objective was not only to ensure that the process of data collection was accurate and efficient but also ethically correct. The questionnaire was prepared according to the standard requirements of the ethics committee, and the respondents’ confidentiality was assured through appropriate ethical procedures. In this regard, respondents were assured of their confidentiality, anonymity, and privacy through a participatory information sheet. A self-administered survey questionnaire was distributed, and the voluntary nature of participation was emphasised. Participants could withdraw partially or completely at any time or refuse to answer any question. An implied consent approach was adopted during the data collection, in that a participant returning their completed questionnaire was taken as having given consent to participate. All the data collected was kept strictly confidential and could only be accessed by the researcher and the supervisor. The data collected will be securely
stored at RMIT University for five years. The participatory information sheet regarding the confidentiality of the respondents’ information was included in the questionnaire and was available to all respondents (see Appendix B).

4.12 Summary

This chapter provided background to the several paradigms available for conducting research, as well as their associated research designs. The chapter also justified the need for a positive paradigm and its associated quantitative methods in addressing the research objectives and questions developed in Chapter 1. In addition, this chapter provided details on constructing and administrating the instrument, as well as the pre-test and pilot study for finalising the instrument. The drop-and-collect method of data collection for self-administered questionnaires was also explained. Further, this chapter also highlighted the data analysis procedure, in addition to providing justification for the selection of PLS-SEM for data analysis. Finally, the study’s ethical considerations were outlined. In Chapter 5, analysis of the data collected in order to test the hypotheses proposed in Chapter 3 will be presented.
CHAPTER FIVE
DATA ANALYSIS

5.1 Introduction

This chapter outlines the statistical analysis that was conducted to examine the impact of socially responsible governance mechanisms on firm performance. The aim of this chapter is to present the data analysis based on four main steps:

1. Preliminary data cleaning
2. Measurement model assessment
3. Structural model evaluation
4. Moderating effect

The chapter is organised into nine sections. Following the introduction in Section 5.1, Section 5.2 presents the power analysis to satisfy the sampling requirements of PLS-SEM analysis. Section 5.3 delineates the demographic profiles of the respondents, while the preliminary analysis of the data is explained in Section 5.4. Section 5.5 presents the measurement model validation followed by structural model evaluation in Section 5.6. The moderation effect will be presented in Section 5.7, while Section 5.8 summarises all of the proposed hypotheses. Finally, this chapter concludes with a summary in Section 5.9.

5.2 Sample Size Requirement

Sample size can be defined as the actual number of subjects chosen as a sample to represent the population (Sekaran 2003). In statistical analysis, sample size plays an important role in minimising sampling error. The sample size must be properly determined in order to make an
inference about the population of any study activity. Some researchers recommend that the
appropriate sample size for most research should be larger than 30 and less than 500. In
particular, the research sample size for multivariate analysis should be several times
(preferably ten-fold) larger than the number of variables in the study (Roscoe 1975; Sekaran
2003).

The minimum sample size required for data analysis in PLS-SEM should be at least ten times
the largest number of formative indicators used to measure one construct, or ten times the
largest number of structural paths directed at a particular latent construct in the structural
model (Henseler, Ringle & Sinkovics 2009; Hair, Ringle & Sarstedt 2011). As shown in the
conceptual framework presented in Chapter 3 (Figure 3.2), the second-order constructs of the
independent variable are formative, and the largest number of formative indicators measuring
the construct is three. Following the ten-times sampling rule, the minimum sample required
would be 30 to satisfy the first requirement of formative indicators. In addition, with regard
to the second requirement, the largest number of paths pointing to a construct in the structural
model is five, representing the relationships between supplier selection, supplier
development, social performance, environmental performance with economic performance,
and the indirect relationship of supplier selection with economic performance. Therefore,
based on the ten-times rule of thumb, the required minimum sample size would be 50.
Nevertheless, the ten-times rule of thumb provides only a rough estimate of the minimum
sample size required. Applying this rule without conducting a power analysis will likely yield
low power for hypotheses testing (Marcoulides & Saunders 2006). Therefore, this study used
G* Power software for statistical power analyses as a rule of thumb, as suggested by Cohen
G* Power software can be used to determine the minimum sample size needed in order to reject the null hypothesis. To determine the recommended sample size for PLS-SEM, researchers can use the rule of thumb G* Power (Hair et al. 2014). In this study, the input parameters were a moderate effect size ($f^2$) of 0.15 and a power value of 0.95 with 2 predictors. Figure 5.1 (A Priori analysis) indicates that the minimum sample size needed in this study was 107. However, the sample size collected was 267, which is much more than the minimum requirement, and thus post-hoc analysis was suggested. From the post hoc analysis, the obtained power was 0.99 probabilities, suggesting that the same result would be likely to reoccur in the same setting (see Figure 5.2). This justifies 267 as a sufficient sample size to execute PLS-SEM.

Figure 5.1: G* power – A Priori analysis
5.3 Demographic Profile

Based on the returned questionnaires, this section provides details of the respondents’ profiles and their respective organisational profiles, which are illustrated in Tables 5.1 and 5.2.

5.3.1 Respondents’ Profiles

Table 5.1 outlines the respondents’ profiles, highlighting that 45.3 per cent of the respondents are senior/higher executives, 21 per cent are assistant managers, 19.5 per cent are executive managers, 10.5 per cent are managers, 3.4 per cent are senior managers, and 0.4 per cent are heads of departments. Therefore, the results show that most of the respondents who answered the questionnaires are senior executives who play a major role in organisational decision making. In addition to the respondents’ designations, information regarding the associated
departments was collected. The majority of the respondents (50.9 per cent) are associated with the supply chain department, followed by 24 per cent in production and 12.7 per cent in operations. As most of the respondents are associated with the supply chain department, they are aware of any relationship issues that their firms are facing with respect to buyers. In relation to work experience in the apparel industry, most of the respondents (47.9 per cent) have worked for 6 to 10 years, followed by 34.8 per cent of respondents who have worked for 2 to 5 years and 14.6 per cent for 11 to 15 years. The respondents’ level of work experience demonstrates that they are aware of the challenges in the apparel industry in the context of global supply chains. The respondents’ designations, associated departments, and experience therefore demonstrate that they are sufficiently knowledgeable to answer the survey questionnaire.

Table 5.1: Respondents’ profiles

<table>
<thead>
<tr>
<th>Frequency (n=267)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Designation</strong></td>
<td></td>
</tr>
<tr>
<td>Executive officer</td>
<td>52</td>
</tr>
<tr>
<td>Senior/Higher executive</td>
<td>121</td>
</tr>
<tr>
<td>Assistant manager</td>
<td>56</td>
</tr>
<tr>
<td>Manager</td>
<td>28</td>
</tr>
<tr>
<td>Senior manager</td>
<td>9</td>
</tr>
<tr>
<td>Head of department</td>
<td>1</td>
</tr>
<tr>
<td><strong>Department</strong></td>
<td></td>
</tr>
<tr>
<td>Production</td>
<td>64</td>
</tr>
<tr>
<td>Supply chain</td>
<td>136</td>
</tr>
<tr>
<td>Operations</td>
<td>34</td>
</tr>
<tr>
<td>Sales</td>
<td>20</td>
</tr>
<tr>
<td>Procurement</td>
<td>13</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>Post-secondary/Secondary</td>
<td>147</td>
</tr>
<tr>
<td>Diploma</td>
<td>25</td>
</tr>
<tr>
<td>Graduate/Bachelors</td>
<td>67</td>
</tr>
<tr>
<td>Post-graduate/Masters</td>
<td>28</td>
</tr>
<tr>
<td><strong>Years of Experience in Apparel Industry</strong></td>
<td></td>
</tr>
<tr>
<td>1 year or less</td>
<td>4</td>
</tr>
<tr>
<td>02-05 years</td>
<td>93</td>
</tr>
<tr>
<td>06-10 years</td>
<td>128</td>
</tr>
<tr>
<td>11-15 years</td>
<td>39</td>
</tr>
<tr>
<td>Above 15 years</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 5.2: Organisational profiles

<table>
<thead>
<tr>
<th>Number of employees</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>51-200</td>
<td>19</td>
<td>7.1</td>
</tr>
<tr>
<td>201-500</td>
<td>146</td>
<td>54.7</td>
</tr>
<tr>
<td>501-1,000</td>
<td>98</td>
<td>36.7</td>
</tr>
<tr>
<td>More than 1,000</td>
<td>4</td>
<td>1.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year of Operation</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 3 years</td>
<td>11</td>
<td>4.1</td>
</tr>
<tr>
<td>3-5 years</td>
<td>92</td>
<td>34.5</td>
</tr>
<tr>
<td>6-10 years</td>
<td>101</td>
<td>37.8</td>
</tr>
<tr>
<td>11-15 years</td>
<td>46</td>
<td>17.2</td>
</tr>
<tr>
<td>16-20 years</td>
<td>11</td>
<td>4.1</td>
</tr>
<tr>
<td>Above 20 years</td>
<td>6</td>
<td>2.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average annual sales (AUDS)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 million</td>
<td>2</td>
</tr>
<tr>
<td>2-10 million</td>
<td>15</td>
</tr>
<tr>
<td>11-50 million</td>
<td>62</td>
</tr>
<tr>
<td>51-100 million</td>
<td>49</td>
</tr>
<tr>
<td>101-200 million</td>
<td>75</td>
</tr>
<tr>
<td>201-500 million</td>
<td>57</td>
</tr>
<tr>
<td>Above 500 million</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of organisation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladeshi-owned</td>
<td>144</td>
</tr>
<tr>
<td>Joint venture</td>
<td>102</td>
</tr>
<tr>
<td>Foreign-owned</td>
<td>21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Production capacity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5,000 dozen or less</td>
<td>84</td>
</tr>
<tr>
<td>5,001-10,000 dozen</td>
<td>174</td>
</tr>
<tr>
<td>10,001 dozen or more</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Major channel of receiving orders</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Buying houses</td>
<td>106</td>
</tr>
<tr>
<td>Directly from retailers</td>
<td>116</td>
</tr>
<tr>
<td>Trade fair and exhibition</td>
<td>15</td>
</tr>
<tr>
<td>e-marketplace</td>
<td>30</td>
</tr>
</tbody>
</table>

5.3.2 Organisational Profiles

In the context of the Bangladeshi apparel industry, the number of employees in an organisation measures the size of an organisation. Table 5.2 provides details on the number of employees in an organisation. Approximately 54.7 per cent of the respondents’ organisations have employees ranging between 200 and 500, characterising them as medium size, while
38.2 per cent of the organisations represented are characterised as large organisations, with more than 500 employees. The results demonstrate that most of the organisations in the sample are medium to large organisations. In the context of the Bangladeshi apparel industry, most apparel-exporting firms are medium to large organisations (Huq, Stevenson & Zorzini 2014). Therefore, the respondents’ organisations are likely to be exporting firms with a global presence. In reference to ownership, the majority of the organisations (53.9 per cent) are Bangladeshi-owned firms, followed by 38.2 per cent as joint-venture organisations. The results of the organisations’ ownership are consistent with industry statistics (Staritz 2010). In addition, 55 per cent of the firms have been operating for between 6 and 15 years, demonstrating that the companies have extensive experience in apparel manufacturing. It can also be seen that the vast majority of the manufacturers (83.2 per cent) are tier-1 suppliers, who receive orders directly from retailers or buying houses. Thus, managerial perceptions reflect on their organisations’ relationships with retailers. All of the firms represented in the sample practice workplace fire safety procedures, suggesting that they exhibit knowledge and interest towards socially responsible practices. Overall, the results of the organisational profile indicate that the respondent organisations represent the population of the study and the managers of these firms can be seen the most suitable respondents for addressing the questionnaire.

5.4 Preliminary Analysis

Preliminary evaluation was conducted to prepare the data for assessing the measurement and structural models. Data screening and cleaning is considered as an important stage before proceeding with the data analysis. The data cleaning process requires careful consideration, as it will significantly affect the final statistical results. The examination of data will provide critical insights into the data characteristics (Hair et al. 2010). To ensure the accuracy of the
data entry process, a double-checking procedure was performed. The first step of analysis involved validating all the entries case-by-case, while the second step entailed computing the descriptive statistics, including frequency distribution, maximum and minimum values, means, and standard deviations. The results of the frequency distribution highlight that the data entered was 100 per cent accurate and no mistakes were committed in the data entry process. Further, to understand the properties of the data, missing values, normality, outliers, and common method bias were computed.

5.4.1. Assessment of Missing Values

In research, missing data occurs when respondents fail to answer one or more items in the survey. Missing data, up to 10%, may not cause any serious problems in relation to the interpretation of the research findings (Cohen & Cohen 1983). In the case of significant missing data, it is suggested that the selection of a procedure to treat missing values depends upon the pattern of missing values (Tabachnick & Fidell 2011). In the case of randomly distributed missing values, in order to improve data reliability, missing values should be removed. However, it is not advisable to remove missing values with a systematic pattern, as this may generate biased results.

In self-administrated survey questionnaires, respondents fill in the questionnaire in their own time and in the absence of researchers, which may result in missing values (Dillman 2007). In this study, data was collected from 267 respondents from the apparel industry. All the respondents provided information with no missing values for both parts A and B of the questionnaire. The drop-and-collect method applied in this study allowed the researcher to drop off and retrieve the completed questionnaires personally. Thus, the researcher was able to double-check the completed questionnaires, and if any questions remained unanswered, they were completed in person with the participants. In addition, IBM SPSS Statistics 22
software was used to confirm the accuracy of the data entry process. Further, data was verified case-by-case by checking the descriptive statistics, including frequency distributions, maximum and minimum values, means, and standard deviations. The results demonstrate that the data entry process is accurate and there are no missing values. Thus, all of the 267 responses collected can be considered for further analysis.

5.4.2. Assessment of Outliers

Outliers are cases with very different values from the rest of the population, which distort the statistical results (Kline 2005; Tabachnick & Fidell 2011). Outliers can cause errors(s) in the model, parameters, and standard error estimations (Gallagher, Ting & Palmer 2008). It is therefore crucial to identify the presence of outliers in the data, which can be done at both univariate and multivariate levels. A univariate outlier is a case with an extreme value on a single variable, whereas multivariate outliers represent a combination of extreme scores from two or more variables (Kline 2005; 2010). Multivariate outlier examination is considered as the most appropriate outlier investigation for the SEM data analysis procedure. Therefore, this research used multivariate testing to identify any outliers.

There are several ways to detect outliers: by inspecting the scatter plots of standardised residuals or by examining Mahalanobis distance ($D^2$) statistics (Pallant 2011). For the scatter plots, residuals should represent a rectangular distribution, with the majority of the scores lingering near the centre point (zero), while a deviation from the rectangular shape would violate this assumption (Tabachnick & Fidell 2011). Mahalanobis distance ($D^2$) statistics indicate the distance in standard deviation units between a set of scores (vector) for an individual case and the sample means for all variables (centroids) (Kline 2005). Thus, this study used Mahalanobis distance ($D^2$) statistic to examine outliers in the data.
Mahalanobis distance ($D^2$) calculates the degree of dissimilarity between each observation or case (in terms of its distance from the mean centre of all observations) across a set of variables. This is also known as the vectors and centroids observation (Kline 2010). The distance ($D^2$) statistic follows the distribution of the chi-square variable, with an equal degree of freedom to that of the number of independent variables (Tabachnick & Fidell 2011). In order to identify multivariate outliers, it is important to determine the critical chi-square alpha values. Table 5.3 depicts a list of critical values for evaluating $D^2$. Any value beyond the critical value in conjunction with the independent variables is considered as an outlier.

According to Pearson and Hartley (1972), the critical value for identifying outliers with two independent variables is $D^2=13.82$ ($p<0.001$). The results indicate that all the cases have a $D^2$ of less than the critical values, indicating no outliers. Further, Cook’s distance was used to test whether there was an undue effect on the results. The maximum value for Cook’s distance in this data set is 0.718, which is less than 1, suggesting there is no major problems (Tabachnick & Fidell 2011). Therefore, it can safely be assumed that there are no substantial multivariate outliers in the data, and all the 267 cases can be retained for further analysis.

<table>
<thead>
<tr>
<th>Number of independent variables (df)</th>
<th>Critical value of $\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.83</td>
</tr>
<tr>
<td>2</td>
<td>13.82</td>
</tr>
<tr>
<td>3</td>
<td>16.27</td>
</tr>
<tr>
<td>4</td>
<td>18.47</td>
</tr>
<tr>
<td>5</td>
<td>20.52</td>
</tr>
<tr>
<td>6</td>
<td>22.46</td>
</tr>
<tr>
<td>7</td>
<td>24.32</td>
</tr>
<tr>
<td>8</td>
<td>26.13</td>
</tr>
<tr>
<td>9</td>
<td>27.88</td>
</tr>
<tr>
<td>10</td>
<td>29.59</td>
</tr>
</tbody>
</table>
5.4.3 Assessment of Normality

Normality examines whether the data is normally distributed across the sample and identifies excessively high or low values that can skew the overall result. According to Hair et al. (2010), deviation of data from normality may affect the interpretation of results. To comply with the SEM procedure, an examination of data normality is required (Bai & Ng 2005). Normality of the data is conducted by assessing the shape of the distribution or by observing the skewness and kurtosis values of the data at both univariate and multivariate levels.

Skewness indicates the orientation of the distribution horizontally, i.e. whether the data is distributed to the right, left, or centre, whereas kurtosis indicates the peakness or flatness of the data compared to a normal distribution. According to Hair et al. (2010), if skewness and kurtosis is zero, then the data is perfectly normal, while any deviation from zero can indicate that the data is not normally distributed. For a large sample size (n ≥ 200), significant variations of skewness and kurtosis should be given due consideration. Data is considered normal if the range of skewness is within +1 to –1 and kurtosis +3 to -3 (Lewis-Beck, Bryman & Liao 2004).

The results of the normality test are displayed in Table 5.4, which demonstrate that the skewness values of a few items fall beyond the rigorous value range of +1 to –1 (Lewis-Beck, Bryman & Liao 2004). It is clear that, at the univariate level, all the items do not satisfy the skewness normality requirements. However, the lenient +3 to –3 range of kurtosis is satisfied for all the items (Hair 2006). Therefore, the empirical measure of kurtosis for all metric variables confirm no issues of non-normality in the data set.

Furthermore, normality of the data was examined at multivariate levels, which can be seen in Table 5.5. The results confirm that multivariate non-normality does not exist in the data set.
because all skewness values fall within the acceptable range of -1 to +1 (Hair et al. 2010) and the kurtosis scores for all the variables do not exceed the maximum level of the normality range (≤3). Therefore, the data can be considered normal, which would not have an effect on the overall findings of the study.

Table 5.4: Normality results at the univariate level

<table>
<thead>
<tr>
<th>Items</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product cost</td>
<td>-0.712</td>
<td>-0.077</td>
</tr>
<tr>
<td>Ordering costs</td>
<td>-1.129</td>
<td>1.779</td>
</tr>
<tr>
<td>Quality</td>
<td>-1.157</td>
<td>1.24</td>
</tr>
<tr>
<td>Delivery performance</td>
<td>-0.663</td>
<td>-0.405</td>
</tr>
<tr>
<td>Discrimination</td>
<td>-0.226</td>
<td>-0.729</td>
</tr>
<tr>
<td>Safety training</td>
<td>-0.165</td>
<td>-1.393</td>
</tr>
<tr>
<td>Fair work practices</td>
<td>-0.562</td>
<td>-0.655</td>
</tr>
<tr>
<td>Child labour</td>
<td>-0.729</td>
<td>-0.83</td>
</tr>
<tr>
<td>Compulsory labour</td>
<td>-0.683</td>
<td>-0.922</td>
</tr>
<tr>
<td>Building safety</td>
<td>-0.569</td>
<td>-1.012</td>
</tr>
<tr>
<td>Accountability</td>
<td>-0.335</td>
<td>-1.205</td>
</tr>
<tr>
<td>Waste treatment</td>
<td>-0.998</td>
<td>-1.464</td>
</tr>
<tr>
<td>Raw material consumption</td>
<td>-0.846</td>
<td>0.504</td>
</tr>
<tr>
<td>Policies/plans</td>
<td>-0.808</td>
<td>0.282</td>
</tr>
<tr>
<td>Certifications</td>
<td>-0.92</td>
<td>0.708</td>
</tr>
<tr>
<td>Evaluation</td>
<td>-0.456</td>
<td>0.042</td>
</tr>
<tr>
<td>Feedback</td>
<td>-0.879</td>
<td>1.362</td>
</tr>
<tr>
<td>Audits</td>
<td>-1.28</td>
<td>1.728</td>
</tr>
<tr>
<td>Certification</td>
<td>-0.764</td>
<td>1.245</td>
</tr>
<tr>
<td>Visits</td>
<td>-1.683</td>
<td>3.563</td>
</tr>
<tr>
<td>Training</td>
<td>-0.049</td>
<td>-0.828</td>
</tr>
<tr>
<td>Joint efforts</td>
<td>-1.226</td>
<td>1.792</td>
</tr>
<tr>
<td>Awareness</td>
<td>-0.235</td>
<td>1.02</td>
</tr>
<tr>
<td>Timely</td>
<td>-0.318</td>
<td>-1.385</td>
</tr>
<tr>
<td>Accurate</td>
<td>-0.121</td>
<td>-1.343</td>
</tr>
<tr>
<td>Complete</td>
<td>-0.295</td>
<td>-1.276</td>
</tr>
<tr>
<td>Relevant</td>
<td>-0.046</td>
<td>-1.493</td>
</tr>
<tr>
<td>Confidential</td>
<td>-0.668</td>
<td>-0.315</td>
</tr>
<tr>
<td>Requirements</td>
<td>-0.081</td>
<td>-1.492</td>
</tr>
<tr>
<td>Supply chain</td>
<td>-0.525</td>
<td>-1.315</td>
</tr>
<tr>
<td>Collaboration</td>
<td>-0.278</td>
<td>-0.99</td>
</tr>
<tr>
<td>Improvements</td>
<td>-0.339</td>
<td>-1.288</td>
</tr>
<tr>
<td>Individual goals</td>
<td>-0.05</td>
<td>-1.22</td>
</tr>
<tr>
<td>Implementation plans</td>
<td>-0.214</td>
<td>-1.295</td>
</tr>
<tr>
<td>Chances</td>
<td>-1.019</td>
<td>-0.152</td>
</tr>
<tr>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Supplier Selection</td>
<td>ESC</td>
<td>2.57</td>
</tr>
<tr>
<td></td>
<td>SSC</td>
<td>3.67</td>
</tr>
<tr>
<td></td>
<td>OSC</td>
<td>4.00</td>
</tr>
<tr>
<td>Supplier Development</td>
<td>SA</td>
<td>3.25</td>
</tr>
<tr>
<td></td>
<td>SC</td>
<td>3.20</td>
</tr>
<tr>
<td></td>
<td>ENP</td>
<td>4.00</td>
</tr>
<tr>
<td>Firm Performance</td>
<td>SOP</td>
<td>4.00</td>
</tr>
<tr>
<td></td>
<td>ECP</td>
<td>3.14</td>
</tr>
<tr>
<td></td>
<td>GC</td>
<td>1.40</td>
</tr>
<tr>
<td>Agency Problems</td>
<td>IA</td>
<td>1.89</td>
</tr>
<tr>
<td></td>
<td>RA</td>
<td>2.43</td>
</tr>
</tbody>
</table>

Table 5.5: Descriptive statistics of the latent variables

5.4.4 Assessment of Common Method Variance and Social Desirability Bias

Common method variance and social desirability bias have become important issues that influence the quality of survey data. Common method variance can be defined as "variance that is attributable to the measurement method rather than to the constructs the measure
represent” (Podsakoff et al. 2003, p.879), whereas social desirability bias refers to the tendency of respondents to choose responses they believe are more socially desirable rather than choosing responses that are reflective of their own thoughts (Grimm 2010).

The self-reported nature of surveys may result in certain problems, such as common method variance, which lead to incorrect conclusions about the relationships between variables by inflating or deflating the findings (Craighead et al. 2011). This method of variance is considered to be a problem since it constitutes one of the major causes of measurement error. This issue is escalated when both the dependent and independent constructs are perpetual measures and are responded to by the same participants (Chang, Van Witteloostuijn & Eden 2010). Social desirability bias may exist when data is collected in the presence of the researcher and the respondents try to ‘please’ the researcher by providing acceptable answers (Grimm 2010). Conway and Lance (2010) offer guidelines to overcome the problem of common method variance and social desirability bias: i) to ensure validity, questions must be asked to respondents with relevant backgrounds; and ii) both the researchers and the respondents must sit at a fair distance apart in order to give the respondents space to fill in the questionnaire.

In addition, both a priori and a posteriori procedures were used to minimise and measure variance in this study. First, to minimise the effects of consistency in the questionnaire, items related to the independent variable were measured, followed by the dependent variables. Then, the presence of bias was tested in a posteriori analysis by using Harman’s one factor test (Podsakoff et al., 2003). Results reveal that thirty factors emerge with the first factor, explaining 26.6 per cent of the overall variance. Since the first factor does not account for most of the variance (<50%), this indicates that the data is not affected by common method variance and social desirability bias (Harman 1967).
5.5 Assessment of Measurement Model

This study employed partial least squares structural equation modelling (PLS-SEM), based on the steps recommended by Becker, Klein and Wetzels (2012). Two tests to examine the hypotheses in PLS-SEM are the measurement model and structural model evaluation (Hair et al. 2014). PLS-SEM measurement model evaluation is not based on ‘goodness of fit’ measures, so non-parametric evaluation procedures, such as bootstrapping and blindfolding, were used (Hair et al. 2014). SmartPLS software was used to draw all the possible outer and inner links of the conceptual model proposed in Chapter 3. The model of this study, specified in Section 3.8, consists of five first-order constructs (socially sustainable criteria, operational criteria, environmentally sustainable criteria, supplier assessment and supplier collaboration), reflective of items forming two second-order constructs (supplier selection and supplier development), which is representative of a Reflective-Formative Type II component model, as discussed in Section 4.9.3.

In this study, a repeated-indicator approach was employed for the hierarchical component model evaluation. By utilising this approach, the second-order constructs of supplier selection and supplier development were directly measured by the indicators of all first-order constructs (Becker, Klein & Wetzels 2012). This means that the indicators should be used twice in the model. Given the formative nature of second-order constructs, Mode B was used to measure the second-order constructs, in which the arrows point out from the indicators to the intended second-order constructs. Figure 5.3 illustrates the Reflective-Formative Type II model of this study. In addition to the independent variables, the moderating variable agency problems is a second-order reflective-formative construct that required a repeated-indicator approach, and its analysis will be presented along with the measurement model evaluation of independent variables.
According to Hair et al. (2014), measurement of the items representing the reflective first-order constructs in the measurement model need to demonstrate internal/composite reliability, indicator reliability, convergent validity, and discriminant validity. Reliability shows the stability and consistency of the scale in measuring the concept, while validity indicates the ability of a scale to represent the concept being measured (Sekaran & Bougie 2010). The initial evaluation of PLS-SEM is discussed in the following sections.

Figure 5.3: Reflective-Formative Type II and repeated-indicator approach: Mode B
5.5.1 Indicator Reliability

To determine the indicator reliability, factor loadings of the items were measured. Factor loadings observed through Cronbach’s alpha measure the correlation between the observed indicator variable. In order to achieve the item reliability of 0.5, a loading value at 0.707 is required (Hulland 1999). Several researchers (e.g. Hair, Ringle & Sarstedt 2011; Peng & Lai 2012) have used the item loadings of 0.7 as a cut-off value for reliable indicators and deleted items with less factor loadings. However, if an item loading is between 0.5 and 0.7 and it does not affect the reliability of the construct, then the item is retained for further analysis (Hair et al. 2014).
To maintain indicator reliability, following the criteria of 0.707 item loading, six items with less factor loadings were identified. Two items of selection criteria, one from socially sustainable criteria and one from environmentally sustainable criteria, were dropped in order to maintain reliability. Similarly, one item from supplier assessment and one from supplier collaboration of supplier development were removed to sustain indicator reliability. In addition, one item from economic performance and one from social performance were also dropped. However, an item with a factor loading of 0.678 was retained in the analysis, as the deletion of the item did not affect the reliability of the construct. The final model, with factor loadings, is shown in Figure 5.4, and all measurement items show strong reliability. Further, details of the six deleted items can be found in Appendix C. By conducting the final round of analysis, loadings for the retained items in the measurement model were obtained. Table 5.6 presents the psychometric properties of the first-order constructs comprising loadings for the final measurement items together with the sample means and standard deviations.

5.5.2 Internal Consistency

Internal consistency can be determined either by Cronbach’s alpha value or composite reliability. Cronbach’s alpha evaluates the degree to which the indicators measure the unidimensionality of a construct (Gotz, Liehr-Gobbers & Krafft 2010). A low alpha value represents the multidimensionality of the constructs. In comparison to composite reliability, Cronbach’s alpha estimates reliability with lower-bound values (Hair et al. 2012). Therefore, this study used composite reliability underlined by indicator outer loadings in order to report an accurate measure of internal consistency (Fornell & Larcker 1981).
## Table 5.6: Psychometric properties of the first-order constructs

<table>
<thead>
<tr>
<th>Variable</th>
<th>Indicator</th>
<th>Mean</th>
<th>SD</th>
<th>Loadings</th>
<th>Composite Reliability</th>
<th>AVE</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSC</td>
<td>OSC_1</td>
<td>5.78</td>
<td>1.113</td>
<td>0.736</td>
<td>0.837</td>
<td>0.562</td>
<td>0.741</td>
</tr>
<tr>
<td>OSC</td>
<td>OSC_2</td>
<td>5.27</td>
<td>1.108</td>
<td>0.783</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSC</td>
<td>OSC_3</td>
<td>5.87</td>
<td>1.181</td>
<td>0.746</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSC</td>
<td>OSC_4</td>
<td>5.90</td>
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Composite reliability presents the degree to which indicators measure a latent construct. Composite reliability values may range from 0 to 1, and values closer to 1 indicate a higher level of reliability (Ringle, Wende & Will 2005; Hair, Ringle & Sarstedt 2011; Hair et al. 2014). A composite reliability value between 0.60 and 0.90 is considered as acceptable.
Furthermore, a composite reliability value of less than 0.6 may indicate internal consistency, whereas a composite reliability value of higher than 0.95 indicates that the indicators are measuring the same phenomenon (Nunnally & Bernstein 1994; Straub, Boudreau & Gefen 2004). In this study, all the first-order constructs displayed composite reliability of between 0.837 and 0.920 (see Table 5.6), which is within the threshold range (Hair et al. 2014), demonstrating that issues related to internal consistency were not present in this study.

5.5.3 Convergent Validity

To evaluate construct validity, convergent validity and discriminant validity need to be examined. Convergent validity is evident when each measurement item correlates strongly with its theoretically intended construct (Gefen & Straub 2005). Convergent validity is established when two or more items of the same construct are positively correlated (Carmines & Zeller 1979; Hair et al. 2014). In this study, average variance extracted (AVE) was used to examine the convergent validity of the first-order constructs (Fornell & Larcker 1981; Hair et al. 2014). AVE shows the average variance shared between constructs and their measures, relative to the amount of measurement error (Hulland 1999; Chin 2010).

Sufficient convergent validity is achieved when the AVE value of a construct is at least 0.5 (Fornell & Larcker 1981), meaning that a construct explains more than 50% of the variance among the scale indicators (Gotz, Liehr-Gobbers & Krafft 2010; Hair, Ringle & Sarstedt 2011). Table 5.6 shows that the AVE for all constructs were in the range of 0.562 and 0.794, thus fulfilling the 0.5 threshold, meaning that issues related to convergent validity may not be present in this study.
5.5.4 Discriminant Validity

Discriminant validity is the degree to which a construct variable is different from the other constructs in the model (Chin 2010). It tests the uniqueness of each construct in order to ensure that it is not concurrent with another construct (Hair et al. 2014). The two criteria used to measure discriminant validity are the examination of cross-loadings and the Fornell-Larcker criterion. The cross-loadings examination method is commonly used to assess the discriminant validity of indicators (Hair et al. 2014). Cross-loadings examine the outer loadings of indicators on their theoretically intended constructs (Gefen & Straub 2005). Items should only be highly correlated within one construct (Hair, Ringle & Sarstedt 2011). The cross-loadings of all the items shown in Table 5.7 indicate that the items were highly correlated within one construct (highlighted in blue), thus representing no discriminant validity issues. Cross-loading examination is perceived as the liberal method to test for discriminant validity, which often presents the constructs with construct validity issues (Hair, Ringle & Sarstedt 2011).

The Fornell-Larcker criterion is considered as a more conservative method of assessing discriminant validity (Hair et al. 2014). This technique “compares the square root of the average variance extracted values with the latent variable correlation” (Hair et al. 2014, p.105). Hence, the square root value of the average variance extracted of a construct should be greater than the highest correlation of other constructs. Simplifying the statement above, the Fornell-Larcker criterion basically suggests that all combinations of the constructs within the model should be less than that of its own (square root value of the average variance extracted) (Fornell & Larcker 1981; Chin 1998; Hair, Ringle & Sarstedt 2011; Hair et al. 2014). Table 5.8 presents the Fornell-Larcker criteria. The results show that the square roots of AVE, as the diagonal elements, were larger than the off-diagonal correlations in rows and
columns. Hence, the outcome of the analysis indicates that discriminant validity was not an
issue in this study.
Table 5.7: Cross-loadings of all the indicators
ECP

ENP

GC

IA

RA

SA

SC

OSC

ESC

SOP

SSC

ECP_1

0.879

0.419

0.14

0.201

0.036

0.389

0.491

0.291

0.177

0.209

0.092

ECP_2

0.805

0.307

0.468

0.526

0.415

0.281

0.451

-0.058

-0.005

0.062

-0.354

ECP_3

0.774

0.217

0.408

0.453

0.088

0.263

0.361

0.004

0.114

-0.1

-0.203

ECP_4

0.644

0.110

0.054

0.024

0.445

0.273

0.271

0.173

0.253

0.394

0.219

ENP_1

0.166

0.752

-0.176

-0.194

0.106

0.314

0.389

0.34

0.416

0.445

0.349

ENP_2

0.202

0.754

0.061

0.117

0.276

0.284

0.361

0.2

0.355

0.342

0.123

ENP_3

0.434

0.723

0.046

0.063

0.376

0.492

0.583

0.369

0.223

0.413

0.185

ENP_4

0.401

0.776

-0.097

-0.068

0.222

0.557

0.565

0.513

0.256

0.522

0.329

GC_1

0.263

0.019

0.904

0.797

0.404

-0.154

0.046

-0.478

-0.058

-0.424

-0.613

GC_2

0.347

-0.053

0.880

0.704

0.187

-0.339

-0.135

-0.316

-0.143

-0.42

-0.498

GC_3

0.371

-0.069

0.935

0.840

0.38

-0.236

-0.027

-0.432

-0.19

-0.468

-0.686

GC_4

0.325

-0.062

0.903

0.841

0.275

-0.212

0.011

-0.434

-0.174

-0.42

-0.643

GC_5

0.407

-0.034

0.933

0.862

0.34

-0.225

-0.019

-0.406

-0.186

-0.394

-0.674

IA_1

0.506

0.029

0.798

0.914

0.433

-0.087

0.191

-0.413

-0.155

-0.39

-0.679

IA_2

0.488

0.042

0.733

0.894

0.39

-0.013

0.194

-0.356

-0.045

-0.298

-0.655

IA_3

0.411

-0.013

0.87

0.921

0.322

-0.169

0.056

-0.452

-0.048

-0.406

-0.701

IA_4

0.468

0.006

0.776

0.912

0.31

-0.122

0.116

-0.411

-0.047

-0.386

-0.658

IA_5

0.113

-0.128

0.393

0.528

-0.002

0.114

0.172

-0.196

-0.091

-0.123

-0.32

IA_6

0.474

0.028

0.801

0.915

0.39

-0.081

0.168

-0.429

-0.113

-0.388

-0.722

RA_1

0.364

0.328

0.262

0.363

0.791

0.098

0.295

-0.069

0.029

0.053

-0.269

RA_2

0.025

0.273

0.182

0.099

0.791

0.170

0.219

0.023

-0.162

0.156

-0.135

RA_3

0.112

0.334

0.396

0.324

0.870

0.068

0.202

-0.184

-0.135

0.058

-0.35

SA_1

0.321

0.568

-0.231

-0.108

0.172

0.874

0.744

0.540

0.182

0.574

0.356

SA_2

0.385

0.549

-0.221

-0.108

0.144

0.911

0.814

0.598

0.265

0.600

0.344

SA_3

0.333

0.388

-0.225

-0.186

0.046

0.888

0.728

0.477

0.142

0.540

0.411

SC_1

0.402

0.444

-0.149

-0.060

0.191

0.852

0.865

0.447

0.193

0.492

0.330

SC_2

0.325

0.649

0.077

0.112

0.300

0.533

0.675

0.244

0.172

0.233

0.000

SC_3

0.578

0.500

0.048

0.193

0.262

0.666

0.883

0.293

0.238

0.327

0.036

OSC_1

0.139

0.421

-0.263

-0.191

0.140

0.305

0.179

0.738

0.311

0.532

0.489

OSC_2

0.067

0.389

-0.429

-0.388

-0.006

0.304

0.139

0.782

0.329

0.593

0.567

OSC_3

0.152

0.309

-0.264

-0.295

-0.189

0.618

0.484

0.747

0.214

0.445

0.527

OSC_4

0.04

0.314

-0.396

-0.458

-0.236

0.594

0.447

0.733

0.279

0.446

0.607

ESC_1

0.117

0.234

0.085

0.096

0.123

0.052

0.175

0.212

0.730

0.073

0.117

ESC_2

0.016

0.218

-0.09

-0.093

-0.19

0.035

-0.003

0.317

0.813

0.176

0.33

ESC_3

0.058

0.376

-0.355

-0.321

-0.221

0.177

0.199

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SOP_1

0.051

0.535

-0.339

-0.323

0.245

0.572

0.410

0.573

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0.874

0.533

SOP_2

-0.006

0.469

-0.542

-0.563

-0.049

0.543

0.325

0.631

0.267

0.859

0.691

SOP_3

0.186

0.472

-0.311

-0.267

0.101

0.526

0.378

0.517

0.253

0.799

0.457

SOP_4

0.144

0.526

-0.349

-0.348

0.097

0.528

0.401

0.54

0.249

0.843

0.516

150


Table 5.8: Convergent validity and discriminant validity of first-order constructs

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<td>0.089</td>
<td>0.298</td>
<td>0.806</td>
<td>0.813</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSC</td>
<td>0.562</td>
<td>0.13</td>
<td>0.477</td>
<td>-0.455</td>
<td>-0.449</td>
<td>-0.099</td>
<td>0.605</td>
<td>0.414</td>
<td>0.750</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESC</td>
<td>0.656</td>
<td>0.123</td>
<td>0.397</td>
<td>-0.166</td>
<td>-0.098</td>
<td>-0.058</td>
<td>0.222</td>
<td>0.247</td>
<td>0.379</td>
<td>0.743</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOP</td>
<td>0.713</td>
<td>0.104</td>
<td>0.591</td>
<td>-0.466</td>
<td>-0.456</td>
<td>0.109</td>
<td>0.642</td>
<td>0.445</td>
<td>0.673</td>
<td>0.292</td>
<td>0.844</td>
<td></td>
</tr>
<tr>
<td>SSC</td>
<td>0.638</td>
<td>-0.151</td>
<td>0.34</td>
<td>-0.687</td>
<td>-0.751</td>
<td>-0.325</td>
<td>0.415</td>
<td>0.17</td>
<td>0.732</td>
<td>0.41</td>
<td>0.659</td>
<td>0.799</td>
</tr>
</tbody>
</table>

Notes: Values in diagonal are the square roots of AVE and the correlations are off-diagonal
AVE – Average Variance Extracted Values

5.5.5 Quality of the Measurement Model

The quality of the measurement model was measured by examining AVE values. From Table 5.6, it can be noted that the AVE values of all the first-order constructs vary between 0.562 and 0.794, greater than the cut-off value of 0.5 (Fornell & Larcker 1981), thus confirming the quality of the measurement model.

The various reliability and validity tests presented in Sections 5.5.1 to 5.5.5 demonstrate that the first-order constructs are reflective of their respective items. The next stage was to analyse the measurement model of second-order formative constructs. Unlike the reflective measurement model, the formative constructs are multidimensional and the indicators do not necessarily co-vary, so internal consistency is irrelevant to the formative constructs (Chin 2010; Hair et al. 2012; Hair et al. 2014). The criteria to assess the formatively measured constructs are detailed in the following section.
5.5.6 Assessment of the Formative Hierarchical Component Model

Conceptual properties of the higher-order constructs determine the method of analysis. Higher-order constructs specified in this study are formative, thus the evaluation of reliability (internal consistency) and construct validity (convergent and discriminant validity) was not required as the formative constructs are not strongly correlated (Henseler, Ringle & Sinkovics 2009). This study follows Becker, Klein and Wetzel’s (2012) assessment in regard to higher-order components, which is based on the significance of the path coefficients between higher-order and lower-order constructs. Internal validity and multicollinearity are the two important measures of a higher-order component model, and they are discussed in the following section.

5.5.6.1 Internal validity

Utilising a path-weighting scheme with a maximum number of 500 iterations, a PLS algorithm was conducted to determine the associations between the formative second-order constructs and the first-order constructs. Indicator validity was assessed based on the magnitude, sign, and significance of the path coefficients (Andreev et al. 2009; Gotz, Liehr-Gobbers & Krafft 2010; Hair et al. 2012). To be statistically significant, the path coefficients should be above 0.1, with a sign that is consistent with the underlying theory (Andreev et al. 2009; Helm, Eggert & Garnefeld 2010). A bootstrapping procedure was applied to estimate the critical t-value for a two-tailed test.

The indicator validity values for the higher-order constructs are presented in Table 5.8. The results from Figure 5.4 and Table 5.9 indicate that all the five path coefficients of independent variables are significant. The significant paths are for the relationships between operational criteria and supplier selection (β=0.354), socially sustainable criteria and supplier selection (β=0.614), environmentally sustainable criteria and supplier selection (β=0.175),
supplier assessment and supplier development ($\beta=0.556$), and supplier collaboration and supplier development ($\beta=0.482$). All the path coefficient values are above the threshold value of 0.1 and a critical $t$-value of 1.96, demonstrating that they are significant (Hair, Ringle & Sarstedt, 2011). Likewise, goal conflict, information asymmetry, and risk aversion have a significant relationship with the moderating variable agency theory. The results demonstrate that the first-order constructs (OSC, SSC, ESC, SA, SC, GC, IA, and RA) are forming second-order variables (SS, SD, and AT).

Table 5.9: Path coefficients of the first-order latent variables to the second-order construct

<table>
<thead>
<tr>
<th>Second-order construct</th>
<th>Path</th>
<th>Path Coefficient</th>
<th>$t$-stat</th>
<th>$p$-value</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier selection</td>
<td>OSC -&gt; SS</td>
<td>0.354</td>
<td>16.928</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>SSC -&gt; SS</td>
<td>0.614</td>
<td>18.581</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>ESC -&gt; SS</td>
<td>0.175</td>
<td>5.286</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td>Supplier development</td>
<td>SA -&gt; SD</td>
<td>0.556</td>
<td>21.486</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>SC -&gt; SD</td>
<td>0.482</td>
<td>26.231</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td>Agency Theory</td>
<td>GC -&gt; AT</td>
<td>0.390</td>
<td>33.73</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>IA -&gt; AT</td>
<td>0.598</td>
<td>37.442</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>RA -&gt; AT</td>
<td>0.093</td>
<td>4.094</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Significance level $p < 0.001$

5.5.6.2 Multicollinearity

Multicollinearity refers to the degree to which a variable can be predicted or accounted for by other variables in the conceptual model (Hair et al. 2012). In the context of formative indicators, multicollinearity is undesirable, as the two constructs may be measuring the same construct (Andreev et al. 2009; Bagozzi & Yi 2012). Multicollinearity occurs when the correlations among the constructs are high. Multicollinearity is undesirable for formative constructs, as it distorts indicator weights and can cause bootstrap standard errors that trigger type II errors (Hair et al. 2012).
Multicollinearity is evaluated by calculating the variance inflation factor (VIF), which indicates how much of an indicator's variance is explained by the other indicators of the same construct (Urbach & Ahlemann 2010). In this study, IBM SPSS Statistics 21 was used to assess multicollinearity. Latent variable scores for all the second-order constructs and first-order constructs obtained from PLS were saved as a SPSS file. In SPSS, a linear regression option was applied with the formative second-order constructs as the dependent variable and all first-order constructs as the independent variables to calculate the VIF (Andreev et al. 2009). A rule of thumb states that a VIF greater than ten denotes a harmful level of multicollinearity (Henseler, Ringle & Sinkovics 2009). To be precise, Hair (2014) suggests that a VIF above 5.00 and tolerance levels below 0.20 in the predictor constructs imply high collinearity.

The following sets of constructs were examined for multicollinearity using SPSS:

- Operational, environmentally sustainable, and socially sustainable criteria as the predictors of supplier selection
- Supplier assessment and supplier collaboration as the predictors of supplier development
- Goal conflict, information asymmetry, and risk aversion as the predictors of moderating variable agency theory.

From Table 5.10, it is evident that the VIF values for all the first-order constructs exhibit minimal collinearity, with values ranging from 1.301 to 4.870. These values are less than the recommended threshold value of 5.00. The tolerance levels range from 0.205 to 0.866, thus exceeding 0.20. In this sense, the results indicate an absence of multicollinearity among the first-order constructs that form the second-order constructs in the measurement model.
Table 5.10: Multicollinearity for the first-order constructs

<table>
<thead>
<tr>
<th>Second-order construct</th>
<th>First-order construct</th>
<th>Tolerance values</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>OSC</td>
<td>0.479</td>
<td>2.087</td>
</tr>
<tr>
<td></td>
<td>SSC</td>
<td>0.511</td>
<td>1.958</td>
</tr>
<tr>
<td></td>
<td>ESC</td>
<td>0.768</td>
<td>1.301</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>0.509</td>
<td>1.963</td>
</tr>
<tr>
<td>SD</td>
<td>SC</td>
<td>0.509</td>
<td>1.963</td>
</tr>
<tr>
<td></td>
<td>GC</td>
<td>0.208</td>
<td>4.836</td>
</tr>
<tr>
<td>AT</td>
<td>IA</td>
<td>0.205</td>
<td>4.870</td>
</tr>
<tr>
<td></td>
<td>RA</td>
<td>0.866</td>
<td>1.155</td>
</tr>
</tbody>
</table>

Through the evaluation of the measurement model, it is evident that it has demonstrated satisfactory reliability and validity. Results of the measurement model illustrated in Tables 5.6 to 5.10 establish the reliability and validity of the measurement model estimations. After ascertaining the successful evaluation of the measurement model, structural model evaluation is outlined in the following section.

**5.6 Assessment of the Structural Model**

This section will outline the analysis of the underlining structural model. In the structural model, the terms exogenous and endogenous are used to refer to different constructs. Exogenous variables indicate latent constructs that have no arrows representing the structural path relationships pointing towards them, whereas the term endogenous refers to latent constructs that are explained by other constructs through structural path relationships or have arrows pointing at them (Hair, Ringle & Sarstedt 2011).

Supplier selection and supplier development are the formative second-order exogenous constructs. A two-stage approach with a repeated-indicator model was used to estimate the construct scores for supplier selection and supplier development (Ringle, Sarstedt & Straub 2012). In the repeated-indicator approach, scores were estimated using the path weighting
scheme, as suggested by Hair, Ringle and Sarstedt (2011) and Becker, Klein and Wetzels (2012). The latent variable scores for each first-order construct (five first-order constructs), computed by means of a PLS algorithm, were copied and saved in a data file. The latent scores in the new data file became indicators in the second stage of the analysis, where second-order construct scores were estimated (Becker, Klein & Wetzels 2012). Likewise, second-order moderating variable scores were calculated based on the repeated-indicator two stage approach. The two-stage approach with the hypothesised relationships (excluding the moderator) of the structural model is presented in Figure 5.5. According to Hair et al. (2014), the assessment of a structural model is performed in five steps:

- **Step 1**: Assess the structural model for collinearity issues
- **Step 2**: Assess the significance and relevance of the structural model relationships
- **Step 3**: Assess the level of $R^2$
- **Step 4**: Assess the effect sizes $f^2$
- **Step 5**: Assess the predictive relevance $Q^2$

![Figure 5.5: Two-stage approach](image-url)
5.6.1 Collinearity of Dependent Variables

In the structural model, collinearity of the endogenous constructs ECP, ENP, and SOP with SS and SD as the predictors were assessed based on the criteria explained in Section 5.5.6.2. The results indicate that all the VIF values range between 2.332 and 1.438, which are less than 5, and the tolerance levels are greater than 0.429, well above the critical value 0.2, thus exhibiting no collinearity issues (Hair et al. 2014) (See Table 5.11).

Table 5.11: Collinearity values among the dependent variables

<table>
<thead>
<tr>
<th></th>
<th>Tolerance Value</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECP</td>
<td>0.695</td>
<td>1.438</td>
</tr>
<tr>
<td>ENP</td>
<td>0.549</td>
<td>1.820</td>
</tr>
<tr>
<td>SOP</td>
<td>0.429</td>
<td>2.332</td>
</tr>
</tbody>
</table>

5.6.2 Significance of the Path Coefficients

The second step in the structural model evaluation is to examine the significance of the hypothesised relationships. A path weighting scheme is used to set the inner weight option to conduct a PLS algorithm with a maximum number of 500 iterations. In comparison to the factorial and centroid weighting scheme, the path weighting scheme is recommended for use because it takes into account the direction of relationships specified in the model (Vinzi, Trinchera & Amato 2010). From the path weighting scheme, factor loadings of the measurement items can be determined.

As explained earlier, this study used the repeated-indicator approach to estimate the construct scores of the second-order variables. Computed second-order variable scores were used to estimate the path coefficients of endogenous constructs. The size of the path coefficients and coefficients of determination ($R^2$) are shown in Figure 5.6. Before evaluating the $R^2$, it was important to identify the significance as well as the sign and magnitude of the path coefficients by analysing the t-values, p-values, and the path coefficients obtained by
performing the non-parametric bootstrapping procedure (Henseler, Ringle & Sinkovics 2009; Peng & Lai 2012) explained in section 5.5.6.1. The p-values and t-values were used to evaluate the statistical significance of each path coefficient for a two-tailed test (Hair, Ringle & Sarstedt 2011). The results from the bootstrapping procedure are shown in Figure 5.6 and are further detailed in Table 5.12.

Table 5.12 presents a summary of the bootstrapping results for evaluating the relationship between the exogenous and endogenous constructs. With regard to the proposed relationships, the results provide support for significant positive relationships for five hypotheses: H1, H2a, H2c, H3b, and H3c ($\beta=0.403, 0.540, 0.226, 0.456, \text{ and } 0.547$ respectively). These coefficients exceed 0.1 and are significant at a level of $p<0.01$. Proposed hypotheses H3a and H6b ($\beta=0.355$ and 0.375 respectively) are supported at a significance level of $p<0.05$. However, H2b and H6a, with path coefficient ($\beta=-0.347$ and -0.231), are not significant and do not provide evidence to support the hypotheses.

These results demonstrate that there is a significant relationship between supplier selection and supplier development. It is also clear that supplier selection and supplier development have a positive influence on social and environmental performance. However, the impact of supplier selection on economic performance is not clear. The results emphasise that the social and environmental performance can be improved through the implementation of socially responsible governance mechanisms relating to supplier selection and supplier development. Regarding the relationship among the dependent variables of firm performance, it is clear that environmental performance will result in improved economic performance, whereas the social performance may incur costs, thus affecting the improvement of economic performance. A discussion of these results is presented in Chapter 6.
Figure 5.6: Structural model – impact of governance mechanisms on firm performance

![Structural Model Diagram]

Table 5.12: Bootstrapping results for structural model evaluation

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>Coefficient</th>
<th>t- stat</th>
<th>p-value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₁</td>
<td>Relationship between supplier selection and supplier development</td>
<td>0.403</td>
<td>3.452</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td>H₂a</td>
<td>Relationship between supplier selection and social performance</td>
<td>0.540</td>
<td>9.794</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td>H₂b</td>
<td>Relationship between supplier selection and economic performance</td>
<td>-0.347</td>
<td>1.719</td>
<td>0.086</td>
<td>No</td>
</tr>
<tr>
<td>H₂c</td>
<td>Relationship between supplier selection and environmental performance</td>
<td>0.226</td>
<td>4.626</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td>H₃a</td>
<td>Relationship between supplier development and social performance</td>
<td>0.355</td>
<td>2.438</td>
<td>0.015**</td>
<td>Yes</td>
</tr>
<tr>
<td>H₃b</td>
<td>Relationship between supplier development and economic performance</td>
<td>0.456</td>
<td>5.643</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td>H₃c</td>
<td>Relationship between supplier development and environmental performance</td>
<td>0.547</td>
<td>8.241</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td>H₆a</td>
<td>Relationship between social performance and economic performance</td>
<td>-0.231</td>
<td>1.653</td>
<td>0.100</td>
<td>No</td>
</tr>
<tr>
<td>H₆b</td>
<td>Relationship between environmental performance and economic performance</td>
<td>0.375</td>
<td>3.410</td>
<td>0.001**</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Significance level $p < 0.001$; ** Significance level $p < 0.05$
5.6.3 Coefficient of Determination ($R^2$)

Once the significance and relevance of the path coefficients had been examined, it was crucial to assess the explanatory power of the structural model. The coefficient of determination ($R^2$) is used to examine explanatory power (Hair et al. 2012). In this sense, $R^2$ measures the model’s predictive accuracy (Cohen 1992; Henseler, Ringle & Sinkovics 2009). The amount of variance in the endogenous constructs social performance, environmental performance, and economic performance is explained by $R^2$. The coefficient of determination normally ranges from 0 to 1, with a value closest to 1 indicating a higher level of predictive accuracy and vice versa (Hair, Ringle & Sarstedt 2011; Hair et al. 2014). According to Chin (1998), $R^2$ values of 0.67, 0.33, or 0.19 for endogenous latent constructs in the model can be described as substantial, moderate, and weak respectively. As shown in Figure 5.6, the coefficient determination ($R^2$) values are 0.385, 0.451, and 0.571 for ECP, ENP, and SOP, indicating a moderate predictive accuracy.

5.6.4 Effect Size ($f^2$)

Effect size ($f^2$) is one of two measures for assessing the quality of the structural model (Cohen 1992), which is calculated as the increase in $R^2$ value relative to the proportion of variance that remains unexplained in the endogenous construct (Peng & Lai 2012). Equation 4.1 was used to calculate the $f^2$ value.

\[
f^2 = \frac{R^2_{\text{included}} - R^2_{\text{excluded}}}{1 - R^2_{\text{included}}}
\]

Equation 4.1
R² included and R² excluded represent the R² value of the dependent variable when a selected independent variable is included or excluded from the model (Hair et al. 2014). Table 5.12 shows the R² values of the dependent variables when each independent variable is removed.

<table>
<thead>
<tr>
<th></th>
<th>ECP</th>
<th>ENP</th>
<th>SOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>R² Excluding SS</td>
<td>0.321</td>
<td>0.408</td>
<td>0.327</td>
</tr>
<tr>
<td>R² Excluding SD</td>
<td>0.275</td>
<td>0.200</td>
<td>0.466</td>
</tr>
</tbody>
</table>

Based on the R² values in Table 5.13, effect size (f²) values were calculated, which are shown in the Table 5.14. Following Cohen’s (1992) guidelines, an f² value of 0.02 indicates a small effect size, 0.15 indicates a medium effect size, and 0.35 or more indicates a large effect size.

<table>
<thead>
<tr>
<th></th>
<th>SS</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>R² Excluded</td>
<td>f²</td>
</tr>
<tr>
<td>ENP</td>
<td>0.639</td>
<td>0.408</td>
</tr>
<tr>
<td>SOP</td>
<td>0.572</td>
<td>0.327</td>
</tr>
<tr>
<td>ECP</td>
<td>0.463</td>
<td>0.321</td>
</tr>
</tbody>
</table>

The predictive impact of supplier selection on environmental and economic performance is low (f² < 0.15), with no implication on R², while the predictive impact of supplier development on social and economic performance is deemed to be moderate (0.15 > f² < 0.35), which does have some implications on total R². However, the impact of supplier selection on social performance and supplier development on environmental performance have a large implication for total R² value, with a 57.0% and 45.7% effect size respectively.

5.6.5 Predictive Relevance (Q²)

The second quality criteria used to assess the structural model was Stone–Geisser’s Q², which determines predictive relevance by using the blindfolding procedure in SmartPLS (Hair,
A value of $Q^2 > 0$ confirms the presence of predictive relevance (Henseler, Ringle & Sinkovics 2009). Computation of $Q^2$ is applicable only for reflectively measured dependent variables (Hair et al. 2014). Therefore, in this study, the $Q^2$ value was calculated for all three dependent variables. The $Q^2$ values of ECP, ENP, and SOP are 0.451, 0.448, and 0.572 respectively, confirming that the structural model exhibits predictive relevance for economic, environmental, and social performance.

Further, $Q^2$ effect size was calculated based on the formula in Equation 4.2. The values of effect size $Q^2$ are shown in Table 5.15. The same criteria of $f^2$ values discussed in Section 5.6.4 were used for the assessment of $q^2$, and the values of the effect size $q^2$ are listed in the Table 5.15. The results indicate that the predictive impacts of supplier selection on environmental and economic performance and supplier development on social and economic performance are deemed to be moderate ($0.15 > q^2 < 0.35$) and do have some implications on total $R^2$. However, the impacts of supplier selection on social performance and supplier development on environmental performance have a very significant implication for the total $R^2$ value, with a 57.7% and 45.3% effect size respectively. Thus, the effect size $Q^2$ is slightly different from the earlier results regarding effect size $f^2$, with respect to the impact of supplier selection on environmental and economic performance.

$$q^2 = \frac{Q^2_{\text{included}} - Q^2_{\text{excluded}}}{1-Q^2_{\text{included}}}$$

Equation 4.2
Table 5.15: Predictive impact of the dependent variables (Q² effect size)

<table>
<thead>
<tr>
<th></th>
<th>SS Coefficient</th>
<th>Excluded</th>
<th>Effect size</th>
<th>SD Coefficient</th>
<th>Excluded</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENP</td>
<td>0.639</td>
<td>0.319</td>
<td>0.233</td>
<td>0.447</td>
<td>0.198</td>
<td>0.453</td>
</tr>
<tr>
<td>SOP</td>
<td>0.572</td>
<td>0.326</td>
<td>0.577</td>
<td>0.683</td>
<td>0.467</td>
<td>0.248</td>
</tr>
<tr>
<td>ECP</td>
<td>0.463</td>
<td>0.323</td>
<td>0.233</td>
<td>-0.357</td>
<td>0.272</td>
<td>0.325</td>
</tr>
</tbody>
</table>

5.7 Evaluation of Mediating Effects

Mediation analysis was performed to test the mediating effect of supplier development on the relationship between supplier selection and firm performance. In this study, three hypotheses are examined for mediating effects:

- **H₄ᵃ**: Supplier development mediates the relationship between supplier selection and social performance
- **H₄ᵇ**: Supplier development mediates the relationship between supplier selection and environmental performance
- **H₄ᶜ**: Supplier development mediates relationship between supplier selection and economic performance

This study employed Zhao, Lynch and Chen’s (2010) guidelines to study the mediating effects. Figure 5.7 illustrates the mediation model, with the effect of the independent variable X (or the exogenous construct) on the mediator M represented by \( a \), whereas the effect of the mediator on dependent variable Y (or the endogenous construct) is represented by \( b \). M is regarded as a third variable or an intermediary variable in the link between X and Y (Fairchild & McQuillin 2010). Therefore, the indirect effect is a product of \( a \times b \), while the total effect of the X and Y relationship includes two parts, which are the direct effect of X on Y, represented by \( c \), and the indirect effect of X on Y through M, indicated by \( a \times b \). The total effect of X on Y is \( c' = (a \times b) + c \).
5.7.1 Criteria for Evaluating Mediating Effects

In examining the mediating effects of the supplier development construct, Zhao, Lynch and Chen’s (2010) decision tree diagram guidelines were followed. Zhao, Lynch and Chen’s (2010) approach acknowledges the weakness of Baron and Kenny’s (1986) ‘X-Y test’ criteria for establishing mediation. In the ‘X-Y test’, the effect of an independent variable (X) on a dependent variable (Y), before a mediator is included in the model, must be significant in order to establish mediation, and if this criterion is not met, then no further investigation for the mediating effect of M is needed. However, Zhao, Lynch and Chen (2010) claim that the only requirement needed to establish mediation is that the indirect effect of \( axb \) is significant in a non-recursive three-variable causal model.

In Zhao, Lynch and Chen’s (2010) approach to examining mediation, the three factors that need to be taken into consideration are as follows: first, researchers should use the size of an indirect effect to measure the strength of the mediation effect; second, the only requirement for determining a mediation effect is to examine the significance of the indirect effect \( axb \); and third, a bootstrap test is used to test the significance of the indirect path \( axb \) (Preacher & Hayes 2004). Zhao, Lynch and Chen’s (2010) decision tree for determining, classifying, and interpreting mediation is illustrated in Figure 5.8.
Based on Figure 5.8, the procedures taken to analyse mediation effect in this thesis are explained as follows. First, it was crucial to identify the significance of the indirect effect $a \times b$ in order to establish mediation. Prior to identifying the type of indirect effect, the path coefficients $a$, $b$, and $c$, and their significance, were estimated by using a path weighting scheme and the bootstrapping procedure of PLS, as per Section 5.5.6.1. However, PLS does not provide bootstrapping results for the indirect effects $a \times b$. The significance of the indirect effect $a \times b$ was computed separately in Microsoft Excel, following suggestions made by Hair et al. (2014). Second, the classification of mediation was identified based on whether direct effect $c$ was significant or not. The t-values for direct effect $c$ were obtained from the bootstrap results in PLS. The criteria used to determine mediation or non-mediation, adopted from Zhao, Lynch and Chen (2010), are listed below.

(Source: Zhao, Lynch & Chen 2010)
1. Complementary mediation occurs if indirect effect $a \times b$ and direct effect $c$ are significant and have the same directions.

2. Competitive mediation occurs if indirect effect $a \times b$ and direct effect $c$ are both significant and have opposite directions.

3. Indirect-only mediation occurs if indirect effect $a \times b$ is significant, but not $c$.

4. Direct-only non-mediation occurs if direct effect $c$ is significant, but not indirect effect $a \times b$.

5. No-effect non-mediation occurs if both direct $c$ and indirect effect $a \times b$ are insignificant.

Zhao, Lynch and Chen’s (2010) complementary mediation is known as partial mediation in Baron and Kenny’s (1986) approach, and indirect-only mediation is the same as full mediation. However, competitive mediation, direct-only non-mediation, and no-effect non-mediation fall under the no mediation category in Baron and Kenny’s (1986) approach. There are several implications for the type of mediation or non-mediation established. First, when the first three cases (complementary, competitive, and indirect-only) of mediation occur, the data supports the hypotheses for mediation. Second, in both complementary and competitive mediation, the mediator identified is consistent with the hypothesised theoretical framework, and the significant direct effect $c$ signals that there is a second possibly omitted mediator, which can be examined in any future study. The sign of the direct effect signals the sign of an omitted indirect path. Third, indirect-only mediation implies that the mediator identified is consistent with the hypothesised theoretical framework, and there is no need to test for further indirect effects. The sign of the direct effect in direct only non-mediation implies that there are yet undiscovered mediators. Finally, no-effect non-mediation is a failure for testing mediation (Zhao, Lynch & Chen 2010).
5.7.2 Size of Mediating Effects

As the bootstrapping procedure determines the significance of the mediating effect, it was important to evaluate the size of the indirect effect by computing the value of the variance accounted for (VAF), which represents the ratio of the indirect effect to the total effect (Hair et al. 2014). Equation 5.3 presents the formula for calculating VAF, based on Helm, Eggert and Garnefeld (2010).

\[
VAF = \frac{a \times b}{(a \times b) + c}
\]

Equation 5.3

Note: \(a \times b\) = indirect effect; \((a \times b) + c\) = total effect

5.7.3 Total Effects of Exogenous Constructs on Firm Performance

The total effect \(c'\) value determines the differences in the impact of the independent variables on the dependent variables through one or more mediators (Hair et al. 2014). The total effect was calculated by summing the direct effect and indirect effect \(c' = (a \times b) + c\), as explained in Section 5.7. A significant total effect does not necessarily mean that mediation is established, while an insignificant total effect does not necessarily indicate non-mediation (Zhao, Lynch & Chen 2010). Only the significant indirect effect \(a \times b\) is used to establish mediation. Results from all the above-explained procedures for establishing mediating effects are presented in Table 5.16 below.

5.7.4 Results of Mediating Effects

Results in Table 5.16 present the indirect effect \((a \times b)\) of the three paths of supplier selection on social, economic, and environmental performance, which are all significant (\(\beta = 0.143, 0.233, 0.220\)) at \((t=2.278, 2.745, 2.910)\). This establishes that there is some mediation effect
of supplier development on the relationship between supplier selection and social, economic, and environmental performance. Further, to understand the type of mediation, the significance of direct effect $c$ was examined. It can be noted that the direct relationship between supplier selection and economic performance is not significant, resulting in indirect-only mediation ($\beta=-0.154$, $t=1.730$). On the other hand, a significant direct relationship between supplier selection and social and environmental performance is partially mediated by supplier development (with path coefficients $\beta=0.683$, 0.447 and $t=9.772$, 4.509 respectively). The significance of $a \times b \times c$ of the supplier development mediator on the relationship between supplier selection and social and environmental performance ($t=3.193$, 4.088) demonstrates a complementary mediation effect with another potential mediator affecting the relationship.

In addition, Alwin and Hauser (1975) suggest that the absolute value of the path coefficient provides a more meaningful interpretation in calculating the size of the mediation. VAF value shows the total effect of independent variables on dependent variables, including the indirect effect of the mediator. In this study, the VAF value shows that 33 per cent of the total effect of supplier selection on environmental performance is explained by the indirect effect of supplier development. Supplier selection impacts on environmental performance directly and indirectly via supplier development, thus supporting complementary mediation, whereby a large combined effect is yielded ($\beta=0.667$). However, supplier selection has a stronger direct effect ($\beta=0.548$) on environmental performance, compared to the indirect effect ($\beta=0.220$). Similarly, 17 per cent of the total effect of supplier selection on social performance is explained by the indirect effect of supplier development. The combined direct and indirect effect ($\beta=0.826$), with the direct effect of supplier selection on social performance ($\beta=0.355$) and the indirect effect ($\beta=0.143$), explains the significance of the direct effect. Further discussion on the mediation effects of supplier development is provided in Chapter 6.
Table 5.16: Direct and indirect effects of supplier development on firm performance

<table>
<thead>
<tr>
<th>Path</th>
<th>Direct path coefficients (β)</th>
<th>Indirect effect</th>
<th>Total effect</th>
<th>VAF</th>
<th>a<em>b</em>c effect</th>
<th>Mediation type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>b</td>
<td>C</td>
<td>t-stat</td>
<td>a*b</td>
<td>se</td>
</tr>
<tr>
<td>H4a  SS-&gt;SD-&gt;SOP</td>
<td>0.403</td>
<td>0.355</td>
<td>0.683</td>
<td>9.722</td>
<td>0.143</td>
<td>0.063</td>
</tr>
<tr>
<td>H4b  SS-&gt;SD-&gt;ECP</td>
<td>0.403</td>
<td>0.579</td>
<td>-0.154</td>
<td>1.730</td>
<td>0.233</td>
<td>0.085</td>
</tr>
<tr>
<td>H4c  SS-&gt;SD-&gt;ENP</td>
<td>0.403</td>
<td>0.548</td>
<td>0.447</td>
<td>4.509</td>
<td>0.220</td>
<td>0.076</td>
</tr>
</tbody>
</table>

Notes: se = standard error, β = path coefficient
5.8 Evaluation of Moderation Effect

The objective of the research is to examine the moderating role of agency problems on the relationship between socially responsible governance mechanisms and firm performance. The six hypotheses that examine the moderating role of agency problems are:

- $H_{5a}$: The relationship between supplier selection and social performance is negatively affected by agency problems.
- $H_{5b}$: The relationship between supplier selection and economic performance is negatively affected by agency problems
- $H_{5c}$: The relationship between supplier selection and environmental performance is negatively affected by agency problems
- $H_{5d}$: The relationship between supplier development and social performance is negatively affected by agency problems
- $H_{5e}$: The relationship between supplier development and economic performance is negatively affected by agency problems
- $H_{5f}$: The relationship between supplier development and environmental performance is negatively affected by agency problems.

Moderation analysis was performed to examine the role of agency problems on the relationship between socially responsible governance mechanisms and firm performance. Initially, the measurement properties of the moderator variables were examined. Results in Section 5.5 demonstrate that the indicator loadings, Cronbach’s alpha, composite reliability, and AVE of the moderator variables are above the threshold values, indicating that the items measuring the latent constructs of agency problems are reliable and valid (see Table 5.6). The agency problems construct investigated in this study is a second-order formative construct.
formed by first-order latent variables. As suggested by Henseler and Fassott (2010), this study followed a two-stage approach to examine the moderating effects of formative indicators. The criteria required to evaluate formative second-order moderating variables is explained in Section 5.5. The following section outlines the moderating effects of agency problems on the relationship between governance mechanisms and firm performance.

5.8.1 Criteria for Evaluating Moderating Effects

In examining the moderating effect of agency problems, the guidelines suggested by Henseler and Fassott (2010) were followed. In conducting a two-stage approach, calculating the repeated-indicator model was regarded as the first stage. As discussed in Section 5.5.6, the repeated-indicator models were estimated using the path weighting scheme suggested by Hair, Ringle and Sarstedt (2011) and Becker, Klein and Wetzels (2012). Latent variable scores were obtained and used as indicators of the second-order constructs in a sequential second stage (Henseler & Fassott 2010; Wilson 2010; Ringle, Sarstedt & Straub 2012). The latent variable scores were automatically computed by a PLS algorithm in the first stage. Then, the latent variable scores for each first-order construct (there are three first-order constructs in this study) were copied and saved in a new data file, which was utilised in the second stage of the analysis, where the latent variable scores became indicators measuring the second-order constructs in estimating the coefficients (Becker, Klein & Wetzels 2012). The second stage examined the moderation effect through multiple linear regression analysis. In this sense, multiple linear regressions were performed using the saved latent variable scores and the calculated interaction term of independent latent score and moderator variable.

5.8.2 Results of Moderating Effects

The moderating effect of agency problems on the relationship between socially responsible governance mechanisms and firm performance was assessed. The moderating effect was
calculated by analysing the interaction term of moderation through multiple regression analysis, as discussed in Section 5.8.1. The regression results for the moderating effect are shown in Table 5.17.

The results indicate that agency problems, in most instances, moderate the relationship between socially responsible governance mechanisms and firm performance. In this regard, the results support proposed hypotheses H5b (β=-0.353, p<0.001), H5c (β=-0.203, p<0.05), H5d (β= 0.253, p<0.001), H5e (β=-0.293, p<0.001), and H5f (β=0.144, p<0.05). However, hypothesis H5a is not supported.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>Coefficient</th>
<th>t- stat</th>
<th>p- value</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>H5a</td>
<td>SS * AP -&gt; SOP</td>
<td>-0.046</td>
<td>-0.743</td>
<td>0.458</td>
<td>No</td>
</tr>
<tr>
<td>H5b</td>
<td>SS * AP -&gt; ECP</td>
<td>-0.353</td>
<td>-5.512</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td>H5c</td>
<td>SS * AP -&gt; ENP</td>
<td>-0.203</td>
<td>-2.979</td>
<td>0.003**</td>
<td>Yes</td>
</tr>
<tr>
<td>H5d</td>
<td>SD * AP -&gt; SOP</td>
<td>0.253</td>
<td>4.650</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td>H5e</td>
<td>SD * AP -&gt; ECP</td>
<td>-0.293</td>
<td>-5.484</td>
<td>0.000*</td>
<td>Yes</td>
</tr>
<tr>
<td>H5f</td>
<td>SD * AP -&gt; ENP</td>
<td>0.144</td>
<td>2.367</td>
<td>0.019**</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Significance level p < 0.001  ** Significance level p < 0.05

5.9 Results of All Hypothesised Relationships

Based on the structural model assessment, Figure 5.9 shows that most of the proposed hypotheses are supported at either 0.001 or 0.05 significance levels, except for three hypotheses. The evaluated path coefficients of the entire model are summarised in Figure 5.9. Further, the mediation analysis also demonstrates that there are two instances in which complementary mediation can be observed.
This chapter has presented the data analysis, using PLS path modelling, to evaluate the conceptualised model and hypotheses proposed in Chapter 3. Descriptive analysis of the demographic profile of individual participants and their respective organisations presented in this chapter demonstrated that the respondents had the experience and expertise to answer the survey questions. Following this, data screening relating to missing data, outliers, normality, common method variance and social desirability bias analysis were presented in this chapter. Largely, this chapter focused on the analysis of the measurement and structural model. This included confirmation of the items relating to the first-order variables, the first-order variables forming the second-order variables, and the hypotheses investigation. Investigation of the hypotheses in this chapter included analysis of the relationship between socially
responsible governance mechanisms and firm performance, the mediating role of supplier development on the relationship between supplier selection and firm performance, and the moderating role of agency problems on the relationship between governance mechanisms and firm performance. The following chapter provides discussion of the results.
CHAPTER SIX
DISCUSSION

6.1 Introduction

This chapter discusses the results presented in Chapter 5, which provides an overview of how social responsibility can be implemented in supply chains and its impact on firm performance. In addition, the chapter analyses the findings of this study in light of the existing literature in order to address the research hypotheses proposed in Chapter 3. The discussion in this chapter is organised in six sections, with the introduction in Section 6.1 and Section 6.2 discussing the measurement of the governance mechanisms and agency problem constructs. After this, Section 6.3 examines the relationship between socially responsible governance mechanisms, while Section 6.4 discusses the results of the relationship between socially responsible governance mechanisms and firm performance. Examination of the mediating role of supplier development and the moderating effects of agency problems is presented in Section 6.5 and 6.6 respectively, while Section 6.7 provides a summary of the chapter.

6.2 Discussion of the Governance Mechanisms and Agency Problem Constructs

The use of governance mechanisms for the implementation of social responsibility is relatively new to the field of supply chain management. The main objective of this study is to investigate the socially responsible governance mechanisms and their impact on firm performance. From the extensive literature review presented in Chapter 3, supplier selection and supplier development, underpinned by transaction cost economies (TCE) and resource
based view (RBV) theories, have been identified as the two governance mechanisms for the implementation of social responsibility in supply chains.

In this study, the supplier selection and supplier development constructs do not have any items measuring them directly, since they are second-order constructs formed by first-order reflective constructs. The social responsible governance model proposed in Chapter 3 is a hierarchical component model, with latent variables measuring the second-order variables. PLS-SEM with a SmartPLS algorithm was used to confirm the measurement of the second-order variables and their corresponding first-order variables. Based on the measurement results provided in Chapter 5, this section provides discussion of each of the first-order variables and their corresponding second-order variables.

### 6.2.1 Supplier Selection

Supplier selection is the first stage in establishing a relationship between buyer and supplier (Koufteros, Vickery & Dröge 2012). The supplier selection stage aims to reduce the risks in potential relationship and aids in choosing suppliers who can fulfil the buyers’ requirements and improve the firm performance (Ittner et al. 1999; Krause, Scannell & Calantone 2000). Apparel supply chains are characterised by uncertainty in production volumes and less buyer asset specificity, which provides buyers with the capability of selecting suppliers when needed (Perry & Towers 2013). Uncertainty and asset specificity underlined by TCE elevate the importance of the supplier selection mechanism in implementing social responsibility and its effect on a firm’s performance. The function of supplier selection in this study is to improve the firm’s sustainable performance.

To improve sustainable performance, in addition to traditional operational criteria, socially sustainable and environmentally sustainable criteria should be used to select suppliers. To fit with the context of social responsibility, operational criteria, environmentally sustainable
criteria, and socially sustainable criteria form the supplier selection construct (Goebel et al. 2012; Nair, Jayaram & Das 2015). The results obtained through the path loadings in Chapter 5 illustrate the significance of the operational criteria, environmentally sustainable criteria, and socially sustainable criteria in forming the supplier selection construct. It was identified that, amongst all the criteria, socially sustainable criteria ($\beta = 0.614$, t-stat = 18.581) play an important role in supplier selection, while environmentally sustainable criteria are less critical ($\beta = 0.175$, t-stat = 5.286).

Previous literature has emphasised environmental criteria as key selection criteria for selecting suppliers in a socially responsible supply chain (e.g. Andersen & Skjoett-Larsen 2009; Ehrgott et al. 2011; Goebel et al. 2012). Most of these studies relate to capital-intensive industries, such as automotive, mining, and transportation industries. It is known that capital-intensive industries are major environmental polluters, and thus environmental criteria play an important role in selecting supplier companies. On the other hand, the apparel industry is labour intensive, with emphasis given to human aspects when selecting suppliers. The results of this study are consistent with the findings of Baskaran, Nachiappan and Rahman (2012), in that social factors are more important than environmental factors when selecting apparel manufacturers. The following section provides a discussion of each of the first-order variables.

6.2.1.1 Operational selection criteria

Operational criteria are the most commonly used criteria for supplier selection. Results of the measurement model evaluation demonstrate that the operational criteria variable ($\beta = 0.354$, t-stat = 16.928) is an important factor in forming the second-order supplier selection construct (see Table 5.9). As previously mentioned in Chapter 3, product cost, ordering cost, quality, and delivery performance are considered as the most relevant criteria for selecting the
supplier. Table 5.6 shows that the factor loadings of the operational selection criteria variable range between 0.733 and 0.783, demonstrating that most of the indicators are of similar importance to operational selection criteria.

Among the factors, ordering costs, with a 0.783 loading, is strongly related to the operational selection criteria construct. Ordering costs relate to the expenses incurred while processing an order, and determining the economic order quantity is a major aspect of ordering costs. In the context of the apparel industry, most manufacturers offer the lowest product price, so retailers select manufacturers based on their ability to process orders easily and the associated costs. In addition, product quality is another factor with significant loading on the operational criteria construct. In the context of the Bangladeshi apparel industry, price was the initial factor that attracted retailers to outsource the manufacturing function to Bangladesh (Kamal & Deegan 2013). However, Bangladeshi apparel manufacturers have shifted their focus from cheap manufacturing to high-end quality products (BGMEA 2015). In this sense, the importance of quality in the apparel industry is highlighted in the literature on the apparel industry (Jakhar 2015).

6.2.1.2 Socially sustainable criteria

Social responsibility has recently gained a great deal of attention in the supply chain literature, with the integration of social responsibility aspects into supplier selection criteria. As previously mentioned in Chapter 3, human rights issues, such as discrimination, fair work practices, child labour, compulsory labour, and safety issues, e.g. safety training and building safety, have been identified as the socially sustainable criteria for selecting socially responsible suppliers. The findings of the measurement model evaluated in Chapter 5 illustrate that socially sustainable criteria ($\beta= 0.614$, t-stat= 18.581) holds significant importance in relation to selecting suppliers to promote socially responsible supply chains.
The results from Table 5.6 indicate that the factor loadings of the socially sustainable indicators are relatively high, ranging between 0.872 and 0.759, demonstrating that the factors strongly explain the theoretically intended construct.

Among the factors, safety training has the higher loadings on socially sustainable criteria (0.872), followed by compulsory labour (0.823) and building safety (0.798). The Rana Plaza incident in Bangladesh has highlighted the issues of compulsory labour and building safety in the apparel industry. On the day of the Rana Plaza incident, manufacturers operating in Rana Plaza forced their employees to work in the facilities despite employees’ concerns about the building’s safety (HRW 2015). Since the introduction of ACCORD and ALLIANCE, most manufacturing facilities are inspected to ensure safe working conditions for workers. On the other hand, discrimination and child labour, with factor loadings of 0.759 and 0.757, hold less importance. More than 85 per cent of the workforce employed in the Bangladeshi Apparel industry are women, with the management responsibility held by men. Though retailers from developed nations encourage gender balance in managerial roles, women still prefer to work under male managers due to issues of social stigma. Therefore, discrimination is not a major concern for selecting an apparel supplier from Bangladesh. In addition, the enforcement of child labour laws by the Bangladeshi government in 2006 has minimised the employment of child labour in organised sectors like the apparel industry (Burke 2014). In comparison to pressures from government organisations, retailers exert less pressure on eliminating child labour in the Bangladeshi apparel industry. Therefore, in the context of supplier selection, the child labour criterion is weighed as being less important. Overall, in the Bangladeshi apparel industry, safety issues outweigh all the other factors, such as discrimination and fair working rights. In this regard, the findings of the present research are in line with earlier research on the Bangladeshi apparel industry (see Huq, Chowdhury and Klassen 2016; Jacobs & Singhal 2017).
On the other hand, Baskaran, Nachiappan and Rahman (2012) maintain that long working hours are a critical factor for the selection of apparel manufacturers. Differences in the findings are due to the nature of the apparel industry in India, which is a predominantly unorganised and home-based, with employee working for long hours. Likewise, other apparel exporting nations, such as Vietnam and Cambodia, emphasise fair working practices, such as living wages and working hours, at apparel manufacturing facilities (Yadlapalli, Rahman & Gunasekeran 2018).

6.2.1.3 Environmentally sustainable criteria

Since the introduction of the sustainable development concept by the Brundtland Commission in 1987, environmental criteria have been extensively used for selecting suppliers. Results from the evaluation of the measurement model in Chapter 5 demonstrate that environmental criteria are less preferred selection criteria ($\beta=0.175$, $t$-stat= 5.286) for the implementation of social responsibility.

As previously mentioned in Chapter 3, aspects regarding pollution emissions and their treatment, the consumption of raw materials, and policies or plans, such as the implementation of environmental management systems, are considered as the environmentally sustainable criteria for supplier selection. Results from Table 5.6 indicate that the factor loadings of the environmental sustainable indicators range between 0.879 and 0.711, with certifications of environmental management systems (0.879) as the most frequently used criterion when selecting Bangladeshi apparel manufacturers. To comply with buyers’ demands, Bangladeshi apparel manufacturers are becoming certified in relation to environmental standards such as Leadership in Energy and Environmental Design (LEED) and ISO 14001 (Ovi 2017). More recently, the BGMEA, along with GIZ, started an initiative called ‘TREES’ (Toward Resource Efficiency and Environmental Sustainability) to promote
cleaner production practices and minimise resource usage (BGMEA 2015). The importance given to resource consumption amongst apparel manufacturers can be seen in the factor loadings (0.831). The low preference given to waste treatment (0.711) could be due to the lack of strict regulation on industrial waste treatment in Bangladesh. In Bangladesh, it is still common practice to dump solid waste from industrial units into adjacent areas, including roadside ditches, drains, and crop fields, even in locations adjacent to residential areas, thus making people’s lives miserable and crop cultivation impossible (TextileToday 2008).

Overall, cheap labour costs, value for money, and quality have attracted many multi-national retailers to source from Bangladeshi apparel manufacturers. In most cases, the relationship between retailer and manufacturer is just for one order cycle, making it harder for retailers to keep track of manufacturers and their socially responsible practices. However, the Rana Plaza incident changed this scenario, with retailers often sourcing from socially responsible manufacturers. The findings suggest that the socially sustainable selection criteria played an important role in achieving socially responsible apparel supply chains. In particular, building safety and safety training are the most important criteria. However, the importance of criteria could be different in the context of other apparel producing nations, such as India, Vietnam, and Cambodia.

### 6.2.2 Supplier Development

The supplier development mechanism is used to manage interdependence among members (Cai, Yang & Hu 2009; Vurro, Russo & Perrini 2009). Opportunistic risks associated with the buyer-supplier relationship will be minimised if the buyer firm invests in assets to develop supplier capabilities. Underlined by RBV, this study investigated the role of the supplier development mechanism in the implementation of social responsibility in supply chains. Supplier development incorporates social connectedness among parties in order to maintain a
cooperative relationship and create competitive advantage for the supply chain members (Sancha, Wong & Thomsen 2016).

As discussed in Chapter 3, through the literature review, supplier assessment and supplier collaboration have been identified as the two constructs of the supplier development mechanism. The path loadings calculated in Chapter 5 demonstrate that the supplier assessment factor ($\beta= 0.556$, $t$-stat$= 21.486$) is more significant than supplier collaboration ($\beta= 0.482$, $t$-stat$= 26.231$). On the other hand, the literature has emphasised the importance of the collaboration mechanism in developing suppliers (e.g. Sancha et al. 2015; Sancha, Longoni & Giménez 2015). The difference in the results could be attributed to the unit of analysis. Earlier research collected data from the buyers’ perspective on the importance of their supplier development mechanism, whereas this study focuses on the suppliers’ perspective in relation to the supplier development mechanism. In addition, the industry context could be the other reason for the difference in results. Most of the studies on the supplier development mechanism are in the context of multiple industries, whereas this study focuses on the apparel industry.

After the Rana Plaza incident, most of the retailers sourcing from Bangladesh were forced to implement social responsibility at their suppliers’ manufacturing facilities. The most common way to implement social responsibility is to assess suppliers’ facilities with regard to social responsibility practices (Huq, Stevenson & Zorzini 2014). Recent research on social responsibility in the Bangladeshi apparel industry emphasises the importance of assessment (Huq, Chowdhury & Klassen 2016). Meanwhile, the collaboration mechanism is not widely used in the apparel industry, as the relationship with suppliers is a short-term one, often for only one contract (Lund-Thomsen & Lindgreen 2014). On the other hand, in capital-intensive industries, such as engineering product manufacturing, collaboration plays an important role.
in developing supplier capabilities (Gimenez & Tachizawa 2012). Discussion on each of the supplier development constructs is provided in the following section.

6.2.2.1 Supplier assessment

Supplier assessment assists in identifying areas of improvement in processes at suppliers’ facilities. As previously mentioned in Chapter 3, supplier evaluation, feedback of evaluation, and audits are the three factors reflecting the supplier assessment construct. The evaluation of the measurement model in Chapter 5 demonstrates that the factor loadings of supplier assessment indicators are relatively high, ranging between 0.911 and 0.874. These loadings signify that the three indicators are strongly measuring the theoretically intended supplier assessment construct. Among the factors, feedback of evaluation (0.911) is strongly associated with the supplier assessment construct. However, Krause, Scannell and Calantone (2000), Modi and Mabert (2007), Sancha et al. (2015) and Ağan et al. (2016) identify that formal evaluation significantly reflects the supplier assessment construct, rather than the feedback indicator. On the other hand, some researchers have identified feedback as an important indicator reflecting the supplier assessment construct (Klassen & Vachon 2003; Wagner & Krause 2009). The equal importance of the feedback indicator in relation to the other indicators in reflecting the supplier assessment construct can be seen in Large and Gimenez (2011) and Gimenez and Sierra (2013). In spite of the differences in the findings, this study identifies that, in the apparel industry, feedback is critical in explaining the supplier assessment factor. In the Bangladeshi apparel industry, the BGMEA, along with the major retailers from developed nations, have introduced ACCORD and ALLIANCE to assess the manufacturers’ socially responsible practices and provide feedback. The feedback from the assessment is integrated into the manufacturing firms’ Corrective Actions Plans (CAPs) for the implementation of social responsibility (ACCORD 2017).
Audits and evaluation are the other two other factors that almost equally reflect (0.888 and 0.874) the supplier assessment construct. Bangladeshi apparel manufacturers believe that implementing the retailer code of conduct is a formal evaluation mechanism for assessing the manufacturing facilities. However, implementation of the code of conduct may involve mock compliance, to some extent. Mock compliance includes manufacturers pretending to be compliant with the retailer code of conduct and to fulfil the audit requirements. In the Bangladeshi apparel industry, work hour violation is a common area of mock compliance, as employees are willing to work for overtime (Huq, Chowdhury and Klassen 2016). In addition, third party audits are commonly used to assess social responsibility compliance at manufacturing facilities. The outcome of third-party audits may depend upon the firm’s relationship with the auditor. In some cases, third-party auditors are corrupt and give the manufacturers leeway (Huq, Stevenson & Zorzini 2014). Mock compliance and fraudulent activities in order to be complaint raise concerns amongst retailers regarding formal evaluations and auditing procedures.

6.2.2.2 Supplier collaboration

To avoid fraudulent activities and build trust-based relationships, a collaboration mechanism is used. Collaboration is regarded as a dominant mechanism for implementing social responsibility in supply chains, by providing a platform for suppliers and buyers to learn from each other (Bjo‘rlund 2010; Gimenez & Tachizawa 2012). As discussed in Chapter 3, visits, training, and joint ventures have been identified as the three indicators measuring the supplier collaboration construct. The measurement model evaluation in Chapter 5 demonstrates that the factor loadings of supplier collaboration indicators range between 0.883 and 0.678. The measures of the factor loadings denote that these indicators vary in their importance with regard to measuring the supplier collaboration construct. Though the factor loading of the
training factor was less than the threshold level of 0.7, deletion of this indicator did not affect the reliability of the supplier collaboration construct, and thus it was considered in this study.

Visits (0.883) is the most important factor reflecting the theoretically intended supplier collaboration construct. The importance given to the visit indicator in reflecting the supplier collaboration can be seen in previous research (e.g. Klassen & Vachon 2003; Large & Gimenez 2011; Sancha, Giménez & Sierra 2016). To minimise issues of mock compliance and fraudulent activities, retailers are increasingly visiting their apparel suppliers. Moreover, joint efforts (0.863) is another critical factor reflecting the theoretically intended supplier collaboration construct. Results are consistent with the findings of Sancha, Giménez and Sierra (2016). Characteristics of shorter time-to-supply and high product variety have forced apparel manufacturers to operate overtime in order to meet retailers’ demands. In some cases, manufacturers outsource production to smaller manufacturers so as to fulfil orders, leading to transparency issues in supply chains. In this study, manufacturers believe that retailers’ joint efforts on sharing the demand forecast will help them to plan production in advance.

Among all the indicators, training does not strongly reflect the supplier collaboration construct. Earlier research on supplier collaboration from the buyer perspective illustrates that training is more significant in measuring supplier collaboration (Klassen & Vachon 2003). In the Bangladeshi apparel industry, factory managers/supervisors are trained on employee safety issues and conduct awareness-raising training on health and safety for workers (Apparel Story 2017). Collaboration through training/education helps manufacturers to understand the importance of being compliant and also learn the process of compliance with standards. Likewise, it helps retailers to observe the issues related to compliance, such as mock compliance and fraudulent activities by third-party auditors (Huq, Chowdhury and Klassen 2016). Based on the RBV, the learning that occurs between the retaile and
manufacturer in a relationship develops difficult-to-copy resources and provides competitive advantage for both parties (Formentini & Taticchi 2016). Though training is given importance in the apparel industry, manufacturers believe that trade organisations and NGOs are providing training rather than the retailers.

Overall, manufacturers highlight that both assessment and collaboration mechanisms are important in implementing social responsibility in the manufacturer-retailer dyadic relationship. In particular, feedback from audits, visits, and joint efforts are considered critical for developing supplier capabilities and helping to improve performance. Underlined by the RBV, the learning and capabilities developed through assessment and collaboration improve competitive advantage. In a dyadic relationship, the developed capabilities will provide competitive advantage for manufacturers by increasing their replacement costs to the retailer, thus leading to long-term and secure relationships.

6.2.3 Agency Problems

As previously mentioned in Chapter 3, agency problems refer to the self-serving behaviour of supply chain members when opportunities arise (Fayezi, O’Loughlin & Zutshi 2012). In the sustainable supply chain research, agency theory is used to highlight when and how the lead firm delegates social responsibility to the other members in supply chain (Wilhelm et al. 2016). As supply chains are becoming vertically disintegrated and geographically dispersed, it is important to understand the problems in a supply chain relationship. As previously mentioned, underlined by agency theory, this study examines the moderating role of agency problems.

From the literature review presented in Chapter 3, risk aversion, goal conflicts, and information asymmetry are considered as the variables forming the agency problem construct. The path loadings calculated in Chapter 5 demonstrate that information asymmetry
(β= 0.598, t-stat= 37.442) is more significant than the other two constructs (i.e. goal conflict and risk aversion). In addition, risk aversion (β= 0.093, t-stat= 4.094) is the least significant construct forming agency problems. The following section discusses each of the first-order variables.

6.2.3.1 Information asymmetry

Information asymmetry refers to a situation where one party in the relationship has more or better information than the other party. In this study’s context, apparel supply chains are globally dispersed, with retailers sourcing from several manufacturers through intermediary buying houses. This increased complexity results in insufficient information sharing amongst the partners in a relationship. Often, information sharing is very much limited to the transaction details. When it is difficult or expensive for the principal to verify what the agent is doing, information asymmetry arises (Wilhelm et al. 2016). In the apparel industry, due to the complexity involved with global sourcing, it is difficult to see what the manufacturers are doing.

The evaluation of the measurement model in Chapter 5 demonstrates that the factor loadings of information asymmetry indicators are relatively high, ranging between 0.921 and 0.828. These loadings indicate that all the six indicators strongly measure the theoretically intended information asymmetry construct. Among all the indicators, manufacturers believe that the most important challenge relates to the lack of timely information (0.921). In the apparel industry, time to market is becoming shorter, reflected by shorter lead times for manufacturing. Ordering information in advance helps manufacturers with production planning (Haque & Azmat 2015). The other important aspect of information asymmetry relates to relevant information (0.914). With regard to social responsibility, relevant
information includes clear communication about the retailers’ perceptions of aspects of social responsibility.

6.2.3.2 Goal conflicts

The path loadings calculated in Chapter 5 demonstrate that goal conflict ($\beta = 0.390$, $t$-stat = 33.73) is a moderately significant construct of the agency problems variable. It is known that goal conflicts result in opportunistic behaviour among supply chain members. Despite the collaborative efforts, it is expected that supply chain members exhibit some degree of goal conflicts. Irrespective of collaborative efforts, apparel manufacturers are known for opportunistic behaviour in relation to mock compliance with labour laws (Huq, Chowdhury and Klassen 2016). Reducing goal conflicts among supply chain members will assist in promoting the common interests of supply chain partners, reduce the probability of opportunism, decrease the need for formal contractual arrangements, and lower the cost of monitoring (Holcomb & Hitt 2007).

The evaluation of the measurement model in Chapter 5 demonstrates that the factor loadings of goal conflict indicators are relatively high, ranging between 0.935 and 0.880, signifying that these indicators strongly represent the theoretically intended construct. Improvement and implementation plans (0.935, 0.933) are considered as the two most important indicators reflecting goal conflicts. Apparel manufacturers believe that they are not involved in the establishment of plans for the overall improvement of the supply chains. It is also believed that, in apparel supply chains, there is still no systematic way of implementing social responsibility (Goldstein et al. 2017). Apparel manufacturers need to consider standards such as ISO 26000 for the effective implementation of social responsibility.
6.2.3.3 Risk-aversive behaviour

The evaluation of the measurement model indicates that risk aversion is the least important factor reflecting the agency problems construct (with path loadings of $\beta = 0.093$, t-stat = 4.094). In the context of socially responsible supply chains, suppliers’ risk aversion is related to attitudes toward risk that may result in problems related to the social responsibility of the products supplied to buyers. Reduction of social responsibility risks involves the implementation of social responsibility standards and the costs associated with it. Risk aversion is also reflected in the environment in which a firm is willing to operate, in relation to its other supply chain members. Most of the earlier studies in supply chain management focused on how buyers react to suppliers’ risk-aversive behaviour (Zu & Kaynak 2012). This study measures the risk-aversive behaviour of the supplier.

In evaluating the measurement model at the first-order, the factor loadings range from 0.876 to 0.805. Among the indicators, manufacturers agree that they want to work in an environment with high reward situations (0.876). However, they do not give equal importance to the situations in uncertain outcomes (0.805). In this sense, manufacturers are ready to take risks in any uncertain situation, as long as the reward is high. These findings are relevant to the context of apparel supply chains, as most of the relationships with retailers are short-term ones, and manufacturers are willing to take risks with a degree of opportunistic behaviour.

6.3 Relationship between Governance Mechanisms

At early stages, supplier selection acts as a gatekeeper in establishing the buyer-supplier relationship and developing supplier capabilities (Liu, Luo & Liu 2009). In the context of sustainable supply chains, research on integrating supplier selection and supplier
development in a model is in its infancy (Trapp & Sarkis 2016). Based on the literature review provided in Chapter 3, this study hypothesised:

\[ H_1: \text{Supplier selection is positively related to supplier development} \]

The structural model evaluation provided in Chapter 5 presents the extent of the influence of supplier selection on the supplier development mechanism. The results from Table 5.12 demonstrate that supplier selection is positively related to supplier development ($\beta=0.403$, $t=3.452$, $p<0.001$). Supplier selection is used to categorise suppliers into strategic partners (‘perfect’ suppliers), candidates for a supplier development program (‘good’ suppliers), competitive suppliers (‘moderate’ suppliers) and pruning suppliers (‘bad’). Selection of firms based on the supplier selection criteria plays an important role in deciding the type of supplier development activities (Xu & Xiang-yang 2007). Socially responsible supplier development programs cover a broad range of activities, such as training suppliers, providing technical expertise to suppliers, setting performance targets for suppliers, and joint and team problem solving in relation to environmental and social issues. In addition, investments in supplier activities to reach the performance goals, and aiding them in acquiring ISO 14000 and other relevant certifications, are considered as the appropriate supplier development activities.

Implementation of supplier development activities requires organisational resources. There are not enough resources to support the broad range of sustainable supplier development activities, so supplier selection plays an important role in selecting efficient firms for development activities (Trapp & Sarkis 2016). Supplier selection helps to carefully scrutinise and identify suppliers with similar objectives to the buyers so that buyers can invest in resources for capability development (Kannan & Tan 2006). So far, there have been no studies empirically examining the relationship between supplier selection and supplier development. The results of this study support a positive relationship between supplier
selection and supplier development, in addition to providing empirical evidence for Reuter, Foerstl and Hartmann’s (2010) inference that sustainable selection leads to sustainable capability development. In the Bangladeshi apparel industry, careful selection of suppliers and close relationships with suppliers are crucial for ensuring that suppliers are compliant with socially responsible activities (McKinsey 2011).

6.4 Governance Mechanisms and Firm Performance Relationship

In the field of buyer-supplier relationships, there is a need for multiple mechanisms to govern relationships and to improve sustainable performance (Liu, Luo & Liu 2009). The central objective of this thesis is to understand the impact of socially responsible governance mechanisms on firm performance in the context of the Bangladeshi apparel industry. As previously mentioned in Chapter 3, the impact of supplier selection and supplier development on firm performance is examined. Firm performance in this study incorporates social, environmental, and economic performance constructs. Therefore, each hypothesis relating to the relationship between governance mechanisms and firm performance comprises three sets of hypotheses with social, environmental, and economic performance. In this section, the findings are discussed in accordance with the governance mechanisms and firm performance relationship, the corresponding hypotheses for which are H2, H3, and H4.

6.4.1. The Impact of Supplier Selection on Firm Performance

Supplier selection criteria represent the role expectancy of the supplier by the buyer. The choice of appropriate selection criteria will lead to goal convergence of the supplier with the expectations of the purchasing firm, thus improving firm performance (Nair, Jayaram & Das 2015). As mentioned in Chapter 3, it was hypothesised that supplier selection has a positive
impact on firm performance. The relationship between supplier selection and social, economic, and environmental performance was hypothesised as follows:

\[ H_2: \text{Supplier selection is positively related to firm performance} \]

- \[ H_{2a}: \text{Supplier selection is positively related to social performance} \]
- \[ H_{2b}: \text{Supplier selection is positively related to economic performance} \]
- \[ H_{2c}: \text{Supplier selection is positively related to environmental performance} \]

Results from the structural model presented in Chapter 5 demonstrate that the supplier selection construct is positively related to social (\( \beta=0.540, t=9.794, p<0.001 \)) and environmental performance (\( \beta=0.226, t=4.626, p<0.001 \)), supporting \( H_{2a} \) and \( H_{2c} \). The results of this study also provide evidence that the integration of social responsibility criteria for selecting apparel manufacturers results in significant improvement of the environmental and social performance of manufacturing firms. In particular, when manufacturers reach the expectations of the buyers, the performance will be increased (Nair, Jayaram & Das 2015). Based on TCE, the integration of socially responsible criteria in supplier selection will minimise opportunistic behaviour and improve the social and environmental performance. Incorporating social responsibility while selecting suppliers means that the selected suppliers are already good at socially responsibility activities, which will have a positive impact on social and environmental performance. For example, selecting suppliers with an initiative regarding the provision of safety training will improve the ‘health’ aspect of social performance. In a similar way, through the case study analysis of Huq, Stevenson and Zorzini (2014), implementation of social sustainability at manufacturing facilities improves the social and environmental performance of a firm.

However, the impact of supplier selection on economic performance is less clear. Specifically, the integration of social and environmental aspects in selection criteria has a
negative impact on economic performance. To comply with the selection criteria, the implementation of social and environmental aspects at suppliers’ manufacturing facilities could incur financial costs to the firm, thus affecting economic performance negatively. This can be illustrated with several examples. In the context of the apparel industry, high volatility and shortened product lifecycles have forced workers at manufacturing facilities to work overtime (Perry & Towers 2013). Adhering to socially responsible practices and paying workers overtime could result in increased manufacturing costs and reduced profit margins. Likewise, manufacturers complying with local environmental policies will result in reduced returns on investments. These results are in contrast to Zhu and Sarkis (2007) and Green Jr et al. (2012), who found that green purchasing positively effects economic performance. The differences in results are due to differences in the unit of analysis. Zhu and Sarkis (2007) studied the relationship between the buying firm’s environmental criteria for selecting suppliers and the buying firm’s performance. However, in this study, we consider the relationship between the buying firm’s environmental and social criteria and the supplier firm’s performance.

6.4.2. The Impact of Supplier Development on Firm Performance

The supplier development mechanism plays an important role in developing supplier capabilities and improving firm performance (Gimenez & Sierra 2013). The literature on the supplier development construct emphasises the benefits of implementation, such as trust enhancement, reduction in the number of contracts, capability development, and elimination of opportunistic behaviour (Krause, Scannell & Calantone 2000; Wathne & Heide 2000; Joshi & Campbell 2003; Yu, Liao & Lin 2006). As stated in Chapter 3, it was hypothesised that the supplier development mechanism would have a positive impact on firm performance.
In this sense, the hypotheses of the relationship between supplier development and firm performance were as follows:

\[ H_3: \text{Supplier development is positively related to firm performance} \]

- \( H_{3a}: \text{Supplier development is positively related to social performance} \)
- \( H_{3b}: \text{Supplier development is positively related to economic performance} \)
- \( H_{3c}: \text{Supplier development is positively related to environmental performance} \)

The structural model evaluated in Chapter 5 shows that supplier development is positively related to firm performance, i.e. the supplier development governance mechanism positively impacts on social (\( \beta=0.226, t=4.626, p<0.001 \)), economic (\( \beta=0.355, t=2.438, p<0.05 \)), and environmental performance (\( \beta=0.456, t=5.643, p<0.001 \)), thus supporting \( H_{3a}, H_{3b}, \) and \( H_{3c} \).

The results of the positive relationship between supplier development and the triple bottom line of economic, social, and environmental performance can be related to the RBV. When suppliers and buyers work together, they develop valuable, rare, and hard-to-copy resources that will improve the social, environmental, and economic performance.

In the Bangladeshi apparel industry, it is common to see issues related to suppliers’ mock compliance with audits, varying buyer standards, and a lack of skills for the implementation of socially responsible standards. To mitigate the risks involved with mock compliance, buyers, along with manufacturers, need to develop auditing practices that can eliminate the opportunistic behaviour of third-party auditors. By providing training, buyers can enhance the manufacturers’ capabilities with regard to understanding social responsibilities and being compliant with social responsibility standards. These examples illustrate that, in the Bangladeshi apparel industry, supplier development plays a critical role in achieving sustainable supply chains. The positive impact of supplier development on performance is consistent with the findings of several other studies. For example, Kannan and Tan (2002)
conclude that the supplier development mechanism has a significant impact on economic performance, while Vachon and Klassen (2008) and Gimenez and Sierra (2013) contend that the supplier development mechanism has a significant impact on environmental performance. More recently, Sancha et al. (2015) and Sancha, Gimenez, and Sierra (2016) have identified that the supplier development mechanism will have a positive and direct influence on suppliers’ social performance. Finally, Gimenez, Sierra and Rodon (2012) have proposed that the supplier development mechanism impacts on the economic, environmental, and social performance of buyers. However, to our knowledge, this is the first study to empirically examine the impact of supplier development on suppliers’ economic, environmental, and social performance.

6.4.3. The Mediating Role of Supplier Development on the Relationship between Supplier Selection and Firm Performance

In addition to the direct relationship, this study examines the mediating role of supplier development on the relationship between supplier selection and firm performance. The mediating role of supplier development was hypothesised as follows:

\( H_4: \) Supplier development mediates the relationship between supplier selection and firm performance.

- \( H_{4a}: \) Supplier development mediates the relationship between supplier selection and social performance.
- \( H_{4b}: \) Supplier development mediates the relationship between supplier selection and economic performance.
- \( H_{4c}: \) Supplier development mediates the relationship between supplier selection and environmental performance.
The results in Chapter 5 provide empirical evidence for the mediating effect of supplier development on the relationship between the supplier selection mechanism and firm performance. The results from Table 5.15 illustrate that supplier development partially mediates the relationship between supplier selection and environmental and social performance. That is, supplier selection will inform suppliers about buyers’ expectations regarding environmental and social aspects. Thus, suppliers will integrate environmental and social aspects into their processes, which can be used to develop their capabilities. Therefore, supplier selection is considered as a starting point for the improvement of suppliers’ environmental and social performance. Though the direct effects of supplier selection on environmental and social performance are relatively high when compared to the indirect effects, the total combined effect is large, which indicates that implementing supplier selection in combination with supplier development will yield a greater social and environmental performance.

In particular, complementary mediation is exhibited by the supplier development mechanism on the relationship between supplier selection and environmental and social performance. Complementary mediation reflects the fact that, in addition to the supplier development construct, there are other factors playing a mediating role on the relationship between supplier selection and firm performance. Intangible resources and capabilities, such as learning, managerial competencies, innovation, stakeholder integration, and reputation building, are some of the internal organisational factors that mediate the relationship between supplier selection and social and environmental performance. External to the organisation, stakeholder response should be analysed as a mediator on the relationship between supplier selection and social and environmental performance (Grewatsch & Kliendienst 2015). The nature of the contract and associated reward structures also influence the relationship between supplier selection and social and environmental performance.
The apparel industry is characterised by short-term contracts between buyers and sellers, often for the manufacture of only one product. Buyers determine the type of contract based on the suppliers’ qualities exhibited during the selection process. In reality, features of the contract, such as contract tenure, help to build trust in a relationship and improve the firm’s social and environmental performance. Therefore, future research needs to investigate the role of contract mechanisms as a mediator on the relationship between supplier selection and a firm’s performance.

The results from Table 5.15 indicate that the indirect relationship of supplier selection with economic performance through supplier development is significant. However, the insignificant relationship between supplier selection and economic performance results in indirect-only mediation. Despite the role of supplier development, still the investments of a manufacturing firm to be socially responsible compliant outweigh the economic benefits resulting in no mediation effect of the supplier development. The lack of the mediating effect of supplier development on the relationship between supplier selection and economic performance is apparent in earlier research (Koufteros, Vickery & Dröge 2012).

6.5 The Moderating Role of Agency Problems

This study examines the moderating role of agency problems on the relationship between socially responsible governance mechanisms and firm performance. The moderating role of agency problems was hypothesised as follows:

\[ H_5: \text{The relationship between governance mechanism and firm performance is negatively affected by agency problems.} \]

- \[ H_{5a}: \text{The relationship between supplier selection and social performance is negatively affected by agency problems.} \]
• $H_{5b}$: The relationship between supplier selection and economic performance is negatively affected by agency problems

• $H_{5c}$: The relationship between supplier selection and environmental performance is negatively affected by agency problems

• $H_{5d}$: The relationship between supplier development and social performance is negatively affected by agency problems

• $H_{5e}$: The relationship between supplier development and economic performance is negatively affected by agency problems

• $H_{5f}$: The relationship between supplier development and environmental performance is negatively affected by agency problems.

The results of the measurement model evaluation from Chapter 5 demonstrate that apparel supply chains are experiencing some degree of agency problems related to information asymmetry, goal conflicts, and risk-aversive behaviour. The structural model evaluation results presented in Section 5.8 illustrate that agency problems have a significant effect on the relationship between governance mechanisms and firms’ environmental and economic performance. However, agency problems do not moderate the relationship between supplier selection and social performance.

To further illustrate the moderating effect of agency problems on the governance mechanisms and firm performance relationship, interaction graphs were plotted (see Figures 6.1, 6.2, 6.3, 6.4, 6.5, and 6.6). Regardless of the magnitude of agency problems, rigid selection criteria will lead to better social performance, demonstrating no moderation effect of agency problems on the relationship between supplier selection and social performance (see Figure 6.1). It can be seen that when agency problems in a relationship are not significant, supplier selection has a significant impact on economic performance (i.e. strict selection criteria will
result in superior economic performance and vice versa – see Figure 6.2). On the other hand, when there are significant problems in the relationship, rigorous selection criteria will negatively impact on the economic performance to a small degree (see Figure 6.2). A possible explanation for this could be that a firm’s investment in complying with the stringent selection criteria, with no support from the buyers, will negatively affect economic performance. Finally, with respect to environmental performance, stringent selection criteria will have a positive effect in the context of both high and low agency problems (see Figure 6.3). However, the degree to which environmental performance varies depends upon the intensity of the problems. Similarly, the interaction effect of the agency problems could be seen in the relationship between the supplier development mechanism and the social, economic, and environmental performance of the firm (see Figures 6.4, 6.5, and 6.6). Despite the impact of agency problems, through the interaction figures, it is clear that the buyer firm’s investment in auditing, training, and joint efforts will result in a significant improvement in the firm’s social and environmental performance. However, when there are significant problems in the relationship relating to conflicting goals and risk averseness, the firm’s economic performance slightly decreases with an increase in development activities.

Figure 6.1: Interaction between supplier selection and agency problems with social performance
Figure 6.2: Interaction between supplier selection and agency problems with economic performance

Figure 6.3: Interaction between supplier selection and agency problems with environmental performance
Figure 6.4: Interaction between supplier development and agency problems with social performance

Figure 6.5: Interaction between supplier development and agency problems with economic performance
6.6 Social, Environmental, and Economic Performance Relationships

In addition to examining the relationship between socially responsible governance mechanisms and firm performance, this study also examines the relationship between social and environmental performance and economic performance in the context of the Bangladeshi apparel industry. As previously mentioned in Chapter 3, through the literature review, the following hypotheses were proposed:

- \( H_{6a} \): Social performance leads to economic performance
- \( H_{6b} \): Environmental performance leads to economic performance

The results from the structural model evaluation in Chapter 5 demonstrate that there is no significant evidence to support hypothesis \( H_{6a} \) relating to the positive effect of social performance on economic performance (\( \beta=-0.231, \ t=1.653, \ p>0.005 \)). In the context of the Bangladeshi apparel industry, the implementation of social aspects, such as the safety training of workers, provides awareness among employees and improves the social performance of the firm. However, the costs associated with these training programs have a negative impact.
on the firm’s economic performance. Brammer and Millington (2008) and Wang and Bansal (2012) conclude that the time factor plays a moderating role on the relationship between social and economic performance. The benefits of social performance can only be translated into economic benefits in the long term. Reflecting on the above example, investments in safety training will increase production costs in the short term. However, in the long term, they improve employee satisfaction, leading to productivity improvements, and reduce the opportunity costs associated with employees’ health and safety issues at manufacturing facilities. Future research needs to focus on investigating the effect of social performance on economic performance in the long term.

Moreover, the results demonstrate that environmental performance is positively related to economic performance ($\beta=0.375$, $t=3.410$, $p<0.005$), supporting hypothesis $H_{6b}$. In the Bangladeshi apparel industry, firms are increasingly investing in environmental sustainability programs, such as using renewable energy like solar energy and reducing the use of water resources (Apparel Story 2017). These environmental initiatives can be directly translated into cost savings. For example, among Bangladeshi apparel manufacturers, the use of water is quite expensive, as it includes the cost of pumping and distribution, as well as Water Treatment Plant (WTP) and Effluent Treatment Plant (ETP) management. All the costs associated with water use contribute to production costs. The efficient management of water resources leads to lowering the cost of production and a successful business (Apparel Story 2017). In addition, the efficient use of dyes and chemicals will reduce the cost of production and increase a firm’s economic performance. Besides the apparel industry, environmental performance has a positive impact on economic performance in several other industries, such as the chemical/petroleum, automobile, electronic, and mechanical industries (Zhu, Sarkis, & Lai 2013).
In the sustainability literature, a number of researchers have examined the impact of environmental performance on economic performance (Dixon-Fowler et al. 2013; Grewatsch & Kleindienst 2015). The positive relationship between environmental and economic performance is influenced by the particular industry (Klassen & McLaughlin 1996). More recently, Large and Gimenez (2011) have established a positive relationship between environmental and economic performance in the context of several industries. Future research needs to take other factors, such as process-driven or product-driven environmental performance measures and industry growth, into consideration when assessing the relationship between environmental and economic performance.

6.7 Summary

This chapter has provided a discussion of the findings presented in Chapter 5. First, a discussion of the results relating to the outer model based on the analysis in Chapter 5 was presented, which included confirmation of all the items measuring the first-order constructs of socially responsible governance mechanisms and agency problems. In addition, the chapter also confirmed the second-order formative variables. After discussing the measurement model, this chapter explored the hypotheses proposed in Chapter 3, which included a positive relationship between the governance mechanisms and firm performance, the mediating role of supplier development, and the moderating role of agency problems. Throughout this chapter, the measurement model and structural model results from Chapter 5 were validated against previous literature. Finally, the discussion throughout the whole chapter was aligned with the context of the apparel industry.
CHAPTER SEVEN
CONCLUSION

7.1 Introduction

To achieve competitive advantage and improve performance in supply chains, this study has focused on the implementation of social responsibility. As mentioned in Chapter 3, based on Transaction Cost Economies (TCE) and the Resource-based View (RBV), this study identified supplier selection and supplier development as the governance mechanisms for the implementation of social responsibility. In addition, this study also examined the moderating role of agency problems on the relationship between socially responsible governance mechanisms and firm performance. This chapter provides a summary of the study’s findings, as well as its implications and limitations. In addition, this chapter assists researchers by providing directions for future research. The discussion in this chapter is organised in seven sections. A brief introduction is provided in Section 7.1, while Section 7.2 addresses the research objectives developed in Chapter 1 based on the discussion in Chapter 5. The implications of the study, including research, theoretical, methodological, and managerial implications, are presented in Section 7.3. The study’s limitations are outlined in Section 7.4, while directions for future research are detailed in Section 7.5. Finally, a brief conclusion is delineated in Section 7.6, and a summary of the present chapter is presented in Section 7.7.

7.2 Addressing the Research Objectives

Based on the literature review, the aim of this study, as identified in Chapter 1, was to examine the following:
“How social responsibility can be implemented in the apparel manufacturing facilities of multi-national retailers in the context of global apparel supply chains, and its impact on sustainable performance?”

In order to address the research aim, the following specific objectives were formulated:

- To identify the governance mechanisms for the implementation of social responsibility at supplier manufacturing facilities in the context of global apparel supply chains.
- To examine the impact of socially responsible governance mechanisms on the social, environmental, and economic performance of the firm.
- To measure the impact of agency problems as a moderator on the relationship between socially responsible governance mechanisms and firm performance.
- To study the impact of social and environmental performance on the economic performance of a firm.

The following section addresses each research objective based on the discussion provided in Chapter 5.

7.2.1 Findings on Research Objective 1

**Research Objective 1:** To identify the governance mechanisms for the implementation of social responsibility at supplier manufacturing facilities in the context of global apparel supply chains

As mentioned in Chapter 3, supplier selection and supplier development were identified as the governance mechanisms for the implementation of social responsibility. Though the importance given to supplier selection in socially responsible supply chains can be seen in the literature, it is uncommon to use supplier selection along with supplier assessment and
supplier collaboration for the implementation of social responsibility in supply chains (see Table 3.3). Underlined by TCE and RBV, in Chapter 3, supplier selection and supplier development (supplier assessment and supplier collaboration) were identified as the governance mechanisms for the implementation of social responsibility. The items/variables to measure supplier selection and supplier development were identified from the literature review. To address Research Objective 1, the identified mechanisms were examined using the measurement model evaluation with a smart PLS tool (as presented in Chapter 5).

There were no hypotheses associated with Research Objective 1. The measurement model evaluation confirmed the constructs of the socially responsible governance mechanisms. Based on the path loadings in Chapter 5, it was concluded that the governance mechanisms were second-order constructs formed by the five first-order constructs. Operational selection criteria, environmentally sustainable selection criteria, and socially sustainable selection criteria formed the supplier selection, while supplier development was formed by supplier assessment and supplier collaboration constructs.

Weights of the path loadings of the first-order variables on the governance mechanisms determined the importance of the variables in measuring the socially responsible governance mechanisms. Based on the results provided in Chapter 5, socially sustainable criteria were considered as the important criteria in selecting apparel manufacturers, while environmental selection criteria were the least important. In this sense, the findings of the study are consistent with those of Baskaran, Nachiappan and Rahman (2012) on the importance of socially sustainable criteria in selecting apparel manufacturers. Further, the results also support those of Huq, Chowdhury and Klassen (2016) on the Bangladeshi apparel industry. The results of this study were influenced by the greater pressure on retailers to implement socially responsible practices at apparel manufacturers as a result of the Rana Plaza incident. Further, supplier assessment was identified as a critical factor of the supplier development
mechanism. The results of this study are in contrast to those of Sancha et al. (2015) and Sancha, Longoni and Giménez (2015), which indicate that supplier collaboration is more important than supplier assessment. The differences in results can be attributed to the unit of analysis. In this regard, the present study is one of the first to be conducted from the manufacturers’ perspective in relation to socially responsible governance mechanisms.

7.2.2 Findings on Research Objective 2

| Research Objective 2: To examine the impact of socially responsible governance mechanisms on the social, environmental and economic performance of the firm. |

Hypotheses H2a, H2b, H2c, H3a, H3b, and H3c, developed in Chapter 3, addressed Research Objective 2 regarding the positive relationship between socially responsible governance mechanisms and firm performance. The results from Chapter 5 indicated that there was a positive relationship between supplier selection and social and environmental performance and between supplier development and social, environmental, and economic performance.

The results strengthened and validated the proposed model on the implementation of social responsibility and its impact on firm performance. The findings indicated that the use of social, environmental, and economic criteria for selecting suppliers will improve a firm’s social and environmental performance. However, the selection of manufacturers based on sustainable criteria will not have a positive impact on a firm’s economic performance. Moreover, to improve the social, environmental, and economic performance of a manufacturing firm, buyers need to invest in supplier development activities with regard to supplier assessment and supplier collaboration.

Based on the results, this study provided an understanding of the importance of integrating social and environmental sustainable criteria with operational criteria for improvements in social and environmental performance. This study also reconfirmed that supplier assessment
and supplier collaboration should be implemented together in order to improve a firm’s social, environmental, and economic performance.

In addition, this study also examined the combined effect of socially responsible governance mechanisms on firm performance with the mediating effect of supplier development on the relationship between supplier selection and firm performance. Hypotheses H₄a, H₄b, and H₄c examined the mediating effect of supplier development. The results in Chapter 5 identified a complementary effect of supplier development on supplier selection and a firm’s social and environmental performance. That is, in addition to supplier development, there are other underlying factors that affect supplier selection and a firm’s social and environmental performance. Based on the results, it is evident that this study has enhanced manufacturers’ understanding into how buyers’ socially responsible governance mechanisms could help manufacturers make wise and strategic decisions related to the improvement of the firm’s social, environmental, and economic performance.

7.2.3 Findings on Research Objective 3

**Research Objective 3**: To measure the impact of agency problems as a moderator on the relationship of socially responsible governance mechanisms and a firm’s sustainable performance.

Hypotheses H₅a, H₅b, H₅c, H₅d, H₅e, and H₅f, developed in Chapter 3, addressed Research Objective 3 in relation to the moderating role of agency problems on the relationship between socially responsible governance mechanisms and firm performance. The items/variables to measure the agency problems were identified from the literature review in Chapter 3. The measurement model evaluation in Chapter 5 confirmed information asymmetry, goal conflicts, and risk aversion as the variables forming the agency problems construct. Weights
of the path loadings in Chapter 5 confirmed that information asymmetry and goal conflicts were the important variables in measuring agency problems.

The findings of the study indicated that members of apparel supply chains are experiencing agency problems related to information asymmetry, goal conflicts, and risk aversion. The results in Chapter 5 showed that agency problems significantly moderate most of the relationships between governance mechanisms and firm performance, except for supplier selection and social performance. That is, the presence of agency problems in the form of information asymmetry, goal conflicts, and risk aversion has an effect on the socially responsible governance mechanisms and a firm’s environmental and economic performance.

### 7.2.4 Findings on Research Objective 4

**Research Objective 4:** To study the impact of social and environmental performance on economic performance.

Research Objective 4 aimed to empirically examine the impact of social and environmental performance on economic performance in the context of apparel supply chains. Hypotheses $H_{6a}$ and $H_{6b}$, proposed in Chapter 3, addressed Research Objective 4. Path loadings and their significance validated the importance of social and environmental performance in improving a firm’s economic performance. The results from Chapter 5 demonstrated that environmental performance has a positive effect on the improvement of a firm’s economic performance. However, social performance does not improve economic performance.

A number of researchers who have examined the impact of environmental performance on a firm’s economic performance have identified that the results are influenced by the particular industry (Dixon-Fowler et al. 2013; Grewatsch & Kleindienst 2017). The results of this study provided empirical evidence that, in the apparel industry, the environmental performance of a firm has a positive effect on economic performance. Moreover, the results demonstrated that
the lack of evidence to support the positive relationship between social and economic performance identifies a potential future research area in relation to investigating the effects of social performance on economic performance in the long term.

Overall, the results of the measurement model evaluation and hypotheses testing in Chapter 5 have met all the research objectives and the overarching aim of the study. By meeting all the research objectives, it can be seen that, despite the agency problems in apparel supply chains, the implementation of socially responsible governance mechanisms has a positive impact on a firm’s social and environmental performance.

7.3 Implications of the Study

This study proposed a theoretical model and validated the accompanying measurement instrument to identify the governance mechanisms for the implementation of social responsibility in supply chains. It also examined the impact of socially responsible governance mechanisms on firm performance in the context of a developing economy. Further, the model examined the impact of agency problems on the relationship between socially responsible governance mechanisms and firm performance. In so doing, this thesis contributes to theory and practice in several respects, which are expanded on below.

7.3.1 Research Implications

This study contributes to the research in several ways. First, this study extends the existing literature of governance mechanisms by integrating the supplier selection mechanism into governance mechanisms. The supplier selection mechanism aims to choose the suppliers who can fulfil the buyer’s requirements in relation to improving performance and reducing the risks in potential relationships (Handfield et al. 2002; Humphreys et al. 2006; Koufteros, Vickery & Dröge, 2012). In the context of apparel supply chains, greater emphasis is given to
the selection of suppliers from developing nations that can offer competitive advantage (Perry & Towers 2013; Lund-Thomsen & Lindgreen 2014). Given the importance of the supplier selection mechanism in the literature review, this study adopted the supplier selection as a governance mechanism and operationalised the construct. In this sense, the study contributes to defining the socially responsible supplier selection construct and developing a research-ready instrument.

Second, this study examined the buyer-supplier relationship, with the assistance of socially responsible governance mechanisms, from the suppliers’ (manufacturers’) perspective. In the literature, studies examining the relationship between governance mechanism and firm performance are primarily focused on the buying firms’ perspective (Gimenez, Sierra & Rodon 2012; Sancha, Wong & Thomsen 2016). To our knowledge, this study is the first to examine the relationship between governance mechanisms and firm performance from the perspective of suppliers. The findings of this study therefore contribute to the existing literature by proving suppliers’ perceptions on socially responsible governance.

Third, this study focused on developing socially responsible supply chains in the context of a developing economy. Most of the studies on governance have presented socially responsible governance mechanisms in the context of developed nations, and the generalisability of the findings to developing nations has yet to be tested (Large & Gimenez 2011; Gimenez & Sierra 2013). This study contributes in this regard by proposing a socially responsible governance conceptual model for developing economies. This study tested the proposed model not only in relation to the implementation of social responsibility but also its impact on firm performance.

Finally, in the context of the Bangladeshi apparel industry, prior studies have tended to be case-based research, focusing only on social issues (e.g. Huq, Stevenson & Zorzini 2014;
Islam, Deegan & Gray 2015, Huq, Chowdhury & Klassen 2016). By applying cross-sectional analysis, this study provides a rigorous analysis in testing the proposed hypotheses and validating the proposed theoretical model on operational, social, and environmental aspects of socially responsible governance mechanisms and their impact on firm performance. The contribution of this study to the literature is more reliable and the findings can be generalised to the entire Bangladeshi apparel industry.

7.3.2 Theoretical Implications

This study makes a substantial contribution to agency theory, RBV, and TCE. Instead of assuming that relationship problems in buyer-supplier dyads will have no impact on the relationship between governance mechanisms and firm performance, this research contributes to the extension of agency theory. In the literature, it is common to see the use of contract mechanisms as a unit of analysis of agency theory. By investigating the impact of agency problems on the relationship between governance mechanisms and performance in global supply chains, this study contributes in regard to defining, developing, and validating constructs of agency problems. This research sheds light into new theoretical perspective of agency problems.

Instead of assuming that improvements in firm performance are purely by a chance, this research proposes the ways in which socially responsible governance mechanisms can improve performance. Based on TCE and RBV theories, supplier selection and supplier development of socially responsible governance mechanisms explain the improvements in social and environmental performance. Earlier studies on the relationship between the supplier development (assessment and collaboration) governance mechanism and firm performance were based TCE and RBV. However, TCE theory emphasises the supplier selection decisions rather than supplier development. This study contributes to the existing
literature on governance mechanisms, with TCE theory underlying the relationship between supplier selection and firm performance.

7.3.3 Methodological Implications

The model proposed in the study is a formative hierarchical component model, which contributes to expanding understanding on component models. In prior research, increased attention has been given to hierarchical component models with reflective relationships (Becker, Klein & Wetzels 2012). The excessive use of reflective higher-order constructs leads to meaningless and misleading models (Lee & Cadogan 2013). By defining constructs with formative indicators and using the Reflective-Formative Type II model, this study avoided problems of bias associated with model misspecification (Jarvis, MacKenzie & Podsakoff 2003; Becker, Klein & Wetzels 2012). In particular, the use of a repeated-indicator approach for the hierarchical component model evaluation contributes to more accurate parameter estimates and more reliable higher-order construct scores. Specifically, for formative higher-order constructs as specified in this thesis, the weights of the lower-order constructs are crucial as they represent actionable elements influencing the higher-order constructs (Becker, Klein & Wetzels 2012).

This study contributes to the model validation by calculating $R^2$ value. The $R^2$ value for performance was calculated by using a two-stage approach. As asserted by Ringle, Sarstedt and Straub (2012), to determine $R^2$, the two-stage approach is appropriate in combination with the repeated-indicator approach. It is important for studies employing PLS to report the $R^2$ values for all endogenous constructs in the models, and any attempts not to report the $R^2$ values and replace them with others, such as goodness-of-fit values, is considered incorrect (Hulland 1999).
Finally, this study contributes to moderator analysis, with formative indicators in the PLS methodology. To examine the moderating effects of formative indicators, a two-stage approach with the repeated-indicator approach suggested by Henseler and Fassott (2010) was followed in this study. In the case of a moderator with a formative indicator, multiple linear regression was performed to calculate the interaction terms of the independent latent scores and moderator variables.

**7.3.4 Practical Implications**

The findings of this study have several practical contributions. First, it reveals the key governance mechanisms that need to be considered for the implementation of social responsibility and their influence on firm performance. Understanding these mechanisms will enable practitioners to improve organisational performance successfully. A simple operational application of the model for practitioners is to set the criteria for selecting and to assess the suppliers in order to identify the areas that need improvement. This study offers several recommendations for practitioners who seek to implement social responsibility in a developing economy:

- Managers from buying organisations or retailers need to offer continual support and commitment by allocating the necessary resources to improve and facilitate the social responsibility implementation. This includes collaboration with suppliers and assessment of their capabilities.

- Managers from retailers need to offer training to improve suppliers’ skills in the areas of compliance with the buyer code of conduct and standards such as ALLIANCE and ACCORD.
• Managers should place emphasis on minimising the issues in buyer-supplier relationships related to goal conflicts, risk aversion, and information asymmetry in order to improve supplier firm performance.

• Managers need to be aware of the initial investments required for the implementation of social responsibility in supply chains. From the findings of the analysis, it can be noted that improvements in social responsibility will not directly improve economic performance. This indicates that the implementation of social responsibility results in incurring costs for the suppliers that may impact on the bottom line of an organisation.

This research also offers solutions for the uncertainties that the apparel industry may face in the future. These research findings can help government policy makers and industry leaders identify appropriate practices to enable the implementation of social responsibility in the supply chain. The following recommendations can make a difference to the promotion of social responsibility in the Bangladeshi apparel industry:

• This study encourages the active involvement of buyers in directly auditing and assessing suppliers; by minimising the use of third-party auditors, buyers would maintain close relationships with suppliers and develop capabilities that offer competitive advantage.

• Trade bodies like the BGMEA, NGOs, regulators, and even competitors should develop the auditing and compliance capabilities of suppliers, which can significantly increase suppliers’ compliance with social aspects.

• The results suggest that both suppliers and buyers need to invest in developing collaborative and innovative capabilities, with the aim of minimising issues related to goal conflicts, risk aversion, and information asymmetry, thus gaining competitive
advantage and improving worker safety and welfare.

- This study provides both a framework and an assessment tool to strategize social responsibility practices. Practitioners can use the proposed model as a decision tool to locate, measure, and manage their social responsibilities and identify strategies to improve them.

7.4 Limitations

While this research has successfully demonstrated the positive impact of socially responsible governance mechanisms on a firm’s social and environmental performance in the Bangladeshi apparel industry, there are several limitations that need to be acknowledged. First, the data collected in this study was restricted to the Bangladeshi apparel industry, with a limited number of participants. While this enhanced internal validity, it resulted in problems with regard to generalisation. Therefore, the findings of this research are limited to the Bangladeshi apparel industry context. It may be inappropriate to use the findings of this study in other industries, in particular capital-intensive industries.

Second, the data for this study was collected in a cross-sectional manner, indicating that the perceptions regarding socially responsible governance mechanisms and firm performance were collected at a single point in time, whereas conditions and influences can change over time. Therefore, a better understanding of the causal relationships between the constructs examined could be achieved through the adoption of a longitudinal research design (Dean & Sharfman 1996).

Third, as a quantitative study, the findings are limited to the understanding of what impacts socially responsible governance mechanisms have on firm performance. The results from the path analysis do not explain, for certain, how the governance mechanisms influence firm
performance. In addition, they do not examine the recursive relationship. The path analysis can reveal the significant relationships between the exogenous and endogenous variables, but it is insufficient in providing subjective information, which may need to be addressed through a qualitative method (Brannen 2009).

Finally, several items used to design the instruments were tested and validated based on data collected from Bangladeshi apparel manufacturers, i.e. in the context of a developing nation. In developing economies, social responsibility is still evolving and is constantly changing. As such, it is likely that the instrument looks slightly different from the literature tested in developed economies.

**7.5 Direction for Future Research**

Based on the findings and limitations, this section will propose directions for future research. First, this study is an initial attempt to empirically examine the relationship between socially responsible governance mechanisms and firm performance in the context of the Bangladeshi apparel industry. As the study was conducted in the context of the Bangladeshi apparel industry, more work is needed to understand the importance of socially responsible governance mechanisms in other leading apparel exporting countries, such as Vietnam and Cambodia. The proposed model should also be examined in other labour-intensive industries and countries, such as Vietnam or Cambodia (apparel), Ghana (chocolate), and Thailand (plastics). Such a research undertaking would increase the generalisation (external validity) of the current research findings, contributing to refining the developed instrument and establishing the model’s predictive validity.

Second, the results of this study only tested the relationships between governance mechanisms and firm performance. It is also possible that firms with sound financial
performance might drive the implementation of socially responsible governance mechanisms. Future research needs to focus on examining the recursive relationship of whether sustainably performing companies increasingly invest in socially responsible governance. To measure performance, this study employed self-reported measures from the perspectives of suppliers. Considering accounting-based performance measures would provide an opportunity to understand the impact of socially responsible governance mechanisms on a firm’s actual performance.

Third, to minimise the effect of respondent bias from tier-1 suppliers, future research undertakings need to validate/revalidate the current research model and its instrument by collecting data from the other tiers of suppliers, including tier-2 and tier-3 suppliers. These suppliers may include organisations and/or entities that are subcontracting manufacturing facilities for multinational retailers.

Finally, future studies should focus on theory building by providing insights specific to buyer-supplier dyads. This may provide the perceptions and opinions of both buyers and suppliers on the implementation of social responsibility.

7.6 Final Concluding Remarks

In turbulent environments, such as in the aftermath of the Rana Plaza collapse, many multinational retailers have been struggling to implement socially responsible practices in their suppliers’ manufacturing facilities. In the past, researchers in the field of supply chains and operations have emphasised the environmental aspects of social responsibility rather than the social aspects. Against this background, this study has considered supplier selection, with operational, socially sustainable, and environmentally sustainable practices, and supplier development as the effective governance mechanisms for implementing social responsibility.
at manufacturing facilities in apparel supply chains. In addition, this study has also investigated the impact of socially responsible governance mechanisms on a firm’s social, environmental, and economic performance.

The results have suggested that supplier selection and supplier development mechanisms have a positive impact on the environmental and social performance of the supplier firm and act as a driving factor for the implementation of social responsibility. However, the negative impact of supplier selection on a firm’s economic performance can be explained by the financial resources required for social responsibility investments. The results have also suggested that supplier development has a mediating effect on supplier selection and a firm’s environmental and social performance. The findings of the study have identified that agency problems related to having multiple goals, a lack of information, and a risk-aversive nature exist in the relationship between multinational retailers and manufacturers. In addition, agency problems will affect the supplier selection and supplier development in relation to the relationship between a firm’s economic and environmental performance. Further, the results have also shown that environmental performance is positively related to economic performance.

This research study has contributed to the establishment and validation of a research framework on the relationship between socially responsible governance mechanisms and firm performance. TCE and RBV theories provided a theoretical lens for explaining the relationship between socially responsible governance mechanisms and firm performance. Further, agency theory underlined the problems in buyer-supplier relationship and its impact on the relationship between governance mechanisms and firm performance. In addition, the results of this study also provided several managerial implications.
7.7 Summary

This chapter has provided a conclusion to the overall findings of the research. The research objectives proposed in Chapter 1 were revisited in this chapter and addressed based on the results in Chapter 5 and the discussion in Chapter 6. Figure 7.1 illustrates the links between the chapters in the thesis and its research question and objectives. This chapter has also outlined the research, theoretical, methodological, and practical implications of the study. Further, this chapter has highlighted the limitations of the research and proposed potential areas for future study. Finally, this chapter ended with an overall conclusion of the study and a summary of its findings.

Figure 7.1: Links between the thesis chapters and the research question and objectives
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APPENDIX

Appendix A: Ethics Approval

Notice of Approval

Date: 13 February 2014
Project number: 16518
Project title: Extending Social Responsibility to Garment Suppliers/Manufacturers in Developing Nations in the context of Global Supply Chains
Risk classification: Negligible Risk
Principal Investigator: Professor Shams Rahman
Student Investigator: Mrs Aswini Yadlapalli
Other Investigator: Mr Leon Teo
Project Approved: From 6 February 2014 To 4 March 2017

Terms of approval:

1. Responsibilities of the principal investigator
   It is the responsibility of the principal investigator to ensure that all other investigators and staff on a project are aware of the terms of approval and to ensure that the project is conducted as approved by BCHEAN. Approval is only valid while the investigator holds a position at RMIT University.

2. Amendments
   Approval must be sought from BCHEAN to amend any aspect of a project including approved documents. To apply for an amendment submit a request for amendment form to the BCHEAN secretary. This form is available on the Human Research Ethics Committee (HREC) website. Amendments must not be implemented without first gaining approval from BCHEAN.

3. Adverse events
   You should notify BCHEAN immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.

4. Participant Information and Consent Form (PICF)
   The PICF must be distributed to all research participants, where relevant, and the consent form is to be retained and stored by the investigator. The PICF must contain the RMIT University logo and a complaints clause including the above project number.

5. Annual reports
   Continued approval of this project is dependent on the submission of an annual report.

6. Final report
   A final report must be provided at the conclusion of the project. BCHEAN must be notified if the project is discontinued before the expected date of completion.

7. Monitoring
   Projects may be subject to an audit or any other form of monitoring by BCHEAN at any time.

8. Retention and storage of data
   The investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

Regards,
Professor Roslyn Russell
Chairperson
RMIT BCHEAN
INVITATION TO PARTICIPATE IN A RESEARCH PROJECT

PROJECT INFORMATION STATEMENT

Project Title:
Extending Social Responsibility to Garment Suppliers/Manufacturers in Developing Nations in the context of Global Supply Chains

Investigators:
Mrs. Aswini Yadlapalli (PhD candidate, aswini.yadlapalli@rmit.edu.au, +613 9925 1472)
Professor Shams Rahman (Supervisor, shams.rahman@rmit.edu.au, +613 9925 5530)

Dear Participant,

You are cordially invited to participate in a research project being conducted by RMIT University. This survey will take approximately 30 minutes. This letter provides you with an overview of the proposed research. Please read these pages carefully and be confident that you understand its contents before deciding whether to participate. Because of the nature of data collection, we are not obtaining written informed consent from you. Instead, we assume that you have given implied consent by completion and return of the questionnaire. If you have any questions about the project, please ask any of the investigators identified above.

Who is involved in this research project?
I am Aswini Yadlapalli, currently a research student in the school of Business IT and Logistics at RMIT University, Melbourne, Australia. This project is conducted as a part of my PhD degree. My supervisor for this project is Professor Shams Rahman. This project has been approved by the RMIT Business Human Resource Ethics Committee.
Why is it being conducted?
The aim of the project is to understand how social responsibility can be implemented at garment manufacturer facilities in Bangladesh and their impact on performance.

Why have you been approached?
You and your company have been randomly selected, as the project aims to collect information from Australian retailers and Bangladesh garment suppliers/manufacturers to provide insights on social responsible activities. Contact details of suppliers/manufacturers are obtained from Bangladesh Garment Manufacturers Export Association (BGMEA) website and Australian retailers’ details are obtained from public directories such as yahoo.com.

What is the project about? What are the questions being addressed?
The project is about extending social responsibility to garment suppliers/manufacturers in global supply chains. Social responsibility is defined as the integration of social and environmental concerns in their business operations that contributes to economic performance. So your participation is important for us to identify and categorise the social responsible governance mechanisms at suppliers/manufacturers while looking into the relationship problems between retailers and suppliers/manufacturers in global supply chains. By answering this questionnaire, you will provide us with an invaluable insight on critical determinants of social responsible supply chain between retailers in developed nations and garment suppliers/manufacturers in Bangladesh garment industry.

If I agree to participate, what will I be required to do?
If you agree to participate, you will be required to spend approximately 30 minutes to complete this survey. You will need to answer a few basic demographic questions and also respond to questions about governance mechanisms in retailers-suppliers/manufacturers relationship and its impact on performance. These questions will be in the form of statements that you will rate on a scale ranging from strongly disagree to strongly agree.

What are the possible risks or disadvantages?
There is no risk associated with participating in this survey. However, if you are unduly concerned about your responses to any of the questionnaire items or if you find participation in the project distressing, you should contact Professor Shams Rahman as soon as convenient. Shams will discuss your concerns with you confidentially and suggest appropriate follow-up, if necessary.

What will happen to the information I provide?
Your privacy and confidentiality will be strictly maintained in such a manner that you will not be identified in the thesis report or any related publication. Any information that you provide can be disclosed only if (1) it is to protect you or others from harm, (2) if specifically required or allowed by law, or (3) you provide the researchers with written permission. Data will be only seen by my supervisors and examiners who will also protect you from any risk.
To ensure that data collected is protected; data will be saved on the university network system where practicable only the researcher/s will have access to the data. Findings of this study will be disseminated in PhD thesis, presented at conferences and published in journals. The final thesis and published research papers will remain in RMIT online repository as an Appropriate Durable Record (ADR).

Information about web-based surveys
This project will use an external site to create, collect and analyse data. The site we are using is Qualtrics. If you agree to participate in this survey, responses you provide to the survey will be stored on a host server that is used by Qualtrics. Once we have completed our data collection and analysis, we will import the data we collected to the RMIT server and then data will be deleted and expunged. In RMIT server the data is stored for a period of five (5) years before destroyed.

What are my rights as a participant?
As a participant you have right to withdraw from participation at any time, can request for any record cease and have right to have any questions answered at any time. The unprocessed data can be withdrawn and destroyed, provided it can be reliably identified and provided that does not increase the risk for the participant.

I am assuring you that responses will remain confidential and anonymous.

Whom should I contact if I have any questions?
If you have any queries regarding this project please contact me at (+613 ) 9925 1472 or email me at aswini.yadlapalli@rmit.edu.au or Professor Shams Rahman (+613) 9925 5530 or email him at shams.rahman@rmit.edu.au

Thank you very much for your contribution to this research.

Yours Sincerely,
Aswini Yadlapalli
PhD Student
School of Business IT and Logistics
RMIT University
Bld 80 Level 8
445 Swanson Street
Melbourne 3000
AUSTRALIA
This questionnaire is the key part of this study on extending social responsibility to garment suppliers/manufacturers. We define governance as the way of creating and maintaining relationship. Asymmetric relationship between retailers and suppliers/manufacturers causes agency problems that affect the relation between governance mechanisms and performance.

ALL INFORMATION WILL REMAIN STRICTLY CONFIDENTIAL

To maintain anonymity, please do not write your name on the questionnaire. However, if you would like a summary of results, please contact Aswini Yadlapalli by phone, fax or email as per contact details provided in the email.

The instructions below will assist you in completing the questionnaire:
- Below is an example how to complete the questionnaire:

By circling 4, your response is more towards strongly agree that your organisations selection of suppliers is on their treatment of waste water.
- It is important that you PLEASE ANSWER ALL QUESTIONS to the best of your knowledge, even if some may appear to be similar. Your answers to all sections of this questionnaire are vital to the success of this study. Unfortunately partly answered surveys are not useable. Therefore, please do not leave questions unanswered.
- There are no right or wrong answers.
- If you wish to comment on any of the questions, please use the space provided at the end of the questionnaire.
- The findings of this study will be reported in an aggregated form, so no organization, department or individual respondent can be identified.
- If you have any queries or comments about questionnaire, please do not hesitate to contact Aswini Yadlapalli at 61-3-9225-1472, or via email: aswini.yadlapalli@rmit.edu.au

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We appreciate highly your time and effort to participate in this research project. If you would like a copy of the findings sent to you, please phone, fax or send your business card separately to the questionnaire. The answers to the survey will be kept in strict confidence. The names of participating individuals, departments and companies will not be released.

**PART1: RESPONDENT PROFILE**

The following information requires details of the respondents. Please indicate your response in the box provided.

1. What is your position in the organisation?
   - Executive officer □
   - Senior/Higher executive officer □
   - Assistant manager □
   - Manager □
   - Senior manager □
   - Head of unit □
   - Head of department □
   - Deputy director □
   - Director □
   - Owner □
   - Others, please specify: ____________________

2. Which department are you associated to?
   - Production □
   - Supply chain □
   - Operations □
   - Sales □
   - Procurement □
   - Others, please specify: ____________________

3. What is your level of education?
   - Post-Secondary/Secondary □
   - Diploma □
   - Graduate/Bachelors □
   - Post-graduate/Masters □
   - PhD □

4. Do you have managerial experience?
   - Yes □
   - No □

5. How many years of managerial experience you have?
   - 1 year or less □
   - 02-05 years □
   - 06-10 years □
   - 11-15 years □
   - 16-20 years □
   - above 20 years □

6. Do you have managerial experience in garment/retail industry?
   - Yes □
   - No □

7. How many years of managerial experience you have in garment/retail industry?
   - 1 year or less □
   - 02-05 years □
   - 06-10 years □
   - 11-15 years □
   - 16-20 years □
   - above 20 years □

8. Number of employees in your organisation:
   - 1-50 □
   - 51-200 □
   - 201-500 □
   - 00-1000 □
   - more than 1000 □

9. Number of years that your organisation has been operating:
   - Less than 3 years □
   - 3-5 years □
   - 6-10 years □
   - 11-15 years □
   - 16-20 years □
   - 21-30 years □
   - more than 30 years □
10. Last 3 Financial Year’s average annual sales in Australian dollar (A$):  
- Less than 1 million  
- 2 - 5 million  
- 6-10 million  
- 11-20 million  
- 21-30 million  
- 31-50 million  
- 51-100 million  
- 101-200 million  
- 201-500 million  
- 501-1000 million  
- Greater than 1000 million  

11. Your organisation is ________ in this business alliance:  
- Garment suppliers/manufacturers  
- Retailer  

12. Location of business operations:  
- Dhaka  
- Chittagong  
- Adamjee  
- Dhaka EPZ  
- Chittagong EPZ  
- Adamjee EPZ  
- Mongla EPZ  
- Ishwardi EPZ  
- Comilla EPZ  
- Uttara EPZ  
- Karnaphuli EPZ  
- Others, please specify: ___________  

13. Type of organisation (based on paid up capital):  
- Bangladeshi owned  
- Joint venture  
- Foreign owned  

14. What category of product your organisation produces?  
- Woven  
- Knitware  
- Others, please specify: ________________  

15. What is your organisation production capacity per month?  
- 5,000 dozens or less  
- 10,000-5,000 dozens  
- 10,000 dozens or more  

16. What is the major channel through which your organisation receives new orders?  
- Buying houses  
- Directly from retailers  
- Trade fair and exhibition  
- E-market place  
- Others, please specify: ___________  

17. Principal export destination:  
- USA  
- European Union (EU) countries  
- Canada  
- Australia  
- Japan  
- India  
- Mexico  
- South Africa  
- Others, please specify: ___________  

18. What percentage of your total exports is to Australia? ______________
Supplier selection is a stage in the process of acquiring required materials, services and equipment by assessing supplier capabilities. In this study, selection of suppliers is based on three major criteria: environmental, social and economic. The following questions refer to the criteria of supplier selection. Please indicate your response by circling on the following scales.

1. Environmentally sustainable criteria

<table>
<thead>
<tr>
<th>Construct</th>
<th>Keyword</th>
<th>Measurement Item</th>
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<th>2</th>
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<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC 1</td>
<td>Waste treatment</td>
<td>Our customers select us based on our treatment of wastes</td>
<td>1</td>
<td>2</td>
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<td>6</td>
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<tr>
<td>ESC 2</td>
<td>Raw material consumption</td>
<td>Our customers select us based on our efficiency of raw material consumption</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>ESC 3</td>
<td>Policies/plans</td>
<td>Our customers select us based on our compliance with local environmental protection policies/plans</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>ESC 4</td>
<td>Certifications</td>
<td>Our customers select us based on our environment related certification such as ISO 14001</td>
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2. Socially sustainable criteria

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<thead>
<tr>
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<th>Keyword</th>
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</tr>
</thead>
<tbody>
<tr>
<td>SSC 1</td>
<td>Discrimination</td>
<td>Our customers select us based on our procedures to prevent discrimination against gender, race and ethnicity</td>
<td>1</td>
<td>2</td>
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<tr>
<td>SSO 2</td>
<td>Safety training</td>
<td>Our customers select us based on our workplace safety training procedures</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>SSO 3</td>
<td>Fair work practices</td>
<td>Our customers select us based on our fair work place practices regarding working hours and compensation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>SSO 4</td>
<td>Child labour</td>
<td>Our customers select us based on our practices to eliminate child labour</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>SSO 5</td>
<td>Compulsory labour</td>
<td>Our customers select us based on our strategies to eliminate all forms of forced or compulsory labour</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>SSO 6</td>
<td>Accountability</td>
<td>Our customers select us based on accountability for our actions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>SSO 9</td>
<td>Building safety</td>
<td>Our customers select us based on our working environment safety standards such as building fire safety</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
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</tbody>
</table>

3. **Operational selection criteria**

<table>
<thead>
<tr>
<th>Construct</th>
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<th>Measurement Item</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Neutral</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSC 1</td>
<td>Product cost</td>
<td>Our customers select us based on the product cost</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>OSC 2</td>
<td>Ordering costs</td>
<td>Our customers select us based on the ordering costs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>OSC 3</td>
<td>Quality</td>
<td>Our customers select us based on the quality of the products and services</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>OSC 4</td>
<td>Delivery performance</td>
<td>Our customers select us based on capability to deliver on time</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
Supplier development is defined as any effort of a firm to increase performance and/or capabilities to meet the firm’s short-and/or long-term supply needs. The following questions refer to assessment and collaboration activities of supplier development. Please indicate your response by circling on the following scales.

1. Supplier Assessment

<table>
<thead>
<tr>
<th>Construct</th>
<th>Keyword</th>
<th>Measurement Item</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Neutral</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA 1</td>
<td>Evaluation</td>
<td>Our customers assess our performance through formal evaluation, using established guidelines and procedures.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>SA 2</td>
<td>Feedback</td>
<td>Our customers provide us with feedback about results of their evaluation.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>SA 3</td>
<td>Audits</td>
<td>Our customers perform environmental audits of internal management systems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>SA 4</td>
<td>Certification</td>
<td>Our customers use certification program to certify us, thus making incoming inspection unnecessary.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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</tbody>
</table>

2. Supplier Collaboration

<table>
<thead>
<tr>
<th>Construct</th>
<th>Keyword</th>
<th>Measurement Item</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Neutral</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC 1</td>
<td>Visit</td>
<td>Our customers visit our premises to help us to improve performance.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
### Training
Our customers provide training/education to our personnel.

### Joint efforts
Our customers make joint efforts with us to reduce waste.

### Awareness
Our customers invite us their site to increase awareness of how product is used.

---

**PART 4: AGENCY PROBLEMS**

Agency relationship refers to the cooperation and engagement between two parties wherein one party (the principal) delegates decisions and/or work to another (an agent) to act on its behalf. An agency problem arises when the two parties in agency relationship have different level of information, conflicting goals and risk preferences. The following questions refer to the agency problems. Please indicate your response by circling on the following scales.

1. **Information Asymmetry**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Keyword</th>
<th>Measurement Item</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Neutral</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA 1</td>
<td>Relevant</td>
<td>Our organisation and supply chain partners do not exchange relevant information</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>IA 2</td>
<td>Timely</td>
<td>Our organisation and supply chain partners do not exchange timely information</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>IA 3</td>
<td>Accurate</td>
<td>Our organisation and supply chain partners do not exchange accurate information</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>IA 4</td>
<td>Confidential</td>
<td>Our organisation and supply chain partners do not exchange confidential information</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>IA 5</td>
<td>Complete</td>
<td>Our organisation and supply chain partners do not exchange complete information</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>IA 6</td>
<td>Requirements</td>
<td>Our organisation and supply chain partners do not exchange requirements or specifications</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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</tbody>
</table>
### 2. Goal Conflicts

<table>
<thead>
<tr>
<th>Construct</th>
<th>Keyword</th>
<th>Measurement Item</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Neutral</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>GC 1</td>
<td>Supply chain</td>
<td>Our organisation and supply chain partners does not have agreement on the goals of the supply chain</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>GC 2</td>
<td>Collaboration</td>
<td>Our organisation and supply chain partners does not have agreement on the importance of collaboration across the supply chain</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>GC 3</td>
<td>Improvements</td>
<td>Our organisation and supply chain partners does not have agreement on the importance of improvements that benefit the supply chain as a whole</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>GC 4</td>
<td>Individual goals</td>
<td>Our organisation and supply chain partners do not agree that our own goals can be achieved through working toward the goals of the supply chain</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>GC 5</td>
<td>Implementation plans</td>
<td>Our organisation and supply chain partners do not have collaboration implementation plans to achieve the goals of the supply chain</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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### 3. Risk Aversion

<table>
<thead>
<tr>
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<th>Keyword</th>
<th>Measurement Item</th>
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<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Neutral</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA 1</td>
<td>Chances</td>
<td>Our organisation do not feel comfortable about taking chances with new supply chain partners</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>RA 2</td>
<td>Uncertain outcomes</td>
<td>Our organisation avoid situation that have uncertain outcomes</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>RA 3</td>
<td>Higher reward</td>
<td>Our organisation is comfortable improvising in higher reward situations</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>6</td>
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</tbody>
</table>
Performance measures are used to assess the impact of the activities. In literature CSR performance at organisational level is measured using environmental, social and economic (triple bottom line) indicators. The following questions refer to the CSR performance measures. Please indicate your response by circling on the following scales.

### 1. Environmental Performance

<table>
<thead>
<tr>
<th>Construct</th>
<th>Keyword</th>
<th>Measurement Item</th>
<th>1</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ENP 1</td>
<td>Energy efficiency</td>
<td>Our organisation is satisfied with this partnership in terms of energy efficiency</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>ENP 2</td>
<td>Risks</td>
<td>Our organisation is satisfied with this partnership in terms of environmental impacts and risks to general public</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>ENP 3</td>
<td>Compliance</td>
<td>Our organisation is satisfied with this partnership in terms of compliance with environmental laws</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>ENP 4</td>
<td>Reputation</td>
<td>Our organisation is satisfied with this partnership in terms of environmental reputation</td>
<td>1</td>
<td>2</td>
<td>3</td>
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### 2. Social Performance

<table>
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<tr>
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<th>Keyword</th>
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</tr>
</thead>
<tbody>
<tr>
<td>SOP 1</td>
<td>Initiatives</td>
<td>Our organisation is satisfied with this partnership in terms of awareness among employees on initiatives such as healthcare, insurance schemes and safety programs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>SOP 2</td>
<td>Health and</td>
<td>Our organisation is satisfied with this partnership in terms of employees</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<td>Strongly Agree</td>
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<tr>
<td>SOP 3</td>
<td>Worker rights</td>
<td>Our organisation is satisfied with this partnership in terms of awareness and</td>
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<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
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<td></td>
</tr>
<tr>
<td>SOP 4</td>
<td>Community development</td>
<td>Our organisation is satisfied with this partnership in terms of community</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
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<td>involvement and development</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOP 5</td>
<td>Stakeholder welfare</td>
<td>Our organisation is satisfied with this partnership in terms of overall</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td></td>
<td></td>
<td>stakeholder welfare or betterment</td>
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3. **Economic Performance**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Keyword</th>
<th>Measurement Item</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Neutral</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
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</thead>
<tbody>
<tr>
<td>ECP 1</td>
<td>Return on investment</td>
<td>Our organisation is satisfied with this partnership in terms of return on</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>ECP2</td>
<td>Owners’ equity</td>
<td>Our organisation is satisfied with this partnership in terms of owners’ equity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<td>ECP 3</td>
<td>Profit margin</td>
<td>Our organisation is satisfied with this partnership in terms of profit margin</td>
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<td>6</td>
<td>7</td>
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<tr>
<td>ECP 4</td>
<td>Sales volume</td>
<td>Our organisation is satisfied with this partnership in terms of sales volume</td>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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</tr>
<tr>
<td>ECP 5</td>
<td>Market share</td>
<td>Our organisation is satisfied with this partnership in terms of market share</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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Appendix C: Items Removed During Factor Analysis

<table>
<thead>
<tr>
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<th>Items Deleted</th>
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</thead>
<tbody>
<tr>
<td>SSC 5</td>
<td>Accountability Our customers select us based on accountability for our actions</td>
</tr>
<tr>
<td>ESC5</td>
<td>Certifications Our customers select us based on their environment related certification</td>
</tr>
<tr>
<td>SA4</td>
<td>Certification Our customers use certification program to certify us, thus making incoming inspection unnecessary</td>
</tr>
<tr>
<td>SC5</td>
<td>Awareness Our customers invite us to their site to increase our awareness of how product is used.</td>
</tr>
<tr>
<td>SOP 5</td>
<td>Stakeholder welfare Our organisation is satisfied with this partnership in terms of overall stakeholder welfare or betterment</td>
</tr>
<tr>
<td>ECP 2</td>
<td>Owners’ equity Our organisation is satisfied with this partnership in terms of owners’ equity</td>
</tr>
</tbody>
</table>